AUGUST 1985
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E&MM

ELECTRONICS & MUSIC MAKER
THE MUSIC TECHNOLOGY MAGAZINE

Play Dead!

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Police State
Sting in Paris, Copeland in Africa

Minimoog
Best Synth Ever Made?

Showtime
Reports from APRS, NAMM

The Reviews That Matter
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PolyMIDI 1 Sequencer Roland MIDI FX

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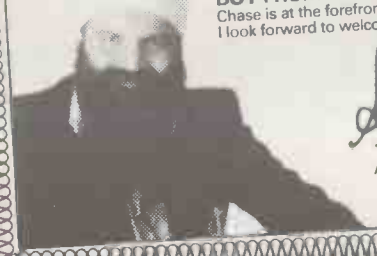

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E&MM August 1985 Volume 5 Number 6

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Comment
Editorial writes and wrongs.

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Newsdesk
More pages, more stories, more details. We put the spotlight on some new DX7 ROMs, a MIDI sequencer package for the Apple Macintosh, and the belated commercial appearance of the 4X digital processor – plus a good bit more besides.

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A new British company, Logitech, have just announced the world's cheapest pitch-tracking sampler. If you've a CV synth you'll be quids in – or will you? Paul White reports.

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Graphically Yours
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Power Down Below
Will foot-controlled music become popular now that Micro Musical have introduced a set of MIDI bass pedals for under £200? Malcolm Harrison has the answer.

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Latin Lessons
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Arrested whilst gigging with a bunch of jazz musicians in Paris, Sting talks to Paul Tingen about his new album, the inadequacies of high technology, and the future of The Police.

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...in New Orleans, Paul Wiffen takes time out to visit the NAMM show, and returns bearing news of the Series III Fairlight, the Emulator SP12 and the OSC Advanced Sound Generator, and more.

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By rights, the last of the Minimoogs should have been forced into retirement long ago – yet the ancient monosynth continues to see use. Tim Goodyer, long-time Moog fan and owner, takes a retrospective look at the world's first practical synthesiser.

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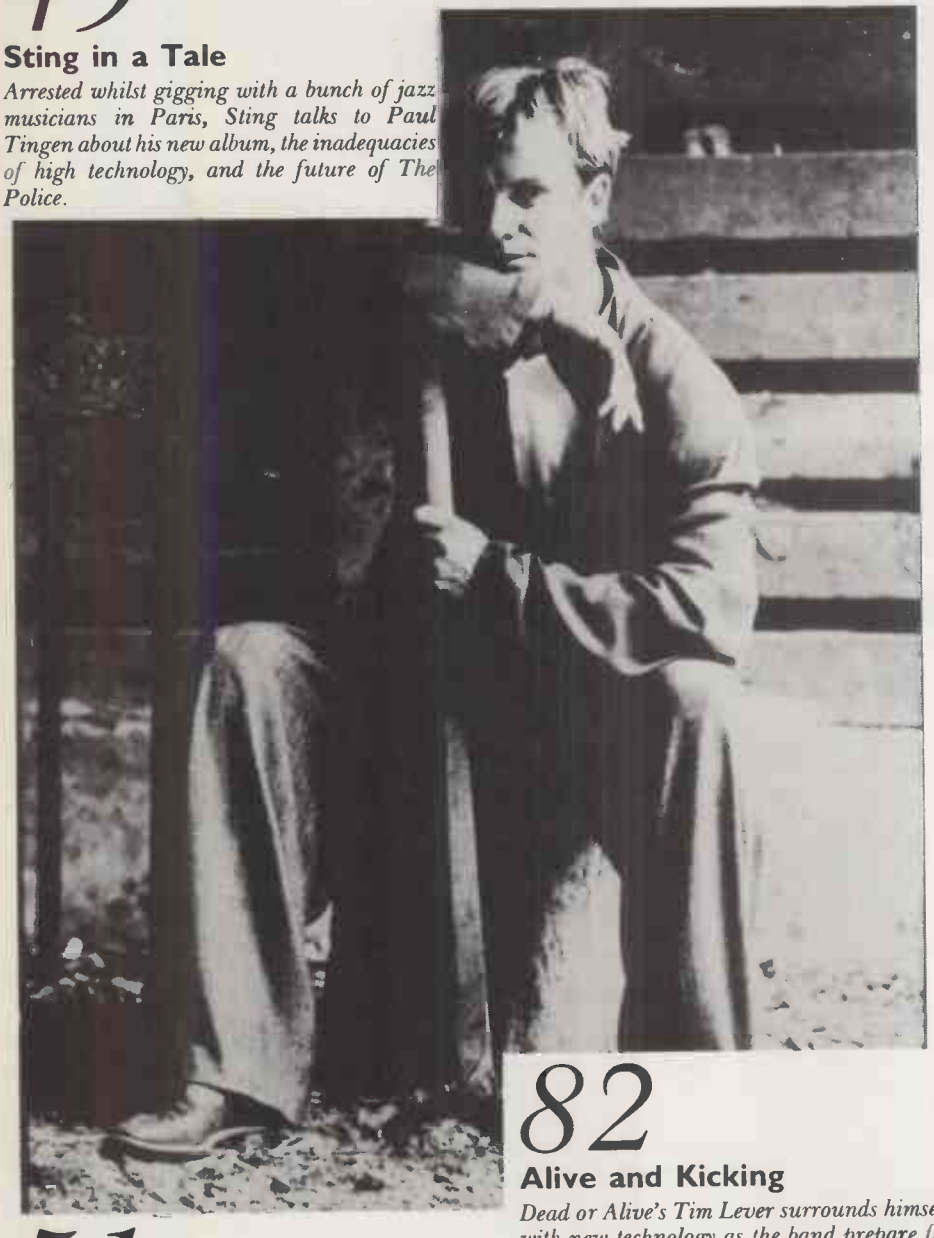
Sight Reading
Dan Goldstein and Simon Trask take a break from reading their own work and examine a selection of new books aimed at helping you get more out of music technology.



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Alive and Kicking
Dead or Alive's Tim Lever surrounds himself with new technology as the band prepare for world domination. Tim Goodyer gets the word on writing, recording and performing.

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Meanwhile, Tim Goodyer finds The Rhythmatist, alias Police drummer Stewart Copeland, resting in his home studio after an African jaunt from which a single, an album and a video have resulted. All three come under discussion.

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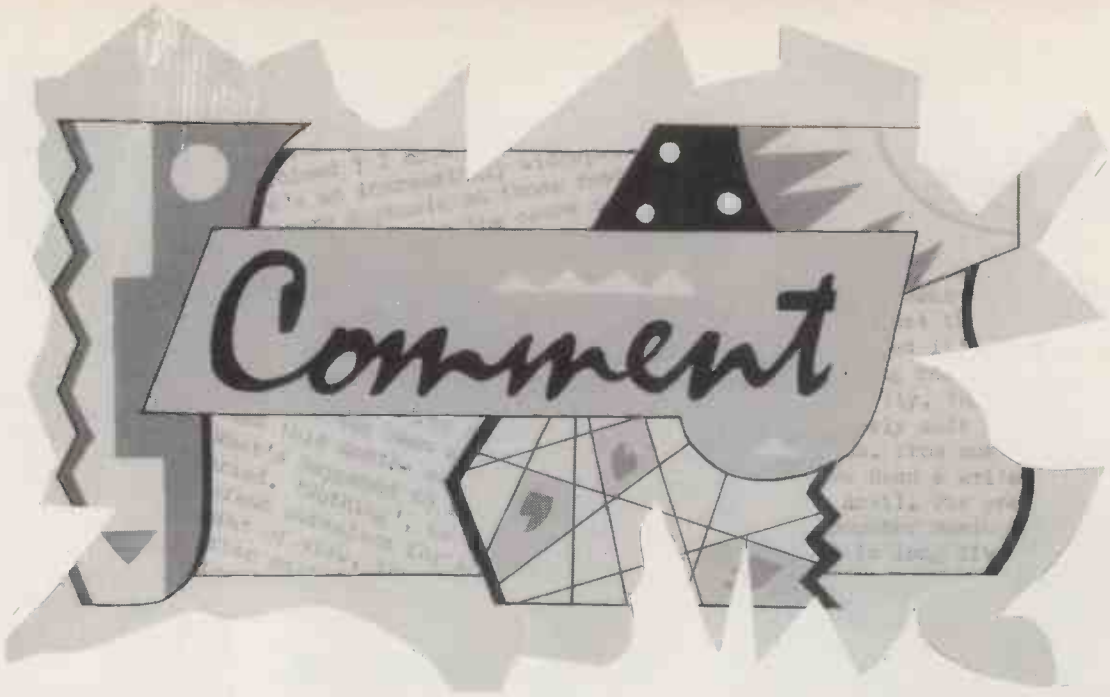
Out-Takes
Another dose of E&MM's newly-contentious LP and singles reviews, in company with demo tapes from readers not yet lucky enough to have a record deal. Tim Goodyer is the man at the helm.



Plus ça Change...

If you're lucky, you'll be reading this before the British Music Fair opens its doors to the public on August 2. Because by an unfortunate positioning of schedules (it happens every year), this issue of E&MM isn't due to hit the streets until only a week or so before the BMF commences – which is why we've afforded it less prominence this month than you might otherwise have expected. It's a significant show, nevertheless, and personally, I hope it'll be a good one. I don't just mean good for us as a magazine (though obviously the more dazzling new items of technology there are on display, the more action-packed September's show report will be), but good for musicians in general and, naturally, the music industry as a whole.

We're lucky, of course, in that hi-tech is one area of the musical instrument business that's really going great guns – in spite of the odd pop music trend that might suggest otherwise. With more market areas vying for consumers' spare cash than ever, hi-tech music is weathering the storm particularly well, and it's my belief that it'll continue to do so. If there *isn't* much of interest at the BMF, we'll know it won't. But then, I'd be very surprised if that were to turn out to be the case.

Anyway, if you are going down to Olympia 2, be sure to drop by to the Music Maker Publications stand, where you may be unfortunate enough to meet one of the staff, chat in a friendly and inspiring way with them, and then be assaulted by an over-enthusiastic Director trying to get rid of the last of the old-style E&MM T-shirts.

Ah, yes. The new front cover style. Well, we did warn you last month that change was on its way, though if for some reason you were caught unawares by the switch from Crillee Bold Italic to Goudy Old Style Roman (nope, I never was all that good at Letrasetspeak), I apologise.

We also said there'd be changes inside the magazine, too, but I guess some of you might still be wondering what happened to all the 'Hardware' reviews, and why 'Computer Musician' appears to have sunk without trace. Fear not, for only the names have been changed to protect the innocent. Seriously though, when Mike Beecher (my predecessor in the E&MM hot seat) conceived of the idea of 'Computer Musician' alongside the supplement's erstwhile Consultant Editor, David Ellis, the idea was that it would one day get so big, it would have to have a magazine all to itself.

Two years on, the reverse has actually taken place. 'Computer Musician' has got so big, we've done away with it as a section altogether, since in our view, the distinction between it and the rest of E&MM was becoming something of a bogus one. After all, you can't look inside a piece of review equipment these days without looking at a computer (albeit a dedicated one), and you can barely talk to a modern musician who hasn't got an opinion on what computers should and should not be used for. And as for the distinction between hardware and software... well, suffice to say it's now too grey an area for us to want to spend much time penetrating, at least for the time being. Thus, we've decided to drop the 'Hardware' tag and bring all reviews of new products under the umbrella title of 'Appraisal', which just about encompasses everything.

Actually, Clive Goodyer (brother of Music Editor Tim, though he himself denies any knowledge of the fact) had some difficulty spelling 'Appraisal' when he came to designing our new section artwork, so we nearly had second thoughts. Nonetheless, E&MM's beleaguered Art Department (which we share with four other rapidly expanding monthly magazines, remember) would like it known they're extremely grateful to Clive for getting them out of a sticky situation. They'd also like to make it clear there won't be *any* articles, pages, listings, paragraphs, sentences or words in the wrong order in this month's E&MM, so that nothing will stand in the way of your enjoying the world's most fearless musician's magazine.

Or says it so here. ■

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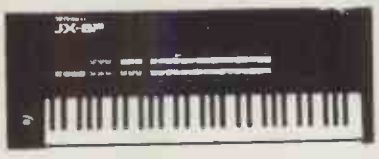

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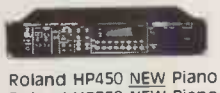

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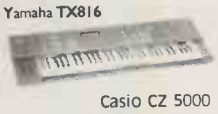

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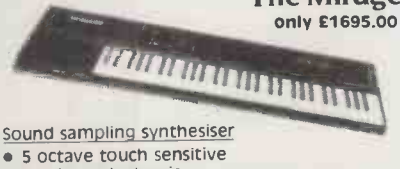

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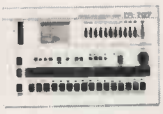

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Variations on a ROM

Now that every home in Britain owns – or hopes to own – a **Yamaha DX7** it stands to reason that an awful lot of people are going to want to know about what Newcastle's Rock City musicstore have been getting up to lately. They've just announced an interesting (and cheap) variation on the DX7 ROM pack. The new-style ROM cartridge has a ZIF (Zero Insertion Force) socket on the outside, together with a series of EPROMs to plug into the cartridge. Each EPROM contains 64 sounds, and retails at the modest price of

£14.50. The ROM cartridge itself retails for £45.50. **More from** *Rock City,* ☎ *(0632) 324175.*

IMA on the Move

It's been some while since we last gave a mention to the **International MIDI Association** in *Newsdesk*, so this seemed an opportune moment to give you the latest on the world's largest MIDI enthusiasts' group. The first bit of news is that the IMA have moved – to the address at the bottom of this item. Membership for individuals is $55 per year, and this brings you such goodies as a free MIDI 1.0 spec sheet and support materials, a monthly IMA bulletin with all the latest MIDI news and reviews Stateside, access to the IMA's technical support hotline and (if you're modem-equipped) access to the IMA database. **More from** *11857 Hartsook Street, North Hollywood, California 91607, USA.* ☎ *(0101) 818-505-8964.*

MIDI's MMA

Meanwhile, if you're a manufacturer of MIDI hardware or a writer of matching software, you can join the newly-formed **MIDI Manufacturers' Association**, MMA for short. The body held its first meeting at the recent NAMM show in New Orleans, where topics scheduled for discussion included the new MIDI 1.0 detailed specification document, the functions of the IMA in working with the MMA, the policy for distribution of System Exclusive ID numbers, MIDI equipment compatibility testing, and the determination of a MIDI Standard File Format.

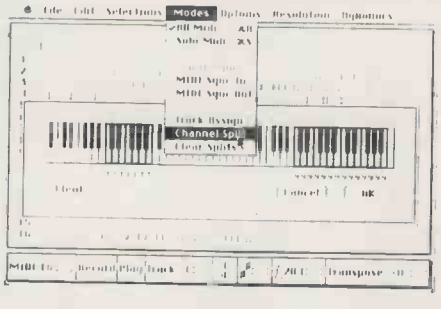
The detailed specification document was initially created by the Japanese MIDI Standards Committee to help clarify the 'grey areas' of the MIDI spec, and this has been translated by the MMA's Technical Standards Board. All this liaising between manufacturers can only be a good thing, though it's a shame it's taken them this long...

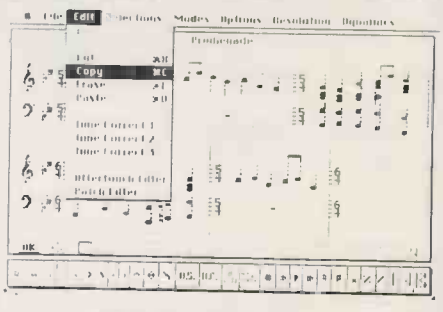
Totally Desirable?

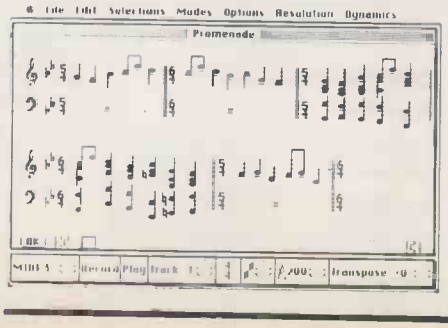
Just once in a blue moon (with or without the turtles), along comes a product which looks so good on paper that before you realise it, a sigh of desire and longing has escaped from the lips. OK, so a little fantasy goes a long way, but the Total Music MIDI sequencer package from American company **Southworth Music Systems** certainly looks to have more than its fair share of desirability.

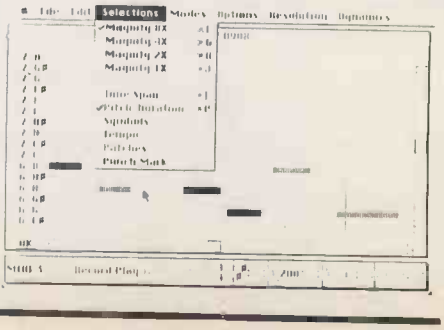
For starters, Total Music is based around a micro that up till now has been notably absent from the MIDI scene – the Apple Macintosh. Well, given the £2000 price-tag of the 512K Mac, that's hardly surprising – especially when you consider it doesn't even come equipped with its own MIDI. So the first port of call for Total Music was to add the necessaries for getting the Mac to communicate with five-pin DIN sockets, in this case four parallel MIDI Outs and two non-parallel Ins. With luck, that'll mean four times the number of notes that can be sent before you come up against MIDI timing bottlenecks, though Southworth's idea of 'parallel' puts that interpretation in some doubt. On the input side, though, the 'non-parallel' inputs mean simultaneous recording of two keyboards, or one keyboard and drums. And that can be independent recording, too.

Not surprisingly, Total Music also takes full advantage of the Mac's legendary iconoclastic graphics, albeit in solitary monochrome. And then there's the mouse, the means of escaping from the tyranny of the QWERTY computer keyboard, and the answer for pen-pushers the world over. The togetherness of graphics and



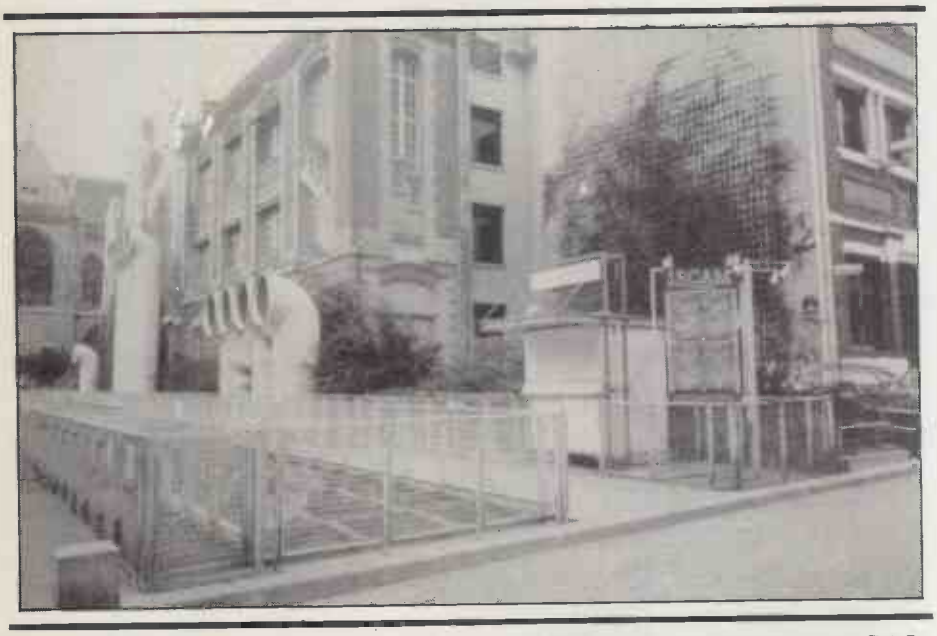






mouse provide the means for interaction with 50,000 notes of MIDI data, on up to 99 tracks, in the 512K Mac's memory. Said tracks can each have 16 MIDI channels, with eight tracks simultaneously playable and chainable from the 99. For once, editing should be a pleasure rather than a pain, with three different modes on offer: tape-style punch in/out, word processor-style cut and paste, and event reverberation and multiple time delays. *Quelle modestie*, as they say *en Franglais*.

And if all that leaves you wanting to come up for air, try these specs for *le dessert*: 24-bit internal arithmetic, 64 16-bit I/O ports, a 96dB S/N ratio, and sampling frequencies up to 512kHz. Oh yes, almost forgot... To run the 4X, you'll also need a Unix host computer, a real-time control computer, a graphics display, a musical keyboard, and multiple 16-bit DACs. And the dent to the wallet? Well, if there's anything left out of £50,000, we'd be *greatly* surprised. So who said that capitalism doesn't rule OK in Mitterand's France? **More from** *Techniques Numeriques Avancées, BP14, F-30440, Sumene, France.*



editing using stave or bar graph displays. Just as potentially pleasurable is the fact that whatever's edited is instantly playable. And then there's the three modes of time correction, live triggering of tracks from a MIDI keyboard with or without transposition, a live playback display showing activity on all 16 MIDI channels, plus SMPTE synchronisation to make the package truly professional, whatever that means.

And the price? Well, 'under $550' is what's being quoted for the combined package of hardware and software. Not cheap, admittedly, but Total Music *looks* to be worth it. Let's hope Southworth implement Total Music on the Atari 520ST – that'd really put the cat amongst the pigeons. **More from** *Paul D Lehrman, Southworth Music Systems, Box 275, RD1, Harvard, MA 01451, USA. ☎ 617-497-7522.*

4X-cellence?

Academic music buffs will no doubt take heart from the fact that the infamous 4X digital sound processor has finally made it onto the commercial musical instrument market. Developed at composer Pierre Boulez's hot-house of musical orchids, IRCAM, and licensed to aerospace firm Sogitec, it's now more widely available in the shape of the 4X Musical Workstation from **Techniques Numeriques Avancées**. According to Jean-Pierre Armand, spokesman for TNA, the 4X system will do all of the following if you speak to it nicely in the voluble Italian of its designer, Giuseppe DiGiugno: 1024 'realisable' digital oscillators, with additive and subtractive synthesis, nonlinear distortion (otherwise known as Casio-type waveshaping, though TNA'll probably shoot us for calling it that), FM, ring modulation, filtering (up to 450 simultaneous second-order filters in real time), direct and reverse linear prediction, Fast Fourier transforms, phasing by Hilbert transforms (whatever they are), harmonising,

München Memo

Seems high-flying academic music systems are the current flavour of the month. Now comes news of the Cadmus Computer Music System from a firm by the name of **PCS** in Munich. Starting-point of this system is the Cadmus 9000 series of computers, which are based on a combination of the 68010 processor, DEC Q-bus, and Unix operating system. The Cadmus has been bent in the direction of computer music by importing the Cmusic language from the University of California at San Diego, and a version of a 'soundfile' system developed at UCSD and the Salzburg Mozarteum. Sony 16-bit DACs are then attached to the Q-bus for the playback of sampled sounds *et al.* A typical set-up consists of the Cadmus 9230 computer with 2Mbytes RAM, an 80-Mbyte hard disk, a 140-Mbyte Maxtor soundfile disk, two bit-map controllers, two PCS bit-mapped terminals, two ASCII terminals, a streamer tape cassette, and Sony stereo DACs. All that will set you back by some $35,000, but who knows? If Fleet Street is to be believed, the last man to win the pools didn't even know what the numbers meant... **More from** *Stephen Pope, PCS, Pfalzer-Waldstrasse 36, D8000 Munich 90, West Germany.*

An Apple a Day...

Back to the States, where **Decillionix** have just put the finishing touches to their P-Drum sequencing software. The P-Drum is designed to work in conjunction with the same company's DX1, an Apple-based sound-sampling package that's most easily described as a Stateside alternative to the Greengate DS3. The disk-based P-Drum is menu-operated and includes digital delay and pitch transposition amongst its many facilities. The price? Just $99, though you'll need a DX1 first. **More from** *Decillionix, PO Box 70985, Sunnyvale, CA 94086, USA. ☎ 408-732-7758.*

Stop Press

If you're quick, you might just catch the **Contemporary Music Open Day**, which is being held at 10, Stratford Place, London W1 on Saturday, July 27. The day's proceedings begin at 10.30am, and will include plenty of live music as well as various other related events, such as record and score sales, before winding down around 4.30pm. Participating in the festivities will be American composers Elliott Carter and Steve Reich, while David Bedford's musical board game will close the day. The game carries the ambitious title 'An Exciting New Game for Children of All Ages', and any number can play: please bring instruments and voices. If that isn't tempting enough in itself, admission is free. If only they'd told us sooner... **More from** *the organisers on ☎ 01-491 8111, 01-499 8567 or 01-499 2567.*

If you're bemused at the sight of an AMPLE music program and unsure why so many people are talking for so long about the **Music 500** BBC synth add-on, the machine's inventors, Hybrid Technology, have a new trick up their sleeve in the form of a 30-minute audio demo cassette. Enigmatically titled *An Evening in the Company of the Music 500 Synthesiser*, the tape features renditions of: 'Sexcrime 1984', the first of Satie's 'Gymnopedies', 'Bright Eyes', 'Wild Boys', 'Starflight 500', and many more... Cost is a mere £1.95 inclusive, payable to Hybrid Technology. Incidentally, the program for Starflight 500 was featured in last month's E&MM – in the wrong order. For those who've been losing hair or sleep trying to key it in as it was printed, the correct running order is column 2, column 1, column 3. Those responsible will be subjected to a continuous-loop video of The Thompson Twins' contribution to *Live Aid*. Lastly, on the Hybrid front, the company are due to launch several additional devices – called, logically enough, the Music 200, 300, 400 and so on – at the forthcoming Acorn User Show in London's Barbican. Initial details are sketchy, but the new introductions should include a MIDI interface, a custom-designed audio amplifier, and an AMPLE expander that'll let you use the language in everyday computer programs, not just music ones. **More from** *Hybrid Technology, Unit 3, Robert Davies Court, Nuffield Road, Cambridge, CB4 1TP.*

Last month's **British Music Fair** preview mentioned the possibility that John Chowning, inventor of FM synthesis, would be appearing on the **Yamaha** stand at some point during the proceedings. Well, we're happy to confirm this will indeed be the case. Chowning will make two appearances during the Fair's public days, the first being at an FM clinic at Yamaha's sound room on Saturday, August 3 at 4pm, and the second during a concert in the Apex Theatre Suite on Sunday, August 4, kick-off time 2.30pm. Get there early. ■

Communiqué

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

David Defended

Dear E&MM,

There is no doubt that your magazine is the leader in its field. However, I think that the more general sections in E&MM July raise some interesting points.

Quite rightly, you defend the right of David Ellis to write about a product in which he has had a creative hand. Apart from the points you make directly in defence of his preview, it is a personal insult to him to presume that through implication his objectivity will automatically be lost. Three cheers for your sense of purpose. on the letters page and in Out-Takes*?*

Your decision to devote so much of the letters page to 'Long' John Gadocha's shallow (or piss-taking) missive could be viewed as a bid to start a healthy debate on the musician's condition. But that won't wash, because the lack of editorial response surely reveals it to be nothing more than the promotion of reactionary junk, the like of which is available in large quantities among the pages of numerous other publications.

Sad to say, this same kind of reactionary view is reflected in your album reviews. Worst offender must surely be the Bryan Ferry review of the same issue. Frankly, I cannot believe that anyone could come to a purchasing decision after reading the so-called 'professional' opinion offered in the review. Not one of the points your reviewer raises in criticism is a musical one. We know Bryan Ferry fronted Roxy Music, we know he's rich and uses session musicians, and we now know your reviewer doesn't like the result. But we don't have any real idea why.

Surely E&MM doesn't expect us to accept the double standard of finely argued ethics on page 8, and thoughtless playing to the gallery on pages 6 and 43?

If we were fools, we'd be reading the competition.

Paul Bridge
London

As a regular E&MM reader, you'll know that we place objectivity top of the list when it comes to analysing music technology. But the record reviews are not intended as a buyers' guide to music; they're merely a set of opinions printed for your information and entertainment. We credit our readers with sufficient intelligence to make their own choice of listening, as well as reading, matter. As for 'Long' John – surely there's room for humour in any field, no matter how complex or controversial.

FM 0, Analogue 1

Dear E&MM,

I'm fed up with reading about the world domination of the Yamaha FM synthesiser. What happened to the trusty analogue synths which, in my opinion, are far superior? FM synths are OK at what they do, but what they can't manage is to produce the rich, fat and punchy sounds of analogue synths. Not only do Yamaha's DXs fail to deliver the goods in terms of sound, they are also practically impossible for the average synth player to program.

I have a Juno 106 that I am very pleased with. Compare this with its price equivalent – the DX9 – and there is no comparison. The DX9 sounds thin and lacks any real character. Compare the more expensive DX7 with a similarly-priced synth – say a Jupiter 6 – again, the analogue synth sounds much better. OK, the DX7 does have a velocity-sensitive keyboard, but for me, that facility is a bit of a ▷

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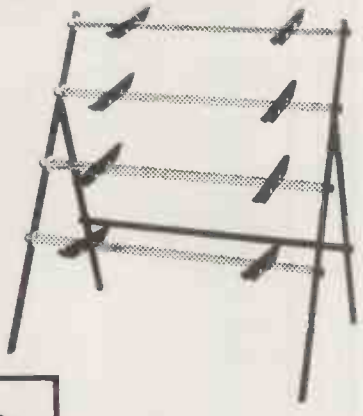

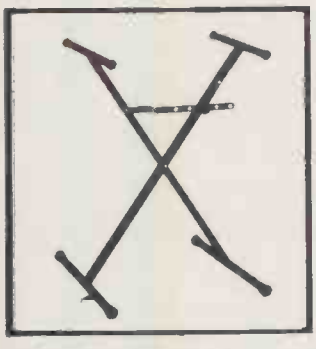

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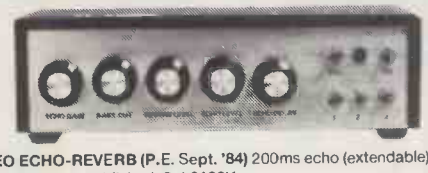

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▷ *gimmick – and it does nothing to improve the sound.*

I've tried to answer the question: 'why have so many people bought FM synths?' The only reason I can come up with is the use of the technology employed in the Zlatna Panega TCS100, as featured in E&MM's April issue. This employs a phenomenon known as user thought control, where the synth is controlled by the thoughts of the musician. I think Yamaha have placed TCS100 circuitry inside their FM synths, and then wired it in reverse to produce inverse thought control. This is where the synth controls the mind of the user and compels him to buy an FM synth.

So long live the analogue synth – and I hope people who now use FM synths will someday 'see the light'.

I have been reading E&MM for about 12 months now, and on the whole I enjoy it. But I suggest you rename it 'Yamaha User', as your bias towards that company's equipment is so obvious. Even in reviews of other manufacturers' equipment, you make constant references to Yamaha. And I reckon if you abbreviated 'Yamaha' to 'Y', E&MM would be two pages shorter, and 20p cheaper each month!

Wayne Blackmore
Manchester

Sampling Concrete

Dear E&MM,

Judging by E&MM July, the sampling storm is still raging. So for what it's worth, I'll dip my oar into troubled waters. It's surely worth remembering that the use of natural sounds has been one of the mainstays of electronic music ever since the early days of Musique Concrète. *The modern sampling keyboard is simply a more convenient way of using these techniques, replacing tape recorders and thousands of edits in the same way that the Moog synthesiser replaced racks of oscillators, filters and amplifiers.*

Any new technique takes time to become properly assimilated into the music scene. Remember the trouble people had with phasing or the wah-wah pedal, to name but two? Once it's no longer a status symbol, a new toy is used only where it is musically useful, rather than splashed about all over the place in an attempt to justify its purchase price.

Maybe this is one reason why people have accused Fairlight (or whatever) users of lack of imagination. The top-flight systems are so expensive that their use is often restricted to situations where time is money, and the temptation to forego experimentation in favour of what went down well last time must be difficult not to yield to. Maybe when these devices come down in price to the sort of level now associated with polysynths, or even electric guitars, musicians will be able to mess about at home in the time-honoured fashion, and some of that enormous sound potential will be realised. Already, the best music is coming from artists fortunate enough to have freedom of recording time, as well as recording equipment. Peter Gabriel is a prime example of that.

The last decade has seen a vast quantity of new technology arriving on the musician's palette; much of it is still waiting to be exploited fully. So put up with the orchestral samples, the motorbike noises and the stuttering for a bit longer – a new world of musical opportunity is on its way. And if you can't afford a Fairlight just yet, there's always the tape recorder and the Night of a Thousand Edits...

Peter Maydew
Cambridge

Sampling Drainpipes

Dear E&MM,

I feel that all the correspondents in your Great Sampling Debate are somehow missing the point. Obviously it's great fun sampling a cello/sax/farting drummer. If nothing else, it makes for a great opening line at parties. But what makes sampling keyboards (and especially the affordable ones like the Ensoniq Mirage and those that must follow it), is the fact that they allow you to create entirely new sounds.

Just imagine it. Instead of starting with a triangular, sine or whatever wave, and following religiously the pattern of filtering it, amplifying it and so on, you can start with anything – a road drill, a blown drainpipe, or whatever else may take your fancy. The possibilities for creating new timbres are infinite; the nature of sound dictates that they must be.

I appreciate that the cheaper samplers don't have the extensive modification facilities of the Ensoniq and its ilk, but I've used the Powertran MCS1 to great effect. Actually, you don't even need that much; a tape recorder will do fine, so long as it gets you thinking.

How about a wonderful lead sound comprising a struck milk bottle for the attack stage, and a blown bottle and tin lid scraped with a nail for the sustain part? Or a hammered water tank fading off into a choir? If you think sound-sampling is limiting, you shouldn't be involved in making music in the first place. For me, sampling is the most exciting addition to the musician's armoury since the analogue synthesiser. So stop worrying about the validity of recording cellos or the ethics of stealing from records. Get out and create!

Stephen Bennett
Norfolk

Back To School

Dear E&MM,

Just before my recent departure from the country's educational system, the head of my school's music department asked my advice on the choice of synthesiser for incorporation into the regular curriculum. He'd got the go-ahead to invest in some electronics, and knew I had an interest in things hi-tech. But he had little, if anything, in the way of electronic music knowledge himself – hence his request.

After some considerable thought (digital would be difficult to program, a Fairlight likely to incur the displeasure of Sir Keith Joseph), I suggested something along the lines of the Roland modular system, no longer in production but still available if you look hard enough. I reckoned it would be flexible, fairly graphic, and open to expansion at the financial convenience of the school.

To my dismay, I've just discovered that they invested in some cheap, abysmally unreliable (I name no names) and, to my mind, uneducational junk. Could it be that they had no faith in my advice? I think not. Rather, the staff involved had taken fright at the knowledge required to operate the modular equipment (and therefore teach with it effectively) and taken what they thought to be the easy way out. The instruments they eventually opted for all had factory presets, so I guess techno-fear has to be the answer.

My point is this. There is a valid and valuable place for the synthesiser in the music departments of today's schools, but not if the subject is going to be approached in this way. The money would be better invested in records or visits to concerts for the students concerned.

I'm not bemoaning the fact that the powers that be refused to listen to what I had to say. All I want is reassurance that this is an isolated incident, and not representative of the attitude of music teachers the length and breadth of the country...

Dan Thomas
Birmingham

Sync or Swim

Dear E&MM,

For once, your letters page has put some ideas into my head. I was intrigued by 'Long' John Gadocha's reference (E&MM July) to what the magazine staff get up to out of office hours.

Do you spend your spare time cocooned in home studios, putting together epics of systems music with the help of all that review gear? Or do you lig about the country, champagne glass in collective hand, stumbling from one press reception to another at other people's expense? Do you really play football?

I know it sounds frivolous, but I'm itching to discover what the music world's most investigative team of journalists do to while away the cold summer evenings (well, this is England, after all). Answers, please.

Anna Young
Norwich

Football, ligging and (especially) music play no part whatsoever in keeping E&MM's staff out of mischief when they're not chained to a word processor. Instead, they occasionally indulge in the odd spot of boating on the Cam, as the accompanying photograph shows. ■

Messing about in boats *aquatic photography by Tim Goodyer*

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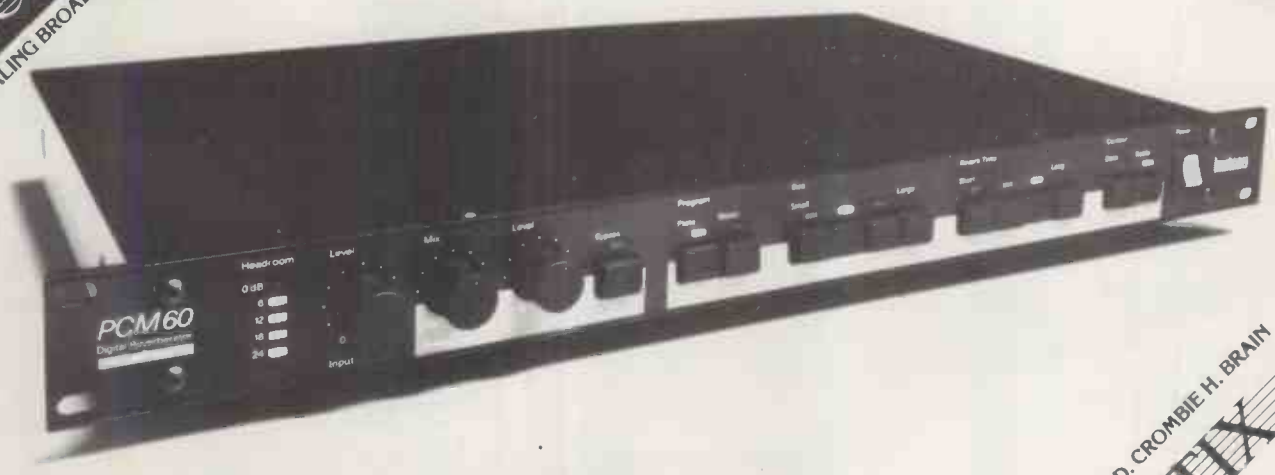

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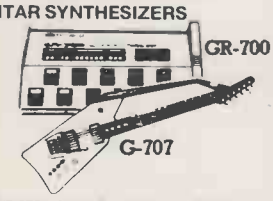

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For The Record

If APRS 85, this country's premier recording exhibition, proved anything, it was that the distinction between creating music and recording it is becoming increasingly blurred. Designers on both sides of the fence are contributing to the shift – but is it at the request of their customers? *E&MM Staff*

It's not often you'll find advertising hyperbole within E&MM's pages, but part of a recent Yamaha ad which appeared in the lead-up to London's APRS recording show provides a particularly apposite quotation for our current subject:

'As music and technology become synonymous with one another, the rôles of artist and engineer become increasingly fused. The old idea of the recording studio gives way to the concept of the totally integrated production environment. Here the line between instrument and processor becomes indistinct, and to remain competitive, a studio needs to offer an array of musical instruments as standard equipment'.

This year's APRS, held on June 12-14 at the Kensington Exhibition Centre, has been the most successful to date, with the reported total of 4782 visitors being more than 1000 up on last year. And among the 120+ exhibitors were the likes of Roland, Syco, Turnkey and Yamaha, musical instrument purveyors all, and with the last-mentioned exhibiting under their own name for the first time.

Some of the reasons those companies chose to exhibit their musical wares at the recording show lie within that piece of advertising copy. For once, the marketing men are speaking more than the odd word or two of truth. So just why are the barriers between studio engineering and playing music narrowing? That, sadly, is a lot more difficult to answer than it is to ask. But a few clear trends are emerging from the technological revolution modern music is presently going through, and as the UK's leading music technology magazine, we feel they need pointing out and, to some extent, explaining.

