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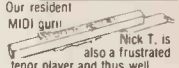

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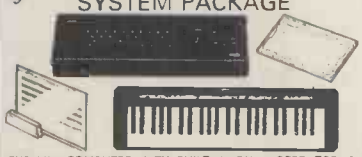

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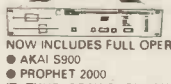

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PRODUCTION WARS

A FEW MONTHS ago I invoked the displeasure of a number of readers by commenting on the sorry state of The Pet Shop Boys' music. The smouldering remains of the postman's bag that now sit in the corner of the office will bear me out on that. The line "meticulously-produced whingeing" quickly became the most quoted Music Technology copy since Roland stole "superlatives are not enough" for their D50 advertising. Nuff said.

For those of you not convinced by my argument, and afraid that the Boys wouldn't get the opportunity to answer back, you'll find their meticulous producer, Stephen Hague, interviewed elsewhere in this issue – that's editorial objectivity for you. At present however, the PSBs themselves remain as elusive as ever. Chris, Neil . . . are you listening?

So what does Hague have to say? Well, he goes some way towards disputing my allegations and helps shed a little light on the construction of some very well-received music – and not just that of the dynamic duo.

When you consider the techniques available in today's recording studio and the power those techniques vest in a producer, it's no surprise that certain producers have taken over every musical aspect of their productions bar the vocal and the personal appearances. Without getting into another discussion about Stock, Aitken and Waterman, it's easy to see how the charts have lost something important along the way.

But not all producers-turned-music-makers have set their sights on chart domination by proxy – instead they've declared themselves artists. In fact, some of those producers are producers in another sense entirely – notably DJs who have developed their own methods of making commercially-available music fit their own particular needs: mixing between records, mixing two copies of the same record into each other to extend sections of the music, even playing a capella sections of one record over rhythmic sections of another. Samplers have found much favour in these vinyl re-workings as has the odd drum machine. New music from, well, not old exactly, but new music all the same – and without so much as a sniff of the 24-track masters. Don't confuse re-mixing with re-working.

Curiously this has lead to a distillation of the rhythmic aspects of popular music, specifically house music (which was born of Frankie Knuckles' running mixes of disco and Eurobeat at Chicago's Warehouse club). There are a number of reasons for this apparent obsession with rhythm. First of all, recorded rhythms are more accessible to a potential "producer" than are recorded melodies, and it's far easier to cut, mix and overlay to produce rhythms where none existed before. Also, most rhythms will mix without the problems presented by the key clashes that frequently crop up with pitched sounds. And maybe the beat is closer to our hearts (at least historically) than melody anyway.

So where does this leave melody and our old friend, "the song"? Well, they're not dead, I'm sure of that, but they do seem to have got a little knocked about as a consequence of these production wars. In the case of Stock, Aitken and Waterman, melody seems to have become a routine part of making another top-five single – and lost its soul in the process. In the case of The Pet Shop Boys, as I say, it's time to write another song. In both cases a good dose of rhythm wouldn't go amiss. But I'm sure we'll see "the song" turn up again – and in better shape than that of covers painfully executed by American girls you'd refer to as jailbait in less polite circles. Perhaps there's a good case for forgiving The Pet Shop Boys their sins after all.
■ *Tg*

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Yamaha MV802 ..... £329
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JBL 4401 ..... £299
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VOLUME 2 NUM

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R 5 MARCH 1988

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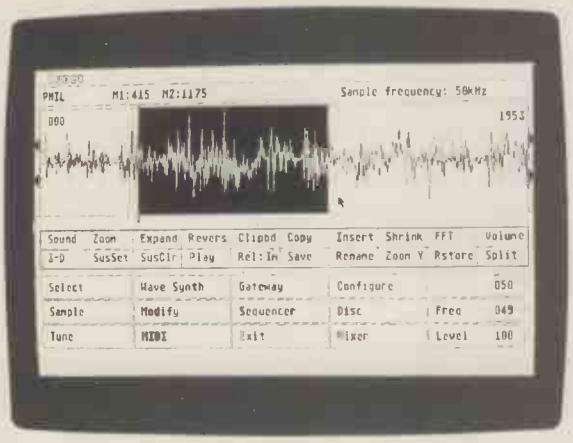

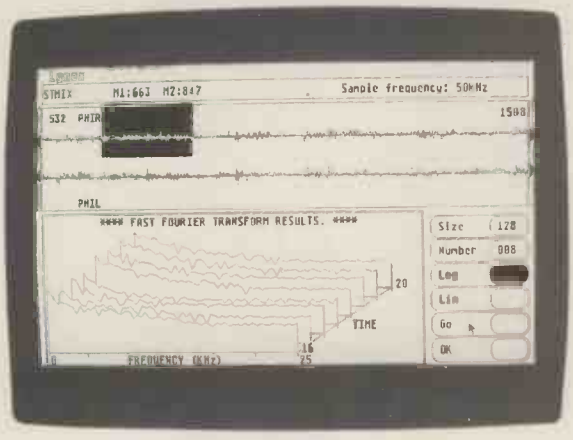

A powerful and sophisticated stereo sampling system whose most complicated feature is the power switch! Packaged in a slim 1U rackmount module, it is designed to interface with the Atari range of ST computers.

True stereo 16-bit sampling at 50KHz, 8 or 16-voice polyphony with 8 separate outputs and a built in 8 channel digital mixer. 1Mb RAM expandable to 32Mb. Standard software offers extensive mouse-controlled sample viewing, editing, waveform restructuring, sound creation, and comprehensive MIDI parameter assignment facilities.

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NEWSDESK

CREATIVE SCORING FROM C-LAB

Coming soon from C-Lab is the Notator score editing and printing program for the Atari ST. Notator will be available as an all-in-one package with the company's Creator sequencer (reviewed in MT December '87). Notator and Creator use the same data format, so existing Creator files will be fully compatible. Every function of both programs is directly accessible – there's no need to change program or dongle, nor is any data exchange via disk necessary.

Display can be in notation only, event only or notation-and-event formats – allowing minute changes to be made at event level in the Event Editor without changing windows. Every alteration can be made with the Notator in play mode, so that the results are immediately audible.

Notator can display single tracks or whole 32-stave scores. Each track can be displayed on one or two staves, with full control over split point, and independently-transposable staves. Note values from 1/1 to 1/64 including triplets can be simultaneously displayed.

All key signatures are allowed (including double sharps and flats) and all clefs provided for (including the various C clefs). Notation marks such as accents, pedal, pause and staccato plus phrasing and cresc/dim marks are freely insertable, with alterable size and shape. Similarly, text can be inserted at any point in the score. At present, Notator scores can be printed out on 8- to 24-pin dot matrix printers (any printer can be accommodated) using a high-resolution 24-pin font, but laser compatibility will be included soon.

While Creator gives you 64 tracks to work with, the trouble is you still only have access to 16 MIDI channels. For users of large MIDI systems this can be a frustrating situation, but even if you only have a couple of multitimbral instruments, a drum machine and a MIDI'd reverb unit, it's still possible to find yourself running short of channels.

Cue the ExPort, an add-on MIDI interface from C-Lab which plugs into the ST's modem port and provides three individually-addressable MIDI Out ports. Together with the Atari's own MIDI Out this gives you access to 64 (4X16) MIDI channels from within Creator/Notator.

You can select any of these 64 MIDI channels for your Creator/Notator sequence tracks. As ExPort uses the ST's modem parallel interface you get the added advantage of increased transmission speed between ST and the ExPort box. Existing Creator users who buy the ExPort will be given the requisite v1.3 Creator software.

On a more modest scale, C-Lab have produced the Mouse Mat, a mat specially designed to shield your pet mouse from the dangers of dusty, greasy, humid or polished surfaces.

Prices: Notator and Creator £485; Creator £285; ExPort £114; Mouse Mat £5.99; all prices including VAT.

More from *Sound Technology, 6 Letchworth Business Centre, Avenue One, Letchworth, Herts SG6 2HR. Tel: (0462) 480000.* ■ *St*

THATCHED COTTAGE MASTERCLASSES IN PRODUCTION

From March '88, Thatched Cottage Audio in Royston, near Cambridge, will be running a series of monthly producer's masterclasses. Some of the world's leading producers will be coming into Thatched Cottage's 24-track studio to explain their working methods.

Masterclasses for the coming six months will be conducted by such renowned producers as Hugh Padgham (Genesis, Police), Stephen Hague (Pet Shop Boys, Malcolm McLaren, Communards), JJ Jeczalik (Art Of Noise), John Porter (Billy Bragg, The Smiths, The Alarm), Rupert Hine (Tina Turner, The Fixx, Howard Jones) and Mike Howlett (Joan Armatrading, The Alarm, OMD). The first masterclass, with Stephen Hague, will take place on Sunday March 20th; exact dates for the other masterclasses have yet to be confirmed.

Masterclasses will be held on weekends and will have a one-day workshop format, with emphasis on practical applications of the engineering, arranging and organising skills which are part and parcel of a producers' job. Each producer will illustrate his work with 24-track tapes on which he himself has been working, and there will be time allowed for questions and for feedback on the work of participants. For this reason classes are being kept small; a maximum of 15 people will be able to attend each masterclass.

Classes will start at 11am, finish at 6pm, and cost a modest £40.25 including VAT. For more information and bookings contact Paul Tingen on 01-249 1876, or Thatched Cottage on (0223) 207979. ■ *St*

IMA MOVE

The International MIDI Association, keepers of the MIDI faith, have moved offices once again. They can now be contacted at: 5316 W. 57th St, Los Angeles, CA 90056 USA. Tel: (213) 649-6434 (MIDI).

The favourable UK/US exchange rate makes now as good a time as any to take out membership of the IMA. There are three classes of membership:

1. Manufacturer/Distributor; $200 per year USA and Canada, $250 per year Foreign.

This includes five full memberships for key staff, five copies of the IMA Bulletin, distribution of technical data and a copy of the MIDI 1.0 Detailed Specification.

2. Institutional; $85 per year USA and Canada, $100 per year Foreign.

This includes full membership, five copies of the IMA Bulletin, a copy of the MIDI specification, and access to the IMA Hotline.

3. End User/Technician; $40 per year USA and Canada, $55 per year Foreign.

This includes a copy of the IMA bulletin, access to the IMA Hotline, and a copy of the MIDI specification.

The MIDI 1.0 Detailed Specification may be ordered with End-User membership for a combined price of $80 (Foreign), while existing members can avail themselves of the Detailed Spec for $25 (also available to non-members for $35).

IMA members also get the benefit of a 50% reduction on the one-time sign-on fee for the Performing Artists Network (PAN), and can obtain copies of manufacturers' System Exclusive specifications upon request.

A recent development at the IMA may be of interest to musicians, programmers and technicians looking for work. In response to calls from manufacturers, distributors and software companies looking for qualified MIDI programmers, product specialists and sales people, the IMA have now set up an industry referral service – essentially a database of IMA members looking for work. Manufacturers can now contact the IMA, give them a list of requirements, and receive a list of people who fit the bill.

The IMA charge manufacturers a fee of $50 for accessing the database, and the individual (that's you out there) a three-month registration fee of $15 for appearing on the database. Quite how wide an application this service might have outside the USA is hard to tell, but it's probably worth a try if you're looking for that big break. IMA members interested in registering should send a CV to the IMA c/o Referral Service at the above address. ■ *St*

NEW AGE THIEVES

As traumas go, there can hardly be anything worse than finding your studio stripped of gear. This was the fate which recently befell Islington-based New Age Music studios, and below you'll find a list of the equipment stolen from them:

- Fostex E16 s/n 0700008
- Akai S900 s/n 2065500110
- Korg DDD1 and two Latin ROMs s/n 005669
- Ensoniq ESQ1 and Executive Audio ROM s/n 0553
- Casio CZ101
- Pair of Yamaha NS10s s/n 2727236
- Quad 405 power amp
- Midiverb and Midifex
- Bokse SM9 SMPTE/MIDI converter

All without plugs, leads or power supply units.

If you can help in any way, New Age Music can be contacted on 01-272 7236. ■ *St*

XRI PRICE CORRECTION

In XRI System's ad in MT February '87 the price of the XR300 SMPTE rack-mount unit was incorrectly printed as £299.95 including VAT. XRI have asked us to point out that the correct price is in fact £229.95 including VAT. ■ *St*

ROLAND ON THE MOVE

It must be the Spring air. First Korg UK move to spacious new premises in Harrow (see last month's Newsdesk), now Roland UK are putting on their collective walking shoes and heading across the road to pastures new. As from March 1st the company can be contacted at: Amalgamated Drive, West Cross Centre, Brentford, Middlesex TW8 9EZ. Their telephone number remains unchanged: 01-568 4578. ■ *St*

CROSS WORDS

St Peter's Church in Vauxhall, London SE11 is again to host the *Echoes from the Cross* concerts. On Friday, March 4 you can see John Bonnar lead an 18-strong ensemble in three instrumental pieces written for the concert, and also premier four pieces written by Brian Eno. Michael Brook will perform more of his original pieces for his Infinite Guitar and a group of African musicians called Dada Krama performing traditional music from Africa.

On Saturday, March 5 you can see composer Robert Lee return with more orchestral compositions after his performance at the Cross two years ago; Hot Cinders, who blend music from Pakistani and western cultures, and The Happy End, with a piece called 'Radium City', dedicated to the factory women of Illinois who suffered after exposure to radium.

For more information ring 01-582 0893. ■ *Tg*

FZ1 OWNERS CLUB TOGETHER

Casio FZ1 owners can at last get themselves in the Club – the FZ1 Club, to be precise. This has been set up by FZ1 owner Mark Tinley to provide fellow FZ1 owners with an information service in the form of a monthly newsletter, the first of which should be available by the time you read this. The newsletter will be compiled from research, owners hints and tips, patches and library lists.

Branded Verbatim or 3M blank HD disks will be available to members at around £40 per box of 10 disks (plus postage), though it's expected that this price could drop if enough members order disks. Unbranded disks should be in production by the time you read this, and will of course be cheaper than the brand-names.

Two libraries will be coming into existence. The first will be a disk swap library of public domain programs and sounds. Send in a blank disk and it will be returned with new files and the central library updated from your files. There will be a handling charge of £2.25 to cover copying, postage and packing.

The second library will be of samples recorded from commissioned musicians. Disk prices will vary, and it is intended that the library will be built up over a period of time. The disks will come complete with information about the instrument(s) that have been sampled, the idea being that through developing "correct" playing technique you'll be able to enhance the realism of your playing.

The annual membership fee is £25 to cover administrative costs. To join, send a cheque or postal order to The FZ1 Club, PO Box 435, London E10 5HE, together with the usual name, address and phone number details, the serial no. of your sampler and any comments you might like to make. Copies of the information sheet (including application form) can be picked up from your local Casio dealer. ■ *St*

YAMAHA AND SEQUENTIAL: LATEST NEWS

Yamaha's takeover of Sequential is now common knowledge, but the first *official* news of the take-over has just reached us.

With effect from 1st January '88, Yamaha have acquired the rights to the trademark and trade names used by Sequential, together with substantially all the company's assets. Yamaha will continue production of the Prophet 3000 sampler, and are studying the potential of the other existing Sequential products. There are plans to expand the manufacturing operation to produce newly-designed hi-tech musical equipment, including music-related computer software.

Yamaha intend to establish a digital music R&D facility on the Sequential site in San Jose, California, with former members of the Sequential workforce joining the key research project team.

Information on more detailed working arrangements and long-term planning will be announced by the company as soon as they're finalised. ■ *St*

SALFORD FAIR

Salford College of Technology has organised its first Music and Media Education Fair, which will take place on March 23-25 in the Department of Performing Arts and Media Studies. The Fair will be of interest to both the education world and the music and media industries.

Many schools are developing media courses involving recording, video, music and so on, and the organisers of the Fair feel that teachers need guidance when it comes to purchasing equipment.

Visitors and exhibitors from the established media and music world include Yamaha, Roland, Fostex, Korg, Zyklus, Steinberg Research and many others, as well as guests from radio and television companies, and small production companies which exist in and around the Manchester area.

If you're interested in attending, members of the public are welcome to write, giving their name and address, for an invitation.

More from *John Adams, Department of Performing Arts and Media Studies, Salford College of Technology, Adelphi Building, Peru Street, Salford M3 6EQ. Tel: (061) 834 6633.* ■ *St*

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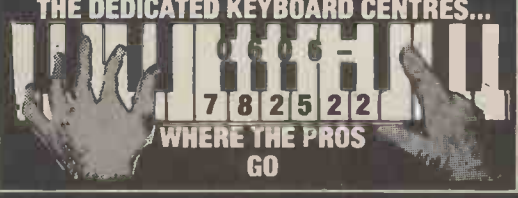

COMMUNIQUÉ

Write to: Communiqué, Music Technology, Alexander House, 1 Milton Road, Cambridge CB4 1UY, including full address and a day-time phone number. A free year's subscription if yours is the Letter of the Month.

Dear MT

Pett Subject

I have never before been prompted to write to a magazine on any subject, but Jerry Pett's letter (MT January '88) made my blood boil. Quite simply, his ramblings can only be described as "inane drivel". As a professional software engineer by day and a "MIDI musician" by night, using both the Atari ST and the HP Vectra, I feel I am fairly well placed to offer the following comments:

1: The Atari ST range is certainly not "toy electronics". It now has massive software support for business, music and entertainment requirements, and is used quite extensively in electronics and professional recording studio environments.

2: Mr Pett shows his complete ignorance of computers by boldly stating that "they just don't have the power to compete with the IBM compatibles". I won't waste time talking about processors, memory size, screen resolutions, multiple ports and GEM and so on, as it's quite obvious that Mr Pett wouldn't understand anyway.

Mr Pett asks to be pointed in the right direction. Well here it is: take the blinkers off (don't try to argue about these things - you just don't understand) and treat yourself and your music to an ST with Steinberg Pro24 software.

■ Clive M Hawnt
Portsmouth

Dear MT

Charted Territory I

I've been reading MT for about a year now, and find it an invaluable source of information and inspiration. However, my own musical perspective is, I think, somewhat different from that of many MT readers.

I'm not a pop musician and I don't suppose I ever will be. Instead I take my cues from the music of composers as diverse as Boulez, Birtwistle, Harvey and Reich - names that are unlikely to be mentioned often within the pages of MT, despite the fact that they all use the products of music technology. I'm not about to suggest that you put Pierre Boulez on the front cover, but some different perspectives wouldn't go amiss from time to time.

My own setup consists of Mark of the Unicorn Performer and Composer software for the Mac, a Roland S50 sampler and (just acquired) a Yamaha TX802 FM expander. A pretty powerful system, and one I've laboured long and hard to put together. And I don't regret one moment of the effort.

The point is that I now have a setup which allows me to compose my music and hear it played back to me. Not an unusual concept nowadays, but for a composer whose student days were spent trying to encourage musicians to even run through a contemporary score it's a wonderful step forward. I know that most university music departments have neither the money nor the inclination, but I think they should give all their students the opportunity to work with sequencers and electronic musical instruments. After all, these things are a fact of modern musical life.

Just in case you think I exist in the proverbial ivory tower, I should point out that while I'll always be awestruck by the beauty of Boulez' 'Le Marteau Sans Maitre' I am also moved by David Sylvian's Brilliant Trees *album. Stick that in your record collection, Mr Thomson (MT January '88). I also find the music of M/A/R/R/S and the Coldcut duo quite exciting, which is more than certain MT readers can manage, it seems.*

I find it sad when people bemoan the current state of music. Music today is as alive and well as it has ever been - you just have to look a little harder to find the good stuff. The problem is that the conglomerate record companies have a stranglehold on commercial music, and it seems they're able to impose whatever they want on the record-buying public. Sure, some good music gets through the net, but it's the exception rather than the rule.

Seeing as my music will never be even remotely commercial, I have nothing to lose and everything to gain from hoping that it will remain uncategorisable. I shall keep an open mind, and draw on whatever music inspires me. Most importantly, my little technological enclave allows me to experiment like never before, and for that I thank Roland, Yamaha and Mark of the Unicorn.

■ Matt Robbins
Somerset

Dear MT

The Price of Piracy

I am writing about a matter which I feel a lot of other MT readers will agree with me on, namely the incredibly high price of sequencing software for the Atari ST.

Steinberg's Pro24 costs around £285, which I suppose is reasonable for a commercial studio. But for the average user like myself, having just coughed up £400 for an Atari 1040ST I am forced to join the hundreds of other villains out there and copy a "dongle-less" version from a computer club. Unfortunately a pirate copy of Pro24 doesn't enable you to use most of the vital functions (mastertrack, arrange song, score edit and so on) and so is incredibly limited.

If Steinberg halved the price of their package, or even if they produced a cut-down version for home recording enthusiasts, I for one would rush out and purchase it, and also enjoy the benfits from doing so - constant software updates, a manual and a clear conscience.

Incidentally, I work for a local firm as a computer programmer selling a product, and am disgusted at all of the piracy going on in computer clubs. But when it comes down to it, if the choice is between no music or a guilty conscience, I'm only human.

■ Frank
Manchester

Aren't we all? I mean, deep inside, under the callous musician's exterior? But you've got to ask yourself if bootlegging software will improve the situation.

Let's look at this another way: suppose you'd bought an Atari 1040ST and the Steinberg Pro24 - but didn't own any MIDI instruments. Would you feel justified in demanding equipment manufacturers drop their prices because you've run out of cash? Or would you simply organise a quick smash-and-grab at your local music store? It amounts to the same thing, doesn't it?

It may seem steep, laying out the best part of 300 quid for a floppy disk and a block of plastic - but it's not really that straightforward. We passed your letter on to Steinberg distributor Evenlode Soundworks, who made the following

comments: "In purchasing a Steinberg product, you are essentially licensing it indefinitely, as its form can change due to its 'soft' nature. Hopefully, this becomes the users' guarantee that the purchase will continue to be of benefit in the future. This is in stark contrast to hardware units that suffer from alarmingly short lifespans.

"When you buy Pro24 you're buying a huge amount of support. Our offices are open every day to deal with any queries you may have, Steinberg's bulletin board service is open 24 hours a day and your dealer is a trained specialist in the product. We pride ourselves in believing that the service afforded to our customers is second to none in the industry."

There are also cheaper alternatives to the professional Pro24: Sonus' SST, Microdeal's SuperConductor, Hybrid Arts' EZ-Track, and Dr T's MIDI Recording Studio all cost well under £100. In fact, Dr T's program is around £30 – not exactly what I'd call expensive. In addition, files from three of these programs are upwardly-compatible with their more expensive relatives, and the cost of EZ-Track can be offset against that of its big brothers SMPTE-Track and MIDI-Track if you decide to upgrade at a later date.

So you see, there are cheap software alternatives – but perhaps you'd prefer to "go hardware" and invest in a Yamaha QX3 (a grand plus), an MC500 (around £800) or an Alesis MMT8 (only marginally more expensive than Pro24).

Maybe the price is right after all. ■ *Tg*

Dear MT

Charted Territory II

I agree with Tim Goodyer's answer to R Thomson (MT January '88), although of course the problem isn't limited to the Pet Shop Boys. After all, they're just a money-making arm of a record company, at the same time trying to make money for themselves in this tough old world. The formula (which has been in existence for years) whereby tracks are continually released as singles from a hit album rakes in the money, and at the same time takes the pressure off bands to write new material. But I wonder how much of this "hard-earned cash" bands actually see? Answers on a postcard, please.

It is this "clogging up" of the charts that annoys me most, especially when it restricts a wealth of talent and good music from being heard. Still, I suppose someone must like 5-Star and Samantha Fox, as I hear them on the radio – even in southern Germany.

■ B K Hale
Nürnberg
West Germany

Dear MT

Broken Promises

Advice, please. What does one do when one has shelled out a lot of dosh for a software-intensive computer music system and the company producing it doesn't finish the software? Such is the case with PPG and their Waveterm B, one of which I own. The software that does exist is brilliant, running rings around most samplers – especially with its digital sound manipulation facilities.

So much more was promised in the adverts, salesmen's sales pitches, update news releases and even the operating manual, including:

1. *A MIDI communication page*
2. *Fourier analysis of sounds*
3. *Resynthesis of sounds*
4. *Variable loop lengths*
5. *Mixing of dual bank sounds*

PPG, now on their fifth UK distributor, seem to have sold their system on a series of broken promises with no intention of finishing the system as advertised or as described in the manual. It makes me chuckle to see press releases about new products the company intend releasing, as I wonder whether new customers will encounter the same problems.

■ Tom McLaughlin
London

Dear MT

Serious Split

letter of the month

I'm writing after viewing the BBC2 programme Split Screen *on the acceptance or otherwise of "new" (classical electronic) music in the concert halls of the world.*

The programme started with a 15-minute anti-"new music" film showing the weird (and wonderful) ideas of people like Cage and Stockhausen. The film showed audiences being suitably repulsed by these new-fangled ways, but one comment did ring out above all others: "I don't understand new music".

The second 15-minute film burst into life full of promise. Snippets of Steve Reich's 'Clapping' and 'Six Pianos' led me to believe that all criticisms would soon be answered.

To be blunt, the film (introduced by Simon Emmerson) went very quickly downhill. Instead of encouraging understanding, Emmerson merely perpetuated old myths: here is some complex electronic equipment that's impossible to understand (enter Pro24, DX7, S900 and Stepp), here are some very strange noises (enter plink, plink phizz) and here is a composer (enter Jonathan "I took it over to IRCAM" Harvey).

I believe that this 15 minutes air time would have been much better spent showing some of the approaches adopted by modern composers, so that any future audience would have a basic comprehension of their work. The Music Technology Group who toured the country last year showed how this could be done, with their brilliant demystification of John Cage and of modern music in general.

With the new GCSE incorporating rock music to attract students' interest in other music, why can't "new" musicians and composers see how this principle could work to attract audiences to new music concerts?

■ Mike Fieldhouse
Hartlebury
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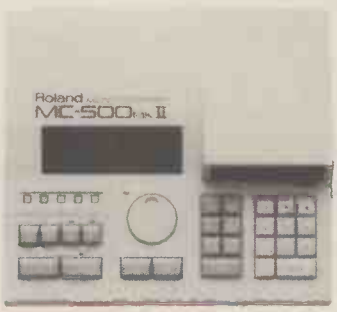

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INTERFACE

Your questions answered by MUSIC TECHNOLOGY's resident team of experts. If you have a query about any aspect of music technology, or some information that might be useful to other readers, write to Interface at the editorial address.

Q *Hopefully MIDI Files (sequencer file) compatibility is something we'll be hearing a lot more of during the next year, so now seems a good time to sketch in the background to the development of Standard MIDI Files and assess the current state of the spec.*

The Standard MIDI Files spec was developed primarily by Dave Oppenheim of US software house Opcode Systems, and first implemented on Opcode's Sequencer 2.5. The spec was published in the Sequencer 2.5 owner's manual, and other developers were encouraged to use it. MIDI file compatibility was soon included as a feature in Electronic Arts' Deluxe Music Construction Set, Intelligent Music's M, Jam Factory and Upbeat, and Southworth's MIDI Paint. Today it is far from being implemented on all sequencing packages, but we can at least hope.

Last summer the MIDI Manufacturers' Association agreed that, with certain revisions and enhancements, MIDI Files would be the direction they would follow. The spec has been through versions 0.02 and 0.03, and is now at 0.04. Many US software houses have now implemented the spec, and it's to be hoped that European software houses will follow suit. To encourage adoption of MIDI Files, no non-upward-compatible changes are planned for the format described in the 0.04 spec.

MIDI Files is a standardised format for saving MIDI data to disk. This is fine for transferring sequences between sequencing programs running on the same computer, but of course that's only half the story. Many musicians and studios want to transfer sequence data between different computers, or between a computer and a dedicated sequencer. What's needed, then, is a specification for transmitting MIDI Files data over MIDI. Such a specification is currently in the preliminary consultative stages, so while sequence transfer between different programs on the same computer is now a reality (at least for those companies that implement the standard) we'll have to wait a bit longer for MIDI Files transfer over MIDI. ■ *St*

Q *In last month's review of the Ensoniq SQ80, mention was made of polyphonic aftertouch. Could you explain to a synth novice such as myself the advantages of polyphonic aftertouch, and why it "eats up the bytes"?*

I appreciate that you can't explain everything within a review, which is why I'm turning to the informative pages of Interface for one of your "in depth" explanations.

■ Joe Harper
Coventry

A *You want in-depth? You've got in-depth. As you may know, aftertouch data is generated when you hold down a key following the initial keystrike. Variations in pressure generate varying aftertouch values which can be applied dynamically to synth or sampler parameters – for instance amplitude, filter cutoff and pitch-bend. At the same time as aftertouch affects sounds locally it will be transmitted over MIDI to other instruments.*

There are two types of aftertouch: channel and polyphonic. The former registers a single aftertouch value for the entire keyboard, the latter for each individual note on the keyboard. Typically a keyboard instrument featuring channel aftertouch has a single pressure-sensitive strip running the length of its keyboard, situated underneath the keys. This will only register a single value at any given moment, namely the strongest pressure being applied.

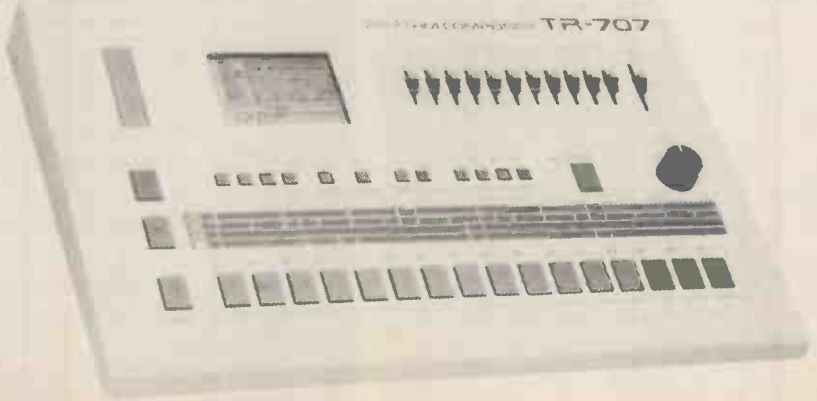
In contrast, polyphonic aftertouch requires an individual sensor for each key – an altogether more expensive proposition. But the benefit of this approach is that notes are affected individually. For instance you could vary the brightness of one note, or pitch-bend it, without altering the other notes. This is particularly useful if you're playing with a split keyboard texture, where you probably want each sound to be independent (just because you're pitch-bending a solo guitar note doesn't mean that your six-note string chords have to be pitch-bent as well). A further advantage of poly aftertouch is where you're using aftertouch-induced LFO modulation to introduce movement into a sound; with poly aftertouch the movement will be subtly different for each note.

Now to this question of why poly aftertouch "eats up the bytes". In MIDI terms, poly aftertouch generates three bytes for every two generated by channel aftertouch (the extra byte is to indicate which note the current value refers to). So even if you're playing a solo line, poly aftertouch will generate more data.

But what really makes poly aftertouch so data-intensive is the fact that each key played generates its own stream of MIDI data – play four notes and you get four "streams" of data, whereas channel aftertouch generates a single stream no matter how many notes you play. As an example, suppose that playing a four-note chord on a channel aftertouch keyboard generates 20 bytes. The same chord on a poly aftertouch keyboard would generate 4X30 (ie. 120) bytes. In practice you can't make such a neat comparison, but you get the idea. ■ *St*

Q *Reading through some back issues of MT, I came across a letter I had published in the August '87 issue. In my letter I mentioned that Roland's TR707 drum machine had insufficient processing power to enable it to run off a tape sync code and output MIDI clock data that ran in time. I went on to say that I'd solved this problem, but didn't actually mention how. In view of the fact that many people are still using TR707s I thought I might explain how I did it.*

The cheapest solution is provided by Roland's



MC202 MicroComposer, which can be picked up for as little as £50 second-hand. First record the sync code from either the TR707 or MC202 at a suitable level. The MC202 will read the TR707 code quite happily, and as this code is stronger than the 202's it's best to use it. After you've done this, program enough blank bars into the MC202 for the song you're recording, with the correct time signature. Then set the TR707 to DIN Sync using the Sync mode button, and plug the MC202's Sync output into the TR707's DIN Sync socket.

Finally, sync the MC202 to tape, and providing the TR707 is set to receive DIN sync it will run off the MC202 and output MIDI clock data that runs in time. As an added bonus, the second DIN Sync output on the MC202 can be used to drive any other device that runs on Roland DIN Sync - a TR808, for example.

Tempo changes are also possible. All you need to do is manually adjust the tempo of the TR707 when recording the sync code. When the TR707 or MC202 run off this code they will follow the changes in tempo perfectly - though don't expect a sudden change from, say, 160bpm to 50bpm to work. Very smooth changes of tempo

are possible, however, and can sound very natural as the rate of change is determined by "feel" rather than by programming tempo changes on a per-beat basis, as on many MIDI sequencers.

I haven't tried this with other manufacturers' FSK sync code, but in theory it should work. Try the same thing with SMPTE code and you'll be disappointed. Maybe us paupers who have to rely on FSK code are entitled to a modest giggle, because it's much simpler than trying to program tempo changes which sound natural.

On to another drum machine. Having recently bought an Alesis HR16 and experienced a few minor problems with its operation, I rang the distributors Sound Technology and was told of a self-diagnostic routine which checks through the HR16's functions and tells you whether they're working correctly. This routine isn't mentioned in the manual, so I thought it'd be worth telling other MT readers how to call it up.

First, with the power turned off, plug MIDI In into MIDI Out and Tape In into Tape Out. Then press and hold the Quantise and MIDI/Utility buttons at the same time and turn the power on. The display will show the test routine running through the HR16's functions, and will tell you when each test is completed.

I was also told that the software in the HR16 can be updated, and that user feedback may be incorporated in future software updates. If any HR16 owners out there have any ideas, get in touch with Sound Technology.

■ David Marsden
Southport

Q I am the owner of an Akai MG614 recorder. The main reason I purchased this machine rather than an alternative six-channel mixer/four-track recorder was because of the additional "fifth track" for syncing my UMI 2B MIDI sequencer and BBC Model B computer.

On trying to sync to tape I discovered there was a problem. I recorded my first audio track whilst recording the sync pulses. Everything went as planned. However, on setting the sequencer to external clock and the Akai to record on track two I found that the sequencer "took off" without control. Playing the tape did cause the sequencer to run at the desired tempo, but by now it was halfway through verse three!

I monitored the tape sync output with a 'scope to find 1.5 volts of noise (presumably 1.5 volts, since the level is automatically set). I then contacted the supplier, JSG in Bingley, to see if anyone else had complained of a similar problem. No-one had. On visiting the shop we tried a display model with a Yamaha sequencer. Exactly the same problem occurred. The shop assistant could offer no suggestions but said he would contact Akai.

The company's reply was that the problem was caused by the method of syncing used by the sequencers, namely FSK. The assistant could only relay the message, but gave me Akai's telephone number and a contact name. Subsequently I phoned Akai and was told that the MG614, being a "professional" machine, was intended for use with sequencers which used SMPTE code. The reason for the "noise" was that the unit was attempting to demodulate system noise.

Had the sequencer been awaiting a specific code rather than a single pulse, the problem would not have occurred. By purchasing a "cheap" interface for around £150 such as the JL Cooper synchroniser (all the ads I've seen have

an RRP of £229) my problems would be solved. In addition I would benefit from MIDI song position pointers - what a pity my UMI doesn't cater for these.

Any advertising literature I've seen, and certainly the MG614 manual, has no mention of the fact that the fifth track is only suitable for use with SMPTE-type code. Surely something as relevant as this should be brought to the attention of the would-be purchaser, if only to comply with advertising standards? I hope other people will not fall into the same trap that I have.

■ C Townend
Bradford

Q I read with interest an answer given in Interface (MT January '88) concerning MIDI and the IBM PC. In the answer given it was stated at the end that one should "expect to pay out around £200 . . . for a MIDI interface". It may be of interest to your readers that our company, Centrodata Ltd are now marketing a MIDI interface for the IBM PC which retails at £77 (excluding VAT and P&P).

The interface is supplied as a "short" expansion card to fit the IBM PC (the board is only the length of the slot, allowing room in the rest of the length for any "bulky" cards which may require double room, eg. some hard disk cards). It has MIDI In, Out and Thru connections and variable port addresses and interrupt levels for compatibility purposes.

I agree with your comments regarding MIDI and the IBM PC. It was Amstrad's budget-level entry into the marketplace, together with the lack of a similarly reasonably-priced MIDI interface, which gave us the final push to go ahead with this product.

We also supply patch editor/librarians for the DX7 and Casio CZ series, and software for the MT32, TX81Z and FB01 is currently under development. Our address is: Centrodata Ltd, 12 Old Reading Road, Sherfield-On-Loddon, Basingstoke, Hampshire RG27 0AA. Tel: (0256) 881075.

■ Richard Robbins
Centrodata Ltd

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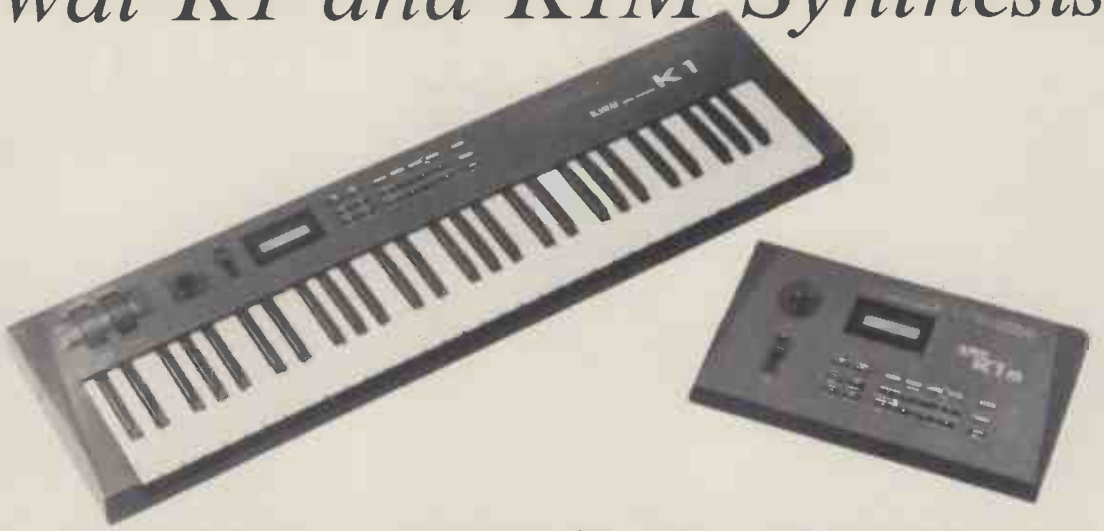
I·N B·R·I·E·F

Kawai K1 and K1M Synthesisers



THOUGH SUCCESS MAY breed contempt, it also breeds competition. In the world of synthesisers, the current success story is the Roland D50 and its L/A synthesis, which allows you to mix sampled waveforms or combine them with traditional analogue waveforms. This voice structure (also used in the MT32) allows the creation of sounds reminiscent of samplers as well as more conventional analogue synth timbres.

