MARCH 1986
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E&MM

ELECTRONICS & MUSIC MAKER
THE MUSIC TECHNOLOGY MAGAZINE

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PROPHET VS

Sequential's First Digital Synth Revealed

STEVE REICH

The Modern Music System

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DRUM THEATRE

Hi-tech Keyboards meet Ethnic Roots

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Comment

BACK TO THE FUTURE

What was it that made you first think of using modern technology to make music? Was it the sight of other musicians using synthesisers? Was it the fact that hi-tech instruments seemed easier to play than most of the traditional variety? Or was it the promise of a completely new area of sound, an area in which you could create your own, previously unheard and completely individual sound textures, just by turning a few dials and flicking a few switches?

It's impossible to speak for everybody, but I'd lay a sizeable bet that most E&MM readers took up hi-tech instruments for the last reason, that of unrivalled sound-creation possibilities. You only have to look at the way synthesisers were (still are) advertised, with phrases like 'new horizons of sound limited only by your own imagination', to realise that modern technology's biggest musical attraction is the sheer *potential* it offers the would-be sound-creator.

Or at least, that certainly *was* the case a year or two ago. But in March 1986, the month Electronics & Music Maker celebrates its fifth birthday as Britain's leading music technology magazine, I'm not so sure it still is. I am sure that the *fascination* for new sounds still exists among today's young aspiring technology users, but what's changed is the degree to which that fascination can be turned into reality by the individual player.

Let's look at how things have changed in the half-decade E&MM has been around. The average synth of five years ago was an awkward, unwieldy affair: if it hadn't had a keyboard stuck on the front of it, it wouldn't have looked like a musical instrument at all. And half the time, the people using it weren't really interested in music; they were experimenters, laboratory boffins just as keen to study waveforms on oscilloscopes as they were to enrich the world's vocabulary of machine-generated sound.

Not surprising, then, that synthesisers quickly gained a reputation for being workshop instruments, new toys for engineers – rather than musicians – to dabble with.

Then, somewhere along the line, things began to change. The technology got cheaper, so more people outside research labs and megastar studios could get involved with synthesis than ever before. And the machines themselves got more 'musical': their control panels became more logically laid out, their keyboards got more responsive, and then, to cap it all, someone had the bright idea of giving them programmable memory locations, so that if your twiddling and fiddling did produce something worthwhile, you could store it away for safe keeping.

There was a spirit of adventure surrounding music technology in those days, yet I can't help feeling it's a spirit that's now dying a slow, rather painful death. Thanks to some of the music industry's less welcome innovations (digital parameter access, trimming of parameter numbers, 'soft-touch' buttons – cost-cutting exercises all), the average synth of 1986 does little to encourage adventurous programming.

Regular observers of E&MM's artist interviews will probably have noted that, while some players have mourned the passing of yesterday's attitudes and stuck with yesterday's gear as a result, a greater number have recently taken the opposite stance: suddenly, they just can't see *why* they should make the effort to program new sounds – it's just too much hassle.

In the wake of this programming apathy, tapes, disks, cartridges and chips full of new, ready-programmed sounds have formed a miniature boom industry, while the instruments they're designed for become increasingly inaccessible and laden with larger and larger numbers of preset voices.

Inevitably, what this leads to is a new generation of records with the same synth sounds on them, and a new generation of synth players who see their instruments merely as preset instruments, street-cred equivalents of the much-maligned home organ. And the deeper that feeling sets in, the more likely it is that young people will shy away from keyboards and take up drumming or guitar playing instead; they may, heaven forbid, decide it's not worth playing music after all.

In his appraisal of two CZ editing packages elsewhere this issue, Simon Trask makes much the same sort of point. Yet even in the area of software, I'm not so sure technology is really being applied in the most easily accessible way. Sure, there's no denying it's handy to see an instrument's variable parameters, graphically displayed, in glorious Technicolor, on a telly screen. But if there's a computer between that display and the instrument it represents, then surely such a system only demolishes one barrier by setting up another one?

Struggling down the aisles of this year's Frankfurt Musikmesse, my arms overloaded with information on the latest gear (see report elsewhere this issue), I was greeted with some more sad news. The Akai AX60, a polysynth that returned to analogue control for all its variable parameters, has been replaced by a new model before it's even been made available. Needless to say, the new model has digital parameter access, so that although it offers more facilities for the same money, it presents them in a much less accessible way. And in the field of new sampling technology, I was presented with the (not unexpected) news that the likes of Sequential and Ensoniq are selling factory voicing disks as fast as they can make them, as users give up the idea of DIY sampling and use someone else's sounds instead.

Of the major hi-tech music companies exhibiting at Frankfurt, only Roland were persevering with add-on analogue programming modules; they may cost extra, but at least Roland synth owners have the option to program their instruments in what is still the swiftest, most logical and most versatile way.

Maybe at Frankfurt '87, a few more designers will realise that in order to leap forward into the future, music technology may have to take a couple of steps back. ■Dg

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FRANKFURT REVIEW

CHASE STOLE THE SHOW AND HERE'S WHY

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Plus, Plus, Plus...

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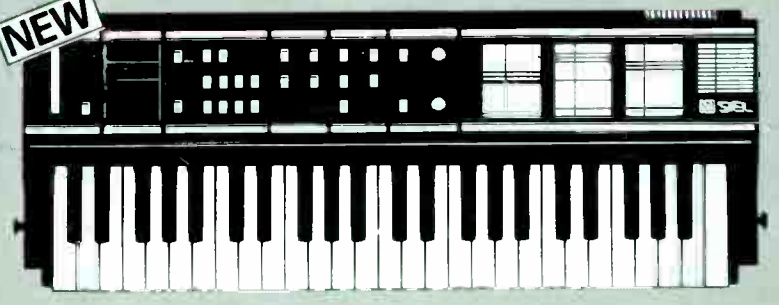
INTRODUCTORY OFFER £499

CASH PRICE	£499
DEPOSIT	£50
104 WEEKLY PAYMENTS	£5.87
TOTAL CREDIT PRICE	£661.12

NEW



SIEL DK70 MIDI SYNTHESIZER

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UNBEATABLE SYNTHESIZERS

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CHASE PRICE **£499**

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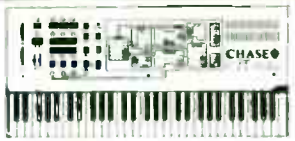
CHASE BIT 99 SYNTH



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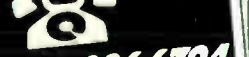

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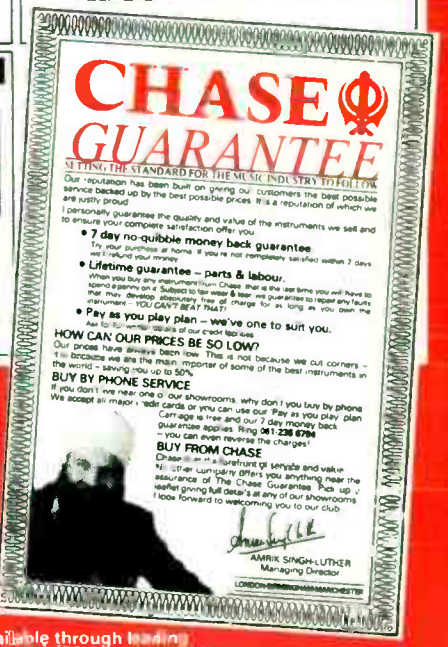

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Newsdesk

Quiz Masters

Yes, the moment has come. After sifting through literally hundreds of entries, we've selected the few lucky winners of January's Quiz of the Decade competition.

As you may recall, the Quiz was divided into three parts: a fiendishly difficult wordsearch, an almost unbelivably tricky name-that-tune section, and a well-nigh incomprehensible crossword that was made all the more difficult by a couple of unfortunate production errors that resulted in some of the clues being published wrong or, in one case, omitted altogether.

Yet despite the Quiz's complexity, E&MM readers once again did the magazine proud by not only entering in numbers, but getting a high proportion of the answers right, too.

Anyway, winner of the wordsearch section – and therefore a set of three Akai MIDI effects units, total retail value around £300 – is Dave Holroyd of Leeds who, like most of the wordsearch fans who entered, had little trouble circling the hi-tech terms concealed within the competition grid.

Victor in the name-that-tune competition is Byron Burrows of Droitwich, Worcs, who will shortly be receiving his prize of a JMS Scorewriter software package for the Commodore 64. The music – printed out by said software – was correctly identified by most of you as the lead synth line from 'Take On Me' by A-Ha. Not very difficult at all, really.

Finally, the first Casio/Keyfax all-correct crossword solver pulled out of the hat was Steve Windsor of Congleton in Cheshire, shortly to be the proud owner of a duo of Casio goodies: a CZ101 polysynth and an SZ1 multitrack digital sequencer. Well done, Steve, and well done, also, to the following crossword entrants who each get copies of Julian Colbeck's excellent 'Keyfax' book as consolation prizes. The runners-up are: Andrew Pointon, Leek, Staffs; Sean Berg, London E1; Simon Lowther, Basingstoke, Hants; Fiona Williams, Hersham, Surrey; Andrew Wright, London SW16; Graham Moore, Leicester; Eric Bludis, Antwerp, Belgium; F Edmonds, Plymouth; Martin Baker, Birmingham; Jonathan Thomson, Purley, Surrey; Ken Zetie, Maidenhead, Berks; Huw Jones, Prestatyn, Clwyd; S B Rainsbury, Gillingham, Kent; J Juss, Wolverhampton; and Graham Byrne, Oldham. Prizes will be forwarded in due course.

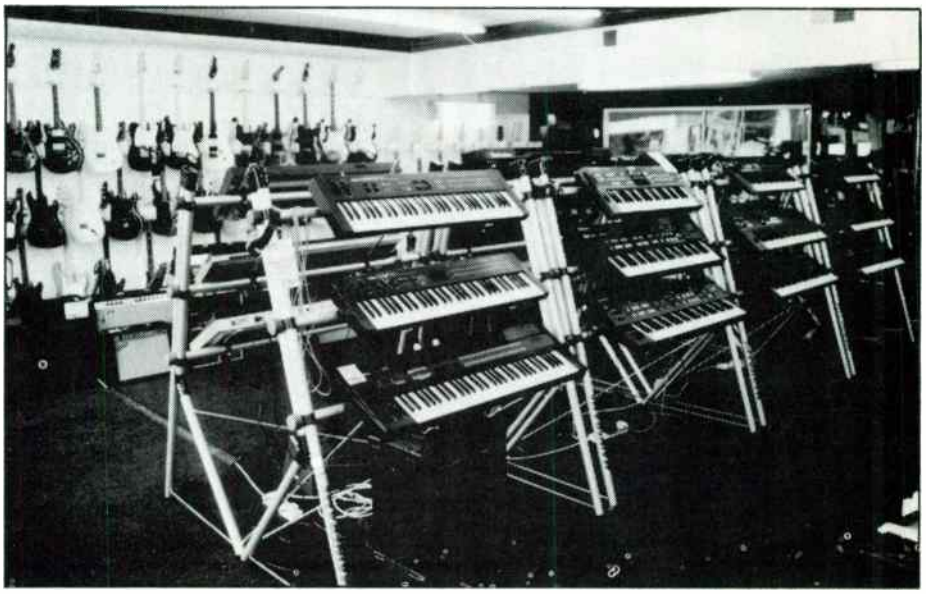
If your name isn't in that list, then take heart: you still stand a chance of winning a Yamaha DX100 if you enter this month's exclusive E&MM competition. Turn to page 41 for the details. ■ Dg

Honky Tonk News

Up until recently, Essex music dealers Honky Tonk Music were trading from cramped, ageing and generally inadequate premises in Hadleigh. The store built up a reliable reputation over an 11-year period, but it was inevitable that a move would come sooner or later, and now it has.

Honky Tonk's new Superstore in Southend could prove to be a breath of fresh air (literally) for local musicians, as its 8000 sq ft of air-conditioned floor space houses huge stocks of modern musical instruments of all descriptions, all instantly playable in a relaxed, informal environment.

Good news for hi-tech fans is that synths, sequencers, computers, tape machines and the like have a soundproofed section of their own, away from the vintage Fenders and replacement drum skins. The Superstore's upper floor is intended for tutorial clinics, of which a number – featuring the likes of Roland, Yamaha and Akai – are already planned for the coming months.



For further information, contact Honky Tonk's music technology man, Andrew (affectionately known as Lurch), on ☎ (0702) 619615. The store itself is at 108-110 Southchurch Road, Southend, just 200 yards from the local shopping precinct. ■Dg

No Quark Quirks

Following their successful MIDILink series, Quark have announced an addition to the line by the name of LRM2. The machine has been designed to enable MIDI signals to be transmitted over distances of up to 200 metres, as opposed to the standard 15-metre limit. Its use is directed at a variety of situations, most notably live stage sets and recording studios, where it can be handy to control MIDI equipment at a distance.

The LRM2 is capable of sending and receiving two independent sets of MIDI information. And in order to make life easy for us, Quark have provided a set of MIDI In, Out and Thru sockets on both the rear and front panels.

The LRM2 costs £239 including VAT, and should be available from mid-February. Quark also have a 'DI' and a studio MIDI ring-main version of the LRM2, plus a modular MIDI patchfield in the pipeline, so watch this space for further developments.

More from Quark, 16-24 Brewery Road, London N7 9NH. ☎ 01-609 8282 ■Tg

Anvil Knocked

Sad to say, the latest news concerning the Anvil Percussion Synthesiser is all bad. Originally conceived as far back as 1982 by designer, musician and producer Rod Bowkett, the Anvil was all set to be the drum machine to end all drum machines, and it was British. Now it seems the project is doomed to failure unless financial aid is quickly forthcoming.

Apart from its Royal College of Art design, the Anvil (previewed E&MM June '85) was notable for many built-in features of great potential use to the musician. These included additive synthesis of sounds, onboard sampling, SMPTE synchronisation, external triggering and floppy disk storage of data.

The machine, in its prototype form, made it to the British Music Fair (or an annexe of it) and its Swedish counterpart last year, where it received praise from a wide variety of professional sources. Unfortunately, it appears the same enthusiasm doesn't exist where finance is concerned. In spite of the backing of the government-backed Loan Guarantee Scheme (which assures investors of the security of 80% of their outlay), it was the designers' own cash that paid for the prototype – and even this was insufficient to convince dubious investors that the project was worthy of their support.

Now the end is in sight because, as Co-director Wayne de Nicholo puts it: 'The money's simply running out.'

Anyone in a position to throw the drum machine a lifeline can contact Anvil at 29 Cholmeley Gardens, Aldred Road, London NW6, or Rod Bowkett on ☎ 01-341 5222. ■Tg

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Communiqué

Write to: Communiqué, E&MM, Alexander House, 1 Milton Road, Cambridge CB4 1UY.

Dear E&MM

Dreamers Defended

I'd like to say a few things in reply to Graham High's condemnation of Tangerine Dream (E&MM December '85).

If you're a Tangs fan, you probably, like myself, want to buy anything and everything that they release – though you don't have to.

I'm lucky enough to work in a large record shop and was therefore able to get hold of a pre-release copy of 'Le Parc' and... well, OK, I was disappointed first spin round. But not for long. Maybe they just fancied a break after all their one-piece-per-side epics.

I agree with the criticism of the band's soundtracks, but when you actually hear them within the context of the film, they do help create the desired atmosphere. I can't help but concede that the 'Sorcerer'/'Flashpoint' comparison is a valid one, though.

Personally, I have no doubt the band will redeem themselves, as Mr High puts it, and I'm prepared to bet that the next album will be the one on which they do so. And in any case, I maintain that 'Le Parc' is not half as bad as it's been made out to be, despite the lukewarm reception it got from the critics – E&MM included.

As far as 'putting the lid on them' as a major electronic music force is concerned, that's just way, way over the top.

All I can say, Graham, is go see them on their '86 tour (Birmingham, March 17) and then see what you think.

■ Joseph Kelly
Stockport

Dear E&MM

Dreamers Attacked

Has Graham High just re-read 'The Emperor's New Clothes' or something?

I wonder how many other poor sods have been happily deluding themselves, believing that the old Tangs Magic was still there. What did it take to look at the truth, and not shy away as the rest of us did, Graham? 'Le Parc' must be one of the least inspiring wastes of precious vinyl I've heard since the last BBC Sound Effects LP.

Enlightenment: the Tangs are a spent force. It's about time we recognised it and began looking for the successors to their throne.

■ A Nicholas
Bath

Dear E&MM

Eno In Harmony

Your interview with Brian Eno (E&MM December '85) was fascinating. In particular, I was intrigued by the man's comments concerning the harmonics that are so crucial to our understanding of all forms of harmony.

I spent some time last year studying these

harmonics and their mathematics, and finally resorted to computer analysis after covering countless sheets of paper with calculations. Some of my findings might be of interest.

It turns out that all 12 semitones of a key (and the minor of the same key) can be derived precisely from the first six harmonics of a fundamental, without having to resort to temperament. Furthermore, the ratios involved can be factorised using only the numbers 2, 3, 4, 5 and 6, with a lowest common denominator of 360 – the number of degrees in a circle. All the notes of a single octave can thus be represented in a circular form.

It would appear that the very word music may be derived from the Greek word 'musira'. The Arabic translation of this, 'daraja' means step, scale or ladder, and may well be the origin of the word 'degree'. The Babylonians also divided the circle into six parts of 60 sections, and it's interesting to note the comparison between 'daraja' and the Indian word 'raga', meaning 'one of about 60 musical scales with rules for extemporising on it'.

As Eno points out, the Syntonic Comma often arises in modulation to a new key, but the same relationships hold true for the harmonics once you're there.

Studying the names for the diatonic modes of a scale – Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian and Locrian – it would seem they're of Greek origin. If you then attempt to transliterate these back into Greek script, Phrygian begins to look a lot like Pythagorean, and Locrian looks more like Logrian. In view of the fact that pitch as frequency is arranged logarithmically, this may even be the derivation of the word 'logarithm'.

Mr Eno seems to take all this for granted, so perhaps you could ask him what, exactly, he's been reading?

■ Peter Frazer
Preston

Dear E&MM

Graphic Message

I'm currently studying a degree course in Scientific Information Design. My final year's project is to design a vehicle to solve a visual communication problem.

As music is my prime interest outside the course, I'd be interested to hear from anyone in the music field with a need to communicate a scientific or technical message relating to musical instrument technology. Such needs may well exist in education, research, industry or entertainment – any of which might provide a valid starting point for the project.

Any audio-visual medium can be used to convey the message, including newer techniques such as holography and interactive displays.

I hope I'm not alone in my fascination: someone, somewhere needs to say something about musical instrument technology, recording, or related matters to someone else, and they might benefit from the skills of a graphic designer with a vested interest.

I can be contacted at Cherry Tree Cottage, Grove View, Bristol Road, Hambrook, Bristol BS16 1RE.

■ Mark J Perry
Bristol

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The Percussion Signal Processor opens up a whole new world for the electronic percussionist. In addition to conventional pad to MIDI and MIDI to trigger conversion facilities, signal processing tasks are performed. Playing information from up to 8 drum pads and a hi-hat pedal is both digitised and regenerated, enabling the PSP to enhance a standard electronic drum kit's playability, whilst providing an advanced MIDI interface. Each pad can be assigned several performance parameters including MIDI Program, Note, Gate Time, Pitch Bend, 'Feel' and Channel. These may be adjusted independently or selected from a bank of 50 user-definable Patches. To assist live playing, Patches may be selected remotely from the drum pads allowing the drummer to select new configurations without touching a button. In addition, sound processing software has been included to allow dynamic MIDI events to be generated from sound sources connected to the pad inputs. Considering all of these advanced features the PSP must be the key component of any 'state of the art' percussion set-up.

As the number of instruments incorporating MIDI increases, the problem of interconnection becomes more of a nightmare. A solution can be found using Sycologic's MIDI Matrix switchers. These unique devices reduce the limitations encountered with MIDI 'Chain Networks' allowing instruments to be configured at the touch of a button.

The Mi4 is a 4 by 4 Matrix which allows any one of 4 MIDI Sources to talk to any combination of 4 MIDI Destinations. Connection points on the Matrix are made digitally by selecting the required Source and Destination buttons, or remotely, using the optional Mi4R infra-red transmitter. A connection is indicated by an LED at the intersection of the lines on the Matrix. The presence of MIDI data is also indicated by LED's in the Source switches. To make the Matrix clear and simple to use, white squares have been provided opposite each button allowing the connected instruments to be labelled.

For configurations of more than 4 machines, the M16 presents an ideal solution. This new device is in the form of a 16 by 16 Matrix, but with provision for the connection of 2

Specifications are subject to change without notice.

Expander modules allowing the system to be enlarged to 16 by 32, or 16 by 48. Matrix connections are made via a numeric keypad on the remote control panel, the patch being displayed on a 40 character by 2 line LCD. The remote panel is connected to the rack unit via a single lead allowing all the bulky MIDI connections made to the rack to be situated out of sight. Up to 32 Matrix Patches may be stored and recalled, allowing a complete Studio to be reconfigured in seconds. Patches may be changed from the remote panel or by a MIDI Patch Change from one of the 16 Source instruments. Each Source and Destination has an 8 character label which is displayed along with its number during editing. These labels can be assigned with the name of the instrument connected, saving the need to constantly refer to what machine is connected where.

Another useful feature of the Matrix is its ability to send pre-assigned Program Changes to any Destination when a new Matrix Patch is selected. This allows one MIDI Patch Change from the Master instrument to configure not only the connections of the Matrix, but also the Programs of all the instruments connected.

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Interface

Your questions answered by E&MM's resident team of experts. If you have a query regarding any aspect of music technology, send it to Interface at the editorial address.

Q *I've sometimes come across the term 'channel aftertouch' in your synthesiser reviews. Could you explain what the 'channel' part means?*

■ **Andy Salmon**
■ **Stourbridge**

A ***Most touch-sensitive synths are capable of applying only a single aftertouch value to their voices at any one time: if you hold down two notes and vary the pressure on one, the other note will be affected as well. A few synths (very few) are capable of applying a different aftertouch value to each note and voice. The Yamaha DX1 and Prophet T8 are examples of such machines. The MIDI protocol can cope with the transmission and reception of both types of aftertouch, and in MIDIspeak, the former is termed 'channel' (meaning, presumably, one value per MIDI channel) and the latter***

'polyphonic'. If you're interested in MIDI at the 'bytes' level, each type of aftertouch has its own status byte and the polyphonic aftertouch code has an extra data byte to indicate which note the pressure value should be applied to. ■ **St**

Q *Could you suggest any source of European electronic music LPs? I already know of Making Waves and Lotus Records, but neither of these stock the label that I seek. Perhaps you know an importer who could help.*

■ **A Iredale**
■ **Rotherham**

A ***Try ESSP at The Sound House, PO Box 73b, East Molesey, Surrey, KT8 9JB, ☎ 01-979 9997. Their data library is more extensive than any we know of in the electronic music field, and if they don't stock the label you're after, they should have information on somebody who does.*** ■ **Tg**

Q *I've become the proud possessor of an Atari 520ST computer, in the hope that some MIDI software will appear for it in the not-too-distant future. Do you know of anybody working on such software?*

■ **Godfrey Martin**
■ **Newcastle-under-Lyme**

A ***To date we've heard of a trio of companies who have developed – or are in the process of developing – MIDI software for the 520. Soundwave Software in Canada and Steinberg Research in Germany have both developed 24-track sequencing packages, and we also know of a Dutch company intending to market a similar system. At present we have no more information than this, but Steinberg will be showing their package at the Frankfurt Music Fair, after which we hope to get our hands on a copy for review. In the meantime, you can contact Steinberg's UK distributor, OSC, on ☎ (08675) 5277. Soundwave Software can be reached at 378 Isabey, St Laurent, Quebec H4T 1W1, Canada, ☎ (if you can afford the pennies) 514 738-3000.*** ■ **St**

Q *I am a frustrated drummer with a consuming interest in different percussion instruments, but no playing ability whatsoever. I'm therefore interested in buying some kind of programmable drum machine, but am at a loss as to decide which model would offer me the biggest library of different drum sounds; the choice of machines available seems vast. Can you help?*

■ **Dave Chatterton**
■ **London SE25**

A ***You're right. There is a vast range of programmable drum machines available at the moment. But only a few of these offer the sort of scope you're after. In general, Japanese manufacturers (Roland, Korg, Yamaha) make you buy another load of drum machine hardware and software whenever you want more sounds; their new 'Latin' sounds are only available in self-contained beat boxes. The American attitude is more sensible: machines from Linn, Oberheim, E-mu and Sequential all offer you the facility of plugging in new sounds on chips or ROM cartridges, and several peripheral companies offer replacement sound libraries to complement those sold by the makers. The ultimate in drum sound versatility, though, is offered by sampling drum machines, which have programmable memories for you to record your own sounds into. Of these, the Emulator SP12 (about £3000) is the most flexible and accurate, but if this is a little out of your budget, Casio's new RZ1 will offer drum sampling facilities at the very reasonable price of £350 when it arrives in the UK this Spring.*** ■ **Dg**

Q *Find me the answers to these five questions and I might just buy your pulp-tech magazine on a regular basis. Fail, and I shall spend my money on one of your 'sister' magazines.*

1 Why do all South Yorkshire heavy metal vocalists speak with American accents?
2 What is the correct rating for the rear panel fuse in the Mini Korg 700?
3 What is a guitar?
4 If music technology is so advanced, why does every single in the American charts sound like Prince, Giorgio Moroder, the 'Pebble Mill at One' theme, or a combination of all three?
5 Why does the Fairlight Series II carry a retail price tag of around £30,000 when the total cost of its individual components comes to £99.95?

■ **R E Webster**
■ **Sheffield**

A ***1 It's due to a form of speech impediment caused by Spandex trousers and the local Tetley's Ales.***
2 One amp, but a galvanised steel nail rated at around 200amps will suffice.
3 A guitar is a simple mechanical preset device for immitating a synthesiser. It has six individually tunable voices, each with its own manual pitchbend and modulation facilities. Currently out of fashion.
4 Because they're made by American artists.
5 Because the original costing was computed on Page 3 of the pre-production prototype Fairlight. ■ **Tg**

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FIVE YEARS AGO

March 1981 was notable for many things, from which the launch of E&MM stands out like a polar bear in a snowstorm. The Editor sets the record straight.

Unbelievable as it may seem, Electronics & Music Maker was launched onto an unsuspecting world exactly five years ago, in March 1981. The electronics, computing and music industries had already caught a glimpse of what we in the publishing trade call a dummy issue, though sadly, many leading music business figures were absent from the grand London launch party, due to a small oversight on the part of E&MM's original management, who set the launch date for the week of the Frankfurt Musikmesse.

Despite this somewhat inauspicious start, E&MM March 1981 was an impressive magazine that betrayed few signs of being a new title venturing into virgin publishing territory. At that time, musicians could choose only between *International Musician* and the long-since deceased *Sound International* as a monthly source of musical information and guidance. From the start, E&MM was a valid alternative to those conservative 'less gear, more beer' magazines. Even if, in its desire to be all things to all men, it sometimes cast too wide a net to embrace such peripheral – some would say completely irrelevant – topics as a build-it-yourself car battery

monitor, an industry profile on a plastic box manufacturer, and a CB radio column by a man who signed off with the words 'till next month, stay clean and green, 10-10, The Elf'. And yes, all those items appeared in the first issue of E&MM.

By way of a contrast, that inaugural edition also contained a review (the only one) of the latest Yamaha polyphonic synthesiser, an introduction to synth programming techniques, and a news page that had details of both the Fairlight *and* the Synclavier II. None of those features appears dated five years on, and none would seem out of place in this issue of E&MM.

Some of the authors' names are still familiar, too. Ian Waugh, the man who foxed so many with his JMS 'Name That Tune' competition just two months ago, was writing a column called 'America' from his bedsit in Middlesbrough; somehow, he always managed to get hold of the US brochures before anybody else did. Ben Duncan, still a regular contributor to our sister magazine, *Home & Studio Recording*, was passing on heartfelt advice to would-be DJs in another regular column. And Vince S Hill, now Akai UK's hi-tech product specialist but still an occasional E&MM feature writer, was beginning his guide to Electronic Music Techniques – he was credited in the staff list with the post of 'Electro-Music Consultant'.

The then Editor, and the man whose brainchild E&MM was, smiled confidently from that first issue's leader page, outlining his magazine's manifesto for the years to come, and signing his name – Mike Beecher – at the end. Below his piece was a selection of encouraging letters from such luminaries as Desmond Briscoe of the BBC Radiophonic Workshop (whose facilities E&MM visited for the first time in that issue) and Fred Mead of Brodr Jorgensen, now Roland UK.

Followers of advertising would recognise *some* of the company names taking space in the embryo E&MM, though by no means all of them. Yamaha had a full-colour page on the inside back cover, while the Korg division of Rose Morris had a half-page promoting a tuner. But whatever happened to Tangerine Computer Systems, Lamina Keyboards, and Baydis Transformers of Herne Bay, all eagerly plying their wares in E&MM Volume 1, Number 1?

E&MM *looked* a lot different in 1981. To begin with, it was printed on paper only slightly higher in grade than an Andrex economy roll. Editorial colour was completely non-existent (there weren't even any blue or red bits), but the publishers did lash out an extra £200 to pay for the front cover to be printed partly in silver ink.

Talking of the cover, the magazine's logo was the first of three incarnations including the current style, and was dropped barely six months after the launch date, for the very good reason that nobody could read it. Catching the eye on the news-stands in March '81 were two DIY keyboards, the E&MM Spectrum monosynth (designed by Chris Jordan, now of Music 500 fame) and the Matineé organ, an unwieldy teak-covered leviathan with two keyboards, pedals, and – horror of horrors – a preset rhythm box all included in the price. There were two special offers: one for some surplus wire-cutting tools that didn't work (as a letter from Outraged Of Berkshire in Issue 3 testified), the other for an album of music by the aforesaid Radiophonic Workshop.

Sad to say, vast increases in the cost of that paper (now significantly upgraded, of course) have meant that E&MM now costs almost twice as much as it did in March 1981, when just 65p bought you 'The No 1 Monthly For The Electronics & Music Hobbyist'.

But for us, E&MM's current staff, five years older but not necessarily five years wiser, the highlight of this melange of the sublime, the ridiculous and the downright incomprehensible, lies on the magazine's last page, nestling between the advertisers' index and a short piece describing the E&MM logo. It's a poem, as far as we know the only piece of non-prose writing ever to appear within these hallowed pages. The author clearly wished to remain anonymous, signing himself simply as 'Stichos', which is what you'll be in after reading the verse.

Before we go any further, it should be pointed out that copies of the first E&MM are now extremely rare and fetching considerable sums on the black market, as the magazine completely sold out within days of its arrival on the bookstalls. Even the E&MM office has just the one copy, proof that the magazine was as well tailored to the needs of the musicians of five years ago as it is to those of today.

Will the fifth anniversary issue go on to be a collector's item? Hang on to this issue and find out.

But enough of all this. Here, for those who missed it the first time because (a) the newsagents had sold out, (b) they had far better things to do with their time than play music, or (c) they weren't actually born in 1981, is the poem that launched a thousand issues – well, at least 60 – by neatly chronicling the development of man's love affair with music.

QUO ZOG?

The pattering primordial rain
Made Zog the Caveman think again
That life was brutish, short and dull,
So, with defiant rebel shout,
Two bones he seized and then beat out
Bold rhythms on an unfleshed skull.

Now Zog the Minstrel tunes his strings
And with his harp a Saga sings
In vaulted, firelit Viking Hall
Telling of Heroes' feats of arms
Opposing Gods with magic Charms
Whilst holding Cowardice in thrall.

Tending his flocks in Greece, Zog knew
Cloven imprints where willows grew
That marked the passing tread of Pan;
But, with syrinx-added travel,
Sought, by piping, to unravel
The God-given Destiny of Man.

The choleric clang of sword on shield
To Legionary Zog appealed
And Cohorts thought him worth his salt
Because his need for rhythmic beat
Was satisfied by marching feet,
With contrapuntal cries of 'Halt'.

The world of Zog the Brit seemed good
So he – as true-blue chappie would –
Takes God as Partner without qualms,
Takes rosin-tortured gut and plays
Bland tunes, (near swamped by clatt'ring trays),
Beneath the shade of indoor Palms.

Zog – as a slave – laden with gyves –
In a strange land – 'mid stranger lives –
Blew soft on reed with poignant art
And made the golden surface-gloss
O'er ride the silver pain of Loss,
As Music can – played from the heart.

Compuphonic Zog the Euro
Screams defiance in crescendo
Unhearful of a Wrath Divine,
While the searing Laser's flicker,
And drum-beats made forever quicker,
Means the skull that's pounded now – is mine!

Thus we skim the mellifluous pages
Of Mankind's music through the ages;
But, as we end the present text –
We wonder what will happen next?

...What indeed? ■ Dg

TALK TA

After years of their being successful in every European territory except Britain, popular opinion suggests 1986 could be Talk Talk's year. Their third album, released this month, is carefully constructed and unusually arranged.

Interview *Tim Goodyer*

LK TO ME

It's taken two years to appear, it's called *The Colour of Spring*, it contains almost no synthesisers at all, and it's Talk Talk's third LP. Oh, and one other thing – it's bloody good.

You could be forgiven for thinking Talk Talk had ceased trading, as up till now, nothing had been heard from them since their second album *It's My Life* was released early in 1984. But the truth of the matter is that they're alive and well, and have spent a fair bit of the intervening period playing to continental audiences more appreciative than those in their homeland. But now they've returned to Britain and are ready to give their countrymen a taste of what they've been missing out on for the last couple of years.

The main force behind Talk Talk is founder Mark Hollis who, along with producer Tim Friese-Greene, makes up the songwriting team and a large proportion of the keyboard-playing talent; Hollis also takes care of most of the singing.

The pair share a remarkable empathy, tossing replies to my questions between them with unnerving continuity and singularity of purpose. Their philosophies are refined, and lie in an area well outside that usually associated with pop musicians. Perhaps that's why they don't associate themselves with pop at all...

'By definition, something that is popular is something that's liked by a lot of people', says Hollis. 'When we're making an album we don't give any consideration to how many people like it. Therefore, by definition, we are not pop musicians.'

Originally the band had a keyboardist by the name of Simon Brenner, who played on *The Party's Over*, Talk Talk's debut long-player. Now the regular line-up consists only of Hollis, drummer Lee Harris and bassist Paul Webb. This skeleton crew is regularly augmented by the production skills of Friese-Greene, together with a long list of session men like guitarist David Rhodes and keyboard player Ian Curnow.

In between, the band's most successful album, *It's My Life* was released in 1984 and achieved gold record status in every European country – except Britain.

Of good songs Talk Talk have no shortage, but mass popularity has evaded them persistently throughout their career to date. It's not really difficult to see why. The band were launched on the tail end of the New Wave in early 1981, but they neither looked nor sounded the part they seemed to want to play. But how else would *you* categorise a band playing conventional songs ►

Talk Talk frontman Mark Hollis *sits on left in messy EMI demo studio; producer Tim Friese-Green is alongside, discussing the ins and outs of modern technology. Together they have created one of 1986's most inspiring albums, but have rejected synths almost out of hand*

► with the aid of fashionable technology like synthesisers and Simmons drums? In the early days, the audiences Talk Talk played to misinterpreted them, and the majority of their potential fans never heard them. Hollis was unconcerned, and remains so to this day.

'I don't think it really matters whether we're misinterpreted or not, because you can't misinterpret yourself. If you look at music as being art as opposed to technology, in the same way that you might look at painting as being art as opposed to mathematics, then you're left with *intention*. You either do it for the right reasons or the wrong ones. If you do it for the right reasons, no matter how crap it is to anyone else, it's good; if you do it for the wrong reasons, no matter how good it is, it's crap.'

'Synths are becoming less expressive as technology develops: when they first appeared you had to play them, now you just write your part and have it played by a bunch of chips.'

After talking to him for only a short while, it becomes obvious Hollis has an almost total disinterest in interviews – he claims never to read any, not even his own. Yet it isn't fair to call the Talk Talk frontman evasive. In fact, he is disarmingly frank and has an answer to everything, even if he remains difficult to pin down on many issues.

His casual manner and speech are in sharp contradiction to the sensitive lyrics and extraordinary command of melody that appear in Talk Talk's music. *The Colour of Spring* is a beautifully considered album that features some of Hollis' most lovingly crafted material.

Yet it's not a commercial venture: the songs are long, unusually arranged, and occasionally dischordant. The 'organic' sounds and whimsical vocal style bear more than a passing resemblance to David Sylvian's *Brilliant Trees*, and that didn't exactly set the album charts aglow.

Hollis himself is far from eager to go into detail about the creation of *The Colour of Spring*. What *does* concern him is none other than our old friend, music – not to be confused with musicianship, which carries little weight by comparison.

'To me, feel is the most important thing, not technique. Take all that soul and gospel stuff: that's got incredible feel, but it's not necessarily great musicianship.'

The first single to be taken from *The Colour of Spring*, 'Life's What You Make It' has surprised everybody by achieving a Top 20 chart placing with astounding ease, but again, it's not a particularly commercial song, with its over-simple beat, its repetitive piano riff, and its decidedly 'this is not a love song' lyrics. If it sounds like anything, it's a Tears For Fears out-take, but it isn't melodic enough – or jolly enough, despite the song's optimistic message – to gain massive exposure.

I venture that another song from the LP, 'Happiness is Easy' would have been a more obvious choice for 45rpm release; a wonderfully understated song with some delicate acoustic guitar work from Robbie Macintosh, and a chorus carried by a children's choir.

'The songs on the album are all quite long – not because they've got 30 verses and 15 choruses, but because each section in a song is long in itself.'

But Hollis defends the choice of single in a typically unorthodox way. 'A lot of people have said it wasn't a good choice, but I've never thought of it in that way at all. With the exception of a four-part horn figure, it's the shortest track on the album, and that's why we chose it.

'I actually have this belief that what makes a good single is how well you can boil an egg to it. For Europe we'll have to edit 'Life's What You Make It' down a bit, because they like their eggs a little more runny on the continent.'

'The songs on the album are all quite long', says Friese-Greene. 'It's not because they've got 30 verses and 15 choruses, but because each inherent section of the song is long in itself. So, in a six-minute track, you've still only got two verses and three choruses.'

Instrumentally, acoustic piano and an old Hammond organ provide the mainstay of the keyboard work. They're accompanied by everything from that children's choir to a Variophon, a technological antique that actually offers a couple of currently fashionable musical techniques in the sampling of real sounds and breath control over those sounds. Yet anything more contemporary faces rejection by Hollis and Friese-Green, both of whom confess a hatred of modern synth technology and the tasks it performs.

Synths formed an essential part of *The Party's Over* and *It's My Life*, so why the apparent change of heart?

'In terms of the first two albums and the live field, synths are simply an economic measure', responds Hollis. 'Beyond that, I absolutely hate synthesisers. To me, the only thing that was ever good about them was the fact that they gave you large areas of sound to work with; apart from that they're really bad – horrible. I can take their existence from a live point of view now, but if they didn't exist, I'd be delighted.