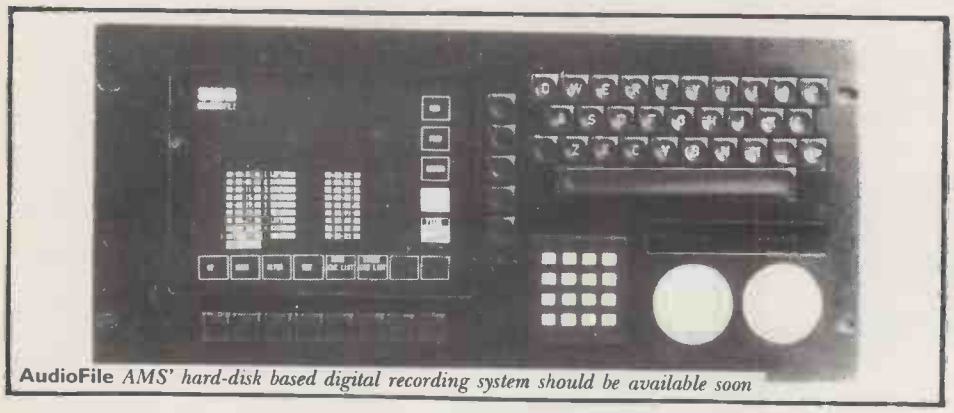
It's fairly obvious that if the onrush of technology is breaking down barriers between various sorts of equipment, then that breakdown must be matched by a similar change in people's rôles. In 1985, we find that the traditional stereotype of the good-time muso who gave his all on stage (and a bit more off-stage when the occasion demanded), and left what little technical decisions there were to be dealt with by a trusted roadie, studio engineer or PA hand, is now an almost extinct species. Nowadays, he's given way to a variety of alternative breeds.

First, there's the devout 'I'm a notes man, I worry about the sounds later' keyboardsman, whose first instrument is the piano, who probably had a classical upbringing, and who may well be prone to frequent self-justification at the cost of the other breeds. Secondly, there's the programmer, who will happily admit to his musical shortcomings in the security of his intimacy with the most outrageously technical equipment the industry can devise, and his ability to create music and sounds beyond the reach of others by virtue of that intimacy. Then there's the studio musician, who may have characteristics attributable to either of the previous categories but, regardless of these, would never consider leaving the confines of his dimly-lit sanctuary in favour of a live environment, on the grounds that his achievements are dependent on equipment (and methods of using it) that are incapable of surviving the transition.

Obviously, this blurring of what were once distinct areas of record sleeve credits means that it's no longer practical to consider a lot of modern-day musical equipment in any one light.

Is the Fairlight merely a complex studio computer instrument, or a professional gigging keyboard as well? Sure, its natural habitat was never intended to be anything other than a recording studio – but that hasn't stopped the likes of Thomas Dolby and Duran Duran packing theirs up in flightcases and hogging them halfway round the world on extensive, ambitious concert tours.

And the blurring of distinctions doesn't



AudioFile *AMS' hard-disk based digital recording system should be available soon*

Roland SDE2500 *is company's first MIDI delay, has clever patch assignment system*

stop at musical instruments. It now extends to machinery that was once thought to be the exclusive territory of the sound engineer, like outboard effects units. How? Well, principally through musicians, engineers and designers realising that if you have a network of bits of machinery that are designed to work together, that network will be more versatile, more useful, and less difficult to use than a similar system employing devices that have a decidedly antagonistic attitude towards each other.

Innovations in the field of communication between music machines have come and gone in the past, unnoticed either by the musicians' community, or by the (previously) equally inward-looking studio fraternity. Now, the wonderful world of MIDI has extended its sphere of influence beyond musical instruments, and gained a firm foothold in the recording studio.

That may sound simplistic, but by and large, it's been the Musical Instrument Digital Interface that's been responsible for uniting the musical and recording worlds. And although it may take a more advanced form of computer technology to unite the two professions utterly, MIDI is playing a vital rôle today – as Yamaha's ad copywriters seem well aware.

Of course, it was the arrival of TEAC's prophetic Portastudio that first gave musicians the means to record their own music outside the confines of a commercial studio (they'd had the desire to do it for years), but since then, the main impetus behind home studio progress has been MIDI.

It's now common practice for an artist to do much of what was once considered to be studio work before he's even so much as set foot in a professional, multitrack studio. Working with a dedicated music system at home not only saves studio time on composition, it also saves it on performance. Nowadays, musicians can walk into a recording studio and dedicate perfect rhythm and melody tracks to tape, without having to worry about endless retakes due to inept musicianship on the part of drummer, bass or synth player.

But the story doesn't end there, either, because the musician isn't the only one in a position to benefit from MIDI. The studio engineer also stands to gain in terms of both time and convenience which, in turn, means that engineers as a breed are inevitably going to want a say in more musical, rather than technical, decisions.

Imagine the (very real) possibility of recording a sync track on tape – instead of the drums and sequences – which permits the alteration of any part at any time up until the quarter-inch master is made. This is a lot more straightforward – not to mention effective – than recording a whole load of instrumental parts for possible use 'if they work out'.

Using the MIDI bus to change patches on a suitably-equipped DDL or reverb unit in sympathy with changing patches on a polysynth can make for a much more economical use of tape tracks, and save literally hours of treating 'dry' sounds during the final mixing session. Or is that a live performance aid...?

Mind you, MIDI is by no means the only area of development that's changing previously existing studio practice. The SMPTE (Society of Motion Picture and Television Engineers) synchronisation code is justifiably gaining in popularity. It not only permits synchronisation of equipment to tape (and also to videotape, as that was its original purpose), but provides a clock that allows any point of a recording to be identified without further reference to the start, permitting simple, instant drop-ins. Admittedly, the advantages of such a comprehensive system are greater in the context of a film soundtrack three hours in length than in that of a three-minute single, but the code does offer a multitude of possibilities, both in the aural medium alone and in promo video work.

And so to product specifics, and the APRS show mentioned at the start. Roland and Yamaha, major forces as musical instrument manufacturers, have been increasing their strength in the recording field in recent months – and not just in the home recording sector. Yamaha were the first company to give a 19" rack-mounting unit MIDI compatibility, with the D1500 MIDI Digital Delay that arrived towards the end of last year, and this particular path is being taken up by other manufacturers; there seems little doubt it'll become a widespread development. The trailblazing D1500 allows any of its 16 delay programs to be selected over MIDI using MIDI patch changes. Other Yamaha products are less domestically-oriented, like the highly-rated (and highly-priced) REV1 digital reverb, and the matching YDD2600 digital delay. A budget version of the REV1, the REV7, made its debut at APRS. It includes 30 onboard ROM reverb effects, and a further 60 effects which can be user-programmed. As with the D1500, any of these effects patches can be selected by MIDI patch-change commands, and in fact, the only disappointing thing about the REV7 is that it won't be available in the shops until September. Guess we'll just have to wait until then.

Roland, who first introduced programmable effects patches with their SDE1000 and SDE3000 digital delays, now have their own MIDI-compatible units in the shape of the SDE2500 digital delay and the SRV2000 digital reverb. The former implements a flexible patch assignment system whereby any onboard effects patch can be assigned to any incoming MIDI patch number. Thus although the SDE2500 has 64 patches, these can be assigned to any of the possible 128 MIDI patch positions. The MIDI patch change system has traditionally been rather inflexible, but Roland's system frees you from the restrictions imposed by different manufacturers using different methods of counting patch numbers.

So the musical instrument designers are turning their hands to studio equipment, and doing so with some success. But what of the traditional studio hardware manufacturers? Are they doing their bit to merge the performing and recording functions into one?

Well, the answer is yes. Remember that the studio world had begun embracing computer technology (in the form of automated mixing consoles such as those made by SSL and Neve) long before anyone had even set eyes on a Fairlight in the UK, so it isn't exactly in the habit of shying away from new technology.

Nor does it seem to be afraid of letting musicians in on the act of recording and producing, as APRS proved. There was a wide range of 'musical' studio products on offer, from Rebis' RA226 digital sampler (maximum 32-second sampling time at 12kHz bandwidth) to AMS' sensational AudioFile, a Winchester disk-based multitrack sampling and playback system. It's still a prototype at the moment, but before long, AMS should be offering a unique 'hybrid' system that bridges the gap between traditional multitrack tape recording (analogue or digital) and multitrack sequencing offered by the likes of Fairlight and Synclavier.

But AudioFile or no AudioFile, there's still only one means of transferring digitally-encoded data from one technological marvel to another directly: good old analogue. MIDI can do it for all manner of programming data, and there's nothing stopping you using a high-density storage medium (like a floppy or hard disk) as an intermediate stage in the transfer. But so far, there's no communications system clever enough to transmit a digitally-encoded audio signal from one Fairlight to another with any accuracy, let alone from Fairlight to Emulator II or Synclavier. Which explains why many studios currently keep a library of sounds on quarter-inch tape for transfer to, and subsequent use in, devices such as the AMS delay. If an industry standard could be agreed – in the same way as the MIDI standard was (eventually) settled upon – it would be possible to transfer samples in their digitally-encoded state from one machine to another with no deterioration in quality other than that inherent in using machines of varying bit resolutions.

Such a system would also let you transmit this information down the telephone line – currently possible with the analogue transfer of information, but not without incurring the 300Hz-34kHz bandwidth restrictions of the network, not to mention the system's inherent noise. Those problems overcome, it would theoretically be possible to ring Fairlight Instruments in Australia, quote your American Express number, and receive their design team's latest sounds almost instantly. It could come true earlier than you think... ■

Yamaha REV7 *is downmarket version of professional REV1, hits the shops September*

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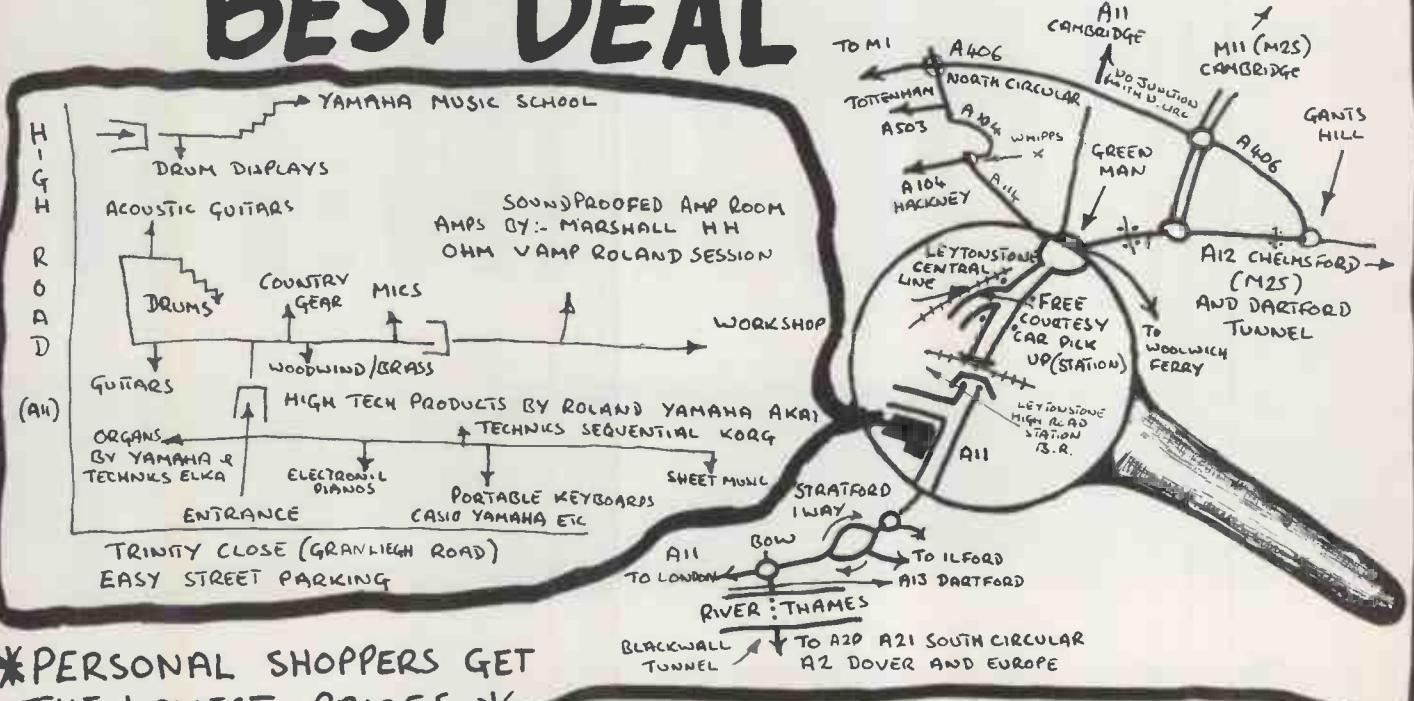

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DX21 in the rubble *photocollage by Tim Goodyer*

21 TODAY

Just when the DX7 looked under threat from competing synths, Yamaha come up with a budget FM machine to consolidate their position. Value for money was never this good. *Simon Trask*

There can be no doubt, not even the faintest shadow of one, that the Yamaha DX7 has done enough to gain a permanent place in the history books of music technology. It's got there by virtue of offering – through the newly-harnessed principle of FM synthesis – an unparalleled range of uncannily realistic musical sounds, at a time when machines of comparable price have provided nothing of the sort. It isn't the easiest synth to program, with the result that a lot of owners have found themselves eagerly awaiting each new voicing ROM as it's been released, but in absolute terms, its sonic capability is still unequalled at its £1300 price level.

However, a good couple of years have passed since the DX7's introduction, and a lot of synths have passed under the bridge in that time. In particular, a number of companies have entered the fray with significant instruments in the sub-£1000 price bracket, and Yamaha's own budget FM poly, the DX9, has been suffering too heavily in the shadow of its more expensive brother to make much of an impact. That, surprise surprise, is where the £699 DX21 comes in.

For those of you already *au fait* with the DX7, DX9 or CX5 computer (which is probably a fair number, all in all), the DX21 will be familiar ground in terms of both appearance and programming. At half the price of a DX7 (that's even cheaper than the now obsolete DX9), there are obviously going to be a number of economies, but the end result is still impressive. It certainly outshines the DX9 and the sonic capability of the CX5, whilst even DX7 owners will find a number of features their instrument can't boast.

Design *'The early DX membrane switches are replaced by firm buttons – you actually feel you've pressed something.'*

The DX21 is an eight-voice polysynth (the DX7 and DX9 both had 16) with a five-octave C-to-C keyboard. First reports a few months back suggested the DX21 would contain two DX9 FM sound chips, but a quick peek inside the new machine reveals just the one chip – of entirely new design – whose functions are multiplexed to provide a dual-output configuration, which is neat enough. Touch-sensitive the 21 is not, at least not from the keyboard, but attack velocity data can be read over MIDI from a touch-sensitive keyboard. What the DX21 *won't* respond to over MIDI

is aftertouch data, which is a shame.

Like the DX7, the DX21 has a 32-voice RAM that's directly accessible from the front panel *via* two rows of 16 selectors. But the new synth also has 128 voices stored internally on ROM, and you can call these up singly or in groups of eight into the RAM. More on this later.

Thankfully, the early DX membrane switches have been replaced by slim buttons that have a pleasingly firm response – you actually feel you've pressed something. The central display is the same 2×16-character LCD window present on the DX7/9, which means it's just as difficult to read in subdued lighting, but what's worse is that the DX21 hasn't been given the life-saving two-digit red LED display that accompanied the earlier DXs. This wouldn't be so bad if Yamaha had gone for a backlit display, but they haven't, and peering into the thing on a dimly-lit stage isn't going to be much fun as a result.

The familiar data entry slider and +/– buttons are also present, but a nice touch – new to the DX21 – is that once you've selected a parameter for editing, you can press that parameter's button to alter its value, rather than having to return to the data entry controls every time. If a parameter is a dual-state one, you can toggle between the two states in precisely this fashion. If it's multi-state, repeated pressing of the associated button increments the value – a nice touch that eases editing by no small degree. And another welcome change is that each stage (rate and level) of the amplitude and pitch envelopes has been given its own front panel selector.

But where the new synth really scores, even over the DX7, is in the inclusion of Split and Dual voice-assignment modes. These were once only to be found on the outrageously expensive DX1, but more recently they've appeared at the lower end of the market on rival machines (SIEL DK80, Casio CZ5000), which makes their inclusion on the DX21 rather opportune.

Splitpoint is user-definable as any note on the keyboard, and four voices are allocated to each side of the split. Similarly, Dual mode reduces the DX21 to a four-voice instrument. You can determine the volume balance between the two sounds by means of a slider between the familiar volume and data entry sliders on the left of the front panel. In both modes, one voice must always be chosen from the upper row of 16 selectors and the other from the lower row, so you're going to have to apply a bit of forethought when organising your patches.

Current memory buffers are maintained for both Split and Dual sounds, and these are accessed by pressing dedicated buttons. Once called up, the contents can be readily altered by selecting voices from the front panel in the normal manner.

Turning to the DX21's synthetic capabilities, we find to our enormous surprise that it reverts to the DX9's configuration of four operators and eight algorithms. The 21's algorithms are the same as the 9's, too.

Another plus point for the newcomer is that a number of Function parameters are now voice-specific, a feature first seen on the TX7 and TX816 modules. These are the 16 functions to be found along the lower row of patch/programming buttons, referred to collectively as Performance functions. Appropriately enough, most of these are concerned with the status of pedals and wheels. You can program sustain pedal on/off, pitchbend range, volume pedal amount, portamento, mod wheel range and breath control – all specific to each voice patch.

Yamaha's lovely breath control option has been greatly enhanced by the addition of a pitchbending facility, which allows the pitch of notes to be bent continuously by the controller up or down over an extremely wide pitch range.

And pitchbending in general has been enhanced by the inclusion of three extra modes on the DX21: one in which the lowest note only can be bent, another for the highest note only, or (particularly effective, this) a third in which notes played and then held by the sustain footswitch aren't affected, whilst notes played subsequently are. This isn't a voice-specific feature, though.

As I've said, the DX21 has 128 voices stored internally in ROM, or the equivalent of the DX7's two plug-in ROM cartridges, and follows the DX7 in having 32 voice positions in RAM for you to put your own sounds in.

The ROM voices are organised as 16 groups of eight voices each, and each group contains a particular family of sounds (see later for a full rundown of these). The 32-voice RAM is logically divided into four eight-voice banks, any group may be loaded into any bank, and you can easily align voice combinations with suitable voices on other MIDI instruments for program change selection over MIDI, or have a single voice in more than one position without having to duplicate voice data – and lose a voice position.

Sadly, the strengths of the DX21's internal storage system are matched by the weaknesses of its external one. For whereas on the DX7 you could instantly store new voices on a plug-in RAM cartridge, the DX21 has no ROM/RAM cartridge facility at all. Like the DX9, it uses slow, unreliable cassette storage instead. All 32 RAM voices can be saved to cassette as a bulk dump (this takes 40 seconds), and either bulk or single-voice loaded.

single voices can be called up into any of the 32 positions.

As soon as you select a RAM voice for editing, it's read into an edit buffer, and as on the earlier DXs, there's a function for comparing your edited voice with the unedited version. Also carried over from the first-generation machines is the Edit Recall function, which allows you to return to an edited voice if you call up another patch in mid-flight by mistake (this is possible because the 21 keeps a backup edit buffer once changes have been made to a voice).

A new feature is the Performance memory. Not to be confused with Performance functions, it's a group of 32 patch memories that let you call up predetermined single, split and dual voicings at the touch of a button. They could come in particularly handy in a live situation, hence their name. Storable parameters are voicing mode, voice(s) selected, keysplit and voice detune data (the latter applies to Dual mode voicings), key shift data (a transposition value) and pitchbend mode.

To get the most out of this mode, it's important to realise that each performance memory contains no voice data as such, but pointers to voice positions in the single-voice RAM. Thus if you call up a new voice into a position accessed by a performance memory, that performance memory will effectively be changed as well. This obviously requires some careful planning, but the performance memory is still a useful addition that allows you to set up all the voices and voice combinations you need prior to a gig or a recording session. *And*

Facilities *'The DX21 has no plug-in cartridge facility at all. Instead, it uses slow, unreliable cassette storage.'*

But I can't help feeling cassette storage is really a false economy – it's simply too fraught with problems to become useful in professional applications. If SIEL and Casio can build cartridge slots into similarly-priced (or cheaper) synths, why can't Yamaha? Well, maybe they want people to execute patch dumps over MIDI using the DX21's System Exclusive implementation. It's certainly quick (a 32-voice dump takes just a couple of seconds), but immediately introduces further hardware into the picture in the shape of computer, disk drive and MIDI interface. It also means that the whole process becomes computer/disk-specific, so swapping and selling sounds becomes a less universal process. Mind you, using a computer has its attractions (availability of the micro for non-musical purposes, price advantage of disks over cartridges) and doubtless software for both Yamaha's CX5 and other popular micros will be available soon. You could even try writing your own...

To the sounds in detail. There's no doubt about it, a large number of the DX21's ROM-based sounds would give the DX7's factory presets a pretty good run for their money. Clearly, Yamaha's programmers (in this case Gary Leuenberger, who helped program the original DX7 sounds) are putting their two years' FM experience to good use. Because although its greater number of operators/algorithms means the DX7's ultimate potential must be greater, the DX21's factory sounds give you little clue as to the machine's electronic inferiority.

The ROM families are Piano, Electric Piano, Organ, Strings, Brass, Plucked, Comping, Percussion 1 and 2, Lead Synth, Other Keyboard, Wind Reed, Bass, and Sound Effect 1, 2 and 3. It's not really possible to single out any particular group for praise (or for the thumbs down treatment), but the percussion (both tuned and untuned) is as strong as it is on all DX synths, and there's a good selection of them, with tubular bell, gong, marimba, and glockenspiel sounds, among others. There's even the currently obligatory attempt at a Simmons tom sound, though this is only moderately successful. I was impressed, however, by the wonderfully delicate splash cymbal sound.

There are some very praiseworthy acoustic and electric piano sounds, though I still couldn't find an electric piano to match the DX7's best effort. And when it comes to harpsichord impressions, the DX7's increased number of operators gives it a noticeable edge in the complexity department; you can hear a lot more *going on* in the more expensive version. The 7's church organ sounds have an extra bit of 'oomph' over the 21's, too.

On the wind instrument front, flute and clarinet sounds come out very well, while the lower-register bassoon has a marvellously gruff tone to it.

Meanwhile, plucked sounds (especially guitar) show a great improvement on the DX7's initial efforts; they're crisper, cleaner and reward sympathetic playing technique with an excellent reproduction of the real thing.

Sounds *'Plucked sounds show a great improvement on the DX7; cleaner, crisper and an excellent reproduction of the real thing.'*

String sounds are still an FM problem, though. Apart from lacking strength by comparison with good analogue synth versions, the 21's strings also omit the detail of the DX7's (still thin-ish) endeavours. They're OK so long as you play them staccato, but if you ask them to sustain, their lack of movement makes them appear all too synthetic.

The bass sounds still have that familiar FM noise component, which is a shame, but there's an excellent selection of them (mellow, punchy, or both at once) from which to start editing. They'd benefit further from being played from a velocity-sensitive keyboard, however.

The sound effects include racing car, helicopter, a rather nifty Doppler FX sound, and FM-derived square, pulse and sawtooth waves. Not particularly musical, but a lot of fun.

Turning to the actual voice parameters that make up the DX21's sounds, all the familiar DX elements are present, though some have been simplified or otherwise scaled down. As a general rule, the facilities fall somewhere between DX9 and DX7 in their completeness.

Gone are the separate frequency coarse and frequency fine parameters that graced both the 7 and the 9, these being replaced by a single 'frequency ratio' parameter that can be set to any of 64 different ratios; fractional ratios are thus preset instead of user-determined. The manual claims 'these frequency ratios have been carefully chosen as the most useful for voice programming', but

although I'd concede there is a certain virtue in restricting people's programming options this way, I'd much rather be given the choice.

The number of envelope and pitch envelope stages has been reduced by one in each case compared with the DX7 (though remember that the DX9 didn't even *have* pitch envelopes), while keyboard level scaling follows the DX9 pattern.

The DX21 has two audio outputs, Mix/A and B, with the former being capable of carrying a mono signal. There's also a stereo headphone output, so all in all, the 21 offers a worthwhile improvement over the single mono out of the DX7 and 9. The additions also mean you can make full use of the stereo chorus facility Yamaha have introduced on the new instrument.

Continuing our lurk round the back of the DX21, we find jack sockets for sustain, portamento and volume pedals – and discover that the DX7's useful modulation pedal facility is sadly absent. The good news is that Yamaha have standardised the FC7 footpedal and FC4/5 footswitches across their keyboard range, so they'll work with the DX7/9 as well as the 21. However, if you've got the old SC3A footpedal, which was around in the earlier days of the DX7, you're going to be out of luck in the compatibility stakes.

Other sockets are an eight-pin DIN cassette socket, a mini jack for the BC1 breath controller, and MIDI In, Out and Thru. Yamaha have given their new synth the ability to transmit and receive on any of the 16 available MIDI channels (which is a *very* useful one-up on the DX7), with an additional Omni receive option. What's more, transmit and receive channels can be defined independently.

The 'Sys Info' MIDI function (familiar from the DX7/9) acts as a safeguard against accidental transmission or reception of System Exclusive data. When enabled, single voice or full 32-voice data can be transmitted from or received into the instrument's voice RAM. Single-voice data is received into the edit buffer (whence it can be stored in any voice position), whilst 32-voice data is sent *via* the front panel Bulk Transmit function. In Edit mode, and with Sys Info available, any edit changes are transmitted over MIDI in real time, while any received changes act on the voice currently in the edit buffer.

The DX21 also has a 'Channel Info' function, which acts as a master on/off switch for transmission and/or reception of certain channel-based MIDI data. Thus attack velocity, mod wheel, breath controller, portamento footswitch, program change and the Data Entry slider and buttons can all be disabled by this function. Pitchbend, sustain pedal and 'all keys off' data are enabled regardless, though. Personally, I'd have found an individual on/off facility for patch change, pitchbend and mod wheel data a lot more useful, but that's life.

The above filtering options apply to selected MIDI data. However, Yamaha have also provided a MIDI on/off function which disables *all* MIDI transmission and reception. This is a lot handier than it sounds, as it enables you to switch out any slave instruments if you suddenly want to play the DX21 solo, for instance. It's so handy, in fact, that at first I couldn't understand why so few manufacturers haven't fitted something along similar lines. Then it occurred to me that if you can already buy a MIDI filtering unit to do the same job for several instruments, there isn't much point having duplicate switching facilities within the keyboards as well.

What really is a pity is that the DX21 has no provision for assigning separate MIDI channels to each side of a split. Not an awkward feature to implement, I'd have thought, and SIEL's DK80 has this ability, after all.

The review DX21 was part of an early shipment, and whilst the synth itself was in a finalised state, the accompanying documentation was not. So there was I prepared to lambast Yamaha for not including System Exclusive data in an otherwise excellent manual, only to find out that a subsequent version will have all the data included.

I've been putting it off for a while, but now's the time to reach a solid conclusion about the DX21. It isn't difficult: there's no doubt Yamaha have themselves another winner here. Performing the balancing act between cost and quality is never an easy task, but the company have obviously put a lot of thought into what a budget FM synth should and should not have, and almost without exception, their decisions have been the right ones.

The two main disappointments are the non-touch-sensitive keyboard and the lack of cartridge storage. The first is easily remedied by playing the DX21 from a dynamic controller keyboard (which is simple enough), but solving the latter problem involves rather more in the way of additional hardware, which is a shame.

But credit where it's due. The addition of Split and Dual modes, the Performance memory, the more accessible editing facilities, and the simplified voicing structure should encourage a lot more people to get inside FM and start programming their own sounds. They're all worthwhile features, make no mistake.

Yet most important of all are the noises the DX21 makes. If you like what you've heard of FM in the past, now's your chance to grab hold of it at a reasonable price. And getting back to programming, the fact that there are so many ROM voices means you're bound to find a reasonable starting-point for editing, no matter what sound you're after.

It's funny, but some hi-tech music companies have an unpredictable output of new gear that's patchy in quality. On some occasions they come up with a real gem, other times they make the odd technical, operational or marketing blunder. But ever since they released the first DX, Yamaha haven't put a foot wrong. ■

D A T A F I L E

Yamaha DX21 FM Polysynth

Keyboard *61-note C-to-C; non-touch sensitive, attack velocity readable over MIDI*
Sound source *FM tone generator; 4 operators × 2; 8 algorithms*
Voicing *Single, Dual & Split modes; 8-note polyphonic (Single), 4-note polyphonic (Dual), 4+4-note polyphonic (Split); 1-note monophonic (Single, Dual), 1+1-note monophonic (Split)*
Memory *128-voice onboard ROM, arranged in 16 8-voice groups housing factory preset sounds; 32-voice RAM for user-programmed sounds; 32 performance memories*
Preset Voices *16 ROM families: Piano, Electric Piano, Organ, Strings, Brass, Plucked, Comping, Percussion 1, Percussion 2, Lead Synth, Other Keyboard, Wind Reed, Bass, Sound Effect 1, Sound Effect 2, Sound Effect 3*
Display *16-character × 2-line LCD*
Interfacing *Mix/A and B stereo outputs; stereo headphone output; breath controller input; volume, sustain & portamento pedal inputs; MIDI In, Out & Thru; cassette (8-pin DIN)*
Dimensions *909(W) × 83 (H) × 270 (D)mm*
Weight *8kg (17.6lbs)*
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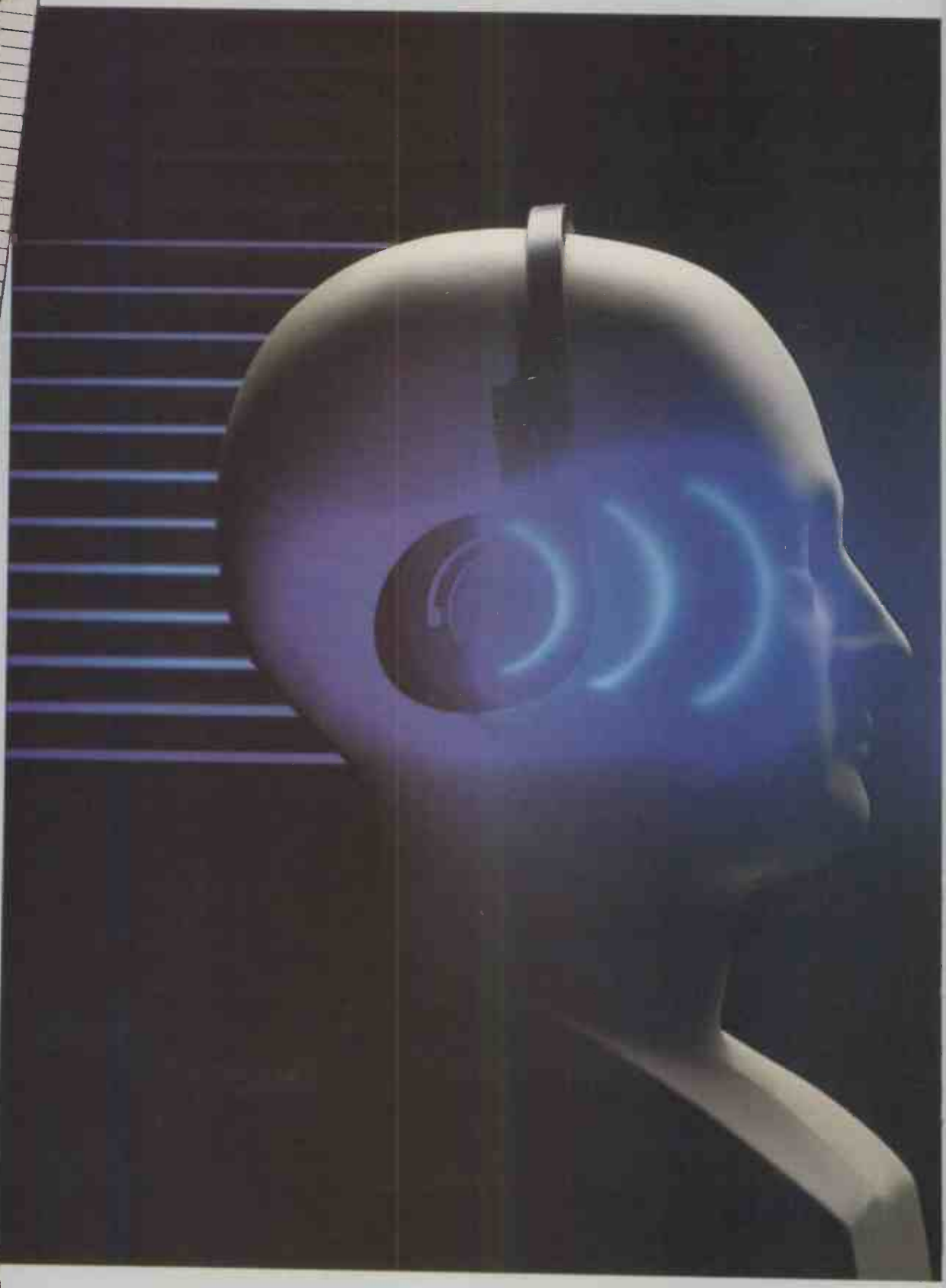

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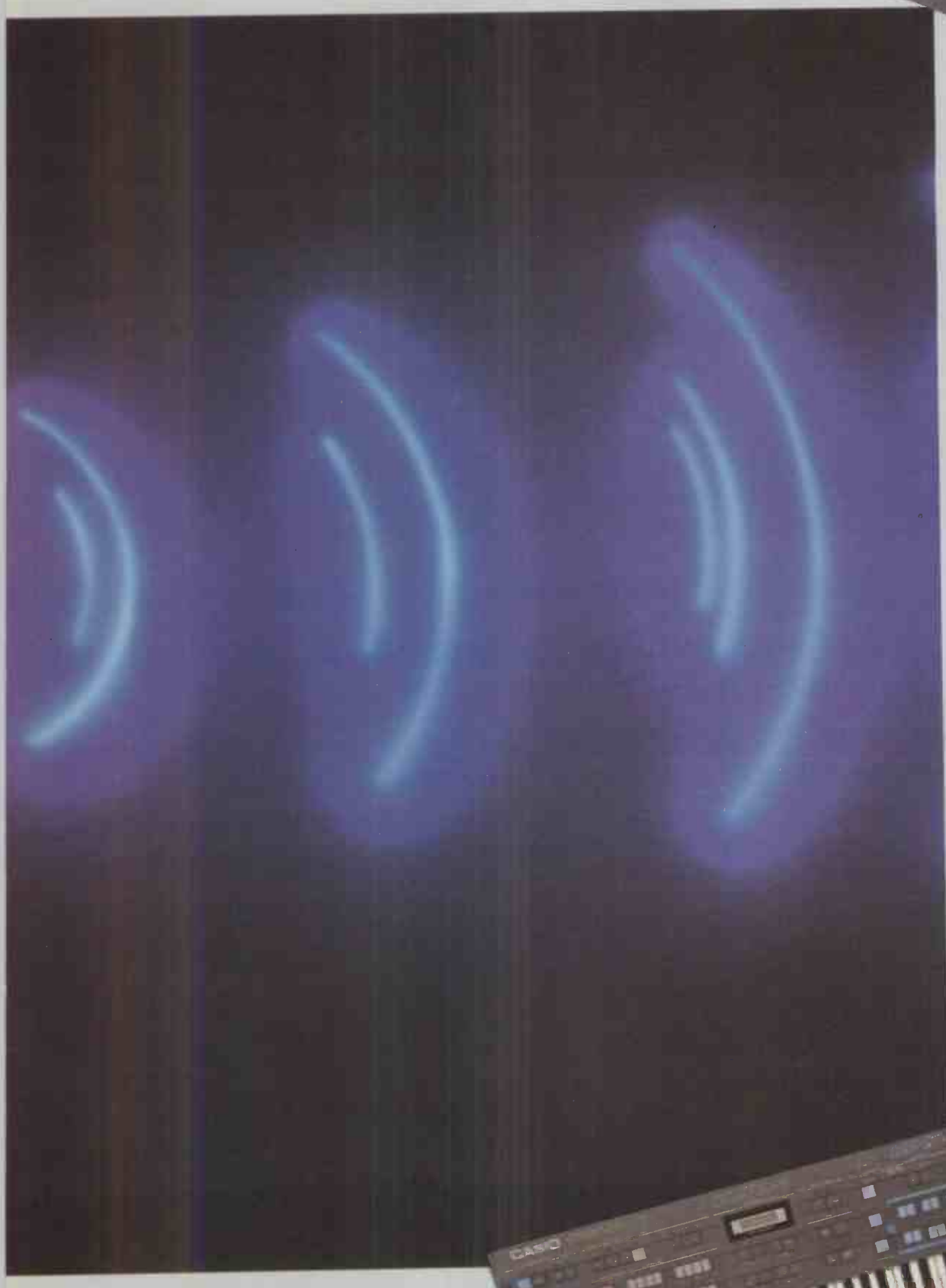

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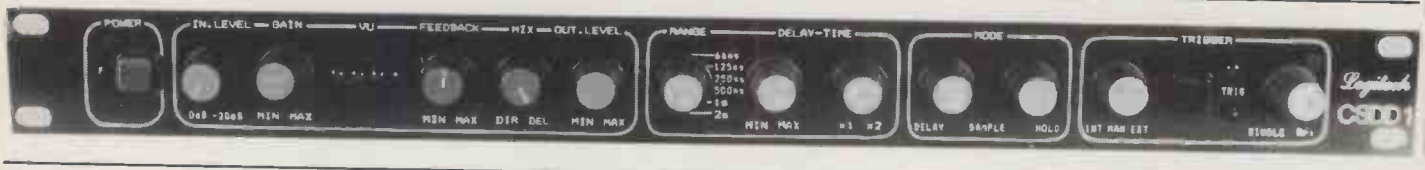
SAMPLING ON THE CHEAP

Until something else comes along, sampling looks like being flavour of the month for some time to come. Which explains why British newcomers Logitech have decided to produce what must be the cheapest tracking sampler currently available. *Paul White*



You might choose to take issue with me on this one, but it seems the Art of Sampling is now divided into three specific product areas. At the highest price level, we have the dedicated computer music systems, pioneers of sampling but now acquiring dinosaur status as lower-priced, better-specified systems evolve around common or garden computers. They still serve a vital rôle in today's contemporary music industry, but their heyday is coming to a close.

One rung down, we have the home computer-based systems just alluded to, and self-contained samplers such as the Ensoniq Mirage; it's the middle area, and the one most likely to expand rapidly over the coming months.

But under all that, there are the machines that give all musicians – even the most impoverished ones – a small insight into what sampling can do, and how it does it. The Logitech CSDD1, a monophonic sampling delay being produced by a small company new to the musical instrument world, falls into this third category. At the time of writing, it's available only direct from its manufacturers, so you won't find it at your High Street music store; that, in my view, is a pity.

It's a relatively unsophisticated device, of course, but it's still viable musically, and gives just about anybody a chance to get into sampling providing that they have access to a monosynth with a one-volt-per-octave CV output.

Housed in its conventional rack case with off-the-shelf colour-coded knobs, the sampler looks neat but hardly inspiring, though the designers would argue that it's there to be used, not looked at. Its input sensitivity can be switched to match 0dB or -20dB line levels, and a conventional gain control works in tandem with a four-section LED meter to ensure optimum drive levels, an *important* consideration when a system relies on an eight-bit digital delay line, as this one does.

As this sampler is a dual-purpose device also capable of providing ordinary delay effects, there's a Feedback control which in essence varies the decay time of repeat echoes. A Balance control is used to regulate the ratio between delayed and direct signal levels, while the Delay time is divided into six steps ranging from 66mS to 2 seconds, with a continuous Delay Time control offering fine adjustment; a further control enables the maximum delay time to be doubled at the expense of reduced bandwidth – a not uncommon ploy used on delay lines of all prices. Normal bandwidth is 15kHz, but this is reduced to 8kHz when the double-time setting is in use.