The first synth to adopt a similar approach to that of the D50 was the Ensoniq SQ80, which adds sampled attacks to the waveforms found in the ESQ1. But now Kawai have their answer: the K1 and K1M module. Based on the initial specs, these do not appear to use exactly the same voice structure as the D50 or SQ80, but comparisons are inevitable. The price will be significantly lower, however, so it could prove to be a real winner.

The spec worth mentioning first is the impressive choice of 256 different on-board PCM waveforms, some of which are multi-sampled and some of which are up to one second long. The sounds are stored in eight-bit format, but at full volume and without any envelope information. They're fed through an amplifier on playback with a floating point output scheme which should give a dynamic range that's significantly higher than the theoretical limit of 48db. The choice of waveforms runs the gamut of acoustic sounds and includes one-shot transients like the hammer strike of a piano, the snap of an electric bass, percussion sounds from Kawai's own R50 and R100 drum machines and the breath of a flute; as well as a number of looped sounds, like strings, voices and piano sustain.

A single patch on the K1/K1M consists of a combination of either two or four of these samples – then called Sources. A joystick on the front panel allows you to adjust the balance between the Sources in real time. Like the MT32, the instrument can play a total of 32 Sources at once, so the total polyphony is 16 voices using patches with two Sources and 8 voices using patches with four Sources. A nice feature that the K1 shares with the MT32 is that up to eight different timbres can play simultaneously and that they can be dynamically allocated.

A glance at the parameters for each of the individual Sources within a single Patch offers a good insight into the instrument's capabilities. Each Source has a delay control which permits bringing the sound of the Source into the Patch after a brief delay, as well as a normal ADSR envelope dedicated to an amplifier. The basic frequency of each waveform can be adjusted with coarse and fine tuning controls and can be affected in real time by a dedicated LFO, a Vibrato control and an Auto pitch-bend function. Pitch and amplitude levels can also be modulated in real time by velocity, aftertouch and keyboard scaling. Finally, two Sources can be ring modulated (AM) to produce "metallic" sounds. Oddly enough, there aren't any filtering capabilities. None of the PCM partials on the D50 can be filtered either, however; only the square and sawtooth waves from the synth partials, so the units aren't alone in this.

Up to eight single Patches – of which the K1 can hold 64 – can be combined into a Multi Patch – the K1 has room for 32 of those. (Optional RAM and ROM cards will double that capacity.) These are strikingly similar to the powerful Multi Patches available on Kawai's K5 additive synth. Each single patch within a Multi Patch can be assigned its own MIDI channel, keyboard zone, velocity zone (two are available for each key), transposition, fine tuning, level, pan position (L/C/R), control status (keyboard or MIDI), and polyphony (a fixed number of voices or dynamic allocation). All single patches in a multi can also be set up to independently respond to various MIDI controllers, such as pitch-bend, mod wheel and so on. Also as on the K5, splits, layers and flexible sequencing setups should be easily arranged with these Multi Patches; though it'll be made more difficult with the K1's smaller 16X2 back-lit LCD display. The K1's 61-key weighted keyboard responds to both velocity and aftertouch, an impressive feat for what promises to be an inexpensive keyboard.

The K1M is not rack-mountable, but instead is configured as a table-top box which is roughly equivalent in size to the R50 drum machine. Both units offer stereo outs, a headphone jack, a memory card socket and MIDI In, Out and Thru jacks.

Speaking of MIDI, the K1's MIDI implementation includes the ability to operate in the increasingly popular Multi mode (though it's not even an official part of the MIDI spec) and to respond to new MIDI Registered Parameters for remote control of functions like tuning, pitch-bend amount and so on.

Based on a quick listen I got at the recent NAMM show, the K1 and K1M could well give the synths already using similar methods of synthesis a run for their (or your) money. Full reviews to follow as soon as we can get our hands on them. ■ *Bob O'Donnell*

Prices *£595 (subject to confirmation)*
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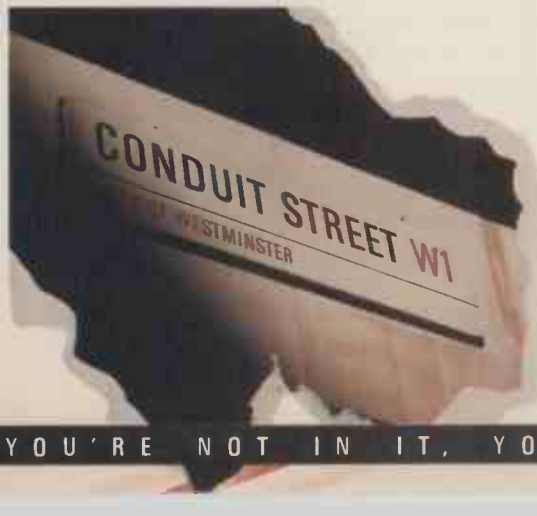
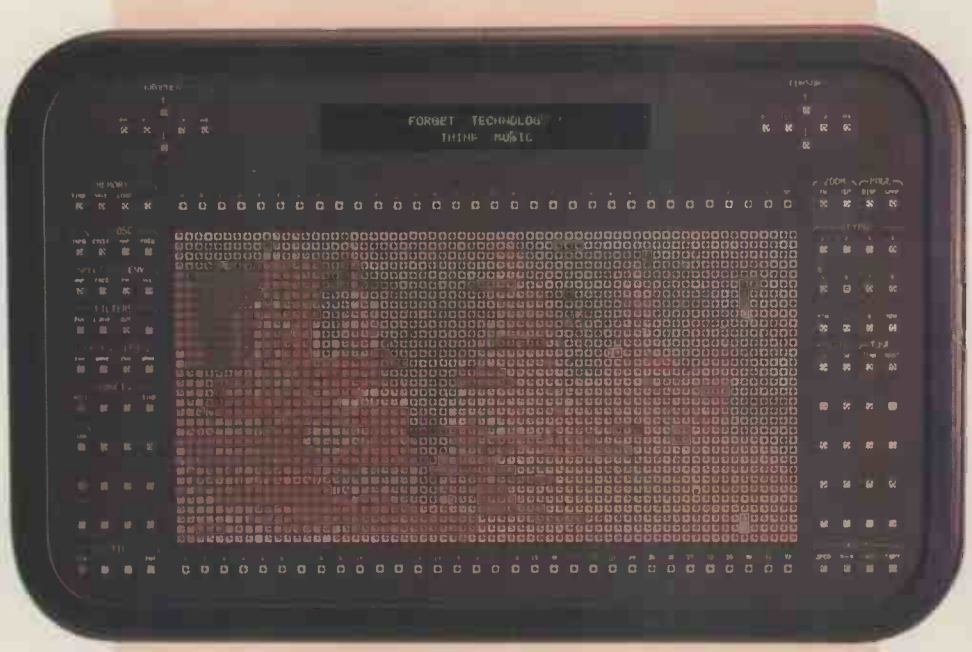


YAMAHA MUSIC PULSE

IF YOU'RE NOT IN IT, YOUR FINGER'S NOT ON IT.

I·N B·R·I·E·F

Technos Acxel Resynthesiser



SAMPLING IS DEAD, long live sampling. When the history books are written, I'll wager that the arrival of resynthesis will mark the beginning of the end for our friend, the sampler. What's more, I really don't think it'll take that long. Witness the Acxel.

What exactly *is* resynthesis? Resynthesis is the process of analysing a sound and arranging a number of sound components, like oscillators and amplifiers, to reproduce that sound. In other words, a sound is digitally sampled and then analysed and recreated with a series of sine wave oscillators (as in additive synthesis) whose pitch and frequency change over time. If you have a sophisticated additive synthesiser, you could create the sounds manually, but the beauty of resynthesis is that this process is automated. It selects the basic frequency and amplitude of the various harmonics (the number of which varies according to how many you have available, though the default amount is 32 per voice on the Acxel) and creates envelopes which vary these levels over time.

The advantage of resynthesis over sampling is that while samplers treat sounds as a whole, resynthesis involves breaking a sound down into each of its component parts, or harmonics. The components are all independent and can be adjusted individually, so you have more control over the sound. Ideally, a resynthesiser will sound as good as a sampler, but it will provide additional control over the sound.

Ever tried to copy the violin scrapes and breathy attacks of the D50? If so you'll have found you can't do it using simple sampling – you still hear the fundamental pitch underneath the effect. With resynthesis you can remove the pitched component of the sound (ie. the fundamental and perhaps a few of the other first harmonics).

Another problem overcome by resynthesis has to do with the link between pitch and duration of samples. Transposing a sampled sound upwards by one octave cuts the length of the sample in half and transposing it downwards by that amount doubles it. With resynthesis pitch is independent of duration, consequently sound duration may remain constant over the entire range of a keyboard, and time expansion and compression without pitch change become possible.

And this is what the Acxel is all about. The name Acxel, by the way, stands for Acoustic Element. In the company's terminology, each harmonic of a sound (represented by an individual sine wave) is referred to as an Acxel. The individual Acxels are then "added" together to form a complete, resynthesised whole. The Acxel is also an additive synthesiser and if you don't buy the optional Acxelizer, which performs the resynthesis process, then you're left with a very extensive additive synthesiser.

Back to nuts and bolts. The Acxel consists of two basic parts: the Solitary, a large rack-mounted black box which holds the system's plug-in cards, a 3½" floppy drive, 2Meg of RAM and the various audio, SMPTE, MIDI, CRT terminal, printer and hard disk connectors; and the Grapher, the company's revolutionary interface. Future plans also include an optional high-quality dedicated keyboard controller.

The Grapher is an impressive, touch-sensitive terminal that features an 80-character LCD as well as a 32X64 matrix of red LEDs which can display waveforms, envelopes, relative harmonic levels and a host of other functions. All of the "switches" on the Grapher which surround the rectangular matrix and all of the points on the matrix itself, turn on or off with the touch of a finger, making the system very fast – drawing an envelope or a waveform is simple and extremely intuitive. Once experienced you can't help but believe it's ideal for working with sound data. It's similar to a light pen or a

graphics tablet, but more sensual. It's also ideally suited to the Acxel because of the speed with which you can adjust a great deal of data. Best of all, the Acxel responds to adjustments to the sound in real time and, consequently, the Grapher can be used as a performance tool. Significant real-time sound shaping has finally arrived. (The actual resynthesis calculations take a bit longer; roughly two seconds for a two-second sample.)

The voice architecture of the Acxel is rather complex, but it does retain ties with traditional synthesiser voices. The basic sound components are created by Intelligent Synthesis Cells. Each ISC consists of an Intelligent Digital Oscillator (IDO) and its accompanying Intelligent Pitch Envelope Generator (IPEG), as well as an Intelligent Digital Amplifier (IDA) and its accompanying Intelligent Volume Envelope Generator (IVEG). The reason the word "intelligent" precedes all these components is because they respond to the data generated by the Acxelizer from a sample and intelligently program themselves to appropriate settings. A normal voice consists of 32 of these ISCs, but the number can be reduced to 16 or raised to 256 for varying degrees of harmonic resolution. The total number available in a system ranges from 128 to 1024.

In typical additive synthesis or resynthesis the oscillator would produce a sine wave, but each IDO on the Acxel can produce a completely independent, user-programmed waveshape. Consequently, you should be able to produce complex sounds with relatively few ISCs as well as be able to create noise with a single oscillator. The oscillators can also be independently detuned for chorusing, which the company refers to as the Harmonic Rainbow effect. The envelopes are also a little more sophisticated than usual; they can be independently delayed, and adjusted by a number of real-time functions. Each envelope offers up to 1024 steps.

But that's not all. After the sounds of the ISCs have been added or mixed together, the composite signal can be affected by two Digital LFOs (DLFOs), one of which is Intelligent, an Intelligent Digital Filter (IDF), an FM processor with an index envelope, a Master IDA and an analogue low-pass filter. The IDF can function as any type of filter including a Variable Integer Pass (VIP) Filter, which only affects certain harmonics of the sound. It can also be programmed and adjusted by the user in real time either with the Grapher or with other controllers.

In addition to traditional waveforms, each of the LFOs can have a user-defined waveform, and each has its own dedicated amplifier with a multi-stage envelope. DLFO1 is also intelligent, which means that it responds to the resynthesis process to recreate a vibrato effect or, if an entire musical line with different pitches is the sound source, it recognises and recreates the changes in pitch.

The Acxel isn't cheap, but considering that the only other commercially available device offering resynthesis is the Synclavier, that's not surprising. The system currently being produced (called the Pro Studio) features eight modules of 32 ISCs each, the Acxelizer, and eight individual outputs (unfortunately, stereo outputs aren't available). You can get into the system for little more than half the price of that, but you won't get the Acxelizer, you'll only have four modules and there's only a single XLR output.

The Acxel sounds impressive on paper, but the bottom line is how it sounds, and that still remains to be seen. Is the resynthesis process accurate? Does it sound as good as it promises? Stay tuned for the answers. ■ *Bob O'Donnell*

Prices *starter stage (without Acxelizer). £8500; starter studio. £14.545; Top of range system. £37.930*
More from *Syco, 20 Conduit Place, London W2 1HS. Tel: 01-724 2451*

T E C H N I C A L E

The Console
Inbuilt hi-resolution 9" screen.
Composite video out for external monitor.
Hierarchal menu driven software structure programmable at kit, drum, drum head or sample level.
Software containing some 2,000,000 characters of code.
Icon driven for easy comprehension at all levels.
Load/Save kits, drums, samples from/to floppy or hard disks.
Disk drives:-
Floppy
Sony 2 meg 3.5" drive.
2 meg/1 meg disks automatically selected.
Load times. System = 50 sec. Library 2 meg disk = 88 sec.
SCSI.
Optional built-in 20 meg 3.5" Winchester.
Additional 6 hard disks can be connected via 50 way SCSI port.
Load times. System = 45 sec. Library 2 meg disk = 27 sec. 10 sec sample = 6.5 sec.
Naming of kits, drums, samples etc., by on-screen qwerty keyboard.
Upper/lower case, insert, delete, use last name.
Up to 8 meg of memory expandable in 2 meg blocks.
Sample time – up to 88 secs. @ 44.1 khz.
176 secs. @ 22 khz.
352 secs. @ 11 khz.
Multi tasking system comprising 1 x 32 bit, 3 x 16 bit and 2 x 8 bit micro processors.
System processor – 68000.

The Controls
Tracker ball for moving on-screen cursor – no mouse to lose.
Two select buttons for selecting menus, icons etc. Also special functions e.g. double click short cuts, select, copy and paste, etc.
Sixteen 'tap in' pads. Programmable to fixed/variable dynamics, centre, inner, outer drum position, one drum at 16 dynamics or one drum at 16 positions.
Tap in buttons which also double as 'kit select' instantly selecting one of sixteen kits.

The Auto Trigger
Custom one bar auto trigger accessed at all levels.
Easy visual display of pattern.
Speed set 40 – 180 BPM.
Program individual drums for dynamic level and position.
Selection of built in useful patterns, eg single drum, all 16 drums in succession, bass/snare alternate, etc.
Functions – stop, start, clear.

The Kit Select
Maximum 16 x 16 drum kits. (Each drum can have 9 samples [Bass + Rim = 3] → i.e., each kit can access 132 different samples).
Footswitch select kit left/right.
Play and load kits simultaneously from memory or disk.

The Kit Mixer
On screen, 96 function, 16 into 2 mixer.
Individual channel controls for length, tune, pan l/r, volume, mute and solo.
All functions operated by grabbing knobs or sliders and rolling tracker ball.
Special functions:-
Set all mutes/solos off.
Pots and slider ranges use definable – fine, medium, coarse, very coarse, extremely coarse.
Single keystroke to initialise mixer to 'normal settings' for length, tune, pan, level, mute and solo.
Forms the basis for automated mixing in the sequencer.

The Kit Configuration
8 pad types (icons) bass, snare, rim, tom, cymbal, hi hat, pitched.
Individual inbuilt voice robbing modes for cymbals, toms and snares for natural playability.
MIDI note/channel individually assigned in each kit for all pads.
MIDI note range for pitched pads – 16 pitched pads = 16 splits, all sixteen voice polyphonic (or assignable as required).
16 voice outputs. Voices assigned as required on a kit by kit basis.
Special functions:-
Pads as default. (normal kit).
All pads pitched.
Default voice assign – (1 voice bass, 3 voice snare, 1 voice rim, 4 voice toms, 7 voice cymbals/hi hat).
Assign all voices to all drums.
Assign voices – one voice to one drum.
Six pole low distortion low pass filter for each voice.

The Sample Assign
Icon representation of drum pad in a 3 x 3 position/dynamic matrix.
Maximum 9 samples per pad.
Zone (position) and dynamic sample switching.
Individual pitch and level control for all samples for perfect matching of samples within a drum.
Sample loading from memory or disk.
Visual display of sample selected.
Movable 'dynamic bar' for programming of sample dynamic switch point.
Special function:-
Sets all samples the same, ('soft outer').

The Sampler
16 bit linear sampling at 44.1 khz, 22 khz, 11 khz.
Programmable sample length.
Maximum 88 seconds available at 44.1 khz.
View, edit, truncate, reverse sample.
Maximize sample amplitude 0 + 10 db to control clipping.
4 function looping screen features forwards, forwards/backwards and x-fade looping.
Automatic or user selection of loop points.
Zero crossing loop points.
Automatic loop gain and x-fade adjust for glitch free looping.
Preview input gain function for clip free samples.
User definable sample trigger threshold.
Bar graph display of maximum sample amplitude.
Review sample 'raw' or with envelope processing.
Automatic saving of sample to second loop point if required.

The Drum head
Controls how a drum plays and is constructed from the following elements:-
6x5-stage dynamic and positional performance envelopes for pitch, brightness, resonance, noise, level and pan.
Palette of 4 preset envelopes – or user definable, drawn with tracker ball.
Flip envelope.
Variable sample start by dynamics.
Dynamics and position control envelope length if required.
8 blank drums, (bass, snare, rim, tom, ride cymbal, crash cymbal, hi hat, pitched), for easy starting point.
7 stage dynamic curve programmable for each drum.
7 stage position curve programmable for each drum.

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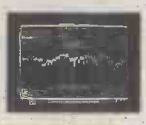
e.g. Broadkits Disk 1. (Contains 5 complete 16 drum kits recorded by Graham Broad and Steve Levine).
Drum format –
e.g. Snare Drums 2. (Contains 30 pre-programmed snare drums – not just raw samples).



The Keyboard Functions
Pitched 'drum' for 16 splits (can be overlapping).
Voice assignment programmable for use with outboard EQ etc.
Tracking filters.
Sustain looping.
Transpose.
Pitch bend.
Modulation LFOs.

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The Inputs/Outputs
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2 Piezo inputs for bass and snare rim (or second bass).
16 voice outputs.
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Mixer left/right outputs.
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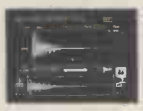
SMPTE in/out.
SCSI buss in/out.
Video out.
Hi hat pedal input.
Modulation pedal input.

The Instrument
SDX



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LOS ANGELES · ST ALBANS

Competition time

Kawai Hopes

"AND THERE AIN'T no such thing as a free lunch, my friend", sang Working Week a couple of years ago. Well, here at MT we don't entirely subscribe to that point of view, so we've arranged for a Kawai K1 synth to be liberated from the first shipment to arrive on British shores – so that we can give it away.

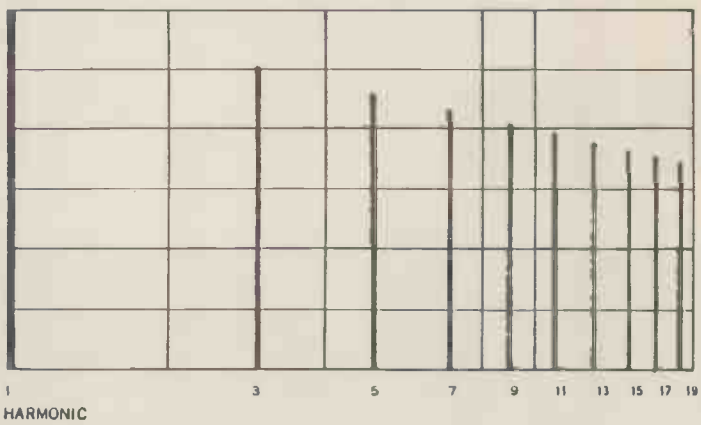
Admittedly there's a catch – a question: did the Kawai stand at last year's British Music Fair rotate in a clockwise or anti-clockwise direction?

No, no, only kidding – about the stand, that is. There's still a K1 up for grabs if you can sort out the answers to a couple of more "sensible" questions. To make it easier still, we'll give you a number of choices for each answer. Just call us "soft-hearted".

1. Was the first synthesiser to bear Kawai's name in the UK:
(a) the K1
(b) the K3
(c) the K5

2. A little-known Kawai synth once co-starred in BBC's *Dr Who* series, was it:
(a) Katy Manning
(b) K9
(c) Bonnie Langford

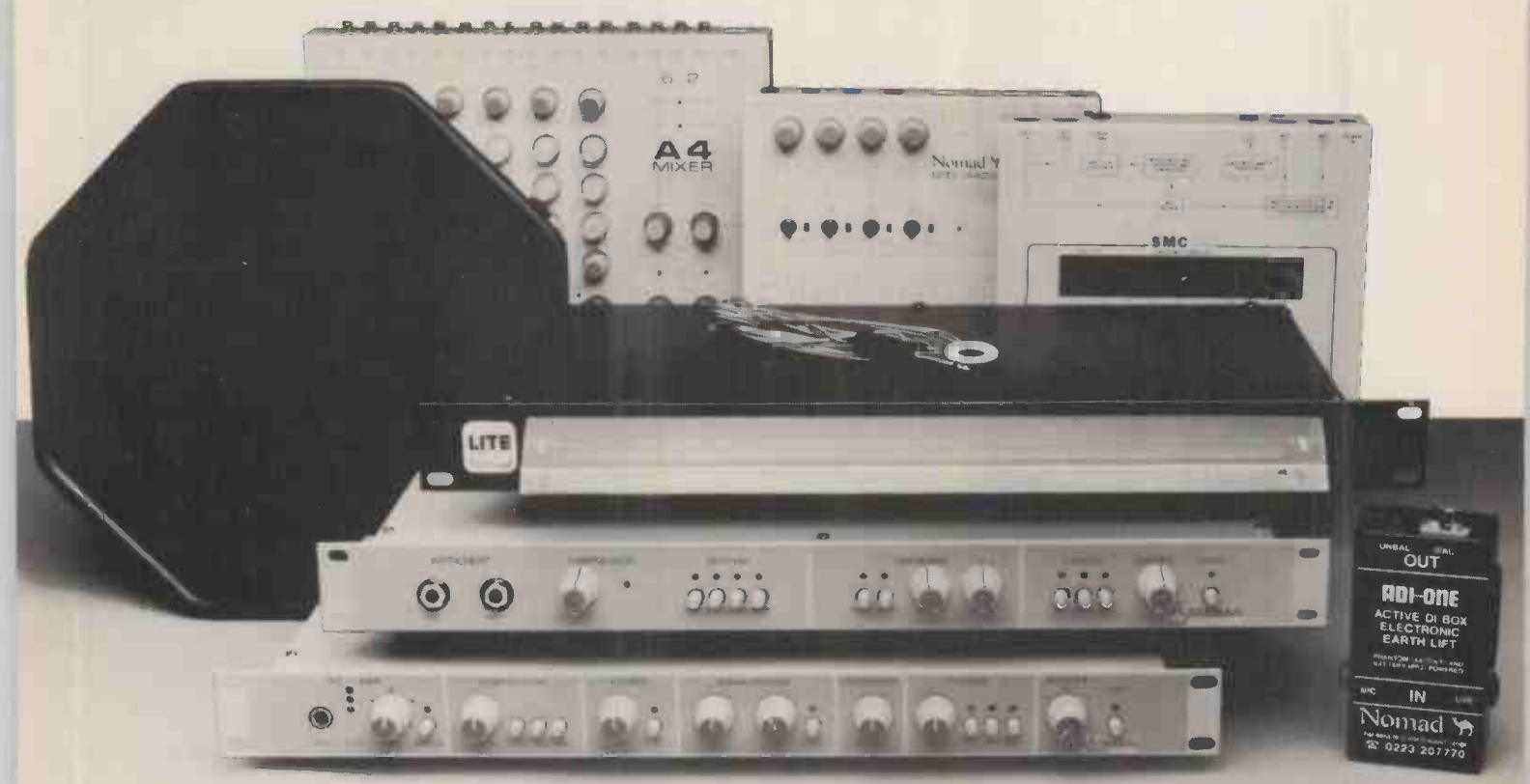
3. Is the accompanying diagram an harmonic analysis of:
(a) a sawtooth wave
(b) a square wave
(c) a complex wave



ANSWERS ON A POSTCARD only please to: ***Kawai Hopes*, Music Technology, Alexander House, 1 Milton Road, Cambridge CB4 1UY.** Closing date is second post, **Friday, April 8, 1988.**

As usual, employees of Music Maker Publications and their relatives are ineligible for entry. We have, however, had a change of heart regarding pets, and entries from fish under nine inches in length will be accepted subject to a £5 surcharge for handling damp correspondence. ■

Nomad know how



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(1) Music Technology, August, 1987. (2) International Musician, October, 1987

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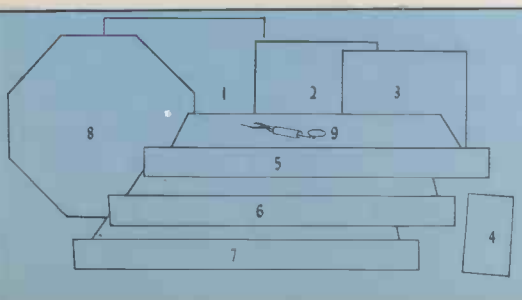

1. Icon A4 Mixer
2. P2M MIDI Trigger
3. SMC 1.0
4. ADI-One
5. Lite 19
6. Axxeman
7. Bassman
8. Drum Pad
9. Bug (Mic)

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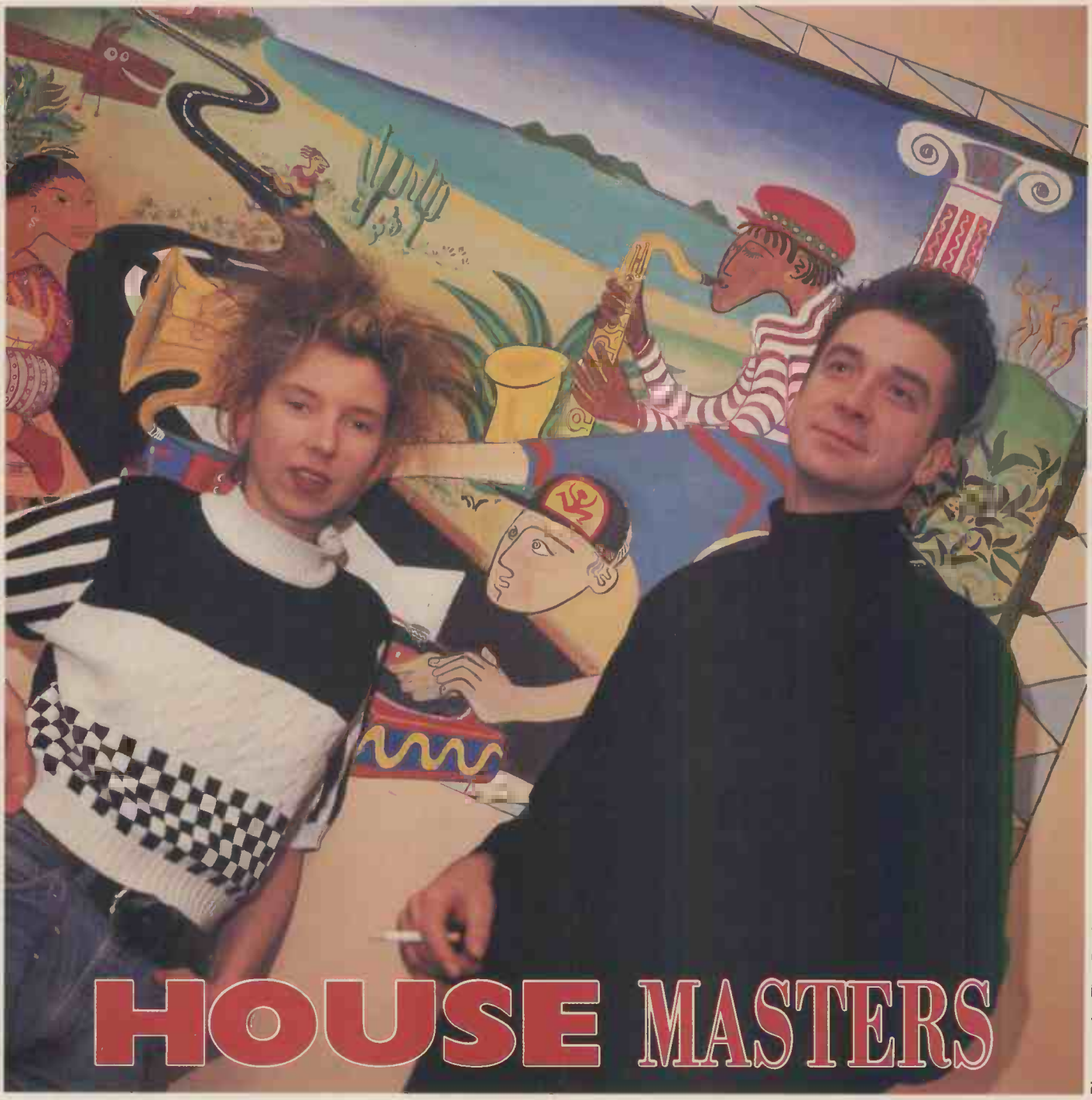

HOUSE MASTERS

Photography *Tim Goodyer*

Its roots are in Chicago, but that hasn't stopped British house music establishing itself as a force to be reckoned with. Interview by Nicholas Rowland.

IT WOULD BE fair to say that, after struggling for six or seven years, it's only now that British hip hop is starting to enjoy any real commercial success. In contrast, British house music is barely three years old and has had almost no trouble gaining either credibility or chart success.

Chicago house first broke the ground with last year's surprise success of Steve 'Silk' Hurley's 'Jack Your Body', but today British house is standing on its own feet, represented by such acts as Krush, Jack 'n Chill and Two Men, a Drum Machine and a Trumpet, though still more interesting things are happening at club level.

Another home-grown success is the Cookie Crew/Beatmasters combination, whose hip hop/rare groove single 'Females' is going great guns in the US clubs at present. On the home front, our Top Ten has just caught on to their first single, 'Rok Da House' which is by far the hardest house track in the charts at the moment. Perhaps that's not so surprising given that it's had a following in the clubs for well over six months.

On a global scale, it's also one of the most interesting, since with cheerful iconoclasm it mixes the elements which the house book says should be kept well apart: hardcore rapping, house rhythms and the discipline of a conventional song structure.

The brains behind this project belong to the three Beatmasters – Manda Glanfield, Paul Carter and Richard Walmsley. Tracking them down leads us to the heart of Soho and strained calf muscles as we ascend four flights of steep steps. At the top, we find ourselves opposite Glanfield and Carter, and a load of recording equipment. This is the studio of Commercial Music, a small company which deals in TV jingles. Beatmasters by night, Glanfield and Carter are actually Commercial Music co-directors by day, though the dividing line between work and play is quite arbitrary, since the company specialises in writing hip hop/

electro style jingles anyway. (You may well have heard their recreation of the Batman theme for Mini Metro, or the hip hop track they've done for the Brook St Bureau temping agency.)

The first thing Carter does is explain the connection between the two entities: "Commercial Music was set up in November 1984, when that very hard-edged, Fairlight-type sound was just making its appearance. All the ad agencies were quite excited by it, but people who normally did jingles didn't really know how to produce it. They still don't know how. Like the classic example of how not to do hip hop music is that Duracell ad with the Beastie Boys in the garage, or the Heineken one with the boy spinning round.

"But we were all into hip hop and house music through the clubs and knew how it was made; we thought we'd be able to make a better job of it than everyone else. So we sold ourselves by saying 'If you want this aggressive music which is good for cutting pictures to, then we can do it'. It meant that we could break into that very difficult world of jingle-writing and also concentrate on making the sort of music we liked."

"Of course, we're a bit fed up with the limited parameters of advertising now", adds Glanfield, "but we always did see it as a way of getting to the point where we could start to do it 'properly'. At first, Paul and I weren't really involved in creating the actual music. We didn't have a studio as such, we just had the ideas and then we had to enlist musicians to come in and execute them for us. And most of them hadn't got a clue what we were talking about."

ONE MUSICIAN WHO did have a clue was Richard Walmsley, who is just one of several composers and players who come into the studio to work on specific adverts. The Beatmasters' career proper started in September '86, when the three of them reckoned that they had built up enough confidence and know-how to have a go at producing some "real" house.

Carter:"We were working on this thing - a rhythm, a bass and some piano parts - for a couple of weeks in our spare time and ended up with this seven-and-a-half-minute monster - a real hydra. We thought: if this needs anything, it needs a vocal of some kind. But at that time, house music vocals were very specific in their style and we didn't know anybody in this country who could even attempt that very American style, so we decided that since we like hip hop and rap so much we could just put the two together. We thought it was an interesting thing to do, though in fact, in terms of the two styles of music, it's *outrageous*. Oil and water, somebody called it."

Enter at this point a couple of "spunky chicks" (Glanfield's phrase), more specifically Suzy Q and MC Remedee, aka The Cookie Crew. They listened to the track, quickly wrote a rap and recorded it virtually in one take.

"We only had one mic", Glanfield recalls, "and one set of headphones so monitoring was a bit of a problem."

More of a problem, though, was turning the seven-minute monster into a coherent song.

Glanfield continues: "As recorded, the rap was fairly sporadic: breaks of 20 bars, breaks of 53 bars."

The song structure was imposed after the event mainly through tape editing. The process began with a transfer of the original 16 tracks (15 vocal/instrument tracks plus timecode for the drum machine) to 24 track, during the course of which the synced-up drums were added.

"We specifically wanted to mix it on an SSL desk", says Carter. "It's not that we feel you can't do a good job unless you have that sort of equipment, it's just that it's easier."

From this they produced over 10 hours' worth of different mixes on ¼" two-track. Making up the 12" single was then a simple matter of splicing sections together. Or maybe it wasn't quite that simple . . .

Carter: "It can be a bit unsatisfactory because you never really get a mix up-and-running from end to end. You've just got these 30-second sections where you haven't time to get into the groove and do those mutes off the top of your head which work out really well."

Glanfield: "You have to react spontaneously to what you've got so far. You have to edit a few bits together that sound good going into each other and just keep playing back and try and imagine what would sound good next, find it from all your mixing, then stick it in and go on from there."

Carter again: "What you do get from this tape editing process are some lovely sounds. Like reverb 'tails' hanging over from the last bar, where there's reverb but no signal.

"It's great, but", he adds after a moment's thought, "we'll never make another record like that again. I think we'd think much more about why we were putting a part down in the first place and how that would work against the other parts. I always think that the best bet with any piece of music is to start with a good song structure before recording. Then you can do all your fine editing to improve upon things rather than as a way of imposing structure after the event."

The Cookie Crew may well agree with him. They were far from happy with what the Beatmasters had done with 'Rok Da House', arguing that by bringing in elements of house it had compromised their hardcore rap image. In fact, ever since the chart success of 'Rok Da House' the Cookies have all but disassociated themselves from the record.

"Personally", says Carter, "I thought it didn't sound as funky as it ought to, because at the time we hadn't quite got the hang of it. Without being racist it's quite a white-sounding record. The bassline is not as good as it should be, though it's memorable enough."

DESPITE THE SELF-EFFACING comment, the Beatmasters' association with the Cookie Crew has led to a number of other British house and hip hop acts beating a path to their door. Most recently they've been involved with MC Merlin on a track called 'Born Free', and a Huddersfield duo called Hotline. WEA want them to remix the Brook Street Bureau temps ad theme as a full-length single, and there's even talk of a hip hop single based on the Batman theme.

Meanwhile the Beatmasters have got a couple of ideas of their own, including 'House of the Lord', an attempt at "Acid house" which they hope might yield an underground hit.

"It's too blasphemous to get Radio 1 airplay", explains Glanfield. ▶

"People forget that house is primarily a dance music, it's not for sticking on the CD player and being listened to from the armchair with your eyes shut."

"Punk was characterised by people who couldn't play – it's like that for house where people who can work the gear can come up with something valid."

► As far as one could tell, what's blasphemous about it is the use of sequenced Gregorian chant samples, plus a couple of epic religious quotations from Charlton Heston . . .

"Don't tell them they're Charlton Heston", Glanfield interrupts, "We'll be sued!"

"Actually they're not," says Carter. "We wanted to use Charlton Heston, but there was too much music in the background."

Of course, if anything has encouraged media interest in house and hip hop it's the paperchase of lawsuits arising from the "unauthorised" lifting of samples from other people's works. While the Beatmasters believe that performance sampling is implicit in the house style, they're anxious to avoid the kind of legal trouble which accompanied the success of 'Pump Up The Volume' for M/A/R/R/S.

Carter takes up the story of the second Cookie Crew single, 'Females', which at demo stage used a sampled and looped section from Lyn Collins' cover of James Brown's 'Think'. You can actually hear the same section on Rob Base and DJ E-Z Rock's 'It Takes Two' and Roxanne Shanté's as-yet-unreleased 'Go On Girl', though it never made it on to 'Females'.

"This was last summer, when there was all this stuff feeding back about James Brown having 40 lawsuits piling up. We got cold feet, the record company got cold feet, so we had to rewrite the track.

"First we took the drum part, which was very funky, and sampled each one of the drum notes individually. Then we programmed the part, so we ended up with all the original inflections that the drummer had played but none of the original plate reverb ambience. We also sampled a tambourine from another James Brown record and sequenced that up, which gave it a very live feel. Then we wrote a new bassline and sequenced that up using the Studio 440. The sound itself was one of the internal presets. Then we sampled some brass from another record of that period to give the authentic sound, though obviously we had to pitch and tune it. Then Richard added real guitar over the top. I'd also heard some record on the radio with the line 'Get on up' sung by a girl vocalist, so we got someone in to do that.

"In fact, the Cookie Crew weren't too pleased with that one either."

Talk of sampling and sequencing leads to a closer look at the rack to one side of the mixing desk. Here perch an Akai S900, E-mu SP1200 and Emulator II, and the aforementioned Studio 440 which, of all of them, looks as though it has taken the hardest hammering.

"Oh, that's Richard's machine", says Glanfield in a tone which implies she rarely goes near it.

Carter agrees: "It looks unfriendly and seems hideously complicated to me, though Richard loves it."

It's clear that they view it with some suspicion, with Glanfield describing it as similar to a camera which can take the best pictures in the world, but just happens to tear the film when you wind it on.

"It has a lot of difficulty reading and generating timecodes and even seems to drop frames now and then. For example, we've used it on the stuff we've been doing with Frontline and ended up with all these bars where the timecodes are all slightly different lengths, like a bar plus or minus two or three frames. It means we can't sync up any other drum machine to that track now."