'Synthesisers were really only a means to an end. All they've enabled us to do is go some way towards reproducing organic sounds when we haven't been able to afford the real thing. It was simply an economic measure, and without the success of the *It's My Life* LP, we wouldn't have been able to make this album in the way we have. Since *It's My Life* did sell, we had absolute freedom over time and resources for this album, so we were able to use real strings and choirs.

'In those terms commercial success means a lot, but it is not, and

can never be, your primary consideration. It's absurd to concede your musical principles to try and make your record sell. The only important thing about the last album was that we thought it was good. I can honestly say that if it hadn't sold at all I couldn't have given a shit – but the fact that it did made me a lot happier.'

And on the subject of fashion...

'I think it's evident in the way we make records that we have no concern for trends. Basically, trends only last a few months. Our albums take a year to make, so that the current trend, and three more, come and go before we've finished what we're doing. You have to work outside of that as a basic starting point.'

Maybe all this dogmatism pays off, though. Talk Talk's recordings thus far form a succession of statements that follow a recognisable pattern of development. Songwriting, arranging and performing are now more mature than ever, and have obviously benefitted from the band's increasing experience. For once, Mark Hollis can but agree.

'The earlier albums were much more simplistic than *The Colour of Spring*. With the first album we were basically in the position where we'd signed the record deal and had about a month to do the recording. By the time we did *It's My Life*, because we'd had moderate success with a couple of the tracks from the first album, the record company allowed us a lot more freedom. We were really lucky, because a lot of bands would have tried to bring out more product on the back of that, whereas we had a gap of two years. We had a reasonable budget and reasonable scope in which to make the arrangements, and about six months to record.

'With this album we were given as much time as we liked, and allowed to incorporate as many people as we chose.

'We work from a songwriting basis. With any song, the variations are endless, so, with each LP, we've moved further and further towards an ideal situation in which to work. But, if that second album hadn't done well, we'd never have been given what we were this time around.'

Does that make the earlier Talk Talk albums inferior to *The Colour of Spring*?

'Each album is different. It's like having kids: you like their differences and you like each one for what it is – you don't compare them with one another. The fact that they are different is the important thing. You love each of them and, at the time you conceived them, they were what you wanted them to be.'

'There is no honest person who could say he's not influenced by something; once you're at the level of not being influenced by anything, you're at the level of genius.'

Like many good artists, Hollis draws on a range of sources for inspiration. Influences as diverse as books and drum fills can affect what he writes, but it seems almost anything *can* inspire him, particularly when it comes to putting words to music.

'I'm influenced by everything', he says. 'The more areas you take influences from, the less you actually receive them. There is no honest person who could deny that he is influenced by something. Once you're at the level of not deriving anything from anybody, you're at the level of genius. There are only a few people like that.

'Lyric writing is very important. For years I never used to listen to other people's lyrics because it wasn't an important aspect of music for me. I don't think music suffered in my eyes because of that, so, equally, I don't think it harms me if other people don't listen to my lyrics. What matters to me is that I believe the lyrics I've written are good. Other people are a secondary consideration; I've no ambitions, I'm not trying to say anything to anyone.'

It's not pop, it's not meant to carry a message – so how do you categorise your music, Mark? Is it art?

'I consider our music music, that's what it is.'

And it isn't synthesiser music. At any rate, it uses synthesisers less now than it used to...

'Synthesisers aren't human, they've got no feel to them whatsoever.'

I suggest, gently, that technical advances may have made synths more expressive, but nothing can sway Mark Hollis.

'I think they're becoming *less* expressive as technology develops. When synths first appeared, at least you had to play them. Now all you have to do is write your part and have it played by a bunch of chips. I think that's even worse than playing it manually.

'Then there's the question of sounds. Take the Kurzweil piano sound, which is generally held to be one of the most accurate copies of a piano: it still doesn't feel like a piano to play, and what comes out of it doesn't come out as though you were playing a real piano. There's no comparison with the real article. I suppose it's progress in terms of copying the sound, but it's not progress in terms of actual feel. I can't see why anyone should want to play a Kurzweil rather than a piano... I don't believe there's a manufactured instrument anywhere to compete with a piano.'

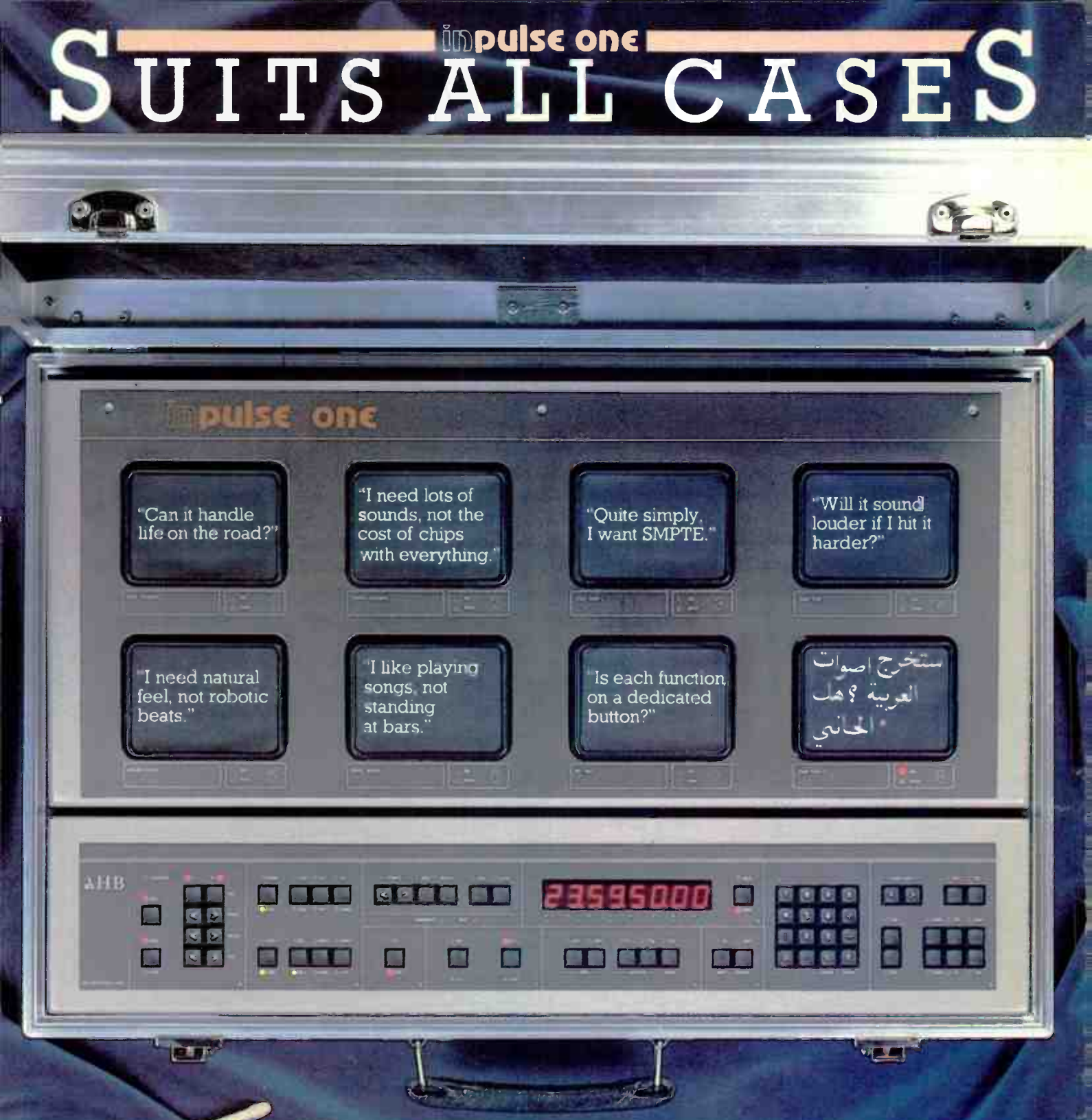
Tim Friese-Greene agrees. 'To me the idea of MIDIing up a piano is just plain sick. MIDI is a four-letter word, I can't take it seriously at all. There's really nothing printable I can say about it.'

And not much more I can say about it, either. I'm fed up arguing, and now all I want to do is go home and listen to the band's records again.

Talk Talk are a group of serious musicians. They take their music seriously enough to reject the lure of commerciality, to reject pressures of time and money, and to reject those aspects of technology they see as destructive.

They have made a *brilliant* third album, and for many people, that will be enough. Even if, in some respects, their attitudes are uncompromising to the point of being a pain. ■

inpulse one SUITS ALL CASES



The **INPULSE ONE** programmable drum computer allows far more artistic expression and flexibility than has previously been possible, even for a professional drummer. Whatever your requirement, this compactly-cased unit gives you unparalleled human feel, treating you as a musician, not a computer programmer.

The wide choice of alternative sounds are stored on extremely cost-effective data cassettes, as opposed to microchips which can be prone to "changeover" damage. Amazingly – considering its price – the **INPULSE** is one of the few machines of its kind to offer on board SMPTE read and write and real-time song playback pitch change via MIDI. Allied with the capacity of real-time song programming, humanizing functions to shift beats and tempos, real-time dynamics (linked to external source transducers or MIDI keyboards if desired) and ease of programming due to the lack of dual function controls, **INPULSE ONE** is the obvious drum computer choice. It even comes with a handle.

* For an explanation of this true story, more information and a fully comprehensive colour brochure, please ring Brighton (0273) 24928.

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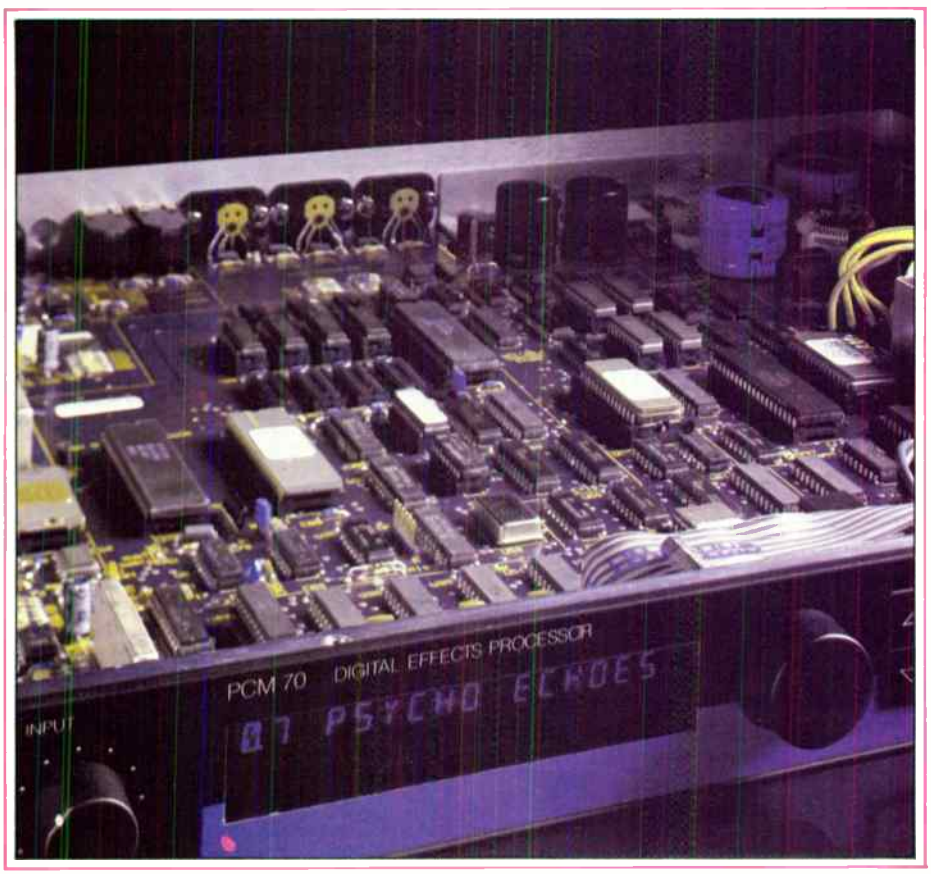

Lexicon's new PCM70 is much more than a good digital reverb: it has a number of unique delay features, and allows you to control its effects dynamically from a MIDI keyboard. *Paul White*

First, a word of explanation. The Lexicon PCM70 isn't really a digital reverb at all. For once, the name on the panel tells no lies, and 'Digital Effects Processor' sums up the machine's function nicely. It can produce a wide range of reverb effects (including gated and infinite varieties), but it's also capable of performing a good many other musical functions, such as flanging, chorus, echo, multi-delay and resonant chord programs (see later), all in stereo.

The newest Lexicon comes with around 40 preset reverb and delay effects, and room to store around 50 more of your own edited versions – the exact number varies slightly depending on the current software version.

It's a MIDI-compatible unit, so you can change its programs remotely from a MIDI synth or sequencer. More than that, the PCM70 recognises MIDI note number, velocity and pitchbend information, so you can vary its effect parameters directly from the controlling keyboard. For instance, you can alter the reverb decay time according to the note played, or change the feedback of a delay patch from your synth's bend wheel.

For a box that does so much though, the PCM70 has relatively few controls. A multi-purpose display unit lies at the centre of operations, and to the right of this is a rotary controller that turns indefinitely, known as the Soft Controller. At various points in the manual's text, Lexicon shorten this to Soft Knob, but for reasons that should be obvious to most of you, I'll continue to refer to it by the former name. Whatever you call it, though, the control can be used to alter just about anything that's alterable on the PCM70, in conjunction with the two rows of switches to its right.

There's a pair of increment/decrement buttons and a set of pushbutton switches numbered 0 to 9, and these are used to access presets, user programs and parameters.

Further to the right is a cluster of four switches that determine which mode the machine is in. PRG selects the preset programs, REG calls up the user programs, LOAD lets you load up any selected effect ready for use, and BYP (for bypass) sends the signal to the output in much the same state it was in as it entered the machine, muting the effected part completely.

You call up Parameter mode when you want to create new effects, a process that involves loading a preset sound and then editing it, rather than starting from scratch with a 'non-effect'. The variable parameters depend on the patch called up, but for reverb, you can select from plate or room simulations and alter pre-delay, reverb time, high and low frequency damping, dry/FX balance and level. Additionally, you can alter the attack time of the initial reflections, reverb density, and even add chorus and gating to the reverb treatments.

There's a good deal more besides – depending on which preset you start out with – but if I mentioned them all, you'd probably get bored halfway through. Instead, I'll describe some of the effects in each category (and row number) and comment on any outstanding features.

Row 0 contains the Chorus, Flange and Delay effects, and these include ►

► some *extremely* effective multi-tapped delay treatments. Preset patches include Spin Echo, Swarble and Psycho Echoes, names that all seem quite appropriate once you've heard the relevant effect. In this row, it's possible to alter the delay time of each of six taps, all of which have individually adjustable delay time, feedback and pan position. Maximum delay time is 432mS.

Row 1 contains what are referred to as Multi-band Delay programs. Again, these have six available taps which have independent level, delay, pan and HF/LF filtering, but the first two voices or taps have further control over feedback, while a master diffusion control affects all the taps. Maximum delay time in this instance is higher, at 936mS.

Row 2 brings us onto the mysterious Resonant Chord programs mentioned at the start. Everyone knows what flanging, phasing and echo effects are, but resonant chords? Well, here's my attempt at an explanation.

You may be familiar with the effect achieved by setting up a delay unit to give a very short delay, and then applying feedback. On feeding a drum beat into the unit in question, the delay line resonates and produces a distinctive note, the pitch of which can be varied by changing the decay time. The Lexicon goes one better than this by offering six such delays. These can be tuned to the notes of a chord and then sequenced, so that an input creates an arpeggio as the different resonances are excited in sequence. Each of the six resonators has variable level, pitch, duration and high-frequency cutoff. In addition, there's a master resonance control which increases or decreases the resonance of all six sections simultaneously.

Along with several other effects available within the PCM70, the resonant chord programs contain the letters BPM – standing for beats per minute – in their names. This facility enables you to program the rate at which the effect occurs in beats per minute, so you can match the tempo of the effect to the piece of music you're working on – especially neat if your music is playing to the metronomic beat of a sequencer or drum machine.

Remember, though, that the resonant chord feature is only really usable on voices and instruments if the notes of the arpeggio don't clash with the key of your song. To this end, the selection of treatments contains major, minor, seventh and thirteenth chords to get you started, and the overall pitch can be controlled in semitone steps.

If you doubt the validity of this feature (as I did initially), bear in mind that with it, a single drum machine can be made to sound like an entire backing track in any key of your choice, and that the pitch of a chord or arpeggio can be varied via MIDI to produce different musical arrangements. It's a must for anyone involved in recording ambient or mood music – the more you play with the section, the more you discover.

Row 3 contains a selection of Concert Hall reverb programs of fairly low reverb density. All the reverb parameters can be changed to produce a wide range of user reverb effects, making this section an obvious source of building blocks from which to edit your own reverb patches.

The same can be said for Row 4, designated Rich Chamber. This sounds like Paul Ghetty's loo, but turns out to be a source of good general-purpose reverb treatments – useful if several instruments within a mix need to be processed at once, as many of the effects are clean and unobtrusive.

Row 5 presents a selection of Rich Plate programs, which are a fine basis for percussion treatments, as they're bright and have a high level of initial diffusion.

Incidentally, all the Lexicon's reverb programs offer around 20 user-variable parameters which the manual lists in the form of a set of tables, and gating may be applied to any reverb setting via the editing system.

Row 6 doesn't contain any new effects as such, but is used to store existing programs whose patch parameters are assigned to specific kinds of MIDI data. Patches exist for controls that feature on many popular synths, but there's no need to worry if you need something a little different, because you can edit the patch parameters to suit your own needs. For example, the Lexicon's Mix parameter is assigned to operate from the data entry control fitted to most synths, but you can change this if your synth doesn't use a data entry controller.

All these pre-programmed patches are detailed in the manual, and editing isn't too difficult once you know what you want to achieve.

Row 7 contains switching software that takes care of memory protection, auto-loading and MIDI mode and channel assignment. The PCM70 transmits and receives on all 16 MIDI channels with Omni, Poly or Mono status, and note numbers between 0 and 127 are recognised, as are program changes over the same range.

Objectively, the Lexicon comes with a fairly high technical spec in terms of dynamic range, bandwidth and distortion, the figures being 80dB, 20Hz-15kHz and 0.05% respectively for the effected sound.

Subjectively, there's little to choose between the new generation of digital reverbs, though they all sound subtly different when compared directly. Digital reverb *always* sounds artificial in test conditions, but it's an artificiality that's become accepted as the norm, and there's no real harm in that. If a machine saves you having to take your drum machine into a Cappadocian cave and gives you a sound almost indistinguishable from what you'd have achieved had you done so, it makes sense to use it.

The PCM70's reverb programs are of high quality, and their range is amongst the most flexible available; the only obvious omission is a reverse reverb preset, and no way that I could find of simulating one.

The delay effects are of a similarly high standard, and the multi-delay treatments are particularly versatile. The only problem here – and this is something relevant to all machines that combine reverb with longer-delay effects – is simply that you can only use one effect at any one time. Thus, in a recording situation, you're forced to use chorus and flanging effects as you lay the tracks down if you want to use reverb during mixdown. An important practical consideration, that.

The Lexicon is surprisingly easy to use: you don't have to keep going back to the manual to find out what the controls do, as the operating system is utterly logical. However, there are so many parameters to edit that it's all too easy to feel obliged to alter every one of them. Further proof that the more options technology gives you, the more confused you're likely to become.

It's an expensive machine, this Lexicon, and I can only recommend it if you have a real need for its auxiliary effects and/or its unique facilities like the resonant chord feature and the beats-per-minute programmability. If you don't, you can get a good reverb-only device for about half the money.

Still, this *is* the first digital effects unit to offer dynamic MIDI control over reverb and delay parameters, and I suspect that for many keyboard players, this will prove an irresistible attraction. ■

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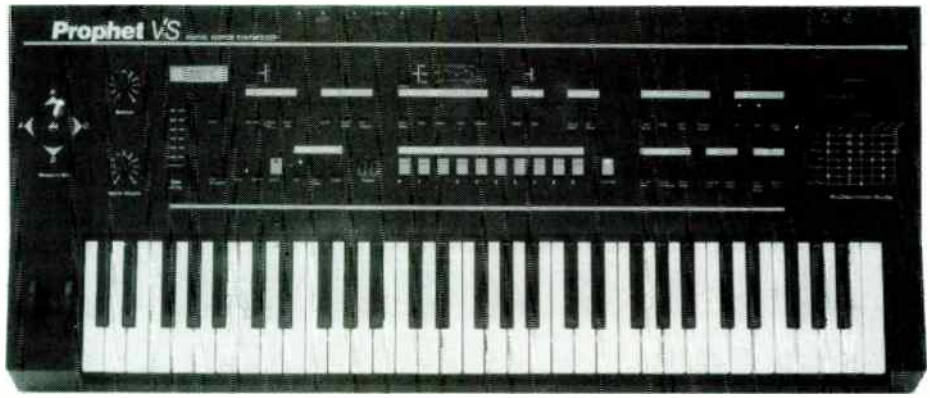
Sequential Prophet VS Polysynth



At this early stage, there are a lot of unanswered questions surrounding the Prophet VS. Will its new sound-generating system – Vector Synthesis – revolutionise the synthesiser world? Will it make musicians turn away from sampling and go back to *creating* sound electronically, instead of just manipulating it that way? Will it render the DX7 obsolete?

Frankly, I haven't got a clue. What follows is not a detailed rundown, but a sneak preview gleaned from a couple of demonstrations and a few hours' fiddling at Sequential's factory in San José.

What the Californians have set out to do with the VS is to use the clarity and stability of digital electronics, implemented in a way synth programmers will understand. This is nothing new, as a number of other design teams have looked at Yamaha's FM synthesis technique and asked themselves: 'How can we make this more accessible?' Trouble is, most of their answers have consisted of simplifying circuitry, making it easier to use than FM but, at the same time, quite a bit less versatile.

The VS is the first synth that really grabs the programming bull by the horns, offering a complex voice configuration you can *use* – quickly, easily and enjoyably.

There are four digital oscillators routed through a classic four-pole filter, followed by a wide range of envelope controls. More unusually (and this is where the fun starts), each oscillator can use one of 160 different waveforms, 128 of which are preset and 32 user-programmable. Creation of new waveforms is achieved by a staggeringly simple process which should go down a storm with video game junkies: you just grasp the onboard joystick firmly in one hand, select four waveforms as a starting point, and create a brand new waveform using the joystick to create a unique four-way mix. This is waveform creation in real time, faster than FM by about the same magnitude as a Ferrari is faster than an Austin A40 (I should know, I've got an A40).

Following on from this, everything else in the VS' sound-changing department is closely related to traditional analogue programming techniques. The four 12-bit oscillators can be mixed using 12-parameter envelopes or via the joystick, giving you an extra real-time control to waggle in addition to the bend and mod wheels. Five-stage envelopes also control filtering and loudness, with the fascinating addition of looping and repeat functions – useful results of Sequential's excursion into sampling with the Prophet 2000 and 2002.

Both sound patches and additional user-programmed waveforms can be stored on cartridge, and these are instantly available and editable during performance.

But the success of Sequential's analogue/digital mixture only becomes fully apparent when you listen to the noises the VS makes. The contrast between synthetic strings (as full and as warm as they ever were on the Prophet 5) and the precise cutting edge of new percussive sounds is as stark as any in synth technology, and you have to pinch yourself before you believe that both are coming from the same machine.

Sequential have again excelled themselves on the MIDI front, providing a selection of interfacing facilities even more versatile than that of the Prophet 2000. The VS is multi-timbral, of course, and the prospect of using it in conjunction with a sampler and a MIDI sequencer is mouth-watering.

We'll be giving the VS a fuller appraisal just as soon as we get our hands on one. Only then will we discover if it really *is* such a cinch to work with, if the range of preset sounds really *does* contain voices of a uniformly high standard, and if it really *will* make prospective DX7 purchasers think long and hard before committing themselves.

It's due to sell in the UK for about the same money as the Prophet 2000 (under two grand, in other words), and from the evidence we've seen so far, Sequential should have little trouble selling it.

■ *Paul Wiffen*

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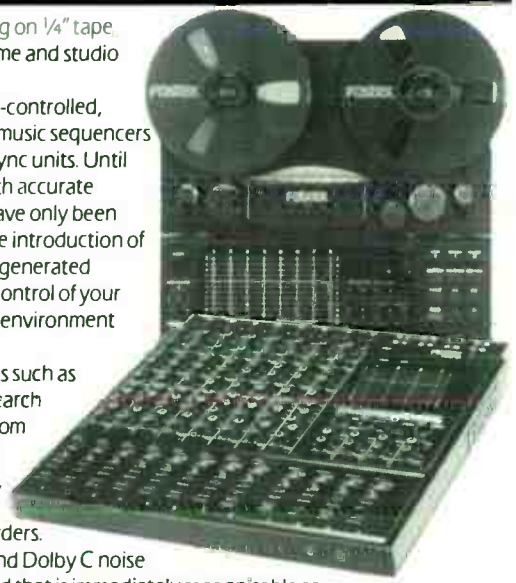

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Boss RSD10 Sampling Delay

Want the low-down on one of the cheapest pitch-tracking samplers currently available? Read on. The Boss RSD10 is the same physical size as the other Micro Rack modules (studio outboard units all), and derives its juice from an external power supply.

It's based round a digital delay with a 7kHz frequency response, and a delay time that can be anywhere between two milliseconds and two seconds. There are no modulation facilities, but there is a Feedback option for lovers of repeat echoes. Sound quality is higher than any semi-pro analogue delay, even if the limited bandwidth does lead to a certain lack of brightness.

The sampler section operates unconventionally, in that it actually tracks the pitch of the controlling keyboard's audio output, changing the pitch of the stored sound by speeding it up and slowing it down. Maximum sample length at the middle of the pitch range is two seconds and, though the manual claims the machine tracks over two octaves, it worked OK over a range of more like four.

You may have to switch octaves on your synth until you find the sampler's operating range, after which you connect the keyboard gate output to the sampler's trigger input, and that's that. The RSD10 requires a clean waveform to work on, so it's best to set up your synth to give a square wave output, with a fast attack and a couple of seconds of release time. Set the low-pass filter to the highest cutoff frequency, and apply no resonance.

There are two ways of loading a sound into the Boss. In Mode A, a signal at the input starts the recording process, after which both the sampling duration and the replay pitch depend on the last note played on the keyboard; it makes sense, therefore, to select a note on the keyboard that corresponds to the pitch of the sound you're about to sample. Mode B works in much the same way, except that the sampling process is initiated by pressing a key on the synth.

Any sampled data is lost when the RSD10 is switched off, but you *can* record your sounds onto tape and resample them later. Using a stereo recorder, you can also record the keyboard pitch at which the note was sampled and use this to re-record the sound at the correct pitch.

Once you've got a sample you're happy with, pressing a key on the synth causes it to replay all the way through unless you hit another key before the sound ends, in which case it starts again from the beginning. If the sound is too long, you can use the Trim control to shorten it; this fades the sound rapidly rather than just cutting it off, so there's no click at the end. There's no facility for trimming the *beginning* of a sample, though.

Should you want to layer a sound on top of another, you simply advance the Feedback control, though this adjustment requires a bit of experimentation.

One advantage of the pitch-tracking system is that it works on synths that don't conform to the 1V/octave standard, like old Yamaha and Korg synths with linear oscillators (though if yours is a Korg or an old Moog, you'll need a trigger converter before you can use it), or a modern polysynth, providing it has a gate or trigger output and that you play it monophonically. And any portamento or pitchbend you apply to the controlling synth translates accurately to the sampled sound.

Quality-wise, the RSD10 is no Synclavier, but quite serviceable nonetheless. Samples replayed more than a few semitones below their original pitch *do* show signs of quantisation and aliasing – though for some people, that's all part of the charm of sampling.

Finally, with the Boss operating as a delay, the delay time can still be controlled by the synth pitch, so you can create quasi-flanging effects from the keyboard, or even use the synth's LFO as a modulation oscillator for 'proper' chorus and flanging.

The Boss' limited bandwidth prevents it being worthwhile purely as a DDL. But its sampler section is competent enough in terms of range, quality, accuracy and flexibility to lift the machine well above 'interesting toy' status. ■

Paul White

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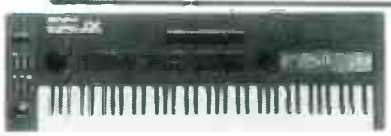

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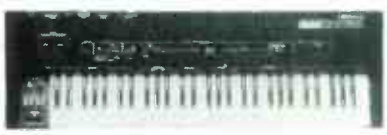

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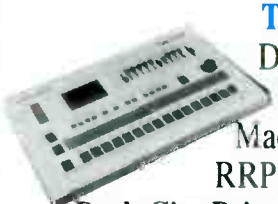

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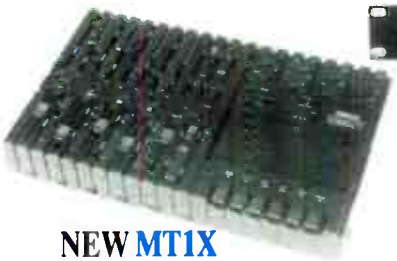

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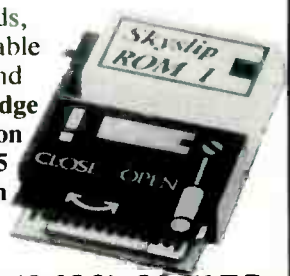

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Yamaha SPX90 Multi-Effect Processor

Just when you thought it was safe to leave your 19" rack in the corner, Yamaha introduce a revolutionary new rack-mount machine. The SPX90 is a digital stereo multi-effects processor, which, in layman's terms, means that Yamaha have stuffed almost all the currently fashionable digital effects into one box, in order to give the user maximum results from a minimum of gear.

We've seen a number all-singing, all-dancing effects units before now, but most have failed in a vain attempt to pander to the differing requirements of guitars and synths. Let's face it, if anything could be all things to all men, Quentin Crisp would have sussed it years ago.

Yamaha have made their FX choices carefully: there's *no distortion* and *no sustain*, so this is definitely a piece of gear for hi-tech rather than three-chord thrash applications.

Internally, the SPX90 is a digital reverb with a DDL thrown in, or is that a DDL with a reverb thrown in? I suspect the latter, but either way, this system partially overcomes one of the average DDL's greatest shortcomings: its inability to give reverberation that doesn't sound like Marvin the Paranoid Android. The '90 covers Hall, Room, Plate, and Vocal reverb times, but in truth, they represent only the start.

You can also obtain mono delays up to 500mS long, stereo echoes of up to 250mS, plus a load of gating, parameteric EQ and sampling facilities thrown in. About the only real concession to the guitarist is the inclusion of a compressor, but I think I could live with that.

The unit comes with 30 preset programs on internal ROM, and will store a further 60 user programs in RAM, the program in use being indicated by the front panel LED display.

Basically, the factory programs cover a wide variety of eventualities from reverb, chorusing, flanging and auto-panning, to echo and pitch-changing. These presets then provide the starting point for your own programs, and each is made up of up to nine user-variable parameters. The present setting appears on the front panel LCD, and can be adjusted using the familiar increment/decrement method. The resulting program is then stored under one of the user memories with the help of the Store button.

Needless to say, the SPX90 offers the usual MIDI program-with-patch-change facilities for control from an external MIDI synth. MIDI also facilitates pitch control over the SPX90's Freeze programs, which a quick reference to my Yamaha/English phrasebook assures me are monophonic samples. The unit will hold a sample of up to 500mS in length, and depending on what mode you're in, this can be simply a retriggerable sample or a pitch-controllable (over five octaves) one. Editing of both start and end points is possible, and you can play your sample backwards simply by setting the start point nearer the end than the end point – easier done than said.

The SPX has a couple of foot-switchable features, useful for those with their hands already full of keys.

The first of these is a Bypass facility which simply defeats the current effect and allows your untreated signal to appear at the machine's outputs. The second is a little more involved, has a dual function and goes under the name of Memory Trigger. In its first mode of operation it allows footswitch selection of pre-determined programs in conjunction with the Utility button, and in its second, it triggers Gate and Freeze effects.

Finally, those who like to keep well away from their racks in the normal course of composing/performing/recording will be glad to know there's the option (at extra cost) of a hand-held remote control unit, the RC7.

The SPX90 had been in our hands less than a day when this issue of E&MM went to press, so I'm afraid I can't be any more specific about the effects it produces or how they sound. You'll just have to wait until a future issue for that.

Its specification makes mighty impressive reading, though, and my only major doubt concerns what you're supposed to do if you want to flange your echo effects, and then add just a modicum of reverb. Anyone for a *bank* of SPX90s? ■ *Tim Goodyer*

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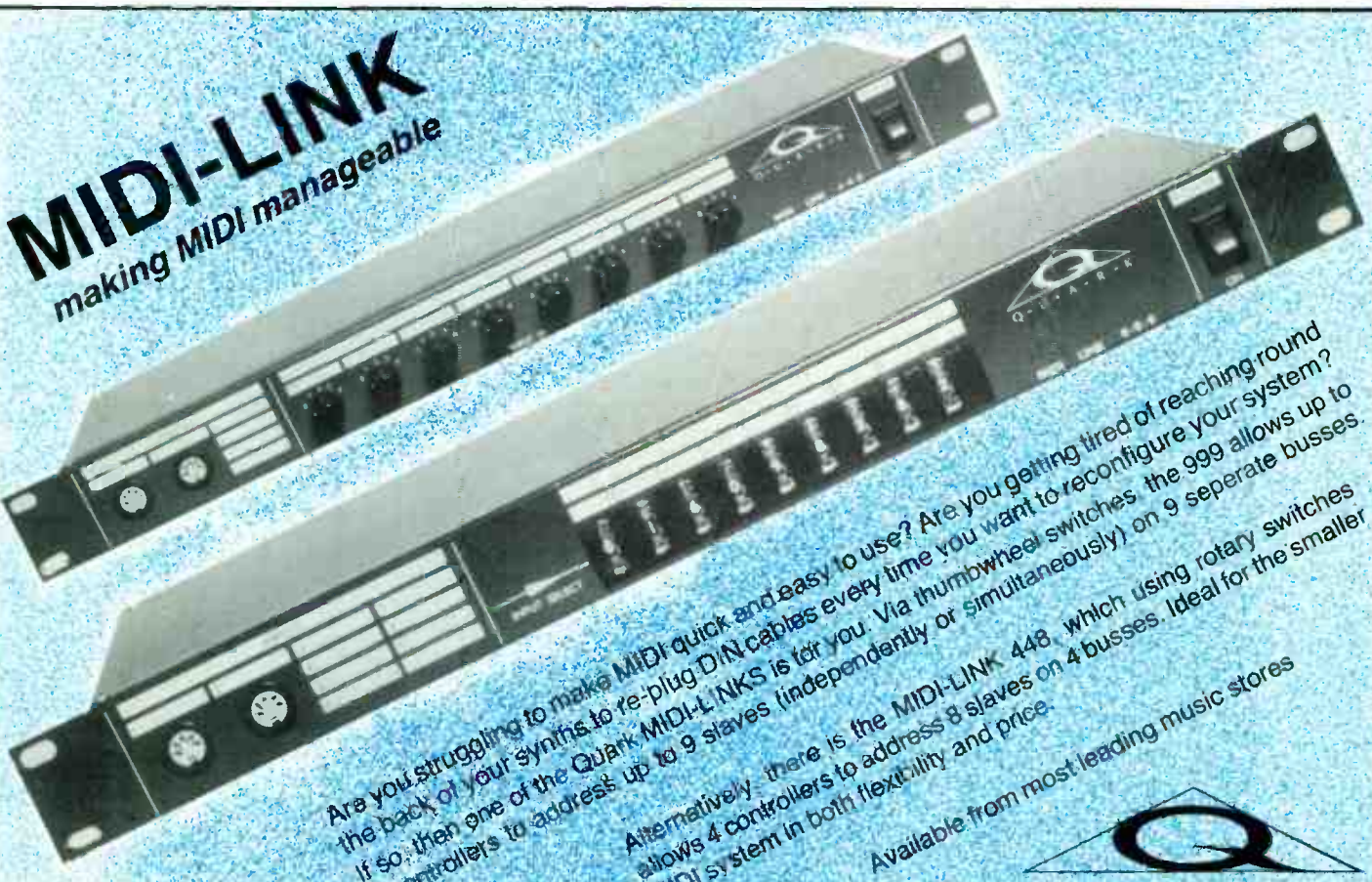

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Ever wished you could become one of E&MM's regular contributors, reviewing the latest gear, rubbing shoulders with the famous, and seeing your name in print every month? Ever read a feature in the magazine and thought you could have written it better? Ever stood oghost in a music shop while an assistant demonstrates the wonders of Yamaha FM synthesis technology, only to find that the £2.45 in your pocket won't even buy you the breath controller?

Well, if you've experienced any of those three emotions – or something approaching them – this is your chance to remedy your predicament. Because for the first time in its history, E&MM is asking its readers to contribute features on a free-for-all, no-holds-barred basis. All you have to do is think of something to write about and write about it.

And, if your feature is the one we select as the best of those submitted, three things will happen. First, the feature in question will be published in E&MM. Second, you will be engaged as a freelance editorial consultant, a post that could lead to all sorts of fascinating experiences, such as taking home a new Fairlight system for long-term evaluation, spending a week crossing the Amazon jungle with Jean-Michel Jarre, and having your copy butchered mercilessly by the Editor. Third, and perhaps most significantly, a brand new Yamaha DX100 polysynth will arrive on your doorstep, with the compliments of Music Maker Publications and Yamaha-Kemble (thanks, guys).

There is no catch. The only thing that will prevent you from entering the competition is being related to an employee of one of the two companies mentioned above, and such other regulations as may stand between you and overnight stardom aren't really worth worrying about.

Briefly, these are the rules. First of all, decide on a particular topic you think is worth putting pen to paper over. This can't be just any old topic – it must lie within the normal editorial scope of E&MM, and ideally, it should be something guaranteed to arouse interest amongst the magazine's staff (because we're the people judging the competition). Thus items about writing songs, user reports of instruments, and general articles discussing the state of today's music technology are perfectly acceptable, but short histories of the Albanian people and lists of mid-70s Yorkshire batting averages are not.

Before you actually begin writing, bear in mind that you are limited to a maximum of 1200 words on your chosen subject. That isn't an awful lot, we admit, but it does at least ensure the amount of superfluous verbiage is reduced to a minimum ond, much more importantly, it makes our task a great deal easier. When you're happy with your recently completed novella, clip the coupon below and attach it to the manuscript (preferably typed, double-spaced, on one side of the paper only), and send the whole thing off to us at the editorial address, marking your envelope 'Hold the Front Page'. Finally, do your utmost to ensure your entry reaches us before the closing date of Tuesday, April 8. Because if it arrives any later, we'll use it to wrap our fish and chips in.

So, if you want to write alongside such well-known media personalities as Paul Wiffen and Annabel Scott, shake hands with megastars like Howard Jones and Brian Eno, and play havoc with 192 FM synth voices, this is the only chance you'll get for years.