The Logitech's operating mode section consists of two switches, the first of which selects Delay or Sample mode. Once a sample has been recorded, the next switch, Hold, is used to freeze the sound in memory, where it remains until either it is overwritten or the unit is switched off.

One of the major drawbacks of budget samplers, and one made more acute in this instance by the lack of editing facilities, is the difficulty of loading a sample so that it starts exactly on cue when retriggered. To do this, you have to push the Sample button (or whatever the machine in question uses) at the exact instant the sound being sampled starts, which isn't easy, even for an experienced pro like myself. But Logitech do at least give you a choice of three methods of loading sounds. These are Internal, Manual and External, a three-way rotary switch being used to select the desired option.

The first mode (Internal) is probably the most useful, as it enables the sampling process to be initiated by the start of the sound being sampled. This method of sampling works extremely well in the context of percussive sounds, but is easily caught out by sounds with a soft attack, which it can miss entirely. In the event of this occurring, you can resort to Manual mode – but this means polishing up your reflexes in order to press the Trig button at exactly the right moment. If you miss-time your sample of a Rembrandt canvas being slowly ripped in two, you could have problems.

The final mode, External, allows the sampling process to be triggered by a positive-going trigger pulse such as those provided by most synths (except those with S-triggers). This way, you can use the synth output to operate a relay to switch a solenoid to drop the Ming vase onto the concrete block next to the mic and...well, it was just a thought.

Performance *'The Logitech suffers from reduced dynamic range – a side-effect of using eight-bit linear sampling.'*

The last control is the Single/repeat switch, which can be used to inhibit further triggering until the sample has finished; in its alternative state, retriggering occurs whenever a new trigger pulse is applied.

As a straightforward digital delay, the Logitech suffers from reduced dynamic range, an inevitable side-effect of using eight-bit linear sampling – though I reckon some form of pre/post emphasis is being used to get a

decent signal-to-noise ratio, given the sampling limitations. But compared with many budget DDLs that do nothing but act as DDLs, the Logitech's noise levels are still on the high side.

As a sampler, these shortcomings are less noticeable but a low-frequency pure tone quickly shows up the quantisation noise. Samples with lots of upper harmonics work best, as these tend to hide these noise effects. Noise levels are also very low when no sample is being played – but then, that in itself is nothing remarkable.

Pitch-tracking is reasonably accurate over an octave or so and is certainly good enough for most applications, but as the review sample was a prototype, production models might track even better. Outside that octave range, however, things go very wrong very quickly. Shame.

A year or two ago, I'd have hailed the Logitech as a major breakthrough. It's probably the cheapest tracking sampler on the market, and used with care, it's capable of producing artistically pleasing results.

But there are omissions that limit its usefulness. For instance, the sample *always* plays to its end once triggered unless you play a new note, so you can't cut a note short by releasing a key early. The lack of editing facilities isn't surprising at this price, but the use of linear eight-bit encoding means that all-too-noticeable noise will form an inevitable part of each and every sample you make.

More positively, the existence of a machine such as this means you can create echoes, synchronised delays and tuned samples for little over £200 – which has got to be good news for anybody unable to contemplate more upmarket devices – and the sound quality is fine for live use.

But if you have your own studio, you want a digital delay that isn't unacceptably noisy, and you want a decent amount of control over your sample once you've recorded it, you're better off leaving your wallet where it is. ■

D A T A F I L E

Logitech CSDD1 Sampling Delay

Specification *8-bit resolution; maximum sampling time 2 seconds; normal bandwidth 15kHz; double-time bandwidth 8kHz*
Controls *Input level & Gain; Feedback, Mix & Output level; Delay Time range, scale & amount; Delay & Hold mode switches; Triggering switches*
Interfacing *Audio In & Out (direct, mix); CV & Trigger In; Footswitch jack; 25-way host interface connector for future expansion*
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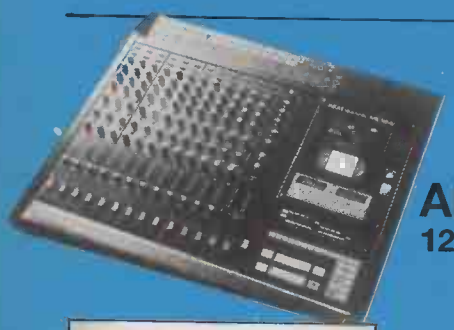

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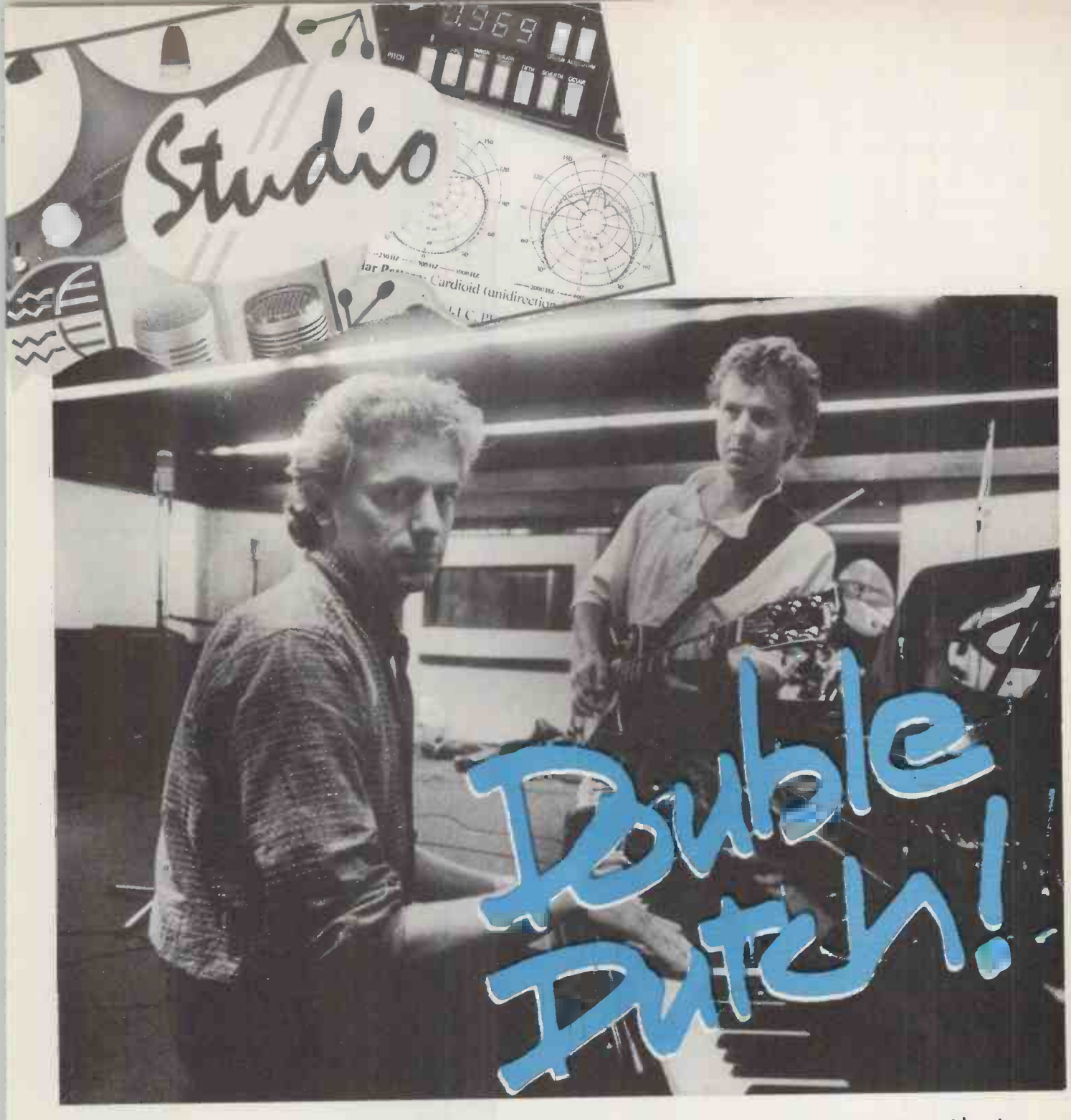

Behind Dutch soul trio Mai Tai lie two men trying to revive their country's contemporary music fortunes. They're lucky in having a recording studio of their own from which to launch their attack.

Paul Tingen

Even in the context of mainland Europe, Holland is one of contemporary music's deepest backwaters. The nation's pop music trends follow those of the UK as religiously as any other, but, perhaps because the Dutch pride themselves in knowing English almost as well as the English do, they have little to say for themselves in the way of home-grown, domestically-oriented talent.

When the Dutch do get some studio time for themselves, the results are rarely heard outside the Land of the Windmills. But one record that has made it out is Mai Tai's 'History', an infectious dancefloor concoction as melodically brilliant as it is lyrically inane. It's been a big hit, though, in almost every territory the band's record company have seen fit to release it in. And behind the trio of Dutch chanteuses that sing it (and the similarly-titled album from which it's taken) are a couple of production wizards who add writing and arranging credits to their mixing-desk achievements.

So here I am, cocooned in the comfort of Amsterdam's Artisound Studios, confronted by that duo. They're not exactly well-known even in their native Holland, and with names like Eric van Tijn and Jochum Fluitsma, they're unlikely to become any more than half-famous elsewhere. The studio turns out to be the property of van Tijn's father, who encouraged his son to 'play around' there from an early age. From this he drew a mass of first-hand experience, and later spent four years at Music School in Rotterdam, studying jazz composition, arrangement and piano. It was a course he left prematurely for two reasons: his increasing involvement with composing music for TV commercials, and the intolerable snobbery of the School's governing body that gave pop a considerably lower status than anything and everything jazz.

Fluitsma became similarly disenchanted

▷ with academic attitudes during his own formative musical years. As a guitarist he played in various bands, but dropped out of his music school's classical guitar course when the pressures of session work became overpowering.

The two of them first joined forces professionally when they were invited to compose the music for a children's show on Dutch television, sometime in 1981. Word quickly spread that their talents were not to be taken lightly, and soon van Tijn and Fluitsma were being approached to do the recording honours for a whole host of Dutch artists. When nobody seemed to take exception to them taking on as many different recording functions as they could, they adopted the practice of composing, playing and producing music at the same time.

Then came the Mai Tai sessions, begun halfway through 1984 but not completed until the early months of this year. So how was the band formed? Van Tijn is the more relaxed of the two, speaking freely in an informal, drawling Amsterdam accent. 'About two years ago, Jochum and I needed three black female singers for a recording session. By sheer accident those three became Jetty, Mildred and Caroline. Together they sounded so incredibly good that we suggested they form a group and make a record with us. At first they didn't like the idea very much, mainly because they'd done so many things which hadn't worked out, and in which they'd found themselves being swindled. But we persuaded them to sign a contract for one single, with an option for a second.

'When we've recorded a basic version of a song, we get the girls in – we have to know which key is going to be convenient for them.'

'The single, 'Keep on Dancing', became a reasonable success, and after a couple of other hits in Holland, including 'History' and 'Am I Losing You Forever?', the album was born. For us it was our first really big musical venture. Compared to what we had done before it was a *giant* step forward. Suddenly, we knew how to do it.'

It sounds almost impossibly smooth. Surely there are bottlenecks *somewhere* along the music production line? Fluitsma is confident almost to the point of arrogance; as far as he's concerned, the duo have everything fully and properly sorted. 'We compose the songs together, mostly improvising with Eric on piano and me on guitar. Songs usually emerge from a catchy chorus, from which we work to add the verse and bridge. When we have the basic ideas for a song, we record a piano-and-guitar version on a simple cassette recorder. Then we call the girls, because we have to know what key is most convenient for them.'

And once that's done, it seems the instrumental parts go onto tape with a speed that would frighten many a UK production team. Van Tijn: 'That usually takes a day. I suppose we work like anybody else, only quicker: first the drum machine or drums, then piano, bass, guitar and various synths. We tend to play basslines live on a synth – we only use a sequencer for parts that are too hard to play exactly in time. And we find that using a sequencer often makes the music too cold, too mechanical.

'In the USA, the budget for a single by a new band might be ten times that for a whole album in Holland. It's a matter of finance.'

'Sometimes that's what you want, though. On 'History', for instance, we wanted a riff repeating itself throughout the song in a hypnotic, machine-like manner. For that, obviously, the sequencer is really useful.'

Is there any aspect of instrumental recording the duo pay particular attention to? Van Tijn: 'The most important thing is getting the drums to sound good – though that's also the most difficult thing. A good drum sound is mainly a question of delay. A delay with a sharp cutoff gives the impression of a richer, fatter sound, and that goes for electronic sounds as well as acoustic ones. The space around acoustic drums is crucial, too – it's a good idea to place the mics as far away from the kit as you can. We place the mics at a distance of 30 feet, with an overall one high above the drumkit.'

In addition to the standard, mass-produced keyboards (Prophet 5, Jupiter 6, PPG Wave 2.2) and drum machines (TR909, RX11, LinnDrum) that find use at Artisound, van Tijn and Fluitsma have pressed a home-built (by the in-house technician) sound-sampler into service for many of their most recent recording projects. Van Tijn: 'We used it on the Mai Tai album, mainly on 'The Rules of Love', where we sampled bits of breaking glass, shouting and talking, and put them next to Jocum's guitar, which we sampled heavily distorted and several times over, so as to get a very dense, concrete-like sound.'

The sampler also finds its way onto the fairly inconsequential boogie of 'The Rhythm of the Street' (where it's used for choral sounds) and the appealing 'What, Where, When, Who' (where it provides '19'-like vocal trickery). Which only goes to show you don't need a Fairlight – or even a Mirage – to make a mark with sampling.

So far so good. Van Tijn and Fluitsma are competent enough to take on a combined musicians/producers rôle, and unselfish enough to make it work, and work well. The fact that there are still two people involved in those processes is probably a help, though, as Fluitsma freely admits. 'You have to be able to distance yourself from your own playing. Sometimes I'll start a guitar solo and Eric will say: "That's

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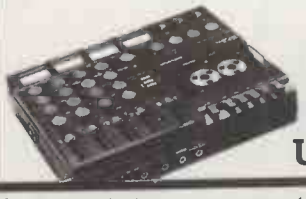

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▷ bollocks, it doesn't fit at all".'

Van Tijn claims putting so many aspects of record production into the same hands is one of the elements that's contributed to the quality and clarity of the duo's production work. 'Any outside technician, be he a musician or a producer, is an extra link, and we think an unnecessary one. If we hear a snare sound we don't like, the empathy between us means we realise that fact at the same time, and we also know instantly what to change. The same applies to the instruments we play ourselves. We both know what kind of sounds we want, so we work much faster and more effectively together than apart.'

They tackle the risk of not being able to be objective about their work by producing a sub-mix for comment by various outsiders, notably the record company, CNR. It's at this stage that what Fluitsma terms 'the final 10%', the difference between an average recording and a really exceptional one, has to be introduced. And the duo are modest enough to realise that the extra ingredient isn't always one they're capable of supplying themselves. Van Tijn explains.

'Often we get suggestions from people which inspire us, and thus enable us to finish that last 10% satisfactorily. Another thing we do is leave the song altogether at that stage, just for a while. When you come back to it later on, it's much easier to decide what has to be done. We usually take two or three days for the final mix and adding the last 10%.'

Judged in the context of British or American recording practice, that isn't an inordinately long time to spend. But by Dutch standards, it's an eternity.

Fluitsma: 'Dutch productions are often inferior to English or American ones. The equipment we have in the best studios over here is the same as in any good foreign studio, so that's not the reason. It's a matter of finance more than anything else. When a Dutch band makes a single or an album, they usually have a very small budget compared to what, say, an American band might have. In Holland you're forced to record a single within two days. How it sounds isn't so important, just as long as it's nice and pleasant to listen to, and more or less appropriate to the Dutch market. In the USA the budget for a single by a group just starting out might be ten times higher than that for an album here. Here you *have* to be finished quickly – otherwise you run out of money.'

So being on friendly terms with a studio owner – and having a two-thirds share of a production company whose third part *is* that studio – means van Tijn and Fluitsma aren't just rare in doing so much work in their own time; they're also extremely lucky.

They're acutely aware of their own position, and hope to put their good fortune to some use. For while so much of the Dutch music industry remains unambitious and introspective, hemmed in by the constrictions of inadequate finance and decades of deference to British achievement, van Tijn and Fluitsma harbour ideas well above their native station.

The former is particularly vociferous. 'What do they mean "Holland"? I want to be Number One all over the world! I want to make the best records around. That may sound ambitious, but it *is* our goal. We want to measure our strength against that of people like Phil Collins or Nile Rodgers.

'I think that's why we listen to records in a very different way than the average Dutch producer. He only finds something interesting if it gets into the Dutch charts, but we listen for how something is made, whether it's commercial or not. You can learn a lot from, say, Quincy Jones. Listening to his productions, I hear things which make me think: "how on *Earth* did he do that?". Then I go into the studio and experiment until I find how to do something similar. It's not our aim to imitate gratuitously, but basically we're music freaks. Even when we're not working, we still play records and analyse them...'

Such attention to the work of others *can* bring about plagiarism, however. Halfway into the Mai Tai album's flip-side is 'You Control Me', about as obvious a Prince rip-off as you'll find this side of a Phil Collins single. Is it justifiable? Van Tijn has a go: 'Of course it sounds like Prince. But it was never commercially motivated. We just loved that song. And the melody and lyrics are quite different. It's just that Prince invented that chord-sequence, and we consider it an accepted musical form, just like rock 'n' roll and Chuck Berry's early guitar riffs. Prince plagiarises himself in 1999, and Phil Collins blatantly ripped him off with 'Sussudio'. Did you ever hear anyone complain about that?' Well, actually, I did – but let's not quibble.

Fluitsma is less outspoken, but just as determined. 'We *have* tried to add something to existing music styles. We wanted Mai Tai to become a new band with a face of their own. But you can't get away from the fact that people want to hear good rhythms and pleasing chord sequences – they probably always will. I think our records *do* have an identity of their own. They're certainly different from what anyone else is producing in Holland. And I think our records have variety, too.'

Agreed. In spite of a predictability caused by over-attention to commerciality (which the duo are only too willing to admit to), *History* is a colourful album with plenty of stylistic surprises in store for the unwary. That Caroline, Jetty and Mildred pack a vocal punch as big as any dancefloor group this side of the Atlantic is beyond question. But if the ambitious writing, arranging and producing duo of Van Tijn and Fluitsma hadn't intervened, they'd probably still be singing cabaret in a seedy Amsterdam nightclub... ■

DATAFILE

Artisound Studios, Amsterdam

Studio hardware *Soundcraft 2400 mixing desk; Studer A80, A80 VU MkIV 24-track recorders; Revox A77 2-track*

Outboards *Lexicon 224, Quantec digital reverb; AMS digital delay/harmonizer*

Music hardware *Roland Jupiter 6, PPG Wave 2.2, SCI Prophet 5 polysynths; Roland TR909, Yamaha RX11, LinnDrum programmable drum machines; custom-built digital sound-sampler; grand piano*

MARTIN RUSHENT FIRST MADE HIS NAME WITH THE STRANGLERS AND THE BUZZCOCKS. THEN WITH PETE SHELLEY ON 'HOMOSAPIAN' – THE FIRST ALBUM TO USE COMPUTERS. THEN ON A RAFT OF HIGHLY ACCLAIMED PROJECTS THAT HAVE SPAWNED SO MUCH OF TODAY'S MUSIC. AND SO MANY OF TODAY'S PRODUCTION TECHNIQUES.

WE WENT TO GENETIC STUDIOS (MARTIN'S PLACE) TO ASK HIM ABOUT HIS CAREER, AND TO GET HIS QUALIFIED VIEW ON THE KORG PSS 50 – PROGRAMMABLE SUPER SECTION.

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DO YOU WORK TO A SET OF RULES?

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WHAT ABOUT YOUR INVOLVEMENT WITH COMPUTERS?

THAT CAME ABOUT THROUGH AN AD I SAW IN STUDIO SOUND YEARS AGO. IT WAS FOR A MC8 - A PROGRAMMABLE BOX OF TRICKS. WE USED IT ON 'HOMOSAPIAN,' I THINK SYNTHS ARE DEFINITELY THE FOLK INSTRUMENTS OF TODAY. AND IF ANYTHING NEW COMES ALONG AND IT OFFERS ME A FINER DEGREE OF CONTROL, I'LL GET IT.

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Technology

WAY DOWN

Fairlight Series III *has 16-bit polyphonic sampling now, completely updated sequencer later*

...in New Orleans, America's music industry flocked to its exhibition showpiece, the NAMM Music Expo. As ever, the lights, the women and the hyperbole were out in force – but most of all, the halls shimmered to the glow of computer monitors. *Paul Wiffen*

Software support was the big news at the New Orleans show, the most important in the American music industry calendar. For there was innovation aplenty in both areas of software development, namely optional upgrades for specific instruments, and more general MIDI-based packages.

In fact, there were so many new music programs on demonstration (some fully debugged, others less so), it's difficult to know exactly where to begin. But begin I shall, with a new Apple IIe package for that most talked-about keyboard, the Ensoniq Mirage. The Mirage's incredibly low price-tag has already brought quality sampling within reach of hundreds of musicians, despite the fact that the months the machine has been in production can be counted on the fingers of one hand. The only problem is that if you're a newcomer to the world of sampling, the Mirage keyboard doesn't give you an awful lot of assistance to help you on your way. It's all very well if you've used something like an Emulator II before, but there must be a fair few Mirage owners who are still a bit baffled by the way their new instrument goes about its business.

Ensoniq Mirage *now has Visual Editing System to help sampling wavewomers*

Well, a comprehensive new software package called the Visual Editing System should soon change all that. For under £200, you get access to a wide variety of manipulation techniques that are already available on the keyboard itself, but now have the all-important addition of the visual medium. Samples can be displayed in a condensed or magnified format, and edited down to each individual bit using a decimal system, rather than the confusing hexadecimal one used by the display on the keyboard. Using a joystick or Koala Pad, you can change, smooth out or redraw sample sections totally, thereby 'creatively modifying' your sample to your heart's content.

One problem remains, of course, in that the graphics themselves aren't really anything spectacular – useful without being particularly entertaining or innovative. But then, we're talking Apples here, not new-generation 16-bit computers, so that isn't really surprising. Maybe when the engineers at Ensoniq get their hands on an Apple Macintosh or

YONDER...

Atari ST, we'll see something truly breathtaking...

Still, in the unlikely event of your falling foul of the system's operational procedures, the package comes complete not only with a user manual of its own, but also with the Mirage Advanced Sampler's Guide, a truly indispensable item in its own right. As if all this isn't enough, the hardware is Passport-compatible, too. Further upmarket, **Kurzweil** also showed a new software package – designed for them by Southworth Music Systems. With what amounts to a modification of their Total Music package (see this month's *Newsdesk*), Southworth have developed a MIDI sequencer that interacts at an unusually high level with the Kurzweil 250 digital keyboard, with customised facilities designed to complement the 250's onboard sequencer. Meanwhile, Kurzweil themselves have been busy sawing the 250 in half, with a new MIDI Controller incorporating the grand piano action keyboard and all the 250's MIDI functions, and the Kurzweil Expander housing the machine's sound-generation hardware and software.

Emulator SP12 *used to be Drumulator II, should be available here soon*

Talking of big names and mega-bucks, the Series III **Fairlight**, a mere snip at £60,000, was on serious demonstration for the first time. And mighty impressive it sounds, too. It should do, of course, because it's 16-bit, but more than that, the Australians are promising a lot in the way of sequencing facilities. For instance, the new CAPS package, successor to the infamous Page R, will give 80 tracks of sequence recording (16 internally and 64 by four MIDI busses) when the software is up and running – but none of this was working at the show.

German hi-tech entrants **PPG** showed their new Waveterm B, with 16-bit sampling now implemented (and sounding pretty good as well) whilst on the same Europa Technology stand, the newly-improved **OSC** Advanced Sound Generator was making its first appearance, with a 12" CRT monitor replacing the disappointing LCD screen present on the Frankfurt prototype. Now due this coming Autumn, the ASG boasts scrolling music displays for its built-in sequencer, as well as waveform display and harmonic analyses of sounds. The multitimbral nature of the machine means its 16 internal voices can be assigned to separate MIDI channels and gives you the option of spreading them selectively over different sections of the controlling keyboard, too. The sequencer will be able to control external synths on four MIDI busses, each with 16 channels.

Back on the software front, Italians **LEMI** were showing DX7 editor and Drumtraks dumper programs for their Apple II interface, but more interestingly, they also have several hardware innovations up their sleeve. These include a MIDI FM transmitter. Nothing to do with Yamaha's tone-generation system, this allows keyboard players the same freedom most guitarists now have on stage, since alone among remote keyboards, it uses radio waves to carry note information, not electric cables. LEMI also have a clever little four-into-one MIDI mixer, which adds together incoming data on four MIDI lines intelligently, and puts it all out on one.

But if this summer's NAMM (there's one each winter as well, but its uncomfortable temporal proximity to Frankfurt lowers its status by comparison with the June affair) proved anything to non-American visitors, it was that the European music software industry is as nought next to the Stateside one. There are *thousands* of software companies in the US, and a surprisingly large percentage of them now seem to be turning their attention to things musical. Picking your way through the software people at NAMM (and it was by no means a comprehensive turnout) wasn't exactly easy, as an awful lot of America's packages are aimed at doing broadly the same thing.

One exhibitor that did stand out was **Syntech**, though. As David Ellis mentioned in last month's E&MM, the company have a 16-track, eight-note polyphonic sequencer for the Commodore 64, Apple II and IBM PC that stands out from the crowd by virtue of having more than a decent set of punch-in/punch-out and editing facilities. Let's hope we see it in the UK soon, a sentiment that's also worth feeling for the products of **Hybrid Arts**, who have a SMPTE recorder and synchroniser program (among many other things) which Jon Anderson is apparently raving about. It runs on Atari, Apple II and CBM64 micros.

Moving to the subject of MIDI controllers, the most inspiring new item was the **Voyetra** MIDI guitar controller, which plugs directly into any MIDI synth as well as giving a direct signal to a conventional amplifier. No price was available at the show for this country as a distributor has yet to be decided upon, but it should be around two grand.

But as far as this writer is concerned, the star exhibitor at the show can only have been one company – **E-mu Systems**. First, they had a new hard disk option for the Emulator II, which allows longer sampling times and instantaneous loading (if you remember, the 25-second load time was my principal criticism of the machine when it came under review back in November '84).

Better still is the Drumulator II, now heavily facelifted from the rough prototype we saw at Frankfurt, and given the new title of Emulator SP12 'to reflect its Emulator-like capabilities', according to E-mu. They aren't kidding. The finished machine features user sampling to disk as well as a host of impressive factory sounds (maximum length four seconds at 12-bit resolution), with full tuning, volume and filtering parameters for each sound and on each beat. Its tap buttons are velocity-sensitive, but if that isn't enough, you can program the voices dynamically from any suitably-equipped MIDI keyboard.

The SP12 can also generate and read SMPTE as well as the MIDI clock and Sony digital pointers, which should make it an excellent tool for studio use. UK price has yet to be fixed, but it should come in at well under the price of the Linn 9000. The SP12 is the one to watch. ■

Bleep, Twang, Crash, Thunk, Boom, Ping, Boing, Tish, Bong, Clang, Weeee, Yip....

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From France, a country not noted for its contribution to the hi-tech music world, comes a dedicated MIDI sequencer with a difference.

Simon Trask

le sequenceur polyphonique...

Even if you've cast only a cursory eye over E&MM's *Checklist* buyer's guide since we instigated it four months ago, you'll be aware that the dedicated MIDI sequencer is something of a rare beast. That rarity is surprising when you consider that the MIDI revolution has brought with it a whole mass of home computer software intended to do the same sequencing job, and whereas the software boom has introduced a load of new designers and manufacturers to the music industry, the companies involved in building dedicated sequencers are the same ones, by and large, that were involved in making them before MIDI came along.

So, if you're unsure of taking the plunge into the computer end of the pool or find currently-available programs unacceptable, there isn't much of a choice in the way of dedicated machines. Come August, however, that choice will be widened by the addition of at least one machine. It's a surprise entry in every way, since not only does it come from a company with no hi-tech music pedigree whatsoever, it's also built in a country scarcely known in this area: France.

The company in question is Micro Performance, and their machine is the PolyMIDI 1, a dedicated polyphonic MIDI sequencer (hence the name) that's being brought across *La Manche* by that distinctively British organisation, the Oxford Synthesiser Company.

PolyMIDI 1 has a 6500-note capacity (with velocity), and can record five sequences and two chains. Now, whilst that note capacity is on a par with what's already offered by the machines of established makers, the newcomer is definitely ahead on the *number* of sequences and chains it can store. Not quite enough to make it an all-purpose live tool, perhaps, but a step in the right direction nonetheless.

As well as being chained together individually, sequences can be played concurrently, and any such combination can be recorded as a link in the chain. Memory assignment is completely dynamic – there's no restriction on the length of either sequences or chains, other than that imposed by overall memory availability. There's a facility for you to 'mix down' any sequence onto any other sequence,

with the proviso that you don't try to trigger any more than 16 notes simultaneously on playback (this applies to concurrent running of sequences, too). The PolyMIDI 1 isn't alone in this, as the same restriction applies to the Yamaha QX7, but it's a bit of a disappointment when you consider that a good few micro software packages of similar or lesser price aren't limited in this way.

One thing is readily apparent the moment you get the PolyMIDI 1 out of its box. Its front panel isn't exactly your usual hi-tech facia. Notably absent is the LED/LCD window display that we've all come to know and (sometimes) love, and overall, the machine's exterior looks as though it might have been designed about three years ago. That isn't necessarily a bad thing, though, as there are plenty of single-function controls on the PolyMIDI 1, making day-to-day operation of the thing an easy and relatively trouble-free affair. Each vital selector button has its own red LED, so you can see at a glance which functions are active.

However, where extra functions are implemented 'implicitly' on top of the dedicated buttons (as is the case here with MIDI channel allocation, among other things) or by the adoption of complex sequences of button-pushing, things become less clear. It's also a pity that MIDI channel allocation *from the front panel* is limited to channels 1-5 (because they're chosen from the sequence buttons), though thankfully, you *can* record sequences and play them back on any of the usual 16 channels.

The lack of a window display doesn't seriously hamper your using the PolyMIDI, but it does reduce the amount of feedback you get as you go along. You've no way of knowing which MIDI channel is allocated to a particular sequence, what the current step in a chain is, or what the current tempo is. In the latter instance, all you get is a scale of 1-10 set around the rotary controller, which can hardly be classed as detailed.

In an attempt to compensate for the lack of visual feedback, Micro Performance have opted to make full use of the sound generator used for the internal metronome, together with the LEDs associated with each button. What this means in practice is that using the PolyMIDI 1 can be a bit like playing a video game; beeps and flashes galore.

Recording in real time is a straightforward affair – at least from the operational point of view. Press the Real Time button, choose your quantisation value (if you need one) and the sequence number, and then press Record (or Load, as our review model had it). It's good to see the PolyMIDI 1 doesn't begin recording until you play a note, so there's no frantic rush to start playing the moment you select Record. However, the system does give you the option to start recording *before* you play a note, so you can have your cake and eat it.

You bring recording to a close by pressing either Stop, Repeat Play or Play (or the stop/play footswitch if you have one), but if you've opted to do without quantisation, you'll need to be pretty sharpish if you're not to destroy your masterpiece with a clumsy ending. Finish off by going into Play and you should be OK, though. Micro Performance have thoughtfully included an autocorrect function that acts only on the first and last notes played, leaving the rest of your endeavour to the plain truth of real-time ▷

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recording.

For those with confirmed autocorrect inclinations, the PolyMIDI I provides crotchet, quaver, semiquaver and demisemiquaver resolutions, together with triplet versions of the first three – a healthy range, all in all. Make sure you choose right first time, though, as you can't muck about with autocorrection values retrospectively.

Autocorrection is, of course, accomplished in relation to the current tempo value, so you'll need to make use of either the PolyMIDI's internal metronome or a connected drum machine. And believe me, the latter is by far the more sensible option, as the metronome is a piercing, high-pitched bleep that doesn't allow itself to be controlled by the user in any way, shape or form.

The PolyMIDI I happily records the usual array of velocity, aftertouch, patch change, pitchbend and modulation data, communicated to it over the good ol' MIDI bus. There's not much scope for MIDI filtering, however, as the only information you can choose to ignore at the sequencer end of things is velocity.

The five available sequences don't *have* to be used for recording separate pieces of music. Instead, they can be run concurrently to form one, extensive *magnum opus*, in which case it's more appropriate to consider them as tracks. Not surprisingly, you're limited to recording only one sequence at a time, but it is possible to record on one sequence and play back all the remaining sequences simultaneously, should you wish.

The Repeat Play function (which is what Micro Performance call looping) affects all the sequences currently stored within the PolyMIDI, though the good news is that when sequences are playing concurrently, each sequence loops according to its own length, rather than the length of the longest sequence. Thus you can record a bass riff or chord pattern on one sequence, and then a solo line over it on another while the first plays back in Loop mode. And if you're into pattern phasing *à la* Steve Reich, now's your chance to have multiple sequences looping merrily away according to their own duration.

The items of MIDI data listed above are all independent for each sequence, but remember that if you transmit more than one sequence over the same MIDI channel (so that they're all picked up by the same instrument), pitchbends and patch changes on one sequence will affect the notes of all the other sequences, too. Chaos just isn't the word.

Anyway, when you're happy with the parts you've recorded, you can mix down any sequence onto any other sequence (providing that they share either a complement or a dearth of velocity data), and continue this process to any number of generations. What you *can't* do is copy one sequence onto the end of another. By comparison, the QX7 allows you to do just that, while Roland's MSQ100 adopts what's in some ways a more flexible measure-based system. But then, neither of those offer you independently-definable chains.

The mixdown process operates by altering pointers in memory rather than literally merging MIDI data. Each part thus retains all its own features (MIDI channel allocation, pitchbend and so on), though if you continue editing a sequence that contains more than one part, your edits affect that sequence as a whole. Another consequence of mixing down sequences is that the shorter of any two pieces you combine automatically assumes the length of the longer one – so, for instance, your repeating riff suddenly won't be.

One shortcoming of the current PolyMIDI software is that it doesn't allow editing of individual notes in real time. Step-time mode allows you to step forward and backward through the notes *during* Record – with backward movement automatically erasing notes along the way. This sorry situation is currently being rectified by Micro Performance, and I'm assured that any software updates in this direction will not invalidate data recorded using the current software. We shall see.

Layout *'The exterior looks as though it could have been designed three years ago...but that isn't necessarily a bad thing.'*

But the current version of PolyMIDI is far from being a lost cause in the editing department. For a start, it's possible to truncate a sequence that has been recorded in step-time mode or with autocorrection on. You can also alter a sequence's MIDI channel, subject to the front-panel limitations I touched on at the start. And you can add or alter pitchbend, modulation and patch-change data on a sequence, simply by recording these settings on an empty track while playing back the one you want to change, and then mixing down the new sequence onto the original. All very neat and logical.

In common with the Roland and Yamaha offerings, but unlike so much Stateside produce, the PolyMIDI I has a step-time recording facility built in. Mind you, it's here that the lack of a display window really makes itself felt. That isn't surprising. Step-time input is all about throwing musical continuity out the window with the object of recording without performance limitations, so you're going to need all the visual help you can get if you aren't going to get lost by the lack of, er, music. This is where dedicated sequencers tend to be at a disadvantage by comparison with their computer-based brethren, and the PolyMIDI I is no exception.

One silly omission: you can't record velocity information in step time. I fail to see why this has to be the case. After all, if a £100 program for the humble Spectrum can manage it (complete with music score notation, no less), why can't a fully-fledged, considerably more expensive dedicated machine like the PolyMIDI I? You can record legato and staccato notes, but it's shame they all have to have the same dynamics.

Step-time recording is pretty much as straightforward as it is in real time. A quantisation value must be selected as the minimum duration; this is referenced to the crotchet tempo value. Once you've selected a sequence and the appropriate mode, you can enter notes either singly or as chords from the attached synth, pressing the '›' button once for each step required. No prizes for guessing that you enter rests by pressing the same button whilst no notes are playing.

Undoubtedly of value is the way step- and real-time sequences can be played together, and even mixed down together, so long as you remember the velocity/no velocity limitation.

But where the PolyMIDI I really scores over its competitors is in its adoption of chaining. You can chain any number of sequences together, just as long as you stay within the confines of the available memory. Each link is a collection of sequences read concurrently, so you can specify sequences up to the maximum of five. It's also possible to specify multiple occurrences of a sequence or sequences within a link, and to make link-specific transpositions of any sequence.

Meanwhile, huge fun awaits you in the form of Micro Performance's Memory Chord facility. This is definitely peripheral to the main functions of the sequencer, and isn't in itself a recordable feature, but it has its uses.

Essentially, it allows you to build up a chord of up to 16 notes *without* having to hold down all the notes simultaneously. When these notes are locked in the machine's memory, you can play any root note and the whole chord is not only generated automatically, but also transposed according to your choice of root note in relation to the original.

So like the step-time facility, the PolyMIDI's Memory Chord feature is really intended for the non-player, and does its job well. The Americans would hate it, though.

It's not uncommon for the sequencer to end up playing a central rôle in a MIDI system, so any newcomer to the sequencing game needs to be well-endowed with communication facilities. Well, the PolyMIDI has plenty of them, selected from the front panel by twiddling the Clock selector knob.

MIDI is the prerequisite, of course, and is catered for by one each of MIDI In and Out sockets. The vexed question of just how many of these a sequencer should provide raises its

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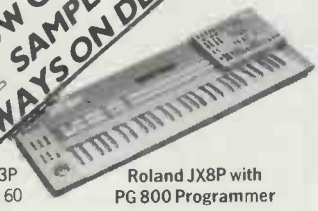

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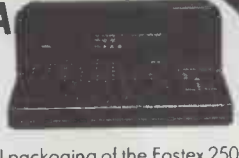

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ugly head once again. Ultimately, I'm inclined to think that the best solution is to go for one of the MIDI routing units that are starting to appear (the Sycologic MI4 or one of Quark's MIDILink offerings, for instance), in which case, single MIDI In and Out sockets are all that are required on your sequencer. These routing units offer the greatest flexibility in 'multi-configuring' a MIDI setup, though I guess anyone with a more modest system and no MIDI Thru would probably rather see an extra couple of MIDI Outs on their chosen sequencer. One man's meat, and all that.

Selecting MIDI on the clock selector dial locks the PolyMIDI 1 onto an incoming MIDI signal, so that drum machine triggers sequencer. However, I failed to get a MIDI drum machine to trigger from the sequencer (and I tried every option). Maybe I missed something...

Interfacing *'Any new sequencer needs to be well-endowed with communication facilities, and the PolyMIDI has plenty of them.'*

Cassette Out and In allow you to save and retrieve all of the PolyMIDI's storage memory in one go, and a Verify function has been included as a safeguard measure. It's also possible to use the PolyMIDI 1 as an intelligent buffer between synth and cassette recorder for saving and retrieving System Exclusive data – a helpful bonus feature.

More usefully still, the PolyMIDI's cassette ports also do the honours on the tape-sync on the I/O front. However, the manual does point out (with rare honesty) that the sync-to-tape facility is sensitive to the return level, and only functions at specific levels depending on the tempo. Not a healthy situation, and unfortunately, lack of time (our review model was rudely whisked off to the NAMM show) prevented any testing of this facility.

Also present are Clock In/Out, Sync In/Out and Trigger In/Out – a highly commendable set of options. Default internal clock rate is 96ppqn, but this can be altered to 24 or 48ppqn – if you're going to use the Roland sync, you'll obviously need to select 24.