Kinder words are reserved for the E-mu SP1200 and its forerunner the SP12 (an example of which lies in the corner ready to be sold second-hand to the first comer). Where sequencers are concerned, the studio is just a broken disk drive away from getting the Atari-based Pro24 up and running. Meanwhile for Commercial Music work, Carter and Glanfield are happy to stick to the onboard sequencer of an Ensoniq ESQ1.

In the synth department, there's a Roland D50 and MT32 and an extremely dusty Kawai K5. Not, it seems, the studio's best buy.

When it comes to handling the equipment as The Beatmasters, the work divides fairly evenly with Carter on the mixing desk, Glanfield handling the drum machine programming and Walmsley doing the sequencing.

"In terms of ideas and actually writing the parts, all three of us hum them, though Richard is the thoroughly trained musician", explains Glanfield. "I can work out parts on a keyboard but I can't really play. Sequencers are the answer to people like us who're not really musicians."

Naturally, there are those musical purists who say that this lack of musicianship is exactly why house will eventually come unstuck, that really it has no longevity.

Carter: "What people forget is that house is primarily a dance music, it's not for sticking on the CD player and being listened to from the armchair with your eyes shut. It's true that house tracks are formless, repetitive, hypnotic soundscapes which are characterised by their lack of structure. Most of them start and six minutes later they finish and in between you've got some very fancy mixing and people's weird exploration of ideas and their incredible programming abilities . . ."

Punk with computers, as it's been termed.

"That's absolutely right. Punk was characterised in a lot of cases by people who couldn't play. It's like that for house music. But people with an idea who can work the gear can come up with something that's as valid as a classically-trained musician."

So has British house got an assured future? The Beatmasters have mixed reactions.

Glanfield: "None of the house records getting into the charts at the moment are particularly representative. They've all been 'fiddled' in some way to make them more palatable. Also the charts are so much to do with personalities: stars that people can relate to and idolise. House music is a pure dance form. In a way it's encouraging because it means that people who listen to it on the radio are liking it for the music itself. They're not distracted by the imagery associated with the performers."

Carter: "But what worries me about all kinds of music that are 'categorised' is that people on radio or TV say, 'OK, that was house, or hip hop. Now let's get back to the real music: Bruce Springsteen or U2. Everything else is considered to be just a fad that'll come and go.

"Yet it isn't a fad, though perhaps in terms of media interest and chart success it will appear as such. It isn't a fad. It won't go away. If anything it will go back to the clubs where it's been growing for the last three years, and continue to develop of its own accord." ■

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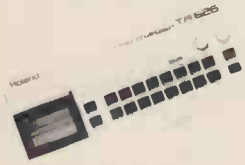

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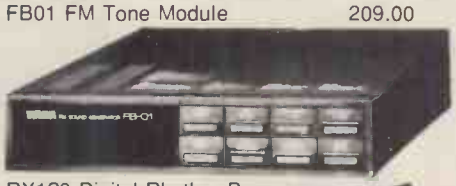

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Musicard WELCOME HERE

The novelty of cheap digital reverb is wearing off; manufacturers are now starting to worry about the quality and facilities of their wares. Review by John Renwick.

THERE'S NO DOUBT that, after a good song and some good musicianship, nothing makes a more professional demo than the outboard effects units used. To some extent, all recording tries to emulate the live situation; yet the ideal recording area is by definition "dead". And not only is it acoustically unresponsive, it is without the feedback of a live audience. The way we try to substitute for this missing ambience is with intelligent use of space-simulating effects such as delays and reverb.

Ancient tape-loop delays were superseded by cheap digital devices some time ago – although it's still possible to pick up a second-hand Watkins Copycat if you really feel the need – and it's only over the last year or so that technology and demand have made digital reverb really affordable.

Making Space

THE FUNCTION OF a reverberation unit is to recreate a feeling of space. The natural acoustic qualities of a small room, a large hall or a stairwell are completely different, made up of reflected sounds of different delays and overtones. Simulating these acoustic qualities is complex, and until recently, has been an expensive business.

I say recently, as there is a growing number of affordable digital reverbs appearing in the adverts with each passing month. Currently making its début is Akai's EX90R, and in keeping with the competition it's affordable, versatile and of excellent quality.

The EX90R is the latest unit in Akai's successful micro-rack series. Since the first of the EX line of effects began to appear, a reverb unit has been something of an inevitability. Fortunately, rather than jumping in feet first, Akai have waited, assessed the opposition, and produced a unit which many musicians will probably come to regard as the best choice available.

While the original Alesis MIDIverb caused quite a stir, the launch of the company's cut-down Microverb demonstrated that there was a demand for an even cheaper reverb. However, with the EX90R, you don't have to sacrifice control or flexibility to save money – this is a fully variable unit. Unless you're one of those people who prefers to have their options limited by presets, I'm certain the opportunity to tailor reverb effects to your precise requirements will more than make up for the inconvenience of the EX90R's limitations – no preset effects, MIDI control nor programmability.

No Half-measures

THE EX90R IS a 1U-high, half-width box consistent in styling with the other Akai EX series effects. Using an is a brighter small room. 'Plate' simulates the still-popular analogue reverb sound, particularly suited to keyboards

adapter, you can mount two EX units together in one 19" rack space. This makes the device suited to rack or table-top working – and ideal for most small studios.

The EX90R requires an external 12V power supply; don't try to use an unbalanced one, or you'll get an annoying low-level hum. There's a mains switch on the back, and the effect can be switched in and out either with a normally-closed footswitch using the rear ¼" socket, or using a switch on the front panel. A nice touch is that the effect decays naturally when you switch it out, rather than cutting off dead.

Two of the functions evident on the rear panel immediately put the Akai ahead of superficially similar units such as the Roland RRV-10, also a £199 half-unit reverb. The Akai boasts stereo inputs and outputs on ¼" jack sockets; if you don't want to use both, just Input one and Output one will deliver the treatment in mono. You can even use a mono in/stereo out setup, to provide a spread reverb without losing the directional location of the source. The second intelligent inclusion is a pair of effect loop sockets, again on ¼" jacks. Using these, you can pre-effect the signal going into the reverb. This could be useful for doubling-up effects if your mixer has limited effects sends, but its main application is to allow you to use a graphic equaliser to trim the input signal.

The Effects

THE FRONT PANEL boasts seven control knobs, which should give you some idea of the versatility of the device. The first control is the overall input volume. This is accompanied by a red LED peak warning indicator. The Akai is happy with levels from −35-0dBV, so it should work happily with practically any signal you care to throw into it.

Next along is the Main Mode switch. Like the aforementioned Roland RRV-10, the Akai has a set of main algorithms programmed into it, which you then modify to suit your requirements. The algorithms simulate the reflective properties of different environments, emphasising certain frequencies and delay times to create widely varying effects. There are also two special modes which allow you to create some of the most popular and complex studio sounds quickly and easily.

The first mode, 'L Room', creates, as the manual informatively states, the effect of a "large room" – although I think most of us had figured that one out for ourselves. Gate cuts the envelope of the reverb effect before it decays naturally, giving that popular Phil Collins treatment to your drum sounds.

'S Hall' is (yes, you guessed it) a small hall, and 'S Room' since it has a wide tonal range, while 'Reverse' employs a backwards envelope which can create some unusual, useful and frequently familiar effects.

If it's a truly massive sound you're after, the deep 'Large

AKAI EX90R
Reverb Unit

Hall' setting emphasises the middle and low frequencies, and the equally impressive 'Loft' gives an enhanced stereo spread.

Further along the front panel we come to the Decay control. This determines the length of the reverb decay or, on the Gate setting, the time before the gate cuts the effect off. Both of these are supposed to be variable from one to 15 seconds. I can't understand how Akai came up with the second figure; I couldn't create a 15-second reverb on any setting, but I'll concede that the maximum time is quite long enough for any sensible use.

Next along is the High Cut Filter, which is more than just a tone control. It is actually a 1-16kHz 20dB/octave filter which, let me assure you, is capable of drastically altering the frequency content of the effected sound from the sharpest, brightest smack to the most mellow swoosh. Definitely one up on the preset units, where the inability to fine-tune the tones of the preset effects soon becomes very frustrating.

Dry and Effect level controls complete the front panel, with the exception of the power and effect LEDs and the effect on/off switch. Surely no explanation needed here.

Complete, that is, except for one of the most important knobs on the EX90R. The control in question is the Pre-delay – the amount by which the actual effect can be separated in time from the incoming signal. Notably absent on all the other units mentioned so far, the pre-delay is variable from 0.01-200 milliseconds, and allows you to create effects on the EX90R which have been unavailable before now on any effects unit in this price bracket. Rather than being limited to "rooms", "halls" and "lofts", the manual points out that you can now create "churches", "caves" and even "closets" by judicious use of pre-delay. Bear in mind, though, that it's quite easy to create quite disgusting noises by twiddling the knobs while a sound is playing. In live use you'd be well advised to kill the effect before changing settings.

Quality

SO THE EX90R'S effects are more variable than those of anything else in the price range, but how about the sound quality? Well, the frequency response is 40-16kHz, and the sampling 12-bit at 39kHz with compression. There should only really be complaints from regular users of AMS and Klark Teknik reverberation units.

More than the sheer specifications, though, the algorithms of the EX90R have been calculated to give full, rich effects which sound to my ears better than anything else short of an SPX90. In the tradition of good audio gear, you're going to have to try it for yourself – words don't do it justice.

Verdict

IN USE, THE Akai distinguished itself with a whole range of instruments. With drum machines the Small Room is nicely chilly and the Gate settings are sharp, though I could have wished for a faster shortest gate time. Small Hall with a zero decay is wonderfully atmospheric.

Using string keyboard sounds on the Plate setting with the filter closed down gives a suitably impressive Albert Hall ambience, while piano sounds on Loft with a long delay and the filter open are nicely crisp and uncluttered. The great thing I found about the EX90R, though, is that the more I used it, the more different effects I discovered, all from the four basic controls.

The EX90R seems destined for great success. Small studios will want one for its flexibility, compactness and economy; larger studios will want three or four for the same reasons. ■

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Resampling

Illustration *Sophie Lawrence-Jones*

Some of your samples may be poor – made when you were inexperienced, misinformed or simply made in a hurry. What do you do with a sample that isn't what a sample ought to be? *Text by Tom McLaughlin.*

WHEN THE SAMPLING bug bites, it bites hard. If you're anything like me, not long after bringing your sampler home from the shop and pulling it out of its box you will have sampled just about everything under the sun . . . probably before you've completely absorbed the instruction manual.

Chances are though, that you've some samples in your collection that aren't quite what you think they should be. Maybe you sampled at too low a sampling rate, and there's an ugly aliasing "undertone" present, or on second thought, you might like to equalise your favourite percussion sounds differently. Fortunately there's an answer . . . you can *re-sample* your sounds.

Re-sampling can be executed in three ways: by feeding the output of your sampler back into its input, by feeding the output of one sampler into the input of another (preferably of the same type), by recording a sample onto tape and then back into your sampler. It can also be executed in software, but we'll leave that for another day.

To find out if your sampler will allow you to re-sample directly, put it into Record mode and hit a key – if you hear the sample currently in memory you're away. Some samplers won't allow this (Korg, Mirage) and others will only playback in one area of the keyboard and record on another.

If your sampler won't re-sample directly you'll either have to borrow (or hire) an identical sampler, or "bounce" samples using a tape deck.

Getting the most . . .

MAKE SURE THAT the VCF and VCA on your sampler are wide open. This will ensure that all the top end and level that are present get re-sampled. Check that there's enough level going to the input of your sampler to open its gate . . . otherwise valuable attack transients may get lost. Make sure effects are properly earthed to prevent mains hum from getting sampled. Pump as much level into effects as possible to achieve the best signal-to-noise ratio. Effects, especially semi-pro and effects pedals, are notorious for adding unwanted noise to a signal. Keep lead lengths to a minimum as more top end is likely to be lost with longer leads. Switch loops off – there's no reason to sample loops and eat up valuable memory space. Monitoring the new sound as you experiment will save repeating samples to get things sounding right.

Granted, you'll be adding a small amount of digital distortion and will probably lose a bit of fidelity and top end as you re-sample sounds. In many cases this won't be discernible and in others re-sampling may be the only option open to you. The bottom line is to try re-sampling

a sound, make an A/B comparison between the original and the re-sampled sample and let your ears be the ultimate judge. Executed with proper care, a re-sampled sound should lose no more fidelity than when mastering a multitrack tape – without tape hiss to worry about.

Here's several applications for re-sampling that I've found useful:

1. Corrective equalisation
2. Creative equalisation
3. Adding ambience or effects
4. Pitch correction
5. Saving memory space
6. Adjusting sample length
7. Sampling chords/rhythms
8. Simulated stereo samples

Corrective Equalisation

SEVERAL OF MY favourite samples were executed before I had a firm grasp of sampling procedures and suffered badly from aliasing. Many of these could never be recreated and no matter how I tweaked my sampler's filter and resonance controls, I couldn't get rid of the unwanted low frequencies. I'd have to either use the samples as they stood or toss them on the scrap heap. Or so I thought.

I found that, if I took the output of my sampler and fed it through the highpass filter from a frequency-conscious noise gate (a gate with a filter in its side-chain), I could get rid of most of the offending frequencies that were lower than the given note's fundamental. You'll know you've started cutting out the fundamental when the tone starts sounding thin.

Once the aliasing frequencies were minimised I took the output from the filter and fed it into the sampler and re-sampled it. After hearing my favourite samples for so long with low frequencies that were totally unrelated to the pitch of the sample, it was quite a buzz to be able to play the samples without them – even if a little bit of fidelity was lost in the process. In some cases, getting rid of alias frequencies may be impossible, but corrective equalisation can help minimise its effect.

I prefer using simple filters for corrective equalisation as the signal passes through fewer circuits. In the case of removing unwanted top or bottom end this is all you really need. My favourite "tool" for this is a Frequency-Conscious Noise Gate with its single highpass and lowpass filters – you can't get much simpler than that. I almost always have one of these "in line" when sampling anyway, making use of the lowpass filter to ensure that no frequencies higher than twice my sampling rate get into the sampler I'm using. Although there are supposedly internal lowpass filters on the way into many samplers, I've had occasions where aliasing occurred despite these, and feel safer setting my own top cutoff frequency.

Those of you with modular analogue synths can make use of their highpass filters for removing bottom end, or you could hunt through old electronics magazines for highpass filter circuit designs if you prefer to make your own. It shouldn't cost you more than a tenner to put one together.

Creative Equalisation

WHILE I WAS on that track, I experimented with re-sampling "ooh's" and "aah's" through the highpass filter of my frequency-conscious noise gate to bring out their breathiness, trying to emulate the superb airy vocal sounds that come with the Fairlight.

By reducing the fundamental and those frequencies close to it (rather than boosting the top end with a graphic equaliser) a most interesting and useful phenomenon came to light. Not only were the results breathier and less thick than the original sample, the new samples also had far less of that "munchkin" quality to them when moved around the keyboard.

According to the meagre amount of information available on vocal formants in acoustics text books, the lowest (and apparently most prominent) vocal formants lie in the 375-925Hz region of the audio spectrum. Shifting formants around as you change the playback rate of a sample has a lot to do with one of the main drawbacks of sampling.

"Executed with care, a re-sampled sound should lose no more fidelity than when mastering a multitrack tape – without tape hiss."

About Vocal Formants

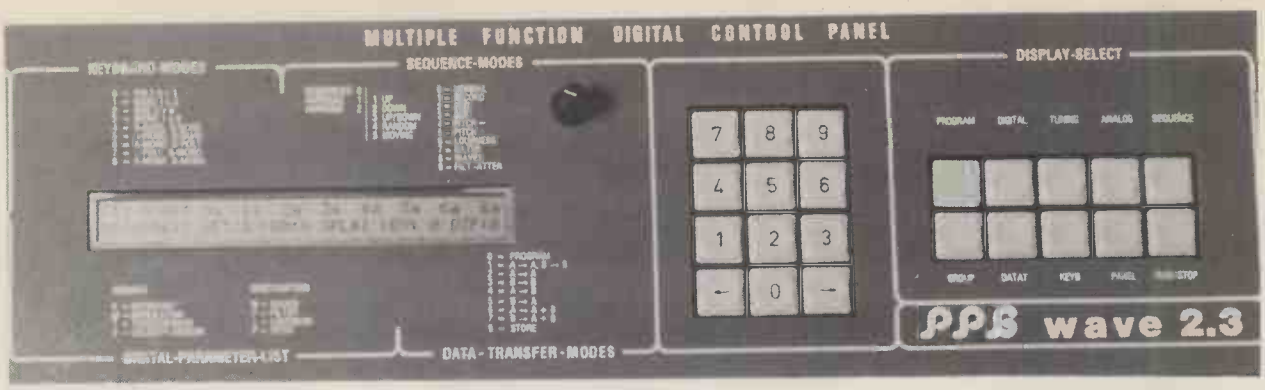
FORMANTS ARE ACCENTUATED frequency bands that give the brain information about:

1. The size and shape of the "acoustic resonator" being listened to.
2. The register in which a specific note is produced.
3. With vocals, what vowel is being produced.

These formant bands stay fixed (very much like the bands on a graphic equaliser) for a given vowel or instrument, no matter what pitch is produced. For example, a male "ooh" will always have its first two formant bands around the 400Hz and 800Hz marks, an "aah" around 825-925Hz and 1200Hz.

While the ratios between formants remain roughly the same, female vocal formants are generally 17% higher than males, and children 25% higher. This helps explain the problems of transposing samples too far from their original pitch.

When you play a male vocal sample as little as a third higher than its original pitch you're raising its formant bands up into the range associated with children's voices; any higher and you're in "munchkin" territory. By reducing (but ▶



► not totally eradicating) the lowest formant, the brain seems to have less information to go on and more "mileage" can be gleaned from fewer samples.

With a graphic or parametric equaliser, you can re-equalise samples in ways not possible with the low-pass filters provided in most samplers.

You can cut out the middle frequencies of a sample, making it sound more hollow,

"Adding ambience to dry samples is a piece of cake – route your sampler's output through a reverberation device, then re-sample it."

an effect impossible with lowpass filters alone. Samples treated in this way might not sound like much on their own, but in a mixing situation they leave more room for other sounds.

With re-sampling, the bottom end of bass guitars and bass drums can be boosted while leaving their mid and top end intact, snare drums and guitars can be EQ'd so that they cut through a mix, and with either EQ, or an Aural Exciter, more sizzle can be added to murky cymbals. The list goes on, but you've got the idea.

Creative equalisation is a whole new kettledrum of sampled fish, anything goes . . . Graphic and parametric equalisers would seem to be the first things to try, but consider re-sampling sounds fed through combo amps (or even transistor radios) and DI'ing or miking them up for the unique tonal qualities they impart to sounds.

Miking up amplified sounds in a room not only adds ambience to samples, it also adds the tonal character of the room and can be thought of as natural equalisation.

Static flanging and *phasing* alter the harmonic structure of sound by cancelling certain frequencies and creating notches in the audio spectrum of a sound – something you might not use a lot, but another tool in your bag of aural tricks.

Aural exciters add top end to a sound in a manner most unlike any form of equalisation, in that they generate upper harmonics, even where none exist, that are actually related to those present in the sound itself. Used in moderation, aural exciters can help lifeless samples stand out a bit more. Go over the top though and you risk having a sound sizzle six feet in front of everything else in a mix. Be careful with this effect, it's easy to over-use it.

Ambience and Effects

REVERBERATION, NATURAL OR synthetic, adds life to samples. Even a miniscule amount can add sparkle and perspective to an otherwise dull sound. Drum and percussion sounds come to life ►

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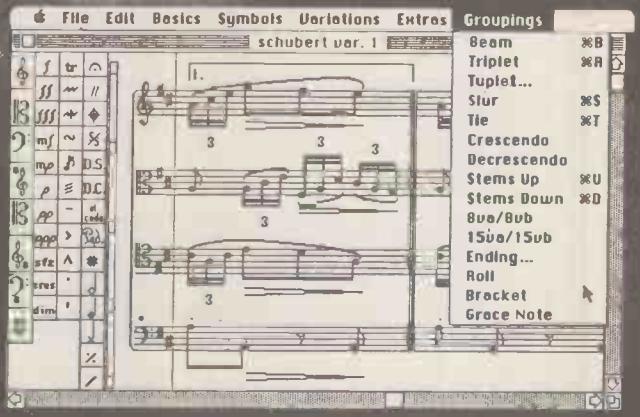

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► and can be re-sampled so that they all sound as though they're being played in the same room, even if the samples themselves come from a variety of sources. Orchestral samples cry out for a concert hall to play in, they're just not believable without it – but remember, as a

"Pitch correction is probably the most important application of re-sampling – mix samples and you'll soon discover its importance."

sample is played higher up the keyboard, the room will get smaller, and vice versa.

Adding ambience to dry samples is a piece of cake. Simply route your sampler's output through a reverberation device or mic up an amplified version of your sample in the room of your choice, then re-sample it.

You'll probably need to allocate more sample memory space for ambient samples. If the room is not too large you could try using higher playback rates for a given sampling rate to fit things back into the same amount of space you started with.

Looping sounds with reverb sometimes poses a problem. The initial reflections of a room will create a repeating echo if a loop is started too early on in a sample. In some instances, this produces an interesting effect, but usually not. Moving the loop further back will help. If you have the facility, loop crossfading will minimise signs of any loop join.

Cyclic effects such as phasing, flanging, chorusing/ADT and so on, all add magic movement to sounds but can wreak havoc when attempting to loop sustained sounds. You have not only to find a looping point in the sound itself, but also a loop point within the effect's modulation cycle. As with room sizes, an effect's cycle will get shorter/longer as you play an effected sample higher/lower on your keyboard.

Using a *harmoniser* for static harmonisation shouldn't cause too many problems with looping, since it just adds another interval above or below the original pitch. Modulated harmoniser effects, however, pose the same problems as cyclic effects mentioned above.

Compression can be added to samples to get as much level as possible into your machine. With a slow attack, more snap can be added to the attack portion of plucked and struck string notes.

Fuzz, overdrive and *distortion* effects can be added to otherwise timid sounds by employing effects pedals made for this purpose, or you can crank up a combo amp (many have overdrive provisions) until you achieve the sound you're looking for.

Pitch Correction

"PITCH CORRECTION? I have coarse and fine tuning on my sampler", you might say – and right you are. Unfortunately, these tuning controls only affect the playback rate of samples.

Pitch correction is probably the most important application of re-sampling. When you start mixing samples you'll discover the importance of samples being in tune with one another from the start. Those of you with samplers at the upper end of the market will have provision for some form of digital sample rate conversion, as on the Fairlight III, and shouldn't have any problems, but for us mere mortals the pitch that gets sampled is what gets stored in memory. Hopefully software houses will realise the need in the mid-market for advanced editing facilities such as this and include it in more software packages – it makes mixing samples in software so much less of an ordeal.

With a reliable tuning source, you can tune samples to a common pitch with your sampler's tuning controls, re-sample them at this pitch and then mix them with the greatest of ease. The slight loss of fidelity through re-sampling is a small price to pay for the added convenience.

Saving Memory Space

AS MENTIONED EARLIER, you can fit more information into a given sample memory space by re-sampling at a higher playback rate. This technique really comes into play when you're doing multi-samples and need to squeeze one more sample into your set. Go for re-sampling the lower samples first.

The trade-off is losing top end but for many sounds this isn't too important. The only way to find out if you can get away with the loss is to try it. As a rule of thumb, you should always experiment on a floppy set aside for this sole purpose to avoid losing your original sample. If your experiment is successful, you can then copy it to your working disk.

Adjusting Sample Length

IF YOU HAVE a sampler with a fixed loop length and have a sample that refuses to loop without glitching, no matter where you place the loop, before you blast the floppy it's on to smithereens, try sampling it at another pitch. Loop positions, like digitally recorded sound material, only have so many notches available, and stretching or squashing the sound just might help.

Chords and Rhythms

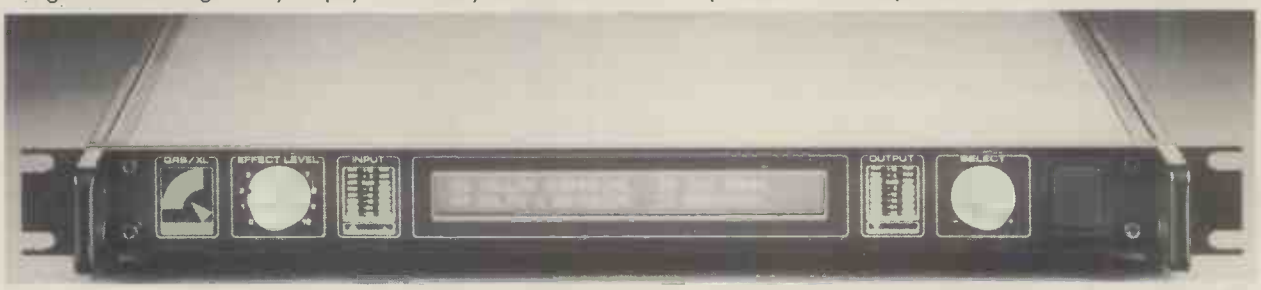
RATHER THAN USING up six of your sampler's voices for a simulated guitar part, you could re-sample the chords you plan to use as separate samples. Even though this may use up more sample memory space, in a sequence you'll only be using one VCA/VCF at a given time as opposed to six.

Chords can be rolled up or down, either manually or with the aid of sequencing, mimicking up and down strums of a guitar. Harp and piano arpeggios and rolls can also be simulated in this manner.

Likewise, rhythms can be sequenced and re-sampled. An example that comes to mind is a castanet part I was working on. I'd only one "voice" left in my sampler and with the rapid rhythm required of the castanet, the ambience at the end of the sample kept getting cut off by the following hit, sounding quite unnatural. (If I'd another "voice" left I would have alternated the rhythm between the two thus eliminating a problem common to many drum machines.) What I ended up doing was to take my castanet rhythm and divide it up so that each hit was coming out of a separate VCA and then re-sampled it, each hit having a natural decay. Fortunately the part required little more than the same rhythm repeated throughout the piece.

Simulated Stereo Samples

STEREO SAMPLES CAN be simulated by re-sampling mono samples through a stereo effect. If your sampler has no provision for stereo sampling but can layer one sound upon another and send each sample to its own output, you could sample each side of the stereo effect separately. You'll most likely have to align the starting points to avoid phasing problems with this method.



Effects that come to mind for simulating stereo from a mono source are: reverb, delay, auto-panning, phase-shifting/flanging, ADT and chorusing. Try experimenting with different effects, settings, modulation rates, or EQ on each side.

So you see, you don't have to possess the most brilliant editing software to carry out corrective or creative re-working of samples and, although it's preferable to get things right in the first place, all is not lost if you happen to change your mind about how a sample sounds once it's been stored onto disk. Re-sampling is as valid a technique with sampling technology as any in the world of audio and sound synthesis. ■

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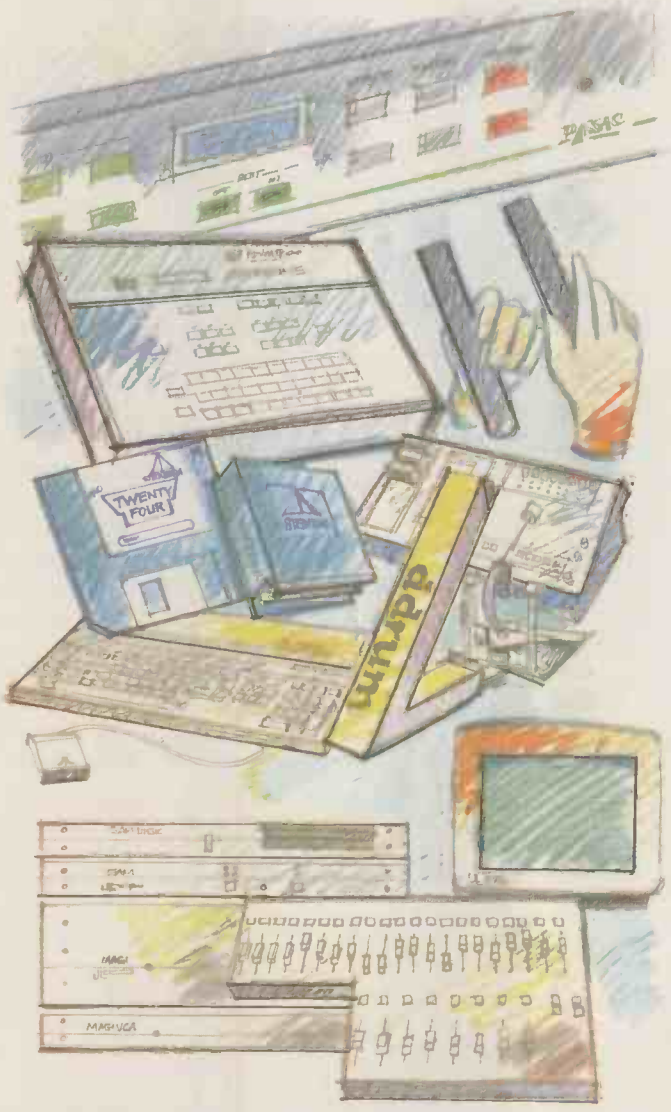

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KORG 707
FM Synthesiser

Photography *Tim Goodyer*

Korg have taken Yamaha technology and put their own stamp on it once again. This time the result is a new budget-level FM synthesiser – but does the world really need another FM instrument? Review by Simon Trask.

WHAT'S IN A name? When you're confronted with a synth called a "707" it's hard to know. Is it a bird? Is it a plane? One thing's for sure: Korg's latest synth has nothing to do with a certain other manufacturers' drum machine.

In fact the 707 is Korg's replacement for the venerable Poly 800, but apart from a budget price tag, the two synths have little in common. Instead the 707 is a slimmed-down version of Korg's DS8 FM synth (reviewed MT July '87).

Now, you'll all be wondering what Korg have sacrificed from the DS8 in order to get the price down. The answer is, perhaps surprisingly: not a great deal in practical terms. Korg's new synth has the same number of voices (eight) and the same voice architecture as its more expensive relative. The only significant omission in sonic terms is the DS8's digital effects section – delay, flange and chorus.

Inevitably the company have economised on front-panel operational controls. Missing are the DS8's volume balance slider, velocity and aftertouch on/off buttons and oscillator combination button. Korg have also given the 707 a smaller LCD (2×40-character backlit).

Better news is that the 707 retains the DS8's edit sliders, 100 RAM patches and 10 Combination memories together with Split, Layer and Multi modes and cartridge storage. The 707 can load DS8 sounds, and uses RAM cards capable of storing 200 patches plus 20 combinations and 400 patches plus 40 combinations. Last but not least, Korg have given the 707 a dynamic four-octave keyboard (attack velocity and channel aftertouch).

Chic Times

THE MOST NOTICEABLE feature of the 707 is its Philishave-chic appearance – all rounded edges and compact design. To my mind, Korg's design awareness can only be a good thing. After all, style is a natural part of today's image-obsessed world, and if you're going to spend countless hours in the company of an instrument you want it to look good.

Less enthralling is the news that the 707 is to be made available in a range of colours. How about grey, blue, white and "Japanese Red" (which I'm reliably informed is a euphemism for "lurid pink"). Now this could be taking stylishness too far.

Lift the 707 from its box and you immediately become aware of how *light* the instrument is (just under 11 pounds, in fact). This is a good thing, because Korg have included strap buttons so that you can sling the 707 over your shoulder and step out to the front of the stage. Battery power is included for those moments when the 707 is necessarily parted from its power supply.

For ease of use in strap-on mode, Korg have positioned the pitch-bend and mod wheels on the rear edge of the

synth, and have allowed the operation of both wheels to be reversed at the touch of a button.

The rear panel of the 707 sports the usual MIDI In, Out and Thru sockets along with stereo and headphone audio outputs, and two footswitch inputs. The footswitches can be assigned to program up, program down, portamento or sustain functions. The front-panel wheels to some extent make up for the lack of a footpedal input: the control wheel can be assigned to volume or modulation, while the pitch-bend wheel can adjust timbre as well as (or instead of) pitch-bend.

Sounds

THE 707'S SOUNDS have the familiar clear, sparkling quality of FM synthesis, and Korg have coaxed a wide range of sounds from their synth. These have been divided into 10 categories (each offering 10 sounds): keyboards, MIDI stacks, organs, bells (tuned percussion), brass, solos, analogue sounds, guitar and bass, strings, and percussion. As usual, the keyboard, organ and tuned percussion sounds are among the most effective; there's the inevitable Rhodes-style electric piano, several hard-edged acoustic pianos, some well-detailed pipe and jazz organs and the usual vibrant tuned percussion instruments (vibes, marimba, celeste, kalimba). I particularly liked the jazz guitar (Joe Pass revisited), the Round Bass (warm and, er, rounded), the French Horn (very mellow) and King&Queen (Baroque harpsichord and strings). The 707 acquits itself well in the screaming lead synth department, while some of the percussion sounds (including congas and cowbell) are among the best I've heard produced using FM. All in all, I'd say that Korg have done their new synth proud.

Programming

LIKE ITS MORE expensive relative, the 707 imposes a simplified and more intuitive programming system on the real workings of FM synthesis (the algorithms, operators, carriers and modulators which you'll encounter on Yamaha's FM synths). The basic voice architecture of the 707 consists of two oscillators each with its own four-stage timbre envelope and four-stage amplitude envelope, plus a four-stage pitch envelope and a Modulation Generator (LFO by any other name) which are common to both oscillators. You can also use oscillator one to cross-modulate oscillator two.

The oscillators provide familiar, harmonically-rich waveforms in the shape of sawtooth and square waves which can then be "filtered" by the timbre section. This gives the appearance of subtractive synthesis, but in reality it's still good ol' FM you're dealing with. In FM terms the 707 is a four-operator synth which employs two algorithms (the second one is chosen by selecting cross-modulation). You don't need to understand the underlying FM structure (and Korg aren't about to tell you), but to my mind it makes the results of editing on the 707 easier to understand. On the other hand, it's best to use your ears and learn a programming system on its own sonic terms, and you can certainly do this with the 707. The virtue of Korg's simplified programming system is that it allows you to concentrate on the sounds rather than the button-pushing - which can only be a good thing. Indeed, perhaps this is the reason why Korg have called their new synth a "performing synthesiser", and the message "Let's Make MUSIC!" scrolls across the 707's LCD each time you switch the synth on.

The best way to begin programming the 707 is to pick an existing sound close to the result you want to achieve, and play around with the synth's three performance sliders. One of these is given over to controlling the timbre of both oscillators, while the other two are dedicated to controlling the timbre and amplitude envelope shapes governing oscillators one and two respectively.

Korg have cleared up one annoying feature of the DS8's slider editing. On the earlier synth you could neither store the results of this editing nor return to edit mode to fine-tune them. In contrast, the 707 allows you to store a slider-edited sound; the new sound then becomes the basis for more precise editing in edit mode. A welcome improvement, I'd say.

Combinations

KORG'S SYNTH ALLOWS you to combine sounds on the keyboard in Split and Layer modes, while in Multi mode up to eight different sounds can be played over MIDI. These three modes can be stored in 10 Combination patches (one mode per Combination).

Layer mode allows you to detune the two sounds, while split mode (or "double", as Korg call it) allows you to place the split anywhere on the keyboard and to shift the octave range on each side of the split. In all three modes you can pan each sound to A, B or A+B outputs. Incidentally, adjustments made with the edit sliders affect *all* the sounds being used in each mode.

In Korg's implementation of Multi mode you have to preset the number of voices assigned to each channel/patch (within the total of eight) and select one of the active channels as the source of MIDI controller data for all the others (though fortunately you can switch reception on or off for each channel).

On the plus side, the company have improved on the DS8's multi Combinations in two significant ways. You can now define a volume level for each patch in a multi Combination, while pressing the Program button allows you to see the name of each patch as well as its number.

When you're in Combination mode, incoming MIDI patch changes ordinarily select one of the 10 Combinations. This isn't really ideal for multi Combinations, where you'll probably only want to select patches at the same time on all channels when you're at the start of a piece. However, pressing the Program button enables patch changes on individual MIDI channels.

Finally, the 707 includes the usual System Exclusive transmit/receive capabilities, so you can store the large number of patches you'll no doubt create on the 707 to an external storage device.

Verdict

THE 707 IS a welcome addition to the range of budget (well, relatively budget) synths on the market. It makes available many of the DS8's features for around two thirds of the price and throws in portability (so to speak) as well. To be honest, it's hard to see where the 707 loses out to the more expensive DS8 when it comes down to the most essential aspect of any synthesiser: the quality and scope of its sounds. Even the 707's minimalist front panel doesn't really seem to count against it; I didn't find the 707 any harder to use than the DS8.

Given that Yamaha are essentially still using the FM voice architecture and programming system that they've used from the outset (witness their latest FM synth, the DX11) the 707's simplicity and ease of use can only be a good thing. I reckon it'll win itself a lot of friends. ■

Prices *707 £599; RAM card MCR02 £80, MCR03 £89; ROM card TBA; all prices include VAT*
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DRUMWARE SOUNDFILER

Akai S900 Editor for the Atari ST

Visual sample editors: necessity or luxury? The price of Drumware's Soundfiler takes it out of the "luxury" range but do its facilities justify its cost? Review by Vic Lennard.

OVER THE PAST two years or so, samplers have come into their own within the semi-professional music market. From the relatively humble origins of the eight-bit Mirage to modern 16-bit machines like the Prophet 3000, Emulator III and Casio FZ1, "affordable" sampling has ensured that there are now few eight- or 16-track studios without it.

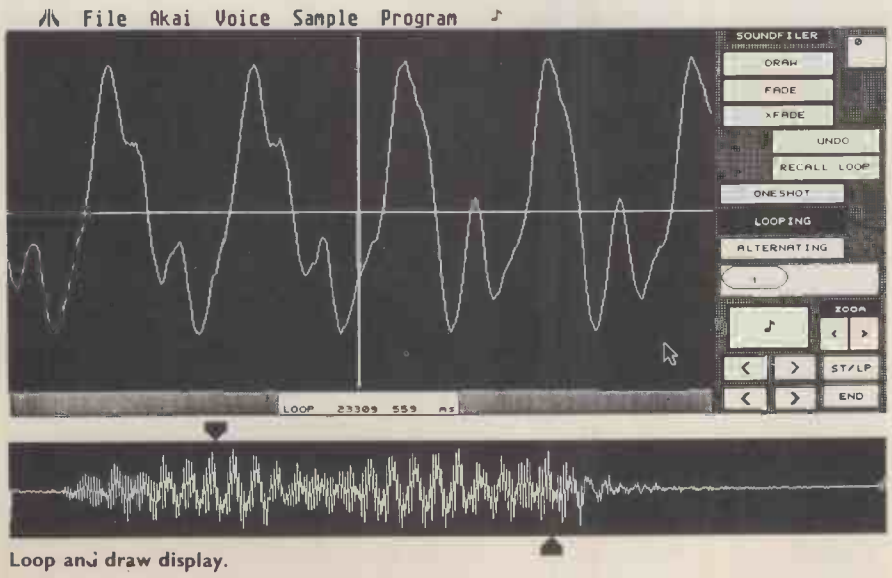
However, one side of most samplers still leaves much to be desired. While a Fairlight III (big bucks) or a Synclavier (*mega* bucks) has an integral visual display, most samplers make do with a minimal display. OK, the FZ1 actually draws waveforms on its screen, but this is no substitute for a full-blown visual editor on a computer monitor.