What are you waiting for? Get scribbling!

My feature is called.....

My name is.....

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SHOWTIME

NAMM WINTER MARKET, ANAHEIM

"I'll remember it as being the most exciting, yet bewildering, trade show I've visited in all my years of music journalism."
Paul Wiffen

One thing is certain about this year's Winter NAMM Show: three days were not enough to cover it. I spent all the available time gathering a stack of literature and brochures so big I nearly had to pay excess baggage on it, and still came away feeling that I'd only scratched the surface. Still, here are some highlights from a show I'll certainly remember as being the most exciting, yet bewildering, in all my years in music journalism.

Let's begin with the longest awaited product: the Series III **Fairlight**. The latest version of the world's most successful computer musical instrument seems to be nearing general availability, but apart from the instruments themselves, the star attractions on the Fairlight stand were Herbie Hancock and Thomas Dolby doing the demonstration honours. Frankly, I was less than impressed by the whole thing. The start of the session I attended was delayed by the crashing and subsequent re-booting of the entire system, and in a misguided attempt to cover this embarrassing pause, Dolby was asked what the Fairlight had done for him. He replied: 'It has expanded my musical vocabulary. If I want to try timpani on a song, I can do it in the comfort of my own home. Of course, it's more fun to use a real player on record, but it gives me the means to try out ideas. And if you've got $65,000 that's what the Fairlight can do for you. I know it's tough, but that's how it is!' Love the sales pitch, Tom.

Sequential Prophet 2000 *now has modular 2002 sampler as companion, though both were overshadowed by company's new VS polysynth, best analogue-digital hybrid yet*

When the system was finally working, our two heroes attempted to jam over a horrendously out-of-time drum part programmed by a Fairlight salesman. And as for the speakers through which the system was being played, they'd have disgraced a home music centre, so there was no way of telling if the samples were the cited 16-bit, 50kHz or the original eight-bit. Software-wise, there was no sign of either the much-heralded CAPS (Composer/Arranger/Performer Software) or the new polyphonic version of Page R.

In contrast, the Fairlight Voicetracker was seen to perform admirably. It tracked sax, flute and human voice without glitching, and has many splendid features to enhance MIDI or CV/Gate control of synths. Just what professional non-keyboard players have been waiting for to give them complete control of synths, but a mite expensive at $2895.

If, like me, you start feeling a bit impoverished at the sight of a Fairlight price list, **Casio** have got a tonic for you.

Their SK1 sampling keyboard has 1.5seconds of eight-bit, 8kHz sampling and eight-voice polyphony. Its 32 keys are of the miniature variety, but the machine is set to retail in the UK for the absurdly low price of £99, so there's no cause to complain. We've quipped, in the past, about Casio doing a Fairlight equivalent for silly money, but we never dreamed they would come this close.

Aside from Casio and Yamaha (with their competing VSS100 mini-sampler, in the shops by the time you read this) manufacturers seem to be settling on the middle-ground of the sound-sampling market, as already typified by the Mirage, Prophet 2000 and Akai S612. At NAMM, anyone who was anyone was launching a 12-bit, 31.25kHz sampler somewhere in the £1000-£2500 price bracket.

Sequential, whose machines are of a higher spec anyway, announced an update to the 2000 at the show. This doubles the available memory (and therefore the maximum sample length), and includes a double-sided disk drive to cater for the extra storage and a new software EPROM to allow the Prophet to work with Digidesign's adaptation of their Sound Designer package. The update is due to cost £395, and I've ordered mine already.

Also making its show debut was the rack-mounting Prophet 2002, which has exactly the same spec as the 2000, and should retail for £300 less than the keyboard version. It features several ergonomic improvements over the 2000: a much more tasteful front panel, some proper switches and (sigh of deep joy) sample input and level controls you can get at easily.

Somehow, I found time to bend half an ear toward some new library disks for the 2000/2. American sounds include Choirs, Violin, Vibes, Drum Kit, Xylophone, String Bass, Flutes, Sitar, Tabla and Harp, while European offerings include Beat Box, Stick and Lead Guitar, with more to be announced at Frankfurt. Without exception, they sounded fine.

Despite all this, the most exciting thing on the Sequential stand had nothing to do with sampling at all: the brand new Prophet VS synthesiser. The VS bit stands for Vector Synthesis, a digital system which threatens to eat the PPGs and DX7s of this world for breakfast. See elsewhere this issue for an exclusive preview of this machine.

Several Japanese companies showed new sampling keyboards at NAMM, but none of them exhibited the dramatic price drop so many had been predicting.

Tasteless Ensoniq stand *was typical of gaudy NAMM aesthetics; product was good, though, with modular Mirage, sampled piano, and new digital polysynth all making impressive debuts*

The **Roland** S10 should be among the cheapest, but it has only 128K of memory giving just four seconds of sampling. The bigger S50 looks a much better bet, with a massive 512K memory giving 17.2seconds of sampling, and in-built software for voice editing on any RGB monitor screen, with no additional hardware required. Very clever.

The new sampling technology is also used in Roland's new digital pianos, the 88-note RD1000 and the rack-mounting MKS20. Most exciting product on the stand for me, though, was the new Roland MIDI sequencer, the MC500. This looks all set to provide the sort of flexibility only disk-based units can, but more cheaply than the current standard MSQ700, which lacks any form of a disk drive at all.

Roland S50 sampler *was best-specified of a whole host of prototype keyboards from Japan, is aimed at currently unpopulated sampling middle-ground, sounded OK through terrible demo sound system*

Sampling exhibited itself on the **Korg** stand, too. Their DSS1 is a sampling synthesiser with some interesting new applications of old standards like oscillator detuning and syncing. More than any of the new breed of samplers, Korg's machine offers great potential to those who want to mix their sampled sounds with synthesised ones, merging the two technologies to produce 'real' voices that sound genuinely different. Only 128K of memory, though.

Comments on how these new samplers actually *sound* will have to be reserved for the Frankfurt report (coming up in the next couple of pages), as the standard of demonstration at NAMM was lamentably low, and some instruments looked decidedly half-finished to these eyes.

Just about the only thing worthy of attention on the **Yamaha** stand was the SPX90, a digital effects processor that seems to be able to turn its 16-bit chip to any effect you ever heard of. By storing 30 different internal configurations in ROM, it can become a digital delay, a reverb (with gating), a compressor, a MIDI-controlled harmoniser and sampler, a flanger, a chorus, an auto-panner, and a parametric EQ, all for a miraculous RRP of £599.

Apparently, it is now a worldwide Yamaha policy not to show new gear too far in advance of its general availability. So, the world will have to wait till summertime before it gets a look at the main bulk of Yamaha's new 1986 product. For the time being, we'll have to make do with the SPX90.

But back to the Americans and **Ensoniq**. Having established themselves with the Mirage, the company that gave a whole new generation of musicians affordable sampling are now expanding their product range into new areas. The 10-voice Ensoniq Piano, for example, features 12 multi-sampled sounds (including Grand Piano, Electric Piano, Upright and Electric Bass) onboard. All the voices compare favourably with their Mirage counterparts, and the 76-note weighted keyboard also has a favourable price: £960.

Like Sequential, Ensoniq also unveiled a digital synth at NAMM, seemingly from nowhere. Theirs is aimed at a slightly lower price bracket, and is called the ESQ1. Voice-generation consists of three oscillators per voice, each of which can play any of 32 preset waveforms of multi-sampled or synthetic varieties. These are then passed through complex filter and amplifier envelopes, with some old-tech features like ring modulation also available. The internal 40-program memory can be expanded to house 120 via external cartridge.

The ESQ1 has a built-in sequencer in addition to its fine-sounding synth section, and Ensoniq are rightly making great play of this, as it leaves the simplistic version in the Mirage very much in the shadows. Eight tracks of multi-timbral recording are possible, with dynamic assignment (up to full eight-note polyphony) of the internal voices on each track. Alternatively, up to eight voices can be sent out on each MIDI channel for use with other MIDI instruments.

The cost of all this versatility? Again, around £960.

For those who thought the Mirage was the best thing since sliced bread, there's the Ensoniq Multisampler, a rack-mounting version of the Mirage with an extended feature list, including aftertouch and breath control via MIDI. This product should also retail in the UK for, yes, you've guessed it, £960.

Existing Mirage owners need not fear of their machines being made obsolete by these developments, as a new 3.1 operating system makes all the new MIDI features available to old(?) Mirages.

And the Mirage itself also gets a facelift for '86, both internally and externally. There's a new weighted keyboard, and the aesthetics have been altered to incorporate a grey finish with colour-coded yellow and white buttons. Internal modifications ensure a better signal-to-noise ratio and an enhanced frequency response. The price remains ►

► unchanged at £1295, which includes the 3.1 operating system, the MASOS software and the Advanced Sampling Guide.

In addition to the Visual Editing Software for the Apple II shown at Summer NAMM in '85, Ensoniq now have a similar package for the Commodore 64. They're also distributing a faster package for the Apple Mackintosh written by the unlikely-sounding Blank Software of San Francisco.

Now to a machine which, though by no means new, certainly turned a lot of heads at Anaheim. The MIDI Bass is a small, innocent-looking box which, when attached to any velocity-sensitive MIDI keyboard, provides you with some truly remarkable sampled bass sounds. The unit comes with straight and slapped Fender Jazz, Plucked Upright and Minimoog Bass samples, in a package that reminds me of a cross between a digital drum machine and the Roland TB303 Bassline. You change sounds simply by inserting new EPROMs, and the MIDI Bass' manufacturers, **360 Systems**, are offering a whole library of sounds ranging from Bowed Double Bass, through Steinberger, Rickenbacker, Stick and Eight-String Basses to Keyboard Bass notes taken from Rhodes and DX7 instruments. The chips cost $50 each.

Attractive Linn MIDIstudio *is no more than repackaged Linn 9000, features 'lap pad' for remote programming in control rooms away from main unit, but costs no less than original machine*

Amazingly, the MIDI Bass has received little distribution in Europe, but a large shipment should have arrived in the UK by the time you read this.

Oberheim's new rack-mounting Matrix 6R looks like being a big seller in the States at its RRP of only $1299 (that's less than a grand in real money). However, it remains to be seen whether the UK price can be made as competitive. The keyboard-equipped version of what is, after all, one of the world's most versatile analogue synths, has suffered in some markets from a dollar-inflated price tag.

Going back to pitch-to-MIDI converters, there were examples of these almost everywhere you looked at Anaheim. Of these, however, only two systems looked to me as if they really *worked*: the **IVL** Pitchriders and the **Ibanez** MIDI guitar system. The IVL models seemed particularly quick and accurate, throughout a range that goes from the 400 and 1000 (which work with the Commodore 64 and Amiga computers respectively) to a rack-mounting dedicated unit being demonstrated with Kramer guitars.

They might not be taking off as strongly as predicted in the UK, but computer software packages abounded at Anaheim like at no other show I've visited before. The most popular music micro across the Atlantic is the Apple Macintosh, which is almost laughably cheap in its country of origin.

Amongst the best of the Mac packages are the epically-named **Mark of the Unicorn** Song Performer and the MacMIDI from **MusicWorks**, a range that includes interactive real-time sequencing and scorewriting packages.

The **Digidesign** Sound Designer package (reviewed in its Emulator II version in E&MM December '85) is now available in two other incarnations, for the Prophet 2000 ($495) and Ensoniq Mirage ($395). The good news here is that all files are cross-compatible, so that a sample taken on any of the above machines can be transferred across to a Sound Designer Macintosh disk, and then loaded into either of the other two machines using the appropriate version of the software. This means that EII, 2000 and Mirage owners can swap samples amongst each other without having to wait for E-mu and Ensoniq to implement the newly-established MIDI protocol for transferring sample data.

Other computers which had software and hardware packages announced for them at Anaheim, included the Commodore Amiga and 128, and the Atari 520ST. **Hybrid Arts** now have their excellent MidiTrack package (honourably mentioned in dispatches from last June's Summer NAMM show) available for all current Ataris, Commodore 64 and 128, and IBM PC.

But **Mimetics** are the really courageous ones. Despite continued rumours of an impending Commodore collapse, they're going ahead with a complete Amiga Music Studio series, which will take advantage of the Amiga's unrivalled internal sound capabilities, graphics, and high-speed communications. The more software there is available, the more likely the Amiga is to succeed, so Mimetics' endeavours deserve a lot of praise.

Less daringly, **Syntech** entered the IBM PC field by making their Studio I sequencer package (much praised in its C64 format in E&MM November) available in a 48-track version for $449. Their C64 range was expanded by the addition of a Roland JX Editor/Librarian package, with the novel feature of a syncable 'bass-line generator' thrown in. On the hardware side, they had several interesting products, including a 16-into-16 MIDI routing box.

Syntech were also one of several companies showing expanded storage cartridges for the **Yamaha** DX and RX ranges. Their 64-program RAMs sell at $99, while 128-program ROMs have all-new sounds for the same price.

Other expanded RAM cartridges were shown by **Symphony** 128, and my personal favourite, the **Maartists** range, whose four-bank DX7 RAM features the authentic Yamaha edge connector, and LED indication to show which bank you're working on. The same company's Casio CZ RAMs hold two banks (32 programs) for the same price as the 16-sound originals. Personally, I reckon some wise UK distributor should jump on this product range quickly.

Another fascinating offshoot of the FM industry is the **Beetle** range of add-ons. Their PR7 dedicated programmer, for example, provides a duplicate of

Apple Mac software ***abounded at Anaheim as Stateside musicians get bitten by the computer bug; Compact Disc ROM unit for Emulator II is shown on left, stores more sounds than chips, cartridges, disks or tapes***

the DX7 front panel, complete with RAM cartridge socket, for musicians thinking of buying TX7, TX216 or 816 expanders, but who don't want to have to acquire a DX7 to program them. Ingenious.

Beetle's QR1 RAM Disk has wider appeal, as it plugs directly into any RAM-based synth (DX, CZ, JX and so on). A single quick disk can store 30 RAM cartridges' worth of data, or 960 DX7 sounds. Access is near instantaneous, and each QR1 comes with the adaptor of your choice: Yamaha, Casio or Roland.

Casio RZ1 drum machine ***caused a stir at both Anaheim and Frankfurt, offers digital preset voices and user-sampling facilities at sensational RRP of under £400***

Sound storage is one theme being picked up on by **E-mu Systems**. The company had no new products to offer at NAMM, the update-based support they're now offering to the Emulator II and SP12 drum machine should ensure longevity for both.

The hard disk option for the EII is now fitted as standard to the host machine, and retro-fits are available in the US. However, American restrictions on hard disk exports could cause something like a six-month delay before the update is available in the UK. The hard disk allows the equivalent of 23 floppies to be stored onboard, and accessed in a maximum of two seconds, while floppy disk libraries can still be loaded and stored internally at will. Add about $2000 to the price of a new machine or a retro-fit.

E-mu's CD ROM option is equally intriguing, as it gives access to over 1000 banks of sounds with a load time of just four seconds. All available E-mu sounds have been put on the first CD, and more will be issued as sounds become available. As far as I can see, no other system will be able to compete in terms of mass storage of samples, instantly ready for use.

The SP12 now has an update called Turbo, which is already being delivered and fitted as standard to new machines. It gives a vital update to five seconds of user sampling onboard, but already there's talk of a 'Rambo' revision which would bring this figure up to 15.

Not quite such good news on the **Linn** stand, where the company that invented the digital drum machine had only more repackaged versions of existing designs to show for their R&D labours. The Linn MIDIstudio is simply a Linn 9000 in a 'work-station' type box, with a detachable remote pad you're supposed to put in your lap. The main box can be rack-mounted, but you need to be able to get at it to change disks and volume levels.

Kurzweil fared no better. The backbone of their operations continues to be the 250 digital keyboard, now available in a variety of modular and dedicated formats. But there's no sign of any new instruments on the horizon, and the only previously unseen items on the Kurzweil stand were a couple of new boxes for the 250: a home version complete with 'furniture-style cabinetry and optimally-matched audio components', and a roll-top model for church and school use. Pretty stunning stuff, I'm sure you'll agree.

As far as the actual keyboard is concerned, there's no change except that the internal sounds have been re-sampled at a better rate, and user-sampling can now be increased to 50kHz, too. Recent software revisions finally allow for SMPTE compatibility and an expanded sequencer capacity. All these features will come as standard in the basic price from now on, but if you've already bought a Kurzweil, you have to fork out a further $3000 for the improvements to be retro-fitted.

All in all, my guess is that Winter NAMM '86 will be remembered as the show which gave the man-in-the street access to the technology rock stars have been playing with for years. Sampling with the Casio SK1; wavetable synthesis with the Prophet VS; digital pianos with Ensoniq, Roland, Korg and Technics; and accurate pitch-to-MIDI conversion with IVL, Ibanez and others.

As a consequence, it may also be remembered as the first nail in the coffin of traditional hi-tech manufacturers such as Linn, Kurzweil, NED, and maybe even Fairlight, who've failed to come up with economically priced alternatives. I sincerely hope this doesn't turn out to be the case, but a reputation doesn't last long if people can buy cheaper elsewhere.

Whatever the results, Winter NAMM '86 was one of the few Californian trade shows that's had so much to offer in the way of innovation, it's dragged me forcibly away from the hotel swimming pools, and prevented me from spending an afternoon in Disneyland. Or even thinking about it. ■

MUSIKMESSE '86, FRANKFURT

"The vast network of aisles and corridors became almost claustrophobic, and you needed the stamina of an American footballer to push your way through the crowds."
Dan Goldstein

This was supposed to be a trade-only show, but security was less effective than ever at Frankfurt this year, and local musicians outnumbered bona fide businessmen by about two to one. In some ways that was no bad thing, as many music traders aren't actually musicians at all, and are therefore unlikely to derive much benefit from the endless run of demonstrations, seminars, lectures and concerts. On the other hand, the additional influx of German musos made the Messe's vast network of aisles and corridors seem positively claustrophobic, and on the second day (Sunday), you had to have the stamina of an American footballer to push your way through the crowds.

Those crowds had plenty to see, hear, play with and trample on, and at the hi-tech end of things (the Frankfurt Musikmesse covers everything from baroque organs to laser harps), there was simply too much to take in, even for an experienced hack.

This year's fair witnessed the consolidation of old trends rather than the setting of new ones. As in '85, there was an abundance of new electronic drum systems, another surge of interest in rack-mounting effects units, new software for a variety of host computers, and MIDI on the back of everything. Most of all, there were samplers. Hundreds of them (well, almost) at varying stages of development and/or production, but all on demo to the hordes of sample-hungry dealers, punters and press people.

Akai demo room *in quiet moment between entertaining and enjoyable concerts; S900 sampler, MPX820 MIDI mixer and finished 16-track sequencer are among the new machines*

Paul Wiffen has already commented on most of the sampling keyboards on show at NAMM, so I won't go into unnecessary details here. Suffice to say, though, that the most impressive of the new breed to these ears is the **Roland** S50, which, along with most of the other Frankfurt goodies, was being demonstrated more sympathetically than it had been two weeks earlier in California. The Roland follows current sampler fashion in supplying a host of keyboard-splitting options for real-time playing of several different samples at once, and also offers some Sequential-style multi-timbral MIDI facilities. But its most noteworthy feature is its ability to send sound and graphics data direct to an external colour monitor for on-screen voice-editing purposes, *without* the need for any awkward computer keyboards or costly external software. You can even connect an MSX computer mouse to make screen manipulation even easier. Price of the S50 will be under £3000, which puts it in the currently unoccupied middle-ground between the Prophet 2000 and the Emulator II.

Occupying a similar price position is the **Korg** DSS1, which has considerably less memory than the Roland, but offers more in the way of sample editing facilities, a more comprehensive analogue sound-manipulation section (VCFs and VCAs) and two programmable digital delay lines.

The DSS1 sounded excellent under the capable hands (and feet) of demonstrator Don Muro, whose ability to sound like a full orchestra under the hectic, sweaty conditions of Korg's demo room impressed everybody who saw him, flitting slickly from the astonishing DVP1 voice processor (E&MM review soon) to the sampler prototype via a huge set of MIDI bass pedals.

Korg weren't the only company lucky enough to have recruited a professional, versatile demonstrator. **Akai**, for instance, employed the services of American singer/musician Sally Towns, who made what could have been a very technical, schoolteacher seminar into an enjoyable musical event, and followed that one evening by joining a jazz band on stage in a Frankfurt nightclub. There should be more like her.

Of the machines she was demonstrating, it was again a new sampler – the S900 – that stood out as being worthy of special attention. The new machine takes over from where Akai's S612 leaves off, with a massive maximum sampling time of 48 seconds at 20Hz-4kHz bandwidth, or 12 seconds' worth with a bandwidth of 20Hz-16kHz. In common with most other new-generation samplers, the S900 is a multi-sampling device, capable of storing up to 32 (fairly short) samples and letting you play them from different sections of a MIDI keyboard.

The 900's built-in 3.5" disk drive isn't just a means of storing samples; it will also be used as a means of loading up alternative operating systems in software, so that the module can be used as the nerve centre of an eight-voice sinewave synthesiser, a digital multitrack sequencer, and a comprehensive waveform editing system. The S900 is due to have an RRP of £1599 when it becomes available in the UK in April/May, which is cheap enough as it stands simply as a sampler, even without any of the additional software.

At the bottom end of the sampling scale, **Casio** have followed Yamaha's lead in developing an instrument aimed at guiding music newcomers into the world of recording a sound, storing it in digital memory, and playing it back from a keyboard. Wiffen has beaten me to a description of the company's new SK1 sampler, but quite how Casio have managed to make their machine an eight-voice polyphonic keyboard with a range of quite

Astonishing Hohner Compagnon *is designed to combine home organ ease of use with synthesiser versatility, was one of many 'modern' instruments from revitalised organ industry*

acceptable preset sounds and *still* sell it for under £100 amazes me just as much as it does him.

Their RZ1 drum machine is similarly astonishing, for although its digital voices aren't quite up to Roland or Yamaha standards, Casio have managed to fit some expensive hardware items like separate audio outputs, individual level sliders, and a proper numeric keypad for data entry. Then, of course, there's the RZ1's *coup de grâce* – its ability to store four user-sampled sounds in memory at any one time, and dump them to tape whenever you want to make room for more. Maximum sampling time for each of the sounds is 0.2 seconds, but you can combine these individual memories into one to create a single, extended sample 0.8 seconds long.

Kawai K3 polysynth *uses digital waveform system not dissimilar to Korg's DWGS, is seen here with new upright MIDI piano*

Price? Well, expect the RZ1 to cost well under £400.

A more comprehensive sampling drum machine was on show at the **RSF** stand. The French company's new SD140 machine is identical in spec to the DD30 reviewed in E&MM February, save for the fact that it has a 12-bit sampling facility capable of storing up to 16 different sounds onboard, with a *total* sampling time of between 3.25 and 13 seconds, depending on the sampling rate you use. You can split this sampling time any way you like between the available memory locations, save all the sounds to tape or MIDI disk drive, and play them over user-selected zones from a MIDI keyboard. The SD140 costs about a grand, which is still pretty competitive, and the good news is that the Frenchmen were negotiating with a potential UK distributor during the course of the show, so we should see the complete RSF range on these shores quite soon.

Staying with the French, we found **Micro Performance**, the people behind the PolyMIDI 1 sequencer, showing a bizarre MIDI drum set called the Micro Bat. The name comes from the fact that each pad's circumference is batwing-shaped, but dubious aesthetics aside, the system works well, sounded great using a Yamaha TX7 as a voice module, and is very reasonably priced – in France, at least.

Tying in, perversely, with this month's review of their Percuter S electronic drum kit, **Dynacord** unveiled an entirely new system at Frankfurt, with a superbly redesigned basic pad that is as chic as it is distinctive, a clever central stand called the Drum Caddy that does away with the untidy myriad of chrome supports drummers were previously forced to use, and a sophisticated voice unit, the ADD One.

The last-mentioned is still at the prototype stage, but the same needn't be said of the Rhythm Stick, Dynacord's revolutionary pad controller designed to free drummers from the constraints of sitting behind a kit, and at the same time give other musicians the chance to control drum voices in real time on stage. You play the guitar-shaped device by tapping a pair of touch-sensitive pads with your right hand, while selecting voices from a set of eight switches on the 'neck' with your left. The Rhythm Stick is a little tricky to adjust to, but that didn't stop swarms of German musicians getting to grips with it at the front of Dynacord's stand. Soon you'll be able to do the same in your local music shop.

More conventional electronic kits were to be found on the stands of at least two traditional acoustic kit manufacturers. **Pearl**'s latest system features cunning electronic hi-hat and cymbal units, while the **Premier** Powerpak is the first electro kit from the established Leicester-based drum company, and should sell for about £700.

Simmons are taking none of this lying down, however, and introduced a number of innovations at Frankfurt to prove the point. The SDS1000, for example, is a new budget electro kit featuring five user-programmable kit memories and five factory ones, four of which feature sampled snare sounds. You can extend the 1000's versatility by adding the new TMI pad-to-MIDI converter, a cut-down version of the existing MTM interface.

The men from St Albans were also showing a new MIDI voice expander called the SDE, a programmable unit capable of generating tuned percussion, bell and gong voices, plus other sounds available soon from a library of pre-programmed ROM cartridges.

Simmons were even showing an electronic drum combo, the SDC200, which differs from most standard amps by offering FX send facilities for each input channel, and specially-designed EQ sections and speaker unit. At last, electronic drum users look like getting an amplification system tailored to their needs from the word go, instead of being adapted from an existing, ill-fitting model.

These were the best demonstrated of the electronic drum products, too, with the ever enthusiastic (and eloquent) Bill Bruford wielding the sticks and US session keyboardsman T Lavitz providing sympathetic backing. ►

New Poly 800 II *sits atop prototype DSS1 sampler and SG1 digital piano on Korg's demo stage; credit card-size ROM packs litter top of versatile piano*

► From things you hit to things you strum, and what could be the best MIDI guitar product yet. The **Shadow** system is the work of Hungarian engineer Andras Szalay, who long-standing E&MM readers may remember as the brains behind the MUZIX 81 computer sequencer a few years back. The system builds all the necessary pitch-tracking electronics into a custom hexaphonic pickup that can be fitted to any guitar (acoustic or electric), features an intelligent jack lead capable of transmitting the outgoing information to a MIDI 'black box', and tracks a guitar player's handiwork (string-bending and the rest) as quickly and as accurately as any system we've yet seen. And that black box, by the way, also contains a built-in sequencer, so you can play duets with yourself if the mood takes you. UK importers are Barnes & Mullins, and first shipments should be beginning around May.

Seiko DS250 synth *has excellent preset sounds editable via clever LCD-equipped expander, is seen here with easy-to-use MR1000 MIDI sequencer*

MIDI is also starting to be implemented on instruments that aren't really instruments at all. Rack-mounting effects machines whose memories can be accessed via a MIDI keyboard are now almost commonplace, and the next step along this particular road seems to be the MIDI-controllable mixer.

Akai's new MPX820 is one example of this new genre, and offers eight input channels each with three-band EQ, pan, aux send, and level controls, all of which are programmable. The mixer has 99 onboard memories, all of them selectable via MIDI.

The idea is that you store a different set of mixer settings for each keyboard or drum voice you want to use during recording or live performance, so that as you select a new sound, the EQ, FX balance, stereo position and level alter automatically. Invaluable, and considering the technology that's involved, not too expensive at an RRP of £1299.

British mixer company **AHB** were showing a more sophisticated system based along similar lines. Their new Keymix is a modular network you can buy in stages, starting with an aux send and level module (the KM1, £785) and power supply, adding an identical slave unit (KM2, £725), three-band sweep EQ module (KM3, £410) and remote controller (KMR, £399) as and when you can afford them. The system has MIDI built in as standard, and like the Akai, can drive a MIDI sequencer with patch changes occurring at MIDI song pointers positioned by the user.

This is the point taken up by **Studiomaster** with their new MIDI-compatible mixer, which is more comprehensive than either of the above, and is angled more toward studio than live use. Definitely a trend to look out for, this, and one we hope to be reporting on in more detail in a future issue of E&MM.

Back in the world of ivory-tinkling, Frankfurt was awash with new electronic pianos, most of them fairly upmarket, 'professional' instruments, and some of them incorporating new voice-generating technology. Much debate surrounded the question of which of these sounded best, but all this seemed a little futile to E&MM's team, bearing in mind an exhibition is never the ideal place in which to judge sound quality.

Anyway, the players as they took the field at Frankfurt included the **Roland** RD1000, which employs a new technique known as Structured/Adaptive Synthesis (SAS for short); the **Technics** PX range, which have optional disk drives for sequence storage and also feature new, computer-assisted sampling/resynthesis technology; the **Ensoniq** 10-voice Piano, which took pride of place on a stand more aesthetically pleasing (but correspondingly more crowded) than its NAMM equivalent; **Yamaha**'s PF70 and 80, which replace the successful PF10 and 15 and whose sounds are FM-derived; and the **Kawai** EP705M and EP308M, upright and grand versions of some of the most rugged-looking electric pianos around.

Most fascinating of all, though, was **Korg**'s SG1 piano, which has not only four digitally sampled sound timbres onboard, but also a front-panel slot into which you fit credit card-size ROMs, supplied from a Korg library. Selling price should be similar to the DSS1 at around the £2250 mark. And like all the other new-generation pianos, Korg's joanna has MIDI on it so you can use it as a rather elegant, performance-oriented controlling keyboard.

Surrounded by all this activity, it's easy to forget what MIDI was originally designed for – the humble synthesiser. Luckily, the manufacturers *haven't* forgotten, and what this meant from the musician's point of view is that, in addition to the **Sequential** Prophet VS and **Ensoniq** ESQ1 mentioned in the NAMM Report, Frankfurt's exhibition halls also played host to a number of other synth announcements. ►

PLAYBACK

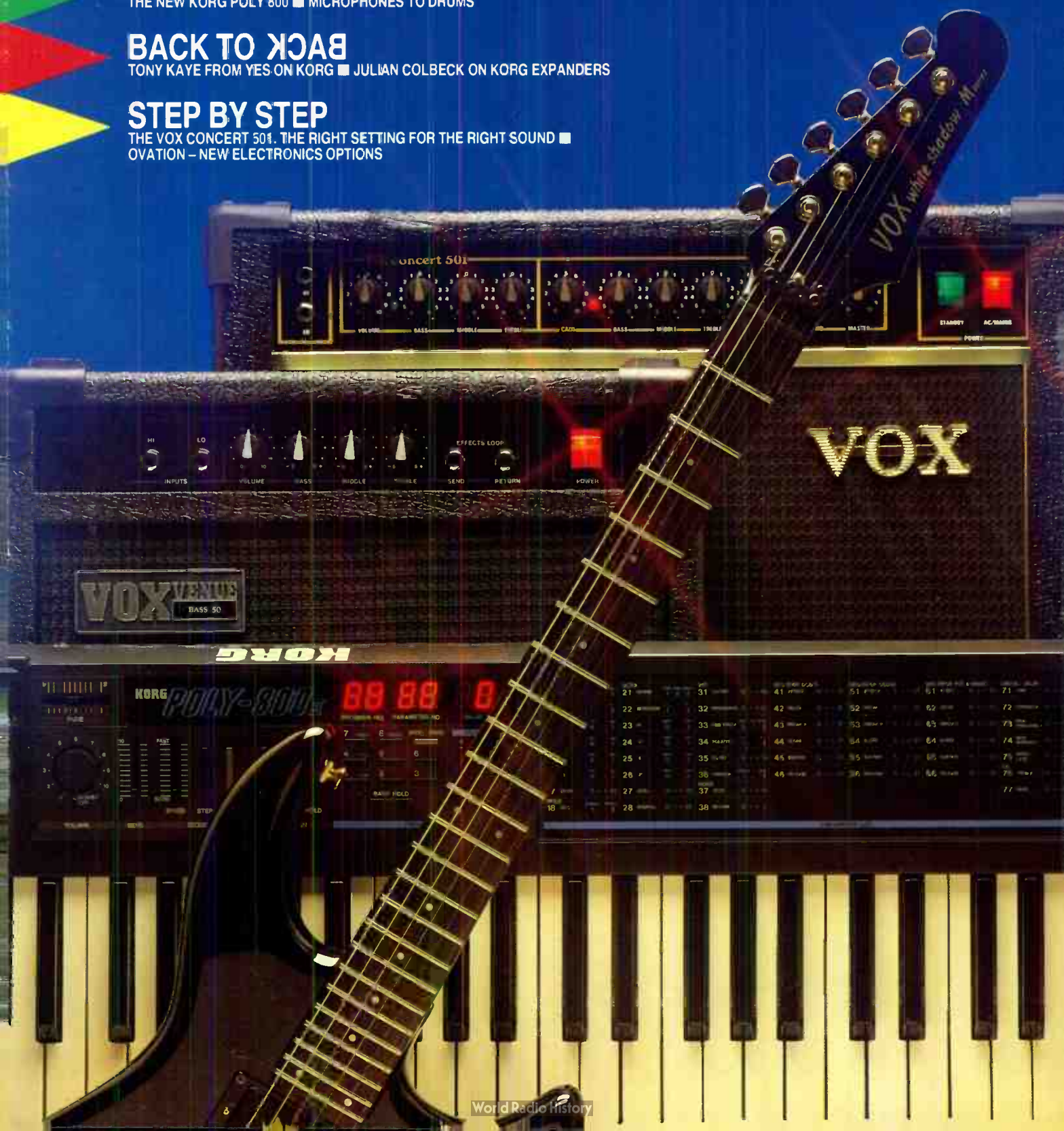
SPRING 1986

FEATURING KORG AND VOX AND MUCH MORE ■ VOLUME 2

REVIEW-REVIEW
THE NEW KORG POLY 800 ■ MICROPHONES TO DRUMS

BACK TO BACK
TONY KAYE FROM YES ON KORG ■ JULIAN COLBECK ON KORG EXPANDERS

STEP BY STEP
THE VOX CONCERT 501. THE RIGHT SETTING FOR THE RIGHT SOUND ■
OVATION – NEW ELECTRONICS OPTIONS

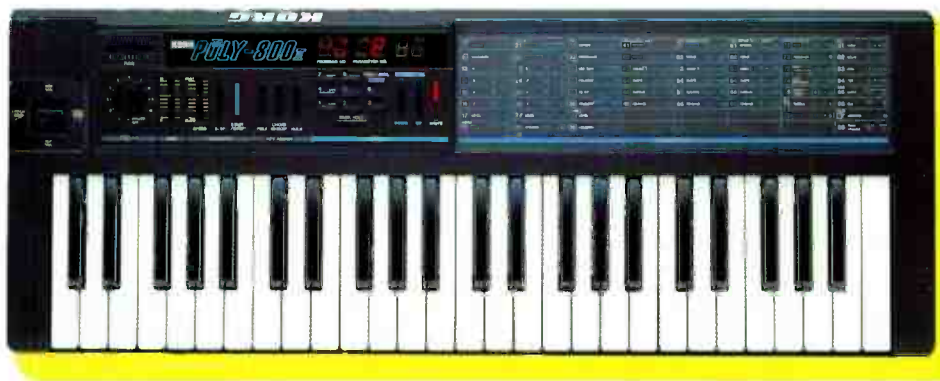


REVIEW

IMPROVING PERFECTION THE NEW KORG POLY 800

THE FIRST POLY 800 – LAUNCHED IN 1984

It was launched in 1984 and acclaimed as 'a truly superb little instrument' by Music UK, 'a breakthrough, excellent value for money' by International Musician, "an extremely impressive piece of equipment" Electronics and Music Maker. Since then the Korg Poly 800 has established itself as the biggest selling Poly synth in the world. With eight voices, 64 programmable memories, a built-in sequencer and midi, the Poly 800 has been bought by professionals and amateurs alike not just because of its outstanding features for the money, but also because of its convenience, weighing only 4.3 kilograms. Professionals take the Poly 800 off the stage and back to their hotel room. As Geoff Downes of Asia said "for what it costs it's fantastic, not really much less versatile than a lot more expensive synths".



The new Korg Poly 800

1986: THE POLY 800 II

So, how could Korg improve on the success of the Poly 800? 1986 sees the introduction of the new Poly 800. In many respects the same as the original, the same compact size and weight, but with just a few improved features.

A BUILT-IN DIGITAL DELAY. The Korg DW8000 was the world's first synth to have a built-in programmable digital delay and the new Poly 800 is the world's second. This means that instead of a simple chorus control, all types of delay effects, including flanging, phasing, slap echo and straight echo can be produced. Each programmed sound can have a different delay effect. This gives a whole new versatility to programming sounds on the instrument.

A LARGER BUILT-IN SEQUENCER. The Poly 800 has a built-in polyphonic sequencer. This is a very useful extra feature, not normally found on synthesizers and it has been the inspiration of some of the hits of the last two years. It is easy to use and sequences can be stored on to tape and re-loaded as required. The sequencer on the new Poly 800 has an expanded note capacity of 1024 notes

A BUILT-IN PROGRAMMABLE EQUALISER. Most amplifiers have bass and treble controls to modify your keyboard's output. But often each programmed sound requires a different treatment. The programmable bass and treble controls on the new Poly 800 allow each program to have its own equalisation.

A MODIFIED ENVELOPE CURVE. The Poly 800 has three digital envelope generators, each featuring Attack, Decay, Breakpoint, Slope, Sustain and Release. The new Poly 800 envelopes have an exponential curve making a far more realistic and natural sound. This makes a marked improvement to all the sounds of the instrument.

The new Poly 800 is set to continue as the world's most successful Poly synth and as Chuck Leavell of the Rolling Stones said, "One of the most versatile musical instruments I've played in years".

MICROPHONES – THE UNSUNG HEROES

Mic's are an integral part of almost all musicians' equipment, and choosing the right mic for your needs can be difficult. So here are a few pointers.-

There are many types of microphones on the market including dynamic moving coil, condenser, electret condenser, and ribbon mic's, all with different pro's and cons depending on usage. The main advantages of dynamic microphones such as the Vantage range are that they are less expensive and more robust than the other types mentioned, which is an important consideration if a musician is constantly gigging/touring etc. Also they do not need any external power source (unlike the condenser mic).

Within each broad type of microphone there are then four variables to consider:-

Polar Response/Directivity

Mic's are seldom sensitive to sounds arriving from all angles, and are categorised as i) Omnidirectional, where the mic response is equal from all around, ii) Bi-directional, where the mic will pick up sounds from in front and behind, but not at the sides, and iii) Uni-directional, which will only pick up sound from the front. The Unidirectional mic is most often favoured because it will discriminate against any unwanted noise from the rear.

Continued on page 5.


Vantage Profile Series and Road Series Microphones

REVIEW

LINKO DRUMS

New to the UK drum market is the name Linko, introducing two drum kits which represent excellent value for money.

Each is a five-piece kit consisting of two hanging tom-toms, floor tom-tom, bass drum, and snare and is complete with stands and chain driven pedals. Linko drums are available in standard or deeper shell kits and in a choice of colours. What more could an aspiring drummer need for his first kit!