Trigger In/Out requires you to select an autocorrect value to dictate the system's response to an incoming pulse, or to let it know when to generate a pulse on Trigger Out. Consequently, there are a number of synchronising options available for triggering. Given the appropriate signal from specific options, it's even possible for the Trigger Out to be transformed into a Clock Out, with the clock setting fixed at the sequencer's default value of 96ppqn. Thus, if you really need them, you can have two different clock rates functioning at once.

And so to the conclusion. The PolyMIDI 1 is a well-conceived, versatile sequencer that stands up well to opposition from the established sources. I found it for the most part very easy to use, though thanks to the lack of feedback from the system and the current paucity of editing facilities, the step-time side of things isn't currently as useful as it might be.

The number of sequences and chains available makes it an attractive proposition, not so much because they're plentiful (in relation to your typical drum machine sequencer, they aren't) but simply because they offer more than anything else does. There's also more in the way of non-MIDI interfacing facilities on the PolyMIDI than on any competing machine, and that's something that could tip the balance in its favour for a lot of people, I reckon.

So first impressions aren't always worth paying attention to. From the outside, the PolyMIDI 1 is an awkward, mis-shapen lump of a thing that looks as though it'd be better off in a Schreiber fitted kitchen brochure. But underneath, there's a bloody good sequencer waiting to get out. ■

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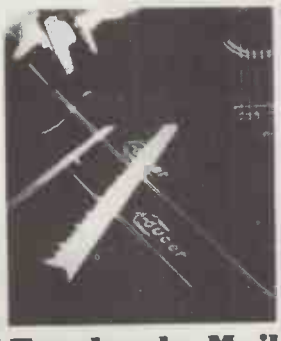

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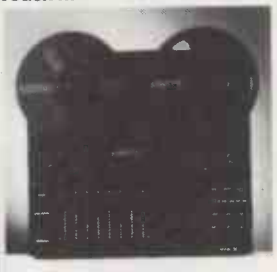

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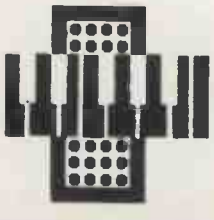

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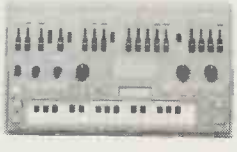

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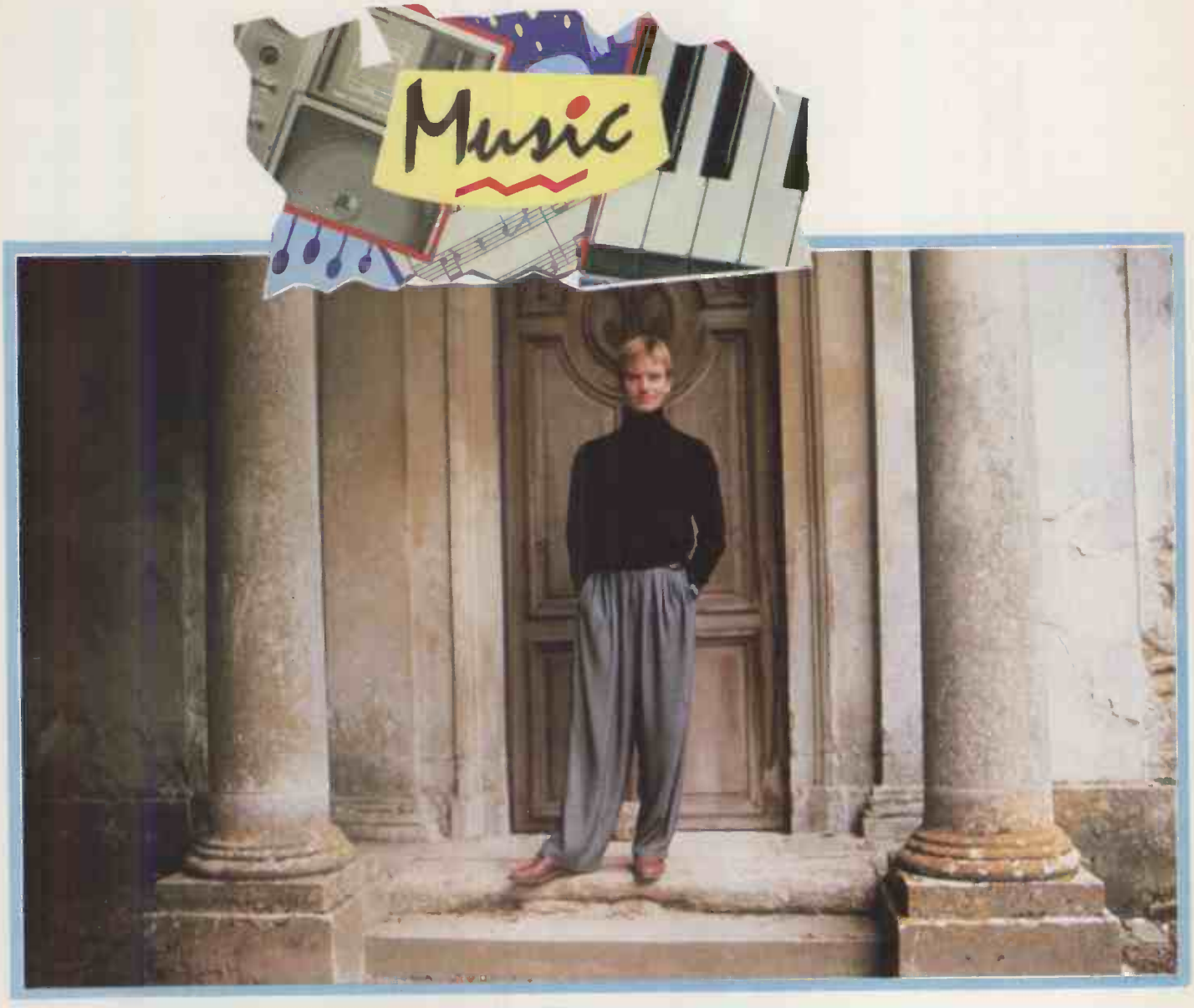


STING *in a tale*

Despite owning a Synclavier and having access to as much high technology as money can buy, the Police frontman has shyed away from electronics in an attempt to create music that has a natural, organic fusion. He's been successful. *Paul Tingen*

The interview time is set. It's to be the Royal Manceau, one of the best-known luxury hotels in Paris. In a large, traditionally-decorated marble hall, journalists and photographers are sitting quietly, chatting amongst themselves, waiting their turn. Then it's up, up and away, *via* gold-painted pergola to a glorious, sun-kissed terrace on which Gordon Matthew Sumner is lurking between flower boxes. His handknitted sweater and wide, shapeless trousers look out of place in this scene of architectural extravagance and botanical over-statement. He sits with his hands clasped behind his head. He's relaxed, polite, occasionally a little distant, and incredibly ordinary-looking.

To look at him now, you'd never know his face (or haircut, or chest) had appeared on the bedroom walls of a million teenage girls the world over, that he'd fronted The Police, one of recent pop music's most successful acts, or that he'd starred in at least half a dozen general-release films. You certainly wouldn't think it possible he'd be releasing a new album with a title like *The Dream of the Blue Turtles*. But he is. Why?

'It's about a dream of mine which came out of some Jungian analysis I had with a lady who's a Jungian disciple. She encouraged me to use my dreams creatively. This one was about four blue turtles entering my back garden, which is very neat, very ordered, and very English. These turtles were very athletic and macho and drunk on their own virility – really amazing creatures. They started to do backflips and churned up my garden, thereby destroying its structure and discipline. And I wasn't annoyed with what they were doing, I was actually laughing at this destruction.

'If I had to interpret the dream, I'd say the four blue turtles are the four jazz players in my band. And they're destroying my formula, the easy-set back garden my life had become, creating something new by churning up the ground. So the dream is a very positive one. Although the title sounds frivolous, there is a logic in it.'

You probably know by now that Sting has a new band, a jazzy (though the man himself shys away from categorisation) combo of ▷

▷ some pedigree that includes the likes of Weather Report's Omar Hakim on drums, Darryl Jones from the Miles Davis Group on bass, Branford Marsalis on horns, and Kenny Kirkland on keyboards. Dolette McDonald (ex-Talking Heads) and Janice Pendarvis add vocal support to the north-east superstar.

The band have backed him throughout the recording of the *Turtles* LP, and at the Paris concerts that have been the scene of the Sting-without-the-other-two live debut.

But the group's existence neither replaces Sting's involvement with The Police outright, nor dwells comfortably alongside it. The record company claims a new Police album will be released next year, but Sting's extra-curricular plans (a world tour that won't bring him back to Europe until Christmas) would seem to be incompatible with all that. So what with Copeland and Summers going off on their own as well, rumours of a complete, irrevocable Police split have been rife. Sting himself is reserved and non-committal.

'To make a Police album at the moment would be boring. There were two conflicting voices in me over this. One was my accountant's saying: "You have to make a new Police album, people will love it, it'll sell millions, it's what people want." But the other told me to take a risk, to do something new, something different and challenging that wasn't assured of success.

> 'Opposing drum machines and sequencers is healthy, but repeating music that was made 20 years ago isn't particularly interesting.'

'I realised I desperately wanted to see how different musicians would interpret my material. I'd worked for seven years with The Police, so it seemed the right time to begin the experiment.

'But that's not to say we're finished as a group. There are no Police plans at the moment – all my options are open. When I talk about the band's present position, I like to speak of a hiatus. I'm not nostalgic about it. It's a very sentimental and old-fashioned idea that when you form a band you have to stay together forever. A band is only useful as long as it's coherent and interesting – it's not a way of life.

'Personal conflicts aren't the main reason for this present break away from The Police. We've always been well-publicised as being in constant conflict, which was true – but it came about more through our passion for music than anything else. We cared about every note that was played.

'There *were* three very strong egos involved in the group, but without that tension, without that dialectic, there'd be no group, no music. We reached the top, we couldn't get any bigger as a group. So why carry on unless you've got something new to say? That's how we all felt. It was a joint decision. And like me, the others are exploring different avenues at the moment.'

Now waiters are serving us a choice of wine and mineral water. Everything around Sting is still remarkably tranquil and not a little beautiful. I hazard that the placid, timeless ambience isn't unlike that of Sting's own back garden – pre-turtle invasion, of course. How, precisely, did they get into the garden in the first place?

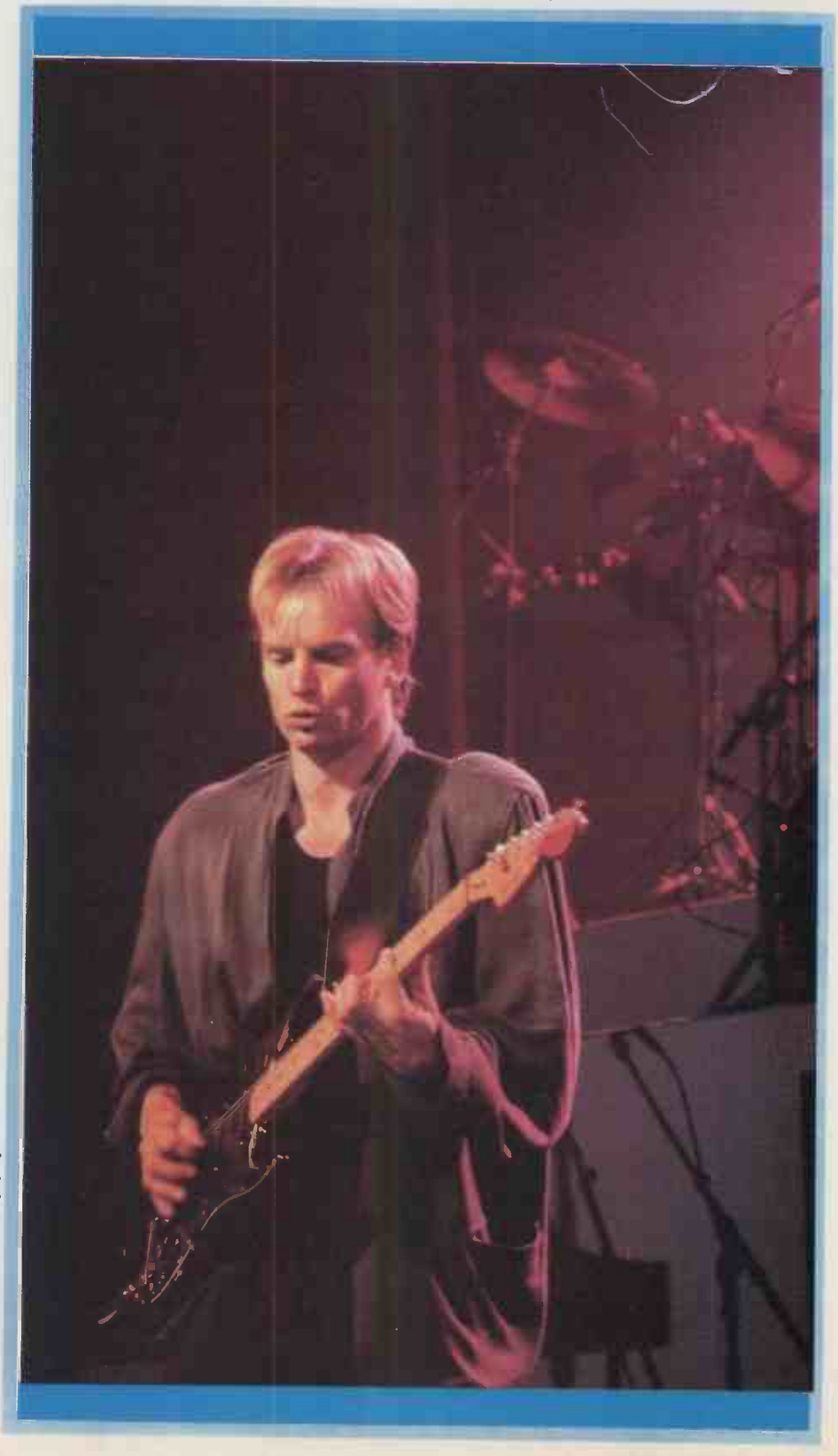
'I was looking for new options. At first I thought of doing a synthesiser record, something with just me and a few machines. Then I thought: no, I'll make a record with a big producer, someone like Quincy Jones. Then I wanted to work with a well-known jazz producer like Gil Evans, for example. In the end, I decided I wanted to form a band and create music in a live, organic way.

'So in January I went to New York and organised a workshop to which I invited the whole jazz community. I was thrilled by the number of big names that came to play; I suppose it was really a credit to the reputation The Police enjoyed in the jazz world. Most pop groups are looked down upon by jazz musicians, but they knew me and appreciated the music I'd helped to produce, which was an enormous compliment.

'I spent two weeks working with these people, and by then I'd decided on the present band members, because they were the best players, and they had a rapport both with each other and with me.'

But to what end? Well, aside from a newly-discovered (or at least, newly-highlighted) lyrical boldness, the music Sting's band plays has one outstanding characteristic: the fusion of black jazz and white pop that's inherent within its chosen line-up. According to Sting, it's all quite deliberate.

'The musicians in the band are from a black American culture, and my songs are white European. So for the two of them to



Sting on Stage *photography by Rico D'Rozario*

meet is to create something new.

'The working processes in this band have been similar to the ones we went through with The Police. I write my songs on guitar, Synclavier or piano, and arrange them on paper at home. Then I go to a studio and make a demo version on which I play all the instruments myself. I hate studios, though. I hate that prison environment so many of them have, and I don't believe in taking my work home, which is why I don't have a home studio. But the demo is the basis from which the band works. That's not to say I'm dogmatic about the arrangements. If the musicians can interpret or change and adapt my arrangements to make them better, that's fine. I merely set the parameters for exploration, though in fact, most of my arrangements for this band have stayed more or less intact.

> 'I'm the sort of musician who plays nothing well, but everything OK, which is good for songwriting.'

'The result turned out to be better than I'd hoped or expected. The musicians responded very well – they've moved my music into a different area. Now it's neither jazz nor rock; it's something new.

'I think it's important to draw from the past and move on, which is why I don't feel any affinity with what they call the New Jazz movement. I quite like bands like Sade, but I don't think anything new is being said; it's more of a fashion. Opposing drum machines and sequencers is perfectly healthy, but going back and repeating music that was made 20 years ago isn't particularly interesting.

'There's no energy, no vision in pop music in general at the moment. People are looking for something new that's been lost. But it's still a useful time. It's a time for experimentation and exploration.'

His performing contribution to The Police was neither as forward as Andy Summers' guitar-playing nor as obviously dexterous as

Stewart Copeland's drumming, yet as the years have gone by, Sting's become well respected as a bass guitarist of considerable invention. In spite of that, the new band sees him discard his four-string in favour of a looser rôle involving singing and the odd bit of rhythm guitar-playing.

'I regard myself as illustrious in my own field, which is writing and singing, and I want to concentrate on that. Having a bass-player playing my parts allows me more freedom on stage as well as in the studio, so in many ways, recording *Blue Turtles* was easier than making a Police record, because the rôle that each musician took on was well defined. In The Police it's vague: everybody writes, plays, and wants a say in everything, there's a kind of democracy. In this band, the bass-player plays the bass, the drummer the drums, and I write the songs and sing. So there are no clashes of ego or problems about rôle.

'My contribution to the band as a guitarist isn't particularly important. I fill in the odd gap, mainly playing rhythm. The band is good enough to stand up on its own without a guitarist – I just enjoy strumming along. And there's an interesting trade-off between Darryl Jones and myself. I learn a lot from him, especially funk stuff. But he's also learned things from me: he'd never played reggae before now, for example.'

The topic of rôle-definition is clearly one close to Sting's heart. He pursues that area of our discussion, and in doing so, touches on what he considers to be his prime musical aim: to combine well-crafted, meaningful songs with excellent playing.

'Being a songwriter and a musician are two totally different things. Some of the greatest musicians can't write a melody – some of the greatest songwriters can hardly play a note. I think the two disciplines are linked to different parts of the brain, the left side as opposed to the right.

'I'm the sort of musician who plays nothing well, but everything OK, which is good for songwriting. What I'm trying to do with this band – and what we achieved to a certain extent with The Police – is to combine songs that say something with really great playing. That was one of the reasons I dropped the idea of a synthesiser record: I wanted a human sound, I wanted us to sound like musicians.

'In the seventies there was this thing called fusion rock. Some people thought I was doing something in that direction with this band, combining rock and jazz influences, but that's nonsense. I think fusion music lacks issues. It's an exercise in getting as many demi-semiquavers into a bar as possible – which is meaningless, really. Fusion songs are never up to the mechanics of the band's playing.

'I feel very confident that my songs are of such a calibre as to make the playing and the writing almost equal, that the two elements can create something new together. And I *do* have some of the best musicians around playing my pop songs.'

Fair enough. A little bit of arrogance never did anybody any harm. And with the critics swarming around his new album with almost universal applause, there's every reason for Sting to feel confident that his abilities are being just as well served in the new context as they were in the old – perhaps more so.

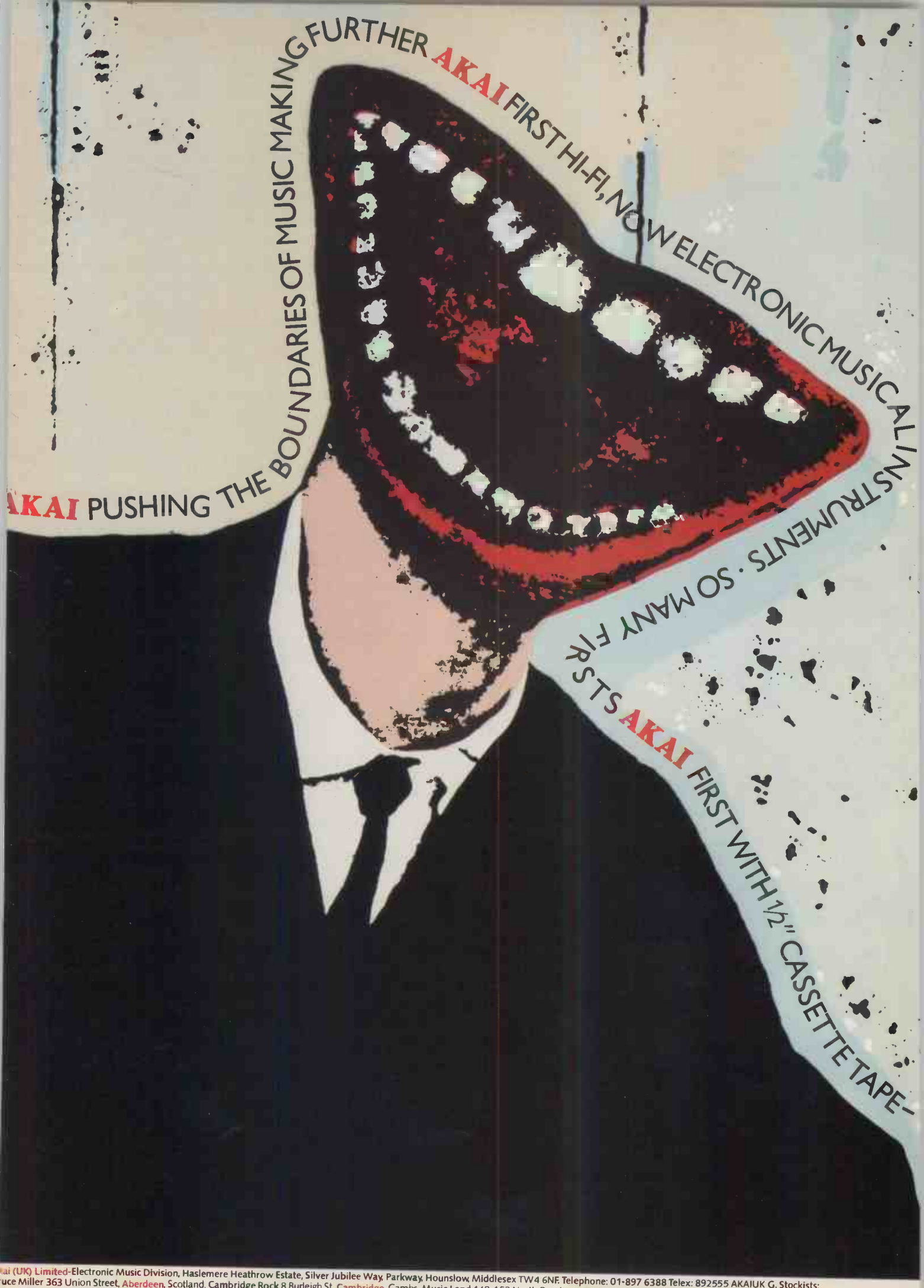
Suddenly, the utopian calm and luxury of the hotel terrace are disturbed by the sound of a drill from the street below. Sting frowns, then concludes with some vehemence, though no malice, that it 'sounds just like a synthesiser'. Few Synclavier owners would be as honest – or as shrewd. ■

AFRICAN *rhythms*

Stewart Copeland, the man behind the drums behind the Police, gets to his feet and finds a Fairlight, a video camera and Africa. The results are fascinating. *Tim Goodyer*

As one of the few bands involved in the post-punk revolution to survive with their self-respect – not to mention the respect of their public – intact, it's an open secret The Police have been finding it progressively more difficult to live up to what's expected of them. They were doing a good job, make no mistake, with most recent recorded output equalling – if not exceeding – the standard of previous achievements with stupendous ease. But after seven years together, the mutually-agreed split that's seen the band remain quiet for the best part of 20 months has been a welcome relief for all three Policemen – singer Sting, guitarist Andy Summers, and drummer Stewart Copeland.

It's given them a chance to live, play and record outside the restrictions imposed by a rigid band format. More crucially, it's afforded them the opportunity to work alongside other musicians, to absorb new influences, and to come up with music that's ▷



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Copeland on Screen *photography by Tim Goodyer*

▷ entirely different in approach and colour to anything The Police have ever achieved.

Copeland does not appear to have considered his function within the band particularly confining (most of us are well aware of the *true* identity of Klark Kent, even if the BBC aren't), but his excursion into the world of the filmscore was a big, bold step to take. He was frequently to be witnessed at the safe end of a Super 8 ciné camera in the numerous Police documentaries, and provided an excellent soundtrack for Francis Ford Coppola's *Rumblefish* in 1983.

That in itself is no big deal: plenty of other pop players have embraced the world of film music, and done so successfully. But what Copeland is attempting now, with the release of an album entitled *The Rhythmatist* that's taken from a video of the same name, is to create in the musical and visual media simultaneously. The video is around an hour in length, houses a single, somewhat arcane storyline, and falls into a previously uncharted area somewhere between the pop promo and the feature film.

It's an ambitious project, and a hazardous one – particularly when the location of the film (and the inspiration for its music) is black Africa. In Copeland's case, the interviewer's customary opening 'Why?' is a question that has wide, unpredictable implications. I asked it anyway.

'There were several different but converging factors. One was this idea of the video cassette as a medium for which there isn't really an art form at present. The video is either used in three-minute clips in its pop video form, or else they put a feature film on it.

'The other thing is my interest in Africa as far as rhythm is concerned. It's a continent with a natural sense of rhythm – it's a social characteristic of the place. There's a lot of variety in the culture of Africa, but one thing all the cultures have in common is the prominence of music in their society, and the prominence of rhythm in their music. Black musicians tend to regard it as a weird sort of racism to refer to their "natural sense of riddum". It's almost like a put-down, and I can appreciate that.'

If Copeland saw the use of rhythms indigenous to Africa as the illicit theft of ethnic culture for improper Western gain, he wouldn't have ventured out into the Dark Continent in the first place. But there are those who'd accuse him of doing just that. What's his reply to the sceptics?

'Using the music of Africa is no more or less plagiaristic than being influenced by something closer to home. The Beatles used Chuck Berry, Bach used local melodies. Music reflects the world that you live in, and that's a kind of plagiarism in itself.

'But I have had some people be a lot more forceful about it, saying things like: "How do you feel about stealing African music?" But wait a minute. I didn't steal it; it's still *there* for Christ's sake. When I left the village, they didn't look round and say: "Where's our music gone? It must have been that white guy who took it from us!".

'Not only that, but when I was there,

nothing could have pleased the natives more than having their music recorded. The way of getting into them and turning them on was to say: "Look, we're going to record your music and take it to a far off land where people will be able to listen to it and appreciate it". And that's a big charge for them. This idea that

> 'I went back and forth between cutting the film and writing the music, composing and creating – that's why it took nine months to do!'

I'm stealing their music couldn't be further from the Africans' perspective: it's something invented by people in London bistros wearing pointed shoes and yellow socks.

'I don't want to make a big deal out of it, but I've apportioned the amount of music that is African in origin on the LP and video, and the royalties go to a fund that will either go to Band Aid or more specific relief organisations for the areas that I was in.'

It's one of contemporary music's strangest paradoxes that those who've sought to incorporate low-tech, ethnic elements into pop culture have turned to high-technology to help realise their aspirations. The gurus of cross-cultural experimentation (Gabriel, Byrne, Jarre *et al*) have all been seen, microphone in hand, in search of sounds that have remained unchanged for generations. Then they record them, take them home, and send them into an obliging Fairlight.

As for Stewart Copeland, he's never been in danger of being accused of shying away from technological innovation ('Shit, it's like Cape Kennedy behind the drums at a Police gig'), so it comes as little surprise to see him seated alongside a CMI within the first few frames of *Rhythmatist*, the video...

'The Fairlight's a great machine with lousy hardware', he curses, trying to coax his model into accepting input from the alphanumeric keyboard. 'My favourite sounds on there at the moment are some of the string sounds. There are some really good ones that nobody's using.'

The primitive, occasionally eerie-sounding effects that populate the *Rhythmatist* album were captured on location with the assistance of a Sony PCM F1 digital recorder the Policeman carried around with him on his African beat. That was in addition to the equipment used by the sound crew recording the soundtrack for the video. 'I recorded samples of different sounds and whole songs on the F1, and transferred them to the Fairlight when I got back to the studio', the artist recalls.

The studio in question is Copeland's own. It's situated where any self-respecting, self-made rock star builds his private studio – in the back garden. And it's equipped with an enviable assortment of keyboards and outboard gear that includes the inevitable DX7, a conspicuous video monitor, and several video machines to keep the Fairlight company.

'I think the most valuable samples I made were the vocal samples. I mean, a drum sound is just another drum sound. I've got a million different drums and I can make all those sounds here in the studio, but the vocal sounds were the ones I found most special – and most useful.'

> 'Native African music has a cumulative effect. They don't have 15-minute dance versions of songs, they have six-hour dance versions.'

Sure enough, the samples currently inhabiting the floppies at the Copeland studio aren't the sort of thing that's easy to even envisage, let alone construct, on your average Poly 800. But once you've collected countless unlikely-sounding samples and 12 hours of film, how do you go about turning them into a video and accompanying soundtrack?

'Well, the film was cut in London and Los Angeles. The first rough cut of the video was done in LA, where it was cut down from 12 hours to three hours. After that we moved to London; I've got a place there and we set up a cutting room in the basement.

'When I'm scoring a Hollywood film, I stick it on and just score to the picture, but with *The Rhythmatist*, the concept was to approach the two elements – picture and ▷

▷ music – simultaneously. That made it a lot more involved, and it also meant more work. It's easy enough to score to a picture that's already there, but to get more ambitious and say "What we could do here is this...", and then to have to go back into the cutting room and re-cut the picture and so on means a *lot* more work. I went back and forth between cutting the film and writing the music, composing and creating – that's why it took nine months to do!'

Recording technicalities. A project as complex and as potentially open-ended as Copeland's needs a lot of technology at each stage of its production, and the recording side of things is no exception.

'I'm a tech-head really. Both my colleagues in The Police bought recording studios around about the same time as I did – and both had sold them six months later. Andy because he couldn't get the hang of it and because it took up space and eventually cheesed him off; and Sting because he realised that if he wants to go and doodle in the studio he can afford to call up Utopia and book himself in there for six weeks and it's no big deal. Those of us without his songwriting publishing to pad the old bank account have to rough it!'

At the heart of Copeland's studio system are Q-Lock and SRC synchronising devices. These are run in conjunction with a Sony/HHB CLUE (Computer Logging Unit and Editor), a sophisticated autolocator that uses a QWERTY keyboard for input of information and floppy disk storage of cues. The results are mastered onto an Otari 24-track machine and a Fostex B16.

'The arrangement enables me to sit at the mixing desk and look up at the film on-screen', explains Copeland. 'For every inch of film there are two inches of the two-inch multitrack master, so I just lay the track down onto the picture. I set up a program on the Fairlight and I can speed it up, shorten it, edit it or whatever until the sound and picture match. Sometimes the music will want to do something that the picture's not doing, so then I go back into the cutting room and cut the picture until it *does* do what the music requires of it. It's a two-way process.'

And the result of all this well-planned medium-switching? A video with a rather tongue-in-cheek plot that has the Rhythmatist (Copeland) racing around Africa – with fairly spectacular visual results – in pursuit of a fictitious rhythmic 'truth'. Watching the thing, it's not difficult to see where a large proportion of The Police's joint sense of humour originated.

> 'The single didn't shoot up the charts because it's in a funny language, and because it has a very off-beat musical form.'

The music, however, is a good bit less frivolous than the pictures, and it makes rewarding listening in their absence – something not many soundtrack LPs succeed in doing. And abundant though the African sampled-sounds may be, they're juxtaposed with a healthy dosage of Copeland's own instrumental handiwork.

'Native African music has a cumulative effect. They don't have 15-minute dance versions of songs, they have *six-hour* dance versions. Their songs last for literally hours, and they build up a momentum that you have to experience. The smells, the sounds and the atmosphere of the village contribute very much to the power of the music. When I was making the recordings, I thought: "This is incredible, it's fantastic. I can't wait until I get it back home".

'But when I played it back over the speakers here – without the smells and the sounds, the *ambience* of the village – and listened to two hours with the knowledge that I had to make two minutes out of it, it just didn't have the power. A record is not the best medium for that kind of music, and that's why I swamped it with my own stuff.

'Another aspect was that my objective was not to provide a record of African music as such. Because I'm interested in those elements, I wanted to screw around with them myself. Mostly I've played with them and used them in the same way that I use electronic gadgets – I've used them for layering and things of that sort.'

On a more personal level, does Copeland feel he's gained anything from his experience in Africa that's since re-emerged in his music?

'I can't honestly say that I learned from my experience in that way. It would be much more romantic and poetic to be able to say that I did, but it's not as if I learned new forms of the paradiddle or anything like that. But the ambience does sink in, and it comes out in very nebulous ways. The atmosphere comes out as atmosphere, not as specific licks or sounds that you can put your finger on.'

But has the project been a success, and if so, in what terms? How do you judge an art form if, as Copeland claims, it has no precedent?

'I'm very pleased with the results, except that it took so long to finish that it doesn't have the same freshness as an LP that takes two months, and ends up being so fantastic that I play nothing else but that LP for six months afterwards.

'It's been successful as far as I'm concerned, in that I achieved what I wanted to achieve artistically. And in the marketplace it's successful, because it's sold at least one copy! It's not doing badly – better than I expected, in fact. I had no hopes for it zooming up to the top of the charts. The album and single that have been released are just by-products of the video. The single didn't shoot up the charts because it's in a funny language, for a start, and because it has a very off-beat musical form. I had no expectations that Radio 1 would play it, but they did and it sold a few copies, so in a modest way I'm pleased with the commercial results, too.'

And in African quarters...

'Ray Lema (vocal participant in the soundtrack album's production) played it to all his Zairese friends and they all went apeshit over it. They think it's fantastic, and he says it's a big hit with all his chums there. He really loved it himself too!'

And what of the future? Copeland is non-committal about what The Police will or will not do in the coming months, or even years. Sensibly, he refrains from taking decisions that depend on the co-operation of others, but he's well aware of the direction his solo career is taking. Unusually in the field of megastardom, Copeland's right hand knows what his left is doing. Will they leave Africa alone now?

'I think *The Rhythmatist* is a one-off. I've done it and I don't feel that there are any more stones to turn. I'm quite an ethnic music buff – I like Indonesian music and some South African music as well, and there are a lot of other ethnic regions that I want to explore.'

So unless Copeland sees fit to resurrect him to help unravel further mysteries from other parts of the world, the Rhythmatist's race is run. Thankfully, the same can't be said of his creator. ■

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Music

OUTTAKES

Records from Talking Heads, Germany's IC label and Yukihiro Takahashi vie for critical attention with some of the latest readers' demos to find their way into E&MM's offices. *Tim Goodyer*

VINYL TAKES

We begin with the latest from David Byrne's enigmatic **Talking Heads**. The album is titled *Little Creatures*, and comes complete with addictive current single release 'The Lady Don't Mind' which, pleasingly, is more effective without the padding carried by its 12" version. The album finds the band on fine form, though they don't really get into their stride until you flip the record over. When you do, 'Walk It Down' is a deceptively simple song that lodges itself securely in the memory and threatens the unhindered playing of the rest of the side. But resisting the temptation to play it again is rewarded by more of the same, culminating in 'Road to Nowhere'. Unaccompanied vocal harmonies, in the finest gospel style, give way to accordion work that sounds like a Terry Dactyl out-take. Arrangements throughout are predictably immaculate, ably assisted by a commendably tasteful, though by previous Heads standards, unremarkable choice of sounds.

Talking Heads *'...A commendably tasteful, though by previous Heads standards, unremarkable choice of sounds.'*

Three albums from the German Innovative Communication label have recently reached our shores, and while last year's batch of IC releases offered little that deviated from the well-trodden TD/Schulze path, 1985 sees the company returning to the innovation that gave them their name. First disc is **Yoshio Suzuki**'s *Morning Picture*. The sleeve notes furnish us with a brief history of this Japanese bass player, who's turned his hand to everything from synthesiser playing to Linn-Drum programming for this, his fourth album, and manages to drop the names of Stan Getz, Art Blakey and Sonny Rollins along the way. They're a little on the pastoral side, but most of the tracks are a happy marriage of downtempo jazz piano, tasteful synth arrangements, and a small helping of unmistakably Japanese phrasing for variety. Atmosphere music is what results, no question about it, but it's atmosphere with character, style and unpredictability. Worth searching out.

The second of the IC albums comes from **Seigén Ono**, and is titled simply *Seigén*. The artist is one of Japan's most sought-after producers in Japan, and he's also worked with the likes of David Sylvian. The album itself is a classically-based alternative to *Morning Picture*, though unlike the Suzuki effort, Ono's is far from being a solo affair, as the recording is littered with the work of various Japanese session musicians. The end result is disappointingly directionless, though, and if it weren't for the surprise elements provided by the creators' oriental origin, I suspect it would all fall rather flat. As it is, *Seigén* is pleasant enough without ever being as strikingly different as *Morning Picture*.

And so to the last of the IC albums, a release that sees a return to German synth artistry. The painfully-christened **Software** are the band responsible for *Chip-Meditation*, a record so swamped with sleeve notes that it takes a double gatefold sleeve to accommodate them. That in itself wouldn't be quite so bad if said notes didn't try to justify computer music (and the computer-derived graphics on the sleeve) in such a pretentious, generalising, and potentially harmful way. Still, the band are a two-piece comprising Peter Mergener and sociologist Michael Weisser, who've been directing their attentions toward synthesisers and computer music since 1983. It's back to atmosphere for the music, with any rhythmic content coming from sequencers or repeat echoes of synth sounds; there's not a drum machine to be found on *Chip-Meditation*. It's an album of subtlety, though. The stereo image is treated with respect (which makes a very welcome change), as are synth sounds in general: nothing is done to excess. Pleasant enough, then, though not really all that inspiring. If you want to get some recent IC output into your system, best stick to the Nips.

And so to **Sting**'s *The Dream of the Blue Turtles*, currently the most well-worn piece of vinyl in the E&MM office. Why? Well, it's ▷

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certainly not for reasons of technological invention. There *is* a fair bit of Synclavier on the album, but it's gentle enough for you not to notice – and that's probably a good thing. But the bulk of the album's appeal lies in its combination of superb musicianship (courtesy of some of America's greatest black jazz players) with a renewed sense of purpose in Sting's songwriting. The prowess of said musicians is such that on all but one track, 'Moon Over Bourbon Street', Sting relinquishes command of his bass guitar and adopts the six-string instead. Darryl Jones has taken the bass spot, Omar Hakim the drums, and Kenny Kirkland the keyboards – though Sting contributes some of the Synclavier – and Branford Marsalis the sax. It seems rock is a dirty word in the Marsalis family, and Branford is consequently taking some stick for his trouble. Which is a shame, because contribution is splendidly sweet throughout, providing some of *Blue Turtles*' most memorable moments. On only one piece, the title-track, do the jazzers really let their hair down, so it isn't by any means a jazz album. But neither is it a pop one: the single, 'If You Love Somebody Set Them Free' is the only track burdened with commercial overtones. As for the rest, it's a collection of brilliant, moving songs, each with enough musical interest, performing dexterity and lyrical bravery to leave *a lot* of The Police's best work in the shade. And that's saying something.

Onto this month's singles, and **Yukihiro Takahashi** who, with the assistance of Bill Nelson, Mick Karn, Iva Davies and fellow ex-YMO member Ryuichi Sakamoto, offers us 'Stranger Things Have Happened' on the Cocteau label. All the hoped-for delightful little percussion sounds are there for the enjoying, but the music itself is a little bit too conscious of the pop market for my peace of mind. If anything, it sounds a bit like Bryan Ferry singing 'When Doves Cry'; a pleasing enough combination, but hardly startling. In reassuring contrast, the two pieces on the flip side are more natural-sounding and, as a result, much more satisfying. Nelson provides not only guitar and keyboards but also takes some of the vocal credit. He also wrote one of the songs and co-wrote another. Is there no stopping this man?