Many people still regard the Akai S900 as the flagship of 12-bit samplers having a sound quality practically comparable with many 16-bit machines due to restricted linearity in the A/D and D/A converters of the latter. Although it has a user-friendly display ("Oops, bad data on disk"), an editor is particularly necessary for accurate looping. (See *The Art of Looping* in December '87 and January '88 issues.)

Until now, visual editors for the S900 have been rather thin on the ground. Steinberg's SoundWorks doesn't, in my opinion and that of most of the people with whom I have worked, really deliver the goods. But Drumware, an American company, have brought out Soundfiler for the Atari 520/1040, which follows hot on the heels of their much-acclaimed S700/X7000 editor, and provides many facilities not available on the Akai.

Overview

WHAT'S IT DO? Soundfiler can deal with all standard S900 sampling and programming functions with the exclusion of certain v2.0 facilities like active VCF and crossfade time skew. Six voice buffers exist (although one is kept primarily for undoing edits); waveforms and ADSR envelopes can be drawn freehand with the mouse; complete or part samples can be saved to Atari disk, amplified, attenuated or normalised to give optimum signal-to-noise ratio; there are five different types of digital equalisation, and S900 samples can be converted into Sample Dump Standard format allowing transfer of sounds over MIDI between Prophet 2000/2002, Emax . . . Still interested? Read on.



Loop and draw display.

Looping the Looping . . .

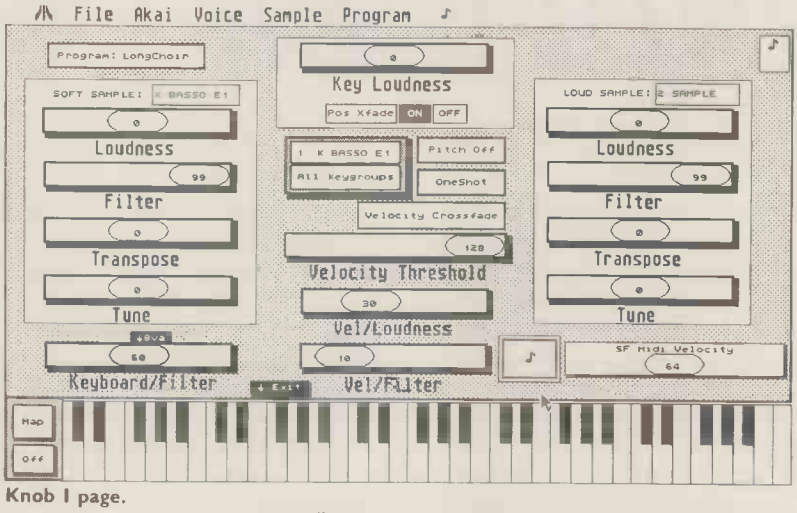
SOUNDFILER USES DISK copy protection without a dongle and boots up to confront you with the Loop/Draw page. Dropping the Akai menu and clicking on Sample Catalog will open a window showing all samples in S900 memory, which has – of course – been turned on and set to omni on. A click on any sample will bring up sample details including sample rate and bandwidth, length of sample and most importantly, how long the sample will take to transfer. Problem one – data transfer is ssslow. As MIDI operates at a fixed baud of 31.25kHz, moving samples between S900 and computer takes about *six minutes* for a full disk – so make a cup of tea and watch the latest episode of *Neighbours*.

A click on Get Sample will transfer the chosen sample to the Atari and the waveform is actually drawn in the lower (memory display) window as the data enters the computer. Once loaded, the sample is in One-shot mode. By dragging the pointers above and below the memory display window, new start and end points can be set. Now click on either Looping or Alternate modes and the bottom (end loop) pointer will position itself backwards to set the point from which the loop will start. At the same time as these pointers are being dragged, the larger upper (magnification) window is continuously scrolling the waveform, either in two halves, to display the end of the loop on the left-hand side and the start of the loop on the right-hand side (Looping/Alternate modes), or as a single window (One-shot mode). Magnification is possible in any mode from a ratio of one sample up to 64 samples per screen pixel. There's another small window between the memory display and magnification ones which displays the number of sample points from the start of the sample along with the time elapsed in milliseconds. This window will alter its information depending upon which mode you happen to be in – start/end point in One-shot or start of loop/end in looping modes.

To the right of the magnification window is the tool box – a variety of windows and toggle switches allowing the user to process the currently displayed sample. A waveform can be drawn from scratch or an existing curve ▶

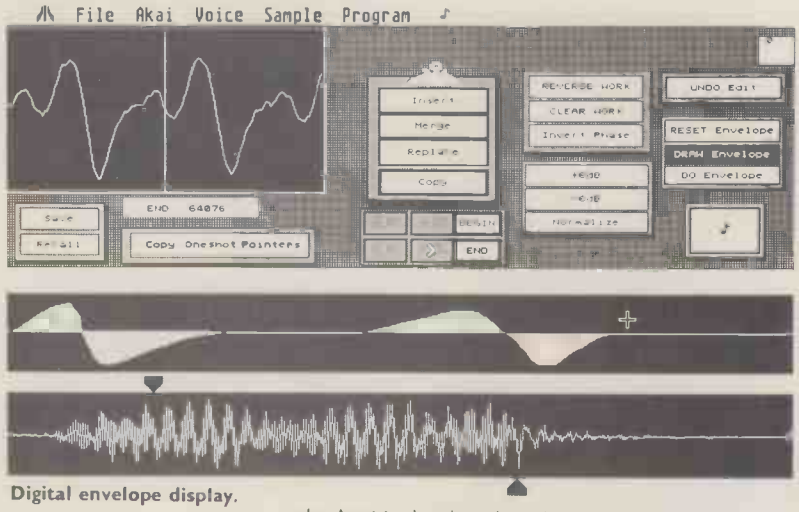
► slightly redrawn by using the Draw function – useful if no convenient loop point can be found.

Ah yes, looping – the principal reason for the existence of visual editors. You'll find four arrows at the bottom of the tool box which allow the start and end loop portions displayed in the magnification window to be moved either left or right, and above these are two smaller arrows which



Knob I page.

will zoom in or out. The following procedure will usually give good loops: move the pointers on the memory display and find a loop which sounds about right, ignoring any glitches. Zoom out to a factor of 5 or 6 and get a picture of the general waveshape around the prospective looping point. Now zoom back to 1 to see specifically where the sample is crossing the middle line – the zero crossing point. Moving the two loop halves will allow a good loop to be formed most of the time. All these procedures will have been sent in real time to the S900 so long as the sample in



Digital envelope display.

the Atari is also the selected sample in the Akai. To hear the edit, either press Play on the S900 or click on the quaver icon on Soundfiler. If the loop on the original sample is better than after editing, a click on Recall Loop will do just that.

Visual editing is particularly useful when setting an alternating loop. Two loop points exist in this case, one where the sound reaches the tail end and reverses, and another where the sound comes back to the start of the loop and then reverses. Now, as long as the loop portions either side of the central vertical line match up, a normal loop will probably be glitch-free but with an alternating one, the two portions must meet in a horizontal line so that there is no sudden change of direction. Visually this can be achieved with a relatively high rate of success. I do have three gripes in this area – first, the central line is too thick making loops difficult to see at times; second, the lack of a vertical scale makes comparison of amplitudes awkward; and third, the inability to zoom vertically makes the setting up of short, low amplitude end loops impossible – you have to rely on the S900's autoloop.

Crossfade looping and linear fades are also implemented from the tool box. On the S900, crossfade looping is possible up to 32,000 points, while with Soundfiler the number of possible points is limited only by the length of the loop. Of course, as a portion before the start loop is taken, if the start of the loop is near the beginning of the sample, this presents a further limitation. It is quite amazing how easy it is to eliminate a loud glitch by using between 200 and 1000 points, so long as the sample sounds as if the loop is right. Linear fading is a technique which is not available on the S900 – set up looping points, click on Fade and a linear fade is performed, particularly useful in One-shot mode when a sample ends either abruptly or noisily. As most S900 users are aware, samples with long release times prior to v1.2 are inclined to be extremely hissy – these can now be edited.

In both of the last two cases, the samples have actually been altered and so must be sent back to the sampler to be heard. This can be a tedious affair, and I would definitely advise that crossfade looping be carried out on the Akai itself, having set up the start and end loop positions on Soundfiler. If the edit is unsatisfactory, the Undo function on the Atari can be used to get the sample back prior to the last edit. Soundfiler achieves this by always placing a copy of a sample prior to an edit in voice buffer six and can then recall it if asked to undo the edit.

With regard to sending samples back to the S900, here come another two gripes: first of all, as the sample is being returned, a small window in the top right-hand corner of the tool box counts through in blocks from 0 to 127 continuously until the transfer is completed. Now, I realise that this is supposed to represent the packets of sample data, but surely it would have been more sensible to have used a timer to show the amount of time still to go until the end of the transfer. Also, Soundfiler cannot change the length of a sample – if the start or end points have been altered then the Discard function on the S900 has to be used after transfer, a small point perhaps but as the Akai automatically resets to sample 0 when transference is complete, mistakes can easily occur if there are a lot of samples in memory.

Warnings – for heaven's sake, don't erase samples in the S900 memory without then clicking on Sample Catalog to inform Soundfiler of the changes otherwise disasters will occur. Each sample in memory is assigned a number between 0 and 31 by Soundfiler and if one is then erased the rest move up one to fill the space left. Unless Soundfiler realises this, it will continue to edit the sample number which will now be a different sample – ouch. Even worse catastrophies will follow – on a permanent basis – if a sample is then transferred to the wrong memory location.

Altering waveforms

NEXT ON THE guided tour comes the Envelope page. This comprises four principal areas – the memory display, now renamed Workspace, the envelope drawing window, the tool box including the clipboard which is a buffer for temporarily holding part of a sample, and a viewing window located in the top left-hand corner which displays the same information as the magnification window but without the zoom facility.

Basically, this page allows you to draw the required

amplitude for a sample and to then combine this new envelope with the original sample. To hear this new sound means transferring the sample back to the S900 – again tedious, but very useful for evening out poorly sampled sounds as well as allowing slow attacks and non-linear fades to be set up as part of the sample.

Using the clipboard, cutting and pasting together of samples is possible. The part of the sample between the start and end pointers can be copied to Atari disk (or RAM disk) and the rest of the workspace cleared. The saved portion can now be replaced or inserted back into the workspace from the start pointer position and, if necessary, copied to another voice buffer to allow a similar process to be repeated with a different sample. This manner of splicing is far easier to perform than the splice page on the S900, and more flexible. Phase inversion and sample reversing are also possible by using the relevant functions.

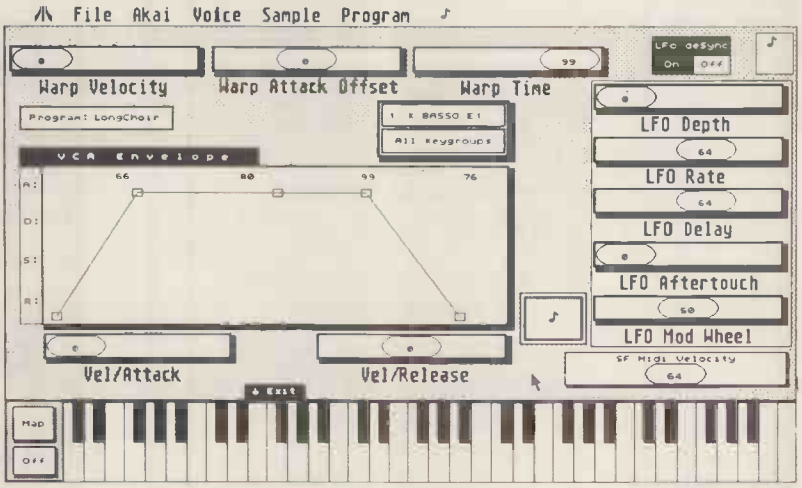
Samples can be normalised or cut/boosted by 6dB. Normalisation is a process whereby the largest amplitude through a sample is extended to the limit of the memory display, and every sample point is then proportionately increased, thus maximising the S/N ratio. This process is particularly important due to the fact that the record meter in the S900 is crude and rather inaccurate. A cut/boost of 6dB doubles or halves the amplitude of the waveform which leads to the final clipboard function – Merge. One severe drawback of the S900 is the lack of facility to properly mix two samples. Anyone who has tried to do so by using the splice page with both samples commencing at the same time will have found that unless both samples are of exactly the same length, weird things happen. The second sample is stretched or compressed to fit the space available for the first, resulting in the second sample's tuning being affected. Merge allows two sounds to be mixed in equal amounts, each sample having been first normalised and one of them saved to the clipboard. Clipping shouldn't occur as the overall amplitude is automatically reduced.

Edward Woodward . . .

. . . THE EQUALISER. This page facilitates five different types of digital EQ coupled with the ability to keep the final amplitude from clipping. The different EQ's are: high and low shelf with a 12dB/octave butterworth response which act as treble and bass controls respectively; peak equaliser which is a single-band parametric; notch filter which allows a chosen frequency to be cut by a selected amount; and bandpass filter which will cut/boost frequencies outside a selected band. This process is very slow – it took over five minutes to process a 12-second gong sample and over two hours elapsed before I had achieved the required result. Why? Because if the sample is mit hiss, the process is rather hit miss! Remember also that after each edit, the sample has to be transferred back to the S900 before you can hear it. Surely some sort of spectrum or fast-fourier analyser could be included, otherwise this page will always have untapped potential due to the lack of enough hours in the day.

Programming functions

SOUNDFILER WILL ALLOW program alterations on four different pages. The first of these is obtained by clicking on Program Catalog from the Akai menu which will display the programs resident in the S900. A click on any particular program will obtain the necessary data from the Akai and display it in a window from which either soft or loud samples may be assigned. Unless v2.0 software is loaded, loud samples will usually not be acknowledged and even with the v2.0 software, there appear to be problems. The S900 will allow velocity cross-switching but not velocity crossfading because it doesn't really set up a



Knob 2 page.

crossfade sample acceptable to the S900. Instead of crossfading, an echo appears. Also, the S900 had problems giving the note at which a sound had been sampled on page 7 of Edit Program.

OK, now for creating the range for each sample within a program. The Keymap page shows the keyboard horizontally at the bottom of the page and the samples in two columns vertically on the left-hand side. Ranges can be set by double clicking on the lowest or highest note of the range and then, holding down the left mouse button, moving the cursor to the other end of the range and releasing the mouse. In practice, this is rather cumbersome – I found myself selecting keygroups with Soundfiler and then setting their ranges on the S900. What a pity that Drumware didn't implement the grid style of the Fairlight III where the keymap page is made up of small squares and a click in a square places the sample at that note.

There are also two pages of "knobs" which allow all programming information to be seen, altered and played real-time with the software keyboard along the bottom of the page. The VCA envelope takes the form of a line jointed at three places to create four line segments – for attack, decay, release and sustain. Dragging the joints alters the envelope, easy.

The Output/MIDI page allows each sample to be assigned to any output/MIDI channel as required – really useful because the names of each keygroup can be seen at the same time.

Verdict

SOUNDFILER DOESN'T HAVE processing "toys" like FM or additive synthesis but in all honesty, it's a long time since I've found a piece of software as indispensable as this one. Simple to work with and extremely powerful, Soundfiler is an absolute necessity for any S900 owner.

It isn't cheap, but then again quality software rarely is, and make no mistake – this is a well-thought-out piece of programming, despite the odd gripe. See it demonstrated – you'll be as convinced as I am. ■

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ZYKLUS
MIDI Performance System

Photography *Tim Goodyer*

Already tired of software tape-recorders? In need of something more adventurous? Zyklus' MIDI Performance System could be just what you're looking for. Review by Simon Trask.

WHILE TODAY'S GENERATION of MIDI sequencers provide tremendous organisational flexibility, typically they still adopt the tape-recorder model of parallel track-style operation. Zyklus' MIDI Performance System throws all that out of the proverbial window.

The MPS allows you to record sequences: 99 polyphonic single-channel sequences, to be exact. These can be organised into groups of 12 sequences which are known as Configurations, of which the MPS allows you to store 24 in its internal memory. Once you've recorded a few sequences and organised them into a Configuration, you can "play" them from a MIDI keyboard and from dedicated front-panel Control buttons. These actions can in turn be recorded into one of 12 Performances.

The important point to bear in mind is that the MPS's sequences are totally independent of one another. You *can* treat the MPS as a 12-track sequencer, but that's only one of countless options available to you, and it's really missing the point. If all you want is a multitrack sequencer you'd be better off investing in the "real thing" – and saving a considerable amount of money in the process.

Sequences

THE MPS'S FRONT panel divides into three sections. On the left side are the "master" controls such as the Run/Stop button, the Configuration and Tempo buttons, and the alpha dial (used for editing). The large central section consists of the main display LCD (2X40-character backlit), dedicated Control buttons, Play/Rec-Edit/Performance select buttons and edit buttons, while the right section sports 12 Trigger Profile buttons.

The rear panel sports one MIDI In and four individually-addressable MIDI Outs (making a total of 64 MIDI output channels), sync input and output, trigger input, programmable gate output, metronome output and three footswitch inputs (Run/Stop, Enter and sequence Control). Additionally a cartridge port allows you to double the storage capacity of the MPS, with all data readable directly off cartridge. The MPS can transfer its data in either direction over MIDI (from/to the internal and cartridge memories), but rather unusually Zyklus have used the MIDI sample dump standard. MIDI File transfer is planned as soon as the format has been ironed out.

The MPS has a 9000-note internal memory capacity, but because of the way the unit is intended to be used, Zyklus estimate an effective capacity (based on a typical performance: sequence ratio) of more than 60,000 notes.

The MPS allows you to record in real and step time. Each sequence can be given its own time signature (1-32/2, 1-32/4 or 1-32/8) and keynote (the note which will retrigger the sequence at its original pitch). Sequence- ▶

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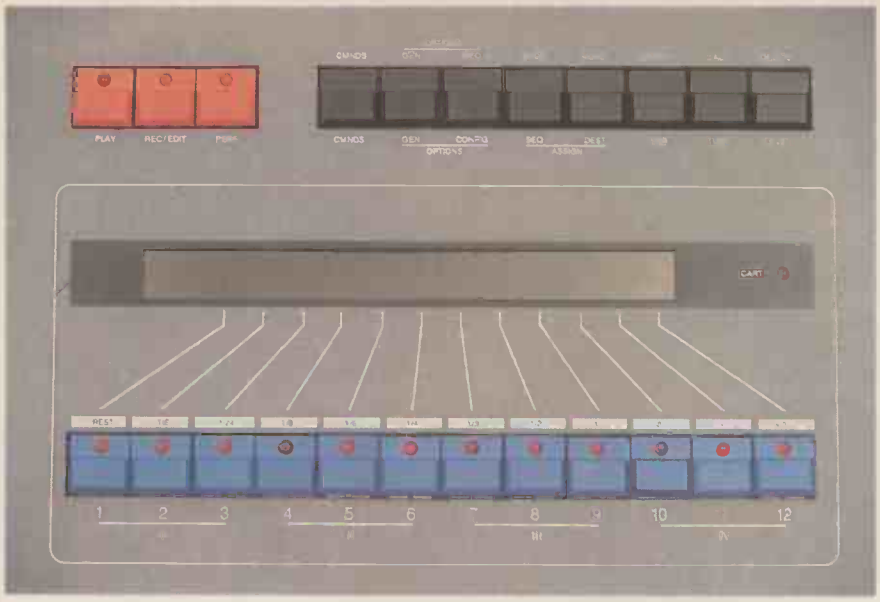


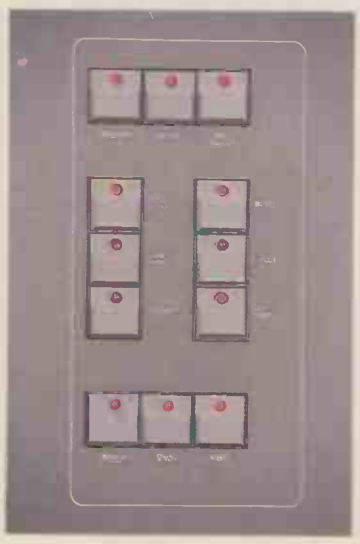
► specific quantising is applied during playback and is non-destructive (the MPS can record to a resolution of 96ppqn). The MPS allows you to monitor the other 11 sequences while recording in either real or step time. You can specify a range of MIDI input filter options: all channels (omni) or individual channels, together with on/off settings for note data, patch changes, poly aftertouch, pitch-bend and other data (controllers, mode messages and so on).

Punch in/out can either be manual (playing automatically starts punch-in) or automatic (using preset markers), and you get the option to recover pre-punch data. You can also delete any section of a sequence.

Less dramatic editing features include Delete, Slide, Move, Length and Value. Slide is used to add to or delete time from a sequence, while Move is used to adjust the position of individual notes or events, Length is used to adjust the length of individual events, and Value is used to view the value of individual events (such as velocity for notes).

Configurations

AS DESCRIBED EARLIER, each Configuration calls up 12 sequences onto the 12 Control buttons. Each sequence within a Configuration can be assigned a MIDI destination (one of channels A1-D16) and associated patch number, together with a second "effect" patch (again on one of channels A1-D16), a Repeat mode (Endless Loop, Single-shot or Hold-at-end – the latter holding the last note or chord in the sequence until it's turned off) and a velocity ratio (which gives you "live" control over the dynamics of the sequences you're triggering from the keyboard).



Start-up status defines how each sequence will behave when a new Configuration is selected: "on" will stop any previously-running sequence and start the new sequence, "off" will stop the previously-running sequence but not start the new one, while "blank" will allow the previously-running sequence to continue running. This last option is particularly useful, as it allows any combination of sequences to play through any number of Configuration changes. For instance, you could have a drum-and-bass backing loop while you switch to and fro between two Configurations for whatever you're putting on top.

The main display indicates both the current and the next Configuration, allowing you to use the alpha dial to select any of the other 23 Configurations in advance. Pressing the Enter button (or the equivalent footswitch) will step you to the next Configuration. By pressing the Tempo button instead of the Config button you can use the alpha dial to select a new tempo; pressing Enter will call it up. Alternatively you can hold down the Tempo button and spin the alpha dial to introduce gradual tempo changes.

It's also possible to give each Configuration its own tempo (39-255bpm), while other Configuration features include pitch trigger on/off (which determines whether each sequence will be "immune" to pitch changes triggered from a MIDI keyboard), Trigger Profile on/off (which allows you to call up default Profile settings with each Configuration), and keyboard zone and octave (for use with the Profile Group option – see below).

But you don't *have* to assign a sequence to each of the 12 Control buttons. Selecting T (sequence zero, or Thru) allows incoming MIDI data to be sent straight out to the assigned MIDI destination. In fact you can select up to 12 T sequences, with each one sending out incoming MIDI data to its own destination – spontaneous MIDI layering, across all four output ports if required. Alternatively you can use the T sequence(s) to play slave MIDI instruments "live" over pre-recorded sequences.

All these features combine to make the MPS a sophisticated MIDI control station even without the sequence triggering options which are the unit's ultimate *raison d'être*.

Profiles

THE TRIGGER PROFILE section is the nerve centre of the MPS. It's here that all the really clever stuff goes on, with an array of buttons providing options for manipulating the sequences.

The first button to get to grips with is Ext Trig (EXTernal TRIGger, if you prefer). With this switched out, the 12 current sequences can be controlled from their front-panel buttons. However, when you switch in Ext Trig all subsequently-selected sequences will be "pended" (the relevant sequence(s) blink at you) until a note is received from an external MIDI source. If that note is the sequence key-note, the sequence will play at its original pitch; if not, the sequence will be transposed by the relevant interval.

Playing a new note will cut short the sequence at its current pitch and start playing it at the new pitch. In this way you can play sequences rather than individual notes; in fact for most purposes it's best to set your master keyboard to local off, if possible, so that the keyboard notes won't become part of the performance.

By holding down several notes at once you can play back the current sequence(s) as a "chord", though with New Pitch Trigger selected, sequence(s) will be retriggered even if other notes are being held on the keyboard – perhaps useful if you don't want to risk playing a "chord" by mistake.

Switching in Build allows you to build up a maximum of eight versions of a single sequence (actually, of as many sequences as are pending) at different transpositions and different times.

Usefully, replaying a note cuts short the sequence(s) on that note – so you can play individual occurrences of the sequence(s) in rhythm against other occurrences of the sequence(s).

With Transposition switched in, all running sequences will be transposed in real-time when you play on the keyboard. This is a "monophonic" transposition, so if you play a chord the MPS will take the first-played note (apparently Zyklus are thinking of changing this to lowest-note priority). If you don't want certain sequences to be transposed at all (for instance, drum machine patterns), the best option is to set "pitch trigger off" for the relevant sequence(s) under Configuration Options (see above).

One of the most useful buttons rhythmically is Mom (Momentary). With this switched in, any newly-triggered

sequences will only play for as long as the notes on the keyboard (or the Control button(s) if Ext Trig is off) are held down. This is a marvellously spontaneous way of varying the length of a sequence.

Pressing Mom will cause all currently-running sequences to become "pitch-locked". If you then want to transpose any of these sequences, switch in the Override button, hold down a new note on the keyboard, and press the appropriate Control button(s).

Exclusive allows only one sequence to play at a time. With this switched in, triggering a new sequence will cause all currently-running sequences to come to an abrupt halt – a good way of returning to a simple texture after building up a dense one.

Cycle allows pending sequences to be triggered sequentially (and subsequently to be deactivated sequentially if Build is switched in), while with Step switched in the current sequence(s) will advance step-by-step – their rhythm being determined by the rhythm you play on the keyboard or Control key(s).

Group is a particularly useful option, as it allows other Trigger Profile features to be applied selectively. With Group switched in, the keyboard will be divided into four non-overlapping zones (these being defined as part of a Configuration). Notes played within each zone will only affect the corresponding group of sequences (4×3). So for instance, you can transpose sequences 10-12 while leaving the other sequences untouched, or use Exclusive to "chop" sequences 11 and 12 while leaving other active sequences running. You can adjust the pitch range of each zone +/− five octaves, so a note in the uppermost zone might trigger a transposition several octaves lower.

When Restart is switched in, all currently-running sequences will start from the beginning each time a sequence is triggered or retriggered; clearly when Restart is switched out, triggering or retriggering a sequence won't affect other sequences. Relative Quantisation can be used to "tighten up" a performance, as it will cause the entry of newly-triggered sequence(s) to be quantised relative to those sequences already running.

With Align switched in, the MCS becomes a standard 12-track sequencer – the 12 sequences all run in parallel. Switching sequences in/out from the dedicated Control buttons becomes standard track muting/demuting. Any number of sequences can be switched in/out at the same time (it all depends how many fingers you have spare). You can record these settings in Performance mode (see below), while sequences can also be muted/demuted whenever a Configuration is selected (by setting the start-up state of each sequence appropriately). And as mentioned earlier, each sequence will loop according to its own length.

Performances

WHEREAS A STANDARD multitrack sequencer's tracks are the finished product, the MPS's sequences are only the raw material. How you combine and manipulate them constitutes the real performance and the end result. Consequently, Zyklus have built in a second-level recording option: the Performance. Up to 12 of these can be stored in the MPS's internal memory (with another 12 on cartridge).

Performances are real-time recordings of Trigger Profile and Control button on/off settings, incoming MIDI notes and velocity, Configuration and tempo changes, and Control footswitch on/off settings. Tempo changes can be sudden or gradual. As a bonus, when you sit back and listen to a Performance you get the benefit of a light-show as the Trigger Profile and Control buttons switch in and out. Very satisfying.

Performances can be edited in real time (punch in/out) or step time. Zyklus have devised a range of easily-understandable symbols for step-time editing purposes; where relevant, pressing the Val edit button reveals the parameter value. As with sequence editing you can Insert, Delete, Alter, Slide and Move events.

Selecting a T sequence during Performance recording allows you to record a "proper" musical part (complete with non-note MIDI events such as patch changes) along with all the sequence triggering. You can layer this "live" playing by selecting more than one T sequence – so, for instance, with two such sequences selected the MPS will double the incoming data, sending it out on the relevant MIDI channels. Given this ability to "solo" over triggered sequences, it's a pity you can't overdub a solo onto a previously-recorded backing Performance.

MIDI Song Position Pointers and the usual MIDI sync commands are transmitted in all modes; you can also be selective about which Outs you want sync data to be transmitted from. MIDI sync data will be received at all times (providing MIDI sync is selected, of course), but Song Position Pointers are only received during Performance playback. A further option is Ext/Sync, which allows the MPS to be driven from its sync input socket on the rear panel (with a sync rate of 24, 48 or 96ppqn). Zyklus' unit can also send 24, 48 or 96ppqn sync data to an external non-MIDI instrument.

Finally, it's worth pointing out that Zyklus have designed the MPS to be roadworthy in the extreme. Not only does it come in a rugged casing, but the memory is double battery-backed, mains filter and PCB transient suppressors are built-in, and all inputs and outputs are diode-clamped against excess voltage.

Verdict

THERE'S NOTHING ELSE quite like Zyklus' MIDI Performance System. Only Dr T's KCS sequencer and Opcode's Sequencer 2.5 offer facilities remotely similar, but Zyklus' device really scores through being optimised for the task of manipulating musical information.

While the MPS can be (under)used quite effectively as a 12-track sequencer, it's no substitute for a full-blown multitrack. To be fair, Zyklus don't claim otherwise – but it's worth bearing in mind, nonetheless.

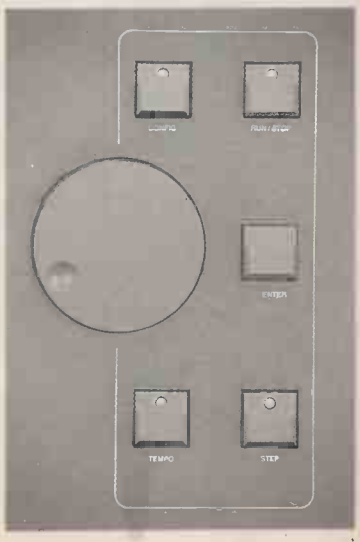
At just under £2000, Zyklus' device represents a hefty investment. I can see it selling to adventurous pro musicians, composers and producers; but whoever buys it should be prepared to invest time and effort in becoming fully conversant with it.

One thing is clear: the raw material which makes up each sequence can be whatever you want it to be, and for this reason I can see the MPS fitting into a variety of musical styles. In a sense the description "sequence" is misleading; the MPS provides a means of manipulating *sound*. A "sequence" could be a Tangerine Dream-style synth riff or a sampled James Brown beat, a 16-bar bassline or a sampled brass stab.

Not only will different raw material yield different results from the same manipulative process, but the same raw material will probably turn out very differently in the hands of different musicians. Now that is interesting.

For those musicians who are adventurous enough, the MIDI Performance System offers a wealth of new possibilities. Go for it. ■

Prices *MPS £1995 (including one RAM cartridge, four MIDI leads and a footswitch); RAM cartridge £99.95; both prices include VAT*
More from *Zyklus Ltd, 88 Golden Lane, London EC1Y 0UA. Tel: 01-675 1816*



Getting the Most from . . .

MULTI MODE

Ensoniq SQ80 & ESQ1 synthesisers

If monophonic multitimbrality seemed like a dream to you MIDI sequencer users, Ensoniq's implementation of polyphonic multi mode is going to have you believing you've woken up on your birthday. *Text by Simon Trask.*

NOW THAT MIDI sequencing is a commonplace feature of modern music-making, multitimbral operation has become almost a prerequisite feature of new synths. The MIDI 1.0 spec provides for multitimbral transmission and reception in the shape of MIDI Mode 4 – also known as "mono mode" because it only allows monophonic performance on each MIDI channel. The idea of mono mode is that a synth can allocate each one of its voices to consecutive MIDI channels from the base MIDI channel upwards. Each voice can then be given its own patch, so you end up with several instruments for the price of one.

Casio's CZ101/1000, one of the earliest synths to implement mono mode, is capable of receiving on four MIDI channels at once, each with a different sound assigned to it. MIDI Mode 4 still has its uses (notably in conjunction with MIDI guitars). Realistically, monophonic response on each channel was never going to be enough for sequencing applications.

Instead, today's generation of multitimbral MIDI instruments employ "multi mode". This isn't a fifth MIDI mode; the official line (the gospel according to the MMA and JMSC) is that multi mode is simply a means of identifying a MIDI instrument that receives polyphonically on multiple MIDI channels. As this essentially emulates multiple instruments receiving in omni off/poly mode (MIDI Mode 3) it was decided that a fifth MIDI mode wasn't needed.

In fact, multi mode was a spontaneous development on the part of the instrument manufacturers, who realised that they needed something more than mono mode if their instruments were to be attractive to recording musicians – and weren't about to wait around for some committee to thrash out the details.

The competitive spirit being what it is, manufacturers have gone ahead with their own ideas of what multi mode should be. The result? You'll find varying degrees of sophistication employed in the name of multitimbral performance over MIDI. So just because an instrument claims to have multi mode, don't presume that it'll have all the features of that other multitimbral synth you read about – it might have more.

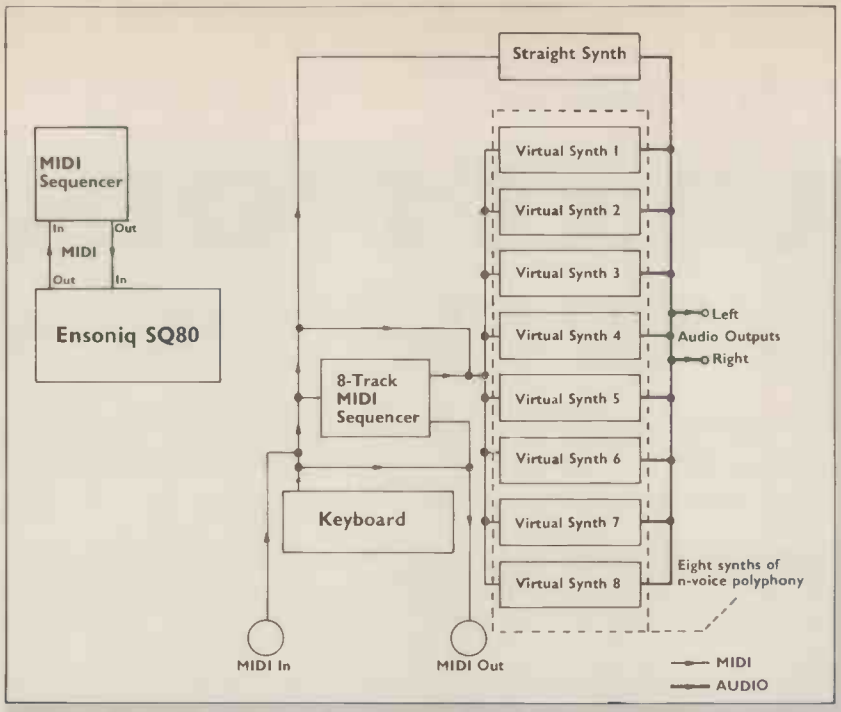
Essentially the differences boil down to whether a multitimbral instrument's voices are allocated dynamically to the different sounds or whether they have to be pre-assigned, and whether each sound can respond individually to MIDI controllers or whether all sounds respond selectively (on/off) to controllers received on a single MIDI channel. Needless to say, these differences can affect the flexibility of a multitimbral instrument quite considerably.

Overview

ENSONIQ'S SQ80 AND ESQ1 synths both sport one of the most sophisticated implementations of multi mode. When set to multi mode the SQ80 (all references in this article to Ensoniq's latest synth apply equally to the ESQ1 unless otherwise indicated) can receive and transmit on up to nine different MIDI channels. The synth's eight voices are allocated dynamically across these MIDI channels as they're needed, with the oldest voice(s) being stolen whenever more than eight notes are required simultaneously.

Couple this ability with the fact that each channel can be assigned its own SQ80 sound (with voices adopting the sound of their current channel) and can respond independently to MIDI pitch-bend and controllers, and you get what Ensoniq refer to as nine "virtual synths" (or to put it another way: they're virtually real).

As you'll know from last month's review, the SQ80 is blessed with an onboard eight-track sequencer. Eight of the virtual synths are allocated to the eight sequencer tracks and the one remaining synth becomes what Ensoniq now call a "straight synth" – this is the virtual synth assigned to the SQ80's ▶



keyboard when no track is selected. Unlike the sequencer tracks, the straight synth can be split, layered, or split and layered (with definable splitpoint).

Selecting a track (on either the Select or Mix/MIDI pages of the sequencer section) automatically calls that track's sound onto the SQ80's keyboard – with eight-note polyphony, of course.

Making Tracks

TO MAKE USE of multi mode the first thing you must do, of course, is select it. The relevant parameter is found on the SQ80's MIDI page, where you get a choice of omni, poly, multi and mono modes. If either of the first two is selected, the SQ80 will respond only on the currently-selected track (or the straight synth); omni means the track will respond to any incoming MIDI channels, poly to the base MIDI channel only. When mono mode is selected, track one is automatically assigned the base MIDI channel and the remaining tracks consecutive MIDI channels (the straight synth, which normally receives on the base channel, doesn't respond to MIDI in this mode). Each track, or virtual synth, responds monophonically to data received on its assigned MIDI channel. With MIDI guitarists in mind, Ensoniq have implemented the global controller channel – base channel minus one. Any controller data received on this channel will be applied to all eight virtual synths.

With multi mode selected, each sequencer track sends and receives polyphonically on its own MIDI channel (set on the Mix/MIDI page of the sequencer section), while the straight synth sends and receives on the SQ80's base MIDI channel (set on the MIDI page). It's advisable to set different MIDI channels for each track and the straight synth: if the same MIDI channel is selected more than once, the SQ80 gives MIDI receive priority to the lowest-numbered track, or to the straight synth if it is involved – the other track(s) will be silent. To play safe, assign the straight synth to MIDI channel 16.

There are two ways of looking at multi mode on the SQ80. Putting these in perspective (literally), imagine that you're either looking out from the SQ80's keyboard at your slave MIDI gear in front of you, or that you're looking out from your external sequencer at your slave SQ80 in front of you. Of course this can get a bit tricky if you're using the SQ80 as a master keyboard to record into an external sequencer which then plays back on the SQ80 in multi mode – but who said life was easy?

Let's start with recording into the SQ80's onboard sequencer. In a sense any sequencer can be thought of as transmitting in multi mode, that is, polyphonically on multiple MIDI channels.

The first thing you must do is select one of the SQ80's 60 sequences (or 30 in the case of the ESQ1). Each sequence can be thought of as a "template" allowing you to assign MIDI channel, patch number, volume level and status to each track. Whenever a sequence is selected (either onboard the SQ80 or remotely over MIDI) its associated parameter values will be selected too – and applied locally or over MIDI depending on track status.