All Linko shells are 9-ply in construction, and all are fitted with American Remo heads, a great asset to any drum kit. The snare drum is of chrome-steel, producing a good crisp sound.

The bass drum incorporates sturdy bass drum spurs which disappear within the drum when not in use, and the chain driven bass drum pedal has been designed for smooth, fast beating.

These kits produce a great sound, and with a price of around £299 for the complete package, if you're looking for a well made kit at a budget price, these are the drums for you.

Linko Kit, Model 506

SPECIFICATIONS

Model No. 506 5½" snare, 12 x 8, 13 x 9, 22 x 14, 16 x 16
Model No. 551 6½" snare, 12 x 10, 13 x 11 22 x 14, 16 x 16

TAKAMINE JAZZ GUITARS

The Takamine Company takes its name from the Takamine Mountains of Central Japan, where there exists a centuries-old tradition of fine craftsmanship in wood working, which is evident in all Takamine guitars.

The first thing people notice about the Takamine Jazz guitars is their incredible beauty and striking colours. But underneath this dazzling appearance lies a commitment to uncompromised acoustic sound quality. The body of the guitars is of flamed maple in blue ebony or red, is hard, durable and superbly finished, with the slightly arched back and table of a traditional jazz guitar. Also available in natural spruce top with rosewood back and sides (EF 391 only). The necks are of maple with a rosewood fingerboard.

The Takamine EF 391 model has Palathetic pick-ups at the bridge, and also a well-shielded, low noise FET pre-amp, which retains the natural guitar sound, bright and jazzy. For an alternative more bassy overall sound, the EF 590 model (with slightly shallower body) has a magnetic two-bar pick-up mounted at the end of the neck in place of the last two frets. Each have equalisation controls of treble, middle, bass and gain. Both are beautifully made and are ideal for any jazz influenced player.

The key to Takamine's superiority in acoustic/electric guitars has been the incorporation of careful design, quality materials, and masterful construction into a fine hand-crafted instrument that projects the warm natural sound of wood. Many professional musicians have been quick to catch onto the success of these impressive guitars, and the long list of Takamine users includes names such as Ry Cooder, Glen Frey, John Williams, Kevin Peek, David Lindley, Steve Lukather, Gary Moore, Earl Klugh, Nancy Wilson, Jackson Browne, James Taylor and many more.


Takamine EF 391 Jazz Guitars

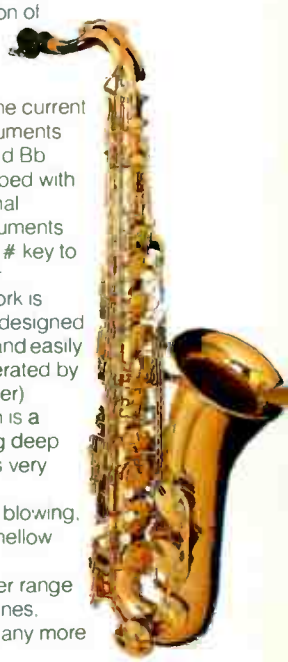
JUPITER SAXOPHONES

During the last couple of years there has been a tremendous increase of interest in and use of the saxophone in current day rock and pop music. Unlike many other instruments, the saxophone can be picked up and learnt at almost any age, and it looks good on stage. But probably the main reason for their increasing popularity are the range of sounds that can be produced, from bright and raunchy through to a haunting soulful sound so often featured in today's music. Whatever the reason, the sax, always popular with jazz musicians, now has increasing presence in contemporary bands.

Jupiter is an up-and-coming name in the brass and woodwind world, with a reputation of producing good quality reliable instruments at reasonable prices. The current range of Jupiter instruments include an Eb Alto and Bb Tenor Sax, all developed with the help of professional musicians. Both instruments now include a high F # key to maximise the register attainable. The keywork is power forged brass, designed to operate positively and easily (especially those operated by your weaker little finger).

The overall finish is a luxurious, long lasting deep gold lacquer which is very attractive, and both instruments are easy blowing, producing rich and mellow sounds.

Also in the Jupiter range are trumpets, trombones, cornets, flutes, and many more band instruments.



THE VOX CONCERT 501

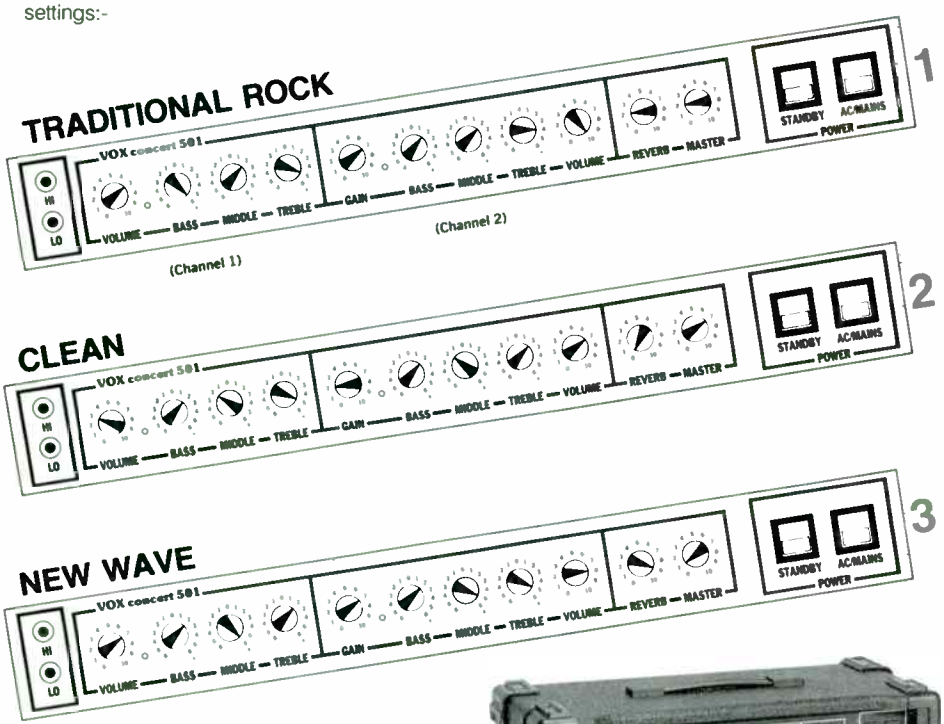
STEP B

THE RIGHT SETTING FOR THE RIGHT SOUND

The Vox 501 Valve Combo is a very versatile twin channel amplifier which can produce a whole spectrum of sounds through its two channels, each with independent equalisation (the second channel having the addition of a gain control). By use of a footswitch you can swap between any two preset sounds while playing. LED indicators show which channel is in use.

These are some of our favourite 501 settings:-

NOTE:
Use the reverb control to add depth to the sound. All these sounds, and many others, can be produced at either high or low volume without affecting the quality of the sound and level of distortion, with use of the master volume control. So the amp can be used in a practice situation (where the volume may need to be relatively low) as well as for performance.



1. TRADITIONAL ROCK

Channel 1:
Gives a classic valve amp sound. Ideal for rhythm guitar.
Channel 2:
Extra volume for breaking into a solo, with harder distortion. Very raunchy sound. (Set gain control for amount of distortion required.)

Vox Concert 501

2. CLEAN

Channel 1:
Produces a clean bright sound.
Channel 2:
A similar sound, but with extra volume for solos.

3. NEW WAVE

Channel 1:
Gives a cutting overdriven sound.
Channel 2:
Echoey sound with lots of reverb. Very reminiscent of the New Wave era.

OVATION – NEW ELECTRONICS OPTIONS

In the late '60's, when acoustic guitars began to compete with the projection of electric instruments Ovation rose to the challenge and developed the 'six crystal in bridge' system that allowed musicians the creative option of an acoustic sound in an electric world.

Development has continued over the years, and the latest Ovation acoustic electric guitars have state-of-the-art electronics. The Ovation OP-24 three band active equaliser represents the latest advance in acoustic-electric amplification, and can be found on all Legend, Custom Legend, and Legend Elite models.

The FET-3 preamp featured on Ovation's Custom Balladeer models shares many of the listed benefits of the OP-24 preamp but is a passive system. So the three bands of bass, mid, and treble can be filtered (but not boosted as well, like the OP-24) to give precise tonal

THE NEW OVATION OPERATIONAL AMPL ACTIVE EQUALISATION SYSTE	
Features	**Benefits**
• 6 chips containing 24 transistors each, as opposed to just one or two transistors in traditional preamp systems.	• Quieter, more ef reliable than traditic
• 3 band **active** equalization with a range of ±12 decibels from center (flat) response.	• An extraordinary previously availabl
• Careful selection of the centering frequencies in each of the three band-widths, chosen to compliment the frequency spectrum of the Ovation guitar.	• A much wider ra band on-board gra from out-board five
• Built-in battery check with LED indicator light.	• The confidence i ing before you begi LED also assists in l in dark rooms or on
• Carefully positioned volume control.	• Ease of adjustme right hand during p hold down your cho adjustment.
• Graphic equalization	• Gives you a visu response you are c
• Center "click" on each of the three sliders.	• Allows you to "fe looking.

Y STEP

adjustments. Obviously, the active electronics offer greater tonal variety, but the passive FET-3 system is definitely a new advance for Ovation who have led the field from the start in amplified acoustic guitars.

IFIER (OP-24)
'M

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range of tonal variety not
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The Korg Midi Pedal Board

LET YOUR FEET DO THE PLAYING

The Korg Midi Pedalboard MPK 130 is a 13 note pedal keyboard that can be used to play any midi equipped keyboard. Its octave range is switchable (by foot) during performance and any midi channel can be selected. The MPK can be used with a synthesizer, an electric piano or any home keyboard which has midi. Many musicians have learnt to play on an organ and the Korg MPK allows you to extend your playing.

MICROPHONES – THE UNSUNG HEROES

CONTINUED FROM PAGE 2

2. **Impedance**

In order to preserve the strength and overall frequency range of the signal as it passes from the mic into your equipment, it is important to select a mic with an impedance that will match the input impedance of the amp or mixer that is being used. High impedance mic's give high levels of output signal, but low impedance mic's are often chosen because they are less susceptible to background hum when used with long cable lengths. Dual impedance mic's are also available and can be switched to high or low impedance and therefore used for all purposes.

3. **Sensitivity**

Sensitivity is a measure of how readily voltage results from a sound wave input (at a given sound pressure level). In general terms, the greater the mic sensitivity, the better the signal to noise ratio, therefore resulting in less background hiss.

4. **Frequency Response**

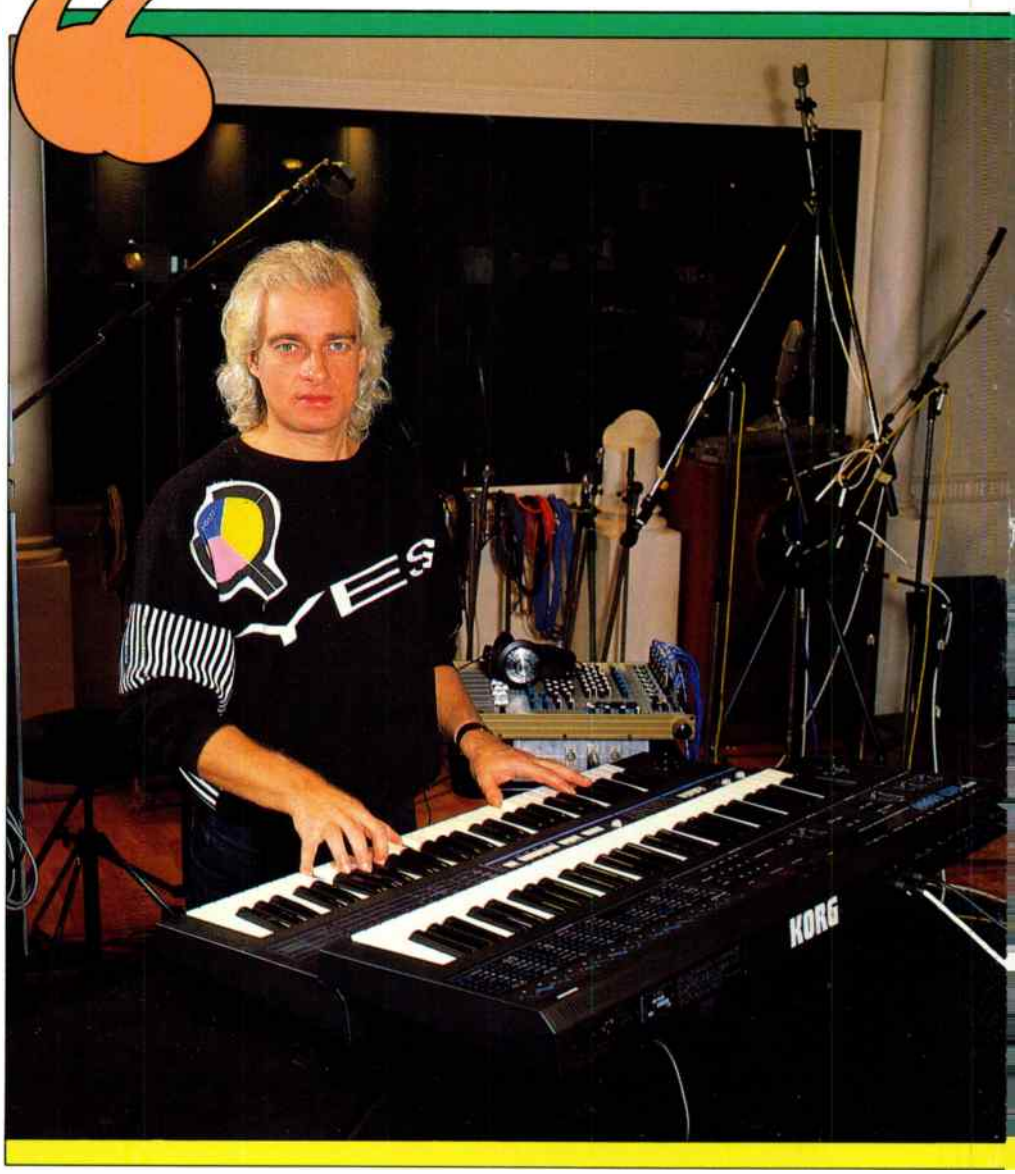
The frequency response of a mic indicates the range of frequencies which the mic can handle, and a frequency response curve shows the response in dB across that range. A smooth response over a range of frequencies is desirable in the majority of cases. The greater the range of response, the more likely you are to capture and transmit the total sound.

Vantage have three ranges of microphones at prices ranging from £12 to £49, complete with leads, with varying specifications as below. All are *dynamic* mic's, so will stand up to rough stage treatment, and all are *unidirectional*. Within this range there are mics for a wide range of musicians.

Model No.	*Impedance*	*Frequency Response*	*Sensitivity*
Profile Series			at 1000Hz
V-1500	Low	80-13000Hz	–78dB
V-1800	High	80-13000Hz	–63dB
V-2400	Low	80-13000Hz	–78dB
V-2500	High	60-14000Hz	–63dB
V-2600	Dual	60-14000Hz	–63dB
Performer Series with detachable shielded cable			
VMD-120	High	60-14000Hz	–56dB
VMD-150	Dual	60-14000Hz	–56dB (–74dB)
VMD-250	Dual	50-16000Hz	–55dB (–74dB)
Road Series with detachable shielded cable			
RS-65	Low	50-16000Hz	–74dB
RS-85	Low	40-16000Hz	–71dB
RS-75 (instrument mic)	Low	40-16000Hz	–74dB

BACK T

TONY KAYE ON KORG



Yes are back with Trevor Horn producing the second album since the band reformed with Tony Kaye and Trevor Rabin. Playback caught up with them in Trevor Horn's studio in London and spoke to Tony Kaye about the album and keyboards. This is what he said:-

"I started using the Korg DW8000 in Hollywood in August when we took over a house there for rehearsals. I think it was the first one to reach the USA. Of course I'd been using the DW6000 for a while and was very impressed with that, but the 8000 is fantastic.

"I've used Korg personally on the road for a long time and, after the last album, we were on the road for a year and a half. I used a huge rig with Oberheims, some DX's and a couple of Emulators and more – and of course it's all good once it's all programmed up – if it's programmed well it's a great sound but it is very difficult to change quickly.

"At the moment I'm using the Korgs on their own – when I first got the DW8000 I midi'd it to a couple of DX's when we were rehearsing just to get some different sounds, but actually I found that it wasn't really necessary because there's some great digital sounds on the 8000 anyway – it has its own characteristic sounds which, in my opinion, are very good.

"When Trevor and I were doing the demos after rehearsals in Los Angeles that's how we started. We midi'd the 6000 and 8000 together and we did everything for the album on the Korgs. I got used to the instruments and they're very very easy to program. They're really – what do they say – user friendly, musician friendly.

"Actually for most people the original sounds on the 8000 are so good it's just a matter of taste on how you change them. Of course the built-in digital delay is pretty extensive.

"This kind of quality equipment wasn't really available a year ago and at that time all you could use to produce these sounds was a load of DX's midi'd together or you could use Fairlights, or the Synclavier all in the pursuit of different sounds.

"I get more of a kick out of using the DW8000 as opposed to using the really expensive set-ups. When you get to the Synclavier level, I certainly don't know how to program it quickly – I don't think that there are that many people who do.

"For example, when we're doing back tracks, things are not finalised by any means and I've found that using the 8000 and 6000 together I can change a sound very quickly. Say we put a track down – even for a guide, I can in minutes change sounds, find different combinations of sound and change it myself between takes. I can't do that with the other systems – so for me it's ideal because I can do it myself very very quickly.

"We wanted to do something different from the old Yes, and with myself coming back into the band, and Trevor Rabin joining, we wanted to sound like Yes, but to get away from the old Yes material, and this album is an extension of that. The writing has been a very joint venture – everyone has participated. On the last album we took a lot of Trevor Rabin's songs and adapted them – he's a very good song writer. In fact the whole band is using Korg because everyone has their own set up at home for writing.

"I'm glad they're bringing out rack mount modules because my old set up was a pain in the neck to carry around. I'm banking on using a system with EX8000's on the road next year ..."

STOP PRESS . . . STOP PRESS . . . STOP PRESS

THE KORG DW8000 AWARDED KEYBOARD OF THE YEAR BY MELODY MAKER

BACK ON

JULIAN COLBECK ON KORG 'EXPANDERS'

It s taken time. but I think it s fair to say that MIDI has finally sunken into the consciousness of. and become part of everyday life for. most reasonably adept keyboard-orientated musicians

MIDI's opening scenario was one of feverish excitement and bitter frustration as people desperately tried tc fly before they (and more importantly, the manufacturers) could walk Everyone knew :hat MIDI was going to vastly enhance the quality of our lives. but. actually grilled as to what precisely one could accomplish via this innocent acronyn. faces began to blank and feet shuffled

As soon as inter-manufactural MIDIscrepancies were sorted out, and it was safe to assume that you could play any MIDI-based Korg synth but could hear both the Korg and a MIDI-linked synth of any make, it doesn't take an Einstein to figure out that some pretty unnecessary duplication of instrument hardware was going on Namely the keyboard itself

Whatever your set-up. the fact remains that you only have one pair of hands – and can then only play, at maximum, two keyboards at the same time

The Korg EX-800 Expander

Ultimately :he beauty of expanders lies in their practicality – physically and financially To be fair you are unlikely to be able to accomplish any more with a bunch of Korg EX-800s than you could with a bunch of Poly-800s, it's their size, shape, and price that open doors.

Let's explore the possibilities more fully.

ON STAGE

To perform at your best on stage you need to be unfettered by worries about equipment. Into this category of potential impediments come amplification and the ability to hear what you're playing, positioning of equipment so that you can play what you want, when you want, and can both see and can be seen, and finally the feel and response of your instrument. Expanders help considerably in all these areas

The prime reason here is one of size Using one or more expanders instead of full-blown instruments there is no need to be surrounded by banks of keyboards – taking up space and interrupting lines of vision/guzzling cash in terms of high-powered fancy stands. Korg Expander(s) can be racked neatly to one side, their sounds tapped and/or layered with others merely by changing MIDI channel numbers on your master, controlling keyboard

Most of us have a favourite keyboard, ie. one that we're used to in terms of feel, depth, whatever. Using one, suitable keyboard on which to play, and hooking up to expanders so alleviates the need, physically to change instruments

The Korg EX 8000 Expander

IN THE STUDIO

The two golden rules of session playing are, Be quick – Be versatile. By the second I don't mean that you need to be able to play ragtime, jazz, AOR, classical, and 'modern' all with equal aplomb, but that you need to have at your fingertips – alternatives, different sounds, different textures. Most working players find that one, main instrument plus a bag-full of expanders is the most cost-effective, labour-saving method of remaining in employment.

The instrument that you're most happy to play on can so remain permanently set up, linked to expanders (also permanently set up), and you can then quickly and easily experiment with combinations or solo contributions from a number of instruments without having to heave in last-resort back-ups from the car.

AT HOME

The above comments apply equally well to the home user of course, but expanders are especially welcome due to their reduced size and cost compared to their keyboard-ed counterparts.

The arrival of low-cost, powerful MIDI sequencers. like Korg's SQD-1 has further helped musicians with reducing recording costs (even for the humblest demo) since parts can be tried out – even mastered – at home. The same applies to sounds. But for a sequencer such as the SQD-1 to function at its best, you'll need to hook up a number of sound sources – Synthesisers? Yes, but expanders ideally. Especially when a sequencer is going to be doing the 'playing', umpteen different keyboards are an absurd waste of money

FOR NON-MUSICIANS

Well, not exactly, let's say non-players. The steady growth of the computer musician has, and will continue to be one of the most important developments to guide music technology for years to come.

The interest in using personal computers to record and edit musical data is vast. However since much of the currently available musical software relies upon data being input from the computer keyboard, as opposed to the musical keyboard, the latter has become an often unnecessary item.

What is needed is simply a library of raw material for producing sounds An expander in other words. Via a MIDI Computer interface (of which there are countless) music software and expander-type hardware opens the door to many a 'musician' in the best sense of the word, whose fingers may be as nimble and dextrous as their brain

WHAT IS ON OFFER FROM KORG

Korg's price-shattering Poly-800 needs little introduction from me Equipped with plenty of powerful sounds that totally belie its price and size, the Poly-800 remains a strong contender in the first time buyer market, some two years after its release

The EX-800 was released at the end of 1984 Identical in terms of programming prowess and double-oscillator layering capabilities, the EX-800's attacky though still analog sounds make it an ideal foil to digital synths of all persuasion. This first Korg Expander has 8 voices, 64 program memory and a built-in 256-step polyphonic sequencer. Receiving any of the 16 MIDI channels, with options for receiving program change, pitch bend, modulation and volume over MIDI, you can buy two or three EX-800s for the sort of money you'd expect to pay for many a pukka, keyboard-ed synth nowadays

The EX-8000 is a more sophisticated beas: though Korgs latest expander – it has 16 digital waveforms which provide both crisp digital and warm analog type sounds. The keyboard equivalent is of course the DW8000, Korg's intriguing new poly-synth that comes blessed with a number of Digital Delay parameters which can be part of the make-up of your programs. This unique capability is featured on the EX-8000 too Since the EX-8000 can also be rack-mounted, the inclusion of a DDL is all the more advantageous.

As well as a plethora of switchable MIDI data like volume, pitch bend, modulation and program change, the EX-8000 will respond to keyboard dynamics from a so-blessed MIDI-linked keyboard. It even boasts a key window function allowing split keyboard set-ups.

One presumes, notwithstanding the current computer invasion into musical territories, that instruments with keyboards will remain a necessity for some while to come However no other type of musical instrument straddles the two worlds of computers and good ole fashion plug-in-and-playing better than expanders

The fact that Korg's pair of 'men for all seasons' come inexpensive too is just the icing on the cake.

ART OF NOISE

ART OF VOICE

Anne Dudley of the Art of Noise

Take the concept of a vocoder, apply 16 bit digital technology and add midi and you have a great product. Add a pitch shifter, a 5 note programmable harmoniser, 8 internal vocal type waveforms and 64 programs and you have the unique new Korg Digital Voice Processor, the DVP-1.

We took this state of the art unit to the Art of Noises' Anne Dudley to ask for her views on this revolutionary Korg instrument.

"I like it very much. I've always been a great believer in the power of the human voice, it's your own built in synthesizer and it's one sound that you never tire of. This Korg Digital Voice Processor is impressive. I used the first Korg Vocoder a long time ago in the days when Herbie Hancock was using a lot of Vocoder sounds. They haven't really been that fashionable for 4 or 5 years now, mainly because no-one has developed the idea. No-one has taken it a stage further – until now. The new Korg explores other avenues such as adding the harmonizer. Anyone who hasn't got a harmonizer would be well advised to get one of these for that part of it alone. I've used it this week on a vibes type sound to get harmonies.

In terms of how good the instrument is purely from a vocalist view, I couldn't say because I look at vocal sounds from an instrumentalist's point of view. I sometimes look at words more for the sound of the word than for its meaning – you can repeat one word over and over but give it an interesting pitch or rhythm. I've done some soundtracks for adverts recently and the voice processor would have been useful then.

There's more to it than I've had time to discover yet but the design and layout is good. It turns keyboard players into vocalists and you don't have to be a good vocalist to produce some great new sounds."

The New Korg DVP-1 Digital Voice Processor

COMPETITION – COMPETITION

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Yamaha's revolutionary SPX90 *effects processor will soon get this remote foot controller, first seen at Frankfurt in prototype form; see elsewhere this issue for preview of master machine*

► Among these were the arrival of what looks like being **Roland**'s best synth for years, the JX10. This is essentially an expanded version of the JX8P, and is a 12-voice, two-oscillator-per-voice instrument with a 76-key, weighted-action keyboard, a 128-patch memory, an onboard real-time sequencer, and cartridge storage of both sound and sequence data. Like the JX8P, the new machine will be compatible with Roland's optional (but extremely useful) PG800 programmer, and the RRP will be £1900 when the JX10 hits UK shops this coming April.

Other new polysynths making their European debut at Frankfurt included the **Akai** AX73, a six-voice velocity-sensitive instrument that features

AHB Keymix system *is sophisticated MIDI-based keyboard mixer network, made up of modules you can buy individually; remote control unit is prototype, other devices are available now*

onboard software for the manipulation of samples from the S612 and, presumably, the new S900; **SIEL**'s DK700, which functions as both a synth and, with the aid of a 55-patch memory capable of storing MIDI network configurations, a well-specified master keyboard; the **Seiko** DS250 polysynth, which has a small selection of sparklingly clear preset sounds, easily editable via the optional, LCD-equipped DS310 synth module; the **Kawai** K3, whose features include a selection of some 33 different digital waveforms, a velocity- and aftertouch-sensitive keyboard, and a built-in stereo chorus; and some new synth modules from the German organ industry in the shape of the **Wersi** EX20 and the **Böhm** MIDI Expander, both of which are available in their country of origin in DIY kit formats.

Elsewhere, there were plenty of signs that organ manufacturers are beginning to take synths seriously, and are now busily applying the sound-generating technology they've had at their disposal for years (but which have remained the sole preserve of home organ fans) to less 'domestic' instruments.

Hohner's new CK5000 Compagnon is a case in point. In one fell swoop, it offers enough synthesising and programming potential to satisfy synth players, whilst still providing home keyboard-like facilities so as not to alienate the organ fraternity. This immensely difficult task is eased by the adoption of microprocessor control of all vital functions, and one of the most informative and versatile LCD displays I've ever seen.

Synthesisers aren't quite virgin territory for **Elka**, but nonetheless, there were plenty who were surprised at the quality of sounds emerging from the Italians' new polysynths, the LX600 and LX900. The former is analogue, the latter digital, but both succeeded in sounding clear as a DX or fat as a Moog when occasion demanded, even if, as was later revealed, their internal wiring was the inevitable prototype jungle.

And that was that. Or rather, it wasn't, but it was all I had time to investigate in any depth, and all I had time to write about when the Music Maker convoy arrived back in Cambridge 12 hours before the issue of E&MM you're holding in your hands went to press.

Deliberately, though not without a little difficulty, I've left the best till last. As so often happens, the Frankfurt innovation that could cause the biggest upheaval was tucked away in a tiny, airless room, concealed from 99% of the people who passed through the Musikmesse's turnstiles.

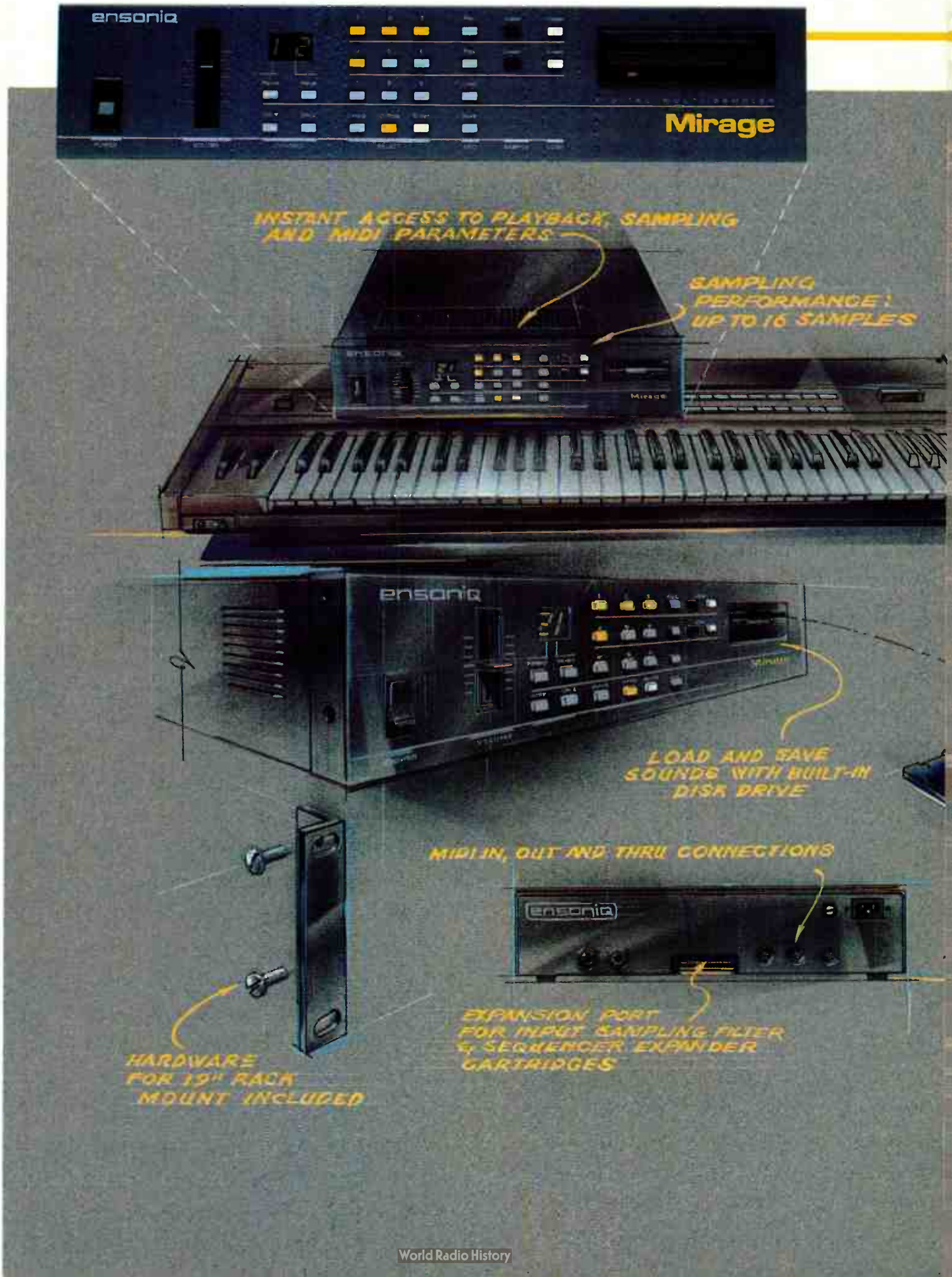
The innovation in question is the **PPG** Realizer, an unlikely console-mounted machine with a colour monitor screen at its centre, a selection of different controlling switches dotted around its front panel, and an innocent-looking rack unit sitting on the floor beneath it.

The Realizer has no oscillators, no filters and no envelope shapers. Everything it contains is achieved using software-controlled signal processors, and outputted via digital-to-analogue converters. Thanks to this arrangement, it's possible for the machine to simulate the configuration of virtually any musical instrument, past, present or future. Thus far, PPG's software writers have designed an exact simulation of a Minimoog's sound-generation system (complete with front-panel replica graphics on the monitor screen), and an FM synthesis network similar to – but more complex than – that used by Yamaha in their DX synths.

Because the system is so inherently flexible, it's conceivably possible to route any part of its software to any other, in any direction. Thus you could, for example, stick a Moog filter on the end of the FM system, and shove the whole kaboodle through a detailed network of digital delay and sequencer functions.

The cost of all this innovation is high – somewhere between £30,000 and £40,000 when the Realizer becomes available this Autumn. Personally, I'd willingly swap a house to get hold of one of the first. ■

The Mirage Multi-Sampler



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ALESIS

THE MUSIC SYSTEM

Along with Philip Glass and Terry Riley, Steve Reich is in the vanguard of contemporary American composers. Yet his recent activities – including a concert tour of Britain – have confirmed his music no longer deserves to be called 'minimalist'. Interview *Simon Trask* Photography *Matthew Vosburgh*

Steve Reich arrived in London at five o'clock on a cold and wet Monday morning. A mere nine hours later, Reich and I were sitting in Room 104 of the Russell Hotel, just around the corner from the Dominion Theatre where Reich and his six-strong group of musicians played to a packed house two days later.

It was Reich's seventh interview of the day, and there was still another one to go. Fortunately, he proved to be both genial and talkative, and whilst the weather outside may have been bleak, inside the mood was pleasantly sunny.

Reich's music falls into the category generally termed 'systems' or 'minimalist'. Or rather, it did but it doesn't any more. As one of contemporary music's most consistent composers, he has carefully nurtured his musical style during a career spanning over 20 years, though the 'minimalist' tag still hangs round his neck.

'Whether I like it or not makes precisely no difference whatsoever', he says nonchalantly. 'It's not something that composers, or any artists, are really involved in. If they are, they're taking the undertaker's job away, because it's his job to make the box. I'd rather leave the options open. I understand that the term "minimalist" is used, and I think it's convenient to pick up LaMonte Young, Terry Riley, Steve Reich, Philip Glass, John Adams and Arvo Part in one little way. But as a descriptive term, then let's say that after 'Drumming' it becomes a diminuendo in usefulness, by the time you get to 'Tehillim' it's pretty useless, and when you get to 'Desert Music' it becomes humorous.'

Some history. Reich was born in New York in 1936, and in his early teens, took up the study of Western rudimental drumming – inspired by bebop drummer Kenny Clarke, whose sense of timing he greatly admired ('effortless, buoyant and executed with the minimum of technique'). Not surprisingly, Reich wanted to be a jazz drummer.

> 'Younger composers won't have done what they do without computers; it's unthinkable that computers won't have an effect on composition.'

He went on to study Philosophy at Cornell University, playing drums at weekends. While there, Reich heard African and Balinese music for the first time, music that formed part of the inspiration for his decision to study music composition, under several different tutors, in the years that followed.

At that time (early 60s), all budding American composers *had* to write serial music, yet Reich found himself at a loss as to how to write anything in the style that was, to his ears, musical. His solution was to repeat the 12-note row over and over again, thus showing an early preference for the repetitive impulses that fuelled his later music.

Some years afterwards, Reich rediscovered African music, and in particular, 'a music made of repeating patterns in what we would call 12/8, posed so that the different patterns' downbeats do not coincide – something not really found in Western music.

'To the music of Africa I owe a great deal, and I would say entirely in the framework of structures. To the music of India I owe precisely nothing...though I do like curry.'

Yet despite his huge debt to the music of the Dark Continent, Reich has rarely used traditional African instruments in his compositions. He views structure as the most 'portable' of musical elements, ►

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► and where non-Western musics are concerned, it's the structure, rather than specific sounds, melodies or harmonies, that Reich has always been interested in learning from.

'The idea of patterns in 12/8 superimposed so that their downbeats don't coincide could come from collaged chop-ups of Richard Nixon's resignation speech, or they could be African drum rhythms, or they could be electric guitars. It doesn't matter what the sound is. The great virtue and the great depth of a structure lies in its impersonality; it's there to be filled with *your* personality. That's why I don't like to use African bells or Balinese scales or whatever.'

Moving back in time, we find the young Reich being inspired by the unlikely figure of John Coltrane, who the composer remembers as 'making a great deal of music on a limited number of harmonies – one or two harmonies for half an hour's worth of music; it was magnificent.'

The contrast between Coltrane's spontaneous outpourings and the 'paper music' (most of which never got played anyway) of serialist students made a strong impact on Reich, and he formed his own ensemble in 1966.

More significant, though, was the friendship Reich struck up with fellow composer Terry Riley in San Francisco. He had a hand in preparing and performing Riley's seminal 'In C' in 1964, and Reich readily acknowledges the importance of the piece in 'clarifying the mix of John Coltrane, Junior Walker, rock 'n' roll, African music and tape loops.'

A bizarre mix, undoubtedly, but one which helped create Reich's first 'official' piece ('It's Gonna Rain') in early '65. It was a tape loop piece that used recordings of a black preacher ranting about the Flood. Reich set the loop going on two tape recorders simultaneously, only to discover that the recorders ran at slightly different speeds. The result was what Reich came to adopt as the 'phase shifting' technique, where two identical parts move slowly in and out of sync with one another.

The composer subsequently transferred this technique from electronics to unassisted human performers. Thus 'It's Gonna Rain' led to 'Piano Phase', and 'Pulse Music' led to 'Four Organs' and 'Phase Patterns'. The epic 'Drumming' (1971), all one-and-a-half hours of it, marks the culmination of Reich's first period.

Whereas the earlier works were concerned with letting a process run its course, those after 'Drumming' saw Reich gaining more and more control over his material. The rate of change in his works has gradually speeded up, and nowadays there's a more definite structure. Compare the recent 'Desert Music' (1983) and 'Sextet' (1985) with 'Music For Eighteen Musicians' (1976), let alone earlier works, and it's clear Reich is not a composer who stands still for anyone – hence the irrelevance of the 'minimalist' tag.

But whatever he's done, Reich has managed to stay consistently ahead of his time – especially in his study of non-Western music, something that now fascinates any number of average, run-of-the-mill rock stars. Has the upsurge of interest in 'other music' surprised him?

'I thought that it would happen. I thought it would come from the classical side but it's actually come more from the pop side. You know, nothing is good or bad – it's the musician that makes it so. There's no formula for good music.

'Undoubtedly, 90 per cent of what's done in the name of "world music" is trash, and that's perfectly normal, that's business as usual. It takes a David Byrne to do something that's musically worthwhile – and that's always the bottom line. I'm glad to see that the musical vocabulary has been enriched, because there are talented people who come along and make something out of it.'

Mention of David Byrne brings us nicely to the question of which pop musicians Reich admires, if any.