Making its entrance amid an almost tribal pattern of Simmons toms and vocal interjection comes **Animal Nightlife**'s 'Love is the Great Pretender 85', which has entered the lower reaches of the charts as I write this. Juxtaposing some extremely rich and tasteful work from the brass section against delicate synthesiser lines, and laying all this over a solid jazz rhythm section, works better than you'd imagine. In fact, it's probably the band's best single to date. The original version of 'Mr Solitaire' is the first of the two tracks to be found on the other side and, while it's undeniably more lightweight than 'Pretender', it still boasts a terrific synth bass sound. An instrumental, 'Basic Ingredients', concludes proceedings with some more conventional jazz, but the one thing the time signature isn't is conventional. This is the sort of thing Sade have been avoiding in the interests of chart-compatibility, but with luck, Animal Nightlife will prove the two aren't mutually exclusive.

Finally, a record that fails to break any new ground, but which I fell in love with on first hearing. It's 'Love Situation' by **Mark Fisher**. He's managed to collect all the most predictable elements of a dance song – sequenced bass line, chaotic drum patterns, sparkling digital sounds, repeated vocal sampling – and make an enjoyable record out of them. The vocal comes courtesy of Dotty Green (Gartside?) and comes straight from the Madonna school of operatics, but for those with a weak heart, there's very little of it in the dub version on the B-side. Play it again.

DEMO TAKES

From those who already have the wherewithal to dedicate their music to vinyl, to those that would very much like to. First come **Tour De Force**, a Nottingham band with clear *Top of the Pops* aspirations. A good deal of hi-tech equipment has been employed to this end – CX5M, TR707, Simmons kit, the works – and some correspondingly impressive sounds result. Although the recording is their first

'serious' demo and a home recording to boot, the results are quite presentable, and there's some nice, tight sequencer and bass conversation in there, as well as a smattering of creativity. The songs are just a mite too busy on first hearing for their own good, but the biggest problem facing the Notts lads is likely to be timing. Not of the musical variety, but simply from a marketing standpoint. To say that present competition in this area is tough would be to understate the case dramatically.

The declared aims of **Azimuth Daybreak** are rather different. Here we're talking adverts and filmscores, not Top 20 singles, yet the band insist on talking about live work. I guess live music might be a novel idea, but live adverts? Ah, well. Recorded on a Fostex X15, with a JP6, JX3P and the Micon/Spectrum sequencer recently reviewed in E&MM, the quality of the tape is quite acceptable and, remarkably, the TR606 actually ends up sounding quite listenable. There's no denying the music is pitched right for its intended market, and it sounds pretty good to me. AD have been predictably heavy-handed on the sound effects – though unusually, these are well-implemented – but the pieces are nicely atmospheric, and stylistically not a million miles from the work of a certain Frenchman featured on the cover of E&MM earlier this year. Good sounds, and some good ideas as to how they should be put to use; but I still can't get over that TR606!

Returning to the Portastudio camp, we find a tape entitled *Five From Ron Roo.* **Ron Roostan**, the man behind said tape, has a rather chequered artistic history, having served his musical apprenticeship in a band called The Septic Snotrags, and then graduated to a middle-of-the-road combo by the name of White Lines Limited. Sounds ghastly. But no matter how unsavoury his past may have been, Ron has succeeded in amassing a fair amount of equipment that includes the much-fabled ARP Quadra, a Yamaha CS5, a Soundmaster 88 drum machine, and an acoustic guitar just for good measure. He describes himself as 'a natural pessimist' and says he draws on influences as diverse as New Order and Enid Blyton as vehicles for his commendably ambitious arrangements. The results are a little too hesitant (particularly in the vocal department) to inspire complete confidence in the listener, but the instrumental 'Corridors in Space' comes out well on top, utilising as it does some inventive sounds and an excellent melody. Nice.

Ron Roostan
'...Draws on influences as diverse as New Order and Enid Blyton as vehicles for his ambitious arrangements.'

At the tender age of 14, **Peter Coates** could be considered a little young to be subjected to the ordeal of an E&MM cassette review. However, armed only with a piano, SH101 and a Casio MT41, he's produced a tape of original music – and I'm not saying that with my tongue in my cheek. Let's get one thing straight first of all, though: Peter's music is a lot better than his maths, the ineptitude of which has resulted in complete confusion as to which side of his demo tape is which. This resolved, the music varies greatly in both style and quality, encompassing what are obviously Peter's strong points (composition and piano-playing), while at the same time venturing into electronics – with a little less confidence and a good deal less success. There's no overdubbing on the tape, everything being recorded live to cassette, which only goes to make the technical dexterity of the playing more impressive. The greatest problem is one of over-complexity – something that's far from confined to Peter, of course. The fact is, transferring classical piano techniques to synthesisers is not a task to be taken lightly, so a slight lowering of musical standards would probably yield better results, at least until the artist gains greater familiarity with the electronics and how they should be used. Even so, there are plenty of good ideas on this one: interesting accents within simple rhythms that really do work well. The sparkle of youth, perhaps. ■

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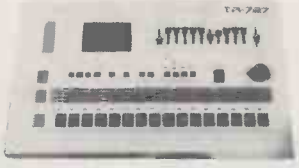
NEW

TR727 DIGITAL MIDI PERCUSSION COMPOSER



Rolands new TR727 continues their fantastic success in low price, a high quality rhythm unit featuring real and step time, 69 patterns, MIDI, graphic display, independent outputs, memory expansion cartridge. New TR727 percussion sounds include Bongos, Conga, Timbace, Agog, Cabasa, Maramba, Whistle, Quisada and Tubular Bell!!

NEW

IN STOCK NOW!!

BOSS DSD2 DIGITAL SAMPLER/DELAY

Continuing BOSS's remarkable market domination. The new DSD2 offer the worlds first portable battery powered sampler delay in a compact pedal. Equally versatile as a sampler or delay featuring 200 to 800 milliseconds in sample MIDI with pitch variation and overdub facility! Incredible!!

IN STOCK NOW!!

NEW

FUTURE MUSIC

MKB1000 – MKB300 MIDI KEYBOARD CONTROLLER

MKB1000 & MKB3000 WITH FREE STANDS (AND FLIGHT CASES WORTH OVER £300

SPECIAL OFFER!!

MKS80 SUPER JUPITER MIDI 8 VOICE MODULE £1589

MKS20 PLANET POLYSYNTH MODULE £769

BOSS MICRORACK SERIES

Range includes:
RDD-10 Digital Delay £175
RCL-10 Compressor limiter £110
RBF-10 flanger £110
RPH-10 Phaser £110
RGE-10 Graphic EQ £110
IN STOCK NOW!!

ROLAND PIANO PLUS 50/100 MIDI ELECTRONIC PIANOS

Rolands New Series of HP100/50 Electronic Pianos offer 4 superb new sounds with the MIDI connection! 76 keys stereo, key transpose, built-in speaker, chorus and with touch sensitivity and MIDI channel program assigns capability make an ideal budget MIDI keyboard controller, as well as a piano

IN STOCK NOW

KEYBOARDS

All Keyboards include free stand!

JX8P + stand	£1150
JX8P + PG800 + stand	£1299
JX3P + stand	£599
JUNO 106 + stand	£699
JP8 + stand	£1999
SH101 + MGS1	£225
JUNO 60	£599
JP6	£999
MKB 1000 master MIDI controller	£999!!
MKB300 master MIDI controller	£599!!
AX1S remote keyboard	£395!!

AMPS

JC120 jazz chorus	£475
JC50 jazz chorus	£299
JC77 jazz chorus	£219
CUBE60K keyboard	£215
SUPERCUBE 40 lead	£199
SUPERCUBE 60 lead	£239
SUPERCUBE 100 lead	£329
SPIRIT 25A lead	£139
CUBE 40 chorus	£199
CUBE 60 chorus	£259

BOSS BARGAINS

DD2	£135
DR110	£125
CE3	£75
CE2	£75
BF2	£69
CE300	£185
DM3	£99
HM2	£49
PC2	£49
HA5	£69
DSD2 sampler delay	£175

SEQUENCERS

JSQ60	£99!!
MSQ700	£829!!
MSQ100	£399
MC4B	£399!!
CMU800	£99
CMU802	£49!!
TB303	£175

PA & EFFECTS

SDE1000	£325
SDE3000	£399
DE700	£799
SDE2500 new MIDI	£299
All above available including Delta Sound	
Sample hardware fitted	£PHONE!!
SS140 PA speakers	£149!!
SS760 PA speakers	£186!!
SS180 PA speakers	£199!
SRA2000 digital reverb	£1399!!

SUPERDEALS! ALL EX-DEMO OR S/H

JX8P + PG800 ex dem	£1195
JUNO 106 s/h	£595
TR909	£250
TR808	£250
MSQ100 sequencer ex dem	£350
JSQ60 sequencer	£79
MC4B	£399
RM1200 mixer	£495!
RM1600 mixer	£695!

DRUM MACHINES

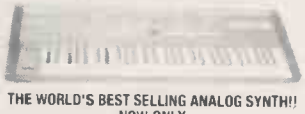
TR707	£465
TR808	£250
TR909	£375
TR606	£185
CR8000	£299
CR5000	£249
PR110	£125
BOSS RMK100	£49
NEW Electronic kit	£1699

GUITAR SYNTHS

GR300 + GR303	£750!!
GR300 + GR808	£795!!
GR300 + G207	£595!!
GR300 + G505	£695!!
GR300	£495!!
GR700	£1395!!
G707	£650!!
G707 + GR700 package	£1799

CALL FOR EXTRA SPECIAL SUMMER PRICES

JUNO 106 POLYSYNTH



THE WORLD'S BEST SELLING ANALOG SYNTH!! NOW ONLY

£699!!

MIDI – 128 MEMORIES

JX8P TOUCH SENSITIVE POLYSYNTH

Rolands Brand New Digital Analogue Polysynth with optional PG800 Programmer

AVAILABLE NOW JX8P £1165

SPECIAL PACKAGE OFFER

ROLAND GUITAR SYNTHS – GR707 & G700

The worlds 1st and only MIDI guitar system!! With a choice of 5 guitars or custom fit your own guitar. Fitted by experts!! Call for info!!

LIMITED OFFER £1795

SPECIAL PACKAGE OFFER

G303 + G505

£595

ONLY A FEW LEFT

TR606

£99!

MSQ100 & MSQ700 POLYPHONIC SEQUENCER MIDI!

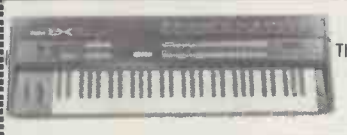
REAL OR STEP TIME

MSQ100 PHONE
MSQ700 PHONE

YAMAHA GRADE 1 HIGH TECH DEALER

DX21 IN STOCK NOW £699!

NEW



DX7

The worlds best selling synth now even more versatile with the new QX7, TX7 modules!

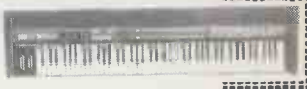
PHONE

RX21 IN STOCK NOW £299!

KX88 REMOTE MIDI KEYBOARD

Yamaha invent the ultimate in MIDI remote keyboards! Light and portable yet full of features! 88 notes wood keys, beautiful feel! 19 different control effects 192 parameter change possibilities. THE ULTIMATE

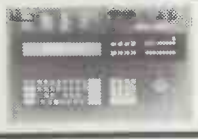
£1399



QX1 MEGA SEQUENCER

Incredibly sophisticated state of the art data storage, the most powerful yet! 8 Polyphonic channels, built in disc drive with one megabyte storage (80,000 notes!) Extremely sophisticated editing. Best Yet!

£2499



TX816/TX812 FM TONE GENERATOR SYSTEM

System of the future now! 8DX7s ina rack creating unbeatable versatility. 32 voices per module individual MIDI channel assign. TX8 12 ideal starter with two modules and rack expandable with additional TF1 modules!

£4199

QX7 DIGITAL SEQUENCE RECORDER

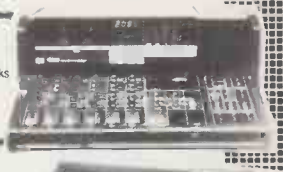
Yamaha continues the fabulous X7 range with an Incredibly cheap poly, MIDI sequencer! 2 track, 16 MIDI channel sequencing in real or step time! MIDI in and out! Storage! Editing! Just like a multi track but with digital quality!

£499

MT44D 4 TRACK

Yamaha have completely redesigned the popular MT44 system with sharp new looks and many new features, LED Display, 6 input mixer, new patchbay etc.

£799



TX7 FM TONE GENERATOR

DX7 half price!! Almost! All the functions of the worlds best selling synth in a compact keyboard controlled through MIDI! 6 Operators. 16 note polyphonic, 32 memories, LCD display! Low Price!

£699

CX5M

Yamaha's affordable music computer now with new software! Real time multitrack recorder 4 track controllable from MIDI keyboard (DX7 etc)!! RX drum machine programmer! Program your RX1 or RX15 with fabulous graphics from a CX5 just like the DX7 cartridge!

PHONE

202 NEW KINGS ROAD,
FULHAM, LONDON SW6
OPP. PUTNEY BRIDGE TUBE
TEL: 01-731 5993
01-736 4771

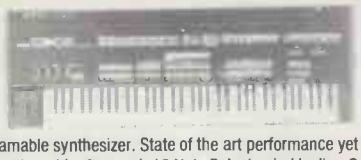
10 BADDOW ROAD,
CHELMSFORD, ESSEX
TEL: 0245-352490

104-106 ELM GROVE,
SOUTHSEA, PORTSMOUTH
HANTS.
TEL: 0705-820595

85 ST. MARY'S STREET,
SOUTHAMPTON, HANTS
TEL: 0703-26798

Instant Credit Available.

DX5 £2999



Digital programable synthesizer. State of the art performance yet affordable! 76 Key velocity sensitive with aftertouch 16 Note Polyphonic (dual) or 2 note Poly (single) 128 Memories, 6×2 operators 32 Algorythms! Split channels! MIDI 8 parameter digital EQ!

REV-7 £1199

PROFESSIONAL DIGITAL REVERB WITH MIDI

Yamaha break the price performance barrier with thebrand new REV-7! 19" rack mount unit with remote, simulates any reverb characteristics! New LSI chips give up to 15 early reflections and 99.9 milliseconds of initial delay. Parametric EQ. MIDI. 30× presets, stereo, 60 user memories!!!

YAMAHA SPECIAL OFFERS

RX11

£599

SE200

£115

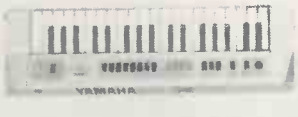
RX15

£399

SG1300T

£345

KX5



£199

SG200

£145

PF10

£499

SG1000

£289

NEW

ensoniq MIRAGE

IN STOCK!! THE SOUND SENSATION OF 85!!
INCREDIBLE FEATURES! SUPER PRICE **£1695**

Ensoniq introduce the Mirage the first integral touch sensitive sound sampler at a realistic price! Look at these features:
★ Five octave velocity sensitive keyboard ★ 8 voice polyphonic ★ 16 different samples across the keyboard ★ Up to 8 second samples ★ 4 user samples split across the keyboard ★ On board MIDI sequencer ★ On board 3.3" floppy disk drive ★ 4 sounds per disk ★ MIDI in/out

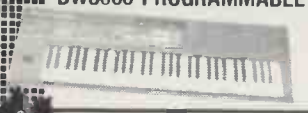
ENSONIQ MIRAGE

IN STOCK NOW!!!

DW6000 UNBELIEVABLE NEW LOW PRICE £699 ALSO POLY 806 £399

KORG

DW6000 PROGRAMMABLE DIGITAL WAVEFORM SYNTHESIZER



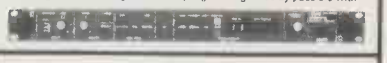
A digital synthesizer that responds like a musical instrument! Korgs new DW6000 offers advanced digital sound quality with easy to use analog processing and control!! + MIDI interface. Look at these features! 6 voice 69 memories complete sound generation through harmonics synthesizer encoded in 2×256 ROM chips, 2 oscillators with 8 waveforms each.

SPECIAL PACKAGE OFFER!! DDM110 DIGITAL DRUMS + DDM 220 DIGITAL PERCUSSION ONLY £399

SDD2000 DIGITAL SAMPLER/DELAY

Korg introduce a new rackmount effect for the exciting new world of sound sampling! and it's controllable from a polyphonic MIDI keyboard! Sampling at last affordable!
4368MSEC in both DECA-1 sample mode make sequencing as well as single note sampling and digital delay possible with 64 memories transposable through MIDI!

£699



MR-16 MIDI RHYTHM UNIT

The answer! Digital drum sounds controllable through MIDI at new low price! 19 high quality PCM recordings triggered by MIDI keyboard. drum machine, sequencer etc!

PHONE

SIEL

SUPER SUMMER SALE PRICES
DK80 £499!

SIEL MIDI EXPANDER 80
19" rack 8 voice 50 memories, RAM & ROM extensions + 300 note Polysequences on board!
£299

CASIO CZ5000 NOW IN STOCK £899

CZ101 AND CZ1000

Casio's world beating CZ1000 now available with full size keys

CZ101 £345 ★ CZ1000 £495
WITH FREE AS10 KEYBOARD AMP

SZ1 DIGITAL SEQUENCER

Real or step time
MIDI, RAM cartridge
4 track 1800 notes

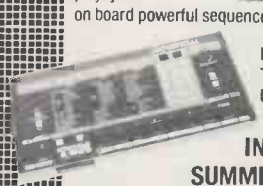
£345

FUTURE MUSIC

NEW

SEQUENTIAL CIRCUITS £999!!

The powerful new **MULTITRACK** fully touch sensitive polysynth on board powerful sequencer



Introducing TOM
The state-of-the-art
Digital drum machine
£699

INCREDIBLE FUTURE MUSIC SUMMER SALE PRICE ON SEQUENTIAL
MAX £395! **SIXTRACKS** £595 **DRUMTRACKS** £895
LIMITED OFFER!

AKAI

AKAI'S FANTASTIC RACK SOUND SAMPLER NOW IN STOCK!

★Up to 8 seconds sample time
★6 note velocity sensing thru MIDI
★Quick disk storage system
★Pre recorded sound library

AKAI MG1212

The incredible 12 channel integral reverb on ½" cassette tape SMPTE version soon
NEW LOW PRICE

SIMMONS

FANTASTIC NEW PRODUCTS FROM THE WORLDS LEADERS IN ELECTRONIC PERCUSSION!

SDS9 **COMPLETELY REDESIGNED 5 PIECE KIT WITH MANY NEW FEATURES**

★Snare drum has two pick-ups gives rim shot on cross stick as well as 3 digital snare sounds
★ MIDI In and out

SDS series 1000
SDS200
SDS400
SDS800

Add a Simmons system to your kit! Now with SDS Series 800 you can add a 4 piece kit at fabulous affordable prices.

SDS64 All new software for programming Simmons from Commodore 64 into trigger inputs terrific graphics
£59

ALSO IN STOCK

SDS1 Simmons digital drum complete with choice of EPROM £249 Library sounds £24

SDS7 The worlds leading digital drum synth complete with stands with free BD pedal of your choice £1995

SDS8 BARGAIN!
£549

SDSEPB Simmons revolutional digital sound sampler for SDS1 and SDS7 £390
6 pack EPROM £99
Eraser £39

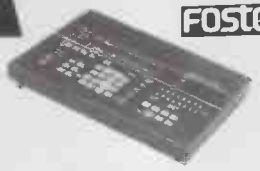
NEW

JUST IN!! THE FANTASTIC NEW FOSTEX A80 SYSTEM!

FOSTEX

A80 8 TRACK ★ A20 2 TRACK ★ 450 MIXER
LOOK AT THESE INCREDIBLE NEW FEATURES!!
★ REDESIGNED COSMETICS WITH BARGRAPH METERS
★ SMPTE TIMECODE TRACK ★ DOLBY C
★ IMPROVED SIGNAL TO NOISE RATIO +20DB
★ RECORD ON ALL 8 TRACKS LIVE
★ MIDI INTERFACE FOR CONTROLLING SYNTHS ON
★ NEW 4050 AUTOLACTE AND SYNCHRONISER!
★ COMPLETELY REDESIGNED COSMETICS AND ROUTING SYSTEM
★ BAR GRAPH INTEGRAL METERS
★ PRE AND POST 3 BAND PARAMETRIC EQ
★ IN LINE MONITORING ★ INPUT SOLO
★ 2 AUX SENDS ★ PHANTOM POWERING

4050 AUTOLOCTOR



4030 SYNCHRONISER

4035 SYNC CONTROLLER

For use with A80, A20 and B16 models!!! Incredible features!!
★ Autoloctor has digital LED display and is totally programmable (minutes, seconds, bars, notes!!) Tempo change in realtime
★ SMDTE time code ★ MIDI ★ Computer interface synchroniser will lock AVD10 to audio or audio to video! Optional 4035 controller!! All new and unbeatable value!

FOSTEX B16 16 TRACK SYSTEM PACKAGE!! B16 + SECK 18/8/2

Join the personal multitrack revolution with Future Music 16 track package deals!! The worlds most successful 16 track recorder on ½" tape. Call for up to date current deals on the Seck package and 8 other B16 mixer packages!!!

FOSTEX X15 £279!

202 NEW KINGS ROAD,
FULHAM, LONDON SW6
OPP. PUTNEY BRIDGE TUBE
TEL: 01-731 5993
01-736 4771

10 BADDOW ROAD
CHELMSFORD, ESSEX
TEL: 0245-352490

104-106 ELM GROVE
SOUTHSEA, PORTSMOUTH
HANTS
TEL: 0705-820595

85 ST. MARY'S STREET
SOUTHAMPTON, HANTS
TEL: 0703-26798

Instant Credit Available.

HOME RECORDING & PERSONAL MULTITRACK

★ FOSTEX ★ REVOX ★ AKAI ★ YAMAHA ★ SECK ★ RAM ★ SOUNDTRACS ★ ALLEN & HEATH ★

FUTURE MUSIC SCOOP PURCHASE!!
£499!! FOSTEX A2 STEREO MASTER MACHINE
LIMITED OFFER

RECORDERS
FOSTEX X15 ..... £299.00
FOSTEX 250 ..... £720.00
FOSTEX A8 ..... £1375.00
FOSTEX B16 ..... £4,000.00
YAMAHA MT44D £399.00
AKAI MG1212 ..... £5399.00
REVOX B77 ..... £899.00

MIXERS
DYNAMIX 16:8:2 ..... £995.00
RAM RM10 ..... £699.00
FOSTEX 250 ..... £535.00
ACES 10:8:2 ..... £399.00
AHB 16:8:2 ..... £1595.00
AHB CMC 24 ..... £2750.00

SOUNDTRACS 16:8:16 ..... £2385.00
YAMAHA RM602 ..... £249.00
SECK 18:8:2 ..... £1493.00

MONITORS
TANNOY Staffords ... £145.00
TANNOY Oxlords £225.00
YAMAHA Ns10 ..... £199.00
YAMAHA S10X £69.00
YAMAHA S20X £110.00

POWER AMPS
QUAD 303 ..... £179.00
QUAD 405 ..... £269.00
ROLAND SRA1200 £399.00

ROLAND SRA2400 £725.00
ROLAND SRA4800 ..... £1450

DIGITAL REVERB
YAMAHA Rev 1 ..... EPDA
YAMAHA R1000 ..... £475.00
ROLAND SRV2000 £1425.00

SPRING REVERB
Gt British Spring £229.00
ACCESSIT Stereo Rev £132.00
FOSTEX 3180 Stereo £340.00
BOSS RX100 ..... £125.00

NOISE GATES
ACCESSIT Noist Gate £52.00

DRAWMER Noise Gate £335.00

COMPRESSOR/LIMITERS
DRAWMER Compressor Limiter £395.00
FOSTEX 3070 comp/WM £249.00
YAMAHA CG2020 ..... £229.00
ACCESSIT Compressor £52.00

DIGITAL DELAYS
ROLAND SDE3000 £795.00
ROLAND SDE1000 £395.00
ROLAND SDE25000 MIDI £585.00

YAMAHA D1500 MIDI £550.00
BOSS DE200 ..... £275.00
BOSS CE300 CHORUS £230.00
IBANEZ HD1000 ..... £325.00

GRAPHIC EQ
FOSTEX Dual 10 band £199.00
ROLAND SEQ331 31 band £345.00
ROLAND SEQ315 2×15 band £395.00
YAMAHA Q2031 2×31 band £399.00

YAMAHA CQ1031 31 band £229.00

MICROPHONES
AUDIO TECHNICA
BEYER
AKG
ELECTROVOICE
CALL FOR PRICES

TAPE SYNC
ROLAND CHU802 Tape sync £49.00
ROLAND SBX80 Sync box £895.00
SYNC 24, MIDI, SMPTE

★ TANNOY ★ JBL ★ QUAD ★ ACCESSIT ★ BOSS ★ ROLAND ★ DRAWMER ★ BEYER ★ AKG ★

FUTURE MUSIC SUPERSALE!! ALL ITEMS EX-DEMO OR S/H!

ELECTRIC GUITARS

Gibson Vh Les Paul d/flux s/h	£450	C
gibson Flying V s/h	£499	C
Yamaha G-3000 New!!	£595	A
Ibanez Musician (Active)	£399	C
New Squire Strats New!!	£215	C
Kramer DMZ-2000	£225	C
Ibanez AS-50 s/h	£149	A
Ibanez AR-100 s/h	£150	C
Squier '62 Precision Bass	£199	C
Kramer Semi-Fretless Bass	£189	PS
Aria SB Special II Bass	£249	C
Washburn Force II	£245	C
Washburn Vulture II Bass	£175	C
Fender Schecter Tele s/h	£195	C
Lado Custom Electric s/h	£249	C
Ovation Steel Strung Acous	£499	C
Yamaha FG-340 Acous	£275	C
Fender Malibu Acous	£125	C
Fender Squier '52 Precision Bass	£135	C
Fender El.Rio Acous	£185	PS
Washbrn Spirit I El Acous	£235	CP
Fender Jazz Bass	£299.	S
Ibanez 750 Bass	£295	S
Ibanez RB 924 Bass	£210	S
Aria Pro II	£249	P
	£115	PS

OUTBOARD EQUIPMENT

Boss DM-300 Chorus/Delay	£155	C
Fostex Digital Delay Ex.Dem	£130	F
Roland RE-201 Space Echo s/h	£195	C
Roland SDE-2000 Digital Delay + Roland K/board + Sampler	£495	C
Yamaha R-1000 Reverb	£499	A
Casio AS-10 Speakers	£58	F
Ashly Compressor New!!	£345	F
Ashly Noise Gate New!!	£295	F
Washburn Solid Acous	£225	C
Yamaha Montana Acous	£85	C

SEQUENCERS

Roland MSQ-100 Ex.Demo	£349	A
Roland JSQ-60 Ex.Demo	£125	A
Roland CSQ-600 New!	£149	C
Roland CSQ-100 s/h	£75	C
Roland MC-202 s/h	£125	C
Simmons SDS-6 Ex Demo	£999	C
Roland MC-4B	£395	A
Oberheim DSX New!!	£599	F
Roland Digital Sequencer PR-800	£149	F

KEYBOARDS

Juno-106 Ex.Dem	£595	C
Oberheim Expander	£2999	C
Rhodes 88 s/h	£395	C
Roland MKB-100 Ex.Dem	£999	A
Korg Micro-Preset s/h	£99	CS
ARP Omni s/h	£199	C
Clavinet D6 s/h	£125	C
Crumar Piano s/h	£125	C
Mellotron	OFFERS!!	C
Roland Juno 6 s/h	£395	CPS
Roland Juno 60 s/h	£495	C
Roland JX-3P + PG-200	£595	C
Roland JP-8 + DP8	£1595	C
Siel DK-80	£499	C
Technics Digital Piano	£499	A
Siel Expander	£249	A
Yamaha PF-10	£475	A
Roland SH-2 s/h	£175	S
Yamaha KX-5 Remote	£175	S
Moog Prodigy	£175	S
Wurlitzer Piano	£299	P
Hammond X5 + Cab	£799	F
Casio MT-800	£149	F
Casio MT-45	£65	F
Siel DK-800 New	£599	F

COMPUTER MUSIC

BBC + Opus Drive + EMR Software ex.dem	£499	A
Commodore 64 + Disk Drive + Music software	£385	C
Roland MC-4B	£395	A
Yamaha CX-5 (Japanese version)	£299	A
Roland DG DXY-100 Plotters	£199	A

DRUM MACHINES

MXR Digital Drums RRP £1200!! ex.demo	£395	C
Drumtraks New!!	£799	F
Roland TR-909	£250	A
Roland CR-8000	£225	C
Roland TR-606	£165	C
Korg DDM-220 Percussion	£175	A
Syncontics	£75	A
Drumulator	£499	CP
Korg DDM-110 + DDM-220	£425	A
Yamaha RX-15	£399	A

ELECTRONIC KITS

Simmons SDS-5 New!!	£750	C
Simmons SDS-8	£545	A
Simmons SDS-6 Sequencer	£999	C
Simmons Cym. Mod.	£POA	C
Ultimate K2X Kit	£695	A
Ted Digisound Modules single	£99	A
Ted Digisound Modules duo	£125	A
Simmons SDS-5 + Softpad New!!	£899	S

PERSONAL MULTITRACK

Yamaha DM-1000 38/8/2 Mixer ex. demo	£999	C
Fostex A8 + 350 s/h	£1295	C
Fostex A2 Stereo New	£495	A
Fostex 250 Ex. Dem	£595	C
Dynamix 16/8 Flight case Mixer	£999	C
Dynamix 24/8 Mixer	£1450	C
Fostex 350 Mixer New	£450	C
RSD 8/4 Rackmixer	£699	C
Revox B77 s/h	£395	F
Roland CMU-802 Tape Sync	£49	C

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E&MM 8/85

Technology

Uncle Bob's Baby

The Minimoog in 1985

Successful though today's technology may be, there'll always be a place for yesterday's – especially if nothing has come along since to replace it. What are the qualities that make Moog's synth for the masses irreplaceable? *Tim Goodyer*

A rarity *Minimoogs were available with remote keyboards, but you had to order them direct from the States...*

The march of technology rarely admits defeat. Occasionally it has a pause for breath, consolidating its position before surging forward once again. But far less common are the moments at which progress is forced to take a backward step. When that happens, it happens because a giant leap forward has sapped so much strength from the march, that a small retrograde movement is the only way things can go – at least for the time being.

The recent march of musical instrument technology throws up a number of excellent examples of this. Hammond could only go backwards after the B3 and C3 organs, Hohner could only do likewise after the Clavinet. Then there was Yamaha, who experienced a mild hiccup after deleting the CS80 polysynth, only to bounce back with a vengeance at a later date; Roland did much the same after the demise of their TR808 drum machine.

Sadly, Moog never really recovered from discontinuing the Minimoog, the instrument that did so much not only to bolster the image of Moog as a company, but also to increase awareness of the music synthesiser as a whole.

Before the Minimoog's introduction, Bob Moog's company concerned itself with producing tailor-made, highly-complex modular synth systems like the Zoukra Moog and the System 55 – huge, unwieldy monsters that were never going to see use by anyone other than the lucky, pioneering few. They were essentially mid-60s designs, but they continued in sporadic production well into the 70s. By that time, however, Moog had turned his attention to producing a simpler, more usable, and more accessible synthesiser – the Minimoog.

Most sources agree the Minimoog was the work of in-house designer Jim Scott, but there's no real consensus on when, precisely, the instrument made its first public appearance. In *The Synthesizer & Electronic Keyboard Handbook*, Dave Crombie reckons it to have been the AES Convention in 1971. A N Other magazine put the year of release at 1970, but my money would go on Roy Goudie's recollection of it being the Chicago NAMM show of '69.

But regardless of the exact year of its birth, the Minimoog was a revolution, a synthesiser for the masses. Now, it's an anachronism. It's monophonic, it has no sound memories, onboard sequencing or arpeggiation facilities, and certainly nothing as comprehensive as MIDI with which to communicate with other music machines. And in the synthesis department, its range of facilities was surpassed by the SCI Pro One (itself now discontinued) and is now taken to the cleaners by the OSCar. But let's not dismiss its electronics out of hand; they're the main reason the Minimoog is still sought-after, why second-hand models are changing hands for surprisingly large sums, and why, as we said at the beginning, nothing is ever likely to replace it completely.

The first, and best-known, of the synth section's attributes is the presence of no less than three analogue oscillators, all of them simultaneously available for audio applications if you didn't mind losing the services of the modulation oscillator. In fact, the latter became sufficiently favoured for its fat sound for some models to be made with a fourth modulation oscillator built in. It was an elegant way to avoid compromise, but chances are you'll pay handsomely for a quad-oscillator Minimoog now – if you can find one at all.

The oscillators were well-endowed with waveform options. Each has triangular, sawtooth, triangular-sawtooth, and three different square waveforms, with reverse sawtooth instead of triangular-sawtooth on Oscillator 3 in the interests of improving modulation. Only one waveform can be selected from each oscillator at any one time, but that choice can be made *independently* of the other two oscillators, as each is a law unto itself.

The absence of a pulse width modulated waveform might appear at first to be a serious omission, but it isn't. Remember, PWM was a facility initally introduced as a sound-fattening exercise on synths with only a single oscillator (a handicap the Minimoog obviously isn't encumbered with), and in any case, Moog had the situation well in hand by allowing you to mix the different widths of square waves together.

The filter is a 24dB/octave low-pass affair, with three different keyboard-tracking rates. Both the filter and amplifier transients are permanently assigned a separate transient generator laid-out in an attack, decay, sustain configuration. The sustain is the prevailing level whilst the key is held, with the decay taking effect again during the period after key release(!). It's certainly a little different to what you'll find on most other synthesisers, but it's easy to use, and gives excellent results.

Modulation effects may make use of Oscillator 3, which can be switched out of the mixer section and keyboard control and into its 'Lo' (sub-audio) state, for conventional vibrato effects and the like. The modulation waveforms cover most eventualities admirably, and some great effects are easily achieved.

Need some ring modulation effects? Easy, just use Oscillator 3 within the audio range, whilst arranging for the modulation rate to track the keyboard if the keyboard control is switched back in; thus the higher up the keyboard you play, the faster the modulation rate.

Switching is provided to allow a choice of routing to either or both of the oscillator and filter sections, and both pink and white noise ▷

▷ modulation are provided; either one of these can be used on its own or mixed with any of the above effects to modulate the oscillators and/or filter.

The mixer section allows simultaneous mixing of the oscillators, the noise generator and an external sound source, all of which are provided with a mute switch in addition to a level control. There's also a master mute switch, which allows you to set up sounds on headphones without having to unplug the output to prevent your audience getting advance warning of what you are about to inflict upon them.

Now, that might be a long and impressive list of analogue synth features. It doesn't explain why the Minimoog can still be found on so many album credits, and in keyboard players' interviews. Surely anything that could be achieved 15 years ago can be easily recreated now?

It seems not. Even when Moog themselves analysed the sound of the Minimoog and attempted to incorporate its essence into the polyphonic Memorymoog, the results lacked the characteristic warmth of the earlier model. Impressive, perhaps, but cold, distant and featureless by comparison.

How come? Well, early Minimoogs (up to serial number 10175) had rather unstable oscillators, which some claimed added to the warmth and colour of the sound as well as being a sizeable pain in the bum. Personally, though, I'd attribute most of the credit to more general imperfections within the old analogue circuitry.

Then there's the patented Moog filter to consider. In use, it isn't capable of giving the very bright sound Pro One owners will be so familiar with, but instead, it provides an as yet unequalled richness of texture, even using the dual audio oscillator, single LFO arrangement. At its most leisurely, the filter can be made to decay over a ten-second period after key release – an arrangement that demonstrates that richness rather well. The filter also has a very sharp attack (it's stated as being 10mS but it sounds a lot shorter), and it's this coupled with a relatively short initial decay that helps to give the percussive funk or sequence-style bass sounds that ensure its popularity, even in today's much-changed musical climate.

The other significant factor in this area is the filter resonance – or Emphasis, as Moog would have it. With it, the filter can be driven into self-oscillation – a feature regrettably missing from many current synths. It's this, more than anything else, that's enabled Minimoog owners to generate sharp, aggressive dynamics – the sort of thing that'll still cut through a mix even when the lead guitarist is launching into his favourite solo. And with the filter on the *edge* of self-oscillation lies a family of sounds that sound exciting without appearing incongruous alongside today's sampled and digital sounds.

On the interfacing front, the Minimoog went out of production before MIDI was even thought about, so there's nothing too complex. Instead, the traditional control standard of one volt per octave applies, but with a negative trigger voltage requirement Moog term an S-trigger (switch trigger) that caused initial incompatibility problems as everybody else opted for the new industry-standard V-trigger. With a simple modification or pulse inverter, though, sequencer control is no problem, and the Minimoog scores here because it permits voltage control over both filter cutoff frequency (1V/octave) and loudness (over a 5V range) *via* quarter-inch jacks.

But Minimoog owners needn't forget about MIDI altogether. A recently-discovered delight in the E&MM office was the sound of a Minimoog under the control of a DX7 keyboard, complete with key velocity information, courtesy of the Jellinghaus CGX interface converting MIDI information into CV/Gate format for consumption by the Moog. Few instruments of the Minimoog's vintage are able to acquit themselves so well when surrounded by technology of an altogether different era...

The Minimoog, like all commercial success stories, proved to be an influential product. Its layout, and particularly the configuration and positioning of the pitchbend and modulation wheels, set standards that have been widely adopted by designers ever since. By contrast, the rotary and proportional pitch controls advocated by rival company ARP on their Odyssey have fallen into almost total disuse. The pitchbend is detented, but not sprung to return on its release like the one on the DX7, for instance. The resulting arrangement is both comfortable and musical, as many a soloist proved in the Minimoog's heyday. Of course, that form of synth soloing, so beloved of pioneers such as Keith Emerson and Jan Hammer, has fallen foul of pop fashion. Should it ever become popular again, few of today's synths will be capable of matching an old Minimoog.

But I'm leaping ahead of myself. As the Minimoog – and synthesisers in general – grew in popularity, so Moog's designers carefully refined their product, various editions of the instrument being introduced before the final and best-known variant, the Series D, appeared in the late-seventies. There were also a number of custom-fitted, alternative features available, such as multiple – as opposed to single – note triggering, velocity sensitivity, ribbon pitchbend (*not* as used by Keith Emerson, but in place of the standard wheel) and a remote keyboard. Unfortunately, none of these innovations was available in the UK, except by special order from the States. Again, if you see something like this for sale now, it won't be cheap.

Eventually, though, the Minimoog fell victim to the arrival of cheaper competition (its price had fallen to under £1000, but Moog could not make it any cheaper), and production ceased in 1981, having just exceeded the 13,000 mark. The last 25 were all handbuilt, and finished in walnut with a brass plaque bearing the serial number on the front. The final one – serial number 13,252 – was presented to Bob Moog himself.

The demise of the Minimoog coincided with the introduction of the Moog Source, a monosynth of totally new design and of decidedly more modern configuration. Moog denied it was ever intended as a replacement for the Minimoog, but there are many who believe that was the original idea.

The Source was the first-ever synth to employ digital parameter access. It had programmability, it had sequencing and arpeggiation facilities, it had ultra-modern styling, and it was cheaper than the Minimoog. But it did not sound anything like as good, and consequently, it did not sell nearly as well. The rot had begun to set in. ■

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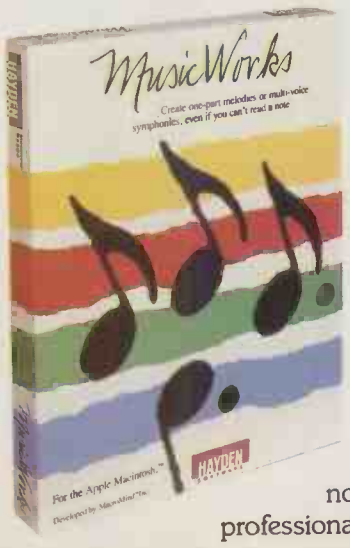

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CHECKLIST comes full circle this month with the return of polysynths, voice expanders and controlling keyboards to the no-holds-barred buyer's guide. The formula is the same as it was the last time this product area graced the CHECKLIST pages: a make-by-make run-down of each individual instrument and its typical retail price, accompanied by short-form specification details and the comments – for, against, and summing-up – of E&MM's reviewing team where possible.