Patches can be selected either by name on the Select page or by number on the Mix/MIDI page. Successive presses of the Mix/MIDI button step you through MIDI channel, patch number, volume level and track status sub-pages for the eight tracks.

Subject To Status

TRACK STATUS IS used to determine the response of each track (or virtual synth) to SQ80 and MIDI control. When a track is set to Local status its sound is accessible from the SQ80's keyboard (when the track is selected) or from the onboard sequencer; however, it will neither transmit nor receive over MIDI. Conversely, when a track is set to MIDI it will transmit and receive over MIDI but its sound can't be played from the SQ80's keyboard or from the onboard sequencer. Logically enough, a track set to Both will send and receive over MIDI *and* allow its sound to be played from the keyboard and the onboard sequencer.

"Seq" is probably the most difficult status to comprehend. When this is set for a track, data received over MIDI can be recorded into the track but won't play the associated SQ80 sound. You can use Seq status to record into the SQ80 from another MIDI instrument when you want to hear only the sound of that instrument. Similarly, a track set to Seq will play back over MIDI but won't play locally on the SQ80. It's worth spending time getting these various settings straight in your mind, as familiarity with them will make things easier in the long run.

If you're recording into the SQ80's sequencer, track status will obviously depend on whether you want that track to play on the SQ80 only, on an external MIDI instrument only, or on both the SQ80 and an external MIDI instrument. The sequencer isn't limited by the synth's own eight-voice polyphony; setting one or more tracks to MIDI allows you to record much denser sequences by incorporating the voices of external instruments.

If you're using the SQ80 as a multitimbral slave to an external sequencer, with the SQ80 as master keyboard, set the current track (or straight synth) to Both or MIDI. Both allows you to hear the SQ80 and any other instruments you may have slaved off the sequencer on the same MIDI channel. However, if your sequencer has a MIDI echo feature make sure it's turned off – otherwise you'll be playing two notes on the SQ80 for the price of one.

Probably the safest option is to set one of the SQ80's tracks (or, again, the straight synth) to MIDI. This effectively puts the synth into local off mode: the keyboard plays out over MIDI only, while the synth's voices are triggered by incoming MIDI data. As almost every sequencer allows you to re-channelise incoming MIDI data, it doesn't really matter what channel your chosen transmit track is set to; equally you can play any of the SQ80's virtual synths via the sequencer by re-channelising to the appropriate MIDI channel (or avoid the SQ altogether by re-channelising to a channel that the synth isn't receiving on).

While patches can be called up on individual tracks at any time, it's also possible to call up SQ80 sequences (sets of eight patches, with associated volume level and track status settings) by means of MIDI song selects. These must first be enabled on the MIDI page. Obviously your external sequencer will need to be able to record these commands within one of its tracks (or allow you to insert them in a track), and there mustn't be any other MIDI devices in your system which will respond to song selects. SQ80 songs 1-20 are called up by song selects 0-19, and sequences 1-60 by song selects 20-79. Because the SQ80's dynamic voice assignment doesn't interrupt any sounding voices when new patches are called up, there's a smooth transition from one set of eight patches to another.

Clearly, then, the SQ80's flexible implementation of multi mode makes it ideally suited for sequencing applications, whether you're using the onboard sequencer or an external sequencer. ■

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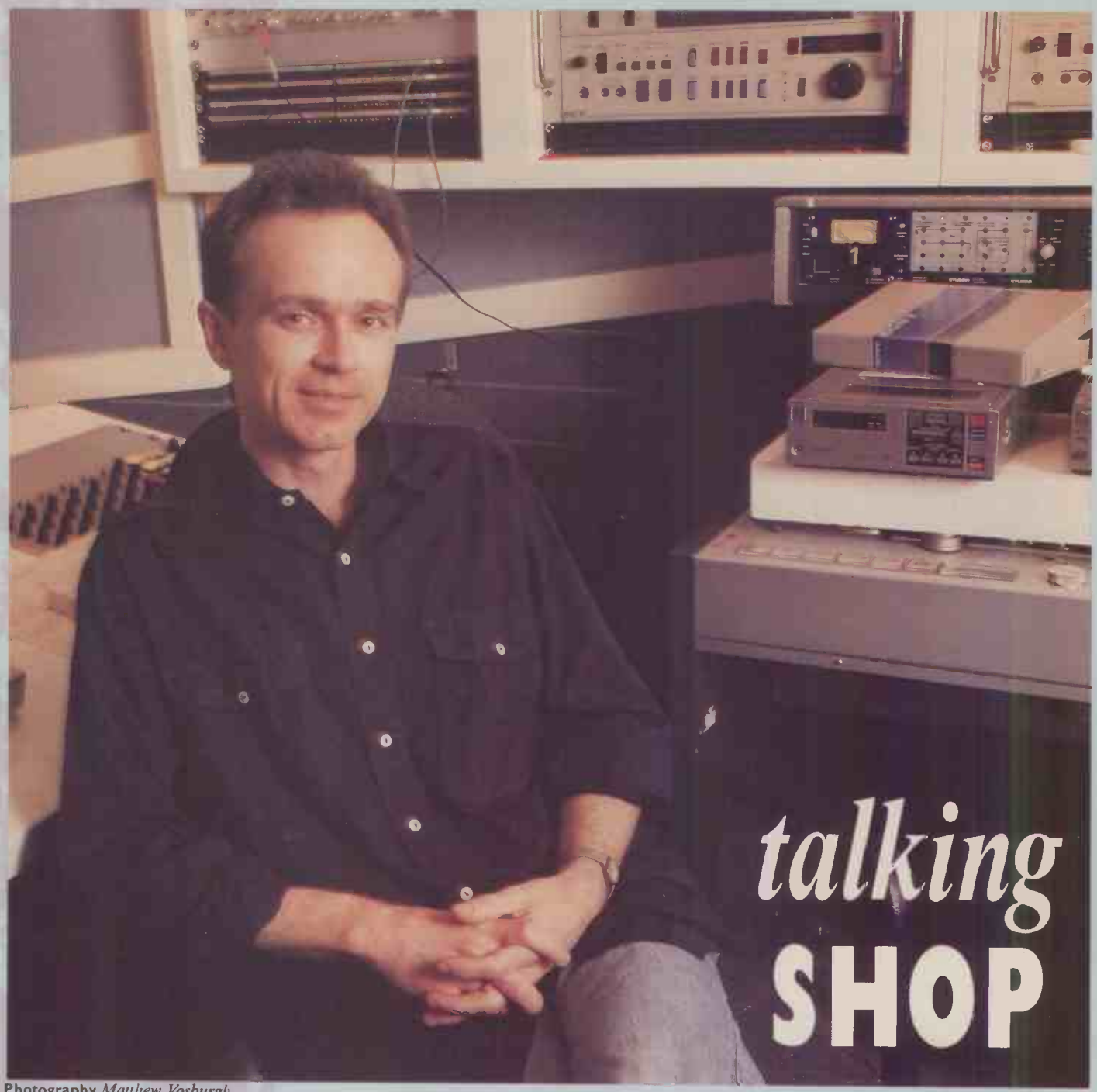

talking SHOP

Photography *Matthew Vosburgh*

The man most likely to break the Stock, Aitken and Waterman stranglehold over British pop is the young American behind The Pet Shop Boys, Stephen Hague. Interview by David Bradwell.

THE BRITISH POP charts are increasingly falling victim to the aural onslaught of the Stock, Aitken and Waterman production team. Certainly they will be remembered as *the* producers of '87, as they ended the year with a trail of hit singles and more No. 1's than anyone seems to remember. Open hi-hats will never be the same, the drum machines and the basslines will be remembered long after the faces behind the "voices" fade. This has been the reality of producer monopoly, a winning formula with no sign of slowing down.

Other record producers, meanwhile, have been working increasingly hard at trying to break the trio's stranglehold. One such is a young American called Stephen Hague, who in recent months has found Top Five success with the Pet Shop Boys, New Order and The Communards. His name is being mentioned more frequently by the press and DJ's alike.

"Sorry I'm late", says Hague, on entering the reception of London's Advision studios, "I had a late night last night . . ."

Born thirty-four years ago in Maine, Stephen Hague graduated from Oceanside High School, California in 1971, with no formal musical training. At the age of 20 he turned professional

as a bass and keyboard player, playing with a variety of bands until 1976 when he formed Jules and The Polar Bears with vocalist and guitarist Jules Shear. They made three albums for Columbia Records in the USA and supported Peter Gabriel on various dates across America.

From 1975, artists such as Stevie Nicks, Jackson Browne and Jennifer Warnes were clients at Hague's pre-production demo studio in California, and while working there he developed his craft as a producer.

His first chart success in Britain was in 1983 with not one but two singles for Charisma Records - 'Hey DJ' by the World Famous Supreme Team and the Rock Steady Crew's '(Hey You) The Rock Steady Crew'. His most notable work from this era, however, was the 'Madame Butterfly' single which he co-wrote with Malcolm McLaren and Walter Turbitt; taking over McLaren's production duties from Trevor Horn. So why was he chosen for the project? The producer answers.

"Malcolm, like the Rock Steady Crew, was signed to Charisma, and had single-handedly been trying to do this thing he called *Duck Rock Two*. Although he was getting a lot on tape, he'd been spending a lot of money without getting very far. Then he came up with the opera/hip hop idea. The managing director of Charisma put pressure on him to use me because it would save him some money, and at the same time inject fresh blood."

Two weeks after McLaren joined Hague in Boston the opera began to take shape, and 10 days later, 'Madame Butterfly' was finished.

At this time, Neil Tennant was still a *Smash Hits* journalist but had been spending time in America with musical partner Chris Lowe under the name The Pet Shop Boys recording with Hi-NRG producer Bobby Orlando. The resulting singles, 'West End Girls', 'Opportunities', and 'One More Chance', stirred little interest back home, although they were minor club hits in Europe. At this stage Tennant and Lowe started looking for a new producer, and inspired by 'Madame Butterfly', approached Hague.

"We met a couple of times", Hague recalls, "but I wasn't too thrilled with their material at the time. I did like 'West End Girls' though, because it seemed as though Neil was born to sing it - everything was working for his voice.

"I also like them personally too so when EMI secured the recording rights, we began work on 'West End Girls' and, with the bands blessing, I started to change the track. I wanted to slow it down, change the bar structure, and tidy up some of the lyrics. You can actually hear parts of 'West End Girls' on other records now - the string pads with the drum machine, and the attitude of the bass part; we brought back the Major seventh chord as well, which hadn't been on the landscape for a while."

The new-look single scored a No. 1 hit at the end of '85. The follow-up was 'Love Comes Quickly', earning co-writing as well as production credits for Hague.

"The bassline of that is interesting because, originally, it was going to be a down-beat set up as it is in the intro. I had programmed it on an MSQ700, but something got screwed up when it came back sync'd from tape and the whole thing was delayed by exactly half a beat. I thought it sounded really cool so I had to re-write the bass sequence with that in mind."

The Pet Shop Boys' debut album *Please* is littered with samples from the Emulator II which at the time Hague considered his workhorse. Yet with the current dispute between Pete Waterman and M/A/R/R/S over sampling from other peoples' records, the very respectability of sampling itself is once again in the spotlight. The line between creative use of a sampler and simple plagiarism is thin indeed, and an area in which Hague has a particular interest.

"Technology is beginning to infringe on people's performance rights because if you take a certain amount of a piece of music, no matter who performs it, you're beginning to talk about plagiarism. The actual technology used is irrelevant - you could have hired the same players and got them to play it again or used quarter-inch tape to spin in outside material.

"I think that things are really starting to get out of hand regarding the position of A&R people on the recording process."

"I can understand Stock, Aitken and Waterman hearing stuff and feeling someone had done them wrong, but I don't think it can possibly affect how many records they sell. If someone lifts a piece of a song and it works in a different environment it's a kind of back-handed flattery, but it's not as though someone's going to go out and buy the M/A/R/R/S record as opposed to 'Roadblock' because of samples.

"Personally, I've never sampled anything to that level, but in some ways I think the law should be clarified."

Hague does use samplers to a large extent but he tends to draw on the extensive sound libraries currently available.

"As far as sampling drum kits goes", he explains, "I don't really get concerned with the person who hit the snare and how he's feeling today, and I'm not going to call up his lawyers or anything. You can get into trouble if you sample an actual musical phrase because, when you're stealing, you're stealing, but you can stop at a certain point and keep a clear conscience."

As well as the Emulator II, Hague favours the Akai S900 and is particularly interested in stereo sampling. Multi-layered sounds, like the bass on 'West End Girls' tend, however, to come direct from various synthesisers and be concentrated in one channel of the mixing desk rather than being sampled and used as a single sound.

ANYBODY WHO'S HEARD the original release of 'West End Girls' (available on a 1984 Epic album, *Dance Mix Dance Hits, Volume 4*) will recognise the clarity of Hague's production work. He brings an air of sophistication to the music whilst searching for a classic single. He cites a classic record as "something that endures", and while he says he finds it easy to make people dance, he's currently involved in film scores and may be doing a Broadway production in the spring, and there's a possibility of an opera too.

"I like the sporting element of the English charts", he says, "but I can't see a new musical movement evolving because people are beginning to discover how to make the charts work for them and produce singles much more quickly."

Of his own work he says: "The fundamental

guideline is that when the record is finished I'll like it and the artist will like it. I'm not one to go storming out of the studio because I can't have the strings go to a high C in the second bridge, although I can be very persuasive. One system I always adhere to is to have the song written before you start recording – written in that it has a verse/chorus structure and that everything is arranged in a certain way.

"The technology that's around today and which is available at a reasonable price lets you do an awful lot in pre-production before even entering a studio. The only danger is that, because you can make the sound amazing, you can lose sight of the song. People say 'if I had a Fairlight I could really make this bass part happen', but the fact is that if it's a bad bass part it's always going to be bad no matter how good the sound is."

Hague uses drum machines through choice, although he is capable of recording live drums. He claims to have no specific sonic trademarks (back to Stock, Aitken and Waterman's open hi-hats) but says:

"I hope the best of the records I'll make will have some effect on people aside from making them dance. There's lots of different ways to affect people and it isn't always the dancing shoes that are connected to the wallet."

Hague spends some of his time in clubs listening to how records are working and finding out why people are dancing, but is unsure of how well obvious dance records translate to radio. He believes it can be hard work to actually sit and listen to club records in a relaxed environment.

"When I started out I used to listen to records which had an effect on me and try to find out the reason they did – I would examine tempo, the lyrics, the mix and so on. I don't know anybody who ever questioned the mix of a Beatles record – they're just there. The advice I'd give to somebody who'd like to become a producer is to listen closely to your favourite records and then try stuff out yourself.

"The level of technology has made it a great time to start experimenting. Certainly being a producer is a much better job than being an artist. The idea of your career rising and falling on the basis of one major release every 18 months is terrifying to me. Production offers variety, which is exciting, and you can have a succession of records by different artists. Basically I'm not a pioneer, I'm a hopeless romantic; I like to try to get romance back into popular music, and it doesn't necessarily have to be the 'It's only you, baby' type of romance, it's more just a romantic ideal about how records can make you feel."

A SORE POINT at the moment for Hague is that of the remix and of A&R departments – interference in records with which both artist and producer were happy. Despite producing and mixing the album version of The Communards 'Never Can Say Goodbye', he was shocked to discover the 7" single version had been remixed – the first he knew of it was when he heard the single on Radio One.

"I think that things are really starting to get out of hand regarding the position of A&R people on the recording process", he says. "Increasingly, as singles are going off to have 12" versions made, the people remixing them are fielding requests from the record companies to off-handedly do a 7" mix as well, and this has led to some bad mixes of good recordings being released."

"If an artist hires a producer, and both are happy with a record, then that's the artist's record as far as I'm concerned. To assume that a producer knows exactly what he is doing every step of the way except on mix day, I think is really taking a liberty. My job is to decide when it's a mix and I know how it will sound on the radio, and I think that producer's rights concerning a recording that they've worked on really need to be clarified and protected in some way.

"If something needs to be reworked or if something didn't work in the studio and the artist wants to bring someone else in, that's an entirely different story, but for these other mixes to almost arbitrarily appear is a bad thing. Once a record company accepts a record then they have to put a little faith in the team that made it and know that they didn't lose their minds when they were mixing it. I judge a mix on small speakers and gear things for the radio – that's my job."

As an antidote to the trials and pressures in working in so active a part of the music industry, Hague likes to take in a lot of films as a quick cure, and when time permits, he likes to go to a cabin on a lake back in Maine.

"I just paddle a canoe around and get away from it all", he says with a smile. "I don't really listen to music in my time off but I do have the radio on in the mornings. I read quite a bit, I like television, I like being back in New England in general, it's a great place."

As I write the Stock, Aitken and Waterman domination of the charts continues relentlessly. Of the few people in with a serious chance of breaking the monopoly, Stephen Hague could not be better qualified or more capable of doing the job. Tomorrow he's off home after another solid month in the studio. As he sets off to his cabin, I'm left with the impression that 1988 could be the year of Stephen Hague. ■

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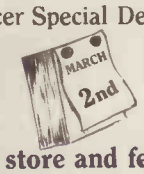

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The address to send sounds to: Patchwork, MUSIC TECHNOLOGY, Alexander House, 1 Milton Road, Cambridge, CB4 1UY. ■

YAMAHA DX21

Horn

Michael Vickerage, Devon

Michael finds his way into the Patchwork pages once again, with a wonderfully realistic horn sound for the DX21, used to great effect on his tape against a wash of strings. If you own a DX21, it's well worth the effort to try this one out. ■

	ALGORITHM	FEEDBACK	WAVE	SPEED	DELAY	PMD	AMD	SYNC	LFO PITCH MOD SENS	LFO AMPLITUDE MOD SENS	EG BIAS SENSITIVITY	KEY VELOCITY
	3	7	TRI	12	0	9	45	OFF	0	2		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

OP	AME	
4		
3		
2		
1		

OP	FREQ RATIO	DETUNE	AR	DIR	DIL	D2R	RR	OUT LEVEL	RATE SCALING	LEVEL SCALING
4	1.00	+1	15	5	0	0	8	51	1	0
3	1.57	0	31	12	3	22	8	65	0	0
2	1.00	0	10	31	15	0	8	50	0	0
1	1.00	+1	10	31	15	0	9	99	1	0

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POLY						ON	99	0	0	0	0	0	OFF	C3	HORN

CASIO CZ101

Bruford's Bong

Alan Smith, Hants

Bruford's bong came to "reside" inside Alan's CZ101 after he saw the man himself in a recent Rockschool demonstrating "the delights of his kit". Inspiration led Alan to create this patch in homage, and to give it a very silly name indeed. However, it had the desired effect and yes, Alan, a free sub will be forthcoming. ■

PARAMETER

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

DETUNE +/-	DETUNE OCTAVE	DETUNE NOTE	DETUNE FINE
+	0	7	7
(+/-)	(0-3)	(0-11)	(0-80)

VIBRATO WAVE	VIBRATO DELAY	VIBRATO RATE	VIBRATO DEPTH
1	00	50	10
(1-4)	(0-99)	(0-99)	(0-99)

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

1

DCO 1

WAVE FORM FIRST	WAVE FORM SECOND
3	2
(1-8)	(0-8)

E N V (PITCH)

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

DCW 1

KEY FOLLOW
0
(0-9)

E N V (WAVE)

STEP	1	2	3	4	5	6	7	8	
RATE	99	56	75	99	56	75	99	56	(0-99)
LEVEL	99	49	99	99	49	99	99	00	(0-99)
SUS/END								END	

DCA 1

KEY FOLLOW
0
(0-9)

E N V (AMP)

STEP	1	2	3	4	5	6	7	8	
RATE	99	99	35						(0-99)
LEVEL	99	99	0						(0-99)
SUS/END			END						

2

DCO 2

WAVE FORM FIRST	WAVE FORM SECOND
5	3
(1-8)	(0-8)

E N V (PITCH)

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

DCW 2

KEY FOLLOW
0
(0-9)

E N V (WAVE)

STEP	1	2	3	4	5	6	7	8	
RATE	99	56	75	99	56	75	50	50	(0-99)
LEVEL	99	49	99	99	49	99	00	00	(0-99)
SUS/END								END	

DCA 2

KEY FOLLOW
0
(0-9)

E N V (AMP)

STEP	1	2	3	4	5	6	7	8	
RATE	99	40							(0-99)
LEVEL	99	00							(0-99)
SUS/END	SUS	END							

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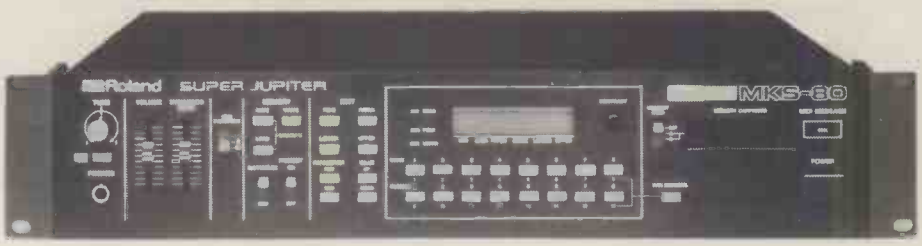
ROLAND MKS80
Aya Slap Bass
Igor Czerniawski, Poland

Proving once again how well-travelled and Cosmopolitan we are here at MT, this patch comes all the way from Poland – the strangely-named Aya Slap Bass. And that's just what it sounds like – an Aya! I don't know what it means either, but it sounds good. Igor reminds you MKS80 owners out there that the switch on the back panel should be in mix mode, and that you should use only one output. ■

Parameter	Lower Tone	Upper Tone
LFO Rate	100	53
LFO Dly	2	48
LFO WF	2	Tri
VCO LFO	0	100
VCO ENV	0	100
PW	18	32
PWM	18	0
PWM Sel	Env	Env
PWM Pol	Inv	Nrm
VCO Kybd	0	100
VCO Sel	Off	1
XMod Man	81	0
XMod Env	0	0
XMod Pol	Nrm	Nrm
VCO1 Mod	Nrm	Nrm
VCO1 Rng	4E	32A#
VCO1 WF	Puls	Sq
VCO Sync	2:1	2:1
VCO2 Mod	Off	Nrm
VCO2 Rng	16C	4A#
VCO2 Tun	51	63
VCO2 WF	Puls	Puls
Mixer	68	100
HPF Freq	60	0
VCF Freq	48	29
VCF Reso	0	0
VCF Env	EG1	EG1
VCF Env	Nrm	Nrm
VCF Env	30	71



Parameter	Lower	Upper
VCF LFO	0	0
VCF Kybd	41	90
VCA Levl	100	100
VCA LFO	0	0
Dyn Time	0	98
Dyn Levl	39	100
EG Reset	Off	Off
EG1 Dyn	On	Off
EG1 A	0	0
EG1 D	46	0
EG1 S	18	58
EG1 R	10	57
EG1 Kybd	0	26
EG2 Dyn	On	On
EG2 A	0	0
EG2 D	55	36
EG2 S	30	0
EG2 R	40	15
EG2 Kybd	44	33

Parameter	Lower Patch	Upper Patch
Mode	Dual	Dual
Split P	—	—
Balance	82	82
Tone	11	12
Octave	+1	−2
Assign	Uni2	Ply1
Detune	0	0
Hold	MIDI	MIDI
Glide	0	0
Bender	16	16
VCO1	Norm	Norm
VCO2	Norm	Norm
Touch	50	50
Select	VCO	VCO
Rate	50	58

ENSONIQ ESQ1
Orch Brass
David Pickering Pick, Cheltenham

This patch is "an attempt to get a realistic, full-bodied and expressive orchestral brass sound, particularly for use in 'orchestra' simulations". David adds that the sound is "very velocity sensitive, so you get muted brass at low velocities, and power at higher ones." ■

	OCT	SEMI	FINE	WAVE	MOD1	DEPTH	MOD2	DEPTH
OSC1	-1	0	0	SAW	LFO 1	+2	ENV 1	+3
OSC2	-1	0	5	SAW	LFO 2	+1	ENV 1	+2
OSC3	-1	0	4	SAW	LFO 1	+4	LFO 3	0

	LEVEL	OUTPUT	MOD1	DEPTH	MOD2	DEPTH
DCA1	63	ON	OFF	0	OFF	0
DCA2	50	ON	OFF	-9	OFF	-63
DCA3	0	ON	ENV 2	+63	LFO 1	0

	FREQ	Q	KEYBD	MOD1	DEPTH	MOD2	DEPTH
FILTER	43	0	14	ENV 3	+50	WHEEL	+27

	FINAL VOL (ENV4)	PAN	PAN MODULATOR	DEPTH
DCA4	63	8	WHEEL	0

	FREQ	RESET	HUMAN	WAVE	L1	DELAY	L2	MOD
LFO1	20	OFF	OFF	TRI	0	1	19	OFF
LFO2	20	OFF	OFF	TRI	0	15	20	OFF
LFO3	8	OFF	OFF	TRI	40	0	20	OFF

	L1	L2	L3	LV	TIV	T1	T2	T3	T4	TK
ENV1	+28	+2	+5	21	0	10	27	19	20	9
ENV2	+63	+49	+45	0	0	0	50	63	18	9
ENV3	+61	+14	-18	63	17	32	32	45	26	9
ENV4	+47	+62	+52	18	23	10	15	54	30	6

	SYNC	AM	MONO	GLIDE	YC	ENV	OSC	CYC
MODES	OFF	OFF	POLY	AM	OFF	OFF	OFF	OFF

	SPL/L	S/L PROG	LAYER	L.PROG	SPLIT	S.PROG	S.KEY
SPL/L	OFF	0	OFF	0	OFF	0	-

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[N-E·T/W·O·R-K|I·N·G]

The idea of connecting together various types of computers and data sources is becoming a topic of great interest to the computer world, and it's begun to make its mark on the world of music and MIDI as well. There may be a LAN in your future. *Text by Harvey P Newquist III.*

IF THE REMOVAL of any single hi-tech appliance could bring the world to its knees, it would have to be the telephone. As much as they can be a pain in the arm, telephones are the most important means of communication in modern society.

Lest you think this is a British Telecom industry profile, let me assure you that it's actually a look at music and communication, specifically communication over data networks. Telephones happen to be the oldest and best example of how such networks work. Someone wants to exchange information with someone else; telephones fit the bill admirably.

Computer Networks

LET'S LOOK AT computers. In any organisation currently using computer information, or information stored on computers, one of the biggest problems is making sure that such information is available to every individual who has need of it. But people won't always be using the same type of computer equipment as each other. One of the problems here is that computer manufacturers (like most manufacturers of hi-tech products) would rather you used their equipment to the exclusion of anyone else's. So when designing their computers, they use different operating systems, different architectures based on different microprocessors – in short, anything to make your life miserable if you use somebody else's machines. This is called incompatibility – sort of a hi-tech equivalent to Madonna and Sean Penn.

Now that we know that some machines don't work well with others, and that one of the objectives of computing is the transfer of information, let's look at a music scenario. You and I work in the same office, recording studio, film editing facility or whatever. I've been working on my Macintosh II for the last six months, and you've been using your IBM PC AT for the past year. You've compiled a long list of people doing research in acoustics in your database; I've been storing up waveform samples of different experiments by those same researchers. This morning, you and I realised we're actually working on very similar problems, and decided that we should exchange databases and then merge them to make the best information available to both of us. We're all smiles until you see my Macintosh and I see your AT. Time stands still as we realise the futility of trying to put our months of research together by a simple data transfer. ATs and Macs don't talk to each

other without a certain amount of hair-pulling.

Dilemma defined. But you really don't care about our fictitious problem because you're really using a synthesiser not a computer, and information interchange and networking don't really matter to you. But do you use MIDI to connect to any other data information source, such as an effects rack or another synth? I thought so. That, in simple terms, is also networking. So you do care about networking after all, don't you?

Networking using MIDI is more convenient because all the manufacturers have agreed on a standard that is implemented on each and every MIDI instrument (excluding system exclusives, of course).

Before this agreement, we were stuck with the problem that exists in personal computing. If you were using synths made by the same manufacturer before the introduction of MIDI, the chances are that you could link them up in some nominal way to make them work together. But if you had a Roland keyboard, say, and an Oberheim drum machine, you could forget it. It just couldn't be done. It was a case of apples and oranges – or Apples and IBMs.

Networking has become the buzzword of the late 1980s. Applying it to MIDI instruments, let's say you and I want to work on different parts of the same piece of music – such as different scenes from a film score. Here's where we get into networking, or more precisely, local area networks, or LANs as they are called.

LANs

LANS ARE EXACTLY what you'd expect: networks for closely located machines that don't really have a great need for accessing information from the outside world. Office intercoms are a rudimentary example of a LAN, but since they are part of the phone world, they have an entirely different set of weird acronyms, usually having to do with PBXs (Private Branch Exchanges), but you get the idea.

A LAN allows you to connect your computer to mine, the office gossip down the hall and the boss upstairs. All of us can get at the same info without leaving our desks – even if we have different computers, because the network handles the exchange of information. So even if I can't plug my PC directly into yours, both our machines will be capable of accessing the same network and exchanging information over it. You can think of it as being like watching videotapes in VHS or BETA format; while we can't swap tapes between my BETA and your VHS machine, we can plug them into the same TV set and copy each other's videos. This however, is a passive form of data exchange, because the original material remains untouched.

A LAN allows active interaction, so that I can correct or update information contained in the master system, as can any other user in the system. I'm ignoring any discussion of data security and freedom of access to information. Although these are related topics, it's not really important here.

Adventures in MIDILAN

TAKING OUR BASIC LAN idea back into the realm of music, my IBM PC XT clone with a Roland MPU401 MIDI interface, and my Alesis Midiverb, DX7II and TR707 drum machine form a small LAN. By adding a friend's ESQ1 and Korg DRM1, we now have a multi-user network where more than one individual has access to the data (samples, drum sounds, patches, controllers and so on). The problem is that in this environment, limitations such as the number of voices, the linking of MIDI In/Out/Thru, and the general direction of the information flow determine who has access to what. If linked up in a particular way, my friend becomes redundant in the network and I exercise complete artistic and technical control over all the instruments. So much for data exchange.

Unfortunately this rather defeats the purpose of having a network, in much the same way a phone line running only from your bedroom to your kitchen would defeat the purpose of a telephone system. In order for all users to take advantage of all instruments and their assorted facilities, it becomes necessary to think about networking them.

Let's look at the benefits of putting our existing MIDI-based machines onto a LAN. First of all, we could do away with the concept of "master-slave" connections. Just as in the networking of computers, everyone has access to everything, and no user (player, performer, composer or whatever) has control over any other. A system of this sort would allow for multi-directional passing of MIDI information, which means that my friend in the previous example would be able to access the data in my instruments.

Another benefit of networking MIDI instruments would be the ability of all the machines to continually send out MIDI info to specific addresses or stations, without worrying about where that address was physically located in relation to the sender. If I'm Instrument One on the network, I might be sending out patch changes to Instrument Six, which in turn might be instructing Instruments Three and Seven on controller settings at the same time. The limitations now become how many voices each machine has, and whether they can accept certain kinds of change and edit information, but we have escaped the restriction of the cabling setup as dictated by MIDI In/Out/Thru ports.

Unless you're spellbound by the theory, you're probably beginning to wonder what the practical applications are for such an idea. Well, take live performance as an example. If a number of players are using MIDI instruments on stage, it is usually in their best interests for each to have their own setup – because each performer needs complete control over their sounds and equipment. The current MIDI standard specs don't allow for efficient multiple-user stage systems, simply because of the master-slave relationship described above. But what if you could take all those wonderful new instruments and racks and put them on a Local Area Network, so that each performer had access to all the data on stage? It opens up a lot of interesting possibilities.

A real and very efficient use of a MIDI-based LAN would be in film scoring. Imagine you have a database of sampled sound effects in a number of modules, and you have a couple of technicians working to apply sound effects to an unscored movie. Instead of having only a single user who can reach into the database, with networking you have the capability of multiple access, so that work can be done simultaneously if necessary. It would certainly speed up the process considerably if a group of individuals could take separate parts of the same movie yet work on scoring those parts at the same time.

Unfortunately, we run into a problem here. With all of these wonderful interconnections and multi-directional information transfers going on, you start to slow down the network with the sheer quantity of information being passed over the lines. An alternative method of creating an efficient network has been espoused by Professor William Buxton of the University of Toronto. His idea is for an actual MIDILAN, which would contain a number of "nodes" of MIDI machines. Each node would be controlled by a "server" – a computerised device acting as a complete MIDI merge and MIDI filter system. This server would then be linked to other servers controlling other MIDI devices. The servers would be linked via a LAN and would be the "postmen" of the system. They would pick up and deliver any messages to and from the individual devices within their nodes and send them to the appropriate "address". The beauty of this is that the LAN where the servers reside could send information faster than the baud rate (a communications speed of 31,250 bits per second) currently defined by the MIDI 1.0 spec. So there could be an increase in transmission speed between

"Networking with MIDI is convenient because all the manufacturers have agreed a standard that's implemented on every MIDI instrument."

servers, before the information was slowed back down to the MIDI-specified speed.

This latter aspect, as outlined in a paper by Chris Meyer, could be used to overcome some of the problems of transmission speed inherent in the MIDI 1.0 spec. As we try and force more information down the throat of each MIDI cable, we increase the burden that the line must bear. Consequently, much of the demand for a MIDI 2.0 (or Super-MIDI) spec is from people requiring increased transmission rates. However, this could make all the current MIDI-

"As the importance of networks grows in traditional computing, it will also become vastly more important to the ways that we transfer musical data."

equipped instruments obsolete. Such an occurrence would certainly cause unrest amongst the troops and would probably lead to a full-scale rebellion. Anyone who already had many readies invested in equipment built to the existing MIDI spec would be faced with the "old" problem of incompatibility obsolescence. It could even be the end of civilisation as we know it.

The MIDILAN does allow for an increase in speed, and thus overcomes some of the objections having to do with transmission problems. A number of manufacturers are currently interested in the concept, and it is anticipated that by the end of this year the idea of MIDILANs will be a very hot topic indeed.

AudioFrame

FOR THOSE OF you not willing to wait and see how the concept of a Local Area Networking of MIDI devices turns out, there is a glamorous, though somewhat expensive, alternative available today. An audio workstation developed by the American WaveFrame Corporation allows you to do all the things that I've been discussing here, but builds its network specifically on IBM's proprietary Token Ring network using PCs. The workstation is called the AudioFrame, and is composed of modules incorporating such things as analogue-to-digital/digital-to-analogue converters, sampling synthesis, 14 Megabytes of memory, a variety of MIDI and SMPTE options, and a link into the Token Ring network. The user interface is an IBM PC, either of the AT class or the new PS/2 systems. The software for AudioFrame is the basic MS-DOS running Microsoft's Windows, so there aren't any surprises in having to learn all kinds of new operating systems. Oh yes, and the system has the potential to interface with about 250 devices at one time.

Not only can you have multiple users on the AudioFrame simultaneously, but you can also have multitasking, which is having those users work on separate and independent applications at the same time. There are a lot of features and benefits to the AudioFrame, too many to go into here. Let's think of it as a Synclavier with a built-in LAN.

As the importance of networks grows in traditional computing, it will also become more important to the ways that we transfer musical data. The potential for use in recording and film studios, within bands, in sequencing and performing, and in allowing more personal freedom within an electronic music environment is enormous. One quick look at how fast things change in this industry will tell you that the commercial implementation of networks in music is not too far off.

The advent of a MIDI-based LAN may not be as earth-shaking as the installation of the first telephone network but then again, you can't perform your latest musical masterpiece on your telephone either. At least, not yet. ■

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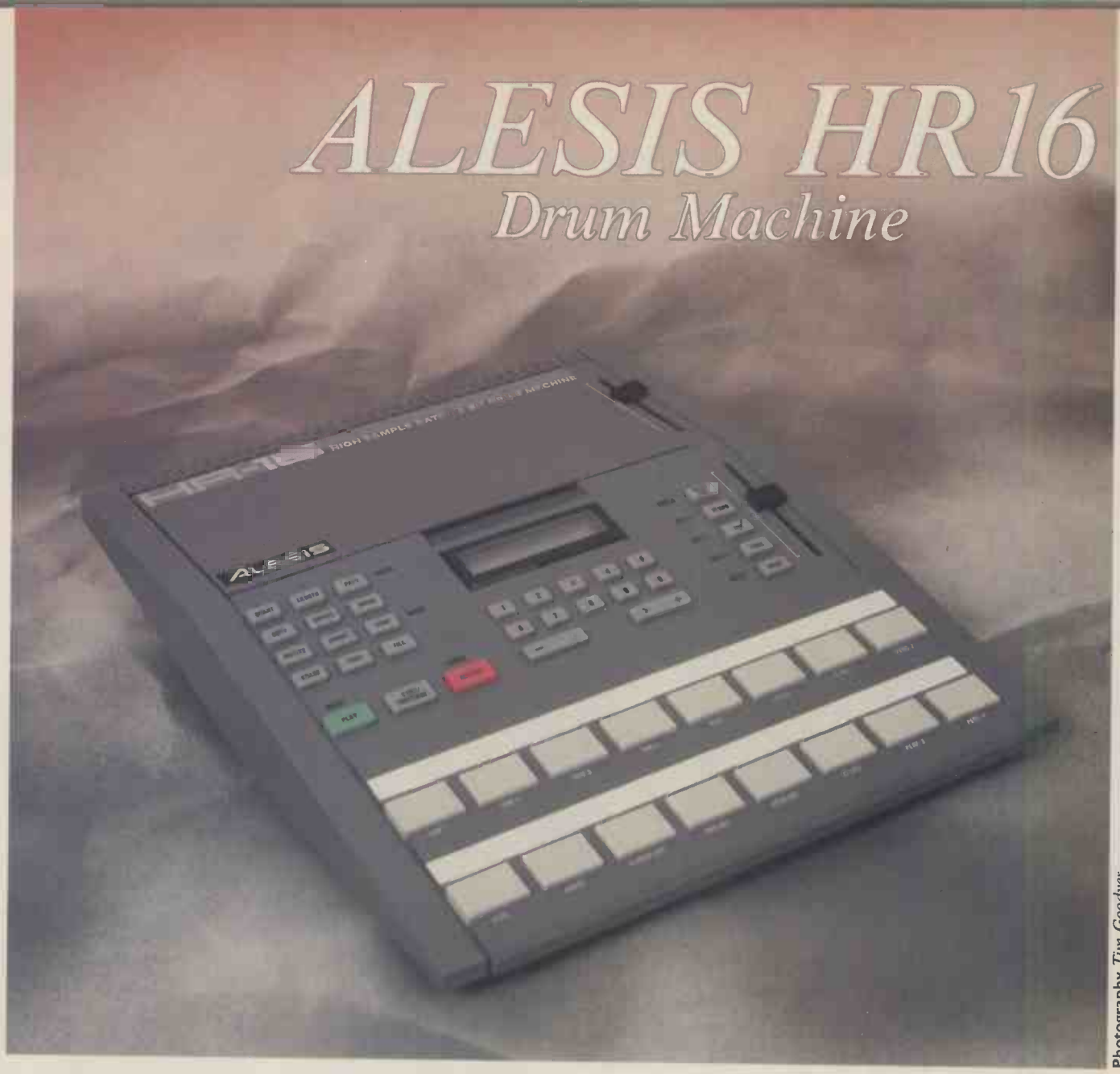

Photography *Tim Goodyer*

A drum machine that sounds like a drum kit – no, really it does . . . And it costs under five hundred quid, honest . . . The trouble is, when you give folks what folks want they don't believe you. Review by Nicholas Rowland.