'Well, I'm not as well informed as I could be, so basically I'm looking back a few years – I really haven't caught up! I've heard some Talking Heads things, and the Eno/David Byrne *My Life in the Bush of Ghosts* reminded me of some early tape pieces of mine.

'But there aren't too many groups I could reel off. I simply don't spend the time listening, though perhaps I should – I'd undoubtedly get something out of it. But I'm probably still back in the Eno, Bowie, Talking Heads period. I know there's lots and lots of stuff past then. I've been beginning to hear some of the younger people on the 'art-rock' scene in New York.'

He mentions names like Elliot Sharp and Scott Johnson, who I haven't heard of, and I mention names like Bill Laswell and Anton Fier, who he hasn't heard of. There's some mental note-taking on both sides.

How about Herbie Hancock? 'Well, that's hardly what we're talking about at all. I would call that highly commercial music. I think Herbie Hancock is a very facile maker of money.'

Well, OK, he did have a particularly commercial period, but... Time is limited, and there isn't long enough to follow such things up. Instead, we reach the time to talk technology, and Reich's attitude towards it. Like so many other modern composers, Reich sees little point sticking to the classical music rules and steering clear of electronics. He uses synthesisers regularly, even though he sees them mainly as instruments of convenience, and confines their use to organ and brass sounds.

In fact, Reich's experience with electronic devices goes back to the phase-shifting pulse gate, made specially for Reich in 1969. It was a primitive construction that allowed up to 12 monophonic inputs (acoustic or electronic) to be delayed individually, effectively allowing a continuous phase-shift controllable in real-time. But Reich soon abandoned the device for two reasons: massive unreliability, and what he saw as a stiff, unmusical perfection.

Reich admits that bad experience has caused him to limit his dependence on synth technology, but I protest that such experiences are less likely these days, thanks to developing technology.

'Well, that bad experience repeated ►

► itself last night at Stuttgart with a screwed-up DX7. That bad experience is part of electronics, and part of why I don't like it. As a touring musician there's always the horror of opening the box and saying: "is it OK? No!".

'To go through that when time is short and the audience is about to arrive is just what you don't need. With a marimba, you open up the case, choose your mallets and you're ready. It's very reliable, and that's kind of a comfort.

'I find that with the time spent in a hall preparing for any given concert, the more electronics are used, the more of that time they'll eat up – and cause a nervous and diffused psychological state amongst the musicians because it's out of their control.'

What about the sonic potential of synths, the sheer variety of sounds they make available?

'That is also a strange situation. For instance, if you're a composer and you write something down and you say 'synthesiser', you know and I know that if I were to specify 'Farfisa Mini Compact' today, it would be impossible for anyone to find it. And whereas you can find a DX7 everywhere today, you know that in a few years the DX7 will be a laughing stock, a primitive attempt at what we will then consider to be the state-of-the-art synthesiser.

'In 'Sextet' I actually like the sound of these Casio 202s, but they're already extinct. I prefer their sound to the DX7, but I know the DX7 is around so I've had to go both ways: I brought over the Casios and if they break down, we've got a DX7 where I can put a cartridge in and it'll sound reasonably the same as the Casios.

'So the net effect is that I don't take synths very seriously. They're all ships that pass in the night, to be replaced by the next model.'

The crux of the matter is that Reich's music ultimately functions through the written score, a lasting statement to be recreated in the form it was originally conceived in. Reich contrasts this state of affairs with the rock or jazz musician, where the final statement lies in the recorded performance. That's an oversimplification, I'd say, but there's food for thought there, nonetheless.

Time to change tack slightly. I ask Reich if he's considered using sequencers to compose, record or perform.

'I bought the Roland Microcomposer when it first came out, and I thought: "Oh boy, this is going to be a fun toy". I used it for about 20 minutes and then I put it back on top of the shelf, where it's stayed ever since. Similarly with one of their midrange drum machines.'

But there's some sophisticated equipment around nowadays...

'Yeah, I know, I know. I think a lot of it's to do with age. I'm 49 years old and I'm computer dumb. If I was your age...' (interviewer feels distinctly young, for once) '...I mean, my son is seven and a half...' (interviewer feels old again) '...and I think that these things will become important, particularly in composition. I think there's a lot that you can do in terms of coming up with things that you might not otherwise come up with, or stimulating yourself to write something different later which came out of that kind of thinking. Certainly, I never would have done what I did without tape loops. And for a younger generation, they'll never do what they would have done without computers. It's unthinkable that the computer won't have a massive influence on composition.'

Currently, Reich's method of composition revolves primarily around a time-honoured practice for musicians all over the world: sitting at the piano. He also has a marimba and a vibraphone in his studio (percussive instruments have always been a Reich favourite), and uses a small Casio keyboard to simulate instruments he doesn't play. When things start to get a bit hairy contrapuntally, he'll use a multitrack tape recorder to overdub parts.

'I was interested in getting a Synclavier at one time', he says, 'when I thought I could use it as a sampling device for orchestration, with a real clarinet and a real oboe. But besides the fact that it would be $80,000 to buy, it would also take a lot of time for that sort of orchestration to happen. I could call Mort Silver to come down in that time, and overdub clarinet over flute or flute over clarinet, and decide which it has to be. And I'll *also* find out what the fingering is. But as I say, it's generational, it's personal.'

'Novelty can be praised so highly that you can pass over a group of techniques and say: "Well, that's been done", which isn't always true.'

If anything, Reich's music has been moving towards traditional orchestral forces, beginning with his 'Octet' of 1979, and his next two commissions are both for symphony orchestras. But his musical thought seems to follow two strands, because at the same time there have been the Vermont and New York Counterpoints, both intended for a solo performer playing against ten pre-recorded parts on tape. This is an approach Reich intends to stay with, and he has plans for an 'electric counterpoint' to be played by guitarist Pat Metheny, with a certain number of guitar parts on tape and one live. I should have known better, but I asked Reich if the Synclavier with guitar interface (which Metheny has used) would figure in the piece.

'What I want to do is write a piece so that other people can do it. On the other hand, I want to use more than just amplification. I'd like to use the kind of effects that are commonly available. Again, I don't want to get into the extreme hi-tech end of it, because when you've got the situation of a written score, you're stuck with person A and person B and nobody else can do it. The electric guitar is like the *lingua franca* of the late 20th Century, and to write a piece which ends up in the closet because it's attached to one little piece of technology would be kind of foolish. There are plenty of effects that are very common, so I'll go in that direction.

'I'm trying to keep a balance between writing for the orchestra, which is genuinely interesting if I don't have to do it year in year out, and writing smaller pieces. Not knowing anything about the guitar, I just know the piece is going to be a good kick in the right direction, because it's going to force me to learn some things I don't know yet.

'I'm now going back to a lot of the earlier techniques, and trying to develop them in the light of wider harmonic possibilities and wider orchestrational ones.

'When I did 'It's Gonna Rain' I figured for a while that was that: things against themselves going out of phase. It took almost a year for me to realise that maybe I could do something else in that area.

'We live in a time when novelty can be praised so highly that you can pass over a group of techniques and say: "well, that's been done". But the sonata-allegro form yielded literally hundreds of pieces of music, all somewhat different; in the hands of the right people, it yielded a great deal of fruit.'

And in the hands of the right people, contemporary music will continue to yield fruit, too. 'Minimalism is long dead', says Reich with some relish. 'Long live Steve Reich', say I, with even more. ■

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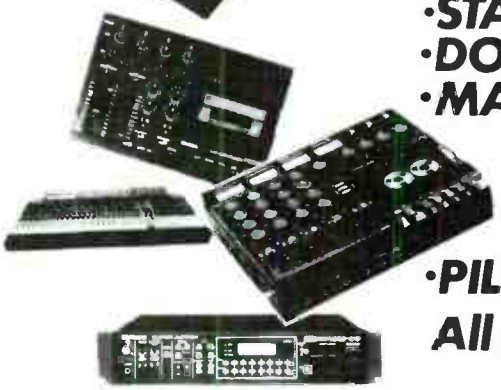

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Checklist

Our unique buyer's guide expands to incorporate sampling keyboards, modules and delays for the first time.

When we started Checklist last year, its purpose was to boldly go where no musical instrument price guide had gone before, to seek out new product lines and price categories, to give basic specifications for all those lines, and to fearlessly state the opinions of those that had experienced them first-hand – E&MM's team of instrument reviewers.

It's obvious from reader response that Checklist has succeeded not only in achieving those objectives, but also in becoming an indispensable reference section for modern musicians all over the country – and beyond. A hi-tech music equivalent to 'Glass' Guide', if you like.

In the time that's lapsed since the listing's inception, however, one new product area in particular has been increasingly active – and promises to become even more so over the next 12 months. That area, in case you hadn't guessed, is sound-sampling.

When Checklist began, sampling was the preserve of a few top-end computer music systems such as the Fairlight, PPG and Synclavier, and an even smaller number of rudimentary programs for home computers, which costed very little but offered no more than a basic, not terribly musical introduction to the world of sampling.

Nowadays, the gap between those two extremes is starting to be filled, a year after the introduction of the Ensoniq Mirage taught everybody that it should be done and, more importantly, that it could be done.

There are three formats that today's 'professional' sampling machines can take. The first is the sampling keyboard, as exemplified by the Mirage and the many instruments that look set to follow in its footsteps, though not necessarily in its shadow. Sampling keyboards contain all the hardware and software necessary to convert outside sounds into digital data, store that data, and make it to some degree editable by the user. They also contain a keyboard of some description from which you can control the stored sample's pitch, and on all the machines currently available, this keyboard is MIDI-compatible.

The second format is the sampling module, essentially the mechanics of a sampling keyboard, but without the keyboard. These MIDI modules – Akai's S612 was the first – are useful in that if you already have a MIDI keyboard, you don't have to waste money on another set of ivories that you don't really need.

The third format is the sampling delay, as typified by the Korg SDD2000. These are outboard effects units – usually rack-mounting, like the modules – whose digital delay circuitry has been adapted to include a 'freeze' function to store a particular sound in memory until power-down. The delays listed below all feature some means by which the pitch of this sound can be controlled from a keyboard (usually just one note at a time), a process that's achieved either electronically via a Control Voltage system, or through a pitch-follower that derives the controlling pitch from a synth's audio output. We've omitted those sampling delays (Boss DE200, DOD RSD3600 and so on) whose 'freeze' functions are not directly interfacable with keyboards, even though many of these offer some form of external control in the shape of drum triggering facilities.

Also conspicuous by their absence are those computer-based systems (Fairlight and the rest) whose complexity and range of other, non-sampling facilities keeps them out of this edition of Checklist, and the latest generation of 'fun' samplers like Yamaha's VSS100 and the Casio SK1, both of which retail for well under £200. These are the descendants of the aforementioned home micro programs, and will be more than adequately covered elsewhere in E&MM during the coming months.

In all other respects, this Checklist is no different from any other edition in its layout and coverage – though the perceptive amongst you will realise that, now that we have four categories of instruments for our price guide, each one will be listed three times a year instead of the previous four. A small price to pay, we feel.

SAMPLING KEYBOARDS

E-MU SYSTEMS

Emulator II – £7250 Eight-voice, eight-bit sampling system; five-octave velocity-sensitive keyboard, split and layering facilities, analogue filtering and LFO, disk storage. + *Superlative sound quality, maximum 17-second sample length, onboard sequencer, MIDI compatibility, ease of use in all areas especially looping;* – *long loading times, poor keyboard;* = *great improvement on original Emulator, shielded from obsolescence by continued updating on E-mu's part – latest mods include hard disk and CD data storage options.*

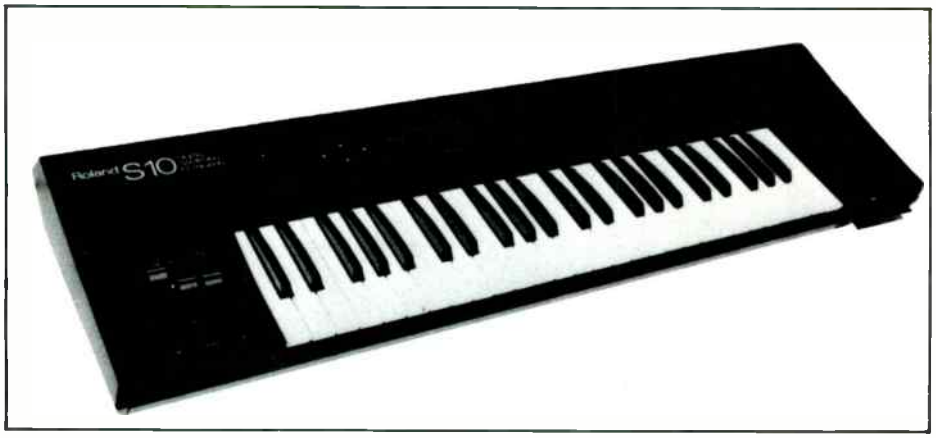
ENSONIQ

Mirage – £1295 Eight-note polyphonic sound-sampling keyboard; built-in 3.5" disk drive,

sequencer and analogue sound-modifying section, five-octave touch-sensitive keyboard with split options, full MIDI compatibility. + *Superb sampling sound quality, good range of sound-modifying options, user-friendly control layout, European version has better (than US equivalent) keyboard and disk drive;* − *lack of step-time facilities limits sequencer's usefulness, demand outstrips supply in some areas, complex multisampling procedure;* − *wonderful sampling machine with a (recently reduced) price that helps bring the technique within the reach of vast numbers of people for the first time, now with user-formatting and advanced software built in as part of the package.*

KORG

DSS1 – £TBA Eight-note polyphonic sampling keyboard; built-in disk drive, split/layer options, analogue sound-manipulation section including LCD-assisted waveform editing system. *To be reviewed.*



second maximum sample time at 32kHz bandwidth, built-in 2.8" quick-disk storage. *To be reviewed.*

S50 – £TBA 16-voice, five-octave sound-sampling keyboard; 12-bit sampling, built-in 3.5" disk drive, dual and split facilities, 17.5-second sample time at 32kHz bandwidth. *To be reviewed.*

SEQUENTIAL

Prophet 2000 Sampling Keyboard – £1995 Eight-note polyphonic sound-sampling keyboard; built-in 3.5" disk drive, analogue synth section and arpeggiator; five-octave, touch-sensitive keyboard with split/layer

KURZWEIL

250 – £10,995-£18,035 Twelve-voice, disk-based sampling system; 88-note velocity-sensitive weighted keyboard, split facility. + *Excellent sound quality thanks to unique 'Contoured Sound Modelling' system, comprehensive interfacing, onboard sequencer and chorus, 12 channel outputs;* − *user-sampling requires (expensive) addition of Apple Macintosh computer;* − *after all the press-release hype, the Kurzweil delivers the goods, but elements of its design could be a lot more cost-effective.*

ROLAND

S10 – £TBA Eight-voice, four octave sound-sampling keyboard; 12-bit sampling, four-

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miss an issue

There's nothing worse than rushing round to your local newsagent, hard-earned £1.20 in hand, only to find that a load of other musicians have beaten you to the store's allocation of E&MMs. You scour the bookshelves for hours, you ask the girl behind the counter if there are any at the back of the shop, you even try the Swedish magazine importer round the corner – all to no avail.

The reason for this is simple. Only one musicians' magazine has been looking at music technology thoroughly, accurately and objectively for over four years. Only one musicians' magazine has the reputation for carrying the most authoritative appraisals of new music hardware and software. And only one musicians' magazine has consistently inquiring, informative interviews with the people that are applying new technology to today's music. That magazine is the one you're holding in your hands now, but as anyone who's lived through the above story will know, getting it there isn't always that simple.

But fear not. You can save yourself this monthly agony by subscribing to E&MM direct. That way, you stand a good chance of getting each month's issue in your hands before it even reaches the bookshelves, let alone disappears from them again. So say goodbye to the newsagent Grand Prix: clip the coupon now.

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options, full MIDI compatibility. + *Incredible sound quality for price, looping and editing facilities are comprehensive and user-friendly, unsurpassed MIDI spec includes transfer of samples;* = *synth section doesn't exactly live up to Prophet ancestry, though it's still useful, arpeggiator is waste of space;* = *a welcome addition to the world of low-cost sampling machines, sets the standard for all of them, and like Emulator, has a whole host of updates soon to be unveiled by manufacturer to maintain its competitiveness.*

SAMPLING MODULES

AKAI

S612 – £749; MD280 disk drive – £199 Six-voice, 12-bit rack-mounting polyphonic sampler; velocity-sensitive over MIDI. + *Excellent sound quality for the money, ease of use, unique 'alternating' mode provides successful alternative to conventional looping;* = *requires MD280 disk drive (at additional cost) to make it useful, only one sample per side of disk;* = *a fine introduction to sampling, the first machine without a built-in keyboard to save you money if you already have a MIDI controlling instrument.* ***S900 – 1599*** *Eight-voice, 12-bit rack-mounting sampler; velocity-sensitive over MIDI, built-in 3.5" disk drive, six-octave range, multi-sampling, maximum 48-second sample time, extra facilities include software for eight-voice harmonic sound-generation. Available this Spring. To be reviewed.*

BIT

Sampling Module – £TBA Twelve-bit polyphonic sampler, eight-second maximum sample time, velocity-sensitive over MIDI, built-in analogue filtering section and VCA. *To be reviewed.*

ENSONIQ

Sampling Expander – £TBA Modular version of Mirage, details as above. *To be reviewed.*

SEQUENTIAL

Prophet 2002 Expander £TBA Modular version of Prophet 2000, details as above. *To be reviewed.*

SAMPLING DELAYS

BEL

BD240 – £TBA Monophonic sampling delay; maximum 24-second sample time with four six-second cards (optional) at 18kHz bandwidth. *To be reviewed.*

BOSS

RSD10 – £200 Monophonic sampling delay; maximum two-second sample time, auto-triggering and layering facilities. + *Very cheap, pitch-tracking system means you're not confined to 1V/octave synths (even a digital poly should do the trick), sound quality reasonable;* = *tape interface permits audio – not digital – storage of samples;* = *a fitting complement to Boss' Micro Rack series, and probably the system's best unit yet: four-octave pitch range is widest in its class.*

KORG

SDD2000 Sampling Delay – £699 Digital delay with MIDI control over monophonic sound sample; one-octave range at full frequency response, three octaves at reduced bandwidth. + *The cheapest MIDI sampler around, decent sound quality, added bonus of versatile delay section;* = *limited editing facilities betray machine's DDL origins, no sample storage;* = *still unbeatable almost a year after it was unveiled, sampling on its own would be reason enough to fork out the money, but MIDI and DDL put icing on the cake.*

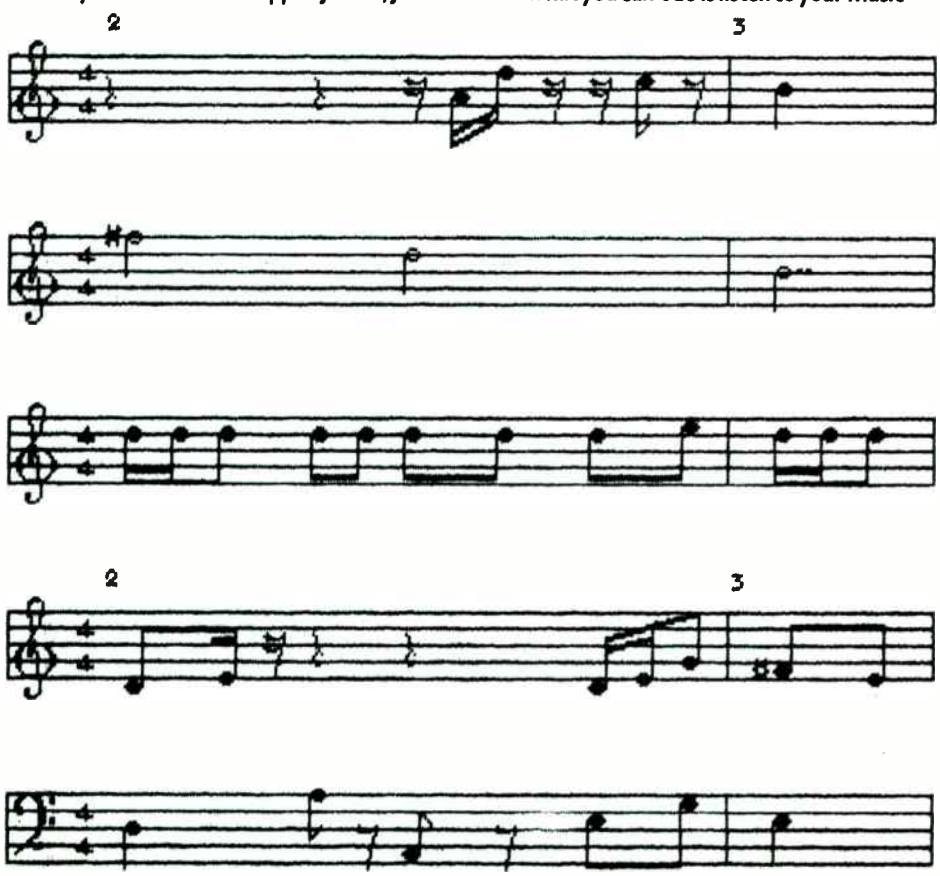
VESTA KOZO

DIG420 – £330 Monophonic sampling delay; maximum delay time one second, three-octave range. + *Controllable from any CV/Gate synthesiser, reasonable sound quality, cheap;* = *again, no sample storage, lack of editing facilities compared to machines designed to be samplers above all else;* = *a worthy contender from a company with a growing reputation for delivering facility-laden outboard gear at near-giveaway prices.* ■

FINAL SCORE

Not content with producing one of the best sequencing packages around, German company Steinberg Research have developed a scorewriting program to go with it. Does it maintain the standard? *Simon Trask*

For some reason, music software houses have been falling over themselves to produce scorewriting programs for the Commodore 64. I don't quite know why this is, because the poor C64 is rather slow and (in contemporary terms) definitely short on memory. But this hasn't stopped Joreth, JMS and Passport Designs from incorporating music printing programs into their Commodore software. Now, against the backdrop of a fairly competitive market, Steinberg Research have unveiled their scorewriting model.



It's called TNS (for The Note System), and it has to be loaded from within the company's Pro16 sequencer, with at least one track of the sequencer already recorded. The combined loading time of these programs is getting on for three minutes, but you'll be pleased to know Steinberg will soon be bringing out the two programs in EPROM format *à la* the JMS Scorewriter, which should speed things up no end.

Once both programs are loaded you can switch between the two in a mere couple of seconds, which means you can finish recording a sequence and see the first few bars up on screen in an instant.

What you can't do is listen to your music and watch it scrolling by at the same time: in fact, the music display doesn't scroll at all. From the Configuration page of TNS you can define the bar from which you want the display to start, though what's a pity is that the music playback won't follow suit when you go back into the sequencer.

A further (inevitable) setback to having TNS in memory is that you lose space for storing your musical meanderings – over a third of it, to be exact. If you want to commit your piece of music to the printed page, better make sure it isn't a Genesis-like 25-minute epic.

The *advantages* of having TNS resident in memory together with the sequencer are many, because TNS does more than just print out your music. Lurking behind that innocent exterior is a comprehensive score-based step-time editor, which allows you to delete notes, add them, and alter the pitch and duration of existing notes; these alterations don't just affect the score, but the actual data held in memory.

With a wide range of note durations (as with the sequencer, down to 64th notes and taking in triplets along the way) and the ability to insert or delete any note that can be fitted within the range of the staves and leger lines, you can do quite a lot to mess up your perfectly executed recordings.

For those wondering if you can actually compose music from scratch onto the score display and then hear it played in the sequencer program, the answer is you can – though this seems almost incidental to the TNS design.

TNS has two displays: the first is a colourful configuration page where you set up parameters and assign tracks to staves, while the second is the actual music display and editing page. Three staves can be displayed on screen at any given time, though you can define a total of 24 staves via the configuration page. As Pro16 gives you a maximum of 16 tracks, the extra number of staves allows you some leeway if you're using combined staves (treble and bass clefs on a piano score, say).

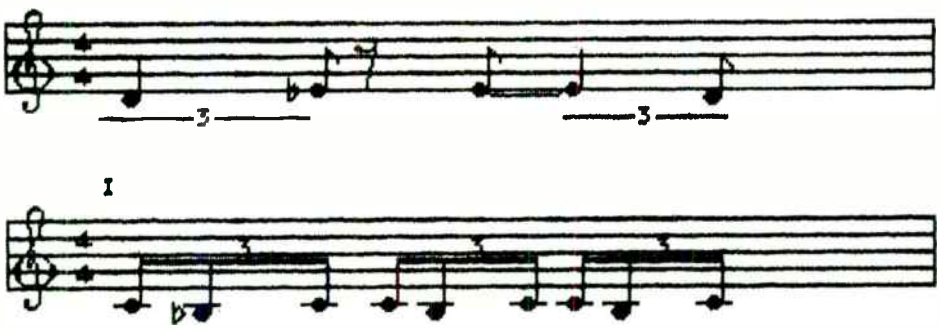
Only the top three staves in the configuration page's list can be displayed, but you can rotate through the total number of staves one at a time, so that any adjacent trio of staves can be brought into those top three positions.

You can scroll through the display in either direction by the bar or crotchet/quaver, and a maximum of four bars per stave can be displayed on a single screen with note values of a crotchet or longer. The spacing expands to accommodate shorter note values, so the display is always uncluttered and easy to read.

Both display and printout are commendably clear, with just a couple of points that I reckon need sorting out: notes a semitone or tone apart in a chord should appear on opposite sides of the stem, and accidentals which aren't part of the key signature should only apply for the bar they're in.

The global parameters on the configuration page allow you to choose which bar the music display should begin from, the time signature of the music (though I couldn't get this to go beyond 4/4 with a sequence recorded in 7/4; a bug, perhaps?), whether pairs of staves are linked visually, and whether stave lines are dotted or continuous.

TNS can only ever print out your currently selected sequence, and you have to go back to Pro16 to call up a new sequence. And while you can obviously select a new time signature for each piece, it's a shame you can't mix different time signatures in different tracks.



Features specific to a particular stave consist of key signature, quantisation value, release, legato and staccato values, and selection of a range and register for the stave. Incidentally, TNS only gives you treble and bass clefs, so such niceties as alto, tenor and soprano clefs are out. Anyone scoring string arrangements will miss the first, while early music afficionados will be even further out in the cold.

Being able to select a different key signature for each stave is valuable, as it allows you to print out parts for transposing instruments. However, this isn't a transpose facility in itself; you have to do that within the Pro16 sequencer.

Steinberg have been very thorough in providing all possible major and minor key signatures, including sharp and flat equivalents where applicable. Where chromatic notes require a sharp or flat indication, the nature of this depends on whether the chosen key signature is sharp or flat, while alternative sharp and flat versions of C major and A minor have been included (useful for correctly notating modulations in one direction or the other).

The release, legato and staccato features allow you to tidy up the rhythmic details of your score. Both release and staccato extend the duration of a note, with staccato working on very short note values. Legato, on the other hand, allows you to get rid of any slight overlapping of notes.

Finally, you can choose a range and a register (within limits) for each stave by setting upper and lower split-points. In fact, you *have* to do this (with some care) if you're to see your music without lots of diagonal lines through the staves indicating 'out of range'. The manual explains this all-important but really quite confusing area with woeful inadequacy, and a lot of people might just give up. Shame that such a silly demand should be made on the user when the rest of the software is generally friendly and easy to work with.

More encouraging are TNS' editing facilities. A thick vertical blue bar appears with a transparent cursor 'box' positioned within it: you can then move this anywhere you like around the display. Once you've positioned the cursor (and you have to be fairly accurate), you can insert or delete a note, raise or lower an existing note a semitone at a time (shame you can't 'drag' a note up or down), give a note a new duration or add a duration to an existing note (which is how you create dotted and double-dotted notes). An irritating bleep from the 64's SID chip whenever you make an error ensures you quickly learn what not to do.

Problems? Well, if you're starting from scratch as opposed to editing existing data, you can't choose the range you want to work in. It would also be useful if there was some guide to leger lines, and if you should accidentally place one note on top of another, there's no way of deleting or moving them short of returning to the sequencer and punching them out.

The program has a very annoying habit of redrawing the screen each time you make a change to the score, regardless of whether or not that change requires a large-scale adjustment. This takes at least three or four seconds and can slow you down a fair bit if you've a lot of adjustments to make.

TNS doesn't allow you to add anything to the music display, such as tempo markings, performance indications or lyrics: you have to add them yourself (by hand, horror of horrors) once the score is printed out.

Whatever you do, don't expect this software to print out your magnum opus in a couple of minutes – or even ten minutes. It actually takes *14* minutes to print out three screen's worth of score; I'll leave you to work out how that accords with your own music.

To be fair, this sort of time scale applies to any scorewriting program written for the Commodore 64, and is related to printer speed (or lack of it). And you do get a good-looking score at the end of it all.

The combination of Pro16 and TNS provides a powerful package which must rank as one of the best (perhaps even *the* best) yet written for an eight-bit home computer. It's fair to say the scorewriting and printing facilities won't find the degree of professional use that the sequencer undoubtedly will. MIDI music printing will only *truly* come of age when systems are developed to run on 16-bit computers.

But TNS also gives you some extensive step-time editing facilities, and allows you to create music, using a score-based system, which can then be played within the Pro16 sequencer – and there's no denying the value in that.

There are a few points – major and minor – that need clearing up, and a few additions which could usefully be made. But frankly, I'm amazed Steinberg have managed to cram so much into the C64, and still left musicians with a reasonable amount of memory left for their music.

If you're already sold on the Steinberg Sequencer, start saving your pennies for the Scorewriter. It's worth it. ■

Prices *Pro16 Sequencer £90, TNS Scorewriter £120, Interface £135, MIDI and Sync card interfaces £40 each – all including VAT*

More from *Oxford Synthesiser Company, 5 Gladstone Court, Gladstone Road, Headington, Oxford OX3 8LN. ☎ (08675) 5277*

RECORDING

The Linn Sequencer is essentially the Linn 9000 without digital drum voices. But is drum machine sequencing software the right starting point for designing a MIDI keyboard recorder?

Paul Wiffen

Readers who were foolish enough to be enticed off the straight and narrow by the words 'Linn Sequencer' on the cover of rival magazines in recent months, will already know something of the machine before you read this review.

You will know, for instance, that this Linn is the company's first instrument that doesn't feature digital drum voices – which is, after all, the innovation which made the US firm famous in the first place. The reason is that this is essentially the Linn 9000 drum machine and sequencer, without the drum machine bit.

Now, when this reviewer looked at the Linn 9000 last Spring, he concluded that two of its outstanding features were the real-time programming of drum patterns, and the fact that your patterns and keyboard sequences are both stored in one machine. Since then, the 9000's sound-sampling has proved disappointing (its eight-bit resolution compares dismally with the 12-bit system used by the much cheaper Emulator SP12), and we still haven't seen the promised step-time programming functions, whose omission was so sorely felt back in April. On top of this, I've still yet to come across a version of the software which doesn't crash every time you perform certain sequences of commands (causing certain superstar producers to heave 9000s out the door when the machines crash with entire songs unsaved), though further software updates to cure these last remaining ills are, as they say, coming soon.

All in all, then, the Linn 9000 has proved something of a disappointment: a machine that promises an awful lot but delivers considerably less, and even then only in fits and starts, as a good many frustrated owners will no doubt testify.

Yet now we have the Linn Sequencer, a Linn 9000 minus the drum machine, which in one fell swoop removes both the really praiseworthy aspects of the earlier instrument. This leaves us with a spec that enables you to record up to 32 tracks of polyphonic data in real-time only: the step-time programming for the Sequencer is promised, not present (doubtless it's much the same software package for both machines). Those of you who follow my reviews – there must be one or two by now – will have heard me complain before of American designers' "jazz-rock" mentality, whereby tape recorder-style sequencing is the only facility supplied. Well, for the time being we'll have to put the Linn Sequencer into this category too, I'm afraid. Currently, the machine's basic format allows the real-time recording of up to 100 sequences of as many as 999 bars each, with 32 polyphonic tracks on each sequence.

In general terms, the Linn's design succeeds where so many others have failed in keeping music recording as akin to the use of a tape recorder as possible. This is reflected in the provision of buttons labelled Play, Record, Forward, Rewind, Locate and Stop, rather than more conventional (and less useful) sequencer terminology. In fact, the only things you still have to select using a data selection process are track number (1 to 32), and MIDI Channel number (up to 16) for each track.

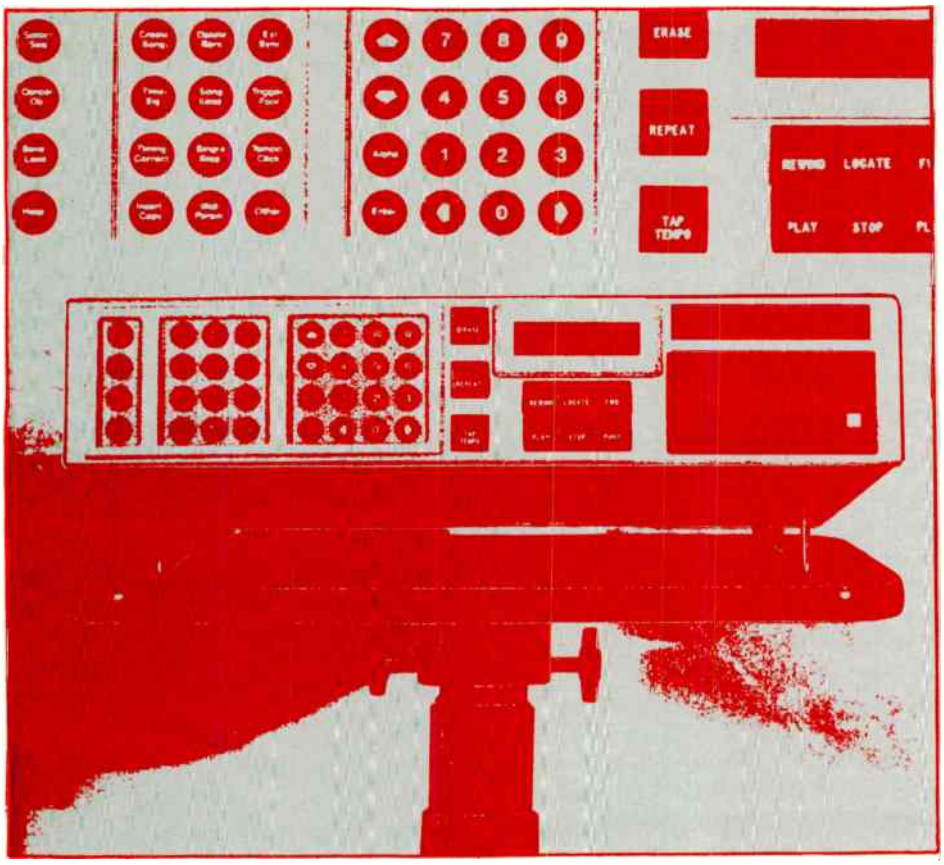
Naturally, you can only have 16 separate tracks triggering synthesisers independently on separate MIDI channels; any additional tracks need to be transferred to tape in separate takes. However, you can use the individual tracks to record different parts of the same instrument's performance, and have them permanently separated yet both sent down the same MIDI channel for replay.

In practice, the Linn records extremely accurately in real time. It's capable of capturing the smallest nuances of your playing (provided you set error-correction to its minimum value – see later), and if that's your principle requirement, this machine should fulfil it admirably.

And until the full step-time software becomes available, a function called Single Step acts as a great boon for stepping through notes individually, to sneak in and correct the odd slip without the need to re-record a whole section.

But there are problems. For even as a substitute for a tape recorder, as A N Other Magazine has already described the Linn, the machine has several significant shortcomings. For instance, whoever heard of a tape machine that makes you specify the number of bars of music you're going to record, *before* you start? Not me, that's for sure. Yet this is precisely what the Linn demands of you, even if you go for its default value. Not even the Casio SZ1 (at £250 – remember!) makes such a ridiculous imposition on your creativity. Just imagine it: there you are, in the middle of a really great phrase you'll never find again, when suddenly your sequencer stops recording, and replays the drivel you played while you were just getting warmed up.

Still, if you do manage to play something world-shattering while the Linn Sequencer is actually recording, you can at least snip off the unwanted material before and after it,



and then loop the good bit round and round, or append it to another good bit that's been similarly tailored.

There are problems on the display front, too, as the Linn offers little visualisation of what's going on across those 32 tracks. The pitifully small liquid crystal display has been used efficiently by Linn's software writers, make no mistake, and offers all sorts of helpful hints on the current recording *status quo*. But you can only see the status of one track or parameter at any one time, which, when we're dealing with 32 recording channels and a whole host of editing functions, really isn't good enough. And when step-time composition does arrive, goodness knows how you'll be able to see what you're doing.

Anyhow, quibbles aside, you can overdub on a track as soon as you've recorded it by the simple process of changing the track number and MIDI channel number, as shown in the display. This is an extension of the Portastudio or 'sketchpad' approach to sequencing, and for those who like to work in this fashion, I'd say the Linn is probably the fastest unit. It certainly beats the Yamaha QX1 hands-down in terms of sheer operating speed and user-friendliness. With the Linn, knocking a song together track by track is a relatively painless process.

Among its fine array of track assignment, copying and editing facilities are an excellent bar insertion/copying system, by which bars can not only be moved from one location to another, but also shifted around between different sequences – handy if you're toying with a couple of intriguing melody lines, without really knowing which context they'd work best in.

Presentable performances of ideas are made easier, too, by the error-correct facility – which, unfortunately, works as you record. Now, this is a matter of personal preference. If you auto-correct during recording, you lose any feel you might have been able to salvage from a freak good performance. On the other hand, the instant playback of a corrected performance means you can kid yourself (and others) that you're a far better player than you actually are. Personally, I reckon that if you're going to auto-correct everything to Hell, you might as well program everything in step-time anyway – though as it stands, of course, the Linn Sequencer won't let you do that. Still, providing your playing technique meets a certain basic standard, the Linn's method is faster. At any rate, this particular auto-correct function seems to work pretty damn well: everything comes back at you with almost inhuman precision, regardless of how sloppily you've played it.

To erase individual notes from a sequence, you have to hold down the notes in question while the sequence is at the point where the unwanted notes appear. In other words, a system not unlike that used by Yamaha's digital drum machines, by which you have to tap the Erase button at exactly the same time as the unwanted drum beat sounds, in order to remove it from your composition. Whilst this sounds easy enough, it can be tricky to execute in certain situations, especially if you're relatively unfamiliar with the Linn's workings.

WITHOUT TAPE

If you've been taking note of my criticisms thus far – the erase operation, the fixing of bar numbers before you start, auto-correct as you record – you'll begin to realise what we have in the Linn Sequencer. Yes folks, a box with a load of drum machine software in it, hastily modified to make it suitable for recording keyboard information. Or to put it another way, a sequencer that still thinks it's a drum machine. Great for drummers and studio engineers who want to get into sequencing keyboards, but hardly what the world's keyboard players have been holding their breath for.