But even in the three months that have passed since our initial foray, the polysynth market has altered significantly in several ways.

To begin with, a number of instruments (Sequential's MultiTrak is a prime example) have been the subject of price reductions to make them more competitive, while others (like the Roland JX3P and Yamaha's DX9) have more or less vacated dealers' shelves altogether now that the end of their production run is in the dim and distant past, and have therefore been removed from the listing.

Then there are the newcomers, surprisingly high in number. These can be divided into machines that have already been reviewed in the pages of E&MM (Casio CZ5000, Yamaha DX21) and those whose existence has been confirmed by manufacturers preparing to release them onto the market sometime over the coming months (these generally carry the comment 'To be reviewed').

Ideally, we'd have liked to have included more in the way of detail on these latter instruments, even if they've yet to come under review by the magazine – especially as some of them (like Roland's MKS7 voice module and Oberheim's Matrix 6 poly) look interesting even from the briefest specification outline. The reason we haven't been able to do so is simply that manufacturers are being a mite cautious about releasing too much product information in advance of the British Music Fair, which takes place at the start of August. With luck, E&MM September will carry the new details this edition of CHECKLIST omits.

Until then, compare the prices, study the comments, and use them to help you make your purchasing decision. There's no better way.

POLYSYNTH Checklist

AKAI

AX80 – £999 Eight-voice, two-oscillator per voice analogue polysynth; 32 preset and 64 programmable onboard voice memories, five-octave velocity-sensitive keyboard. + *Three LFOs, chord memory, good keyboard, excellent bar graph system makes digital parameter access more user-friendly;* – *Doesn't really possess any sonic character of its own;* = *Recent price reduction makes Akai's first synth more attractive than it previously was. Yer pays yer money....*
AX90 – £TBA Eight-voice polysynth, splittable keyboard. = *To be reviewed – further details unavailable at press-time.*

CASIO

CZ101 – £345 Four/eight-voice, two/one DCO per voice, Phase Distortion polysynth; 16 preset and 16 programmable voice memories, four-octave miniature keyboard. + *Excellent range of both 'analogue' and 'digital' synth sounds, five-octave MIDI-compatible octave range, voice layering, comparatively easy to program, built-in ring modulator, 16-voice RAM cartridge storage, eight-stage transient envelopes, fine MIDI implementation;* – *small, short keyboard, awkward bend wheel;* = *revolutionary Phase Distortion principle offers value for money without sonic compromise – if you can stand the mini-keyboard.*
CZ1000 – £495 Spec as for CZ101, but with full-size, four-octave keyboard. = *The professional's Casio: nothing around to beat it for versatility, ease of programming and MIDI features at this price level.*

CZ5000 – £975 Eight/16-voice, two/one oscillator per voice Phase Distortion polysynth; 32 preset and 32 programmable voice memories, five-octave keyboard, built-in eight-track step- and real-time sequencer. + *Twice the 101/1000's synth facilities means correspondingly greater sound potential, excellent multitrack sequencer is far more than just last-minute afterthought, useful multitimbral MIDI implementation;* – *undynamic keyboard, no separate outputs for multitimbral voices;* = *the last word in Phase Distortion synthesis, and it works a treat – so don't let the name put you off.*

CHASE

Bit One – £799 Six-voice, two-oscillator per voice analogue polysynth; 63 programmable voice memories, five-octave velocity-sensitive keyboard. + *Superb range of analogue sounds, both acoustic and electronic, plenty of keyboard performance options;* – *no sequencing or arpeggiation features, suspect MIDI implementation;* = *all in all, probably the best budget analogue poly, now available through wider range of retail outlets.*

CHROMA

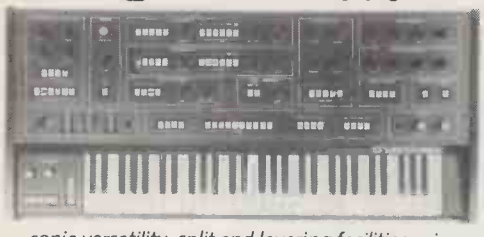
POLARIS – £1699 Six-voice, two-oscillator per voice analogue polysynth; 132 programmable

voice memories, five-octave velocity-sensitive keyboard. + *Good, rich analogue sound, neat onboard sequencer, extensive interfacing facilities include wide range of MIDI options;* – ▷

▷ *complicated to use, overpriced, some design priorities now outdated;* ➖ *a synth with a lot of potential for those with enough patience to exploit it, but the competition is already too tough, and getting tougher all the time.*

ELKA

Synthex – £1399 Eight-voice, two-oscillator per voice analogue polysynth; 40 preset and 40 programmable voice memories, five-octave keyboard. ➕ *Considerable (but largely ignored)*



sonic versatility, split and layering facilities using two MIDI channels, onboard sequencer, digital ring mod; ➖ *some may find sound dated, possible servicing difficulties now that synth is out of production in Italy;* ➖ *good facilities for its (recently reduced) asking price: if this is your sound, go for it.*

KORG

Poly 800 – £549 Six-voice, two-oscillator per voice analogue polysynth; 64 programmable voice memories, four-octave keyboard. ➕ *Competitive price, three six-stage envelopes, onboard sequencer and chorus unit, portability;* ➖ *only one filter for all six voices, short keyboard,* ➖ *the world's best-selling polysynth, in spite of its limitations: but there's competition looming.*

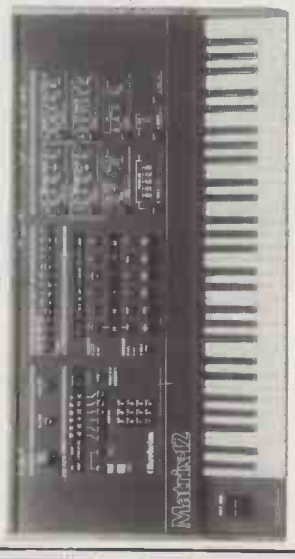
DW6000 – £999 Six-voice, two-oscillator per voice, digital waveform generation polysynth; 64 programmable onboard memories, five-octave keyboard. ➕ *First synth to combine clarity of digital voicing with easy access of analogue synth configuration, six-stage VCA & VCF envelopes, built-in chorus;* ➖ *keyboard has no velocity or aftertouch sensitivity, poor feel of performance control joystick;* ➖ *the polysynth world's biggest technological compromise – but it works.*

DW8000 – £TBA Similar in spec to DW6000, but with pressure- and velocity-sensitive keyboard, built-in digital delay line. *To be reviewed.*

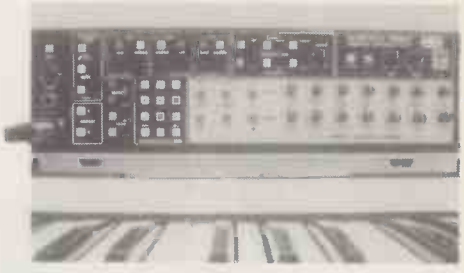
OBERHEIM

Matrix 6 – £TBA 'Affordable' Oberheim poly to be unveiled at British Music Fair; no details available at press time. *To be reviewed.*

Matrix 12 – £4599 Spec similar to that of two Xpanders controlled by XK keyboard – see relevant sections for details.



OCTAVE PLATEAU



Voyetra 8 – £3999 Eight-voice, two-oscillator per voice analogue polysynth; 100 programmable voice memories, velocity- and pressure-sensitive five-octave keyboard. ➕ *Excellent sonic potential in the American analogue tradition, built-in polyphonic sequencer and arpeggiator, comprehensive split and layering facilities;* ➖ *hideously involved system of parameter access makes editing a real chore, dollar-inflated price-tag;* ➖ *competent, professional synth system – at a price.*

ROLAND

Synth Plus 60 - £899 Six-voice, one-oscillator per voice analogue polysynth; 128 programmable voice memories, five-octave keyboard, built-in amplification and twin speakers. ➕ *Ease of use, built-in chorus;* ➖ *beginning to sound a little dated, lacks arpeggiator;* ➖ *circuitry of deleted Juno 106 in a domestically acceptable format, unlikely to venture far outside the average living room.*

JX8P – £1250 Six-voice, two-oscillator per voice

analogue polysynth; 64 preset and 32 programmable onboard voice memories, five-octave pressure- and velocity-sensitive keyboard. + *Another example of Roland squeezing new sounds out of old design techniques (the 8P competes with the best of the analogues), voltage controlled mixer section, RAM cartridge voice storage, good MIDI implementation;* − *only eight memories hold aftertouch and performance data, requires optional PG800 programmer for sound editing to become really straightforward;* = *lacks character, but ultimately a rewarding and versatile analogue poly that proves Roland aren't going to be left behind without a fight.*

Jupiter 6 – £1299 Six-voice, two-oscillator per voice analogue polysynth; 48 programmable voice memories or 32 patch presets (for split programs), five-octave keyboard. + *Inherently flexible and versatile programming system, excellent sonic potential, split-keyboard facilities, sophisticated – and syncable – arpeggiator;* − *no velocity- or pressure-sensitivity, might just have too many facilities for its own good;* = *excellent analogue synth that continues Jupiter tradition admirably, but complex control layout has meant shortage of takers, hence newly attractive price level.*

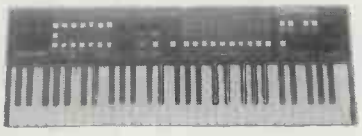
SEQUENTIAL

SixTrak – £595 Six-voice, one-oscillator per voice multi-timbral analogue polysynth; 100 programmable sound memories, four-octave keyboard. + *Unique (in this price range) multi-timbrality extends to built-in six-channel sequencer, 'stack' mode and MIDI implementation;* − *awkward parameter adjustment, short keyboard, synth doesn't actually sound too impressive;* = *in the process of being displaced by newer MAX and MultiTrak, therefore very cheap.*

MAX – £625 Six-voice, one-oscillator per voice, multi-timbral analogue polysynth; 80 preset voice memories, four-octave keyboard. + *As SixTrak;* − *also as SixTrak, but not readily user-programmable without CBM64 and software;* = *tries to be computer peripheral and voice expander in one, succeeds in being neither.*

Split Eight – £TBA Eight-voice, one-oscillator per voice analogue polysynth; 64 pre-programmed sounds and user-programmable voice memories, five-octave keyboard, split/layer and unison performance modes. *To be reviewed.*

MultiTrak – £1199 Six-voice, one-oscillator per



voice analogue polysynth; 100 programmable voice memories, five-octave, velocity-sensitive keyboard. + *Adds 'professional' facilities to SixTrak spec;* − *doesn't add anything better in the sound department;* = *new low price, and the only choice if you value sequencing and MIDI facilities above sheer sonic potential.*

T8 – £4700 Eight-voice, two-oscillator per voice analogue polysynth; 128 programmable voice memories, six-and-a-half octave keyboard sensitive to pressure and velocity. + *Excellent analogue sound capability, weighted-key action and individual aftertouch for each key, fine split and layering facilities, built-in sequencer;* − *heavy on the hand and even heavier on the wallet;* = *professional instrument at a professional price.*

SIEL

DK80 – £699 Six-voice, two-oscillator per voice analogue polysynth; 10 programmable and 40 preset voice memories, velocity-sensitive five-octave keyboard. + *More facilities for the money than just about anything;* − *40 fixed memories, basic sound could be better;* = *really astonishing value for money, though first impressions might not be all that favourable.*

DK600 – £999 Six-voice, two-oscillator per voice analogue polysynth; 100 programmable voice memories, five-octave velocity-sensitive keyboard. + *Fine sound quality (especially brass and percussion presets), programmable dynamics, plenty of good software available;* − *the odd operational idiosyncracy;* = *competent but underrated analogue poly, neatly styled and well constructed.*

WERSI

MK1 – £TBA 16-voice polyphonic Fourier Synthesis polysynth; five-octave velocity- and pressure-sensitive keyboard. *To be reviewed – available September.*

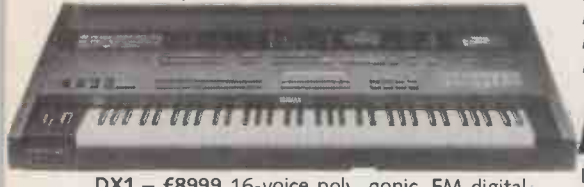
YAMAHA

DX21 – £699 Eight-voice, fully programmable FM digital polysynth; 128 factory preset sounds, 32 programmable voice memories, 32 performance memories, five-octave keyboard. + *Broad selection of factory sounds that rival DX7's for quality, useful voice-specific performance memories, inclusion of split and dual modes, probably easier to program than first-generation DXs, almost laughably cheap;* − *undynamic keyboard, no cartridge storage facilities, could still do with a better display;* = *Yamaha's answer to the march of the budget polysynth, and a mightily impressive one at that, shows company haven't been resting on DX7 laurels.*

DX7 – £1250 16-voice, fully programmable FM digital polysynth; 32 voice memories, five-octave velocity- and pressure-sensitive keyboard. + *Immense sonic and programming versatility still unmatched by any competing* ▷

▷ *instrument, vast range of custom-designed hardware and software now available to accompany it from a variety of sources;* ➖ *a real pig to program, hence many preset sounds becoming clichéd, still niggling doubts about ability to recreate fat, traditional analogue synth sounds;* ➖ *an industry standard like no synth before it, and justifiably so – if only it was as easy to edit as it is to listen to...*

DX5 – £2999 FM digital polysynth, spec similar to two DX7s with additional performance memories; 76-note touch- and velocity-sensitive keyboard. ➕ *Excellent sound and facilities;* ➖ *beaten on price by Yamaha's own DX7/TX7 combination;* ➖ *now you've a choice between convenience and cost, though sizeable back orders for the DX5 indicate some people are wealthier than is good for them. (To be reviewed.)*



DX1 – £8999 16-voice poly nonic, FM digital polysynth; 64 programmabl voice memories, six-octave velocity- and pres ure-sensitive keyboard. ➕ *Easier editing than cheaper DXs thanks to comprehensive control and display layout, marvellous weighted-action keyboard has individual aftertouch for each key;* ➖ *bulky, weighty and outrageously expensive;* ➖ *thoroughly desirable – the ultimate dedicated FM poly, but logic says it's outclassed by cheaper hardware from the same stable.*

EXPANDER Checklist

AKAI

VX90 – £TBA Similar facilities to AX90 poly, but in 19" rack-mounting format. *To be reviewed.*

CHASE

Bit 01 – £699 Similar in spec to Bit One poly, in rack-mounted casing and with improved MIDI implementation. ➕ *Puts excellent analogue sounds in a modular format well-suited to the needs of digital-polysynth owners, factory presets are sonically matched to corresponding Bit One voices, rack-mounting convenience;* ➖ *a little pricey next to Bit One, still the odd MIDI hiccup;* ➖ *like Bit One, stands out as being the most cost-effective analogue unit in its price bracket – more MIDI modules promised by Italian factory for release in near future.*

KORG

EX800 – £449 Identical in spec to Poly 800: 64 programmable voice memories, built-in sequencer.

OBERHEIM

Xpander – £3945 12-voice polyphonic analogue/FM digital hybrid synthesiser; 31 LFOs, 30 EGs, 12 oscillators, 90 VCAs, 100 programmable voice memories, recognises MIDI pressure and velocity information. ➕ *Vast range of sounds both analogue and digital, easier to program than most digital access designs, matchless programming versatility;* ➖ *only the cost;* ➖ *brilliantly conceived and superbly built – if you can afford it, don't hesitate.*

ROLAND

MKS7 – £TBA Rack-mounting MIDI voice module incorporating separate melody, chord, bass and rhythm units. *To be reviewed.*

MKS30 – £875 Same overall spec as JX3P poly, but 64 programmable voice memories, and fully responsive to velocity and pressure information. ➕ *It doesn't sound bad;* ➖ *requires optional PG200 programmer for conventional 'pot' control;* ➖ *module costs more than a JX3P!*

MKS10 – £990 Sixteen-voice polyphonic piano-family voice module, fully velocity- and pressure-responsive, 16 preset voice memories. ➕ *Neatly styled, built-in chorus/flanger helps strengthen sound output;* ➖ *eight voices only accessible through mother keyboard, expensive for what it is;* ➖ *only really of value if you've got a keyboard – and a playing technique – that'll do it justice.*

MKS80 – £1800 Similar spec to now-discontinued Jupiter 8: eight-voice polyphony, two oscillators per voice, 64 voice memories and 64 patch preset memories onboard, fully responsive to velocity and aftertouch information. ➕ *Wonderful range of analogue-type sounds, optional RAM packs can hold 128 voices or patch presets;* ➖ *again, requires optional programmer (this time the MPG80) for editing not to be a chore;* ➖ *an excellent package that's notable good value next to the other Roland modules, but price still puts it firmly in the professional league.*

CONTROLLER Checklist

SIEL

Expander 80 – £399 Similar in spec to DK80 poly, but only monotimbral. + *Incredibly cheap, so lots of features for your money, cartridge storage facility unexpected on a machine of this price level;* – *presets are identical to DK80's, hence more than a few sonic disappointments;* = *currently the cheapest way into analogue MIDI synthesis, and a godsend to the impoverished – it's not brilliant, though.*

YAMAHA

TX7 – £649 Identical in spec to DX7, with addition of performance memories for each

voice. + *A logical upgrade for all DX7 owners;* – *but not so much fun if your controlling synth is analogue;* = *Yamaha's most economical route to FM duplication.*

TX216 – £1899 Two DX7s (or one DX5) in rack-mounted format, with facility for adding TF1 modules (one DX7's worth) at £449 each. *For comments see TX816.*

TX816 – £4299 Essentially eight DX7 voicing modules in one rack, each with its own MIDI connection. + *Who could say no to eight DX7s?* – *MIDI implementation could be better;* = *the ultimate FM music synthesiser – no self-respecting studio should be without one.*

AKAI

MX76 – £TBA Six-and-a-half octave, velocity- and pressure-sensitive, weighted-action split-table keyboard; 96 voice selectors. *To be reviewed.*

KORG

RK100 – £475 Three-and-a-half octave portable keyboard with volume, pitchbend, modulation controllers, 64 voice selectors. + *Price, spec includes thoughtful touches like lockable MIDI connectors;* – *octave range sacrificed in the cause of portability, no dynamics;* = *all things considered, the best-value 'poser's keyboard' currently available.*

OBERHEIM

XK Remote Keyboard – £TBA New pressure-and velocity-sensitive five-octave keyboard for connection to up to six MIDI synth modules, incorporates three-way split/layer facilities and other performance features. *To be reviewed.*

ROLAND

Axis 1 – £999 Three-and-a-half octave portable keyboard with volume, pitchbend, modulation controllers, velocity- and pressure-sensitivity, 120 voice selectors. *To be reviewed.*

MKB200 – £TBA New 61-note version of MKB300. *To be reviewed.*

MKB300 – £999 76-note mother keyboard, velocity-sensitive, split and layering facilities, 128 voice selectors, volume, pitchbend, modulation controls. + *Sturdy construction, looks;* – *not sensitive to pressure, price;* = *overshadowed, in most respects, by MKB1000.*

MKB1000 – £1499 Velocity- and pressure-sensitive 88-note keyboard, overall volume, pitchbend, modulation controllers, 128 voice selectors, MIDI split and layering facilities. + *Excellent action from weighted wooden keys, superlative construction;* – *no individual level controls, lack of remote programming facilities, price;* = *another professional people's product, though even they might find its acquisition hard to justify.*

YAMAHA

KX5 – £199 Identical in spec to KX1, but miniature keys. *To be reviewed.*

KX1 – £799 Three-and-a-half octave, velocity- and pressure-sensitive keyboard, volume, pitchbend, modulation controllers, 32 voice selectors. *To be reviewed.*

KX88 – £1399 88-note velocity- and pressure-sensitive weighted keyboard, 17 user-assignable performance controllers, split and layering facilities. + *Vast range of performance options, onboard programming facilities coupled with user-assignable parameter control area, keyboard adds new dimension to many DX voices;* – *keyboard has slightly spongey feel absent on DX1;* = *more of what a master keyboard should be, but is a piano-type keyboard the best medium for applying aftertouch?* ■

THE SHORTEST ROUTE

There seems no end to the ingenuity of Roland's MIDI accessory department. If there's something your current synth system can't achieve, chances are they now have a box that'll let you do it. *Simon Trask*

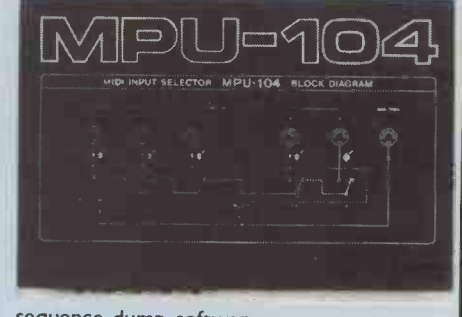
Given the inherent flexibility and open-ended nature of MIDI (or as cynics might say, its lack of a rigorous, consistent specification), it's not surprising that a whole new industry is fast taking shape to cope with the wide variety of MIDI problems that need solving. These four Roland units under review are part of this trend, with three of them providing purely MIDI processing and the fourth allowing the CV/Gate and MIDI worlds to talk to each other – in one direction, at least.

First of all, let's clear up any confusion over the designation of these units. Originally intended to be part of the Boss range of products and labelled – in prototype form – as MI10, MI30, MI40 and MI50, they've now been added to Roland's own MPU (MIDI Processing Unit) range, which up till now has consisted only of the low-profile (on this side of the Atlantic, anyway) MPU401 intelligent MIDI interface unit. The new designations are MPU101, MPU103, MPU104 and MPU105.

Quite a number of people have already confused the MPUs with the new Boss Micro Rack signal processors, which provide more traditional studio fare in the same compact casings as MPU103-105, but are *not* MIDI-compatible. The fact that both types of processor will fit the same 9.5" Micro Rack (or, two-by-two, Roland's own 19" 1U Rack Mount Adaptor) has probably contributed to the confusion.

Anyway, all four units are further evidence that more than any other synth manufacturer, Roland are keen to develop peripheral devices to run alongside the instruments themselves. They've led the way in interfacing and processing boxes since MIDI arrived – probably before.

Let's take the simplest unit first. The MPU104 MIDI Input Selector allows you to select between any one of five inputs (synth, controller keyboard, sequencer or drum machine) to act as a master unit. Another application would allow you to have up to five instruments (which could include expanders) connected to a computer with patch- and sequence-dump software.



Design *'What these units aren't is intelligent – they can't stop you altering their configuration whilst music is playing over MIDI.'*

Technically, a MIDI receiver should not be driven by more than one transmitter at any one time, so quite correctly, it's only possible to select one MIDI In at a time on the MPU104. You *can* press more than one input

selector at once, but the unit always defaults to the lower number. It's also possible to switch out all the selectors, so you can use the MPU104 as a MIDI master on-off switch – useful when you suddenly want to play your master keyboard by itself.

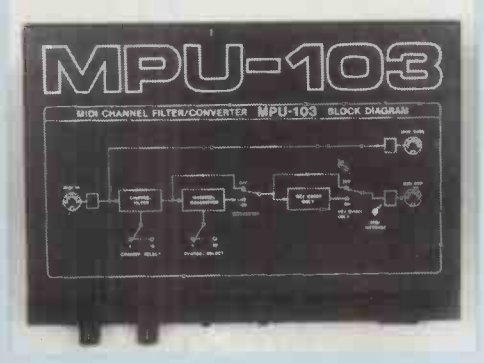
The MPU105 MIDI Output Selector is, not surprisingly, similar in design to the 104. As it's outputs you're selecting with the 105's buttons, you can of course have all five selected simultaneously. In fact, this new machine is to all intents and purposes an upgraded version of Roland's earlier MM4 MIDI Thru Box, adding one more Thru and the ability to select which Thrus are active over and above its forerunner's specification. Thus you can switch in or out any combination of connected MIDI instruments – at the touch of a button or two.

Taken separately, the 104 and 105 are useful enough, but taken together they would

allow you, for instance, to have a flexible five-instrument-plus-sequencer MIDI system, with any instrument able to be switched in as the recording instrument, and all for a fairly modest outlay. Alternatively, you could set things up to allow any one of five MIDI instruments to control up to another four, with the exact configuration alterable almost as quickly as it takes to figure out what's going where in the first place.

What these units aren't (and this also applies to the other two MPUs reviewed here) is 'intelligent'. Or to put it another way, they can't stop you from altering their configuration whilst music is actually being played over MIDI. This could actually be a bit more serious than it sounds: imagine a situation where you switch out an instrument, or switch to a new master keyboard, before releasing all the notes on your current master keyboard. The result would be the dreaded MIDI drone, as the wrong sound is left hanging on the other end of the line.

Sycologic have succeeded in getting round this problem with their MI4 MIDI matrix unit, and so have Yamaha on their new DX21



polysynth, which won't allow you to change MIDI channels till all MIDI note-on commands have been balanced by note-off ones.

Now to more complex connections. Whereas the above two processing units simply distribute incoming data without affecting it in any way, the MPU103 MIDI Channel Filter/Converter allows you to do rather more in the way of MIDI signal customising. You can switch it to read data only from a selected channel, to change channel numbers to a specified number, and to filter out the odd section of channel data, such as pitchbend info.

The 103's front panel looks similar to the 104's and 105's, but has the addition of two calibrated knobs for Filter and Converter MIDI channel selection (any one of channels 1-16 in each case). As with the Output Selector (but not, for some reason, the Input Selector), a small green LED flashes on whenever MIDI data is passing through the unit – a neat, informative touch that Roland first used on their MKS series of voice expanders.

The third processing option available on the 103 is Key Event Only, accessed *via* a simple on/off button. When the option is activated, the only data allowed to reach MIDI Out is note-on and note-off information, which allows for attack and release velocity values but not aftertouch – slightly self-defeating, if you ask me. What you get, then, is the ability to filter out pitchbend and patch changes, for instance, but not the ability to choose one without the other. And virtually everything else goes overboard as well, which seems a bit inflexible.

When Key Event Only is off, all System (ie. non-channel) messages other than active sensing are transmitted over MIDI Out as soon as they're received. Similarly, all channel data is supported – subject, of course, to the choices you make with the filtering and converting options.

The Filter control allows you to isolate a particular MIDI channel for processing, but remember that all MIDI data is passed through the unit unprocessed on MIDI Thru, so the Filter will only block data on the MIDI Out path.

It might not sound that way, but the 103 is actually a very straightforward unit – it only deals with a single channel, and a single channel conversion, at any given time.

An obvious use for the 103 is to allow the omnipresent DX7, which as we all know can only transmit on MIDI channel 1, to transmit on any channel – rather handy if you want to use a DX7 as a master keyboard for inputting multi-channel sequences for instance. Conversely, it could be used for reassigning a particular MIDI channel on playback of a multi-channel sequence, so that music recorded with one instrument can be played back over another with no tedious rewiring for anyone to have to worry about.

All in all, though, the 103 doesn't strike me as being a wonderfully useful unit. It's certainly not worth its asking price of £225. My feeling is Roland would have been better off leaving out the Key Event Only option, which isn't particularly versatile but which must have accounted for a big slice of the R&D budget cake. More useful would be a processor that allowed you to define a note-range to be passed through to slave instruments. Or better still, one which allowed you to allocate user-definable note-ranges to different MIDI channels; that way, you could effectively give multiple splitpoint abilities to MIDI keyboards that don't, ordinarily, possess them.

As for the MPU101 MIDI-CV interface, it's a different kettle of fish altogether. At £275,

it's not only the most expensive of the four Roland units, it's also some £75 more costly than its only competitor, the Jellinghaus CGX MIDI-CV interface. But as we shall see, it's received a very thorough implementation which, happily, puts it in a class of its own.

Like the Jellinghaus, the MPU101's main function in life is to give people with older, CV synthesisers the chance to connect them up with present-day MIDI ones. Seeing as Roland produced an awful lot of the former, as well as considerable numbers of the latter, it makes sense for them to unite the analogue and digital worlds with an interface of their own. However, the 101 can function within a broader MIDI system, in addition to tying-up your controlling MIDI synth or sequencer in a dedicated MIDI/CV rôle. Alternatively, if you're into driving multiple analogue synths in a big way, you can hang a second MPU101 off the MIDI Thru.

The MPU101 has provision for connecting up to four 1V/octave monophonic synths, which can then be driven in a variety of ways from the data on MIDI In. Each CV/Gate output on the 101 has an associated Dynamics output, which allows MIDI attack velocity ▷

values to control volume and/or filter amount on your CV synth, depending on its internal patching facilities. Four other outputs are provided to control pitchbend, modulation (MIDI controller code 1 provides the mod value here), aftertouch and volume. These are recognised in the basic channel in Poly and Special modes, but not Mono mode (more on these modes later).

The 101 can also be set to recognise information from a sustain or hold pedal. This is assigned the value 64, which is the value Yamaha introduced with the DX7 and which, thankfully, seems to be gaining general acceptance among the various manufacturers.

The above four outputs are all assigned to the currently-selected MIDI channel, which can be any one of the 16.

Facilities *'The 101's main function is to give people with CV synthesisers the chance to connect them up with present-day MIDI ones.'*

At the heart of the MPU101 lie five modes of voice assignment: mono, 2voice, 3voice, 4voice, and the enigmatically-named 'Special'. The first of these is basically MIDI Mode 4, namely Omni Off/Mono. Incidentally, the MPU101 won't respond to mode messages over MIDI; Omni is always off, while Mono or Poly modes are selected from the 101's front panel. This is a shame, even if the provision of Poly submodes (2voice, 3voice and 4voice) isn't catered for at all by MIDI.

In Mono mode, the MPU101 responds to note data on the selected basic channel plus the next three consecutive channels, automatically allocating one channel to each of the four CV/Gate outputs. Obviously, selecting too high a base channel will result in no input on channels above 16. Each channel can handle just a single voice; play a chord and only the latest Note On is played.

Poly mode, as you may already know, allows data to be received on the assigned basic channel only, and allocated polyphonically according to the voice-assignment configuration of the receiving instrument. In the present context, you're able to select 2-, 3- or 4-voice reception, and one of these voices is then allocated to each of the CV/Gate outputs. Thus, if you've selected 4voice mode (and assuming you've got four monosynths hooked up to the 101) and you play a four-note chord over MIDI, each monosynth will be sent one of those notes.

Interestingly, if the number of simultaneously incoming note-ons exceeds the number of voices you've set, the extra notes are sent out over MIDI Out, which explains the presence of such a socket on a MIDI-CV interface. What this means is that you can link up two 101s so that the second handles the 'overflow' from the first, giving you up to eight notes sounding forth on your collection of CV synths, always assuming you've got enough of them.

Of course, two 101s tied together afford more flexibility than just that. For instance, one 101 could be put into Poly and one into Mono mode (you'd need to use MIDI Thru for this), so that one could play up to four-note chords from one MIDI channel, whilst the other played up to four monophonic lines from four *consecutive* MIDI channels. Now *that's* what I call a thorough interchange between the CV/Gate and MIDI worlds. And what's more, you can invert the Gate logic from its default positive-going pulse, so that synths with negative Gates needn't be consigned to the scrap-heap of incompatibility.

It's worth noting, by the way, that all the output sockets on the MPU101 require mini-jacks – once part of common usage, but an unusual sight in these days of the mighty five-pin DIN. They're still easy enough to find, though, while Roland themselves market a selection of leads that includes the requisite mini-to-mini jacks.

Unfortunately, this review's word-count is getting a bit high (and the Editor shows no mercy in these matters), so I'll just briefly mention a few more features of what is, after all, a rather impressive unit.

To put an end to the enigma, 'Special' mode assigns the highest, latest and lowest notes of a chord sent over the current MIDI basic channel to CV outputs 1, 2 and 3 respectively. The Assign Mode three-way switch allows any one of these notes to be assigned to CV output 4, *and* to MIDI Out, which means you can 'pull out' a particular musical line that you might wish to highlight in some way. Other useful assignment modes come into play in the Special option, but lack of space precludes their discussion here.

The Clear button turns off all Gate outputs and sets the pitchbend, mod, aftertouch and volume outputs to default values. The Tune control works on all four outputs simultaneously and is variable up or down a semitone, whilst the three-way Transpose switch allows all four outputs to be transposed up or down an octave simultaneously.

There's also a sub-function (Roland's word) which allows you to synchronise an old-style CV/Gate sequencer with a MIDI one. This is achieved by converting incoming System Real Time codes (ie. the codes that normally control stopping, starting and synchronisation within a MIDI system) to good old-fashioned trigger pulses. Four different trigger rates are available from the MPU101 *via* the four Gate outputs: semiquavers, quaver triplets, quavers and crotchets. Trigger pulses are sent from each Gate output when the MIDI Start or Continue message is received and carry on until the arrival of a MIDI Stop signal, while tempo is controlled by the master MIDI drum machine or sequencer.

And as if all that wasn't enough, the trigger pulse can be set to either positive or negative gate, so the MPU101 really should please everybody, though obviously, the unit won't function as a MIDI-CV interface when in MIDI-Trigger mode.

In the practical part of the exam, the office Roland SH101 received a thorough going-over sandwiched between a transmitting DX21 and a receiving DX7, hung off MIDI Out and MIDI Thru respectively. The MPU101 didn't really get the chance to shine forth in its full glory, but in every respect that I was able to test it, the interface performed admirably. I don't think you could ask for much more than the 101 gives you.

What the 100 series as a whole *won't* give you is programmability – the ability to store multiple configurations as patches for subsequent instant retrieval. I guess that'll be the next (and more expensive) step.

There's no doubt these units perform a very valuable function in a musical instrument world that's coming increasingly under the spell of MIDI. (The latest achievement is a MIDI accordion, incidentally.) The Output Selector in particular performs a fundamental function within just about any MIDI system, given that manufacturers are not yet generally disposed towards providing multiple MIDI Outs on their equipment.

I like the modular approach Roland have adopted, as it means you can buy, say, the Output Selector first (and I reckon it *will* be the obvious first choice for a lot of musicians) and the Input Selector at a later date when finances allow. Both units are sensibly priced and perform their simple functions well, and the Output Selector qualifies instantly for 'once you've got it, you'll wonder how you ever managed without it' status.

The compactness of the 103, 104 and 105, and their ability to fit into the 19" rack-mounting format, only adds to their appeal. It's a pity that the 101 wasn't designed in the standard 19" width, as its present shape doesn't fit in with anything else, and is consequently something of a pain in the neck to house.

The thoroughness with which Roland have implemented the MIDI-to-CV idea on the 101 is impressive, though. To my mind, its way ahead of its present competition, will probably remain ahead of the field for some time to come, and comes with a realistic price-tag.

By contrast, the MPU103 Filter/Converter strikes me as being more than a mite overpriced. At this level, I'd have preferred to see a more carefully thought-out (and consequently more useful), data filtering facility than Key Event Only. Is it too much to hope that Roland may someday heed my advice and produce a cheaper, dedicated channel-converter unit? ■

DATAFILE

Roland MIDI Processing Units

MPU103 Channel Filter/Converter
Interfacing *MIDI In, Out, Thru*
Controls *Filter, Converter, Converter on/off, Key Event Only on/off.*
Price *RRP £225 including VAT*

MPU104 Input Selector
Interfacing *MIDI Thru, 5 × MIDI In*
Controls *Input Select 1-5*
Price *RRP £75 including VAT*

MPU105 Output Selector
Interfacing *MIDI In, 5 × MIDI Thru*
Controls *Output Select 1-5*
Price *RRP £95 including VAT*

MPU101 MIDI-CV Interface
Interfacing *MIDI In, Out, Thru; 4 × CV, Gate, Dynamics; Bender, Modulation, Aftertouch, Volume*
Controls *MIDI Channel Select, Assign Mode 1-3, Transpose, Hold, Clear, Tune, Mono, 2voice, 3voice, 4voice, Special*
Price *RRP £275 including VAT*

More from *Roland UK, Great West Trading Estate, 983 Great West Road, Brentford, Middx TW8 9DN.* ☎ *01-568 4578.*

ALIVE AND KICKING

Dead or Alive *photography by Paul Cox*

Tim Lever is the man who's added a high technology ingredient to Dead Or Alive's pop-funk cocktail – and set them on the road to commercial success. *Tim Goodyer*

After five years, countless personnel changes and two albums on a major record label, Dead Or Alive have finally managed to establish themselves as an unignorable part of current pop. With singles 'You Spin Me Round (Like a Record)', itself a number one, and 'Lover Come Back To Me', they've achieved what their cover version of KC's 'That's The Way (I Like It)' only threatened to do last year. As I write this, the third *Youthquake* song to be turned into a single, 'In Too Deep', seems set to repeat that success.

The band's only remaining founder member is singer Pete Burns, previously with Liverpool's Mystery Girls along with Julian Cope and Pete Wylie. However, the normally outspoken Burns is presently engaged in a period of complete media silence following some unfortunate misrepresentations in the weekly music press, leaving the rest of the band to speak for themselves.

The keyboard side of the operation (and, judging by *Youthquake*, now the most significant instrumental one) is in the capable hands of one Tim Lever. He professes not to be a keyboard player at all, but rather a member of the growing breed of 'programmers' whose work is only made possible by the ever-increasing sophistication of sequencers and

their associated gadgetry.

'I'm definitely not a keyboard player. I thought everyone would know that I wasn't. I'm a programmer. It's only pieces of equipment that enable me to be a group member. In the set we're playing live now, there are only two songs where I'm playing keyboards all the way through – I'm doing quite a bit of guitar as well. On the last tour I had aspirations of being a keyboard player, but I feel I've come to terms with reality a bit now.'

He gestures towards a tired but nicely-intoned piano that happens to be sharing the interview room with musician, journalist and Walkman. 'If you opened that up and asked me to play two chords I *could* do it, but I'd take five minutes to change between them. I know what I want in my head but I'm not quick enough to do it with my hands. But I can do it with a sequencer – no trouble at all.'

Now, Lever isn't the first to admit to a lack of dexterity and proffer technical expertise and a musical ear as alternative justification for his endeavours. Vince Clarke's been doing it for years, after all. But how does he view the two vocations' relative merits?

'I think it's quite a skill being a programmer; you certainly need a lot of patience. I find quite a lot of the time that the better keyboard players are with their fingers, the less they work with sounds and effects. You can use your sequencer to do things that you couldn't play with your hands – and an awful lot of work went into programming the sequences before this tour.'

More history. Having evolved from hard, electronic funk, through Boystown to rest somewhere between the two, the current Dead Or Alive sound retains the hectic sequencer lines of yesteryear whilst embracing a far greater degree of popular accessibility than before.

The tour that accompanied the band's first album release, *Sophisticated Boom Boom*, in 1984, was heavily dependent on backing tapes – a situation that led to a row with Channel 4's *The Tube*. A year later, computer technology has relegated tape to the substitutes bench, yet the *Tube* controversy continues to rage...

'Before we were using an eight-track with the bass drum and a few "unplayable-by-human" sequences on it', recalls Lever. ' We've never hidden the fact that we used tapes on the first tour – we openly admitted it. But in the end I said to the band: "There are ways and means of doing this without using tapes." Now we're using the Yamaha QX1 – which is an eight-track sequencer – linked to the TX816 rack and a couple of OSCars. On paper it's more or less the same system as before, but it means there's much more chance of things going wrong – and that makes me a lot more scared on stage.

'The people on *The Tube* were just being vindictive. They've had loads of bands on using tapes: Divine, the Frankies' stuff, even the first Go West one. The other day we were watching a *Tube* compilation on video and some of that stuff was *completely* mimed. Now they've even asked us to be on the *Midsummer Night's Tube*. I don't know how anyone can have that much gall – having rung up the gutter press about something like that. It's a bit of a joke really, so we've turned it down. It wouldn't matter if the programme actually meant much, but it's nothing now.'

But all this surely raises the question: why bother to use tapes in the first place? By their very nature, they limit the arrangement and running order of a set, and they're notorious for changing speed (and consequently pitch) just when you don't want them to: halfway through a performance. They're also frighteningly susceptible to accidental damage.