THE SPIRIT OF the Alesis HR16 has been with us for such a long time now, it still seems something of a miracle to encounter one "in the flesh". Yet almost because of the delays (something to do with a ship mined in the Gulf war, I believe) this drum machine seems to have already earned itself Significant Musical Product status – the sort of thing that most instruments only achieve after they've been around for several years.

And it's not surprising given a spec sheet which has been public property for nigh on a year: 49 high quality, 16-bit sampled voices with programmable tuning and panning, each assignable to 16 dynamically sensitive pads, two pairs of stereo outs, sync to tape and a comprehensive MIDI spec. All this for a mere £449. In theory at least, that's gotta be worth waiting for.

But let's explore less familiar territory to start with: the HR16's appearance. Personally, I think its distinctive wedge shape cuts quite a dash. More importantly, the front panel is laid out in a clear and logical fashion, with functionally-related buttons grouped together and an informative 32-character LCD. There is a lid at the back of the machine which opens up to reveal a shallow compartment containing a set of instructions (albeit difficult for any myopics to read). I also found the compartment handy for other things too, like storing recording notes and preventing my gobstoppers rolling about.

So, nice to look at, but in fact not so lovely to hold. Up close, there are some less pleasing aspects. Like squidgy rubber programming buttons which occasionally tend to stick. The volume and data select sliders are also a little flimsy. More worrying though are the voice buttons which, while made of a hard plastic, really don't feel as though they would survive prolonged bashing. In fact the crash cymbal button on the review model (a production job) had already been damaged, with the result that you needed to hit it harder than any of the others to get the loudest dynamic. I foresee long-term problems here, especially in the hands of the "I just hit 'em" school of rhythm programmers (believe me, there are plenty of them about).

Any slight disappointment felt at the rather, shall we say, fissile nature of the packaging quickly disappears when we plug the 9V AC adapter (supplied) into the appropriate socket and begin to explore the HR16 from the inside out.

We'll start with the meat of the pre-launch publicity, all 49 of those 16-bit drum voices. Deep breath: 10 bass drums; seven snares; five toms; two open, two closed and one half-closed hi-hat; three cymbals; timbale; high and low congas; two wood blocks; two maracas; two cow bells; claves; cabasa; shaker; agogo; triangle; tambourine; handclaps; finger snap and drum sticks. The bass and snare samples include a couple of the electronic variety, so while there's nothing outrageous, there's certainly plenty of choice. This is important because it gives the HR16 the flexibility to fit in with various styles of music, from rock

and pop to hip hop and electro - not always the case with drum machines.

It's a pity Alesis didn't see fit to include some more interesting percussion sounds: talking drums, tablas, perhaps even a bass sample. And I can't understand why there are two types of maracas and no muted conga or alternative timbale sound.

But, this whinge aside, with the possible exception of the claps, every single one of the voices is absolutely excellent. And while it may be a review cliché, you really do have to hear these voices for yourself to appreciate the quality of recording.

Though everyone will have their favourite, what you'll immediately notice about most of the sounds is how "live" and "natural" they are. In other words, the HR16 sounds more like a set of real instruments close-miked than a collection of triggered sounds squashed into a tiny black box. It's most noticeable on the high frequency sounds - the cymbals and more "tinkly" percussion - which, due to the 47kHz sample rate giving a bandwidth of 20kHz, retain all the clarity and sparkle which they normally lose in drum machines. On the double-headed kicks and toms the sample quality is so good that you can practically hear the drum heads flapping about.

Strangely enough, though, this "realism" can have its disadvantages and lead you to believe that some of the voices are weaker than they actually are. For example, a couple of the acoustic bass drum samples have captured the boominess and slightly soft attack of the real thing rather too well. Hence, if you're trying to imitate Carl Palmer shaking the foundations of Hammersmith Odeon with a double kick roll in "Tarka the Otter", all well and good. But like the real thing, if you want to translate this into a tight and punchy kick-in-the-gut then you'll have to do a fair bit of tweaking - just as you would if you really had miked up Mr Palmer's kit. Either that or choose one of the more suitable bass drum sounds of course.

This may sound a little unlikely, but once you have actually heard the machine, you'll realise exactly what I'm talking about.

Kit Building

THOUGH BOTH THE manual and the LCD always refer to the 16 pads by their default voice assignments (as printed on the machine itself), any voice can be assigned to any pad or number of pads. You can even assign any one of the voices to the click function too.

Note though, that the pad labelled Crash initially has two identical crash samples assigned to it which are triggered alternately. This is so that crash strikes will not cut off as they do when only one sample is used. Conversely, the three hi-hat pads (closed, mid and open) *are* designed to cut each other off. In both cases, the intention is to make the machine sound much more realistic (and it works) but it also means that any other voices assigned to those particular pads will work in the same way too.

Having made your selection, voices may be tuned independently, over a range of +15 or −16 semitones. Next comes the Mix function which allows you to set the volume (0-99) for each voice, then assign it to either one of the two pairs of stereo outs and determine which one of seven pan positions it occupies (dead centre or three steps to right or left).

Using these edit functions you can create a wide variety of "Kits" and some interesting special effects too. More melodic rhythms can be created by assigning different tunings of the same voice across several pads. Using voices like triangle, agogo and claves, you can create a "stereo" bell tree, wind chimes, castanets and even a Trimphone effect. And, of course, the panning facilities will allow you to send anything up to four voices through separate outputs for individual EQ and effect treatments.

Having created a Kit it's a simple matter of saving the results with a bit of button pushing. You can store a completely different Kit for each pattern which means, as there are 100 patterns, you can store . . . er, you work it out. And as pattern numbers (and hence different Kits) can be recalled by MIDI program change information, it means that the HR16 makes an excellent sound source for electronic drummers looking for something to plug into the other end of their trigger-to-MIDI converters. In fact, though the HR16 plays and records eight levels of dynamics internally, it can respond to 32 levels of dynamics when triggered over MIDI.

Beat Building

THOSE 100 PATTERNS can be built up in both real and step time and when building up a pattern, you can swap quickly and easily between both methods. In the case of real time, it's a simple matter of pressing the green Play and red Record simultaneously; in step time, you have to hold the Patt key down first. Another key press and a touch on the data entry slider sets the tempo anywhere between 20 and 255bpm.

Pattern length is, not unreasonably, defined in terms of numbers of beats. The default length is eight beats though this is easily reset to a value between one and 682. The HR16 thoughtfully allows you to shorten or lengthen a pattern even if you've already recorded something into it. And if the new pattern is to be longer, you can add a period of "silence" onto either the beginning or the end of the original.

Quantisation resolutions are variable from 1/4 through 1/6, 1/8, 1/12, 1/16, 1/24, 1/32, 1/48, 1/64 to Off (in other words 1/384 which is equivalent to the MIDI clock rate). Again, flexibility is the key since quantisation can be constantly altered for each new overdub: handy for quickly and accurately punching in a four-on-the-floor kick, then adding, say, triplet hi-hats. The click can also be quantised over the same range (only this time Off does mean no sound at all).

Pad dynamics come into play where both programming methods are concerned. There are 11 settings of dynamics available: Loud, Medium, Soft and Fixed 1 through to Fixed 8. As their names suggest, the first three represent different loudness curves, while the fixed settings mean that the dynamics are always the same no matter how hard the buttons are hit. On the whole, the system works quite well, although when set to Medium and Soft, the buttons really have to be whacked quite hard to get the loudest dynamic. However, bearing in mind my earlier comments I'm really not sure the machine will stand up to it.

When programming in step time, the LCD shows the dynamic at which the voice has been entered. If this isn't what you want, or you want to edit it at a later stage, you're allowed to enter new values using the number keys just below the LCD. Or if you're descended from Robert the Bruce, you can keep hitting the pad until you get it right.

I'm sure it goes without saying (or does it?) that the dynamics of different voices are completely independent of one another.

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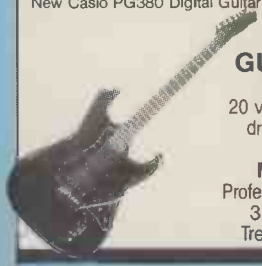

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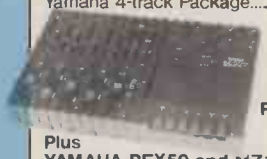

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►eradicating a single voice from the whole pattern. However, beware when erasing complete patterns. Not only does the entire rhythm disappear, but, unless you've activated a function called Manual Voice/Tune/Mix, so does any voice editing you've done. This can lead to some colourful language if you've just spent an hour or so carefully building up a Kit. The way round it is just to erase the voices individually which also leaves you with your original pattern length and quantise values.

You also have to be careful of this when copying patterns (which as in all drum machines actually means tacking one pattern on to the end of another) since the Kit of the "destination" pattern replaces the Kit of the pattern that's being copied. If you're not careful, you could end up with the right pattern and the wrong voices playing it.

Building for Real

THAT COVERS THE basic mechanics of pattern programming: logical, easily understandable and flexible enough to allow you to do just about anything you want. But the HR16 has a few more tricks - aces, I should say - up its sleeve.

First of these is the truly wonderful Offset function, normally only to be found on considerably more expensive machines. This allows you to advance or retard a voice - any voice you choose - by up to 99 clock pulses (384th notes remember) to shift it slightly before or after the beat.

This allows you to simulate an effect which you may have heard described by grown-up drummers as "playing behind or in front of the beat". It's an often subconscious technique where a drummer can either push a track along, or drag it back slightly and make it more relaxed. It's often what people really mean when they talk about drummers having more "feel" than drum machines.

Used sparingly, the offset function really does make the HR16 groove, enhancing the natural feel of the drum sounds themselves. Overdone it sounds like a novice drummer with a greased drum stool. But even if you want strict time programs, offset comes in useful to lock in the rhythm more tightly to bass guitar or synth voices with too soft an attack. You'll also find it pretty necessary when using some of the HR16's own voices, like the cabasa or claps, both of which have such slow attacks that they tend to make things drag a little.

As well as offsetting individual drums you can also offset a whole pattern. In either case, if events are offset beyond the end of the pattern, they are then put at the beginning and vice versa.

The Swing function also helps to inject a degree of flow into the programs and is essential when creating shuffles.

Another feature which seems initially more of a convenience than anything is the Fill button. When this is held down and any voice button is pressed, the voice is retriggered at the current quantise rate and whatever dynamic level has been set. Useful for quickly setting up hi-hat patterns or military snare rolls, it's also great for some offbeat effects too, like soft bass drum "stabs" or chirruping crickets.

Song Building

THE HR16 CAN store a total of 100 Songs, each of which can contain up to 255 steps, a step being defined as any one of the 100 Patterns. Given the comprehensive features available for creating Patterns, the HR16's song editing features are surprisingly elementary. They include the usual insertion and deletion of patterns (Replace does both of these at once) and tempo changes can be programmed between, but not during, patterns. Whole songs can be looped, but it's not possible to loop parts of them, which is one method that many manufacturers use to save both memory and programming time.

In case you're ever worried about running out of memory, pressing Record and Length together displays the remainder as a percentage. If things are getting desperate then you can always save all patterns and songs to tape. You can also save and load song and pattern information via MIDI.

MIDI Building

AS WE'VE MENTIONED the four-letter word a couple of times, we might as well see what other MIDI options the HR16 offers.

The MIDI/Util button allows you to determine which of the 16 channels the HR16 will both transmit and receive on. The other option is Omni, which means transmitting on channel 1, but receiving on all channels.

MIDI notes are assigned to each pad rather than to each voice, so that incoming MIDI information will trigger whatever your Kit setup has assigned to that pad (the display shows both the MIDI note number and the corresponding keyboard note). First though, you'll have to toggle the Receive MIDI Drums function on. And if you want information to go out, you'll have to do the same for Transmit function.

"The HR16 has the flexibility to fit in with various styles of music, from rock and pop to hip hop and electro - not always the case with drum machines."

The HR16 also accepts and transmits MIDI clock information, plus Auto Start messages. (It can also be started with a remote footswitch plugged into the rear-panel socket.) It will sync to tape through its own FSK code. As I said above, different patterns can be accessed with MIDI program change numbers. Unfortunately you can't actually access the different patterns while the machine is running because in that state it won't accept program changes. Hence, if you were thinking of using a keyboard or sequencer to dial up the various patterns as you went along, forget it.

Verdict

THE HR16 IS a remarkable piece of equipment. The sounds are excellent and the programming system is extremely user-friendly, yet it's comprehensive enough to give plenty of scope to the dedicated rhythm fiend. Electro-drummers will also find it the ideal box to trigger from pads.

Admittedly, it's not perfect. The casing really isn't up to scratch, some of the voice types are duplicated unnecessarily and the song editing facilities really are too simplistic.

In spite of these criticisms I would highly recommend it, mainly because it has a very particular character which, strangely enough, stems from the fact that it doesn't sound or behave like a drum *machine* at all. ■

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Various artists
Winter in the Park
Vision
Green Pastures
Quorum LPs

What the rest of the world would describe or dismiss as new age, Quorum Recordings prefer to call "impressionistic instrumental music''. What's the difference? You may well ask.

As far as Quorum are concerned, there are two things. One is the standard and range of musicianship among their artists, who, we are told, are accomplished classical, jazz and rock musicians; the other is a complete lack of funds. Quorum argue, somewhat fallaciously I think, that since they have no money and are therefore forced to use old and unreliable equipment, they have more time for "experimentation". Hmm.

Dodgy polemic aside, the contents of the three cassettes are impressive, certainly more so than the twee cover illustrations and painful descriptions of the music.

The music: *Winter in the Park and Other Paintings* by Brian Spencer-Smith (who, incidentally, runs the label) turns out to be a pleasant collection of slow-moving synth and guitar compositions, livened up by the occasional song such as 'Morning Glory' (which bears a passing resemblance to 'Summertime').

Electric violinist Paul Heyman maintains both the high standard of musicianship and instrumental music collections. Nearly half the tracks are improvisations recorded live at the Pizza in the Park, London.

Certain of the piano pieces owe much to Debussy, which bears out the old adage if you're going to steal, steal from the best. And there are some excellent synthetic compositions too, though occasionally when the sonorous mood on *Vision* aided and abetted by Grenville Harding on keyboards.

But it's *Green Pastures*, which contains work by both Chris Wilson (piano and synth) and Dominic Aldis (piano and live electronics), that comes out on top. Nine tracks display a range of emotion and style lacking on much piano and synth are used together, the electronic sounds are obtrusive; unnecessary even.

I'll put my head on the block and say this is worth investigating. I found myself listening to it, rather than wondering if it would sound so much better if I didn't.

More from *Quorum Recordings, 14 Salisbury Road, Rorest Gate, London E7 9JX.* ■ *Nr*

Various Artists
AMPLE Albums

You've heard music on tape, vinyl and CD, now let me introduce music on floppy disk – written in AMPLE software format for Hybrid's Music 5000.

Music 5000 owners will already be familiar with Pilgrim Beart's work, as some of his material is included on the Music 5000 system disk but *Cosmix* is his first full album. At the front of the program is a digital Space Phone which you use to dial up the tunes. The music and comments within the programs bear testament to the Pilgrim's whacky Douglas Adams-style humour.

The music is original and in a "contemporary" synth/rock style. Many pieces are quite short, some extremely so, but like all good artists he leaves you wanting more.

Beart's *Notes* carries on the *Cosmix* tradition, this time the front end is a FILOSAX (sic). This time you flick through its pages to select the tune you want, though not all pieces include comments.

Pilgrim Beart is a field tester for Hybrid's products and has had more chance than anyone to discover their potential. If nothing else, his albums prove that big, fat, meaty, sweeping filter, analogue and digital sounds are still in favour in some quarters. The best part of music in this form is that each piece is freely accessible to the user so you can lift instrument definitions and analyse his programs to see exactly how they are constructed. Now, you can't do that with CD, DAT – or DDT.

Ample Bytes Back by David Reed is an album of 18 pieces including Hooked on Classics-style arrangements of *Faure's Pavane*, *Malaguena* and *Zorba the Greek*. To redress the balance there's also a version of *When I'm Cleaning Windows* which features quite a remarkable Banjo sound.

The arrangements are a little uninspired and compared with the other AMPLE albums, it's a little thin in the sounds department but you do get lots of music for your money.

Music City is a new Microbase accessible from Micronet. Its main *raison d'être* is to support the Hybrid Music System but it also features music for other computers and systems. The Music City disk contains 12 pieces arranged by co-editor Ian Guinan intended as a sample of what's available from the database itself.

As copyright issues loom larger in commercial music it's interesting to find that Music City – and Hybrid – have come to an agreement with the Mechanical Copyright Protection Society which allows them to produce AMPLE arrangements of copyrighted material. Consequently this disk brings you *Heartbreak Hotel*, *Jump to the Beat*, *I Feel Love*, *Slave to the Rhythm* and Erasure's *Sometimes*. It also contains four of Guinan's original pieces. All are excellently arranged and orchestrated, and well worth a listen. If you like what you hear, more can be downloaded from Music City either free or very cheap.

If you have a Music 5000, have a listen to some of these albums. They cost £4.95 each including p&p, available from Hybrid Technology Ltd, Unit 3 Robert Davies Court, Nuffield Road, Cambridge, CB4 1TP. Tel: (0223) 316910 ■ *Ian Waugh*

liveT·A·K·E·S

Electric Symphony Orchestra
In Two Worlds (Morton Subotnick)
Cambridge Corn Exchange

Take a full orchestra, mic up every instrument and mix them with several Yamaha DMP7's, then add a virtuoso saxophone soloist on WX7 wind controller and a conductor who triggers an Apple Mac-based sequencer from the Airdrum in his left hand.

This was the instrumentation with which *In Two Worlds* was premiered to, alas, a mainly empty Cambridge Corn Exchange. It was the third concert in a series given by the Electric Symphony Orchestra, the Yamaha sponsored ensemble, which performs mixed programmes of conventional classical and experimental, electronic work. Also on the bill tonight was the British premier of Yizhak Sadai's *Canti Fermi* as well as Stravinsky's *Firebird Suite*.

For those champions of the creative possibilities that new technology offers, the pieces were a frustrating disappointment. The evening promised to be an interesting confrontation (and possible resolving) of two musical methodologies; it actually amounted to a series of incoherent avant garde wafflings, none of which exploited the capabilities of either electronic or acoustic instruments.

I suspect practical problems were at the root of this. Whilst the electronic sounds survived amplification well, the acoustic ones did not. Less forgivable was the choice of electronic sounds, none of which came close to the harmonic richness of the alto sax which soloist, Dr John Sampen picked up (mercifully) in the second half.

The situation would also have been improved had the audience been able to aurally separate the electronic and acoustic instruments. With everything coming through the speakers, it was impossible to distinguish live and sequenced parts and hence to get that crucial tension which should exist in all live work. After all, why see a work being performed if you never get a sense of the mechanics of the performance?

There were other problems of practicality too, though these were more related to the general mixing of acoustic and electronic instruments per se. I would have been happier to see the computer and its operator actually on stage and the sequenced sections cued in by the conductor (as he would have cued another instrument). This would have thrown the dialogue between the automated and live parts of the work into better relief, and made the performance much more understandable.

My rather unhappy overall impression of *In Two Worlds* was reinforced by a spirited rendition of the *Firebird Suite*, the relief on the faces of the players betrayed their own agreement.

Leaving the venue I couldn't help feeling that if Stravinsky were alive today, this fusion of classical and contemporary sound textures would be in better hands. ■ Nr

demoT·A·K·E·S

The best demo of the month comes in vinyl form from **Bop-A-Nova** comprising Johnny Zero (vocals and programming), Grace the Ace (vox) and Clive Copeland on guitar. They've precluded a bad review by providing one of their own: "A very silly song", "I don't want any more to do with it" . . . There's nothing like having faith in your music.

In fact, 'See You Later, Modulator' in both 'Beep' and 'Bop' versions, is a brilliant example of plastic pop: a punchy, bouncy synth, infectious hook, and some neat samples and spoken vocals – one of those demos you just sit back and enjoy.

Technical details are scanty, though there's obviously a high-quality sampler in there somewhere. We're told the song was produced in their home studio on four-track with synced sequencer and drums. The resulting mix is uncluttered and effective – the sort of thing you often get on a demo, but which rarely makes it onto vinyl.

If there *is* any justice in the world this could be in the charts tomorrow.

Copies are available from Bop-A-Nova, 35 Newton Avenue, East Grinstead, West Sussex, RH19 4SW. Cost £1.80 inc P&P.

And now the rest of the news: Following on from Hwyl's new age collection, the *Intimate Texture of Sound*, reviewed not uncritically last month, comes a letter of complaint from one Mike O'Neil. He comments "I can only surmise that the writer was suffering from a hangover of too much 'new age' music. I'm sure that if both sides of this LP had been listened to, the final track by **Myth Gestalt** would not have gone unnoticed, standing out as it did like a recurring nightmare on a vinyl plateau of sweet dream music."

It transpires that he and brother Pete are the two members of . . . Myth Gestalt. They invite me to listen to *Lateral Views* – not only to 'Surrounded by Shadows', their contribution to the Hwyl extravaganza, but to nine other tracks of their own devising.

It all starts off quite promisingly with 'Ladies and Gentlemen We are Experiencing a Difficulty', 'Moscow' and 'One Day Remains' all of which are dark, haunting rather majestic pieces which benefit greatly from a reverb set to "II". They're also quite short. However, beyond this point, things start to slip away, an event which is presaged by titles like 'A Boundless Absence' and 'My Distance is Closer Than You Think'.

It's not that the compositions seem to get more formless in construction and aimless in direction; the problem stems from the sounds which emanate from Myth Gestalt's equipment: a Korg Poly 800, Yamaha FB01, Roland SH101, a couple of unspecified, but obviously ancient drum machines and the occasional use of an Ensoniq Mirage. I'm not suggesting they spend a fortune on new equipment, it's just that they always take the most obvious approach. The result is . . . well you've heard it all before. Myth Gestalt are where Tangerine Dream were at all those years ago.

My first piece of advice to **Tilted Tim** is not to worry: it's perfectly natural in a man of his age.

Now to the music. At first I thought his cassette imaginatively titled "Chrome But Not Dolby" until I realised that these were merely tape details. The more prosaic *Tilted Tim Demo No I* seemed a disappointment by comparison.

'Nightfall' begins with a pleasant folky air, sequenced on a Yamaha CX5M II. But just as you're about to swig your mead and grab the nearest wench for a quick pavanne, there's a horrendous time change and we're kicked fair and square into medieval Eurodisco.

This sets the tone for the three tracks that follow (not the time change, but the quirky, eccentric and quitessentially English approach to music making).

Best of the four, 'Enduring Love' starts out with a pleasant rollicking marimba sequence which sounds like 'Mull of Kintyre' rearranged as a piss-take of 'Listen With Mother'. The vocal develops from a pub singer's boozy-breathed tones of "Hush now baby don't you cry" through a series of harmonies and counterpoints as the arrangement rises in intensity to carousel steam organ effect . . . "It's a beautiful world 'til you open the blinds". It certainly is.

Apart from drum sounds courtesy of a TR505 all the music was programmed completely on a CX5M, the trouble is the voices TT uses tend to grate on the ears after a while. However, I notice from the CV that Tim's last solo cassette/album *Sucking in the Wind* was recorded entirely with a Casio PT30. Perhaps he's just got used to all that sibilance.

That said, the arrangements are good enough to compensate for just about anything – except the fact that he once supported the Enid at Brighton Pavilion.

Finally, we come to another band hell-bent on world domination. But **This Nightmare Scene** aren't about to set the world on fire, instead they have just enough going for them to imitate about any other Indie synth pop band around.

'Tune In To Sleep' is the best of the three here (despite the predictable chord structures), with John Bower's voice sounding particularly effective against a John Penson's programmed wash of synth strings and driving drum machine programming (Boss DR110, DR220A and Casio RZ1). Remember, there's plenty of money in the social club circuit. ■ Nr

Send your demotape, along with some biography/equipment details and a recent photo if you have one, to: DemoTakes, Music Technology, Alexander House, 1 Milton Road, Cambridge CB4 1UY.

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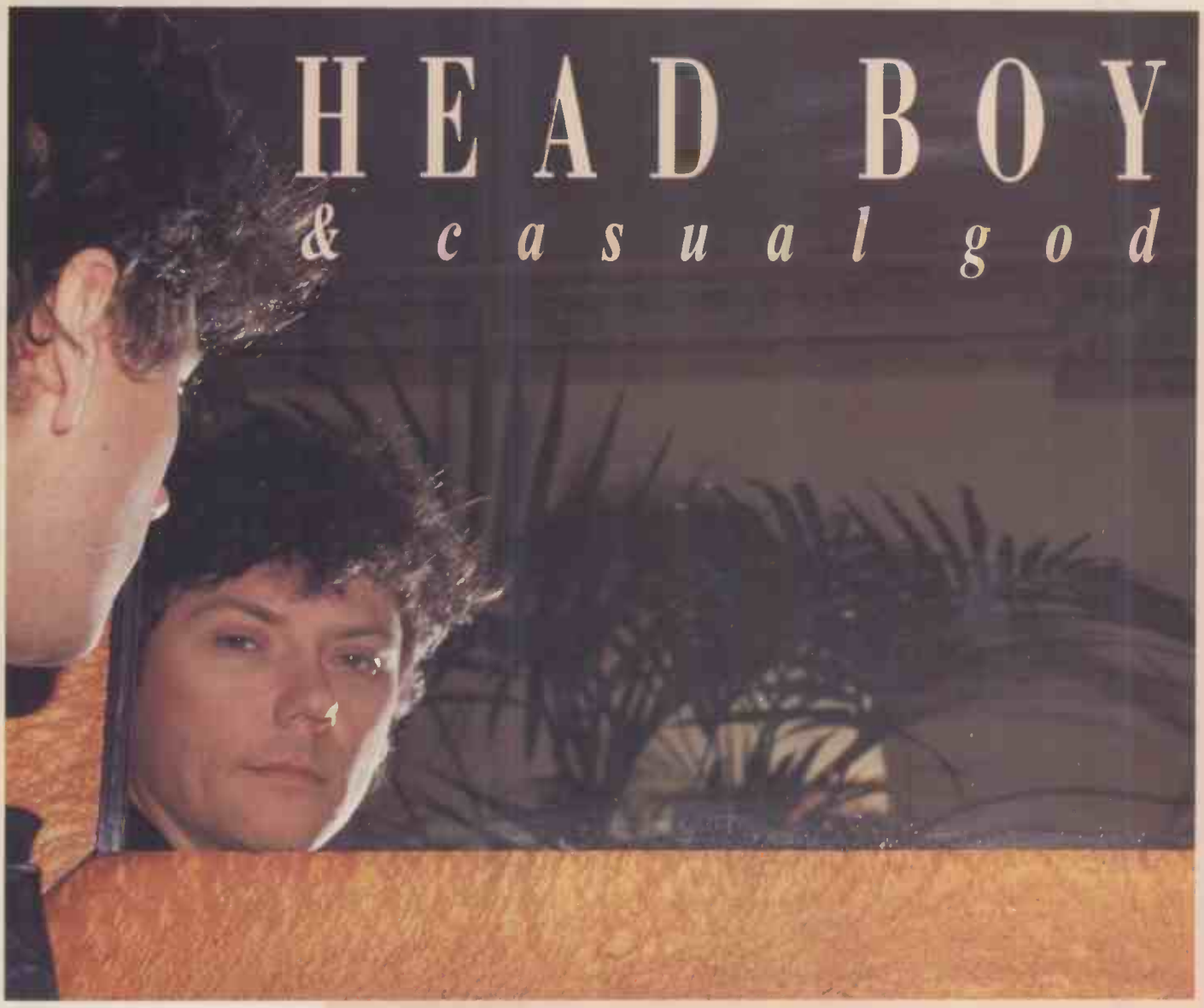


Photography *Lizzy Ellis*

A melodic interlude over, rhythm comes once more to the fore in a new album from Talking Heads and another from their keyboard player, Jerry Harrison. Interview by Nicholas Rowland.

IT'S JUST OVER 12 months since Talking Heads' keyboardsman, Jerry Harrison, first peered from the pages of *Music Technology*, surrounded by the Heath Robinson decor of a very English hotel room. That rare visit was occasioned by the release of the band's ninth album, *True Stories*; just one of three vinyl spin-offs from the film of the same name, conceived, written and directed by singing Head, David Byrne.

One year later, Harrison faces me across another bizarre hotel room. This time, though, he's spoilt for choice of what to talk about. For along with a new Talking Heads record due in March, there's his own solo LP, *Casual Gods*, plus the production work he's done for two up-and-coming American bands, Semi-Twang and The Slash.

"Four projects, four albums", he announces with evident satisfaction.

***Casual Gods*, which should be in the record shops as you read this, is Harrison's second solo venture, following *The Red and The Black* released back in 1981. The new album is a collection of ten songs, written with a little help from friends Alex Weir (guitarist from the *Speaking In Tongues* and *Stop Making Sense* tour) and Ernie Brooks (bass-player with the Modern Lovers). It's taken almost four years to record, not as a result of some deliberate policy, but due to the constant interruptions of his other commitments.**

"The trouble with being interrupted", Harrison comments, "is that if you can't finish something in a given time, you run out of energy. Then you have to regroup and get the excitement back before you can get going again.

"Also", he adds, "this studio in Milwaukee started doing all this new age music – sewer age I call it – and suddenly I couldn't get in there: it was constantly booked."

It's been well worth the wait. You may already have bent your ear to radio play of the debut single, the excellent 'Rev It Up', a driving rhythm and blues track, with big, big drums and the distinctive trademark of the Heads' clipped funk guitar. This says Harrison, is a taster for what he calls the "lighter" side of the album, the side which reflects his love for American roots music.

But that implies there's a darker, more serious ►

► side too, of which you'll catch a glimpse if you flip the vinyl and put the needle to the B-side. Meet 'Bobby', a nervous, staccato Harrison vocal weaving in and among a haunting, pulsing rhythm, which features sequenced marimba synth patches and the low rasp of a didgeridoo. This one needs a little more explaining. Harrison takes up the story:

"I must say, 'Bobby' is quite amazing. It gives *me* the creeps. It was inspired by the studio where I worked on the album. It's built in a house owned by a very good friend of mine, and the studio itself is built in the room that was once the bedroom of his younger brother who committed suicide. So there was always this quality of him looking over our shoulder. I wrote the song to expunge that feeling.

"It also addresses that issue of helplessness that you often feel when you're talking over the telephone and you just can't get through to someone or get them to understand what you're saying. I don't just mean dealing with people who are going through an emotional crisis, it can just be a girlfriend . . . If you've ever been in another country and you start to have a fight with your girlfriend it's like you want to exude something through the telephone which you can't. It's such an agent for misunderstanding when it comes to emotional things."

The disturbing atmosphere of 'Bobby' is attributable to the almost subliminal sounds of the didgeridoo. It's easy to see why John Tokes Potoker, the man responsible for the version which appears on both the 7" and 12" singles has christened it the "Aboriginal Mix".

"There are actually quite a lot of Australian sounds in that mix", says Harrison. "When I was in Australia I found this store which sold aboriginal art and didgeridoos. I was going to buy a didgeridoo until someone told me it takes years just to learn how to make the noise, so it was easier to buy the cassette and sample it instead."

As well as "borrowing" from the Antipodes, the album also sees Harrison taking inspiration from South and Central America, though he finds himself more interested in the sound of this indigenous music, rather than its rhythms or overall structures.

"Once you've chosen a sampler and got to know it, unless you really want to be a keyboard technician rather than a musician, then stay with it."

"Most of the South American music I know doesn't have the drive of African music – or even rock. Brazilian music has drive, but it's somehow too sophisticated. I tend to go for the melodic side or for instruments themselves which sound unique because they have these weird harmonics.

"But I've taken a lot of lyrical ideas from Central America, though the music itself is still based in rock. So the record company have been talking about the 'political content' of the record when really I'm using political lyrics to create the *mood* of Central America rather than trying to say this is a Sandinista solidarity song or this is a Contra this or that.

"I think that what's great about ethnic music is that its indigenous nature always makes it fresh. Because of those cultures' separateness from the rest of the world, they've gone off in certain directions which you would never think of because you're never as isolated as they are. The frightening thing about communication in the world today is that, as everything becomes more and more accessible, there becomes only one culture and, increasingly, diversity gets lost."

IT'S INTERESTING TO compare the direction that Harrison's solo album has taken with that pursued by the last two Talking Heads albums – both of which occupy the same period in his musical life. Clearly, *Naked* belongs more to the tradition of rhythmic and textural exploration drawing particularly on African influences, which began with 'I Zimbra' from *Fear of Music* (1979) and developed through *Remain In Light* (1980) and *Speaking in Tongues* (1983). *Little Creatures* and *True Stories* abandoned those ethnic influences and concentrated on melody and formal song structure. Does this mean that *Naked* represents the direction that Harrison would have preferred the Heads to take over the last four years?

"I'm happy that we made *Little Creatures* and *True Stories* then, but I wouldn't be happy to do another album like that. I still like them: there's something very heartfelt about them, but I've always wanted to get back to the more experimental approach.

"There was a song on *True Stories* called 'Papa Legba', which was a bit like 'Drugs' on *Fear of Music*. It's the kind of music we do just every once in a while, but to me it's unique. No-one else does it. I actually suggested doing a whole record that sounded like that, though we didn't do it.

"The new Talking Heads album is a little more free flowing, a little looser and broader in the sense of structure, than the last two. It's much, much closer to *Remain In Light* and, frankly, much closer to my album."

Naked has been on the production line since April '87, when the band came together for initial "improvisatory" rehearsals. Most of the recording has been done in Paris, with producer Steve Lillywhite at the helm, the first time that Talking Heads have used a producer since Brian Eno's involvement in *Remain In Light*. And, as any historian of the band will know, while that collaboration produced one of the most startling and innovative albums of the decade, it almost split the band. It's not surprising then, that eight years after its release, Harrison still talks passionately about just how difficult that album was to make.

"There have been a lot of conversations about *Remain In Light*, but let's say everyone felt very extended by the time it was finished. We had three weeks in the Bahamas, but then everything stopped and we had trouble getting going again. We just kept running into problems, like how we were going to turn these ideas into songs. It was the first time David had tried to write the lyrics *after* the music and he ended up literally tearing his hair out. It was the summer, very hot, and there was a lot of pressure to get it finished because we were about to go on tour.

"In fact while we were doing it I went out one afternoon and hired a band for the tour. I came back and said 'I've got a great band' and the others said 'Who's in it?', I said 'Adrian Belew', they said 'Wow!' 'And Bernie Worrell' and they said, 'No kidding? How did you do that?'. Then David went to LA with Dave Jerden and mixed three songs and I stayed with Eno and mixed four, just to get it done.

"At the end there was this great exhaustion

and a great difficulty in assessing who exactly had done what."

The experience with Steve Lillywhite, however, has proved more relaxing.

"This is a different situation", comments Harrison, "more of a co-production. Because we've produced several of our own albums as well as other people's, everyone in the room is completely aware of how to make records, and could be the producer. Steve was there to take the pressure off, so instead of David and me listening to Tina going through the bass parts, we let Steve do it, and then we can come back and say, 'That's great, everything works . . . except for that one little bit.'"

The new album again saw the lyrics being written after the music. Had this proved as difficult as the first time?

"No, because we've all learnt the problems which can come from not having enough chord changes. You tend to find that the melodies end up sounding sort of flat, because although being in a key they can just go anywhere, they don't have that drama of chord changes. So we purposefully built lots of chords in so they didn't end up as strict jams with words layered on top. It just gives the possibility of more melodic interest."

As is usual, whenever Talking Heads go into the studio, everybody ends up by playing a little bit of everything. Hence, while Harrison gets credited for guitar as well as keyboards, Byrne and Weymouth end up with credits for keyboard playing too.

"That's the trouble. I always lose out in Talking Heads because *everyone* wants to play keyboards", moans Harrison, with a wry smile.

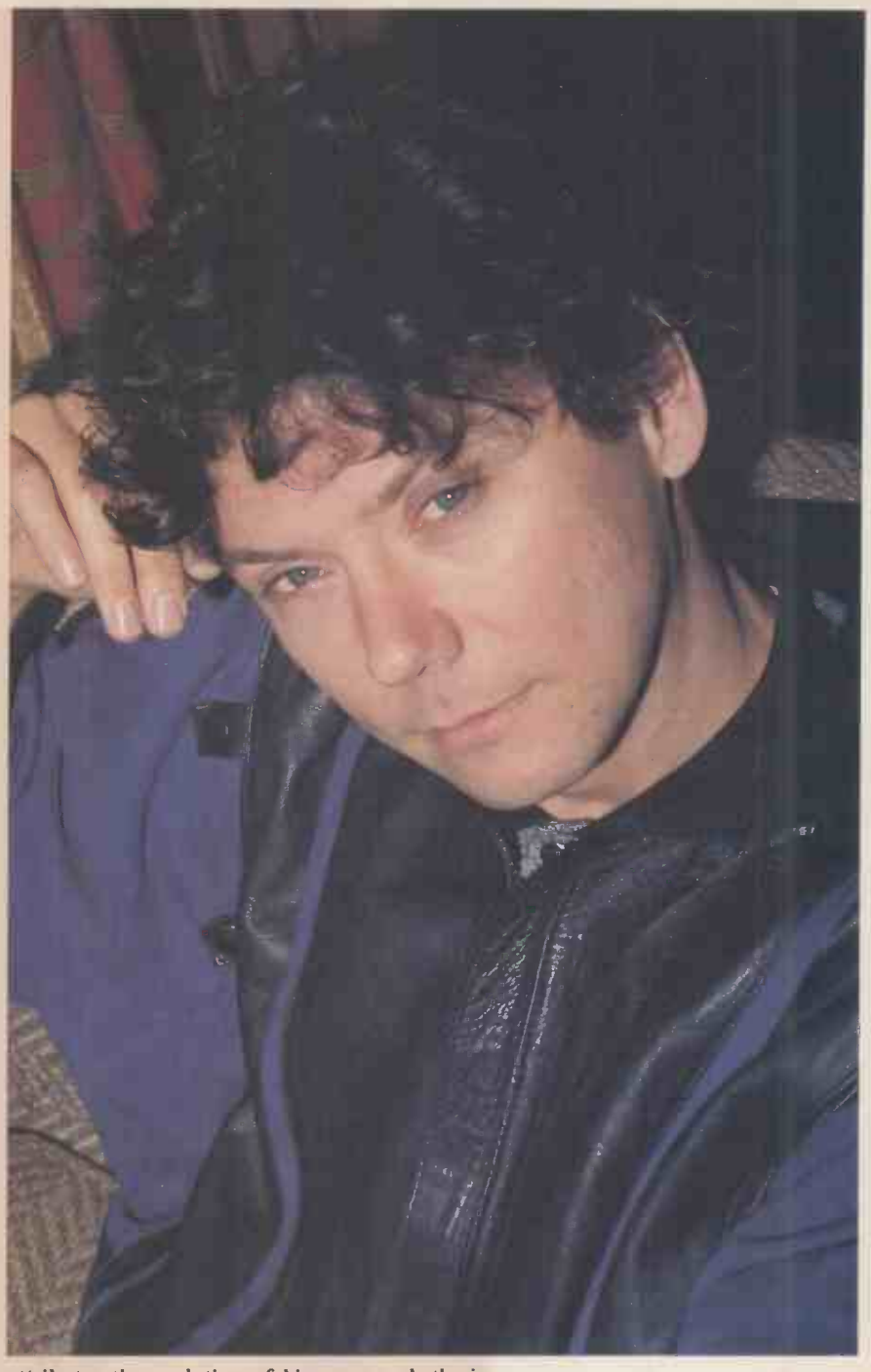
"On the other hand", he continues, "it's good, because I think inexperienced people often play the best parts. A keyboard player always thinks with keyboard technique, but someone else will come along with their one finger approach and play something which is terrific because it's concise and direct.