Chaining sequences together is done in a drum machine-like manner as well, though in this instance, having such a step-by-step approach is a positive advantage. This, together with a facility to name your individual patterns with such mighty legends as 'verse' 'chorus' and 'middle 8', means you're unlikely to make any mistakes in getting the shape of your song together, and even if you do, these are easily rectified.

You can also use short sections from sequences in your songs, so that you don't need to re-record small musical 'quotations' or half-verses from scratch to place them elsewhere in your composition.

Other definite plus points include a MIDI Transpose facility (sadly not yet storable within the Linn's memory), and a long list of pattern-programmable parameters that includes tempo (adjustable over a resolution of as little as a tenth of a beat), tempo change, time signature, and so on.

Thus, it's really in the transformation of a bunch of sequences into a coherent piece of music that the Linn begins to earn its (rather expensive) keep, in terms of both time-saving and artistic control.

The 3.5-inch disk drive is used for storing all your sequence data, and the Linn Sequencer is clever enough to format its own disks, so the cost of the floppies is the only ►

'hidden' extra storage expense. One disk is capable of storing over 110,000 notes, which is probably enough for most, non-Wagnerian purposes.

Exhaustive tests failed to reveal any MIDI code which the Linn was incapable of dealing with. Aside from the inevitable note-on and note-off commands (with velocity as standard), aftertouch, pitchbend and mod wheel data, sustain pedal and program changes, the Linn also understands other, rarer continuous controller codes, and various system exclusive operations.

Synchronisation with the outside world is another of the machine's better considered aspects. There's a full implementation of MIDI real time messages (complete with the vital Start, Stop and Continue commands and Song Pointers), and a facility for older gear (working on a clicks-per-quarter-note scale) to be triggered; this can be extended to include individual trigger pulses.

Another promised update (still not available for the 9000 last time I looked) is SMPTE. However, all the practical hassles inherent within music recording via SMPTE (too many to discuss here, I'm afraid) make this an omission not really worth losing sleep over. My advice? Buy yourself a Roland SBX80 or an SRC and control everything via MIDI Song Pointers, which are immeasurably more reliable anyway.

A Computer Interface on the back panel would seem to portend a more comprehensive visualisation of sequences, but no one seems to know much about this at the moment. I'll tell you more when someone tells me.

Concluding this review is a difficult task. It's clear that, far from being beyond criticism, the Linn Sequencer has a number of glaring design faults which severely restrict its usefulness in a wide variety of applications. It has no step-time recording facilities yet, its recording format requires the user to put up with a number of operational annoyances, and it lacks a large number of the writing, editing and assignment features that make using the Yamaha QX1 such a rewarding experience. And in comparison with the features and price of the new Roland MC500, the Linn Sequencer starts to look very expensive indeed.

Yet as a digital recorder whose job it is to store lots of MIDI information quickly, faithfully and usefully, the Linn is a joy. It is astoundingly accurate, and it puts up fewer boundaries between technology and musical creativity than almost any machine I know of. You can use this sequencer in much the same way as you would any other musical instrument, and not ever fully realise (let alone worry about) just how complex it is.

So why aren't I more enthusiastic about it? Maybe it's just that, to me, a sequencer is first and foremost a compositional tool, not a piece of recording equipment. ■

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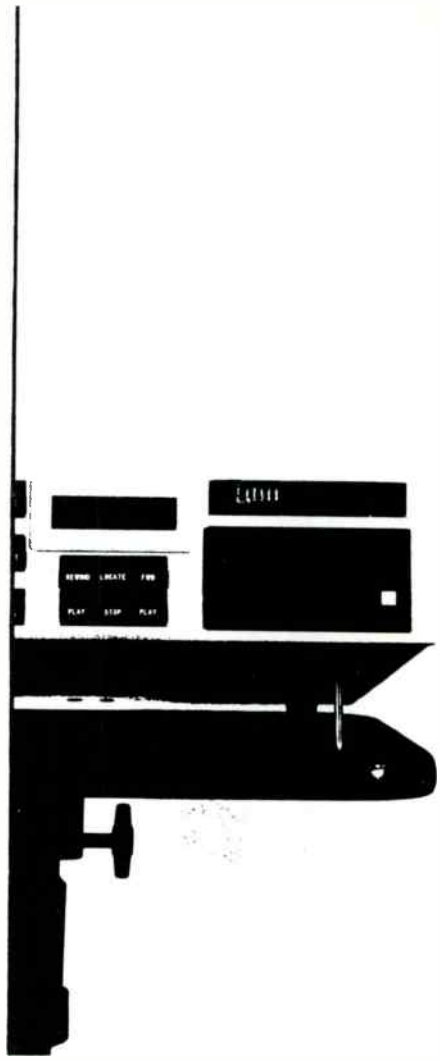

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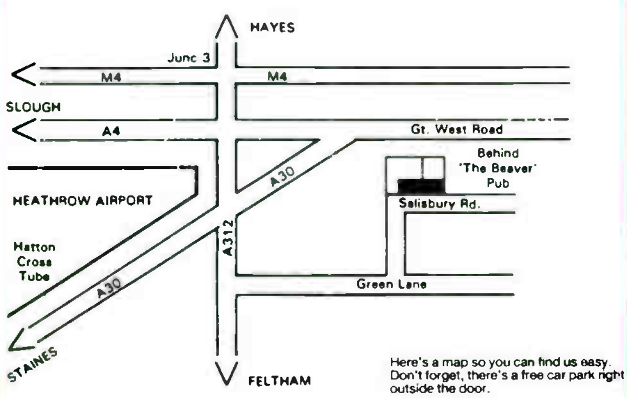

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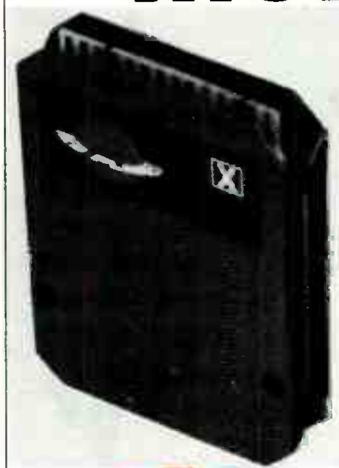

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Out T·A·K·E·S

Latest goings-on in the fields of record-making, live performance and video production analysed by E&MM's reviewing team – plus a roundup of some of the better readers' demo tapes to reach the magazine's offices during the last month or so.

Vinyl T·A·K·E·S

Steve Jolliffe
Japanese Butterfly

Nada Pulse LP

After what seems like an unbelievable delay, the former Tangs man finally gets his second solo album out on release.

Japanese Butterfly is a slow, tranquil work, each of its pieces a homage not only to the traditional oriental music from which the album derives its title, but also to the magical – though incredibly underused – interaction between synthesisers and wind instruments.

Jolliffe plays both with equal sensitivity, but as it's the sax and flute that take the lead part on all these tracks, it's the man's wind playing that really stands out. If anything, it's the least oriental-influenced pieces – 'Home' and 'Secret Garden' – that catch Jolliffe at his most inspired, layering delicate, lilting sax melodies over punchy but strangely soothing DX7 bleeps. The breathy, deliberate flute of 'Lost' is also a joy to behold.

Nada Pulse boss Dave Lawrence describes 'Japanese Butterfly' as a meditative album, and in a sense he's right. But Jolliffe in this mood is more likely to bring us closer to the real world than lift us away from it. With its supreme sense of balance and timing and its astonishingly clear (eight-track) recording quality, this album makes a mockery of today's big-production synth records, proving more powerful in its mixture of old and new than any computer-assisted 'dynamic' music I can think of.

If I have a quibble, it's that *Japanese Butterflies* is littered with familiar DX and JX3P synth presets that could so easily (Jolliffe is a talented programmer) have been given more individuality.

But as it is, this album does enough to shatter *all* illusions about what a modern electronic music record should be. It is bright without being brash, atmospheric without being atonal, and colourful without being comic. It is wonderful. ■*Dg*

David Sylvian
Words with the Shaman

Virgin cassette

After a prolonged period of silence, and after repeated, unfulfilled promises of a new album, Sylvian has finally resurfaced with a limited edition cassette and an accompanying video. It's been a long wait since the release of the excellent *Brilliant Trees* LP back in '84, and Sylvian's left himself no mean task in following his first solo work – though whatever the background, *Words with the Shaman* shares quite a lot of common ground with its predecessor.

This time around, though, Sylvian has put

his most distinctive trademark – his voice – on the back burner. 'Words' is entirely instrumental, despite its title.

The result of the exclusion leaves the curious intricacy and beauty of Sylvian's jazz/ambient cross-breed in full view, but deprives it of its first line of accessibility. Sylvian has a rare talent for melody as well as structure, arrangement and the rest of it, so the voicelessness is a regrettable omission.

Still, this collection of instrumental doodlings – all of a highly improvised nature, I suspect – makes intriguing listening. Oddly set up drum kits collide head on with gliding synth clusters, ancient ethnic trumpets, and Fripp-esque guitar splurges courtesy of the man who invented them. Yet somehow it all works, and you finish listening to the tape with the feeling that its bizarre arrangement is as natural as guitar, bass and drums.

Maybe this is a classic case of the artist trying to outrun his audience in pursuit of his art, but *Words with the Shaman* does just enough to convince you that Sylvian remains one of modern music's few genuine innovators. ■*Tg*

Malcolm McLaren
Swamp Thing

Charisma LP

Seems McLaren just managed to take enough time out before his wedding to pull together an album's worth of material for release – probably to ensure an uninterrupted honeymoon.

But this isn't brand new music from the man who – amongst many other things – gave high technology street credibility when he spotted the potential of synths, samplers and drum boxes long before most dancefloor producers had cottoned on. The material in question spans three years – '82 to '84 – and has been written with assistance from some people called Trevor Horn and Stephen Hague.

Along with McLaren himself, Horn and Hague are also partly responsible for the production work, and it's a Horn production – 'Duck Rock Chant' – that stands out as being the catchiest, most memorable offering here.

The rest is a hotch-potch of influences – from pop to opera and back to pop again – that look interesting on paper but don't add up to much on record. The Troggs' 'Wild Thing' and the 23rd Psalm provide the unlikely impetus for an uninspiring title cut, whilst 'Eiffel Tower', draws on McLaren's own plagiarised 'Buffalo Gals' – but lacks either the novelty or the finesse of the original. Greatest disappointment of all is 'Supresto', which kicks off with Frankie's TR707 drum pattern, reaches out to embrace Paul Hardcastle's stuttering '19', and then goes...absolutely nowhere.

Well, you know what they say: the line between genius and madness is very, very narrow. ■*Tg*

Aspects of Paragonne

MMC LP

The sleevenotes to this one suggest it was made for two reasons: the first to experiment with the possibilities of using two keyboards and percussion, the second to combine the diverse musical skills of keyboardists Tony Hymas (remember PhD?) and John Taylor.

The result is more fun than the serious narrative might suggest, even though *Aspects of Paragonne* begins abysmally with the repetitious, cliché-ridden '24 Hours'. Yet between them, Hymas and Taylor – more than ably assisted by sax player Stan Sultzmann, percussionist Frank Ricotti, and bassist Chris Lawrence – pull what's obviously a fairly 'loose' ensemble into shape for most of the rest of the album. By the time we get to side two, the quintet are coming up with pieces as finely constructed as the unsettling 'Agression and Regression' and the passionate, melancholic drama of 'The River'.

This is first and foremost *jazz*, of course, which means lots of extraordinary key changes just where you don't them expect to be, lots of intricate harmonic interplay, and lots of musical in-joking between the performers (like the telephone bell imitations within '71890'). Yet these musicians aren't just playing for themselves, and the technical brilliance of their performance rarely gets in the way of listening pleasure. In any case, most of the time you're too busy trying to appreciate new combinations of tone colours (anyone for piano, latin percussion and soft polysynth textures, all playing against one another?) to let the odd bit of virtuoso oneupmanship cloud the view.

That initial aberration aside, *Aspects of Paragonne* is a fine example of what *can* happen when a bunch of highly talented musicians bungs a truck-load of disparate influences into a cooking pot, and emerges with a dish that's as tasty to consume as it was to prepare. If you're already a jazz fan, buy it. If you aren't already a jazz fan, listen to it first, then buy it. ■*Dg*

Live T·A·K·E·S

Sting

Windsor Hall, Bournemouth

For anyone who took the year off in search of rare species of Chinese water buffalo, Sting's first solo album, *The Dream of the Blue Turtles* was one of 1985's most acclaimed LPs – and rightly so. After seven years together, The Police had gone their separate ways by mutual consent, and each member of the band involved himself with an entirely different type of project.

For his part, Sting pieced together a new band of musicians known primarily for their work in the jazz arena. It was undoubtedly a risk, but as both the album and this live show proved, a risk that paid off.

From the moment the band kicked off with the Police number 'Shadows in the Rain', it was obvious these musicians were very, very tight – though in as friendly and as accessible a way as you can think of. They were a joy to watch, not least because they were so obviously *enjoying* themselves. Highlights included some storming keyboard solos from Kenny Kirkland (his panache put Sting's one guitar solo in the shade), an amusing rap by sax player Branford Marsalis (stylish, precise and awe-inspiring throughout – and he's only 22), and a moving solo performance of 'Moon Over Bourbon Street' (the new single), which succeeded in moving at least one member of the audience to tears.

Sting's voice let him down once or twice, but his stagecraft never did. And he remains one of the few rock performers capable of switching from the dynamic and aggressive to the moving and evocative at a single, spectacular stroke.

The band went through most of *Blue Turtles*, along with tracks off every Police album and a few oddities such as 'Low Life' (B-side of 'Spirits in the Material World') and 'I Burn for You', originally intended for *Ghost in the Machine* but eventually used on the *Brimstone and Treacle* soundtrack instead. The hits were there too, of course, but in common with the rest of the material, they were given new arrangements and different interpretations. At best these worked extremely well, improving the originals by adding an extra, unexpected dimension. But just occasionally, the repetition of a single riff was just too extended for comfort, like the long passage that closed the medley of 'One World'/'Love is the Seventh Wave'.

The final stages were sloppy and self-indulgent, but a welcome surprise was the addition of Police guitarist Andy Summers; an unwelcome one was his faulty guitar lead.

Two-and-a-half hours after it had begun, the concert wound down in the same informal atmosphere that had characterised it from the beginning. It was the end of a display that did more than just promote an excellent album; it showed familiar songs in an unfamiliar light, and contained a rare, successful blend of pre-planned precision and sunny spontaneity. ■ *Neville Unwin*

Video T·A·K·E·S

David Sylvian
Steel Cathedrals

Virgin Video

Committed to film as opposed to currently fashionable videotape, 'Steel Cathedrals' deserves to be described as a short film rather than a promo video; in fact, it isn't really a 'promo' anything, since it's hardly likely to sell Virgin any more records. It's intended to complement – rather than advertise – the instrumental piece of the same name, as found on the second side of Sylvian's *Words with the Shaman* cassette.

The film was shot late last year in the outskirts of Tokyo – no surprise there to anyone familiar with Sylvian's past or his long-standing preoccupation with things oriental. Similarly unsurprising is the host of oriental names involved with its realisation, amongst them that of YMO's Ryuichi Sakamoto, who contributed to the recording.

The film uses few people in its imagery, presenting instead a series of pastel images well suited to the careful, downbeat mood of the music, with its swirling synth textures and deadpan drum beats. Just as Sylvian is expert in manipulating musical textures, so he appears equally adept at coaxing succinct combinations of visual images.

The main focal point turns out to be swimming fish: again well suited to the musical mood (though don't ask me why), and possessed of the pre-requisite Far Eastern overtones. In contrast, industrial landscapes are shown with softness and delicacy, giving them an oddly natural appearance that's as pleasing as it is unexpected. The images blend together easily and smoothly, moving in sympathy with the musical changes of the soundtrack, without ever descending into chocolate-box soft-focus cushioning.

The results are initially unremarkable; the film appears not only uneventful but also curiously directionless. But repeated watching brings out a compelling empathy between the seen and the heard, just as repeated listening uncovers subtle, previously hidden treasures of arrangement and structure.

In 'Steel Cathedrals', Sylvian has produced an intriguing, atmospheric work that succeeds in satisfying both ears and eyes far better than the average pop promo – with its dry ice effects, moronic miming and vacuous three-minute story-line – will ever manage. ■ *Tg*

Demo T·A·K·E·S

Master of Ceremonies: Welcome, ladies and gentlemen, to this month's edition of DemoTakes, the show where budding stars get the chance to put their tapes in front of a panel of celebrity judges.

The opening slot on this month's show goes to a London outfit calling themselves **Important Notice**. The

band are a four-piece and, although they have a regular drummer, have opted to use a Yamaha RX15 for convenience on the four self-penned songs presented here.

Judges: Considering that this recording was made bouncing down onto a Revox A77, the quality is stunning. And the standard of the recording is fairly representative of the band's efforts as a whole: the drum programming is refreshingly human, the playing is tight – especially the flute on 'Hypnosis' – but, most importantly, the songs are well written and *very* catchy. Perhaps better suited to the American market than the British, but either way, an excellent effort.

Master of Ceremonies: Thank you. Next we have a synthesiser duo from Wiltshire calling themselves **State of the Art**. What you are about to hear is the result of the band's first venture into a 16-track studio, with Paul Hugget looking after the majority of the keyboard work and programming, leaving Marcus King to take care of the remainder and the vocal honours.

Judges: Radio 2 commerciality employing a typical cross-section of today's financially accessible high technology: DX7, Bit One, CZ1000, TR909, Digisound modules, and so on. We feel that the songwriting is the main area for concern here, though the SDS1 tom rolls also grate somewhat. Production is another weak area: the danger is that an A&R man won't make much of an allowance for that and you'll lose out.

Master of Ceremonies: Now onto **Highway**, who hail from sunny Birmingham and recorded these three songs in November '85. Coincidentally, the tape is also a result of a first visit to a studio, again a 16-track. Let's see how they fare.

Judges: Maybe this was actually recorded in the States – if it wasn't, it should have been. But in all seriousness, this band have a great sound and play well. The songs are well put together, even if they do sound as though they ought to be aimed squarely at the American market, where they'll either do really well or disappear under the glut of similar material that already exists there. Better still, we suggest the band get involved in making the soundtrack for a film about an Italian fighter with a small vocabulary and a very large chip on his shoulder, then they'll find themselves in as much demand as Westland shares.

Master of Ceremonies: And so to **The Wilson Years**, a three-piece from London, with Ann playing keyboards and singing, John taking care of more keyboards and Michael on guitar. There's a lot of Yamaha CX5 computer on these three original songs, but has it helped at all? Over to the judges.

Judges: We didn't take to this at first, though after a couple of listens it does begin to grow on you. The melody on the first track, 'Will You Love Me Too', is actually quite catchy. It's too slow to grab a lot of attention, though. Generally the songs aren't particularly distinctive, but the fact that the recording is rather flat – Porta One job, wasn't it? – doesn't help. Again, better songwriting is basically what's required.

Master of Ceremonies: Finally tonight, we've got a bit of an oddity for your entertainment, in the form of two tracks from **C Logan**. Let's see what the jury make of them.

Judges: Well, he certainly makes novel use of a kazoo and an Acorn Music 500! It sounds rather as if Mr Logan has set silly lyrics to a wayward computer game and a jazz bassline. Definitely unusual, but a little too off-the-wall for our taste.

Master of Ceremonies: Well, that's about it until we meet again same place, same time, next month. Don't forget to keep sending in *your* demos for us to put in front of our panel of celebrity judges. The address to send them to is: DemoTakes, E&MM, Alexander House, 1 Milton Road, Cambridge CB4 1UY. Good night, and good luck. ■ *Tg*

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▲ UP AND RUNNING

▲ Second in our occasional series on bands at the halfway point between bedroom demos and mass success. ▲ This month, a cosmopolitan six-piece with a distinctive stage presentation, and a brilliant fusion between ethnic rhythms and modern technology. ▲ Interview *Tim Goodyer*

drum

From the moment Roland unveiled their CR78 Compurhythm to an unsuspecting industry, through the advent of the Simmons SDS5 electronic kit, right up to the current fad of the DX7 Log Drum preset, electronic alternatives to traditional percussion have become increasingly important to modern musicians. Thus far, the drum machine has been hailed as everything from an invaluable songwriting aid to a mindless source of mindless rhythms, while the electronic drum kit is still regarded by some as the potential executioner of its acoustic parent.

Realistically, there's no reason for this conflict. It's just that the musical fraternity has an age-old tradition of resistance to progress, be it turn-of-the-century revulsion of the saxophone, or eighties abhorrence of synthesised drums. It's a sad reflection on today's supposedly enlightened musical world, that it's often left to lowly pop musicians to show the way to serious artists.

Let's speculate on the existence of a band fascinated by rhythm in all its forms, and unhindered by Luddite blinkers. Their scope would be enormous: traditional rhythms of worldwide sources from Brazil to Tibet; instruments ranging from a LinnDrum to a talking drum. Arrange these elements within a pop context, and you have Drum Theatre.

Drum Theatre are a six-piece band drawn from homes as far afield as Chicago and Sheffield. They draw on both modern technology and ancient tradition with equal aplomb, fusing them with strongly melodic songs to a single end: to make good pop music.

'Pop music does get slagged a lot', as the band themselves admit, 'but it's very, very difficult to write a good, catchy melody – and that's what good pop music's about: good melody. It's far easier to come up with something that's obscure and arty, like banging a couple of pieces of pipe for a few hours, no doubt to great critical acclaim. And just regurgitating old ideas with a commercial feel will sell records, but that's *bad* pop.'

All very astute, but is this evidence that Drum Theatre are just another example of record company speculation on the pop stock market? A little money in – a lot of money out? Fortunately, it isn't.

'It's not our deliberate aim to write pop songs for the sake of it – it's just the sort of music we like writing.'

Fair enough.

It's almost three years since founder members Kent B and Gari Tarn first met in a London club, drawn by a common interest in African music. The result of this introduction was the nucleus of Drum Theatre, formed along with American keyboardist Patrick Gallagher, and with Tarn falling into the singer's rôle when there was nobody else to sing on the first demos. The fledgling Drum Theatre existed with this line-up for a short period, but added the remainder of the present personnel – guitarist Simon Moore, bassist Paul Snook and drummer Myles Benedict – when they wanted to break free from the confines of the recording studio.

Demo tapes were duly recorded and sent out. One of the selected

targets, Epic, received a tape with no covering information or contact address. The contents of the tape, however, were impressive enough for the label to search for its creators, a contract was eventually signed, and a debut single 'El Dorado' was released towards the end of last year. It received some heavy airplay, but the pandemonium of Christmas shopping habits prevented it from being a big hit.

theatre

So here we are in the first month of 1986, sat in a London recording studio, surrounded by the tools of Drum Theatre's trade. Brightly-painted guitars, kotos and mbiras litter the floor. Present are five of the six band members; the absentee, keyboardist Gallagher, is in the States avoiding pressure from Her Majesty's Government over his work permit.

We begin, not unexpectedly, on the subject of fusion. Have Drum Theatre had problems merging two musical genres (western pop and ethnic) that could so easily fight each other for air space?

Kent B: 'I think one of the problems we've had with incorporating ethnic instruments into our music is that, in their native environment, they don't go through any chord changes. They remain with one chord or in one key, so we've had trouble adapting them to western music.'

Wouldn't sampling help?

'Even if you sample something, so that you've got every key available to you, it loses part of its quality – it doesn't quite translate. Sampled sounds are very different to natural sounds.

'Although technology is widely used in our music, we keep it transparent unless we're trying to achieve a certain effect. A Fairlight will colour a sound, so sometimes you sample a drum to get a different kind of sound because of that distortion. We've used sampled drums just in certain places, like amid a Caribbean groove to give a certain effect. It's especially effective if you sample with reverb, because the reverb stops the moment you stop the sample.'

Gari Tarn takes up the subject. 'I think the technology *is* transparent in most of what we're doing, but, for example, we'll use it where you might not be as tight actually playing a part. "N-n-n-nineteen" is a very obvious trick, so we tend to avoid that sort of thing.'

The solution to the puzzle of translating tribal groove into mass-media commerce turns out not to lie in assaulting tradition with technology, but in the number and variety of musical instruments used. Kent B explains.

'There are tons of them! If you look around you'll always find something, so you're not really limited in that way – different drums, different strings and so on. We tend to put them into groups, so Simon will play thin strings and prongs, Paul plays fat strings and thick prongs, Myles plays sticks and tricks.

'Every day someone finds something we haven't seen before. And that poses the question: "What do you do with this? Pluck it, blow it, kick it, or sample it?"'

Tarn: 'Sometimes you can see a picture of something and say: "it must sound like this", so you've got the idea for a new synth patch. We derived a cora patch that we think sounds better than a cora.'

But, as every synth programmer knows, searching so hard for sounds can all too easily get in the way of writing music. Drum Theatre admit to being vulnerable to this malady, but believe they have it under control.

Tarn: 'We do suffer from an obsession with sounds, but only *after* the song is written. Once we know where we're going, we'll muck about with the details for hours. By then it doesn't really matter, it just gives us something to do. We've got to argue about something!'

Kent B: 'But if we didn't pay any attention to it, we'd end up without a style. The songs we write are generic – if you listen to the bass drum pattern it sounds like a lot of other songs – so it's the way we layer the sound on top that makes it ▶

ours. That all comes from the production side.'

Kent B credits new technology with exerting other, more significant effects, too. 'It makes it a lot simpler to play and to write music – especially if you write on your own. A big change that music's been going through lately is that individuals now have an entire band at their fingertips, so a composer can create a song exactly as he sees it. Before, a band used to get together and all contribute something to the finished result.'

Tarn: 'I think it also leads individual musicians to develop a much stronger style than they might otherwise have done. For example, Simon's guitar style has developed in ways that it probably wouldn't have done in the traditional band context. Having had to use the guitar to fit in with other sorts of sounds, the next step forward is to use the instrument in a way that can't be emulated by anything else. Take the saxophone: you'll never be able to replace that sort of instrument. You can get that sort of sound, sure, and it may sound OK some of the time, but you'll never replace the way that it *plays*. It seems to me that, over the next few years, there's going to be a greater demand for more versatile musicians.'

Moore: 'You can be a bedroom guitarist, and practise your scales every day, but you'll then find it takes time to adapt to a situation within a band, when you have to be very aware that other sounds are present.'

Tarn: 'Both Simon and Paul are going through a transition where their instrument stops being just an instrument creating a note, and starts to achieve a sound that fits into an overall musical collage. When you think of the number of different sounds a synthesiser will give you, you realise that you have to be able to do the same sort of thing with, for example, a bass. If you can't do that, then the bass end is always going to sound the same. If everything else is changing, you have to be able to change with it.'

With a prestigious touring support slot to King safely under their belts, and DJ Mike Read plugging their single, 'Living in the Past', at every available moment, Drum Theatre have reason to be confident their approach to musicianship is paying off. But the reason they've already aroused such attention has little to do with music. To most people, Drum Theatre are a collection of strikingly-dressed young men who perform in front of colourful, unorthodox stage sets.

Benedict: 'I know a lot of serious "musos" won't take us seriously to start with, because of the way we look, but a gig is supposed to be about having a good time. It's not some mystical experience. I believe that if an audience can see a band are having a good time, they're far more likely to enjoy themselves.'

Musically, the band began their stage career using backing tapes and drum machines, but now adopt a completely live approach that's more satisfying than either of its predecessors.

Tarn: 'The first stage of the live six-piece involved using tapes, but we found we didn't actually need them. It was an attitude we had at the time: for some reason, we felt we wouldn't be able to reproduce all the little details live.

'We also decided we wanted to use a Simmons kit, because they look really modern, so we had Myles standing behind an SDS7 playing along with the tapes. When we finally realised we didn't need the tapes, we used a percussion player – Andy Duncan – and that, along with a Linn, was the first-ever live line-up.

'Seven people really was too many, so we thought that if we made more use of the Linn, we could manage without Andy. Then we decided we didn't like the Linn at all! We'd been doing some stuff in the studio with a full drum kit and it sounded great, so we thought "why are we mucking about with the Simmons when an acoustic kit sounds better?".

'So we cut the Linn, sat Myles down behind his drum kit, which was what he was best at anyway, and we were away.'

But while the concert stage has been friendly toward Myles Benedict's changes of stance, it's not looked quite so kindly on the multitude of unconventional instruments that had given Drum Theatre so much inspiration. Undeterred, they overcame the logistical problems, and now have a trick of their own up their sleeve.

Moore: 'It's impossible to take things like the mbira on stage because they're so difficult to mic up, though there are some with built-in pickups under development at the moment. But another problem is that it's really boring to watch someone play, it's like watching someone play keyboards.'

Tarn: 'The solution is to find a way of playing the sounds that you like and make it very visual. We've got something in mind, but it's still a closely-guarded secret at the moment. Come and ask us about it in six months' time! We first talked about it two or three years ago, and you can see something in the video for 'Living in the Past' that's our own design. Kent will be the first to use it as it'll use both his keyboard and drumming skills, and it'll involve sampling, but I'm saying nothing more at the moment.'

In keeping with the band's *penchant* for invention, even the Drum Theatre stage set and costumes are of their own design. On the clothing front, singer Tarn designs and makes clothes to match the band's colourful instruments, while the stage set consists of the cut up and gaudily coloured remains of a Morris Minor that once provided Tarn with a means of transport.

'I left it in King's Cross when it broke down one weekend, and when I came back it had been completely wrecked. At the time we were looking for a percussion rack that would look really good, so since it hadn't cost very much, we decided to cut it up and use it. In the end, it worked so well that we got a couple more!'

The moral? Don't leave your car unattended in London unless you want to see it on stage at the Hammersmith Odeon. ■

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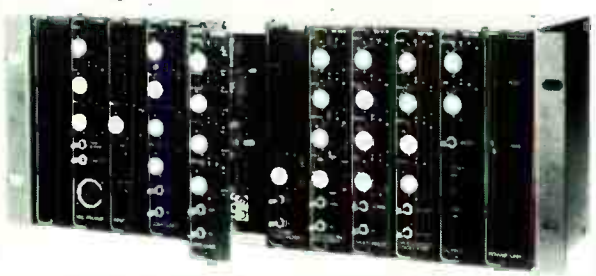

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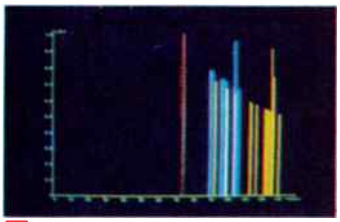
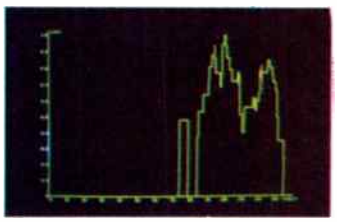


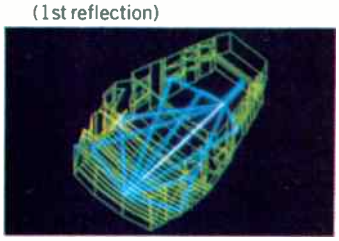
Early reflection graph



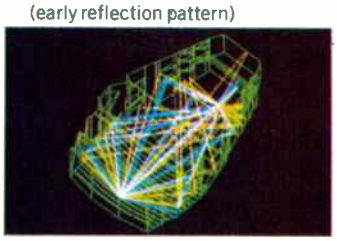
Perceived early reflection characteristics

Early Reflection Simulation Example Based On a Specific Hall Design

Hall simulation (1st reflection)



Hall simulation (early reflection pattern)



REV7

The REV-7 is a highly professional, MIDI compatible, stereo programmable digital reverberation system. It is also an extraordinarily powerful studio effects unit.

Natural reverberation is the most complex of the 'time domain' effects to be replicate with true fidelity. It requires ultra-high speed circuitry capable of processing an immense amount of data very quickly. It also requires the implementation of very sophisticated software based on a thorough understanding of real-world acoustic responses. Thus, in the past, a top-quality digital reverberator has always been very expensive.

By designing their own purpose-built LSI (Large Scale Integration) micro-processors specifically to meet all these stringent requirements, Yamaha have achieved an astonishing cost breakthrough. So that, at the price, no other device even approaches this kind of quality, flexibility and simple musicality.

With 16-bit linear quantisation, a sampling rate of 31.25kHz, a 12kHz bandwidth, a dynamic range of between 78dB and 84dB (depending on effect selected) and 3-band sweepable equalisation, the REV-7 creates astoundingly accurate simulations of a variety of acoustic environments based on exhaustive real-world research. And on top of that, Yamaha engineers have also built in the capabilities of virtually every other time-domain processor you can think of.

Within its memory banks are stored 30 factory preset effects which range from natural-sounding halls of various sizes through chorusing, delays, stereo repeats, flanging, phasing, flanged reverb, gated reverb, reverse gate and more. All these effects can be edited to a fine degree and there are another 60 user-memories in which to store your own creations.

Here are some of the adjustable parameters for a reverb effect:

1st Reflection 1 to 100ms after direct sound, 0 to 100% level) - the time delay between the direct sound and the first reflection.

Initial Delay 1 to 100ms) - the delay between the direct sound and the onset of reverberation.

Reverberation Time (0 to 10 secs) - adjustable over three frequency bands.

Diffusion (0 to 10) - the shape and proportion of a room will determine how spacious, or conversely how directional, its reverberant field is, irrespective of its overall reverb time. With this adjustment then, you are able to actually adjust the apparent shape of the room and definition of the sound source.

REVERBERATION PLUS..!

REV1

Alternatively, if you need the last word in quality, control, programmability and user-friendliness, the REV-1 is the ultimate studio machine for reverb and effects. Offering instant 'one-touch' access to memories and fine control of effect parameters, the REV-1 also provides variable display graphics to aid swift and subtle adjustment, keeping you fully informed at all times.

Programmes can include up to 40 early reflections and 99 secs reverb time (individually adjustable for 4 frequency bands). The full-function remote features a large graphic display of all parameters, and actually includes 9 RAM programme memories allowing you to carry your own REV-1 effects wherever your work takes you. There is also an RS-232 interface port for use with a PC as part of a computerised system.

No amount of words can fully describe the effects of either the REV-7 or REV-1 - you'll want to hear them for yourself. If you're not sure quite where to go for your hands-on demo, please contact Yamaha's Pro Audio Specialist, Alan Martin, on (0908) 71771. He'll give you the low-down on their new UK Stockist line-up and price guidelines for REV-1.

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SOUND AN

Two new software packages – from Joreth and XRI – aim to make programming Casio's CZ range of synths that little bit easier. But is their presentation good enough to make them worthwhile? *Simon Trask*

There's just no denying it. Today's synths are just *no fun* to program. With their limited displays and digital access systems that are unfriendly to the point of being obstructive, they don't offer much incentive for *anyone* to make that trumpet just a little bit breathier, the piano a shade brighter, or a glockenspiel mildly more touch-responsive.

Which is where patch-editing software for home computers comes in. Taking advantage of the fact that the average TV can display an awful lot more than an overworked, underfed LCD, such software can show all the parameters of a synth patch at once, making editing an easier task by making it a more visually rewarding one. And a computer-based system can offer further attractions not directly concerned with editing, such as disk storage of sounds – an appealing alternative to the cassette or cartridge options typically found on synths.

Casio's popular CZ synths are no better than the rest when it comes to front-panel editing facilities, and since the Phase Distortion principle they employ has more in common with a digital system than with the analogue one most synth players know and love, they aren't the easiest machines to get into. But it's taken a while for CZ Editing packages to appear – partly, no doubt, because of Casio's reluctance to release the relevant MIDI information. As Casio haven't developed any software themselves (at least, not for public consumption), it's been left to two of the best-known British MIDI software companies, Joreth Music and XRI Systems, to come up with the goods – for Commodore 64 and 48K Spectrum computers respectively. Both are reasonably cheap to buy, and both will work on any of Casio's CZ synths, from the baby CZ101 to the sequencer-laden CZ5000.

Before going any further, it's worth noting that Joreth's policy has been to sell their AL25 MIDI interface only with the Joreth MCS sequencer, which meant you were faced with having to buy the sequencer if you wanted the Editor. Luckily, this situation has now changed.

XRI's interface is also available as a separate item, but if you already own another company's interface, XRI will supply you with the necessary information to create a customised version of their CZ Editor.

Joreth's offering is disk-based, takes a not inconsiderable 90 seconds to load, and comes in two versions (on the same disk). One is designed to function within Joreth's MCS eight-track sequencing package, the other to function in a stand-alone capacity. The former is actually more of a 'librarian' than an Editor, because all editing still has to be done on the synth, and there's no on-screen display of parameters.

The stand-alone version allows you to record a sequence of up to 4000 notes, and then play it back while editing a sound. Nope, this is not a modern-day version of Music While You Work, but a useful way of being able to edit a sound while listening to the song you intend it for. An eminently sensible idea, though maybe the 4000 notes (which is far too many than you actually need) should have been split up to give several different sequences.

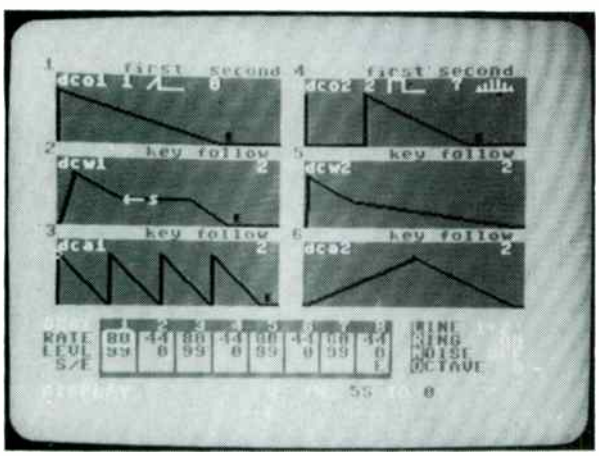
All editing is done from a single screen, and from the computer's typewriter-style keyboard only. Most of the parameter displays take the form of numeric inputs; the DCO, DCW and DCA envelopes are displayed graphically as well as numerically, but are altered from the numeric table rather than from the graphics, which is a pity. And bearing in mind the importance of presentation here, there's a real lost opportunity on the colour side of things: grey and white with the occasional yellow or blue character is not the most inspiring of colour schemes, and doesn't help to clarify the voice structure at all.

Still, if you're fortunate enough to have a printer, you'll be glad to know that the Joreth Editor allows you to print out a patch's parameters on ordinary paper – handy because it means you can carry the information around with you to studios and gigs, and show it to other people without having to set up the entire system.

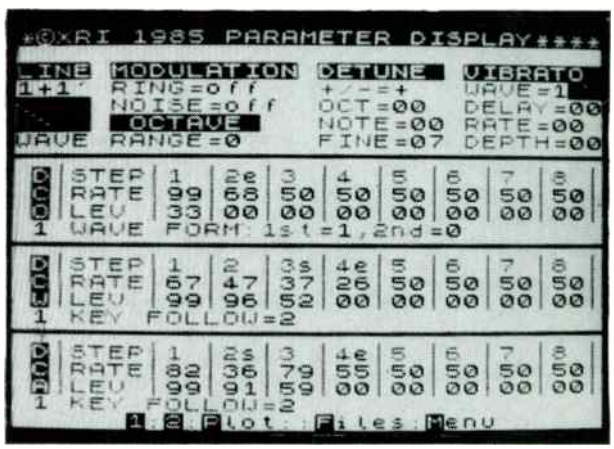
XRI uses two screens. One is a display of all the voice parameters, and allows editing from the Casio's front panel only – with changes showing on-screen. There are no graphic representations, only rows of numbers. Now, I know it's valuable to be able to see *all* the parameter values at a single glance, but let's face it, many people go blank when faced with a whole mass of numbers on one display – a picture or two would have cleared things up nicely.