'At the time of the first tour there wasn't any way we could have done it without tapes. Now we can do it with MIDI and the QX1. No keyboard player in the world could have played the fast sequences. It's a machine, it sounds like a machine, and it's meant to.

'There are also quite a few other advantages to using the QX1. If you're not happy with a particular sound you can just reprogram it and

change it, whereas once it's on tape it's not so easy – you have to go back and rerecord everything. You can change tempos without the pitch going up and down, and you can change the set round every night without too much trouble.'

Yet despite its considerable impact on the world of electronic musical instruments, the MIDI standard is not without its critics. It's frequently accused of being too slow – largely by the computer contingent – but Lever leaps to its defence with enthusiasm.

'For someone like me, MIDI is unbelievable. A lot of people have been moaning about it being slow, but it's a godsend to me. Its capabilities far outshine any problems it might have.

'The way I got into keyboards wasn't by being able to play, but by having the facility to mess around – having a drum machine and taking a trigger out, experimenting like that. For years I was buying synths like Oberheim OB8s. I had all these ideas that I wanted to try using the triggering facilities, but I had to keep getting everything updated. Now, with MIDI, everything's great.

'In fact, the first system I bought was the Oberheim system – OB8, DMX and DSX – which was great because you only had to use one lead to connect them together; before that it was Microcomposers and leads everywhere. The problem with the system approach was that you couldn't use the DSX with anything but the OB8, which was obviously limiting.

'I love the OSCars, especially for the money. We're in a position where we can go out and buy almost anything we want, but I like the idea that you're getting value for money, and that what you're using is accessible to most people. The sounds the OSCar gives are great and they particularly suit our sort of music; it's a very aggressive sound.

'The DXs are quite the opposite. They're great at imitating acoustic sounds. Play one through your hifi and it might not sound all that accurate, but put it through a 20K PA rig and it sounds mighty impressive. I think it would be a bit monotonous using just the DX7 sounds on the TX816, so that's why we use the OSCars for all the bass lines and sequenced stuff.'

And the future of Lever's keyboard setup?

'Our producer has an Emulator II and I was going to buy one of those; then I was tempted to go out and buy a Mirage, but it's all changing so *fast* at the moment. I'll probably get the OSCar Advanced Sound Generator when it comes out. The idea of having a polyphonic OSCar really appeals to me – I'm well into that!'

Listen to a Dead Or Alive single over AM radio and you could be forgiven for thinking reproducing live would be a low-tech, unsophisticated affair. Nothing could be further from the truth, as your reporter discovered.

The QX1 forms the basis of all the live arrangements, being in control not only of a large part of the keyboard work but also of a Yamaha RX11, which provides the bass drum and one or two other percussive oddments. The rest of the drumming is taken care of by Steve Coy, who's recently taken to sitting, rather than standing, behind his Simmons kit.

'It's only really the bass drum that's off the RX11, the rest of it is Steve's SDS7 – which is really great. It makes sense to us to have the bass drum sequenced. We started off with the complete kit playing, but when a song has a solid, repeating sequence, it sounds a lot better to have the bass drum off the drum machine. Most of it's straight bass drum all the way through, but Steve's got the Simmons bass drum on a pad instead of on the floor – the bass drum pad is set up just for show – so it's there if he needs it. It works really well.

'He's doing all the hi-hat work now, which is more than he used to do. On the last tour he was just doing percussion with the Simmons toms, but he's gradually introducing more and more of the kit. And it does sound much better now, much more *alive*.'

Things haven't always been this easy, though. Dead Or Alive have travelled a long and at times troubled road to stardom, though strangely, the many line-up changes the band has experienced have seen Lever join twice. When Burns and the rest of the original group recorded their first demo, Lever was there, playing keyboards, even though he left soon afterwards. Joining him on the long list of departures is the name of Wayne Hussey, now with the Sisters of Mercy. Hussey was responsible for writing a fair proportion of the *Sophisticated Boom Boom* material – Lever was responsible for none. Now the writing is divided equally between the foursome.

'A lot of the material was kicking around for years and years. Then the deal arrived and we wanted to use the old material', Lever remembers.

'I'm much happier now, being involved right from the start. At first it was like being a session musician, especially as a lot of the early songs weren't dance songs at all. That was one of the problems with the first LP: trying to turn the songs into dance songs, which some of them weren't originally.

'When we write songs, we don't usually write from a tune – we write from an idea for the production and work the song around that. Right from the start it's very much a joint effort, and we write very quickly. We've got a little setup that's really easy to write with: we go into a little rehearsal studio and set the drum machine up to trigger the Wave or the OB8 so that if you hold a chord down it'll just play. Then anyone that's in the room can mess around and, although things might go a bit wayward on the notes, the rhythms are OK.

'We can write an LP in about two weeks; ▷

Pete Burns *photography by Tom Sheehan*

▷ that's what we did with this one. Then we think about the production again and go away and do the programming in the eight-track studio we've got at home.'

Clearly, the band have formulated a writing system that's open and flexible without ever getting overcomplicated or difficult to work with. It's a success, and it also means songs can come about in the most unlikely ways...

'The idea for 'In Too Deep' came from starting another song's sequence from a point other than the beginning, so it was going back to front. But that's the exception, not the rule.'

> 'Programming is quite a skill. The better keyboard players are at using their fingers, the less they experiment with sounds and effects.'

Still, after such an unpredictable start – and a chequered history that doesn't exactly brim with consistency – how stable is this particular incarnation of Dead Or Alive?

'Very stable. This line-up has been together for at least three years now. It works well and I don't really see any point in changing it.'

But change it they have – albeit only for live work. The two-man brass section that accompanied the band on the '84 tour has been replaced by no fewer than seven additional musicians this time around. Between them, they not only manage to produce an excellent live sound – they also succeed in reproducing the elaborate vocal arrangements that grace *Youthquake* with such colour. This is due to five of the seven being backing vocalists: three men and two girls.

'We've also got Chris Payne on keyboards and Russell Bell on guitar – both from Gary Numan's band', Lever affirms. 'We used brass players before, but now I've programmed it because it's only on two songs and it isn't worth taking a brass section out just for that. It sounds OK.

'Chris is playing an awful lot of grand piano in the set using a Yamaha electric grand. He's also using our PPG Wave, which is an old one with hundreds of jack plugs on it from the updates we've had done, and a Juno 106 which is really good for live work because you can throw a sound together so quickly. And it's really good for the money!'

From concert stage to vinyl record. *Sophisticated Boom Boom* was an album with a decidedly hard edge to its production. The tracks were sparsely arranged, and designed to play almost as a single track across each side of the record. Come *Youthquake*, this aggression has been tempered with the softness of greater sensitivity as well as the cushion of commerciality.

Not surprisingly, the change in sound was accompanied by a change in production credits, Zeus B Held giving way to Mike Stock, Matt Aitken and Pete Waterman, the trio behind Divine. Was all this a deliberate move, or merely circumstantial?

'We realised we were going through a period of change so we didn't put anything out until we'd finished the LP. We also wanted a different sound and when we heard Divine's 'So You Think You're a Man' we thought: "We'll have them!" I think Divine had a lot to do with it.

'We've definitely achieved what we set out to, but it's difficult to explain just what that is. We wanted to keep it hard and aggressive like the first LP, but that record didn't capture the nicer, smoother pop sound that we also wanted. We were very naïve when we did the first album; it came out sounding how we wanted it, but after a while we realised it could have done with something more.'

> 'With *Youthquake* we've definitely set out to achieve what we wanted to, but it's difficult to say exactly what that is.'

It's apparent from listening to the album that the Fairlight, once again, has managed to get in on the act. Just how extensive its participation has been isn't quite so readily apparent, however.

'We did a lot of preparation for the LP, writing programs for the sequencers and such, with the idea that we'd just go in, say "we want a sound like this", and we'd be away. But we also wanted to use a lot of Fairlight and the one we used, Pete Waterman's, didn't have MIDI, of course.

'What we ended up doing was converting all the programs we'd got for the MSQ700 to Page R on the Fairlight – which was surprisingly easy to do. Then, halfway through the recording, we heard the Emulator II. It had MIDI, which was great, and the sampling on it was actually better than the Fairlight. So we got one of those and the ADSR didn't work with our sequencer. It was murder.

'So in the end we did 90% on the Fairlight and used the Emulator for manual stuff.'

But long-players aren't the only item on the Dead Or Alive production agenda. Seeing as a large part of their public is to be found on the dancefloor every Friday and Saturday night, the band simply can't afford to ignore the 12" single.

'I have great fun doing twelve-inch mixes. One of my favourite instruments is reverb; when you do a seven-inch mix you've got to think about the radio, but when you do the twelve-inch you can go really over the top.

'I also like to have one or two OSCars lying around when we're doing a mix – to use for effects. You can trigger it straight off tape using the hi-hat or bass drum and get some really good effects.

'I think twelve-inchers are a good way of developing music. Often, they bring about new production ideas that appear three months later in the seven-inch charts, so for me they represent the front line of development, if you like. I don't know if they're a valid musical form, but they're good fun.' ■

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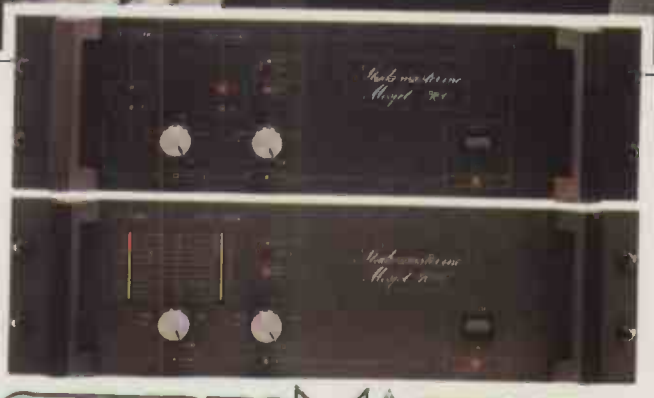

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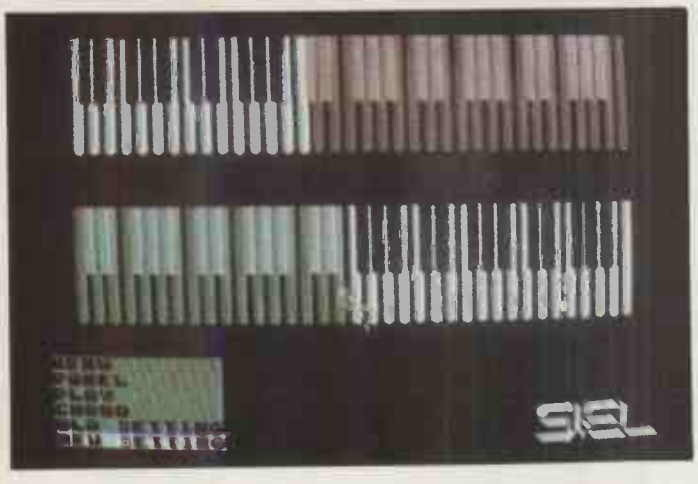


The writers at SIEL's software lab have been working overtime to come up with two new MIDI packages. The first is a DK editing package with dramatic graphics, the second a complete patch memory database.

Trish McGrath

Using a home computer to edit parameters on a synth is an unexpected, but very welcome, spinoff of the MIDI revolution. At a time when *every* new polysynth is coming equipped with a digital parameter access system, *any* means of giving musicians more programming information is a real godsend.

SIEL were among the first to realise the potential of putting a synth's parameter system on a computer screen, and their Expander 6 editing package was impressive enough to give a good many doubting Thomases a nasty shock as to what MIDI was capable of achieving. A year later, they're offering the Graphic Editor as an almost irresistible temptation to Commodore 64 owners and their DK80 polysynths. It's available on either disk or cassette, and has broadly the same hardware requirements as the Data Base package reviewed later on.

Once loaded, the program displays an Options Menu housing such goodies as Panel, Load, Save, Free, Play, Chord, Old Setting, New Setting and End of Job. All selections are cursor-controlled by way of moving a curious representation of the SIEL logo around the screen and pressing Return (or 'fire' on a joystick, if you have one) when it's hovering over the required option; a highlight line confirms your selection. While this system worked well enough in practice, having to play *The Golden Shot* every time I attempted a selection wore on my patience eventually. I also can't help thinking that if SIEL's cursor was a little smaller and simpler in composition, it wouldn't take so long for the Commodore to tell it to move around – as things stand, it's a decidedly sluggish little beast.

Anyway, from the main menu you can Load one of the DK80's programs, while Panel displays the parameters of the chosen sound in glorious technicolor. Seeing as the DK80 is bitimbral, the two timbres are presented in different colours side by side, which is rather neat. And you have to commend SIEL on the way they've managed to cram all the ▷

synth's parameters (it isn't the world's simplest polysynth, remember) onto one screen – even if they are a little difficult to read at times.

Options on the Panel menu comprise Menu, Help, Play, Chord, Graphic, Old Setting, and New Setting, apposite titles all.

Selecting Play instructs the program to play a monophonic sequence (entirely separate from the sequencer in the DK) when you hold the Return key down, while Chord triggers a chord sequence. Both these options are designed to let you hear the sound you're creating without having to play the keyboard, which is pretty smart.

To begin editing the sound you've loaded, you simply select a parameter with the wandering cursor and press Return. This displays the current value, which you can then alter using the +/– keys. That's all utterly simple and logical, but SIEL have incorporated a few extra niceties to make life easier still.

Selecting Help and one of the eight parameter blocks, for example, presents you with an explanation of what each parameter does. Useful when you can't quite suss out the screen display, or you're suffering from mild amnesia.

More useful is the Graphic option, which allows you to zoom in on modules such as the VCA and VCF envelope sections, and the DCO rectangular waveform. The waveshape diagrams change in real time when parameters are edited, and you can also obtain a visual representation of the DK80's split points in Graphic mode, with two keyboard displays, and a white area that denotes the 'playing' section.

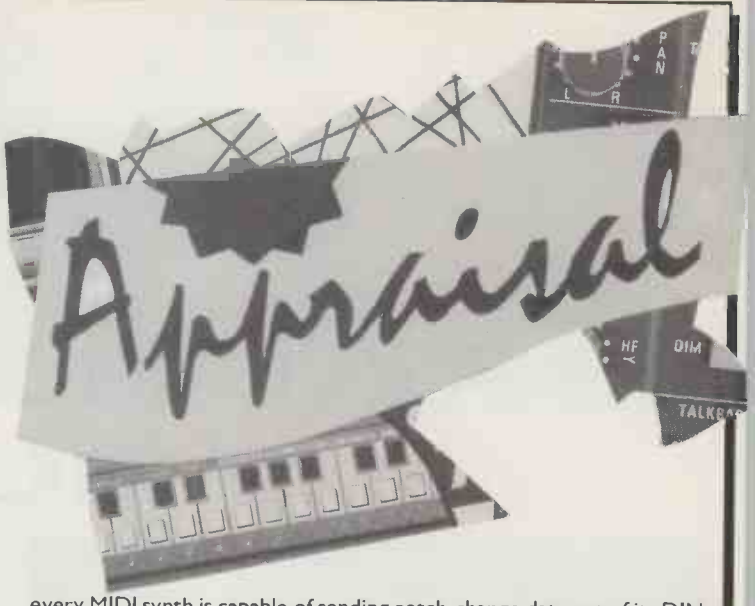
Editor *'You have to commend SIEL on the way they've managed to cram all the DK80's parameters onto one screen.'*

Apparently, split points can also be edited from this screen by the usual system of cursor movements and Return key presses – but the review program thought otherwise.

And so to the Old Setting option – and a bit of a bug. As you've probably guessed, this option lets you compare your original sound with the edited version, and is selectable from any screen display. Once it's selected (and you've waited patiently for a few seconds), all the parameters change accordingly and the highlighted line swops to Old Setting. However, dare you lack patience and press the Return key twice, the parameters will change once – and then *again* a few seconds later. No harm in that, you might think, but the fact that the program doesn't return the highlighted line back to the New Setting means that the *edited* parameters on display end up being labelled 'Old Setting'. Unhelpful, confusing, and generally a bit of a mess. You *can* redraw the graph simply by reselecting the highlighted option (which shouldn't be allowed to happen either, to my mind), and could probably avoid the situation altogether by being reasonably alert in the first place, but I do hope Siel consider a bit of software rewriting in this area. At the moment, we're left with another example of human beings – and journalists in particular – not being competent enough to make proper use of a computer's supreme intelligence...

As for the remaining options, these include Save (for writing your fully edited sound to memory), Free (for creating a sound from scratch), and End of Job (for returning the Commodore to power-up mode).

In essence, the Graphic Editor is a bold attempt at counteracting the ergonomic limitations inherent in digital access synths. It's questionable whether a system as slothful as this will ever make for *speedier* sound-changing, but one thing is certain: editing this way is a lot more rewarding than struggling blindly through the DK80, with just a two-digit LED window to guide you on your way. And with a number of excellent (just look at the pictures) array of graphic displays, using this package means you're a lot more likely to make the *right* changes first time, which makes things a lot less laborious. If you've ever felt frustrated at the hands of your digital access DK, you'll need some willpower to resist splashing out on the Editor. ■



Just as the programmable synth put an end to the arduous task of memorising patch changes for regurgitation during a live performance, so the home computer and the MIDI are conspiring to put an end to the task of filing heaps of patch chart information. First indication that this is taking place is SIEL's Data Base package, a computer-assisted filing system that allows storage and manipulation of a MIDI synth's program memory.

The idea behind the program is simple enough: given that just about every MIDI synth is capable of sending patch-change data out of its DIN sockets, there's no reason why the information from several machines couldn't be pooled into some central reserve of synth voices. Once that's done, the lucky MIDI system owner can order the voices into 'families' for particular sets of applications.

The SIEL software *should* work with any MIDI synth with the exception of the Yamaha DX series, though Casio synths remain uncooperative until you give them the opportunity to have an initial conversation with the host computer before releasing data. If at all possible, assemble your own setup in the shop and rest easy.

In total, hardware requirements are a suitable MIDI synth, Commodore 64 and disk drive (or cassette machine), SIEL MIDI computer interface, TV or monitor, and the necessary leads for connecting them all together (that's when the fun starts). Preparation consists of enabling two-way MIDI communication and disabling the memory protect – if you have such a thing – on your synth.

Under test, the Data Base loaded from disk in a respectable 100 seconds, and offered a main menu of options comprising Family Operation, Sequence Operation, Disk Operation, Clear Data Base, and End of Job.

What do they all do? Well, Disk Operation is the menu whereby the database currently residing in the computer's memory can be saved to disk, and a previous database recalled for use or further editing. It also encompasses housekeeping functions such as erasing a stored database and displaying the disk directory. Clear Data Base simply clears the current data and presents you with a blank database from which to work, while End of Job clears the CBM64 of the Data Base program and returns it to basic power-up mode. Sensibly, these latter two options require you to confirm your intentions before you can wipe the boards clear.

As for the test synth, I played safe and opted to use the ultracompatible SIEL DK80 poly, which was immediately set to work on the Family Operation. This option allows you to store single voices for filing into up to 32 groups of sounds, or 'families'. Most obviously, these families can be piano sounds, brass sounds, or whatever sort of sound you're working on at the time. But as with all database programs, the choice is yours as to what a family should represent. So you could, for instance, file all the sounds needed for a particular song as one family.

Data Base *'The Family option allows you to store single voices for filing into as many as 32 groups of sounds.'*

The Family Directory lists the groups, and allows you to Edit, View or Exit to the main menu. Selecting either View or Edit for a particular family moves you into the Program Directory for that group of sounds. This is neatly headed up Name (eg. Hellish Row, YMO Ripoff), Keyboard (reminds you which synth the sound belongs to), and Family.

Select View and you can choose one of the sounds and download it from the database to a specific program number on your synth. Edit, meanwhile, gives you the freedom to Insert (or add) another sound program into the family, Delete a sound, or Rename it

(though you can't rename a sound if the new title already exists elsewhere). And when you've built up 16 sounds in a Program Directory, it simply starts another page for you to carry on up to an overall maximum of 250 sounds.

Thoughtfully, SIEL have provided the means to scroll page by page in View mode, though why it wasn't considered necessary in Edit mode is beyond me.

Using the Family part of the database is simplicity itself. One-character key presses select a new option, a white highlight line homes in on a sound for deleting or renaming, and the f1 and f3 function keys serve to move this line up and down as required.

Niggles? None really, though I'd have found a search facility really useful in helping to locate a specific sound post haste, and a method of printing out program directories wouldn't have gone amiss, either.

That just about rounds up the filing of single voices within the database. But what if you need to download whole *banks* of voices in one swift swoop? Well, luckily for you, the Sequence Operation bit of the package is designed to do just that. So, make your way back to the main menu, enter the Sequence Directory, and...

This part of the Data Base is designed to combine files from the Program Directories in desired sequences, thus allowing your synth's memory to be reprogrammed at any time. You could be forgiven for thinking you can do this anyway, what with being able to store the memory's contents on cassette, RAM packs, or whatever your instrument can manage. The difference the Data Base makes is that it doesn't limit you to having to replace and overwrite the existing memory *in its entirety*. In fact, you can simply replace, say, all the odd-numbered programs in one go, leaving the even-numbered ones intact.

How does it work? Basically, you name a new sequence (with maybe your synth's name or a song's title), enter Edit mode, and get given the option to Insert, Hole, Delete or Exit. Insert presents you with the Family Directory for you to Choose from, which in turn asks you to specify a particular sound from the group for inserting into the sequence. This, in the meantime, is counting the sounds from zero upwards. However, Offset allows you to renumber sounds, so that if you want to, say, download eight sounds to a particular bank on a synth, you can offset the sequence to store from program number 09 onwards, for instance. And if you want to keep one or more of the programs in that bank intact, Hole allows you to miss out that number when saving to the synth's memory.

Once your sequence compilation is underway, you can insert new sounds at any point (further sounds are renumbered automatically), and Delete a program by homing in on it and pressing the Big D on the Commodore.

When it comes to storing the completed sequence in your synth, you've a choice of downloading manually or automatically. Some keyboards will only accept programs one at a time (in which case you press the space bar manually for each sound), while others can receive complete blocks of sounds.

One unexpected bonus is that, since all this option involves is manipulating patch numbers already held in a family memory, you can put patches into order without a MIDI keyboard in sight. If you've ever suffered an attack of just-before-gig change of heart, you'll know just how helpful such a provision can be.

Finally, the program's disk options let you save your various databases to disk for posterity.

So, a well-conceived and user-friendly software package that succeeds in relieving the software reviewer's boredom, as well as getting something really novel out of the MIDI standard. If you've got the hardware, you'll find it hard to resist. ■

D A T A F I L E

SIEL DK80 Graphic Editor; MIDI Data Base

Format *5¼" floppy disk or cassette*
Hardware Requirements *Commodore 64 or SX64 micro, disk drive or datasette, monitor or TV, SIEL MIDI Computer Interface, 2 MIDI cables*
Prices *DK80 Graphic Editor £54; Data Base £39; MIDI Computer Interface £79. All prices inclusive of VAT.*
More from *SIEL UK, Ahed Depot, Reigate Road, Hookwood, Horley, Surrey, RH6 0AY. ☎ (0293) 776153/4.*

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POWER DOWN BELOW

No matter how many MIDI keyboards you have, you've still only got two hands to play them with. But invest in a pedalboard, and you can bring your feet into the action, too. *Malcolm Harrison*

Whereas guitarists have been stamping on various floor-mounted devices for years (leaving their hands free to actually play guitar in the process), keyboard players seem to have shyed away from bringing their feet into live performance action. Which is odd, because unlike a guitar's players paws, those of the average pro keyboardist are occupied doing knob-twiddling when not called-upon to tinkle the ivories.

We've seen plenty of pedals aimed at activating various keyboard performance functions (sustain, portamento and so on), but aside from Korg's MPK130 MIDI pedalboard, few designers have tried to force the idea of playing *tunes* with feet down keyboard players' throats.

Well, Midlands company Micro Musical are giving it a bash, with their own MIDI pedalboard that retails at a significantly lower price than its Japanese rival, and has the added advantage of being upgradable to a more complete specification as and when finances permit.

The ML50 (as the new board is called) to come under the Harrison gaze was a pre-production prototype (hence the lack of proper labels on the pictured model), but by the time you read this, production models should be available. Basically, what you get is a 13-note pedalboard, the like of which you're probably used to seeing on spinet organs. This particular one is of Italian origin and, although plastic, seems rugged enough to withstand quite a bit of foot-tapping and/or lager spillage.

The basic ML50 model has just one button – Mono/Poly – which (wait for it) allows you to play the pedals monophonically or polyphonically, with the board taking over the lowest 13 notes of the connected MIDI keyboard.

But that isn't the end of the story, because an additional foot controller incorporates several other features including a MIDI channel selector, an octave selector, and an added fifth feature. In other words, the sort of extra facilities that are more or less mandatory for professional applications.

The octave selector frees you from the lowest-octave restriction of the basic ML50;

> **Facilities** *'You can choose one from a selection of six octaves, so long as your MIDI controlling keyboard can receive note information over that sort of range.'*

instead, you get a choice of six octaves, so long as your MIDI keyboard is capable of receiving note information over that sort of range. MIDI channel selection is possible only between channels 1 and 5, which seems a bit odd when you consider almost *everything* that offers selectable MIDI channel allows you to switch between all 16 of them. As for the added fifth facility, this is something of a hangover from the organ world (for which I suspect the ML50 was originally conceived), as it gives you an instant fifth every time you put your foot on a single note.

Will the Micro Musical board make pro keyboardists take notice? Time alone will tell, but with prices as low as these, a lot of people aren't going to lose an awful lot just to give the system a trial run. And once you plug a pedalboard in, it's amazing what you can do with a free pair of hands... ■

DATAFILE

Micro Musical ML50

Keyboard *13-note foot-operated, C-to-C*
Interfacing *MIDI Out; Audio Out*
Modes *Monophonic or polyphonic; optional add-on module offers MIDI channel selection (1-5), octave selection (1-6), automatic added-fifth feature*
Prices *ML50 £199, add-on module £99, both VAT inclusive*
More from *Micro Musical, 37 Wood Lane, Shilton, Coventry, CV7 9LA. ☎ (0203) 616760.*

LATIN LESSONS

Working TR727 *Latin photography by Tim Goodyer*

Roland's TR707 has been a big hit in the digital drum machine stakes. Now a sister instrument, the TR727, adds Latin Percussion sounds to the company's vocabulary. If anything, it raises the standard further. *Dan Goldstein*

In industry, you can't keep a good idea quiet for long enough. You can do what you can to protect it against industrial espionage while it's still in the development stage, and in that you might be extremely successful. But as soon as you launch an innovative product of mass appeal, it's an odds-on certainty that your competitors will have something similar on the stocks within a few months.

This is what Korg have found, anyway. A year ago, they launched a digital drum machine – the DDM220 – that went beyond the confines of conventional 'kit' drum sounds by offering a range of less common Latin ones instead. The ordinary rock drum kit is far from dead, of course, so the company released a 'traditional' model, the DDM110, at the same time. But it was the 220 that musicians really took to, not least because for the first time, they had a means of introducing sonic variety, not just the rhythmic kind, into their programmed drum patterns.

Back in Japan, Korg's arch-rivals Roland looked on aghast at the success of the little box of Latin tricks, and promptly set about designing a competitor.

Well, that isn't strictly accurate, because the machine they came up with, the TR727, isn't a direct rival for the DDM220. What sets the two apart from the outset is price. Whereas the Korg costs only a little over the £200 mark, Roland's newcomer is an altogether more upmarket device, with an RRP of £550.

It has a complement of upmarket features, too, like separate audio outputs for each voice channel, MIDI In and Out sockets, a cartridge storage facility, and an excellent liquid crystal grid display that makes pattern programming and editing a lot easier.

Like a large part of the 727's specification, that display is identical to the one on the TR707, Roland's kit-drum digital percussion machine. So, the new addition comes replete with 15 digitally-sampled percussion sounds, sequencing software that allows programming in both step and real time, a rhythmic hierarchy that involves the user in Measures, Patterns and Tracks (in ascending order of length), and the useful niceties just mentioned.

I need hardly tell you that Roland have had more experience in producing programmable drum machines than just about anybody. Their first was the CR78 Compurhythm, a preset device that had pattern-programmability tacked on as something of an afterthought. But in spite of employing an incredibly unwieldy programming system, the machine was usable, and it offered a vast range of (analogue) drum voices, from standard snare drums to more unlikely things such as bongos and maracas – just the sort of voicing, in fact, that Roland are offering again with the advent of the TR727. In the intervening period, the company concentrated on 'ordinary' drums, and produced some machines (the TR606 and TR808) that were as musically influential as they were economically accessible.

Early last year, Roland announced a successor to the 808 in the shape of the TR909, but by that time, its analogue sounds were wearing a bit thin in the face of increasing digital competition. In the event, it turned out to be little more than a stop-gap model, now being sold at what can legitimately be described as bargain prices.

It was the TR707, unveiled towards the end of 1984 but already a huge success across the globe, that signalled Roland's return to the drum machine fore. The reason for its success? A combination of some excellent digital sounds, and a programming system derived from that used in the 808 and 909 – and which was therefore familiar territory for an awful lot of musicians.

So now that Roland have followed up the 707 with a Latin Percussion variant, is their drum machine range unbeatable? In the strictest terms, yes – they're the only company offering upper-range, professionally-specified machines of both rock and Latin varieties in self-contained packages. But getting your hands on the Roland pairing is an expensive business, largely because of the amount of hardware and software duplication that exists between the two.

Now, if Roland were to follow the lead taken by the Americans (notably Sequential,

E-mu Systems and so on), they'd be able to offer a standard, dedicated drum machine for which additional sounds could be purchased at a later date and added to the overall system – that's a much more cost-effective way of doing things. But that's something they seem reluctant to do at present, which leaves musicians with the unpleasant prospect of having to buy another load of knobs, switches, sockets, displays, and sequencing software when all they want is relief from standard bass-and-snare backbeats.

Sounds *'Best of the bunch are the congas: all three of them are deliciously realistic...a real ear-opener.'*

But enough of this petty criticism. The TR727 sounds *brilliant*. Better than the DDM220 (which you'd expect, of course), and probably better than the TR707, seeing as its samples suffer less in the way of quantisation noise and cutoff problems than those on the earlier, rockier version.

The bongos are smooth but forceful, the timbales nicely low-tech and rootsy, and the agogos crisp and delicate, though curiously, they lack sparkle by comparison with those on the DDM220. As for the referee's whistles that seem to dominate most of Roland's demo patterns, they sound pretty good too – though I can't see you're ever going to need three of them, especially when two are identical.

Best of the bunch are the congas, though. The 727 gives you three – a low one and a higher-pitched one in both muted and open varieties – and they're all deliciously realistic. If you're used to the drifting, half-hearted analogue congas on the TR808, these'll be a real ear-opener.

Part of the reason for the 727's sonic success lies in the fact that a lot of LP sounds aren't all that demanding in terms of sample length and bandwidth. When it fails, it does so because one beat of the instrument being recorded either lasts too long or has too wide a frequency response for the 727's digital memory to accommodate. Biggest offender here is the star chime, a voice of novelty and appeal that cuts off *very* abruptly. You're probably more familiar with it in real life as a mark tree, and it isn't the only oddly-named voice on the Roland's front panel. The other is the quijada, which sounds to me like an excellent recording of a vibraslap. Still, the former word is probably the more historically accurate.

No problems with the last two voices, though. In most people's percussion language, cabasas and maracas are just that, and when they're recorded by Roland and stored digitally within the TR727, they sound uncomfortably close to the real thing, too.

Apart from the differences in voicing and a new colour scheme that sees the 707's trad orange replaced by a pleasant mid-blue, there's little difference between the two machines. Where the 707's spec lets it down, the 727's does likewise. And where the 707 is brilliant, the 727 is equally praiseworthy.

Briefly, the good points are the LCD graphic (with the exception of Simmons with the SDS6, Roland are the only company to have achieved something as detailed without resorting to an external computer), a well-specified rear panel, and a versatile programming system that lets you combine real- and step-time recording within the same pattern. The sockets that really make the difference are MIDI In and Out, which receive and transmit the MIDI clock as well as allowing you to play/program the 727's voices from the keys of a MIDI keyboard; tape sockets that let you save patterns to cassette *and* sync the machine to a clicktrack on a multitrack tape recorder; the Roland-standard Sync 24 connector that lets you marry a 727 up to a more aged device like an 808 or 606; and the individual voice outputs already mentioned. There's a fair bit of debate currently circulating round the industry's system as to the value of separate outs for drum voices. Personally, I reckon they're priceless. If there's a couple of sounds that need a bit of tweaking, no amount of onboard facilities is going to give you the width of options provided by a well-loaded 19" rack. By comparison, a built-in overall stereo output (such as that provided by the 727 and a lot of other machines in the same price category) isn't nearly as worthwhile, since if you've got the facility to reproduce sounds in stereo, chances are you're able to route them individually through a mixer as well, panning them, EQing them, and putting them through outboard effects units as you go.

What does the new Roland do badly? Not much. Its main drawbacks lie not so much with what it does, but with what's been omitted from its specification. Certainly, its programming facilities lack the imagination of something like Sequential's TOM, and it doesn't offer anything like a reasonable amount of voice-adjustment features. You can't tune the pitch of individual voices, and neither can you apply voice-selective accenting – there *is* an accent facility of variable degree, but if you apply it to a certain beat, *all* the voices programmed on that beat are accented by that degree.

Opinions vary on the user-friendliness of Roland's programming system. If you're used to it, the LCD window of the 727 will make life easier still. If you aren't, you might find it takes a bit of time before you're really writing patterns freely.

Operation *'Programming Latin rhythm patterns isn't nearly as straightforward as performing the same job on a rock machine.'*

One related problem (and one that took me by surprise) is that programming Latin rhythm patterns isn't nearly as straightforward as performing the same job on a rock machine. Most people have some regular method they adopt when programming a rock drum pattern: either they start with the snare, the hi-hat, the bass drum, or whatever. But such considerations are swept aside the first time you come up against a machine on which all the instruments are of a 'peripheral' nature. You can't exactly start building a rhythm pattern with a whistle – long, short, or otherwise.

Admittedly, the size of the problem is dependent on whether you've got a concrete idea in your head of what you're trying to achieve. It's also eased considerably if you're using the 727 in conjunction with a conventionally-voiced drum machine. But make no mistake, 'jamming' with a Latin box is a much riskier business than powering-up a bass-and-snare machine and inputting the first thing that comes into your head.

To conclude, I have to admit the TR727 is huge fun to use – even if Latin Percussion voices aren't 100% to your taste. Most of the sounds here are impeccably reproduced, and once you're over the 'where do I start?' programming dilemma, writing patterns is a real doddle. And that's true regardless of whether you're using the 727 to complement a traditional drum machine, or whether you're intending to use it solus.

I also have to admit that from an economic standpoint, the Stateside convention of letting the musician buy add-on voice cartridges is a good deal easier on the wallet. But it has its drawbacks. For one thing, it assumes that you want a conventional drum machine in the first place, and for another, it still precludes the *simultaneous* onboard programming of both internal and external voices. In a lot of cases, anyway.

It's to Roland's credit that their sloth in adopting ROM cartridges for additional voices hasn't been matched by a reluctance to offer storage of rhythm patterns on plug-in RAM. Because like its more conventional sister, the TR727 has a built-in slot that accepts MC64C RAM cartridges, which has to be good news for anybody fed up with dumping a whole gig's worth of rhythm patterns onto the far from dependable medium of cassette tape.

I doubt that the TR727 will sell in numbers that even approach the total achieved by the 707, but if it adds a bit of spice to what musicians can get out of today's rhythm technology, it'll justify Roland's decision to launch it in the first place. ■

DATAFILE

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Technology

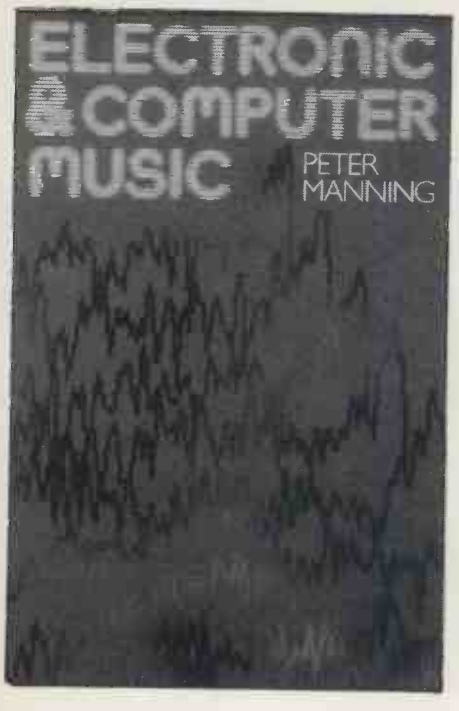
SIGHT READING

Strange though it may seem, E&MM can't tell you all you want to know about music technology. Four new specialist books – of very different applications – have been published to fill in the gaps.

Dan Goldstein & Simon Trask

The four books under review here don't actually have much in common. Sure, they all set out to provide illumination on the subject of music technology beyond what the monthly magazines have the time, space or obligation to do. But during the course of this review spot, we'll be going from a general, academically-oriented history to a synth buyers' guide aimed very much at the consumer – with a couple of home computer tomes in between.

Books on the history of electronic music aren't exactly thick on the ground (Paul Griffiths' rather dry *Guide to Electronic Music* and Andy Mackay's glossy but thought-provoking *Electronic Music* are the only two that spring readily to mind), and books that combine this subject with a look at the development of computer music are an even rarer breed. Peter Manning's just-released epic, ***Electronic & Computer Music***, published by Oxford



University Press at just under £20, is therefore in a category of its own – though as we'll see, that isn't necessarily a good thing.

The author has been Senior Experimental Officer in Music (where *do* they get these titles from?) at Durham University since 1973, where he's been responsible for the development of electronic and computer music facilities.

It comes as no surprise, then, that Manning's book is stuck firmly in the academic arena. From its contents list it looks impressive and all-encompassing, but more detailed examination shows it to provide an incredibly shallow and oblique perspective on what is now an extremely complex and wide-ranging subject. Its strongest feature lies in the historical background it gives to current events, though that in itself doesn't compensate for the inadequate coverage of those events.

What we get on the historical front are sections covering the background to 1945, developments in Europe and America from 1945 to 1960, the voltage-controlled synthesiser, the electronic repertory from 1960, and the digital revolution.

The author is at his best covering developments up to 1960. There's some excellent stuff on *Musique Concrète*, the Cologne and Milan electronic music studios, and parallel developments in America.

'New Horizons in Electronic Design' discusses the voltage-controlled synthesiser, but this isn't the popular history of analogue synthesisers most modern musicians and composers are interested in reading. Instead, we're treated(?) to an abstract technical discussion of analogue-based synthesis – the only practical passages concern themselves with what Manning deems to be the 'serious' applications of analogue sound components.

The brief seven-and-a-half pages devoted to 'Rock and Pop Electronic Music' provide an ill-informed, incoherent whirlwind tour of the subject (the Griffiths book is no better) that doesn't progress any further than the mid-70s, and therefore falls well short of the era in which *real* technological innovation took place in music-making as a whole – not just in pop. And what *is* there includes some glaring errors, like the references to Yes keyboardist Rick Waterman (brother of Dennis?) and the crediting of *Six Wives of Henry VIII* to Yes rather than the aforementioned Wakeman/Waterman, presumably because extracts from it appeared on the *Yessongs* album. And how's this for a bit of meaningless, unabridged twaddle: 'Albums such as *Atom Heart Mother*, *Meddle* and *The Dark Side of the Moon* exhibit strong socio-cultural characteristics in their integration of instrumental material with many environmental sounds such as the mooing of cows, footsteps, frying eggs and bacon...'. If he were dead, and there have been quite a few reports recently that he might be, Roger Waters would turn in his grave.