"Tina was playing piano on this track and doing something quite amazing – constantly changing the metre so it was twisting through the song – the only thing was that after we'd recorded it on one take, she couldn't quite get it anymore, so we had to search through all these tapes and find the one where this had happened, then find the place where it had really worked, then resolve how she actually did it. And when we'd done all that, I ended up playing the part for the final version."

ANOTHER NAME ON the list of credits is that of Wally Badarou, Synclavier programmer extraordinaire, and well known for his work with Level 42. It's not the first time the Heads have worked with Badarou: his name also appears on three of the tracks on *Speaking in Tongues*.

"One thing that's always worked well for us is bringing in other musicians who then add their own style and influences. Through Wally Badarou we met all kinds of people who came in and played for us, although the core of the music is us playing as a four-piece."

While Harrison may jokingly suggest that he sometimes can't get a look in, there's no doubt that over the years his keyboard playing and programming have become an inseparable part of the Talking Heads style, instantly recognisable whatever type of music. He



attributes the evolution of his sparse, rhythmic playing to an early interest in guitar. In fact, even now, he remains happy to exchange the ivories for six strings and a plank of wood, if he feels that's how the song would benefit most.

"When I joined the band, it had already existed as a three-piece for some time, so much of the early material had already been written. It was really a case of fitting in by deciding what the song needed to continue the mood that was already there. A keyboard part wasn't always the best way to do it, so sometimes I played guitar. In any case, I hate this thing in bands where they feel that everybody *has* to play on every track.

"The keyboard has always been a funny instrument in rock 'n' roll anyway. For instance, just as many classically-trained musicians had a hard time playing jazz, so in the earlier days of rock 'n' roll keyboard playing I always thought that people with fabulous technique played too much and ruined the songs.

"As a player with a much simpler technique, I could go to the heart of the song and play it more like a guitar would play it. I was always into guitarists much more than keyboard players, except for people like Booker T and Mike ►

► Ratledge from Soft Machine, who was the first organ player who really excited me. Trouble is, I could never afford a Hammond, which I guess is why I re-invented the Farfisa sound.

"Now, though, I wish I had more training, because of all these new keyboards which allow you to exploit your technique. Now you can have different instruments assigned to different parts of the keyboard with touch sensitivity available for all of them, which means that people with fabulous technique really can do a hell of a lot."

The next few questions all concern equipment, but he's the one doing the asking. Had I seen the Prophet 3000? What did I think? What drum box was I using? Was the Alesis machine as good as he'd heard? Did I think the Yamaha DMP7 mixer coloured sound?

This role reversal aptly illustrates that, while Harrison is obviously aware of what new equipment is appearing on the market, he tends to stick to what he likes, knows and – above all – trusts.

"I'm not at all exhaustive about new technology. It seems to me that once you've chosen a sampler and got to know it, unless you really want to be a keyboard technician rather than a musician, then stay with it."

The sampler Harrison has chosen to stay with is the Emulator II with the Optical Media CD-ROM and CRM3 remote. (He also finds the Emulator's on-board sequencer incredibly easy to use, even though he does use Performer software on the Macintosh.) But he's not so struck on it that he isn't considering upgrading to the Mark III.

On the synthesiser side, he still remains very much committed to the old analogue models. So while the first takes of his solo album were laid down four years ago with a DX7, for the recent Talking Heads recording, he dug out his old Prophet t8, Sequential's touch-sensitive, MIDI-equipped successor to the Prophet 5.

"I like the fact that the pressure sensitivity is individual for each key. So if you want to have modulation on just one key, while holding a chord down, you can do it. I find that there's something extremely visceral about that.

"In general, it seems to me that analogue synthesisers are beginning to feel like organs used to feel. Whereas they were once at the height of the artificial, they now seem 'natural'. There's an organic quality to them which the new digital synths don't have.

"And because I've never developed an absolute method of getting from A to B on synthesisers, most of the sounds I like, I get by fooling around. So the DX7 is a difficult instrument to use in that respect. You change one parameter and the whole thing changes in an absolutely unbelievable way. Where I do use the DX7, it's more with the sampler. There, you've got something which sounds 'real', but by bringing in the artificial harmonics of the DX7, you can create something which stands on its own. And the nature of the sample means you don't end up sounding like all these new age records with their so-obviously synthesised sounds. Sometimes they're fantastic when they have lots of echo on them, a little dreamy perhaps, but otherwise they lack a little resonance.

"The frightening thing about communication is that, as everything becomes more accessible, there becomes only one culture."

"The main problem, though, is that I'm not so methodical about keeping track of what I do. When you're in a studio, all you're thinking about is 'I need a voice which sounds like such and such'. You get it, you play it, then it's gone."

Harrison is now looking forward to exchanging the pressures of the studio for those of the road. For, while Talking Heads have no plans to tour in the near future, British audiences will have the chance to see Harrison front his own band playing music from the album. The group also takes the name Casual Gods . . . Time for an explanation.

"It was made up by this conceptual artist I met in Paris. When I heard it, I just thought it was very funny. It reminds me of those ancient Greek gods who could never quite be bothered about what was going on on Earth. Humans would look to them for help: 'Hey, we're having an earthquake down here' . . . 'Go away, don't bother me now'. I think it's a very adequate description of what's going on in the world today."

But while Harrison's striking out with his own band, it doesn't signal the end of Talking Heads, especially as during their last album they were more close-knit than they had been. Instead, expect a flow of group projects and individual albums for a good few years to come.

"I think everyone is getting to the stage where they like the variety. When Talking Heads started it was Talking Heads all the time. Everybody was living and breathing the same dream. Then you become set in your roles. The most interesting thing about doing your own music is that you put yourself in the position of doing the things you wouldn't normally do, like singing lead vocals. It's a real challenge and makes you think about things a little differently.

"There's just one thing. I hope my next album doesn't take as long as the last."

I, for one, couldn't agree more. ■

ELKA MK88

Master Keyboard Controller

Photography *Rosemarie Roumseville*

As rack-mounted sound modules have become more popular with manufacturers and musicians alike, the role of the keyboard controller has become correspondingly more important. Enter Elka's MK88 and MK55. Review by Deborah Parisi.

IF THERE'S ONE thing I love, it's a user-friendly piece of gear. You know the kind I mean – the sequencer on the ESQ1, the mouse/folder configuration on Ataris and Macs, the programming ease of the D50 . . . And nothing drives me up a wall quite as quickly as a user-alienating obstacle course – owner's manuals translated literally from the Japanese, "complementary" software packages that won't talk to each other. Get the picture?

By my own standards, I should hate Elka's new master keyboard. It's just *not* an easy instrument to get a hold on. I mean, if you've already had to learn to play, program sounds and control your sequencer and drum machines, you certainly don't need to spend hours learning another set of commands, right?

Wrong – at least in the case of the MK88. From the feel of the 88 weighted keys to programmable control of everything from split points to polyphonic aftertouch, this is an instrument worth the effort. And in all fairness, the review model wasn't accompanied by a final owner's manual – just a xeroxed copy of something called "Temporary Operating Instructions." Perhaps when the final documentation has been prepared, learning to use the MK88 will be somewhat easier.

Facts, and only facts

THE ELKA MK88 is a master control keyboard which has two independent MIDI Outs and thus can control up to 32 MIDI sound modules, keyboards and effects units. (Its sister, the MK55, has 61 unweighted plastic keys and is encased in a lightweight plastic package but otherwise is the same instrument.) 128 programmable Performance Presets are available, grouped into four internal banks of 16 and four external banks of 16 which can be stored in a RAM cartridge. Each Performance Preset contains specific information concerning splits, MIDI channels and dynamics curve settings; Set Up parameters such as program changes, volume settings, song selection and their like – included in the MIDI Patch portion of the preset – and general control settings for the various footswitches, function buttons, pedals, sliders and wheels. The 32-character LCD allows you to see what's going on (though I wished several times I could move it up or down, or adjust the brightness as it's sometimes difficult to read).

The instrument's panel provides an impressive display of programming options, including Split Point, Transpose, MIDI Channel, Dynamic and Aftertouch response curve settings, Function Buttons, Delay/Echo and Loop. Control is based on the multiplication grid principle – Up and Down buttons allow you to position a blinking red light on the left of the grid and selection buttons complete the picture (although it does get a bit more complex when you get into split zones). Also up top are two wheels (one that's sprung to return to the centre and one that stays put), four data sliders (one specifically assigned to control the tempo of an external sequencer or drum machine), and Start/Stop buttons. To the right of the central controls are Bank/Split/Free buttons for use in setting up Performance Presets, and Editing controls.

The back panel includes five MIDI sockets, two each for MIDI Out 1 and MIDI Out 2, and one for MIDI In. MIDI Out 2 provides MIDI Clock output for use with drum machines and sequencers – a real necessity for a master controller these days. The MIDI In jack performs the normal job of allowing an external MIDI clock to

disconnect the internal clock, but it also allows an external instrument to be added to the control system of the MK88 so that all functions programmed into Split Zones 5 and 6 will be valid for the external instrument. The idea is that you can link up a synth that doesn't have the MK88's capabilities – the old DX7, the DW8000 or whatever – and create a split keyboard where one didn't exist before. The system works by combining the output of the external keyboard with the processing of the MK88. Unfortunately, I wasn't able to pull this off. Maybe when the owner's manual is finished . . .

Also on the back panel are two jacks for pedals, which can be assigned to control volume, modulation, pitch −, pitch +, pitch +/−, dynamic value (for setting the level of an adjustable response curve in any of the individual splits), foot control and touch. These accompany four footswitch pedal jacks, two of which can be used to control sustain, portamento, sostenuto, soft, modulation, program change, Elka Program (for use with other Elka instruments only) and Note On/Off. In addition, both the footpedals and footswitches can be assigned to send user programmed MIDI messages (programming is done in Hexadecimal) and any MIDI controller messages. The third pedal jack is dedicated to advancing through Performance Presets and the fourth is dedicated to activating the Full Mode (details to follow). The MP7, an optional accessory, is a pedal unit containing three pedals and three connectors on one board, making connection and foot operation really convenient.

Making It Work

THE FIRST STEP in programming the controller is the selection of split zones – up to six for each Performance Preset. These zones, which can overlap for layered effects, can be programmed in Split mode or Full mode. In Split mode, each of the programs assigned to a zone will only play in their zone, but by turning on Full mode with the footswitch, the patch for the currently active zone will appear across the whole keyboard. In effect, this allows you to have up to six different programs available within one Performance Preset.

Setting the zones requires a number of keystrokes (as do all of the functions). The Panel button is depressed to enable the editing buttons; the LED indicator is moved to the Split Point position by means of Up/Down buttons; the appropriate Split button (1-6) is selected to determine the number assignment for the split; the Split button on the left is depressed and held; and the low and high notes desired to define the zone are struck. This probably sounds worse than it actually is – once I'd done it a few times, it only took about 10 seconds to set up a zone.

After you've got your zones set up, you move on to programming the various parameters for each of them. I started with Program Changes and ran into a minor problem – there's no really easy way of scrolling through patches on your module. To make program changes, you have to go through a four-step process that's even more cumbersome than setting zones. The MK88 is obviously not designed for an impromptu jam session.

Each zone can be assigned its own MIDI channel and transposed over a two-octave range (one in each direction). In addition, each zone can be programmed to respond to one of 19 different dynamics response curves (graphically depicted on the front panel) and one of eight different aftertouch response curves. The curves are of the positive and negative variety so that, if two zones overlap, the curves can be combined to create crossfades between two sounds. In addition, the MK88 can be set to send polyphonic or channel aftertouch, or the aftertouch messages can be converted internally to modulation data, pitch-bend, foot control, one of four volume ranges or they can be turned off. Consequently, even if your modules don't respond directly to aftertouch, the MK88 allows you to take advantage of this expressive control.

Next comes the setting of the instrument's various general controls. You can activate the various split zones for full mode operation as well as assign the various sliders, footswitches and wheels to control the available parameters, as mentioned above. The settings for each of these can be different for every Performance Preset, so the MK88 can be easily reconfigured.

The delay/echo effect is a lot of fun to play around with.

Zoning *"You can link up a synth that doesn't have the MK88's capabilities and create a split keyboard where one didn't exist before."*

You can set it up to get a delayed replica of the original note played, or up to five echoes, in sync with the clock frequency (internal or external). Eight different time delays are available, which are based on functions of a bar played with respect to a fixed tempo – in other words, changing the tempo affects the speed of the echo.

The looping function is unusual on a controller keyboard, and to my mind is of dubious merit – how often would you need four bars of notes repeated over and over that you wouldn't put into your sequencer? (Maybe Elka are playing with the idea of including an internal sequencer in later MK models.) Nevertheless, it is fun to play around with, and perhaps *you* can find a better use for it.

Next in the hierarchical memory of the MK88 is the MIDI Patch, composed of 12 slots, each of which can be assigned to send different MIDI messages (Omni Off, Mono On, Program Change, Volume, and so on) whenever a Performance Preset is selected. You can select different MIDI Outs within one MIDI Patch, allowing a great deal of flexibility and control from one set-up. There is a Split Mute function which cancels the Note On transmission for a selected zone – it can come in really handy if you're using a lot of modules – and a Pause control which allows you to program a pause in the data transmission up to 500 milliseconds. User programmed MIDI messages are also created as part of a MIDI patch.

Finale

ELKA'S MK88/MK55 CONTROLLER is a powerful, sophisticated beauty, designed for the road (the 88 comes complete with a tough flightcase). However, even serious amateurs with a few modules, a sequencer, and a drum machine would love the extensive control this baby gives over a MIDI system.

A few of the features on the Elka seemed gimmicky to me – I doubt that pros will find a use for either the loop or the echo functions – but for the most part, this keyboard can improve the rest of your system by adding the kinds of control you've always wanted. The touch on the keyboard is excellent (it'll be a wrench to go back to those short, unweighted plastic keyboards after you've played the 88), and the memory capability is little less than phenomenal.

Considering the design and control, the price is reasonable (especially the MK55). I would definitely recommend that you check this out. ■

Prices *MK88 with flight case, £1299.95; MK55 (no case), £599.95*
More from *Elka (UK) Ltd, 3-5 Fourth Avenue, Bluebridge Industrial Estate, Halstead, Essex CO9 25Y. Tel: (0787) 475325*

Theme and Variations
THE NAMM REPORT

The recent convention in Anaheim contained surprisingly little in the way of new equipment; instead the theme was one of variations on existing technology.

Report by Bob O'Donnell, Deborah Parisi and Michael McFall.

WINTER NAMM '88, the musical equipment industry's trade convention, has come and gone. This year's record-breaking show spilled over from the Anaheim Convention Centre into two nearby Hotels. There really wasn't enough time in the three days of the show to see all there was to see. Over 500 manufacturers were on hand to display their wares, and though some of them were selling pianos, organs and guitars, the hi-tech manufacturers were there in force.

While no one actually complained that the show was disappointing, many were surprised that there weren't more new things to see. There were quite a few variations on existing ideas but not much that could really be termed innovative. Perhaps I'm overstating the case, but there wasn't quite the same buzz as at last year's show. Though, to be fair, last year's show had the D50, DX7II and FZI to make it more memorable than most.

Nevertheless, there were still things to see as many exhibits represented significant advances over their predecessors.

Yamaha's new DXII is basically a TX81Z with a keyboard and a few additional editing features.

The Sound Makers

HIGHLIGHT OF THE show, at least to my mind, was the new line of **Korg** products. The M1 Music Workstation Keyboard, the Q1 MIDI Workstation Sequencer, the S1 Production Workstation, the P3 Piano Module and the C2 MIDI Mixer all have impressive specs, not to mention slick design. Unfortunately, only the M1 and P3 were working but what I actually heard sounded promising.

The M1 was one of two products at the show (Roland's D20 being the other) that attempted to put a MIDI studio in a single box: synth, sequencer, drum machine and signal processing. The instrument's sound generation is similar to Kurzweil's approach in that it has 2Megawords of 16-bit PCM samples in ROM including 80 multi-sampled acoustic sounds, 30 DWGS waveforms and four drum kits with up to 30 sounds each.

Equally impressive is the S1 Production Workstation which consists of a sophisticated SMPTE-based hardware sequencer with a 1.4Megabyte capacity 3½" disk drive, 16-bit stereo sampler and drum machine with one Megaword of 16-bit ROM-based sounds. The standard amount of RAM for the sampler portion is 512K but it can be expanded up to 2Meg, which would allow 12 seconds of stereo sampling at 44.1K or 24 seconds in glorious mono. The sampler's processing capabilities include multiple loop points and a variable digital amplifier, but no filtering.

The P3 Piano module offers 16-voice polyphony, a choice of two 16-bit sampled piano sounds and the option of adding up to eight more sampled sounds on high-density (2Meg) ROM cards – tentatively priced at $100 each. Best of all, the oddly-shaped unit is multitimbral and predicted to be in the $500-$700 price range.

The rack-mounting C2 MIDI Mixer (around $1200) offers eight tracks of MIDI-controlled automation of level, pan, two effects sends, effects return, EQ and master volume. The unit doesn't have real faders, but it can store up to 64 settings with programmable crossfade and mutes.

None of the new Korg Professional Performance Series are scheduled to be available until May at the earliest, so you've got time to start saving.

You'll find Korg's new 707 performance synth reviewed elsewhere in this issue so

The Korg P3 Piano Module is part of the company's impressive new Professional Performance Series. It features 16-voice multitimbral operation and room for additional PCM ROM cards.

suffice it to say, we saw it at NAMM. The new SQD8 sequencer with a built-in Quick disk drive also attracted its share of attention.

More comprehensive repackaging and reformulating were to be found in the **Roland** booth. The company unveiled no less than three rack-mounting synth modules which use their L/A, sampling and SAS technologies. The DII0 (£586), my personal favourite, is a more professional version of the multitimbral MT32. This new L/A synth adds six individual outputs and 128 more synth partials (256 total) to the MT32 – including all the ones in the D50. It also features battery-backed-up memory, a memory card slot, new drum sounds, front panel programmability and quieter operation.

The S330 (£1335) is basically half an S550. In addition to being half its size at a single rack space, it has half the memory (750K) – which is what's in the S50. Like the S550, however, it has digital filtering (TVFs), eight individual outs (RCAs), can be connected to an external CRT and can be controlled with a mouse. It also has a 3½" disk drive and is completely compatible with S50 sounds and optional programs.

The P330 (£840) is a 1U-high digital piano module using SAS technology (with an additional Mid EQ control) found on the popular MKS20, but at a lower price.

Roland also had a keyboard version of the DII0, the DI0 (£850) which has a 6l-key velocity-sensitive keyboard and all the capabilities of the rack unit but only two outputs. The D20 (£1165) has a similar configuration but adds an onboard 16,000-note, nine-track pattern sequencer and a 3½" disk drive for storing sounds, rhythm patterns and sequences – most definitely one to watch out for. The companion PG10 Programmer (£248) will work with the DI0, D20 and DII0.

One of several new offerings from Roland is the D20, featuring an onboard 16,000 note, nine-track pattern sequencer and a 3½" disk drive.

The biggest news from **Yamaha** didn't concern new products but the fact that the company had purchased the assets of **Sequential**. It looked pretty definite beforehand but the word became official at NAMM. Apparently the company will release the Prophet 3000 (£3500 approx) 16-bit stereo sampler – a more finished version of which was being shown in a hotel suite – and may continue to produce the Studio 440 and the Prophet VS. Time will tell.

The company's own TX16W Digital Wave Filtering Sampler ($2895) made its first show appearance, as did the DX11 ($995), which combines a TX81Z with a velocity and pressure-sensitive keyboard. The TXIP ($895) is a new 1U-high sampled piano module with five different voices and three on-board effects: chorus, transposed delay and chord play. The module uses AWM (Advanced Wave Memory) technology, which first appeared in Yamaha's high-end HX organs.

On the subject of sampling, the higher price bracket contained the **Dynacord** ADS Advanced Digital Sampler ($3995). The ADS is a 16-bit stereo sampler that features many of the complex modulation controls found on Oberheim analogue synths including three envelopes, two LFOs, tracking and ramp generators per voice. The standard rack unit features 2Meg of RAM, but can be expanded up to 8Meg for 100 seconds of mono sampling and 50 seconds in stereo at 44.1kHz. A SCSI port is standard, as are eight individual audio outputs. A keyboard version is also due to become available for about $500 more.

High-end samplers are soon to have the company of new **Mellotron** products. The MIDI Symphony, Electric Symphony and Studio Symphony 16-bit stereo sample playback systems signalled the company's return to its roots in a big way. Each of the systems are based around rack-mounted AT-compatible computers and custom music software. The optional SoundTrap allows 16-bit stereo sampling at rates between 12kHz and 48kHz. The different configurations vary from 1Meg of RAM and eight voices in the MIDI Symphony to 8Meg and 24 voices in the Studio Symphony.

Casio were showing a rack-mount version of the FZ1 called the FZ10M ($2499). It maintains all of the functions of its predecessor, including 16-bit sampling and a large LCD display, and doubles the standard memory to 2Meg. Bigger news in the Casio booth, however, was the company's VZ1 digital synth ($1399). The 16-voice, multitimbral, four-output VZ1 uses Interactive Phase Distortion (iPD) Synthesis, a more complex variation of the PD synthesis found in the CZ series. The VZ1 sports the same large LCD display as on the FZ1 for graphic editing of the synth's envelopes and other parameters. ►

Drake Philbrook, Vice President of Mellotron, beamed with pride over the company's new Studio Symphony Sample Playback System.

► Over at **Kawai**, the big news was the company's KI (£595, subject to confirmation) and KIM synths with digital sampled waveforms (see this month's In Brief for more details). Kawai also introduced the Q80 hardware sequencer with built-in disk drive and extensive note editing, tentatively priced at £695. **E-mu** demonstrated a new Emax called the Emax SE (Synthesis Enhanced) which is a software update loaded via disk that includes Spectrum Synthesis and additive synthesis. All existing Emax owners will be able to upgrade their instruments for about £200, and the range throughout, including the update, will cost about £200 more to buy from new.

Oberheim introduced their Matrix 1000 (£449), which is basically a Matrix 6R with 1000 preset voices, 200 of which are programmable from a computer with 6R voice editing software – no front panel programming is available.

Other companies showing MIDI processing products included **KMX**, who showed the MIDI Central 15×16 programmable MIDI Patch Bay, Korg's KMP68 6-in/8-out MIDI patchbay, and **360** Systems' 8×8 MIDI Patcher ($329) with memory and 2×12 MIDI Data Buffer ($129). ■ *Bob O'Donnell*

Dynacord's impressive new ADS, Advanced Digital Sampler, features 16-bit stereo sampling and extensive voice modulation capabilities.

Kawai's Q80 MIDI sequencer has a 3½" disk drive capable of storing 150,000 notes and 32 tracks per song.

Who's in Control?

AS WAS THE case with the other categories, there were few genuinely new MIDI controllers at NAMM. The only exception wasn't for public viewing, although setting up a clandestine rendezvous with a journalist and asking her to keep quiet is an extremely effective way to make sure that *everyone* knows what's happening. **The Suzuki** Kazoozle KZIM is a self-contained voice synthesizer with 16 internal sounds, which allows octave shifts, chorus effect, playing in octaves or fifths and an output jack. Plus it sports a MIDI Out – yes, it's a MIDI kazoo. Apparently the instrument I saw is a prototype and still in R&D, but Suzuki hope that it will be available in a few months for around $99 – my name's on the list for one as soon as they're out.

On the more serious side, the most significant changes in controllers came in the form of MIDI guitars. Though no additional information could be obtained, Yamaha apparently previewed an impressive guitar controller at their dealer meeting, leaving the most notable improvements to **Passac**'s Sentient Six, whose software updates include increased capability of the pick direction feature (two MIDI channels can be controlled from one string now), the addition of a sequencer which can handle up to 1000 events, an optional 64K RAM, and an arpeggiation feature which can sync to MIDI clock. Passac's demonstration centered on the capabilities of a Strat modified with the MPXI Kahler bridge (£250) controlling the SSCI computer (£799), and was indeed impressive.

Phi Tech were again showing the Photon, and have added some nifty software updates. The 4.0 version will be released in March, incorporating a performance mode (a short loop which can be recorded and overdubbed at will), and the ability to sync to either an external or internal clock. Also new is MIDI Echo, which creates a MIDI merge ability when used with a second instrument, and remote preset selection, allowing patch maps to be set up from the neck of the guitar. The Photon with the foot controller, converter, and pick up is $1295; the software upgrade costs $99.

Guitar synth players will probably be excited about the new packaging of the Quantar Controller from **Beetle** ($1295). The unit is entirely self contained and battery powered and will select patches by fret and string. Also new is a palm pad for assigning pressure sensitivity. There's some question about how easy this one will be to program; only an MT review will tell for sure.

Casio also added to their existing line with the PG380 ($1499), a MIDI controller with 64 preset internal sounds and optional ROM cards for expansion. The unit uses Casio's

Beetle's Quantar MIDI guitar controller system is now fully self-contained.

new Interactive Phase Distortion technology, the same as in their new VZ1 synth, with up to eight "oscillators" per patch and eight-stage envelope generators.

Casio also introduced a wind controller, the DH100 digital horn, featuring six preset tones, portamento and most importantly, a MIDI Out. The fingering is said to be the same as that on a recorder (wooden not electronic), and offers a key transpose feature if the fingering gets too tough. It's a bit of a toy, but for $179, may get a lot more people interested in wind synthesis.

New keyboard controllers were scarce, as well as disappointing. At the **Akai** booth, I drooled over the MWS76 MIDI Work Station – the latest in the Akai/Linn project, only to find out that it doesn't really exist. I can only hope Akai Japan will decide to go ahead with it – not only did it have the best keyboard feel of any of the controllers at the show, the plans are to install the ASQ10 sequencer on board. Akai, don't fail me now.

Casio jumped into MIDI wind synthesis with their inexpensive DH100 digital horn.

The only other keyboard controllers I encountered were those from **Cheetah**. If you want affordable control, check these out; just be forewarned that they look and feel as inexpensive as they are.

The ever-imaginative folks at **KAT** were showing their percussion controller, enhanced by some clever software updates. There's not enough space here to go into all the details, but if you've been thinking of purchasing KAT, now may be the time. Masters are still £1199; expanders are £599 each.

Several new MIDI foot controllers were available as well, the most interesting coming from Yamaha for use with the WX7 wind controller – the MFC2 ($325). Others of note were the MIDI Mitigator ($395) of the **Lake Butler Sound Company**, and the **Elka** DMP18 bass pedal (£299.95).

There were some interesting new ideas presented in controllers which, if not enthralling, ought to help us get things under control. ■ *Deborah Parisi*

The Beat Goes On

THE HEART OF **Yamaha**'s new D8 electronic drums is the PTX8 tone generator which holds 26 internal drum sounds – similar to an RX5 without the sequencer. Optional ROM cartridges include latin percussion, effects, basses, and more. The D8 system with pads, PTX8 tone generator, and two double mount stands lists for $1675.

Also from Yamaha is the RX120 Digital Rhythm Programmer ($350). This has 40 preset rhythm patterns, each with eight variations: at the push of a button, you can have a samba or a rock beat, and patterns can be chained together to form 20 songs. PCM samples provide the sounds which can also be accessed by other devices through MIDI.

Akai, along with Roger Linn, showed the new MPC60 MIDI workstation which combines the features of an extensive MIDI sequencer with a sampling drum machine. This is an impressive machine which lists at an impressive £2999. A new product, the ASQ10 (£1599), provides the sequencing features found on the MPC60 without the sampler.

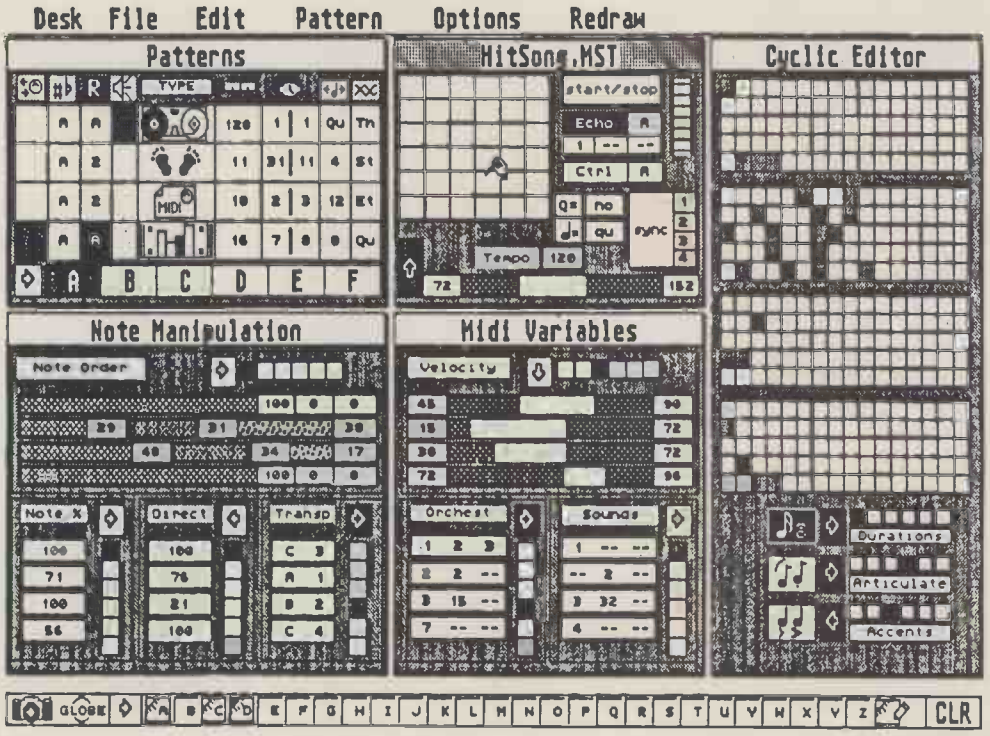
On the budget side, **Imagine Computers and Software** showed the Cheetah DP5 electronic drum kit (£159.95) consisting of five pads and a steel frame for mounting. The DP5 can be used to trigger the Cheetah MD8 MIDI digital drum machine (£139.95), which has eight digital sounds.

The **Simmons** SDX is today's state-of-the-art electronic drum, incorporating everything from zone-intelligent pads to pull-down menus for easy programming and sampling. This is an all-in-one open system: 16-bit sampling at 44.1kHz; 8Megabytes of RAM storing 88 seconds of samples; zone-intelligent pads with up to nine samples to a pad, controlled by dynamic and strike position; MIDI, SMPTE, SCSI; the list goes on. Now, the bad news: a full SDX system sells for about £9000.

Simmons also showed off the new Portakit ($999), a self-contained, 12-pad MIDI controller and sequencer designed to enable drummers to conveniently play MIDI sound sources. ■ *Michael McFall*

INTELLIGENT MUSIC M

Software for the Atari ST



Main Screen

A sequencer package so flexible it's been called "esoteric", has recently become available for the Atari ST – how musically useful is M? Review by Ian Waugh.

IT'S COMING OUT the walls, falling out of cupboards, being thrown off buses and it's quite likely to waylay you if you stroll down a dark alley late at night – Atari ST MIDI software, that is. In spite of the sheer number of programs, it was only in the November issue of MT that I was bemoaning the lack of "intelligent" software. Well, as if by magic here's M, the first in a series of interactive program conversions for the ST by the thinking person's software house: Intelligent Music.

UK distributors, MCM, reckon that Jam Factory and Upbeat will be ported to the ST in coming months to join some new interactive packages. They're keeping details quiet but the whispers sound interesting.

Prelude

STOP DROOLING AND get back to M. We reviewed the Mac version a year ago (MT, March '87) and rather than go over the list of features again, I'll refer you to that review for details and try to explain what M does and how you may go about using it – or at least how *I* went about using it – to make music. That's what we're all here for, after all.

First, the differences between the ST and Mac versions. Actually they're very small. The screen displays are different but the functions are essentially the same. Apart from subtle differences in operation here and there the two programs can be considered identical.

In case you can't recall the review or (worse) don't have that issue (go immediately to our back issues dept, do not collect £200), I'll let the manual explain what it's about: "M is an intelligent musical instrument, a composing and performing program which stimulates your imagination, magnifies your skills, and lets you explore your ideas in an extraordinary artistic environment." In fact, M is subtitled, "The Interactive Composing and Performing System".

But what does it actually do? Simply, it lets you record sequences (called Patterns) of notes or chords and apply various "processes" to them. For example, you can give each Pattern a different Time Base. The default is 1/4; a Time Base of 1/8 will play twice as quickly and 2/4 or 1/2 will play at half the speed. It's easy to set a riff in 4/4 time against one in 5/4, for example.

Using the Cyclic Editor you can program repeating cycles of Durations, Accents and Articulations (legato vs staccato). A Cycle can have up to 16 steps and you could give a Pattern with eight steps, for instance, Cycles of longer or shorter steps to produce offset effects.

There are various ways to manipulate the notes themselves. You can give a Pattern a percentage chance of playing backwards and you can introduce a controllable randomness to the note selection. Note Density is adjustable, too. Using percentages again, it determines the chance of a note sounding or not. With a setting of 50%, notes will sound only 50% of the time.

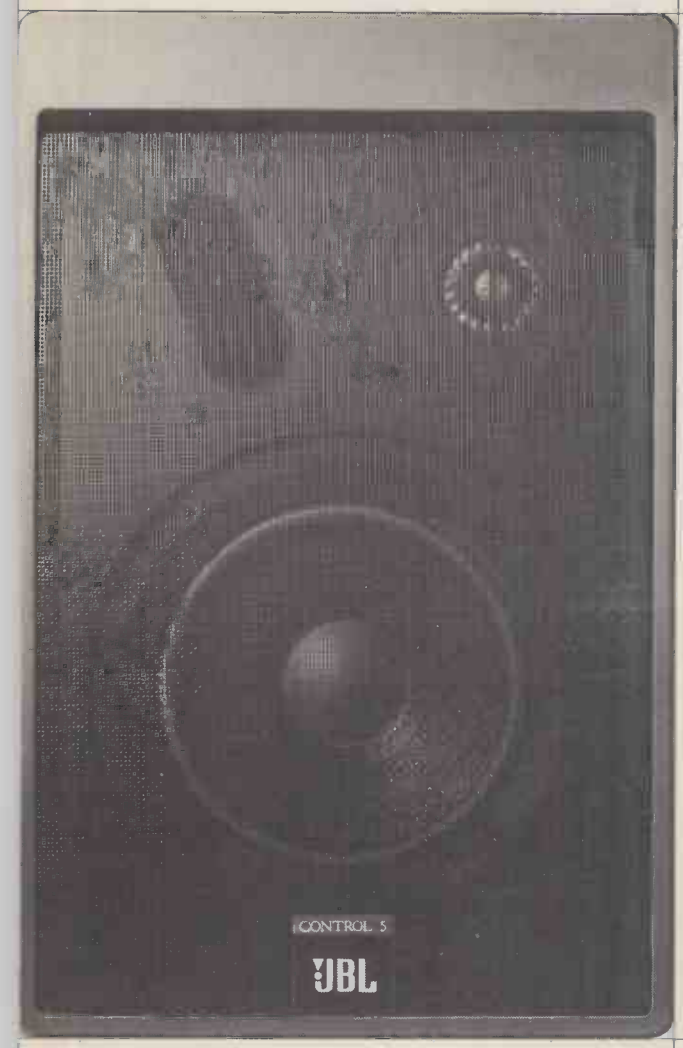
There are six sets of Patterns, Cycles, Note Density, Direction settings and so on, each known as a Setup and you can take Snapshots of complete screen settings, which makes real-time changes easy.

First Movement

LET'S SEE WHAT we can do with it. You work in three stages. First you put music in. Then you determine the way this music data will be altered and store this in the relevant Setups. Finally, you perform or "conduct" the music either with the mouse or from a MIDI keyboard.

The first thing I did was to bung in a series of notes and ▶

Once again, JBL have come up with a new angle.



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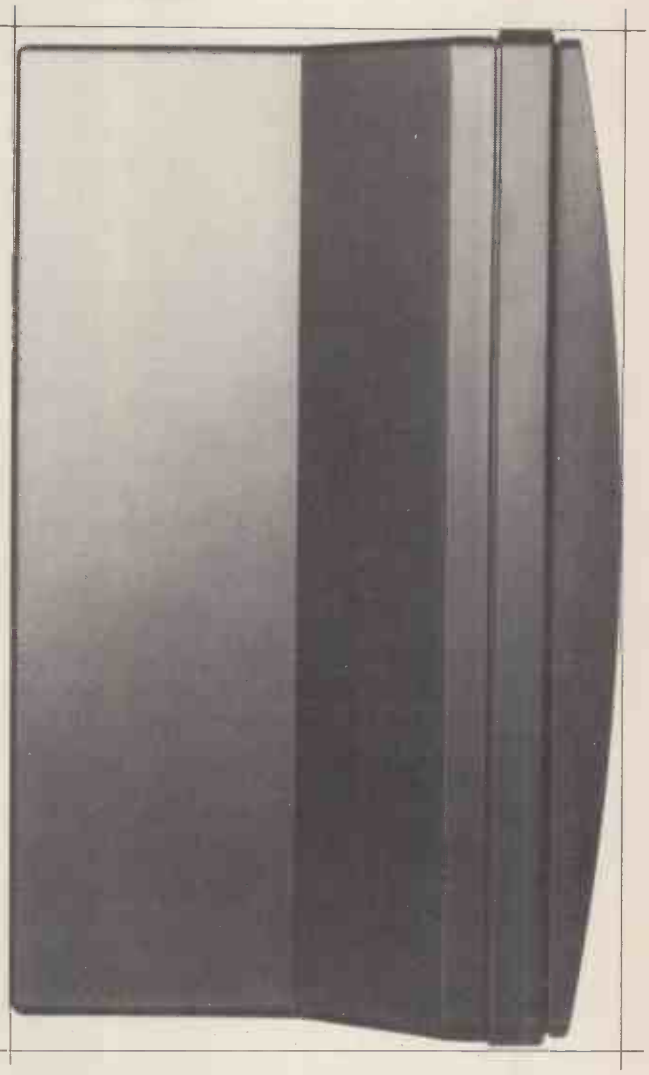

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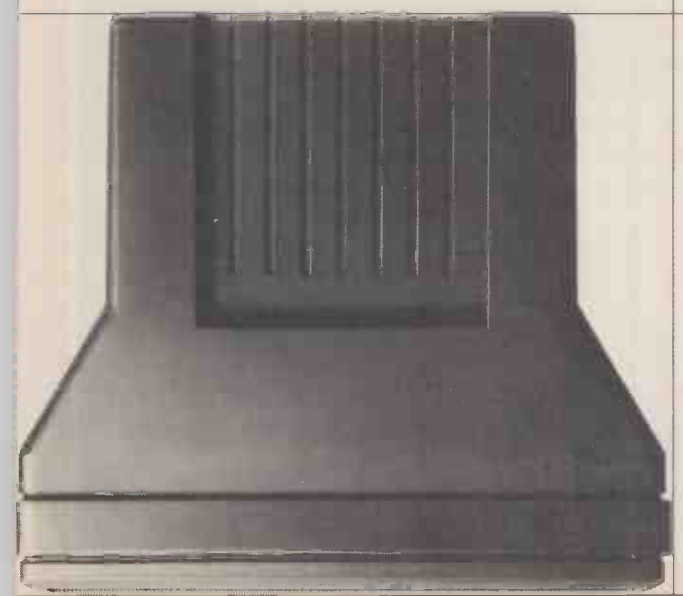

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► chords and set up various cyclic patterns in the Cyclic Editor. I messed around with the Note Direction and the Note Distribution controls and threw in a few random settings from the Note Manipulation window and I got – you've guessed – one helluva mess.