The second screen allows editing from either the synth or the computer, and displays data for the DCO, DCW or DCA

JORETH



XRI



envelopes, depending on which you select. Thus you get not only the numbers again, but also the envelope shapes plotted for you in the lower half of the screen. You can choose to have these displayed individually or overlaid on one another; colour-coding would have come in useful in the latter case. You can 'redraw' the envelopes, but only by changing the numbers in the relevant table rather than on the graphic display directly.

But there's another side to both these packages – quite apart from their voice-changing facilities – that makes them a lot more useful.

Taking the Joreth first, we find the Editor allows 16 sounds to be held in memory at any one time (arranged as two banks of eight) in addition to the current 'edit' position and an extra temporary storage space. You can transfer single sounds and banks of eight or 16 between synth and computer, and sounds can be stored in any position in both the synth's and the computer's memory. Thus the Editor allows you to set up customised arrangements of existing sound banks – useful for aligning sounds with another synth, or stepping through sounds in the order you want to use them. And, of course, you can pull together completely new combinations of existing sounds that are suited to a particular application.

Disk operations allow you to load and save sounds, again either singly or in groups of eight or 16. It's also possible to format a disk, list the files on a disk, delete a file and rename a file from within the Editor. Transferring a 16-voice file between disk and computer takes a very reasonable 10 seconds.

Particularly useful is a page with the tongue-twisting name 'Title Tones', which allows you to give a name and description of up to 20 characters to each of the 16 sounds in memory. These short pieces of descriptive poetry are then stored on disk along with the sounds, and are listed on the screen whenever a file is loaded from said disk. However, allowing for the fact that you might just want to search your ever-growing number of files for that perfectly-suited sound you *know* you've got somewhere, it would be handy if you could list the contents of a file without having to load all the patch data, and if you could load individual patches from any file to any patch position in the computer. How about it, Joreth?

XRI's Editor can store 128 patches internally, as four banks of 32. This is a healthy number which gives you instant access to, say, several different combinations of the same group of patches. It also ensures you don't have to bother about saving or loading sounds too frequently – though as anyone who has used computers will know, saving your handiwork regularly is the only safe path to true happiness and peace of mind.

Patches can be transferred between synth and computer either individually or in groups of 16, but it's a pity that individual sounds can't be stored in user-specified positions; though as it is, there's a Swap facility which allows you to alter the position of patches within the 128-voice memory, so you can get there in the end.

External storage is to cassette or microdrive, and is limited to 128-voice bulk dumps; the program comes complete with 112 voices on the reverse side of the tape.

There's no doubt many musicians still fight shy of music software, despite the many benefits to be had from using it. Much of this is to do with the fact that so much software *looks* complicated, even if it isn't. This is where a well-considered user manual can be invaluable, but as someone who has come into contact with a fair number of manuals, I'm frequently dismayed/annoyed/frustrated by the lack of thought that goes into their compilation. A simple 'naming of parts' just isn't good enough; musicians deserve a contents list, an index, a discussion of the principles underlying the program and a few hints on how to get the most out of it – and this applies even to relatively straightforward programs like patch editors. Frankly, the manuals for these Casio editors both look as though they've been written by computer hobbyists who haven't really considered what musicians need to see. The XRI's manual is no more than a single sheet of paper.

Neither the Joreth nor the XRI has much to offer in the way of attractive displays, either, as the photographs should show. But it can be done: Yamaha's DX21 and RX Editors are a joy to use, mainly because their graphics are detailed without looking awesome. SIEL's Commodore and Spectrum packages are similarly friendly in the display department, so it isn't a question of these computers being incapable of presenting good visuals.

That said, both these programs do offer advantages over the Casios' front panel, not least because their patch storage and reorganising abilities could quickly prove invaluable. They don't come anywhere near saying the final word in what can be done, and both display a certain lack of imagination. But they are reasonably effective, and they're here now. ■

Joreth CZ Editor
Price *RRP £44.85 including VAT*
More from *Joreth Music, PO Box 20, Evesham, Worcs WR11 5EG. ☎ (0386) 831615*

XRI CZ Editor
Price *CZ Editor RRP £22.95 with tape of 112 sounds; (optional) Micon MIDI interface RRP £49.95*
More from *XRI Systems, 10 Sunnybank Road, Wylde Green, Sutton Coldfield, West Midlands B73 5RE. ☎ 021-383 6048*

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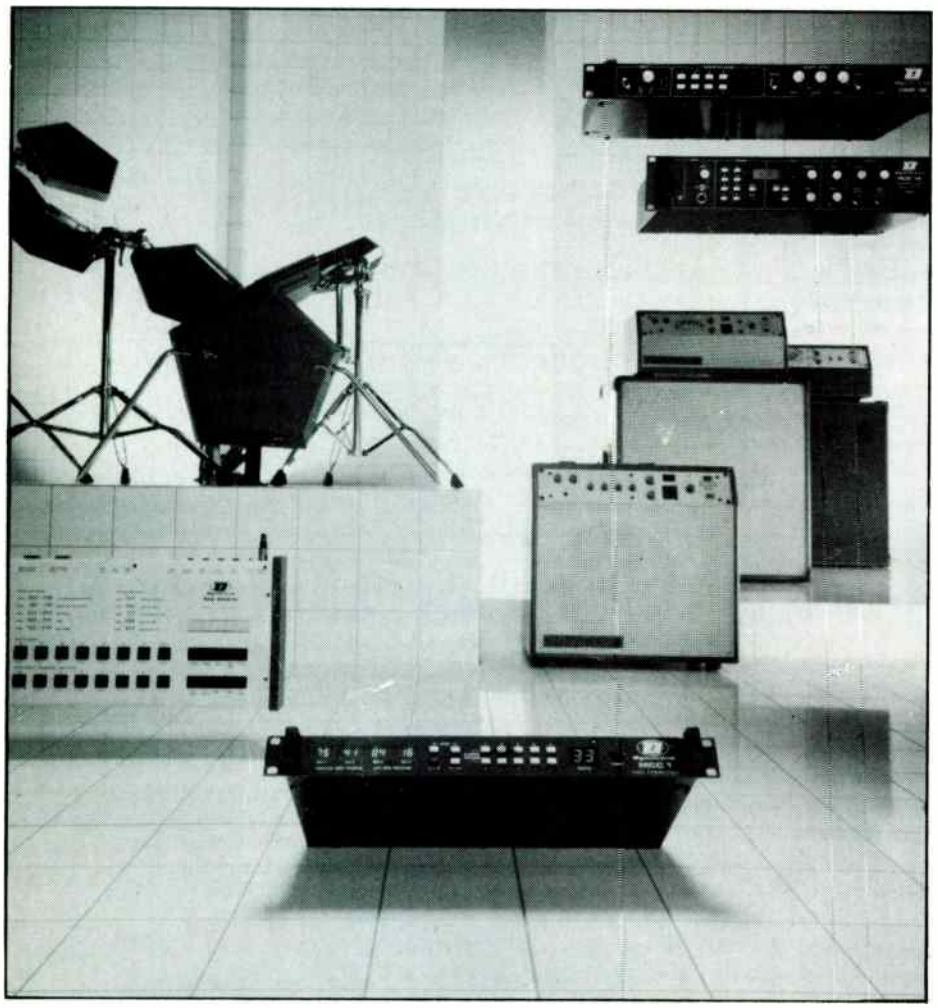
A DIGITAL HIT

The Dynacord drum system is finally beginning to make its way into British shops, with some well-built pads and a voice module storing eight digitally-sampled sounds at its centre. *Nigel Lord*



Dynacord's electronic drum system has been in existence, in some form or other, for over two years. It's a modular affair, with the basic digital drum voice unit (Percuter S – formerly just Percuter) designed for use with an add-on sequencer called the Big Brain and a custom sampling unit titled Boomer. Neither of the latter has yet made it into the UK in any numbers, so when I unpacked the carton of review goodies from Dynacord's British distributor, I found myself with a complete set of pads and stands, an eight-channel controller and a whole bagful of plug-in voice cartridges, including bass drums, snares, toms, timbales and rimshots. Quite a wide range, in fact, though by no means as extensive as the complete catalogue from which they were chosen, which currently lists some 60 different drum, cymbal and percussion voices.

In essence, what we have here is a set of electro-pads triggering a central control unit which is, to all intents and purposes, empty of sounds until one or more of the plug-in ROM cartridges is inserted into any of eight sockets on the front panel.

If you've yet to be swayed by Audi's 'Vorsprung durch Technik' TV ads, Dynacord's drum pads will convince you there's nothing to match German standards of build quality consistency. They're beautifully designed, functional, and extremely robust. All of them have steel rims which, though they may look to some eyes as though they've been fashioned from carpet strip, are remarkably tough. Physically, at least, these are the best electro-pads currently available.

The snare pad is worthy of particular attention. It has two trigger outputs, one on the pad itself, the other on the rim. Dynacord have solved the problem of cross-triggering by suspending the inner pad from a 'skirt' of flexible rubber fastened to the rim, effectively isolating one from the other. This has the added advantage of making the inner pad truly 'floating' – it actually moves very slightly when you hit it, simulating the action of a real drum more closely than any electronic competitor I've tried.

The snare unit also features a Balance control to adjust the relative levels of the pad and rim trigger signals, and like all the other pads, is equipped with locking jack sockets to help prevent plugs being dislocated during a performance.

All the stands are off-the-shelf Tama models with a proven track record for sturdiness and durability, and require no further elaboration here.

Sadly, the Germans are guilty of a little excessive trumpet-blowing when it comes to naming their machines. 'Percuter S' is reasonable enough (though quite what it actually *means*, I'm not sure), but to describe the device on its front panel as an 'eight-track digital drum computer' is downright misleading. How can a piece of equipment which merely 'reads' the internal contents of

eight plug-in ROM cartridges be a computer? OK, some of the technology involved may have been derived from computer circuitry, but that isn't really enough. Similarly, the 'eight-track' part is rather confusing since 'track' is a word much more usually associated with tape or sequencer recording. Surely 'channel' would have been more appropriate?

Plugging in the cartridges is simplicity itself, with little or no room for error. The cartridges are as robust as the rest of the system, for unlike, say, those of the Simmons SDS9, these ROMs are totally encapsulated, with two short lengths of printed circuit board being used as connectors, rather than the pins of the chips themselves. That said, it's purely the thickness of the PCB metal which makes the connection, and I can envisage this being worn through with excessive cartridge-changing. Time will tell.

I can also envisage some cartridges getting plugged in upside-down (all too easy under stage lighting conditions, for example), and though no damage appears to ensue if this does happen, I'd have thought it easy enough for Dynacord to design a plug/socket combination which could only be coupled one way round.

The eight Percuter S channels are identical, which makes interchangeability of voices and pads very straightforward, and allows you to set up the kit itself in imaginative ways (like assigning the bass drum to the snare rim, for example). Controls on each channel are few, and comprise simply Sensitivity, Pitch (with associated on/off switch) and Pan.

These are all pretty self-explanatory, and anyway, only the Pitch control offers the musician any real say in determining the sound. A little control can go a long way, though, as the Pitch function's mammoth ±1-octave range (well, it's a lot in percussion terms) means that a snare voice, for example, can be taken from bass drum pitch to well above that of a timbale. The sound produced at these two extremes isn't always useful in the conventional drum-kit sense, mind you, and I found the control to be of far more value when used over a more limited range, to fine-tune each drum sound to a specific pitch. With this in mind, the on/off switch comes in useful in allowing you to compare the original drum pitch with the tuned version at a single touch. A master Pitch control raises or lowers the pitch of all eight channels by a further half-octave.

Rear panel connections – in addition to the obligatory pad inputs and individual channel outs – comprise Mono/Stereo mix outputs, a Multi Trigger In (for connection to the Big Brain programmer), and a Remote Pitch socket, which, on connection to a footpedal, allows external control of the master Pitch function.

Unhappily, none of the eight or so cymbal and hi-hat sounds in the Dynacord range was present in the selection of ROM cartridges supplied for review. Given the demands a crash cymbal, for example, can make on a digital storage system, this was an unfortunate omission.

Undaunted, I went on to try all the cartridges I *was* supplied with, and this is how they sounded.

Natural Snare 8" had a good all-round quality, and succeeded in going quite deep. *Metal Snare 6½"* was hollow, quite dry and slightly damped; it didn't sound too much like a metal drum to me. *Rock Snare 1* was rather hollow and undamped, with a loose snare sound; a studio engineer wouldn't like it, but with a little reverb added, it could be quite useful. *Rock Snare 2* was a more extreme version of Rock Snare 1, which even I didn't like. *Electrified Snare 1* was short, with a slight pitchbend and little snare sound, yet it's probably more useful than it looks on paper. *Reggae Snare* was utterly wonderful – a very live sound with a pleasant metallic ring to it, and bundles of character. It works especially well when assigned to the snare rim. *Natural Rimshot* was good on the whole, despite lacking a little in the way of top end. *Handclaps* wasn't terribly convincing as an imitation of the real thing, but as a sound in its own right, quite useful. *Rock Toms 8"/10"/12"/13"* were generally very good, and surprisingly deep considering the size of the sampled drums. They had what I can only describe as a 'recorded' feel to them, so that you could almost hear the distance between the drums and the mic. But they *are* all different – it's nice to see they've been generated from recordings of separate drums, rather than simply one sample replayed at different pitches. *Natural Toms 10"/12"/13"/16"* had a simpler sound than the rock toms, but with plenty of attack. The 16" was a little dead, and all seemed slightly damped. Generally excellent, though, and again, all were samples from different drums. *Rock Bass* had a lot of snare noise added to it. Some might like it, but it didn't sound much like a bass drum to me: interesting, nonetheless. *Natural Bass* was nice and tight, with a pleasing slap. With clever use of the Pitch control, this could provide a wealth of usable bass drum sounds. *Timbales 10" & 12"* were both very realistic, and cut through a mix beautifully.

Overall, then, an extremely high standard of voices – and I think it's fair to assume this is maintained across the entire range of Dynacord drum cartridges. You can't really challenge the realism of the sound itself because, presumably, all the recordings have been made from genuine instruments. What you *can* do with a number of digital drum systems is find fault with the quality of the recording and the instruments used, but I'm happy to report that Dynacord seem to have spared no expense here.

From an electronic drum standpoint, the weightiest, most annoying problem with sampled sound is the high level of quantisation noise which frequently accompanies digital recordings, but again, I'm pleased to report that on the Dynacord voices I tried, this was kept to an impressively low level.

An overall appraisal of this setup is a little difficult without the accompanying Big Brain and Boomer. Both machines have excellent paper specifications, and there seems little point doubting the integrity of their construction, but even so, I'll have to defer final judgement until we get our hands on some production review samples.

On their own, the Percuter S' accomplishments are clearly more modest. It's confined to digitally-sampled sounds, it's a bit on the expensive side, and it prevents you from doing much sound-changing of your own: if you don't like a particular factory sample, you're pretty much stuck with it.

Even so, I feel it's a system that has a lot going for it, particularly for those who don't wish to get too heavily involved in the sound synthesis side of electronic percussion. I know of no better set of pads, and Dynacord's habit of using metal where others use plastic is certainly to be applauded, especially on instruments that could well have to endure a hard life on the road.

As I write this, Dynacord are beavering away adding to their range of electro percussion products, preparing to unveil both the Rhythm Stick (a MIDI-based remote drum controller that you sling round your neck like a guitar) and the ADD-one advanced digital drum system at Frankfurt. If they're as well built as the Percuter S, the Germans will have a mighty professional percussion system on their hands. ■

Price *Percuter S and pads, approx £1000, stands extra; cartridges £TBA*
More from *Washburn UK, 130 High St, Abbotsley, Cambs PE19 4UE. ☎ (07677) 648*

Patch W·O·R·K

Right you lot, if you're still in two minds as to whether or not to send in your own synth sounds, we'll just mention that from now on, successful contributors to Patchwork will be awarded a free year's subscription to E&MM, commencing with the issue in which their patch is published. Not that most of you need any incentive, mind you, judging by the quantity of patches we've received since The Return of Patchwork was first mentioned last month. But when the Publisher is in an extra-generous mood (something to do with a horse), why argue?

Patchwork MkII incorporates reviews of sound libraries (cartridges, disks, cassettes, chips and so on) for all types of synths and samplers, so there should be something for everyone.

If you'd like to be included on our subscribers' list without having to fork out a penny, send us your favourite sounds on a copy of an owner's manual chart (coupled with a blank one for artwork purposes), include a brief description of your sound, and what musical purpose you feel it's best suited to – and don't forget to include your full name and address. Patches please to: Patchwork, E&MM, Alexander House, 1 Milton Road, Cambridge, CB4 1UY.

Casio CZ101/1000
'Koyaanisqatsi'
Michael Thydell, Sweden

The Casio CZ range seems to have a healthy Swedish following, as 'Koyaanisqatsi' follows the 'Starshine' patch from last month's Swedish contributor. Named after the film soundtrack by the doyen of systems music, Philip Glass (as if you didn't know), this patch consists of two sounds, mixed in 1+2 mode and therefore just four-note polyphonic. DCO2 is a good organ-type sound from the mid to top end (for the solo voice), while DCO1 provides the bass which is blessed with a distinct but nonetheless subtle amplitude envelope curve. Excellent for those Glass-like endlessly-repeating organ arpeggios – so long as you don't fall asleep listening to them.

PARAMETER

LINE SELECT	MODULATION RING	MODULATION NOISE
1+2'	OFF	OFF
(1,2,1+2',1+1')	(ON/OFF)	

DETUNE +/-	DETUNE OCTAVE	DETUNE NOTE	DETUNE FINE
–	2	00	07
(+/-)	(0-3)	(0-11)	(0-60)

VIBRATO WAVE	VIBRATO DELAY	VIBRATO RATE	VIBRATO DEPTH
1	00	00	00
(1-4)	(0-99)	(0-99)	(0-99)

OCTAVE +/-	OCTAVE RANGE
+	1
(+/-)	(0-1)

1

DCO 1

WAVE FORM FIRST	WAVE FORM SECOND
2	5
(1-8)	(0-8)

E N V (PITCH)

STEP	1	2	3	4	5	6	7	8	
RATE	50	50							(0-99)
LEVEL	00	00							(0-99)
SUS/END	SUS	END							

DCW 1

KEY FOLLOW	
3	(0-9)

E N V (WAVE)

STEP	1	2	3	4	5	6	7	8	
RATE	99	01	30	28	25	50			(0-99)
LEVEL	36	23	65	21	37	00			(0-99)
SUS/END						END			

DCA 1

KEY FOLLOW	
4	(0-9)

E N V (AMP)

STEP	1	2	3	4	5	6	7	8	
RATE	76	19	22	25	32	25	36		(0-99)
LEVEL	87	90	40	71	36	48	00		(0-99)
SUS/END							END		

2

DCO 2

WAVE FORM FIRST	WAVE FORM SECOND
3	1
(1-8)	(0-8)

E N V (PITCH)

STEP	1	2	3	4	5	6	7	8	
RATE	50	50							(0-99)
LEVEL	00	00							(0-99)
SUS/END	SUS	END							

DCW 2

KEY FOLLOW	
2	(0-9)

E N V (WAVE)

STEP	1	2	3	4	5	6	7	8	
RATE	99	31	36	31	40	50			(0-99)
LEVEL	40	22	59	21	47	00			(0-99)
SUS/END						END			

DCA 2

KEY FOLLOW	
2	(0-9)

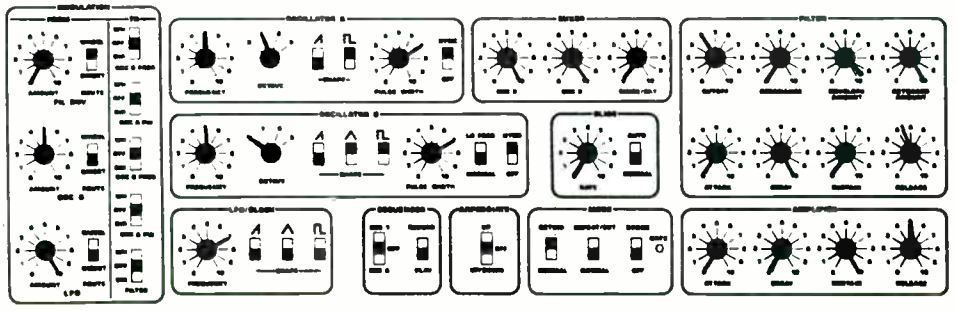
E N V (AMP)

STEP	1	2	3	4	5	6	7	8	
RATE	77	58	43	37	37	37	37	31	(0-99)
LEVEL	99	29	66	23	44	15	25	00	(0-99)
SUS/END	SUS							END	

SCI PRO ONE
'Punchy Bass'
Sean Harvey, Middlesex

This one is modestly described by its creator as 'about the most powerful bass sound that can be achieved from this great synth'. We hope you agree. 'Punchy Bass' is another good reason why the humble monosynth is still so popular as a dedicated bass and leadline machine; could you get anything more aggressive out of a modern-day digital polysynth?

So dig out the cobwebbed Pro One from under the bed, dust it down and get programming. Remember that the older the fiddle, the sweeter the tune (or so our ad manager keeps telling us, anyway).



YAMAHA DX7
'Fizz Buzz'
Martin Bullard, West Yorkshire

ALGO-RITHM	FEED-BACK	WAVE	SPEED	DELAY	PMD	AMD	SYNC	PITCH	AMPLI-TUDE	OP
9	6	SINE	37	0	0	0	OFF	3	0	6
									0	5
									0	4
									0	3
									0	2
									0	1
		LFO						MOD. SENSITIVITY		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	POLY/ MONO	PITCH BEND		PORTAMENTO											
		RANGE	STEP	MODE	GLISS-ANDO	TIME									

OP																					
6	R	OFF	4	00	-7	68 99 38 71 99 98 89 0	F7	+L	-L	0	59	0	86	7	79 93 95 50 48 50 50 50	C2	FIZZ BUZZ
5	R		1	00	+5	79 99 38 99 94 98 86 0	A#6	+L	+L	0	0	0	90	6			
4	R		1	00	-7	51 99 34 71 99 98 88 0	D4	+L	-L	0	0	3	60	1			
3	R		1	00	-7	60 99 35 99 99 79 98 0	C8	+L	+L	0	0	3	99	0			
2	R		0	50	-7	72 99 33 46 99 98 82 0	B2	+L	+L	0	0	5	83	4			
1	R		1	00	+7	72 99 31 61 99 98 99 0	F7	+L	+L	0	0	1	99	0			
	MODE/ SYNC	FREQ. COARSE	FREQ. FINE	DETUNE	EG RATE 1 2 3 4	EG LEVEL 1 2 3 4	BREAK POINT	KEYBOARD LEVEL SCALING CURVE L	CURVE R	DEPTH L	DEPTH R	K.BOARD RATE SCALING	OUTPUT LEVEL	VELOC-ITY SENS.	PITCH EG RATE 1 2 3 4	PITCH EG LEVEL 1 2 3 4	KEY TRANS-POSE	VOICE NAME
	OSCILLATOR				EG		KEYBOARD LEVEL SCALING					OPERATOR			PITCH EG			

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
MODULATION WHEEL				FOOT CONTROL				BREATH CONTROL				AFTER TOUCH			
RANGE	PITCH	AMPLI-TUDE	EG BIAS	RANGE	PITCH	AMPLI-TUDE	EG BIAS	RANGE	PITCH	AMPLI-TUDE	EG BIAS	RANGE	PITCH	AMPLI-TUDE	EG BIAS

Not exactly an exclusive sound, as we hear that 'Fuzz Bizz' (or should that be 'Bukz Fizz'?), is already very popular with DX7 owners the length and breadth of Yorkshire. However, in case you originate from a different part of the globe, the creator describes this patch as 'a good beefy no-nonsense sound that you can really lean into and attack. It doesn't attempt to put the DX7 into the analogue synth category, and neither does it try to create a sound which has become overused or overrecorded.' Noble sentiments, those.

Timbre Company
Sound Sample Tapes

Price £27.60

Along similar lines to the Korg sample tape featured last month, the Timbre tapes – for there are two of them – comprise an extensive collection of assorted sounds for feeding into your resident sampling machine (if you have one).

The 261 sounds are Dolby B-encoded, there's a note included to the effect that using Dolby C on playback gives a further improvement in S/N ratio, along with the suggestion that gating the samples gives cleaner results. Each sound appears twice: the first time to allow the setting of trigger levels and so on, and the second for actually making the sample. This alleviates the need for having to rewind the tape every time you hear something that takes your fancy – a nice touch.

There's no verbal introduction to each sound. Instead, all the sounds appear on an accompanying list, where there is provision for writing a tape counter number alongside each one – remembering, of course, that you will always be using the same cassette machine, that its counter never slips, and that you will always be able to put your fingers on the list whenever you need it.

The sound selection covers almost everything, from the inevitable percussion and sound effects to Fairlight clichés, an orchestra tuning up, and another shakuhachi in a similar vein to Korg's. The sounds are conveniently arranged in family groups, and there's a useful number of alternatives to most of them, so if the first sound isn't quite what you're after, one of its relatives might be.

Sound quality is as good as can reasonably be expected from both the cassette itself and the machine you're playing it back on – aural exciters being conveniently forgotten for the moment.

The Timbre Tapes are a more expensive proposition than the Korg version, but have the double-edged advantage of offering more sounds and a bigger variety of them. ■ **Tg**

Red Planet SR64
RAM Cartridge for Yamaha DX Synths

Price £85

Nice though Yamaha's DX synths are to look at, listen to, and play, there's no escaping the fact that they're a bit of an old walrus to program – even if Patchwork's contributors seem to have little difficulty. All the more reason, then, why DX owners should have a reliable, versatile means of storing their sounds once they've created them so painstakingly.

Yamaha's own RAM packs are a little restricting in a number of ways: they can store only 32 sounds, they take over ten seconds to load those sounds into the DX, they're a mite on the expensive side, and they have a nasty habit of crashing whenever you try something complicated like turning the synth off with the cartridge still in it.

The Red Planet SR64 – brainchild of a Canadian company of the same name – sidesteps these problems and incorporates some ingenious design elements of its own. It's a dual-edged package that effectively houses two RAMs, immediately doubling storage capacity to 64 voices.

Loading each bank of 32 takes no more than a couple of seconds (which makes this RAM a lot more usable live), and the Red Planet package should prove considerably more reliable than its competitors, thanks largely to a clever piece of delay circuitry that disables the memory chip for a few milliseconds as soon as mains power is switched on or off, thereby preventing any unscheduled loss of data.

The SR64 looks a fair bit more durable than the Yamaha ROM, too, and like Rock City's Skyslip design, it should theoretically last forever and needs a new battery only every decade or so. No rush on Duracell shares this month, then. ■ **Dg**

so you want to buy a CASSETTE MULTITRACKER

Any number of multitrack cassette systems now litter the market, at prices that range between £250 and over £1000. We present a buyers' guide for the bemused, the bewildered and the beleagured. *Paul White*

Right, you've got your amp, you've got your woofers and tweeters and you've got your bag on your head. All you need now is a four-track cassette recorder and you'll be in business, a musician with a studio system you can call your own.

So what's the problem? Well, simply that there are far more cassette multitrackers around than you thought there were, that the differences between them don't stop at price and colour, and that suddenly, you've realised you don't know enough to make a purchasing decision with any confidence.

If you're anxious about throwing money the wrong way, the first thing you need to do is decide what you want your multitracker for. Do you want a musical jotting pad? Do you want to produce high-quality, finished demos? Or do you aim to record master tapes for private (or public) release?

The more you pay out, the better the quality of your recording is likely to be – though as always, a plethora of facilities never guarantees superior results. But if all you want is a versatile, reliable blackboard on which to chalk up your musical meanderings, there isn't much point aiming for supreme quality. And in any case, the limitations of the four-track cassette format are such that your recordings are never going to be sufficiently high in quality to put Abbey Road out of business.

OK, let's look at some of the options available. The first thing likely to affect sound quality is tape speed. A standard cassette runs at 1⅞ inches per second, but in the interests of improving frequency response and noise performance, some multitrack manufacturers have opted to use a tape speed of 3¾ips. Mathematicians amongst you will realise that this is double the normal speed, so tapes used with these machines run for only half their usual time. In most cases, having buy twice as much tape is small sacrifice for the increase in sound quality.

A low level of background noise is essential for serious multitrack work, as you're likely to want to bounce two or three tracks down onto one in order to make room for more musical parts. And every time you do this, you add a bit of noise and lose a bit of quality. Unfortunately, the restricted width and low speed of cassette tape aren't really suited to keeping noise levels down, which leads us to the thorny topic of noise reduction.

All the most common NR systems use what's known as an encode/decode principle, which means you must both record and playback via the system to reap its benefits. Ignorance of this fact is the reason so many people complain that Dolby removes all the treble. In fact, Dolby emphasises low-level high frequencies during recording, and compensates for this on playback – so if you play a non-Dolby tape with the Dolby switched in, of course it's going to sound as though it's being played back through a pile of old socks.

Anyway, I digress. The three most widely used noise reduction systems are Dolby B, Dolby C and dbx.

Dolby B is the most widely-used domestic form of NR, or to put it another way, it's what you're likely to have in your hi-fi unless you bought it recently (in which case you may have Dolby C). It gives a perceptibly lower level of tape hiss than a system with no noise reduction, but a badly aligned Dolby B can lead to undesirable treble loss, and the newer Type C gives a further reduction in background noise whilst seemingly causing fewer problems of its own.

dbx gives the best noise reduction of all in terms of paper specification, but it does seem to cause more noticeable side-effects than either of the Dolby systems. It works by heavily compressing the signal during recording and then expanding it on playback, and if you were able to see the signal on the tape, you'd find that the difference between loud passages and quiet ones is much less than on a conventionally recorded tape. You should also realise that all these NR systems only suppress noise during quiet sections; when the music gets loud, the noise reduction has little or no effect because the music itself hides the noise. With dbx, you can sometimes hear the noise pumping up and down in level as the input volume changes, especially with bass instruments where there's little or no high-frequency content to mask the noise. In isolation this can be disturbing, but in a mix it's unlikely to be a problem. Percussion sounds, particularly those of drum machines, seem to lose their crispness when subjected to dbx, due to a variety of warmly disputed technical reasons which I won't go into here. That doesn't mean you can't record drum machines with dbx, but it does mean you have to be prepared for a slight tonal change, and maybe compensate a little by recording with a brighter tone to begin with.

I'd choose Dolby C, but there are a great many people who'd argue the other way, and I've yet to hear the updated dbx Type II. Try to get some first-hand experience before you buy by asking for a demo involving a drum machine.

Tape type is also a significant factor, albeit one that's often overlooked. Most cassette multitrackers are set up to work with CrO_2 (chrome dioxide) tapes, which give a wider frequency response than ferric types at the expense of additional head wear and, in many cases, a slightly inferior noise performance. Whichever you choose, make sure you stick to reputable brand names (TDK, Maxell,

Sony and the like) as quality can vary enormously even from batch to batch of the same tape. If the user manual says your multitracker has been set up for a specific tape type, stick with that whenever possible.

And so we come to the number of tracks that can be recorded in one take. To save money, the designers of many low-end multitrackers fit four sets of playback electronics but only two sets of record electronics. This means that although you're perfectly free to build up your composition in layers, you can't record more than two tracks at any one time. No problem if you're working on your own, but a drag if you want to record an entire band in one take. If you think you're likely to be in the latter situation, make allowances for spending a little more.

Facilities for equalising sounds (EQ controls to abbreviation fans, tone controls to members of the anti-jargon lobby) vary from non-existent to comprehensive sweep EQ on all four channels, depending, again, on the market area the multitracker occupies. If you're just jotting down musical ideas, the lack of EQ shouldn't bother you in the slightest, but if you want to produce a high-quality cassette master and are anxious to have as much control over the final sound as possible, you'll need the best system you can get.

The first step up from no EQ at all is a basic bass and treble arrangement, sometimes effective on just two channels so that it can only be used during recording. Better is the system that gives you an equaliser for each of the four channels, so that you can add tonal correction when recording and when mixing.

Top-line cassette systems offer two-band sweep EQs, which let you adjust the frequency at which the tone controls work to suit a particular instrument. This may sound like a gimmick, but it's an extremely worthwhile facility, especially if you're dealing with miked-up acoustic sounds as opposed to synthesised ones.

Finally, a few words on the other facilities higher-priced machines might have. Tape transport controls vary from old-style, mechanical piano key types to logic-controlled soft-touch buttons, the latter being easier and quicker to use, but more expensive and not necessarily any more reliable.

Tape counters, too, may be mechanical or electronic. Electronic counters with illuminated numerical displays are easier to read and usually more accurate than their mechanical counterparts. Also present on nearly all the machines in this round-up is some form of speed control, enabling you to tune your recording to a non-standard instrument like granny's old upright piano.

Tascam's new top-of-the-range 246 Portastudio offers all these features, plus no fewer than six input channels, which makes it a true mixer-based system rather than just a tape recorder with a couple of tone controls tacked onto it. These extra channels come in particularly handy if you want to synchronise a MIDI sequencer to a timing track recorded onto one track of the recorder, as in this way, you can add several more synths to your recording at the mixdown stage and feed them through the two extra channels. Yamaha are obviously aware of this trend as their new recorder – the MT1X – has an extra input channel dedicated solely to processing timecode tracks without causing data corruption, a problem you may encounter with some noise reduction systems.

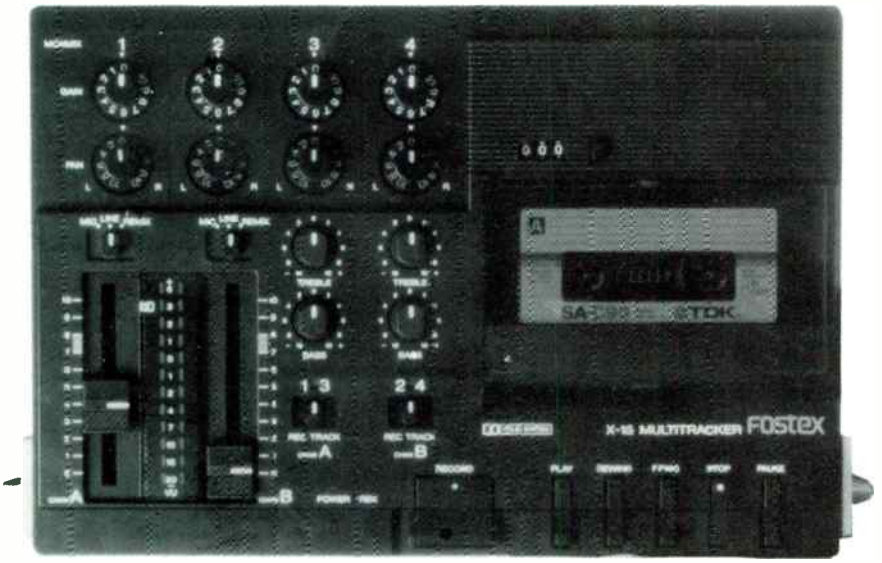
Also present on the better models (and totally absent on many of the lower-priced machines) is a comprehensive auxiliary or effects send/return system, so that you can patch in external effects units. These allow you to add different amounts of effect to each tape track as you record or mix, and you can even use ordinary pedal effects for this purpose as the signal levels match home recording gear rather well: chorus units, delays and flangers lend themselves particularly well to electronic music production.

One last thing to check is that the machine you're considering has line outputs, so that the tape tracks can be fed into an external mixer rather than the built-in one. This can be a great help when you're doing serious recording work, as it's often possible to borrow a friend's mixer on the evening of an important mix and extend your facilities that way.

So, a quick look at a few of the machines currently available to see what they have to offer, and how they compare.

TASCAM 144/244/234

The original Tascam (aka TEAC) 144 Portastudio was the machine that brought multitrack recording to the masses. At an average selling price of around £500, it actually cost less than most decent two-track mastering ►



machines, and was sufficiently well built for it to make a decent secondhand buy if you can find one cheap. It's now superceded and was limited to two-track recording. It used Dolby B noise reduction, though all later Tascam models were fitted with dbx. It ran its tape at 3½ips, and featured a four-channel mixer section with equalisers for all channels. The newer 244 Portastudio (about £750) lets you record on all four tracks simultaneously, and has two sweep EQs plus an effects send control on each of its four channels. If you don't want a built-in mixer, Tascam's 234 (£650) offers the same recording facilities in a 19" rack-mounting package.

FOSTEX 250

This was the Fostex company's answer to the Tascam Portastudio, Fostex being a firm set up by a breakaway group of ex-Tascam engineers in Japan about four years back. It features a 3¾ips tape speed, four-channel simultaneous recording and Dolby C noise reduction. Two-band EQ is fitted to each of the four input channels and there are auxiliary sends, as well as an electronic tape counter and a handy return-to-zero facility that ensures the tape rewinds back to the start of your recording automatically as soon as you push the appropriate button. Average cost is around the £650 mark, though a new model, the 260, is due to arrive on these shores in the Spring.

FOSTEX X15

Whereas the early Tascams and the Fostex 250 were merely inexpensive, the X15 was simply dirt cheap when it appeared just under three years ago. It's still in production today (now you can get one for around £250), features Dolby B noise reduction, and runs at 1⅞ips. You can only record on two channels at a time, but there are two sets of bass and treble controls, and a provision to plug in an optional switch to perform remote drop-ins. The X15 is easier to carry around than any of the more complex machines (though the batteries weigh a ton), and although it was originally intended to fall into the musical sketchpad category, a good percentage of the X15's many buyers have coaxed some excellent demos out of their machines.

TASCAM PORTA ONE

The Fostex-Tascam battle continues, with the Porta One being the latter's answer to the former's X15. It's already one of the most popular machines on offer, mainly because its compromise between facilities, quality and price

(around £425) is a good one. Whilst you can only record on two channels at any one time, you do get a proper four-channel mixer with two-band EQ and an auxiliary send on each channel. dbx noise reduction is used and the tape speed is 1⅞.

YAMAHA MT44D

This is the successor to Yamaha's first bash at a cassette multitracker, the MT44. Like its predecessor, it takes an unusual approach in that it has no built-in mixer at all. This gives you the option of getting as simple or as complicated a mixer as you need (and can afford), and just to make sure you don't go off spending your money with rival manufacturers, Yamaha also make a couple of custom-designed mixers. The MT44D runs at 1⅞ips, and has a switchable (between Dolby B and C) noise reduction system. The real-time tape counter is electronic, as are the input level meters (very sexy), and you can record on all four tracks at the same time if you have a mind to. Average price is around £400.