As for 'The Digital Revolution', it doesn't cover anything like the ground you might expect from such a grandiose title. Again, the emphasis is firmly on developments in the academic (or at least non-commercial) world. There's plenty of accurate, informative material here, particularly on the various MUSIC languages developed by Max Matthews and Barry Vercoe, and the digital synthesis systems that have developed from these. John Chowning's work in the development of FM synthesis is also covered, but there's no mention of Yamaha's rôle in making FM synthesis widely available to musicians of all styles throughout the world (in fact, there's no mention of Yamaha at all).

And remarkably for a book with academic aspirations, there's barely adequate consideration of IRCAM's contribution to the field, coupled with a pitifully brief mention for Britain's own EMAS (Electro-Acoustic Music Association), which for a number of years has done sterling work in supporting and promoting computer-generated and computer/acoustic music. In fact, there's precious little space given to *any* British composers or electronic music studios, so that while Jonathan Harvey gets a mention for his already-classic 'Mortuos Plango, Vivos Voco' (all you FM bell-sound freaks should take note of that one, by the way), the equally inventive work of the likes of Denis Smalley doesn't get so much as a look-in.

Seminal computer musical instruments such as the Synclavier and Fairlight aren't exactly covered in depth, despite doing more to bring computer-generated music into the public eye than all the world's academic music studios put together. That's not to say Manning eschews high-priced hardware, though. The only instruments he describes that don't require you to take out a second mortgage are the now ageing Apple-based Syntauri and Soundchaser systems. You get the impression he's been locked in his digital music studio, PDP computer and all, for the past seven years. Either he isn't aware of what's happening in the world outside, or he doesn't consider it worth writing about. Whichever, he's making a big mistake.

For whilst it's true that a lot of the developments that made today's 'commercial' instruments possible occurred within an academic context, today's situation is the reverse: it's the commercial companies, whose R&D is funded from their own profits, who are making the great ▷

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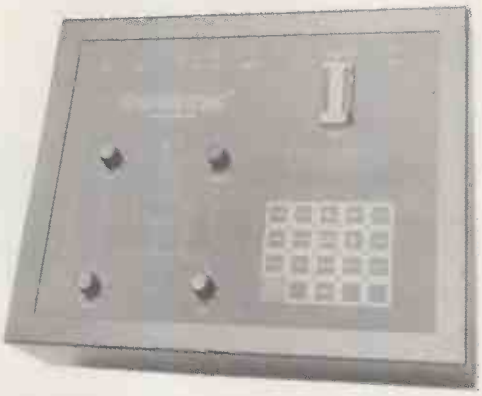

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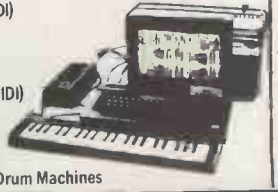

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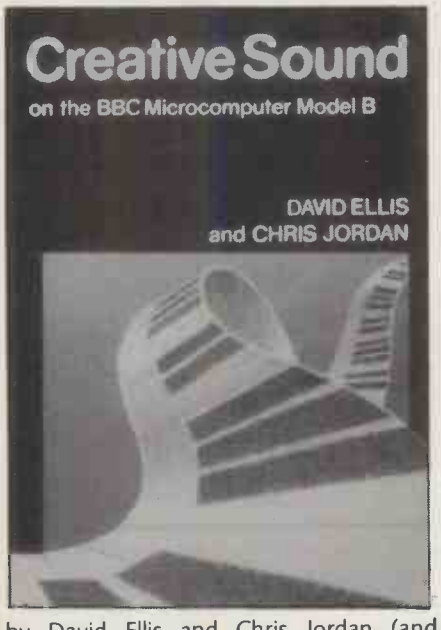
▷ strides forward, while funding for academic institutions is becoming ever less certain in the current political climate. At one point, the author notes wistfully that 'many leading rock and pop groups now have access to synthesis facilities of the utmost sophistication, far greater than the resources available to more serious electronic composers'. Yet he doesn't seem able to confront these facilities and consider their strengths and weaknesses.

Glib, inconsistent, and dismally frustrating, *Electronic & Computer Music* doesn't only fail to put recent huge technological developments into perspective; it doesn't even cover its home ground of academic study with anything greater than token thoroughness. The fine degree of research that's gone into the book's ineptly-scattered sections means it'll probably find its way onto the reading lists of a thousand electronic music students. But the ultimate work on this subject has yet to be written.

Luckily, the next three books are a lot further down to earth in subject matter. ***Creative Sound for the BBC Microcomputer***



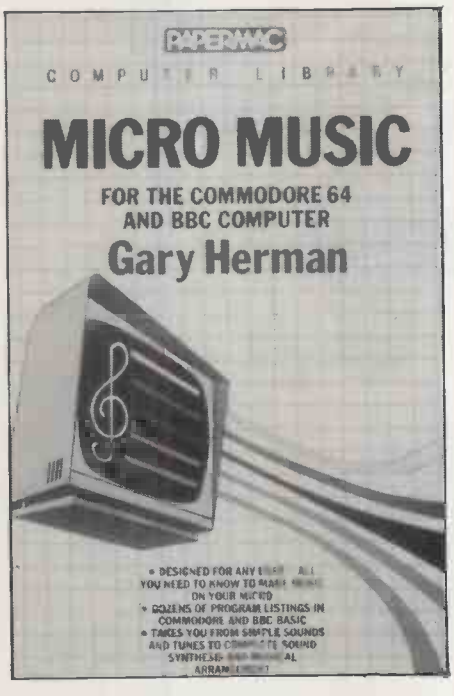
by David Ellis and Chris Jordan (and published by troubled Acornsoft) is one of several recently-published books aimed at giving home computer users the means of getting the best out of their machines' internal sound chips. Now, there aren't many of said sound chips that can stand up to even the simplest dedicated synthesiser, in terms of both sound quality and programming versatility, and the BBC's is by no means one of the most complex. Which makes it all the more remarkable that *Creative Sound*'s authors have managed to come up with such a detailed, resourceful book.

Essentially, Ellis and Jordan have opted to illustrate their case by giving micro users a selection of music programs, intended to act both as building blocks for further custom programming and as useful, educational pieces in their own right. Thus, depending on what storage system you've got hooked-up to your Beeb, you get a cassette or a floppy disk (40- or 80-track) as part of the *Creative Sound* package.

In keeping with the fairly basic level at which most of *Creative Sound*'s readers will be entering the field of computer music, the authors have pitched their style 2000 leagues away from Peter Manning's.

And there are *a lot* of subjects within the pages of *Creative Sound*, since Ellis and Jordan have resisted the temptation to confine their discussion specifically to home micros, and put each of their programs in technological context before describing them. Thus, we're treated to brief (though never oversimplified) dissertations on all manner of musical and technological subjects, from preset synthesisers to ADT, and from basic songwriting to the Fairlight CMI. Even if there weren't a load of well-written programs to illustrate these subjects on the BBC, *Creative Sound* would stand up as a worthwhile (and commendably friendly) educational text on its own.

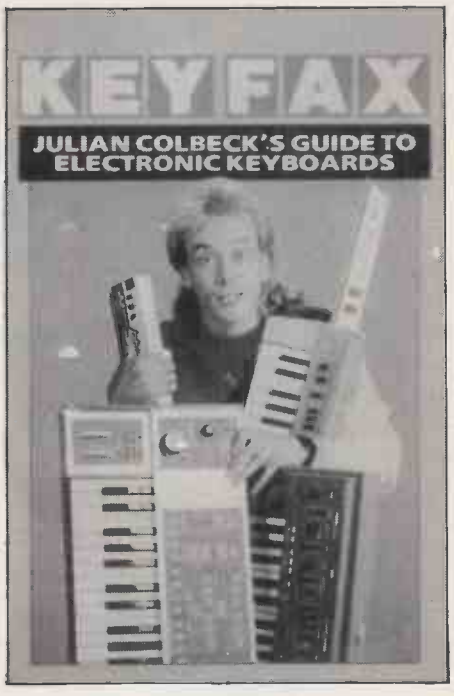
Which is more than can be said for Gary Herman's ***Micro Music for the Commodore 64 and BBC Computer***, published by the



Papermac Computer Library. Like the Ellis and Jordan work, this one is aimed primarily at micro users who 'never knew there was so much in' the computer they bought from Laskys six months ago – at least not from a musical point of view. But unlike *Creative Sound*, Herman's book is aimed more at the previously-uninterested layman than the musician who's invested in a computer initially for non-musical reasons. Consequently, it's basic almost to the point of inadequacy, and its programs (which you have to key in yourself, as there's no disk or tape supplied) never get more ambitious than a sound effects generator and a simple guitar tutor.

Which is a pity, because Herman's style is just as friendly and accessible as Ellis' and Jordan's, and his technical knowledge seems just as comprehensive – if a little less wide-ranging. Thus, a lot of synth players are going to be bored silly by a good 50% of what lies within the pages of *Micro Music*, though there's no denying it fills a large, significant gap in the market, and fills it well. It's expensive, though, at £8.50, especially when the Ellis and Jordan offering represents only a slightly bigger dent in the wallet at £9.95.

But if there's a bit of healthy competition in the home micro book field, there's no rival whatsoever for ***Keyfax***, a remarkable



new book that's subtitled 'Julian Colbeck's Guide to Electronic Keyboards'. Basically, *Keyfax* sets out to provide a comprehensive, model-by-model guide to all the electronic keyboards currently available, along with a fair number that are now out of production but could conceivably be picked up second-hand. It doesn't confine itself to synths, because there are also sections on samplers, sequencers, home keyboards, and electric pianos – though sadly, nothing on programmable drum machines.

Fortunately, Julian Colbeck has probably been reviewing instruments of this type for longer than he cares to remember, in the pages of *Sounds*, so he's in a pretty good position from which to start compiling a guide such as this.

So compile it he has, and rather well, too. There *are* omissions, naturally, but what's here (and there are quite a few instruments nobody on the E&MM staff could remember, so the listing must be reasonably complete) is described with accuracy, objectivity, and no small degree of wit. If anything, Colbeck's biggest achievement is the way he's treated just about every machine under consideration (no matter what its background, age or price) in the same way. No double standards here.

There are problems in laying out a buyers' guide in this format, though. The Quality and Value ratings (a hangover from the *Sounds* pages) are arbitrary and likely to cause overgeneralisation more than anything else; and clearly, you can't say everything about everything when you've only got 200 words to do it in. But the real problem is simply one of progress. Recent synth introductions by Korg, Oberheim and Sequential have *already* made *Keyfax* out of date, which is a bit of a nuisance when, at the time of writing, it still hadn't reached booksellers' shelves.

But by and large, *Keyfax* is an enormous success, and it seems likely the three copies publishers Virgin Books sent E&MM will find use for some time to come as valuable – nay, indispensable – sources of reference material. A snip at £5.99. ■

Appraisal

Simmons' 9th

Electronic drum technology is proceeding apace, as Simmons' new SDS9 kit aims to give drummers the hi-tech benefits keyboard players have been enjoying for years. It's guaranteed to succeed. *Nigel Lord*

The unfortunate, but economically necessary, system of planned obsolescence rarely gives designers the chance to build much in the way of *real* innovation into each season's new products. True, the hi-tech musical instrument market is one in which R&D departments are given a freer hand than most, but that's largely because modern musicians currently possess a seemingly unquenchable thirst for the new, the revamped, and the updated. All the manufacturers are doing is responding to that thirst.

Visuals *'I can think of only one kit – not yet available – that will rival the SDS9 for stage presence... a strikingly aggressive appearance.'*

In the short history of the electronic drum, Simmons Electronics (the people that started it all, remember) have been the company responsible for most of the really significant developments. But when you've succeeded in acquiring that sort of reputation, the last thing you can afford to do is sit back and relax.

Hence the SDS9, Simmons' most recent electronic kit, and a machine that fills the gap between the budget SDS8 (now SDS800) and the complex, upmarket SDS7. Because the 9's development team knew they had a hard act to follow, the new kit has more than its fair share of technical innovations, all of which have genuinely far-reaching implications for the future of electronic drums – and the percussion world in general, for that matter.

Strangely enough, when I first clapped eyes on the kit, I wasn't particularly impressed. OK, the pads looked a little sharper, but the control unit looked like nothing more than an updated SDS8, and there was nothing visible that suggested anything revolutionary. But when I sat down at it, all that changed – *very* quickly.

So what am I sitting behind? Well, basically a five-piece drum kit combining analogue, digital and software-generated percussion voices, that allows you to access the sounds of up to 40 different drum-kits at the touch of a button, features playing surfaces of quite remarkable responsiveness, with a degree of dynamic control previously unheard of on electronic kits. It has a snare pad featuring rimshot and cross-stick facilities – combining three separate voices. The tom-toms are switchable to sound like either single- or double-headed drums, and the bass pad features a unique piston-loaded head assembly. The control unit is fully MIDI-compatible, and therefore allows you to transfer the sounds generated by a synthesiser to the kit, and play them as percussive instruments *via* the pads. Similarly, it can be connected to MIDI-equipped drum machines, rhythm programmers and sequencers acting as either the controlling or the controlled unit. It has a built-in programmable echo feature, and a headphone output for silent practice or setting-up. It even has an auto-demonstrate function to show you what it can do without anybody having to move a muscle.

Impressed? You ought to be – all I've done is scratch the surface. But a brilliantly long and useful specification isn't everything, so if the SDS9 is to impress me (and musicians in general) there's got to be some way of getting the best from all these wonderful facilities in practice. There is, and it starts where you'd expect drum innovation to start: with the pads.

Simmons have obviously gone out of their way to improve their pad design – and have gone to equal lengths letting us know how much it's all cost them. Apparently, the pads represent an investment of over £100,000, which was spent completely redesigning their pad structure, and the materials employed in their manufacture. The head playing surface has undergone a similarly radical rethink, and is now completely 'floating' as a result of the hard surface beneath the rubber sheet being fastened only to the rubber itself, not to the body of the pad. The entire head is able to move up and down a little due to the elasticity of the rubber; it's an apparently simple design concept that's proved remarkably effective in providing a drum-like playing feel.

The other major area of pad development lies in the design of the snare, or more specifically, in the inclusion of the rimshot and cross-stick facilities. This, too, has been partly responsible for the hundred-grand drain on Simmons' bank account, but the investment has been worthwhile: as far as I know, the 9's is the first electronic snare to incorporate these facilities. It's certainly the first to include a rim-derived trigger pulse, which fires a separate voice, as the snare combines three individual voices, triggered either by the pad itself, the rim (for cross-stick strokes), or the pad and the rim together (for rimshot strokes).

The tom-tom pads are identical in design to the snare pad, which is just as well, as in terms

of stick response, this design is quite simply excellent. They're as close in feel to an acoustic drum as they need to be – there's really nothing more to be said. The bass pad, meanwhile, is what Simmons describe as piston-loaded, and this too results in the feel of the pad being quite indistinguishable from that of its acoustic counterpart.

All this would be of no use if the pads weren't mounted on something capable of supporting them properly, but fear not: the associated hardware is of high quality, the Pearl stands being heavy duty and extremely rigid, as are the bass spurs, which look pretty formidable creatures.

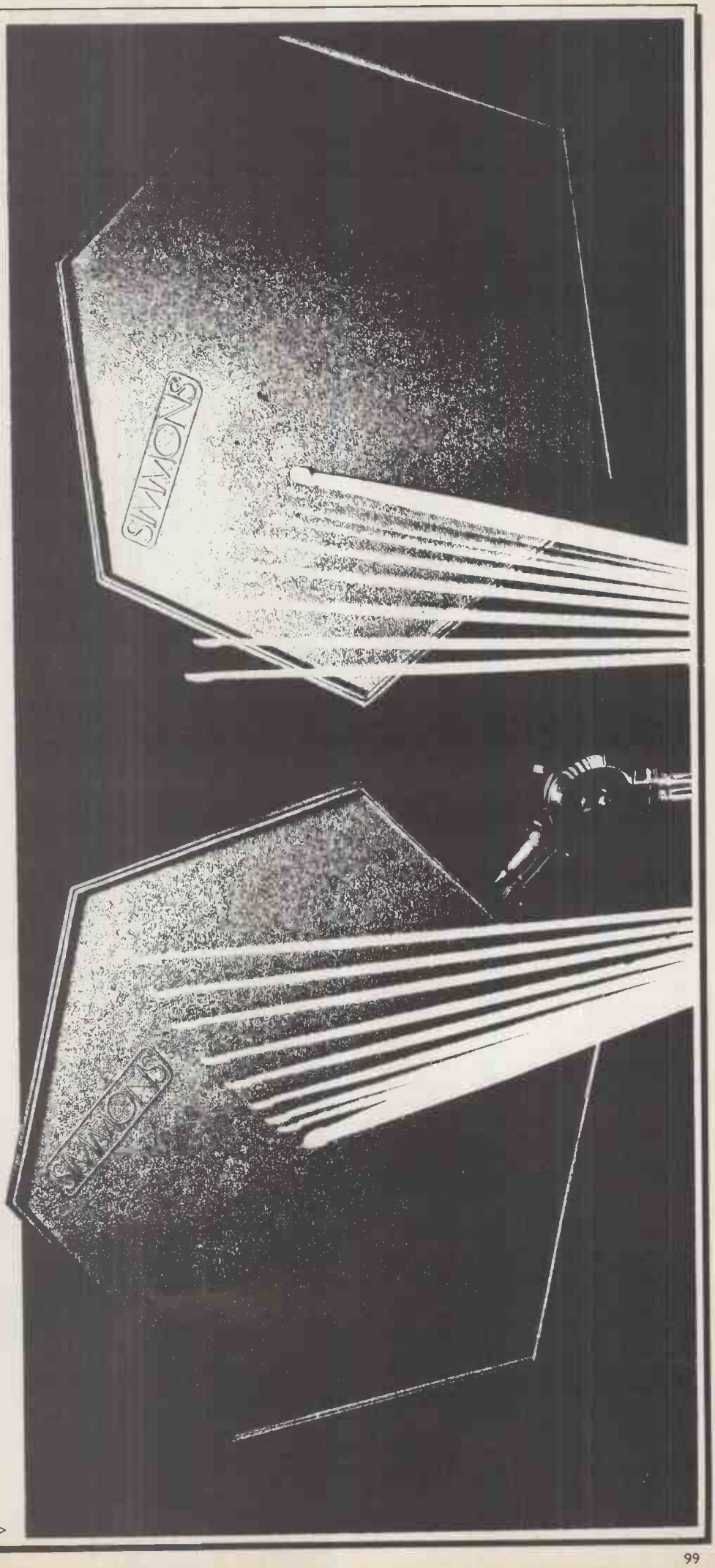
Cosmetically, the sharper (than those of older Simmons kits) angles of the new pads gives the SDS9 a strikingly aggressive appearance. I can think of only one kit (and even that isn't yet available) that will rival this one for stage presence...

Some people have taken to calling electronic percussion control units 'brains', something I refuse to do on the grounds that it implies the module is thinking for you – which plainly it is not. Instead, the job of the control unit is to house all the voicing electronics and give the user access to them in as friendly a way as possible. Which, in the majority of cases, means keeping things simple.

Thus, the SDS9's unit is a rather innocuous-looking steel box, with a few knobs, buttons and sockets, and an LED readout. But given the number of variable parameters the SDS9 has (and the fact that, trio of snare voices included, the kit has seven drum voices in all), there are surprisingly *few* controls on the unit's front panel. Inevitably, the reason for this doesn't lie only in a desire to keep things user-friendly; it's also been done this way for reasons of economy, as many of the knobs have shared functions, or can be used to control the same parameter on different instruments. This is now standard practice in synthesiser design, and if you can put up with it on an average polysynth, there's no reason why it should cause you any more worries in a drum context, either.

Sounds *'Where the bass drum is software-generated and the toms are analogue, the snare sounds employ digital sampling techniques.'*

Sound verdicts? Complex but conclusive, and starting with the bass drum. This is software-generated (Simmons are being cagey when it comes to releasing precise details of precisely how), and has two basic ingredients: Thump and Click. To get the most out of these, there are five variable parameters: Click Amount, Click & Thump Pitch, and Click & Thump Length. Those parameters might sound fairly arbitrary, but they've been well chosen. I can't recall an electronic bass drum that gave the user such a wide variety of *useful* sounds. Forget the old style of drum synthesiser, where a standard module is used for all the voices, tuned high for the toms, and low for the bass drum. Forget even the usual sampled bass drum sound, unvarying in character no matter which way you play it. ▷



This is the sort of bass drum most studio engineers or producers would give their right arm for – and it's playable. Use the five controls carefully, and the sound can be anything from impeccably tight to overpoweringly thunderous – and because you can program sounds and change them instantly, it can even be tight and thunderous within the same song.

But as I've already implied, Simmons have done more than simply employ one design technique in the hope that it'll suit all applications. Experience and the passage of time has taught them that despite the benefits of digital electronics, the sound of tom-toms, and in particular the sound of *Simmons* toms, is still best generated using analogue circuitry, and as a result, this is precisely what we find onboard the SDS9. And for once In our increasingly dogmatic world, pragmatism has paid off.

With analogue voicing circuitry allowing a greater degree of control over sound parameters, you can get the SDS9 toms to sound *not only* like the punchy Simmons drums we all know, love and are exposed to every time we watch an American TV cop-show, but like acoustic toms as well. Programming care is essential, of course, but even among the factory voices, there are some deliciously natural tom sounds.

And as I mentioned earlier, these include either single- or double-headed drums, possible thanks to a rather nifty little bit of Simmons design work called a second-skin feature. Electronically speaking, this comprises modulating the tone of the drum with a second unrelated tone to produce a deeper sound, rich in harmonics. To all intents and purposes, this has the same aural effect as putting a bottom head on a tom-tom. And as with all the other effects and controls on the SDS9, this facility is programmable, so you can switch from single- to double-headed toms instantly – not exactly a feasible proposition on an acoustic kit, no matter how fast your roadie works.

Another clever tom-tom feature, and one that can save an awful lot of setting-up/tuning time (and a corresponding amount of dosh in the studio), is the ability of the medium and low toms to reproduce the sound of the high tom at (obviously) lower pitches. In other words, after setting up the first tom for the sound you want, you press 'copy tom', and that sound is transferred to the second and third toms at descending pitches. And *voilà*, three instantly set-up and tuned toms.

Moving onto the snare, it's probably fair to say that this is where the bulk of the SDS9's innovative design work lays. Where the bass drum is software-generated and the toms are analogue, the snare makes use of digital sampling techniques, something that involves the use of EPROMs within the control unit.

The three voices that comprise the snare are all stored on EPROMs, and these are accessible *via* a small opening hatch in the top left-hand corner of the control unit. Theoretically, using sampling should enable you to record the perfect snare drum sound and store it in memory for instant recall, but life is rarely as Utopian as that. If anything, the basic snare sound is a little on the dry side, but given the wealth of control parameters on the SDS9 (not to mention the outboard equipment it's likely to encounter in a studio, for example), having an uneffected voice to start from might not be such a bad thing in any case. And dry or not, it's still a real killer of a snare. The cross-stick sample is also superb, with plenty of ambience and a sharply cutting edge, while the rimshot too is excellent. Sorry about the superlatives, but I *was* impressed.

The reason for the snare EPROMs being accessible is to provide a small-scale version of the facility found on the earlier and more costly SDS7, namely interchangeability of digitally-sampled sounds. Unlike the SDS7, which allows EPROM-changing across all its channels, the SDS9 restricts this to just the snare EPROMs, but it's still, obviously, a useful facility to have. You're not confined to replacing the existing chips with snare sounds, of course. In fact, you can opt for any sound in Simmons' already extensive library of sounds, or go it alone and record your own samples with the Simmons EPROM Blower (see review, E&MM January '85). Imagine the hilarity as an unsuspecting friend strikes your SDS9 snare, only to be greeted with the sound of a timbale, or a broken bottle, or a gingerbread man being snapped in half, or whatever your imagination can convince your body into recording.

Facilities *'Now that synths can produce realistic percussion sounds, it makes sense to have some means of triggering them by hitting something.'*

Are there any more significant innovations on the SDS9? Why, yes. There's the programmable echo, for a start. You can adjust the number of repeats this inbuilt device generates, from a single slapback echo to multiple and decaying repeats, and you can vary its speed, too. But what's really clever about it is the way echo only begins after the last beat on the drum being played, so it doesn't muddle up your drumming. And because it isn't actually real echo at all, merely the drum in question being retriggered at lower and lower levels, you never find yourself playing out of time with the repeats, as you could with an ordinary delay unit. It's fully programmable, can be switched in or out at any time, and can be applied to any or all of the drums; the choice is yours, and much praise is due to Simmons for giving it to you.

On the subject of programmability, the 40 drum-kits accessible from the SDS9 control unit are made up of 20 factory-programmed kits and 20 user-programmable kits, which is where your creative genius is allowed full flight. It's worth noting that among all the 20 factory presets, there's nothing really outlandish, unexpected or *risqué*. This I take as further evidence that Simmons are aiming this kit very much at unconverted acoustic drummers looking for improved, more consistent versions of their existing sounds. Suffice it to say this is exactly what they'll get, but to a degree most of them will scarcely be capable of anticipating.

But if the average drummer is going to get more out of the SDS9 than any previous electronic kit, the average synth player isn't going to be left out, either. We've already seen that the 9's control unit incorporates the familiar synth programming method of digital parameter access, but there's another – equally familiar – synth feature on the back panel: MIDI.

Now that a good many contemporary (and reasonably-priced) synths are capable of generating astonishingly realistic percussive noises, it makes sense to have a facility for triggering those sounds by hitting something. And that's precisely what the SDS9's implementation of MIDI allows you to do, among other things.

The system works both ways, of course, so that in addition to being able to play synth voices from the drums, you can also play SDS9 sounds from a keyboard, or use a MIDI sequencer to trigger them automatically in your own rhythm patterns. Who needs a drum machine?

Well, the features on the SDS9 haven't been exhausted, but sadly my space has. All I can do is make brief mention of a few of the remaining ones. Like the separate output sockets for each instrument on the rear panel; the footswitch for stepping through the five kits in each bank; the Button Tap that allows you to trigger each voice from the control panel; the trigger inputs which let you use non-MIDI sequencers and programmers to play the SDS9; the tape-dump facilities; the choice of five pad colours... But like I say, space is running out, so I guess I'd better start wrapping things up.

The launch of the SDS9 sees Simmons gunning for the acoustic drum market in a big way, make no mistake. And if the SDS9 doesn't finally persuade drummers to regard electronics not only as an extremely useful tool, but as one that'll guarantee their future as creative musicians, nothing will.

Yet there's more to the new kit than a bold broadside at the traditional percussion market. There's plenty in it for non-drummers, too, as the inclusion of MIDI should show.

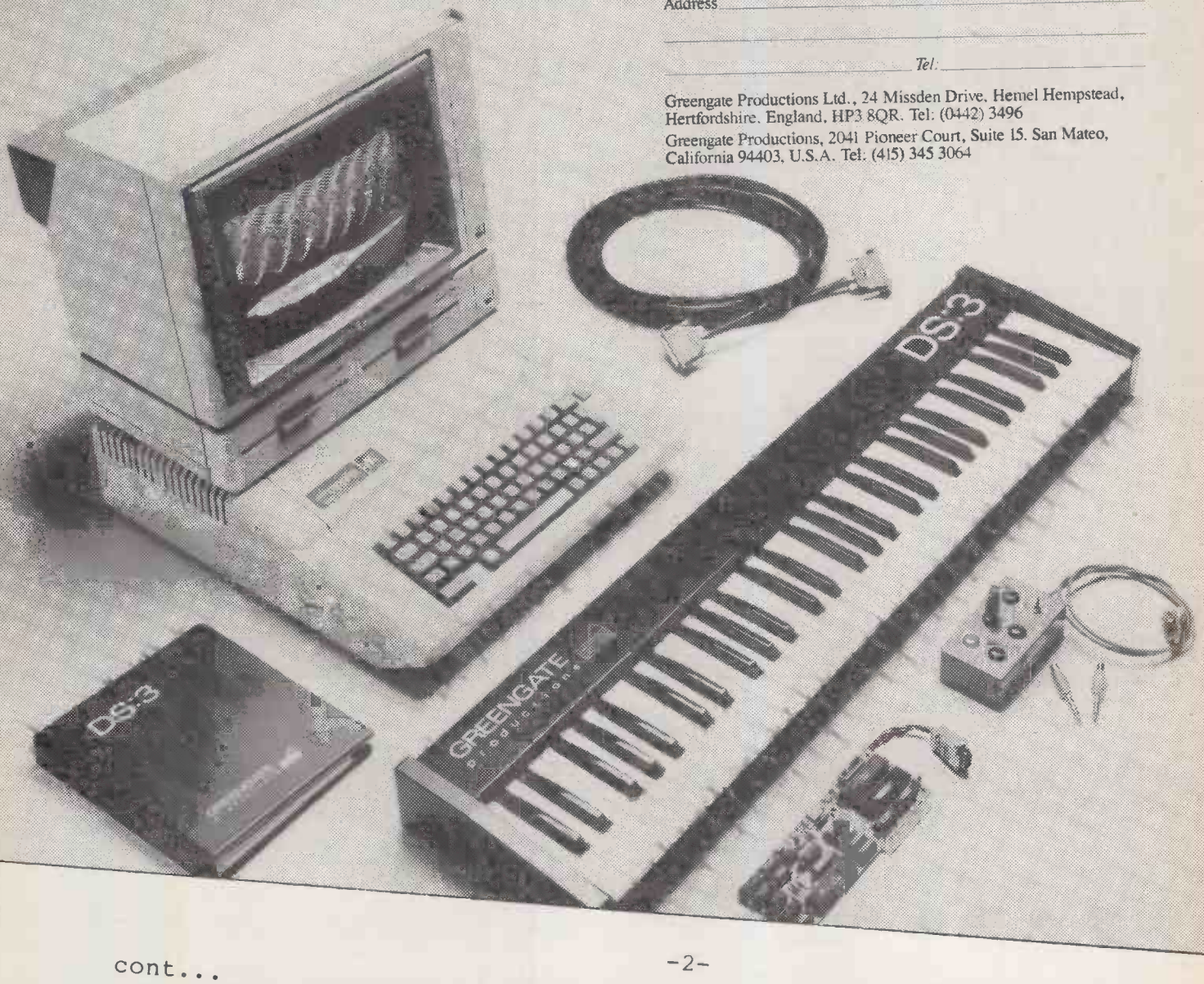
My only grievance with the SDS9 is that we should have had it, or something like it, 12 months ago. It's not taking anything away from Simmons to say there's nothing particularly revolutionary about the technology involved in the new kit's design; it's only the *application* of this technology that hasn't been seen before.

So full marks to Simmons for almost singlehandedly pushing back the boundaries of electronic percussion. There's still some way to go, I feel, before drums and drummers will be able to extract the same benefit from new technology that keyboardists can gain, but the SDS9 is evidence that one company, at least, is doing its darndest to ensure the balance is righted sooner rather than later. ■

DATAFILE

Simmons SDS9 Electronic Drums

Voicing *Software-generated bass drum; digitally-sampled snare, cross-stick & rimshot (EPROMs freely interchangeable); analogue low, mid & high toms*
Memory *20 factory preset kits; 20 user-programmable kit memories; all user-adjustable parameters programmable*
Interfacing *Individual Audio Outs for each voice; MIDI In & Out; Tape In & Out*
Price *RRP £1199 including VAT*
More from *Simmons Electronics, Alban Park, Hatfield Road, St Albans, Herts AL4 0JH. ☎ (0727) 36191.*



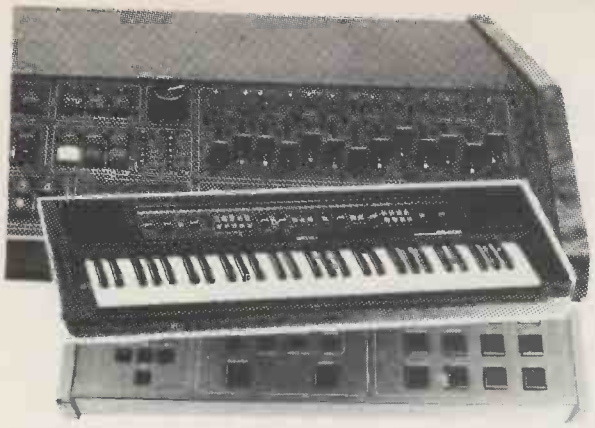
cont...

Well, the outcome of all this was that we decided to go for a Keyboard Sampling System which would not go out of date like last year's cars! .....So one of the most important factors was that the system should have a REAL computer as an integral PART of the whole device - not just an add-on at extra cost!

After all, if one is spending around sixteen hundred quid on something it's nice to know that you have a future! And computers ARE here to stay - In Music!

Eddie, of course, is being a pain - HE wants to sell the Porsche and get a Fairlight but after all it IS only an 8-bit - same as the DS:3... We listened to the new 'mainframe' single - "5 Minutes" - Virtually ALL DS:3 and it clinches it all for me....!

Tell you what, when we get it next week why
and have a bite to eat with



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SYNTHESIZER plus stand, 2 vco's, 2 vca's, 2 envelopes, filters, random generator etc, £170 or swap for SH101 or similar value. Telford 898161.

CLEF Electronic piano £150. Siel CMK49 software £91. (MIDI computer interface £69). 16 track SEQ Commodore 64 (disc) £55. Ring 09252 7753.

HOME STUDIO GEAR DX9 Poly 800 RX15 MT44 system, Pro-One DE200 etc. All immac. boxed. Phone Newcastle 4102105 Paul.

CRUMAR Trilogy home use only, pristine and carrier strings organ synth, nice machine £350 ono. Ian 906 2062 anytime.

WANTED Jean Michel Jarre video of China concerts on VHS. Phone Camberley 22946.

YAMAHA CS15 monosynth good sound and variety of modulations, v.g.c., must sell. Phone 0970 84411.

YAMAHA CS15 2×CO 2×VCF 2×VCA 2×EQ very powerful cutting sound, quick sale at £210 ono. Call Eddie on 04215 2347.

WANTED synthesiser for sound and video montage project, immagination, rather than technology maniacs required, London based, but Phone 0454 411266.

GREENGATE/APPLE sampler complete £999. Burns Flyte custom £120. Drumulator £501. Aggressive sounds/musicians wanted, Now. Al 01-452 1916 evenings/weekends.

H/H K80 keyboard combo 6 months home use only, as new, £220 ono. Roland CR8000 rhythm machine, immaculate condition, £220 ono. Phone 061 320 9449.

CARLSBRO Stingray multichorus 150w keyboard combo, perfect condition, boxed, 1 year old, £275. Phone Dover 0304 212055.

ROLAND present monosynth SH2000 including case, excellent £175. Marshall 50 watt PA amplifier top £85 PWO. Lincoln 0522 742458.

SIEL MK900 MIDI keyboard only six months old, perfect condition, £300. Phone Simon evenings, 066 33 2827 Stockport area.

JEN SX1000 synth monophonic bargain at £80. Complete with manuals etc. v.g.c., delivery arranged 0304 823685.

BARGAIN Jen SX1000 monosynth v.g.c., ideal for a beginner or serious musician with program cards, instructions £90 ono. 0375 676294 (Essex).

MT44 and PB44, mint will swap for TR909 or RX15 or offers. Contact John, 4 Alma House, Ashton Road, Lancaster, Lancs.

CASIO CT403, 4 octave polyphonic keyboard, 25 presets, 16 rhythms, autochord, excellent condition, £150 ono. Also quick-fold X-stand. Tel. 0528 60548.

CRUMAR Stratus layered polysynth and organ, unlimited number of notes, carrying case, £280 ono. Leicester 0533 393808.

BOSS stereo reverb £85.Roland Drumatix TR606 £100. Phone 02406 2737 Bucks.

BRASS GPO jack plugs, used good condition, £1 each. Randy Spence, 134 Saint Pauls Road, London N1 2LP. o1-359 6723.

SUPERB professional keyboards at crazy low prices. Jupiter 6 £975. Yamaha DX7 + RAM £1075. both only £1950. Phone Kevin, Waltham Cross 0992 39775.

CASIO CZ101 polysynth £289. Roland MSQ100 MIDI sequencer £340. Both immaculate with leads etc. Phone Leeds 0532 638965 evenings.

WANTED octave multipler, micro-synth manuals for Wasp and Kawai 100F also details of plug-syn. Phone 0246 39310.

ROLAND TR808 £200 plus MC202 micro-composer £115. Phone Coventry 0203 75060.

YAMAHA CX5M £499, with 3 cartridges and MSX software. Will exchange for Roland MSQ700. Paul Nagle 077478 3811 Lancs.

MUSIC 500 polysynth unwanted gift £160 or swap for 808 or MT65, MT405, cash or Fairlight III etc. Nick 0253 404598.

YAMAHA DX9 v.g.c., boxed, data tapes, American manual, £540. Prophet five wanted for swap/PX MX, DX9. 04446 42681/6753.

SIX TRACKS v.g.c., £400 or swap Bit One with cash adjustment. Phone 0233 812406 after 7.30.

YAMAHA DX9 polyphonic digital synth. Library amazing sounds, perfect condition, fantastic bargain at £500 ovno. Tel 0273 Brighton 671136 evenings.

WERSI Alpha DX300T two manual and pedals, totally digital, portable including rhythm, immaculate bargain, £2700 ono/PX. Rugby 77901.

SCI PRO 1 Roland SH09 with Firstman SQ-01 sequencer plus amp and leads, £380 the lot. Will split. romsley 710680 Rob.

YAMAHA CS80 excellent condition, recently serviced, £670 ono. Can deliver in M/c area. Tel. 061-795 5769 4–8pm.

ELKA X605 portable organ, 2 manual, drawbars, strings, brass, plano, immaculate £750, or exchange for Yamaha PS6100. Tel. St Annes 0253 726905.

BBC B 1.2OS and music 500 synth £425. Roland bassline £115. All new. Tel. Rotherham 817848.

DINOSAURS FOR SALE: VC53 and DK2 keyboard £350. VOX continental £150. ARP piano £400. Phone Nick, Poole 675100 ext. 2331.

KORG KPR77 still boxed £150, Korg MS10 £85 and Firstman SQ-01 £55. All v.g.c., and ono. Romsley 710680 Rob.

ROLAND TR808 16 channels, individual outputs, 24 sync in/out, 3 triggers, 32 patterns 12 songs, £200. (0702) 614719.

ROLAND TR808 drum computer sync facilities mint, bargain £225. Premier Olympic five shell kit, plus accessories £100. Tel. 021-784 8268.

LANEY 5ch mixer amp 150w £150. Carlsbro 6ch mixer amp 150w £200. Both v.g.c. Dave, 0803 842440 evenings.

MOOG ROGUE beefy mono synth £125 and Lowrey micro genie v60 portable keyboard, great sound only £200. Cardiff 0222 750024.

ROLAND TR808 immculate still boxed £250. SH101 and MGS1 both still boxed £170. Ring Andy Spaxton Somerset 698 Anytime Anyday.

KORG POLY 61 immaculate with flight case and stand £450. Phone Maurice on Forfar 0307 63184 after 6pm.

PRO-ONE MONO SYNTH excellent condition with flight case, £190. PHone Carterton Nr Oxford, 0993 841586.

ROLAND SH101 with mains adaptor and Boss PR110 graphic drum machine, mint condition and boxed, £350. Phone Paul Dean 43319.

CASIO CZ101 polysynth only few months old, £275. Also Roland MC202 sequencer/synth. Ring Hemel Hempstead 0442 212300 after 6pm.

YAMAHA SY-2 mono synth. preset and full editing facilities, touch sensitive keyboard with stand. PHone Glyn, Brisham Devon 08045 7060.

MULTIMOOG £300. Micro Moog £150. Prodigy £150. Roland Bassline £100. Korg KPR77 £100. RIng Andy on Knowle (05645) 77274 after 6pm.

KORG mono poly for sale, slight dodgy pots. £200. Telephone Thetford 3839.

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