YAMAHA MT1X

Yamaha's latest four-track cassette system (not yet in the UK in any numbers) sees the company switching allegiance to dbx noise reduction, but maintaining their preference for a 1⅞ips tape speed. Despite its budget price, the MT1X will happily record on all four tracks in one go if you want it to. Each channel has two-band equalisation and an auxiliary send control, and the tape transport incorporates a return-to-zero facility. Apart from its space-age styling, this machine appears to break no new ground except for the fact that it has that extra input channel for recording timecodes onto tape without corruption. We haven't, as yet, had an MT1X to play with, but it's worth checking out, especially if you're into MIDI sequencers and synths. RRP will be just under £450.

VESTA FIRE MR10

This is one of the latest and least expensive machines to hit the market, and comes from a Japanese (what did you expect?) company with a long history of making outboard effects gear. It uses dbx noise reduction in conjunction with a tape speed of 1⅞ips, and allows up to two channels to be recorded at any one time. The two EQ sections can only be used during record, not during bouncing or mixing down. Unusually, this machine has extra auxiliary line inputs, and two RIAA phono inputs for connection to a record deck. All in all, a surprisingly flexible machine for an RRP of under £285.

TASCAM 246

This is Tascam's latest model, and is one of the few personal multitrackers to go upmarket in the interests of offering more facilities. The 246 has six input channels, comprehensive routing and monitoring, and a flexible tape transport system that includes return-to-zero, cue memory, and automatic cycling between programmed points for practising drop-ins. Probably the most sophisticated cassette multitracker currently available – a fact reflected in its average selling price of around £1000.

The above list is by no means exhaustive, as in the main, I've stuck to machines I've become familiar with in the course of my duties editing E&MM's sister publication, **Home & Studio Recording**. Other systems available include **Clarion**'s sophisticated XD6500, the first multitracker I know of to feature dbx Type II noise reduction; the **Cutec** MR404 (about £480), a budget machine with old-style dbx and a 3¾ips running speed; and two machines distributed in the UK by John Hornby Skewes, the **Audio Technica** RMX64 (£1100), similar to the Tascam 246 in that it offers a six-channel mixer section, and the **Teczon** TG44, another budget machine costing about £425.

Whichever system you choose, remember that it'll only ever perform as well as its operator: it's up to you to keep the heads clean and to feed it with decent tapes. The results you obtain will also depend on your understanding of the machine and the recording process in general: this includes things like knowing what recording levels you can get away with for different instruments, and planning which tracks to record in what order.

One thing is certain, though. No matter how much time you devote to choosing a four-track cassette machine, and how much money you spend on it, it won't be long before you're feeling the urge to move up to eight-track. Addictive, this recording business. ■

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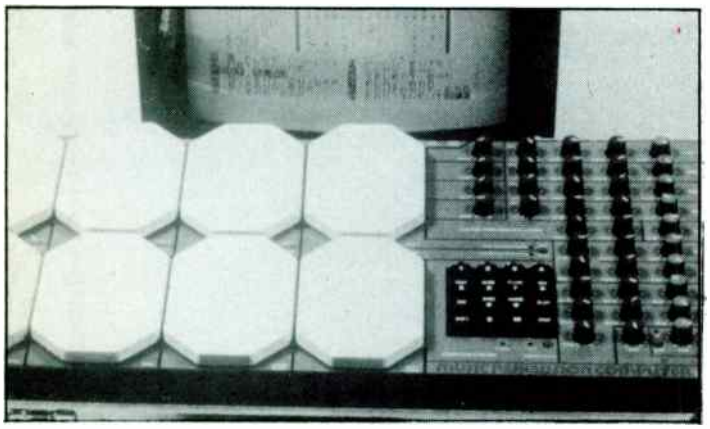

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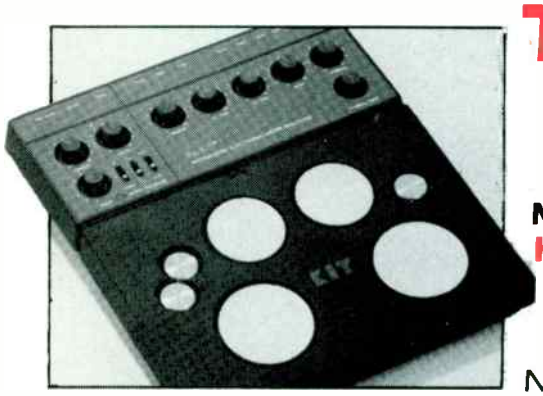

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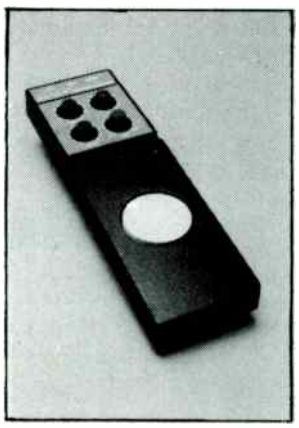

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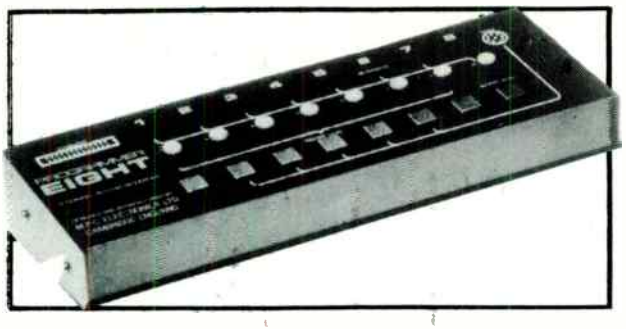

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MOOG PRODIGY good condition £120. Also System 100M with rack modules 110, 140 and Poly keyboard. Offers ☎ Ashington, Northumberland 819022.

MOOG PRODIGY II synth, immaculate, home use only, £150 ono. Andrew ☎ Plymouth (0752) 362414.

OBERHEIM OBI great bass/lead sounds, eight memories, flightcase, £375. Roland CSQ600 sequencer £125. ☎ 01-281 1918.

OBERHEIM OBXA f/cased, offers ☎ 01-452 6229.

OSCAR mono (MIDI), with f/case, £400 or offers. Casio CZ101 (2 RAMs) £300 ono. Chris ☎ 01-995 3381 after 7pm.

OSCAR programmable duosynth, immaculate, home use only, £300 ono. Mark ☎ (0935) 824738.

OSCAR programmable duosynth, as new £395. ☎ 01-868 0331.

OSCAR MIDI monosynth, plus Roland TR606 Drumatix, home use only, will sell separately. Both for £400. Dean ☎ (0594) 60325.

ROLAND JUNO 6 perfect condition, hard case, £300. Can deliver. Steve ☎ Durham (0385) 782377.

ROLAND JUNO 60 plus JSQ60 polyphonic sequencer £595 or swap for Juno 106. Dave ☎ Coventry (0203) 453364 evenings.

ROLAND JUNO 106 hardly used £495. ☎ (02214) 67533.

ROLAND JUNO 106 £440. Fender Bass amp £65. JBL Bass cab £65. Wal Custom Bass £450. ☎ Winchester 61083.

ROLAND JUNO 106 2 months old, as new, stand, case, everything £550. Write to Wilson Chiu, 5t John's School, Leatherhead, Surrey.

ROLAND JUNO 106 immaculate condition, £465 or swap for Juno 6 + cash. Can deliver 100 miles Leicester ☎ (0533) 715154.

ROLAND JUPITER 4 just had £75 service, vgc, £299. DR110 £80. Yamaha MR10 £30. Both as new ☎ (07842) 42301.

ROLAND JX3P, Pro One, £475 ono and £180 ono. Both excellent condition ☎ 091-281 8852.

ROLAND JX3P £450 excellent condition, boxed. Boss DR55 drum m/c £30 ☎ Woking (04867) 87321.

ROLAND PROMARS excellent lead or bass synth, monophonic with 8 programmable memories. £150 ono. Damian ☎ (0233) 24946.

ROLAND MKS10 piano module, one month old, £450 or near offer. Roland EP11 electric piano £190 ☎ 01-570 4205.

ROLAND MODULAR SYSTEM two cabinets, eight modules, £1000 ono. Chris ☎ 01-341 4473.

ROLAND SH09 monosynth, excellent condition, lovely noise, £150 ono. Andrew ☎ Plymouth (0752) 362414.

ROLAND SH101 and CSQ100 real-time sequencer, perfect working partners, excellent condition, together £180. Phil ☎ (0909) 563564.

ROLAND SH101 excellent condition £150. Boss DR110 as new £90. Boss PC2 £30. Mark ☎ (66) 42886 after 7pm.

ROLAND SH101 monosynth with sequencer, still boxed, as new, only £165. ☎ Plymouth (0752) 667857.

ROLAND SH2000 preset synth £150. HH K100 instrument amp top £90. Marshall PA50 amp top £80. ☎ Lincoln (0522) 752458.

ROLAND SYSTEM 100M six modules, two large racks, four-octave keyboard, home use only, £695 ono. Martin ☎ 01-788 2416.

ROLAND SYSTEM 100 keyboard, expander, sequencer £270 ono/swap. Also HH 100W amp £100. ☎ Lancs (0257) 452303.

ROLAND SYSTEM 100 patchable synth, extremely versatile keyboard and expander, in good condition £200. ☎ 01-533 0827.

ROLAND VOCODER PLUS strings, human voice, stereo, f/case, £495 ☎ (0703) 771534.

SCI PRO ONE + Amdek drum m/c, £165 + £25. Both mint, boxed. Swap for TR909 with cash difference. ☎ (0705) 545704.

SCI PRO ONE £150. Just serviced, immaculate condition. ☎ 01-228 6028.

SCI PROPHET 600 with f/case and manual £800 or offers. Chris ☎ 01-995 3381 after 7pm.

SCI SIX-TRAK and Roland TR808, both boxed and in perfect condition. Offers ☎ Milton Keynes (0908) 569732.

SCI SIX-TRAK £400. DX9 £450. Revox A77 high-speed £150. All good condition. Alan ☎ Kettering (0536) 725885.

SCI SIX-TRAK £450. 5CI Drumtraks £500. Tascam Porta-One £300. Richard ☎ 01-647 6657.

SCI SIX-TRAK, Model 64 sequencer + 910 expansion, £500. Roland Bassline + MC202 £150. All as new ☎ (0225) 65207 or 65744.

SCI SIX-TRAK home use only, 7 months old, custom f/case, manual, bargain at £400 ono. ☎ 01-582 8548.

SPECTRUM SYNTH fully working mega-mono, £110 or p/x CZ1000/Poly 800. Alex ☎ Cheltenham 514533.

SPECTRUM stereo synth, amazing Maplin/E&MM design, £180. JH5 polyphonic harmoniser, built-in monitor, £300. ☎ Leigh (0942) 605053.

SWAP DX9 flightcased 5H101, MC202 Micro-composer plus Revox A77 stereo tape recorder, for DX7 in any condition! ☎ (0707) 324079.

SWAP MOOG SOURCE for Poly 61, Tascam 244, TR909 or anything interesting. Ian ☎ (0703) 778276 after 6pm.

YAMAHA CP20 electric piano, weighted action, like PF15, self-contained case, good condition £295 ono. Ian ☎ 031-663 7015.

YAMAHA CS01 monosynth with breath controller, only six hours' use, £35 ono. Bass pedals £45. ☎ Romford 44404.

YAMAHA CS30 synth, 2×VCOs, 2×VCFs, 3×EGs, 8-step sequencer, gone MIDI so offers welcome, home use only. Graham ☎ Humberside (04302) 2700.

YAMAHA DX7 with accessories and f/case, as new, home use only, £895 ono. ☎ Byfleet (09323) 43179.

YAMAHA DX7 £900. Casio CZ101 £200. Roland Drumatix £90. Great British Spring £100. Home use only. ☎ (0239) 711032.

YAMAHA DX7 recntly acquired, perfect condition £1025. ☎ Luton (0582) 873167.

YAMAHA DX7 home use only, Ohm Tramp keyboard amp, both vgc, £975. ☎ High Wycombe (0494) 444441.

YAMAHA DX7 perfect condition, still boxed, guaranteed, £800. Dave ☎ York (0904) 34626.

YAMAHA DX7 sustain pedal, immaculate condition £850. Accessit stereo reverb and four-way power supply £85. ☎ (0324) 482348.

YAMAHA DX9 £550, only driven on Sundays, all the bits, Andrew ☎ Plymouth (0752) 362414.

YAMAHA DX9 with 740 sounds £469. Willing to p/x for DX7 or will buy DX7 outright. ☎ (06284) 74752.

YAMAHA DX9 vgc, plus stand, case, breath-controller, sustain pedal, leads, guides, voices, etc. £525 ono. ☎ 01-853 4675.

YAMAHA DX9 £500 ono, TEAC X10 £300, Clef Master Rhythm £60. Joe ☎ (0532) 775507.

YAMAHA DX21 brand new, boxed, unwanted gift £575 ovno. Four-tier keyboard stand £75. ☎ Bournemouth (0202) 294817 evenings.

YAMAHA DX21 4 months old, still boxed, excellent condition, ideal first synth, only £525. ☎ (0628) 29513.

YAMAHA PF15 vgc, bedroom use only, a real instrument £660. Liz ☎ Blackburn (0254) 774554 after 6pm. Forced sale.

YAMAHA PS20 portable keyboard, immaculate condition, £190. ☎ Doncaster (0302) 61672 evenings.

YAMAHA PS55 keyboard, good condition, £350. Moog Prodigy, fat sound, £120 ono. ☎ Newcastle 091-284 3368.

YAMAHA PS6100 auto-play synth with stand, boxed as new, good FM sounds, giveaway at £749. ☎ (0222) 736339.

YAMAHA SK10 brass/strings/organ, vgc, £80. Paul ☎ Guildford 67882.

YAMAHA SK20 good condition, excellent sounds, £325 ono. Polymoog keyboard, £200. Tony ☎ Peterborough (0733) 64424.

WURLITZER PIANO £175. Crumar Stringman £85, Vox Continental, two manuals £150, Premier 5-drum kit £150. ☎ 01-902 9023.

Sampling

GREENGATE DS3 as new, under guarantee, enormous sound library with word processor card + lots of extras, £1100 ono. Pascal ☎ 01-241 0130.

SIMMONS Digital Sampler and EPROM Blower. New, guaranteed, with eraser and four EPROMs, £230. Andy ☎ 01-421 1735 after 5pm.

Drums

BOSS DR110 mint, £90. Boss PC2 £25. Both £100. Jon ☎ 01-734 4257/8 daytime, 01-603 4907 evenings.

BOSS DR110 excellent condition with manual, £70. ☎ Wellingborough (0933) 227584 weekends.

BOSS DR110 rhythm m/c, boxed, still on first set of batteries! £95. Martin ☎ 01-788 2416.

BOSS DR110 mint, perfect, only 10 hours' use, boxed with full instructions. £95. Jon ☎ 01-727 0327 day/eves.

BOSS DR55 drum m/c, excellent condition, still boxed with manuals, £39 ono. ☎ (0992) 460110.

CLEF BAND BOX programmable backing group complete with master rhythm, £135 ono. ☎ Upminster (04022) 26512.

KORG DDM110 brand new, impeccable, boxed, instructions, leads. £169. J Blair, 34 College Road, Clifton, Bristol, B58 3JJ.

KORG DDM110 plus adaptor, £125, or swap for SH101/Moog Prodigy/MC202 +£20, or other decent monosynths. Ian ☎ 061-432 5705.

KORG DDM220 digital percussion, mint £115. The Kit drum synth, bargain £45. ☎ 091-266 3433.

KORG KPR77 stereo drum machine with adaptor, £150. David ☎ Newbury 40847 after 6pm.

KORG PSS50 Super Section digital drums with bass and backing chords, many voices, £175. Tony ☎ Doncaster (0302) 770420.

MAXWIN BLACK five-piece drum kit inc hi-hat, cymbal and stool, £285 ono. Tony, 16 Cranmore Road, Solihull, West Midlands.

MFB 512 digital drums, nine voices, individual and stereo outputs, £130. Andy ☎ Yeovil (0935) 76441 evenings.

ROLAND CR78 Compurhythm, vgc, £150 ono. ☎ West Yorkshire (0977) 82408.

ROLAND CR8000 programmable/preset, boxed, six outputs, home use only, quick sale required, hence £99. ☎ Romford 44404.

ROLAND TR606 DRUMATIX + case, £90 ono. Paul ☎ (0733) 234805 eves.

ROLAND TR606, mint condition, separate outputs, fitted, £110. Casio MT40 polyphonic portable keyboard £35. John ☎ 01-699 4979.

ROLAND TR606 mint, £100 ono. ☎ Sunderland (0783) 294788 anytime.

ROLAND TR606 excellent condition, several mods, carrying case, £85 ono. Gary ☎ (0705) 475945.

ROLAND TR606 inc power supply, case etc. £90 ono. Al ☎ (0742) 661317.

ROLAND TR808 programmable rhythm composer, good condition, boxed £200. Bruce ☎ Leeds (0532) 780954. Please leave ☎ number.

ROLAND TR909 MIDI, independent outputs, volume and pitch, too much to specify. £350 will

haggle. ☎ Wendover (Bucks) 625200.
SCI TOM £395, Akai 4000DB £70, Drumtraks £499, Yamaha DX9 £460, Equaliser £20, Yamaha DX7 £899. ☎ (06284) 74752.
SIMMONS SDS5 two bass, five toms, snare, plus hi-hat module, pad leads, stand, inc, £950 ono. ☎ (0642) 479164 or 478431.
SIMMONS SDS5 Hi-hat module and pedal £75. SDS5 cymbal £20. Both perfect. ☎ 01-444 2903.
SIMMONS SDS8 five drum programmable/preset kit. Never gigged. Only £335. Tell your drummer now! ☎ Romford 44404.
YAMAHA MR10 drum m/c, with twelve preset, adjustable rhythms and five manual finger pads. £40. ☎ Woking 67384.
YAMAHA MR10 plus kick pedal, £45 ono. Soundmaster Stix, £60 ono. Home use only. ☎ (0706) 622097.
YAMAHA RX15 drum computer £300. Paul ☎ Glossop (04574) 2156, Greater Manchester area.
YAMAHA RX21 drum m/c, absolutely perfect condition, £200 ono. Mark ☎ (0322) 51092.

Sequencers

ROLAND CSQ600 digital sequencer, excellent condition, £95 ono. ☎ Southend (0702) 615307.
ROLAND MC202 perfect condition, boxed leads, instructions, dual-channel sequencing, only £100 ☎ (0635) 200295 eves.
ROLAND MSQ100 digital MIDI sequencer, boxed, mint condition, £285. ☎ Leeds (0532) 638965.
ROLAND TB303 Bassline, £65 or swap for Spectrum MIDI tackle or printer, whatever. Musicians sought by vocalist. Al ☎ 01-451 5787.
ROLAND TB303 Bassline, still boxed £60. Two-tier X-type keyboard stand, £15. ☎ Kendal (0539) 31412.

Computing

ACORN MUSIC 500 for BBC B, as new, boxed with manual, £125 ono. ☎ 01-485 1394.
BBC DISK DRIVE Teac slimline 40-track, 100K, £39. Disk interface system £39. Vincent ☎ Manchester 061-969 2710.
COMMODORE 64 £60. Tony ☎ 01-740 5752.
COMMODORE 64, drive, printer, JMS MIDI, £280. Apple lookalike, drive, LEMI MIDI, monitor, software, £550. ☎ (0239) 711032.
DIGITAL SEQUENCER project using Ekosynth P15 synth and 6502-based micro, £4.50. M Wheeler, Stradmor House, Graig Street, Pontypridd.
GREENGATE DS3C complete system, computer, 5-octave keyboard, monitor, disk drives, latest software. Adrian ☎ Farnborough (Kent) 54103.
JMS 12-TRACK Studio program for CBM 64 £25. Charlie ☎ 01-985 7799.
SIEL INTERFACE for CBM64/Spectrum, £50. JMS 12-track Recording Studio disk for 64, £50 ono. ☎ Manchester 061-626 0780.
SPECTRUM music software. SIEL Live Sequencer and JMS Multitrack Composer programs (unused), £30 each. ☎ 021-440 1168.
WILL SWAP BBC Micro with books and lots of software, as new, for Casio CZ101. ☎ Reading (0734) 477715.
UMI 1B 16-track polyphonic MIDI sequencer for BBC Micro and hundreds of DX7 sounds on disk, £295. ☎ Epping 76672.
YAMAHA CX5M large keyboard, 2 ROMs, boxed, £300 or swap for CZ1000. John, 4 Alma House, Ashton Road, Lancaster, Lancs.
YAMAHA CX5M large keyboard + composer software, two months old, £280 ono. ☎ Bas 282109.

Recording

ACCESSIT EQUALISER vgc, with PSU, £30. Paul ☎ Guildford 67882.
ACCESSIT two compressors, two gates, four-way power unit, £29 each (buy four-power unit free!) ☎ Ashtead (03722) 75293.
AKAI 4000DS £50, Yamaha CS10 £60, Korg PS550 £150. Boss Phaser Pedal £35. Tony ☎ Doncaster (0302) 770420 eves.
AKAI 4000DS II 5OS stereo reel-to-reel £95. ☎ Epping 76672.
AUDIO TECHNICA ATM11 condenser mic, as new, £45. Pair Marantz condenser mics £15. ☎ (0272) 732232 or 620092.
CARLSBRO D900 digital delay, unused, rack-mounting, mains powered, £160. ☎ 031-664 7639.
COMMUNICATIONS ENGINEER offers 'free' work in evenings in studio, needs experience, makes good tea. Michael Davies 01-586 9851. 9-5.30.
DIGITAL DELAY (Kenmulti), stereo output, excellent effects, 19" rack, £130. ☎ Oxon (0491) 573980.
DOKORDER 8140 4-channel multitrack tape deck, echo, SOS etc. Excellent, £235. Swap Casio CZ101. ☎ 091-266 3433.
DYNAMIX 6:2 mixer, £125. Roland MC202 Microcomposer £110. The Kit drums, £50. All perfect condition. Kevin ☎ (0353) 87498.
FORGET PORTASTUDIOS – Tascam Professional 234 4-track + remote, £425. Promark MX3 8:4:2 mixer, £345. Yamaha RX15 £350. All immaculate. ☎ (0225) 336273.
FOSTEX B16 and remote £3000. Half-inch tapes, £15. ARP Odyssey offers, MC202 £95, ADC stereo graphic £85. ☎ (0602) 414892.
GREAT BRITISH SPRING reverb, £130. Accessit Equaliser £20. Andrew (Flat 5) ☎ 01-769 6917 (Streatham)
MAXIM DIGITAL DELAY vgc, £250 ono. Howard ☎ (0885) 88315 after 6pm.
PATCH PANELS GPO-type, 20-way, used, 80 sockets in 2U! £8. Belden 8-pair foil screened multicore £1.50/m. ☎ (0242) 35114 eves/weekends.
POWERTRAN SM6 Mixer, 3FX/6input channels, stereo, rack-mounted, £115 ono. ☎ Dover (0304) 212055.
REVERB/FX GBS reverb, £115; Boss DM2, £55; two CE2s, £45 each. Clive ☎ 01-230 4504 (work), 01-579 4518 (home)
REVOX A77 3¾/7½, 2-track, built-in amps and speakers (suitcase model), excellent condition, £360. ☎ Milton Keynes (0908) 677038.
SWAP REVOX B77 MII for electronic drum kit, home use only or digital reverb plus £200. Total value £400. ☎ 061-860 5464.
ROLAND RE201 Space Echo, mint, £225 ono. ☎ Sunderland (0783) 294788 anytime.
STUDIO WORK part or full time required by dedicated, hard-working, young male. Greater Manchester. Clive ☎ (0706) 65978.
TANNOY 12" MONITOR gold, studio units, no cabinets, £175 pair. Quad 33/303 pre/power amp, £120. ☎ 01-670 8420.
TASCAM 32:2 half-track, recently serviced, vgc £380. ☎ (0923) 34114/53728.
TASCAM 38 excellent condition, inc 8 reels of used ½" Ampex 406 tape. £1400 ono. Michael ☎ (0533) 57490.
TEAC 144 Portastudio, vgc, £300. Paul ☎ Guildford 67882.
TEAC A3440, £500. RSD Studiomaster Mixer 8:4, £400. Both mint, open to offers, may split. ☎ Sunderland (0783) 294788.
TEAC A3440 4-track mint, slight logic problem on transport but perfectly usable, hence £425. John ☎ Sheffield (0742) 348063 eves.
VESTA FIRE MLM1 limiter module, £35 ono. Robert ☎ Welwyn GC (0707) 326704 eves.

Amps

CARLSBRO 90W keyboard combo £185. Roland 201 Space Echo £185. Multi Moog Synth £145. ☎ Woking 68283.
FENDER SIDEKICK 30 reverb amp, immaculate £100. Chris ☎ 01-995 3381 after 7pm.
SCOTT PA SPEAKERS 150W, 10 months old, excellent condition, £150 the pair. ☎ Carterton (0993) 841586 (nr Oxford).
SELMER 100W PA, two 4×12" cabs, four channels £75. Dave ☎ (04024) 44352.
PEAVEY 400 SERIES bass rig 2×15" Black Widow cab, 300W, as new with covers. £400. ☎ Camberley (0276) 23903.
POWERTRAN SP200 stereo power amp, £50. ☎ Dover (0304) 212055.
ULTIMATE KEYBOARD speaker, incredible frequency response, 350W, 4-way system, cost £450. Sell for £175. ☎ (04862) 67933 for full details.

Misc

A80 + MIXER £27. DX7 £19, Mirage £20 per day. Yamaha R1000, D1500 DDL available. Midland area ☎ (0926) 612225.
ACE PATCH SWAPS Casio CZ or Korg Poly 800, one of yours for two of mine! ☎ Bristol 426215.
ARIA PRO2 Cardinal CS250 electric guitar, good condition, £170. E-Bow as new, £50. ☎ Durham 62499.
ATTENTION! CZ5000 owners, expand your synth's capabilities, over 100 new sounds on cassette for £2. James ☎ Oxford (08675) 78551.
BASS PEDALS Casio FK1, complete with f/case, both brand new, £150. ☎ Worthing (0903) 690043.
CASIO CZ Sound Book contains approx 150 sounds, £4.50. Cheque/PO to P Statter, 2 Radburn Cottages, Clayton-le-Woods, Chorley, Preston, PR6 7RA (also data exchange).
CLEF MASTER RHYTHM drum machine £35. Maplin 4-octave keyboard with gold contacts, resistors, £25. ☎ Lancaster (0524) 733103.
DX7 internal memory expander, 128 presets plus new MIDI functions, £120. Alain Aiseweberg, 146 Rue du FBG, Poissoniere, 75010 Paris, France.
GRAMPIAN BRITISH SPRING vintage reverb, no 'boing', superb quality, reluctant sale, £60. ☎ Epping 76672.
KAWAI KS11XL 6-string electric guitar plus case, as new. ☎ (0634) 572381 after 6pm.
KAY 'LES PAUL' Guitar + B&M amp, £90 for pair. ☎ 01-570 4205.
MIDI DRUM PADS multi-pad, compact, economic, velocity sensing, more information? SAE to C West, 7 Brandon Cottages, Highfield Road, Salisbury, Wilts.
£100 PER WEEK hire: Yamaha DX7, RX15, Tascam 246, Tannoy Oxfords, Quad 405. Wayne ☎ Farnborough (0689) 52784 evenings.
ROLAND JP4 £275. Crumar Multiman S £250. WEM Copycat £40. Synsonics Drums £25. Home use only. ☎ Dartford (0322) 28183.
ROLAND VOCODER PLUS, £450. Morley Flanger £45. Yamaha mini-PA £85. May negotiate. ☎ 01-572 2939.
SWAP KORG DDM110 digital drum machine (hardly used) for good brand CD player or £160. Mark ☎ (0253) 824493.
SWAP TEAC 3340 plus mixer and Renault 20TL car for Fostex A8 or £800. Phil ☎ (0634) 684644 after 7pm.
WESTONE THUNDER LA bass, with active tone controls and hard case, offers, or swap for Revox A77. ☎ (0702) 830382.
WEM COPYCAT Delay, £45. ☎ Romford (0708) 26641 evenings.
E&MM EDITOR'S CAR 1969 Jensen FF (four-wheel drive Interceptor), black coachwork completely restored to new condition, red Connolly leather interior, excellent mechanics, new factory alloy wheels, tyres, stainless steel exhaust and many other parts, authenticated 36,000 miles from new, 6.3-litre V8 engine, top speed 145mph, anti-skid braking, limited slip diff, no.129 of 190 built, a classic Ferrari killer for Ford Sierra money: £8250 or offers. Call Dan Goldstein on ☎ (0223) 323399.

Personnel

ATARI 520ST PROGRAMMER seeks software house (MIDI interfacing etc). Write: A Morris, SocSci UG PH, Sussex University, Brighton.
BASS PLAYER needed to complete a serious modern 3-piece band – The Glory Boys. Chris ☎ Bradford (0274) 735672.
CAN I HELP? Repairs, modifications, hi-tech hardware explanations by an experienced engineer/programmer. Richard ☎ 01-743 7321 (day only).
COMPETENT KEYBOARDIST, experienced reader, available for sessions, any other work, decent equipment, cheap rates! South East ☎ (06284) 74752.
KEYBOARD PLAYER required by drummer and bassist/guitarist. Dartford-based, own rehearsal room. Mike ☎ Farnborough, Kent (0689) 52048.
KEYBOARD/SINGER or both wanted, in Kidderminster, Kinver area by keyboard player. ☎ (0562) 850407 after 4pm weekdays.
KEYBOARD/SYNTH player wanted (18-25) for pop/soul/funk band with hit! material. ☎ 01-552 2951 anytime.
MUSICIAN SOUGHT for collaboration of New Age Music etc. Have sampler/keyboards, wish to meet broad-minded creative musicians. Quiller ☎ 01-299 1684.
PRO MUSICIAN/computer programmer: MIDI, MC programming, etc. Need help with small or large projects? ☎ (0253) 890185.
TO MY BENGAL TIGER: I'll sell the Fairlight, Matrix 12, everything. No more music! Just say you'll marry me. Love, Puppy.

Wanted

ACCESSIT REVERB, other reverb units considered, cash waiting, can collect. London or Leicester. ☎ (0533) 302402 daytime only.
ACORN MUSIC 500 also TMS versions of anything except classical. ☎ 01-446 4404 evenings/weekends.
CASIO CZ101 I can scrape together about £175. Andrew ☎ Stevenage (0438) 721642 after 6pm.
DX7 URGENTLY £800 cash! (legitimate buy) or p/x DX21 plus f/case, excellent condition plus £300 cash. Chris ☎ 01-675 7415.
E&MM 1981 March, July. Have March, April, June '83, swap/payment for yours. J Scott, Box 4713, Cape Town, South Africa.
KRAFTWERK/ORGANISATION material wanted, anything considered, contact: A Slegt, 2 Spring Crescent, Widcombe, Bath, Avon BA2 4HZ. Also techno-pop.
GUINEA PIGS REQUIRED for new fully-engineered portable demo facility. Record at your convenience. Mike ☎ (04946) 2065.
MIDI RETROFIT specs for Hammond DPM48 drum machine. Help! John Moriarty, 22 Lakelands Close, Kilmacud, Blackrock, Dublin, Eire.
PG200 PROGRAMMER for Roland JX3P synth. Judy Low, 27 Chapel Street, Portsoy, AB4 2RL, Scotland. ☎ (0261) 7361 day, (02614) 3094 eves/weekends.
PLEASE HELP! Inventor needs synths, effects, anything. Broke, will refund post. 23 3rd Avenue, Penparcau, Aberystwyth SY23. ☎ 611505.
RARE RECORDS for sale, Numan, Kraftwerk, Ultravox, H League, Joy Division, Japan, lists available. Paul ☎ (0733) 234805 eves.
ROCKMAN headphone amp ☎ 091-266 3433.
ROLAND TR606 Clef Master Rhythm, or rough equivalent, must have programmable songs. Neil ☎ Hornchurch (04024) 54958.
SERVICE MANUALS, circuit diagrams for Vox Continental II and 300 organs, also spares and dividers (IC). ☎ (0202) 886727.
TASCAM 38 8-track tape m/c, also 16:4:2/16:8:2 mixer. Paul ☎ Glossop (04574) 2156 (Greater Manchester area).
TWO FIRSTMAN SEQUENCERS £50 each. Also 12:2 mixer, MM or Dynamix £150. 1 Briarwood Ave, Wythenshawe, Manchester M23 9AY.
TWO-TRACK reel-to-reel mastering machine, Revox A77, B77 etc (not Fostex). ☎ 01-552 2951.
YAMAHA D1500 digital delay, must be in excellent condition and in Greater London. Mike ☎ 01-449 7791 eves.
YAMAHA DX7 must be in good condition. ☎ 01-889 8095. ■

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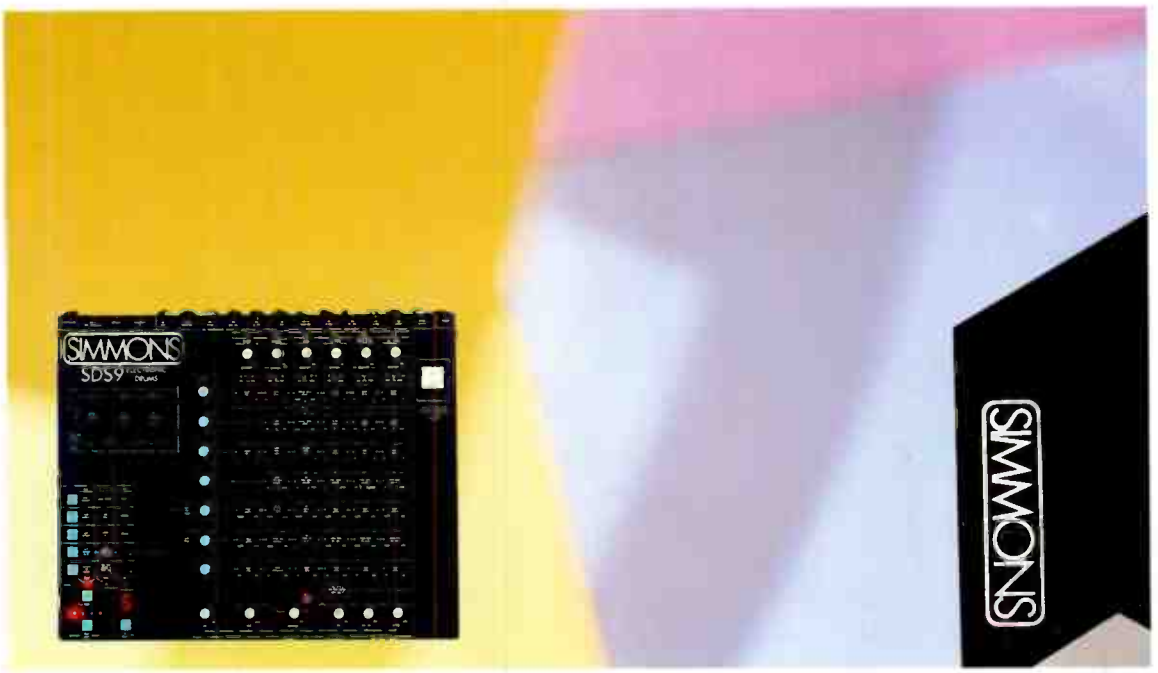

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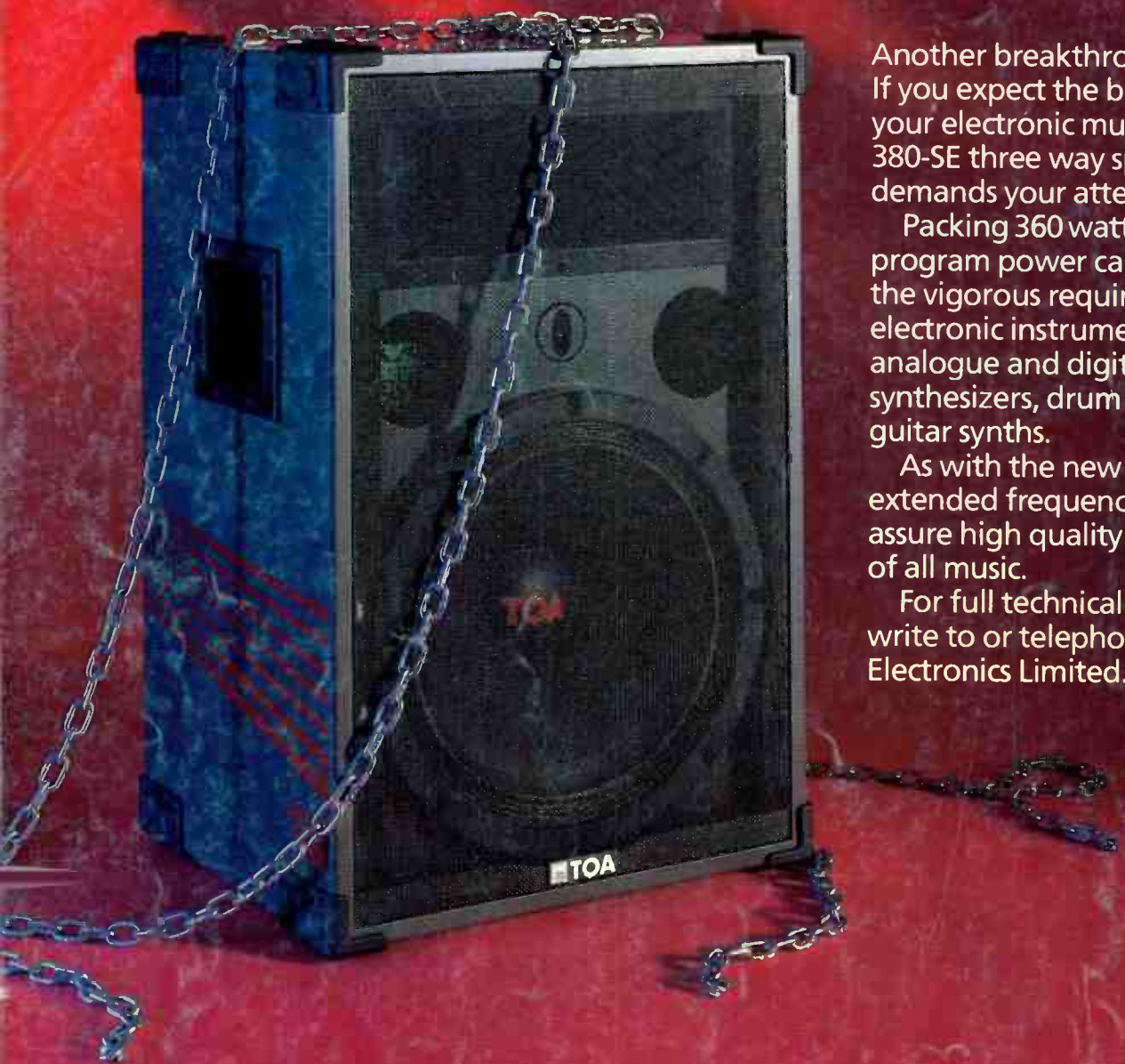

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