After experimenting along these lines for a few days (you can really lose yourself in M), I thought I'd try a systematic approach. When all else fails, they said at reviewer school, try a little logic.

Dream Sequence

THE FIRST COMPOSITIONAL method I devised I called the Tangerine Dream Sequencing Method. Sorry.

In principle it's quite simple: record a bassline in Pattern 1 but don't apply any modifications to it. Then fill the other Patterns with notes or chords which will fit over the bassline – it's not difficult, listen to any Tangs record and you'll see what I mean.

Alter the Time Bases of the improvising Patterns to create slow string-like chords and fast runs of percussive notes. You can throw in a few key changes using the Transposition selectors – these are very effective – and with a bit of tweaking there's your very own Froese/M/Franke composition.

TREX

ALTERNATIVELY, TRY TREX – the Terry Riley Effect. Select an organ-type sound. Start with a bassline, say the notes in an A minor chord with a B thrown in. Let the Note Direction vary a little so it doesn't repeat exactly. In

"The first thing I did was to bung in a series of notes and chords and set up various patterns in the Cyclic Editor – and I got one helluva mess."

Pattern 2 put slow notes or chords based on the root key, A minor in this case, and the major chord a tone below it, G Major. Using Pitch Distribution Input, enter notes in Patterns 3 and 4 which fit with A minor and G Major and add random Note Order to taste. Keep things fairly slow at the start. Take a Snapshot.

To get things moving, double the Time Base of Patterns 3 and/or 4 and reduce the Note Distribution percentage. Change the instrument sound to something more percussive and throw in a key change if you wish. Take a Snapshot.

Put lots of notes in Pattern 2 to replace the slow chords and use the Cyclic Editor to enter a Duration Cycle consisting of lots of fast notes followed by lots of slow notes, say eight of each. Adjust random factors in the Note Order window. Alter instrument sounds to taste.

Play for a while then ease off the fast bits or cut out some altogether. Revert to main bassline with occasional simple note punctuation. Add very slow chords, reduce tempo and fade to end. *Et Voila*, your very own Rainbow in Curved Ammonia.

TREX 2

YOU CAN TRY your hand at "In C" – TREX 2 – by entering four Patterns exactly the same (you can copy from one to another) and offsetting them in relation to each other. Try only one note at first – C? – then add a G then perhaps another C.

The offset can be applied in several ways. You can keep the Patterns the same length and alter the Accent Cycles, you can alter the Durations and/or Articulation in the Cyclic Editor and you can offset the Time Bases to, say, 1/8, 1/9, 1/10 and 1/11 or any other combination.

Of course you can add more notes to increase the complexity of the Patterns and you may reach a point where the cross rhythms and notes are beginning to turn into a tune.

Computered Music

ANOTHER POSSIBILITY IS one I experimented with on the Hybrid Music System and for which Chris Jordan of Hybrid coined the term Computered Music. It can take a variety of forms – according to the system being used – but the principles are the same. It consists of applying computer processes to music. For example, running music lines through loops and incrementing music variables.

This is easy to do on M. For example: put a simple sequence into all the Patterns and select different instruments for each. Set the Time Base of Pattern 2 to half that of Pattern 1, that of Pattern 3 to twice that of 1 and that of 4 to a quarter that of 1. Mute Patterns 2 to 4 and play Pattern 1 by itself. Gradually introduce the other Patterns. Fade them in if you wish.

Swap instruments, change key, alter octaves, double and half the Time Base of the Patterns and reverse the direction of the notes. It should still sound cohesive. You can apply random note selections, too, but then it may lose some of its togetherness.

Africano

YOU KNOW THOSE films which feature massed African tribes playing seemingly complex, ever-varying but insistent drum rhythms? Well, you can produce something similar with M.

The Drum Machine Pattern Input loops through a cycle of rests – initially 16 beats long – which you fill with notes as it plays. You can, of course, channel notes entered with any of the other input methods to a drum machine.

Put a basic beat in Pattern 1, say a rock four with bass drum and snare, with the default Time Base setting of 1/4. This will help you keep track of the beat should you lose it, but unless you program very complex cross rhythms you shouldn't. Use Step-Time Record to insert a collection of Conga drums in Pattern 2. Use the Direction control to give it a 50/50 chance of playing forwards or backwards and set the Time Base to 1/16. That should sound effective without being repetitive.

To add to the effect put more drums in Pattern 3, say Toms, Cowbells and Rimshots. Put anything else you fancy in Pattern 4. Experiment with different Time Bases for these Patterns and randomise the Note Order and Note Density so they only appear occasionally to sound like fills.

You can then experiment with accents and note velocity. And if you're really in the mood, use offsets and different Time Bases to produce even more complex cross rhythms.

Mainstream

THESE FORMS OF music are not too difficult to produce with M and are great fun. A consequence of its *modus operandi*, however, means that mainstream rock and pop with their highly structured form is very difficult if not impossible to create. As a source of ideas, however, you could enter note patterns or chord sequences and see if semi-random processing comes up with anything interesting. ►

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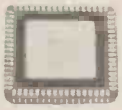

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The Blues

NOT ONE TO let a challenge go unanswered, however, I experimented with a 12-bar blues format. The chord sequence went in Pattern 1 and the notes you would likely play if you were improvising over a 12-bar went in Pattern 2. Notes to accompany the C chord included C, D, D#, E, G, A and A# with a bias towards C, E, G and A#. Get the idea?

The main problem was to ensure that the length of the notes played fitted exactly with the length of the particular chord they were designed for, and to ensure they didn't overlap into another chord.

The original, unmodified set-up was fairly easy to create but, of course, it played the same thing over and over. You can't reverse the direction of the notes or scramble their playback order because notes intended for one chord would play when the other chords were playing.

You can program various Cycles of Note Durations, however, but even here you must ensure that the overall length of the note sequence for a chord remains the same. So if you increase the length of one note, you must compensate by decreasing the length of another. You can safely vary the Note Density.

Careful tweaking produced average results – sounding something like a computer playing a 12-bar blues – but, considering the restrictions I was fairly happy.

An alternative method I dabbled with involved programming a sequence based on only one chord and using the Transposition functions to create a 12-bar sequence. You can cram more variety into a riff this way. Instigate key changes with Snapshots and play it "live".

Funk and Fusion

I'VE ALWAYS BEEN impressed with the brass line-up in Fusion/Funk bands, playing all those syncopated notes in between the beats. So . . .

Program Pattern 1 with a suitably funky bass riff. Use Pitch Distribution Mode to enter a sequence of notes into Pattern 2 which fits over it, and increase the Time Base to 1/16. To create the funky bits set the Note Density to a low level (between 20 and 50 per cent) and add a few random selections.

"A consequence of M's modus operandi is that highly-structured mainstream rock and pop are very difficult, if not impossible, to create."

Select a funky instrument for the bassline and transmit Pattern 2 to three different brass instrument sounds simultaneously (multitimbral synths are ideal). You can experiment further by copying Pattern 2 to Patterns 3 and 4, adjusting their parameters, octave settings and so on, and sending them out to different instruments. It won't be quite EW&F but the results are interesting and you'll probably get a few brilliant riffs filtering through.

You can play through a whole set of chord changes in real-time to create the backing for a whole song.

Finale

M HAS BEEN called esoteric by many people – in other words it's not another (yawn) real-time sequencer – but it's only as esoteric as a MIDI processor, for example. If you want one, fine, if you don't, that's fine, too.

"Intelligent" is a word I tend to use for software which uses rules or heuristics to achieve its purpose. M has no such rules; rather it uses a degree of programmable randomness and gives you an almost infinite choice of variable parameters. The trouble with music, however, is that it must be presented in a highly structured form if our ears are to make any sense of it, and letting M go full belt will only produce cacophony. It must be controlled – that's where you come in.

Fine Tuning

I USED M regularly over a few weeks and managed to crash it several times – a little too often, really – and for no apparent reason. My advice: save often until updates appear.

The manual includes a short tutorial section but the tutorial file on disc loads a weird set of Cycles and the program doesn't do what you expect. Bad for a tutorial. Otherwise the manual is generally excellent.

The Startup file contains weird settings, too. I spent ages setting all six sets of everything to sensible values – and that was one of the times the program crashed and my VDU nearly got a fist through it.

Loading the Startup file doesn't reset the filename. You can only do this by saving a file or by selecting New from the File menu. You must be careful not to load the Startup file, create a new piece and save it with the same name as your last piece. Yes, spot the wally. Bang went TREXI. A bit more work here would make the program safer, more friendly and reviewer resistant. It nearly went in the bin at that stage. Just when I was getting used to the "standard" GEM file system, whereby a Save offers you the existing filenames on disc and warns if you're about to save over an existing file. Far better, I think.

The screen takes about five seconds to update when you select new Snapshots or clear windows. A minor niggle but one I'd rather not have.

When using the Conductor, you can't specify a limit on the Setups you will conduct. In many cases you may want to use only three of the six Setups but the Conductor will cycle through them all. I found I could get better results by programming lots of Snapshots.

I would've liked to have been able to copy the contents of one Cyclic Editor window to another, and one Setup to another. And I wish some sample pieces had been included – it's always nice to see what a company can do with its own program.

Coda

THE PROGRAM DISC is protected but runs, thankfully, without a dongle. It does contain, however, a demo version of M which you *can* copy and give to friends. A session with the demo program will only last 10-20 minutes and it won't save files, but what an excellent way to promote a program. Have you ever bought a piece of software only to find it didn't do *exactly* what you expected? Well done Intelligent.

You can perform and record a piece using the Movie icon and save it in the much-heralded MIDI standard file format. Well done again. It's about time all MIDI software supported standard file format.

I hope this has given you a flavour of some of the things M can do. I've by no means exhausted all the possibilities and there are many, many features I didn't use in any of my pieces, so go read the Mac review again.

I can say, if you're interested in making this kind of music there's never been a compositional aid like M. ■

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Whilst we do not pretend to carry EVERY item from EVERY manufacturer, (*as some shops seem to!*), all new equipment is tested in one of our three working studios, and if we like it, our buying power can usually ensure that we have it in stock at all times (even when your local dealer might have run dry!). In addition, if we recommend an item, we will REFUND YOUR MONEY if you do not agree with us.

SOME OF THE CURRENT BEST SELLERS

AKAI S900, AKAI S700, AKAI MG14D, YAMAHA SPX90II, YAMAHA RX5, YAMAHA RX17, YAMAHA MT2X, DRAWMER LX20, ALESIS MICROVERB, ALESIS MIDIVERB II, FOSTEX E16, TASCAM 38, FOSTEX MODEL 80,DIGITAL MASTERING
SONY PCM501, STEINBERG PRO 24, AND ATARI 1040, YAMAHA DMP7, FOSTEX X30, YAMAHA REX50, YAMAHA REV5, ALESIS DRUM MACHINE.
CASIO FZ1 SAMPLING KEYBOARD.

THE AXXEMAN'S HERE! AT LAST A FULL STUDIO SPEC. RACK MOUNTED GUITAR PROCESSOR WITH CHORUS, OVERDRIVE, COMPRESSION, GATE, ADT, PLUS FILTERS, ALL IN GLORIOUS STEREO. GUITAR AND LINE INPUTS. IT NEEDS TO BE HEARD TO BE BELIEVED. ONLY **£260.**

SPECIAL OFFER COMPUTER PACKAGES

LIMITED OFFER

Atari 1040+monitor+Steinberg Pro 24 or C-Labs+Nomad SMPTE MIDI Generator ..... **£799 + VAT**
Atari 1040+Monitor+Steinberg Pro24 or C-Labs ..... **£825 + VAT**
Atari 1040+monitor+Steinberg+C-Labs+FB01 expander ..... **£825 + VAT**

When it comes to new equipment you may have noticed that we don't say 'phone for best deal, POA, or ring for lowest price ever'. Our bulk buying policy can usually guarantee that a telephone call to us will not be wasted and in any case we can throw in those "hidden" extras — cables with multitracks, patchbays with desks. To be honest though, if you spend all afternoon on the telephone the chances are you might find someone somewhere who will undercut us by a pound or two. The difference at THATCHED COTTAGE is if your E16 breaks down on a Sunday morning or your drum machine blows up on a Bank Holiday Monday you CAN ring us, we'll be here and we WILL do something about it — 365 days a year. Have you ever needed help and advice outside shop hours? if you are serious about your music you will know that it is quality of service that makes the difference and at THATCHED COTTAGE it's only a phone call away!

PRODUCERS' MASTER CLASS

From March we will be holding a series of one-day Master Classes featuring some of the world's leading producers.
Each seminar will consist of a comprehensive question and answer session and a practical demonstration of production techniques in our own 24-track studio.
In order to allow maximum flexibility classes will take place at weekends and will be limited to the first 15 applications. Those taking part will include:

Hugh Padgham ..... (Phil Collins, Police, etc)
Rupert Hine ..... (Tina Turner, Howard Jones)
Stephan Hague ..... (Communards, Pet Shop Boys)
John Porter ..... (The Smiths, The Alarm)
Mike Howlett ..... (OMD, Joan Armatrading)
'JJ' ..... (Art of Noise)

For anyone interested in producing, these classes will present a unique opportunity. Tickets are £35 + VAT each, details of dates and timetables are available from the organiser — Paul Tingen on 01-249 1876 or from Thatched Cottage. Book early to avoid disappointment.

Recently a few dealers have complained about our secondhand and ex-demo list — it seems they are losing too many customers!
Being the largest single supplier of 8 + 16 track equipment in Britain, we've decided we can afford to give away as few secrets! We simply tell customers that if any new equipment they purchase breaks down in the first two months we won't fix it, we will REPLACE it!
Result? Yet another customer who KNOWS they can rely on Thatched Cottage, and a secondhand list full of the latest gear, factory repaired, in mint condition with a full guarantee!
Simple? We didn't become the biggest without being the best!

SOME SECOND HAND AND EX-DEMO BARGAINS

Sony PCM 501 Digital Mastering, New	£495
Seck 12-8-2 Mixer	£750
Fostex A80 8 Track (Mint) with Remote	£1,025
AHB Keymix, 16 Track Computer System, Automates Any Desk	£750
Seck 18:8:2	£1,050
Bel BDE3200 32 sec/.99 Window Sampler, silly price	£900
Audio Logic 1900 Millisecs, Full Band Width DDL	£150
32-way Patchbays, New	£30
Boom Stands, New	£18
Sennheiser Headphones	£17
Microverb	£125
Drawmer DS201/Dual Gates	£255
Yamaha RX5	£699
8-Track DBX Noise Reduction	£325
Alesis Midiverb II	£225
Alesis Midiverb I	£125
Nomad Audio to MIDI trigger unit (triggers any sampler or drum machine)	£99
Fostex E16	£3,250
ART Pitch Transposer	£399
ART Flanger Doubler	£175
Drawmer Multi-Tracker	£225
Fostex Spring Reverb	£75
Linndrum (LM1)	£299
Oberheim DPX1 Sampler Player	£750
Yamaha SPX90 II	£475
RSD Series II 16-16-2	£2,750
Yamaha MT1X 4-Track	£299
Yamaha FB01	£175
Fostex A8 8 track (new heads)	£850
Itam 8 track ½"	£850
AKG Shotgun condenser mics x 4	each £125
Casio FZ1	£1050
Akai X700 sampler	£650
Yamaha RX17	£165

MULTI TRACK DEALS

Fostex Model 80 plus Seck 12-8-2
Plus Scintillator £2,085
Tascam 38 Plus Seck 12-8-2 £2,450
All Prices Exclude VAT

Thinking of buying a Porta Studio? See Page 36

(All prices exclude VAT)

For those of you who are seriously considering starting a commercial studio I've come up with three packages, each containing everything you will need for your first paying session, from the multitrack machine right through to DI boxes and cables The price of the 8 track system is £3,999 + VAT, the 16 track is £8,250 + VAT and the 24 track is £15,500 + VAT. At Thatched Cottage I proved it *could* be done, and I have helped many new studios to open and start making money - my experience could help you. Give me a ring and have a chat — what have you got to lose? Plus: FREE Thatched Cottage Recording School Course to package buyers!!

NEED A HIGH QUALITY 2 TRACK

Why not link the inputs on a Teac 4 Track! S/H and Ex-Demo models In Stock — £350 to £500. Give us a ring.

NEWS FLASH

THATCHED COTTAGE RECORDING SCHOOL. In response to popular demand we now run a one week recording course, designed specifically for those of you who feel they can make a go of running a professional 8, 16 or 24 track studio. The emphasis will be largely on the practical side and topics covered are finance, premises, running a recording session and hints and tips on every aspect of recording. Class sizes are limited to 8 at a time and guest speakers will cover relevant areas. The price is just £200 for the week, including accommodation.
Interested? Telephone or write and we'll tell you more.

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SELL IT FOR NOTHING

with a free classified ad in Music Technology

MUSIC TECHNOLOGY's free classified section is now the biggest of its kind in the business. Every month, we carry more ads for synthesisers, samplers, computers, signal processing gear and assorted other goodies than any other monthly magazine. So when musicians and studio engineers are on the lookout for some extra gear to update their line-up, they turn to these pages *first*.

If you're a private seller, advertising in the back of MUSIC TECHNOLOGY really couldn't be simpler. And if you're searching for a specific piece of equipment or looking for other musicians to fill a gap in your band, we can help out there, too.

Just fill in the form at the end of this section, indicate which sub-section you'd like your ad to appear in, and send it to us by the date specified. We'll do the rest – and it'll cost you no more than the price of a postage stamp.

If you buy and sell musical equipment as part of a business, you'll have to use the regular classified section on the last page. And we regret we can't answer any queries regarding free classifieds published in MUSIC TECHNOLOGY.

Keyboards

ARP 2600 MKII duophonic 4-oct kbd, £20; Roland 100M 4-oct kbd, £25. Steve, Tel: (0222) 21802.

ARP ODYSSEY, mint, £220; Korg Delta, £80; Fostex X15, psu, MN15, £180. James, Tel: Edinburgh 031-225 7195.

ARP ODYSSEY, white panel model, beautiful cond, service manual included, £150 ono; TR505, £175 ono. Tel: 091-251 1538 (Tyneside).

ARP ODYSSEY MKII, pressure pad modulation, vgc, bargain, £150. Tel: (0602) 585595.

CASIO CT3000, MIDI, ideal mother kbd, velocity, aftertouch, 61 full-sized keys, £300. Tel: Hull 822358.

CASIO CZ230S, £180; Casio SK200, £160, both boxed, perfect, COD arranged. Tel: (0475) 35043.

CASIO CZ230S, 100 sounds, programmable drum machine, immac, 11mths old. Richard, Tel: (0522) 680902, after 4pm.

CASIO CZ1, no box, no manual, £550. No offers, buyer collects. Tel: Southampton (0703) 431479, eves.

CASIO CZ1, immac cond, with manuals plus sustain pedal, £550 ono. Tel: (0462) 813516.

CASIO CZ1, immac, boxed, manuals, £550. Gordon, Tel: Hemel Hempstead (0442) 214519.

CASIO CZ101, f/case, ROM, £180; Roland TR505, £170; Yamaha QX21, £170. Nigel, Tel: (0473) 685251.

CASIO CZ101, psu, £125 or swap for Yamaha RX21 drum machine. Tel: (0908) 669956.

CASIO CZ101, mint cond, £160 ono; Maplin 3800 synth, needs attention, hence £50 ono. Tel: (0245) 460180.

CASIO CZ101 and SZ1 sequencer, £250 or will split. Tel: Walsall (0922) 643255.

CASIO CZ101, £170; SZ1, £110, or both p/x for Prophet 600. Tim, Tel: (0734) 700121.

CASIO CZ101, £175; Oscar, unlimited sounds, £295; Greengate DS:3 sampler, Apple IIe, disk drives, bargain, £525. Tel: (0602) 411185.

CASIO CZ101, perfect cond, home use only, hard case, psu, manuals, £185. Tel: Bristol (0272) 669737.

CASIO CZ1000, £215; Korg EX800, £150; Korg Delta, £100, all with manuals, boxes, etc. Andy, Tel: (0268) 710778, eves.

CASIO CZ1000, perfect cond, boxed with manuals, £199. Don, Tel: (0493) 669109.

CASIO CZ1000 plus SZ1 sequencer, both mint, manuals and boxed, £360, will split; Drumulator, £160 ono. Grant, Tel: 031-669 3961.

CASIO CZ3000 plus stand, manual, vgc, £300; Studiomaster 6:2:1 mixer, £280; 250W combo, £400. Pete, Tel: (0705) 822702.

CASIO CZ3000 digital synth, as new, £320 ono. Tel: Dundee (0382) 68441, after 5.30pm.

CASIO CZ5000, £420; Midiverb I, £180; Fostex compressor, £100; Roland TR707, £250, all immac and boxed. Alan, Tel: 051-339 1167.

CASIO CZ5000 with 8-tr seq, perfect, manuals, f/case, double stand, £440. Tel: Blackpool (0253) 890695.

CASIO CZ5000, multitimbral, 8-tr seq, perfect, £500; Stereo phaser/pan, £20. Tel: (0795) 874022 (Kent).

CASIO CZ5000, perfect cond, £500. Tel: Burton (0283) 33458.

CASIO CZ5000, 8-tr seq, multitimbral, £475; Yamaha PSR70, 5-oct, MIDI, percussion, stand, seq, £450. Tel: (040 24) 74633.

CASIO SK200 sampling kbd, psu, dynamic mic and sampling tapes, as new, £195. Tel: 01-764 8891.

ENSONIQ ESQ1, as new, 3mths old, latest software, £800. Tel: (0462) 895791 (Herts).

ENSONIQ ESQ1 plus 80-voice expansion cartridge, exc cond, £860. Greg, Tel: 01-437 3215, days.

ENSONIQ ESQ1 2.3, extra sounds, mint, boxed, £830, no offers. Steve, Tel: Exmouth (0395) 263179, after 6pm.

ENSONIQ ESQ1, f/case, RAM, seq expansion, £850; Jupiter 8, f/case, vgc, £635. 24-hr pager, Tel: 01-900 0811, ID 814258.

ENSONIQ ESQ1, Roland TR505, separate outs, AKG D1200E, boxed, mint, £1125 ono (split mic, £75). Tel: (0395) 263179.

ENSONIQ ESQ1 multitimbral 8-tr seq plus ROM, £850 ono; Roland TR626, 30 tunable sounds, £290. Tel: (0538) 382988.

ENSONIQ ESQ1, sequencer cartridge, 2×80 voice cartridges, plus 600 extra sounds. Mint, £950. Tel: (0532) 743012.

ENSONIQ ESQ1 plus 80-voice expanslon cartridge, 10mths old, vgc, £880. Greg, Tel: (0462) 53177, after 7.30pm.

FENDER RHODES stereo suitcase electric piano, immac, £350; TX81Z, £250, will exchange. Jeff, Tel: (0642) 561254.

HOHNER DUO clavinet/Pianet, classic funky sounds, exc cond, £110. Tel: Runfold 2003 (Surrey).

HOHNER PIANET T touch-sens electric piano, £120. Mark, Tel: Southampton (0703) 254397.

KAWAI K5, £1100; Roland DEP5, £460, both exc cond, inc manuals. Ray, Tel: 01-671 6606, eves.

KORG DELTA polysynth, good cond, £95; Vox Jaguar organ, £95. Tel: 061-969 8275 (Manchester).

KORG DS8, multitimbral, home use only, mint cond, £660. Tel: 01-291 7244.

KORG DW8000, f/case, £695 ono; Carlsbro 90W kbd combo, £200, both vgc. Tel: Stubbington (0329) 668210.

KORG DW8000, stand, immac, £665; RSD Studiomaster 8:4 mixer, £365; Tascam 234, £365. Tel: (0442) 217715.

KORG EPS1 piano/strings, £395; Korg BX3 portable, £450; Solton rotary speaker, £250. Tel: (0425) 619545.

KORG MONO/POLY, good cond, boxed, home use, £180. Tel: 01-204 4002

KORG MONO/POLY analogue synth, ungigged, vgc, £125. Tel: Southend (0702) 75257, after 6pm.

KORG MS10 synth, mint with leads, £70 ono. Jon, Tel: Runfold 3573 (Surrey).

KORG MS20 multimodal filter patchbay, many possibilities, £100; Carlsbro kbd, £90. Wanted Boss DD2. Tel: (0256) 87294.

KORG MS20 with patchleads, any offer considered. Tel: Bicester (0869) 248192.

KORG POLYSIX, £285; Yamaha CX5/SFG05, large kbd, ROMs, voices, f/case, data recorder, mint, £275. Brian, Tel: (0475) 28834.

KORG POLYSIX, £280; Sequential Pro One, with f/case, £120; Yamaha RX21L, £110. Wanted, SCI MultiTrak. Tel: (0257) 452303.

KORG POLY 61, £275 or p/x for 4-tr Portastudio. Tel: Wigan 56293, after 5pm.

KORG POLY 61 programmable polysynth, arpeggiator, immac, £300; Teisco preset synth, £50. Andrew, Tel: (0388) 819913.

KORG POLY 61 with aluminium f/case (cost £80), £295. Paul, Tel: (0229) 66238 (Cumbria).

KORG POLY 61 with f/case, home use only, vgc, £350. Tel: Rustington (0903) 784673.

KORG POLY 61, £160; Powertran 1.6sec sampler/DDL module, £170; Roland TR606, £35. All good cond. Tel: (034 73) 777.

KORG POLY 300, manual, psu, box, inspection welcome, offers. Mark, Tel: 01-843 0498. Keep calling!

KORG POLY 800, boxed, manual, £230; Peavey KB15, £50. Both exc cond. Dale, Tel: (0633) 276981.

KORG POLY 800 plus Yamaha RX21, ideal package, both boxed, £300 the two. Tim, Tel: (0474) 533615, days.

KORG POLY 800II, £300; Roland TR505, £160, both boxed, manuals, immac cond. Sim, Tel: Blackpool (0253) 700238.

KURZWEIL 250 V2, vgc, studio use, £4000 ono. Tel: (0843) 601060.

MOOG POLYMOOG classic polysynth, requires service, hence only £300, no offers. Tel: 061-351 1797.

OBERHEIM MATRIX 6R, 5mths old, £568; Akai MX73, 2mths old, £325; TX81Z, £299. Wanted, Prophet VS. Tel: (0793) 643544.

OBERHEIM OBXA, custom f/case, manuals, vgc, £765 ono. Tel: (0274) 577147 anytime.

OSCAR SYNTH with MIDI, studio use only, £210. Tel: (0923) 34626, after 6pm.

ROLAND ALPHA JUNO 1, £450 ono; Yamaha TX81Z, £325 ono; Yamaha QX5, £225 ono, all boxed, as new. Tel: 01-958 3807.

ROLAND ALPHA JUNO II, mint, £575; Roland SH101, £70; Yamaha RX21, £120. Graham, Tel: 041-887 3176.

ROLAND ALPHA JUNO II, boxed, £550, or exchange for D50 with cash. Tel: (0386) 553402.

ROLAND ALPHA JUNO II, boxed, as new, £550; Yamaha QX21 seq, boxed, £170. James, Tel: 01-570 8868.

ROLAND D50, mint, guarantee, £1100 ono; Yamaha TX7, £300. Wanted, Oberheim DPX1 or Casio FZ1. Tel: 061-429 9323.

ROLAND JUNO 6, mint cond plus f/case, £175. Tel: Dronfield (0246) 416513, after 6pm.

ROLAND JUNO 6 and case, immac cond, £200; HH Studio 100 combo, 2-ch, reverb, £90. Tel: 031-441 3948, 6-7pm.

ROLAND JUNO 6 with case, stand and pedals, £230; Yamaha CS5, £70. Sean, Tel: (0268) 413674.

ROLAND JUNO 6, immac, £210; HH IC100L combo amp, reverb/distortion, immac, powerful beast! £135. Tel: (0742) 349838.

ROLAND JUNO 6 and hard case, utterly reliable, £235. Tel: (0580) 714281.

ROLAND JUNO 6 plus f/case, vgc, £225 or swaps. Write: S.Malin, 9 Grove St, Beverley Road, Hull.

ROLAND JUNO 60, boxed, manual, vgc, £300; Farfisa 251R home organ, £200 ono. Tel: Leeds (0532) 582857.

ROLAND JUNO 60, good cond, case, X-stand, £300. Tel: Colne (0282) 869605 (Lancs).

ROLAND JUNO 60 and JSQ60, both as new, boxed with manuals, £450 ono. Declan, Tel: (0706) 341370.

ROLAND JX3P, £350, quick sale required. Andy, Tel: Dorchester (0305) 69446, eves.

ROLAND JX3P polysynth with PG200 programmer, home use only, £350 ono. Tel: 01-274 6022.

ROLAND JX8P, as new, f/case and cartridge, £795 ono. Malcolm, Tel: 091-565 4334.

ROLAND JX8P with PG800 programmer, home use only, £800. Tel: 01-319 2680, eves only.

ROLAND JX8P, cartridge, new f/case, immac, £750. Tel: (0925) 755948.

ROLAND JUPITER 4, manual, case, £130. Wanted, Roland PG800 programmer. Tel: (0244) 371002 (North West).

ROLAND JUPITER 6, MIDI, exc cond, superb sounds, £600 ono. Wanted, FB01. Neil, Tel: Watford (0923) 228162.

ROLAND JUPITER 6, MIDI update, f/case, extras and stand, perfect cond, £540 ono. Tel: 031-441 3948, 6-7pm.

ROLAND JUPITER 6, £650; Moog Source, £150; Oscar, £245, all prices ono. Tel: York (0904) 25365.

ROLAND JUPITER 6 plus stand, ungigged, exc cond, operational and service manuals, boxed, £650 ono. Andy, Tel: Bacup (0706) 876116.

ROLAND JUPITER 8 plus f/case and manual, £750 ono. Tel: Burgess Hill (044 46) 41535.

ROLAND MKB300 mother keyboard and Korg EX800 synth expander, both good cond, £550. Simon, Tel: (0703) 767312 (Answerphone).

ROLAND RS202 string synth, £90 ono, must sell. Andy, Tel: (0842) 5756.

ROLAND SH101, psu, manual, box, home use only, £85 ono. Iain, Tel: (0425) 616492, eves.

ROLAND SYSTEM 700, CSQ600, MC202, HH 12:2 mixer, offers, possible p/x. Howard, Tel: (03727) 26917.

SEQUENTIAL PROPHET 2000, updated, £999; Yamaha DX7, £650; Yamaha QX1 seq, £695. Perfect cond. Tel:

Berkhamsted (04427) 2373 (24 hours).

SEQUENTIAL PROPHET 2000, f/case, recent updated memory, double sided drive, 20 disks, inc Fairlight, E-mu sounds. Immac, £1500. Craig, Tel: 01-348 4761.

SCI PROPHET 5 (Rev 3), superb analogue synth, £700. Tel: 01-986 1014.

SCI PRO ONE, fairly good cond, one switch loose, hence £100. Mitch, Tel: 021-360 5554.

TECHNICS PX1 grand piano, stand, f/case, exc cond, £1495. Nick, Tel: 01-866 2491 (home) or 01-250 1122 X8567 (work).

TOSHIBA HX10 plus SFG05 software, Roland SH101, Casio SK5, Synsonics drums, boxed, ungigged, £600. Rich, Tel: Med 660478.

TRANSCENDENT DPX polyphonic piano, built but not working, 5-oct touch-sens keyboard, for hobbyist or parts, £30. Trish, Tel. (0223) 323397.

YAMAHA CLAVINOVA CVP5, good cond, built-in 2-tr polyphonic seq, £900. Tel: (037 881) 2079.

YAMAHA CP70 and f/cases, custom stand, £950 ono. Tel: (0244) 818565.

YAMAHA CS30 dual-channel analogue monosynth, 2VCOs, 2VCFs, 2VCAs, noise, 5 EGs, ring mod, 8-step sequencer, myriad modulation routings & weird noises; inc manual, lead, £200. Trish, Tel: Cambridge (0223) 323397.

YAMAHA DX7 plus RAM, £750; QX21, £160; Roland TR707 plus RAM, £310; Alesis XTC reverb, £330. Rick, Tel: (0962) 882661.

YAMAHA DX7, ROMs, manuals, leads, immac, £695; Roland TR505, immac, leads, manuals, £165. Paul, Tel: 01-393 0585 (Surrey).

YAMAHA DX7, ROMs, breath controller, case, pedal, £750; Hohner PK250 stereo speakers, £500. Tel: 01-517 2804.

YAMAHA DX7, ROMs, case, pedal, vgc, £695, Editor, Sequencer and sound library available. Tel: 01-581 0257.

YAMAHA DX9, f/case, Roland JX3P, boxed, both vgc, £420 ono each. Tel: (0329) 664272.

YAMAHA DX21, perfect cond, boxed, manuals, 1yr old, £415. Tel: (0223) 314561, eves and weekends.

YAMAHA DX21, £425; Roland TR707, £325, boxed, with manuals. Tel: 021-449 9125, eves.

YAMAHA DX21, manuals, leads, boxed, perfect cond, £400; Yamaha QX21, £100. Mike, Tel: 021-557 1925, eves.

YAMAHA DX21, perfect, with leads, tapes, etc, 6mths old, never gigged, £395. Craig, Tel: 01-348 4761.

YAMAHA DX21, perfect cond, boxed, manuals, home use, £395. Sean, Tel: 01-902 3841.

YAMAHA DX27, exc cond, £345 ono or swap for Juno 106. Neil, Tel: (0262) 674656.

YAMAHA DX27, still boxed, manuals, psu, music stand, unused, unwanted gift, mint, £375 ono. Tel: (0203) 79223.

YAMAHA DX100, boxed, manuals, mains adaptor, mint, £215 ono. Martin, Tel: (0865) 58198.

YAMAHA DX100 (strap it on!), adaptor, manuals, MIDI, 1 owner, 30,000 miles, £179 or swaps? Glenn, Tel: (039 17) 71265.

YAMAHA DX100, £200; Boss RX100 reverb, £65; Westone Thunder 1A bass, £90. Tel: (0462) 812521.

YAMAHA PF10 piano, £545, f/case, £65, bargain, as new, unused gift. Tel: Worthing (0903) 821759.

YAMAHA PS6100, immac, programmable rhythms, FM sounds, 4-tr seq, MIDI, f/case, £550. Tel: Bath (0225) 319662

YAMAHA PSR60, as new, all instrument sections, programming and recording facility. Bargain, £350 ono. Tel: 01-567 1004.

YAMAHA PSR70, mint, £450 or swap for MT32. Steve, Tel: Yeovil (0935) 23921, X256, 9-5pm.

YAMAHA PSR70, as new, with Casiotone MT68, absolute bargain at £430 ono. Tel: 01-446 3569.

YAMAHA TX81Z, as new, £295. Tel: Bath (0225) 319662.

YAMAHA TX802 rack-mount, mint, £950; Oberheim DPX1 sample player, superb, £1150, no offers. Tel: (0642) 488369.

Sampling

AKAI S612 and MD80, £360; Casio CZ101, £150. Richard, Tel: Ashford (023 371) 3417, eves (Kent).

AKAI S700 plus memory expansion, Simmons MTM, Yamaha RX21L, £1200, will split. All boxed, under 4mths old. Tel: 061-973 0078.

AKAI S900, boxed with disks, £1450; MSQ700, £295; TR707 drum machine, £290. Tel: Wakefield (0924) 366754.

AKAI S900 with version 4.0 software, 80 sound disks, tuition, £1400. Tel: (0344) 775794, eves.

AKAI X7000, as new, with disks, boxed, £700. Tony, Tel: 061-480 1162, weekdays, after 6pm.

CASIO FZ1, boxed, guaranteed, inc disks worth £200, £1450 ono; Roland Jupiter 6, f/cased, updated, £575 ono. Tel: (0332) 763405.

CASIO FZ1, perfect cond, 9 disks inc piano, ensemble, chorus, brass, £1250 ono. Bill, Tel: (0229) 27351.

EMULATOR II, £2500; Roland PG1000 programmer, £250; Yamaha REV 5, £1075; Yamaha RX11, £260; TR707/727, £250. Tel: 01-462 6261.

GREENGATE DS:4, 16-bit, 44.1kHz, 8 outs, Apple IIGS computer, monitor and drive, £1550. Tel: (0224) 68970.

ROLAND S10 sampler, boxed, as new, £580; Casio RZ1 drums, boxed, perfect, £200. Tel: (0257) 791181 (Lancs).

SONY 2HD DISKS, 3½" disks for Casio FZ1, etc, £45 for 10. Tel: Basingstoke (0256) 482503.

Sequencers

CASIO SZ1 seq, manual, boxed, psu, £100; Roland MC202, boxed, manual, £50. Tel: Oxford (0865) 711873, eves.

KORG SQD1 and 10 disks, £350 ono. Steve, Tel: 01-980 4938.

KORG SQD1 seq, disk drive, step/real time, £300. Tel: (0272) 735681.

KORG SQD1 MIDI seq, with built-in disk drive and 15 disks, £325. Tel: Hornchurch (04024) 44792.

ROLAND MC500 sequencer, mint cond, still under guarantee, £625. Tel: (0922) 407967.

ROLAND MSQ100, £110; Roland MC202, £60; Sycologic AM1 CV/gate sync/MIDI converter, £110. Julian, Tel: 01-997 3540.

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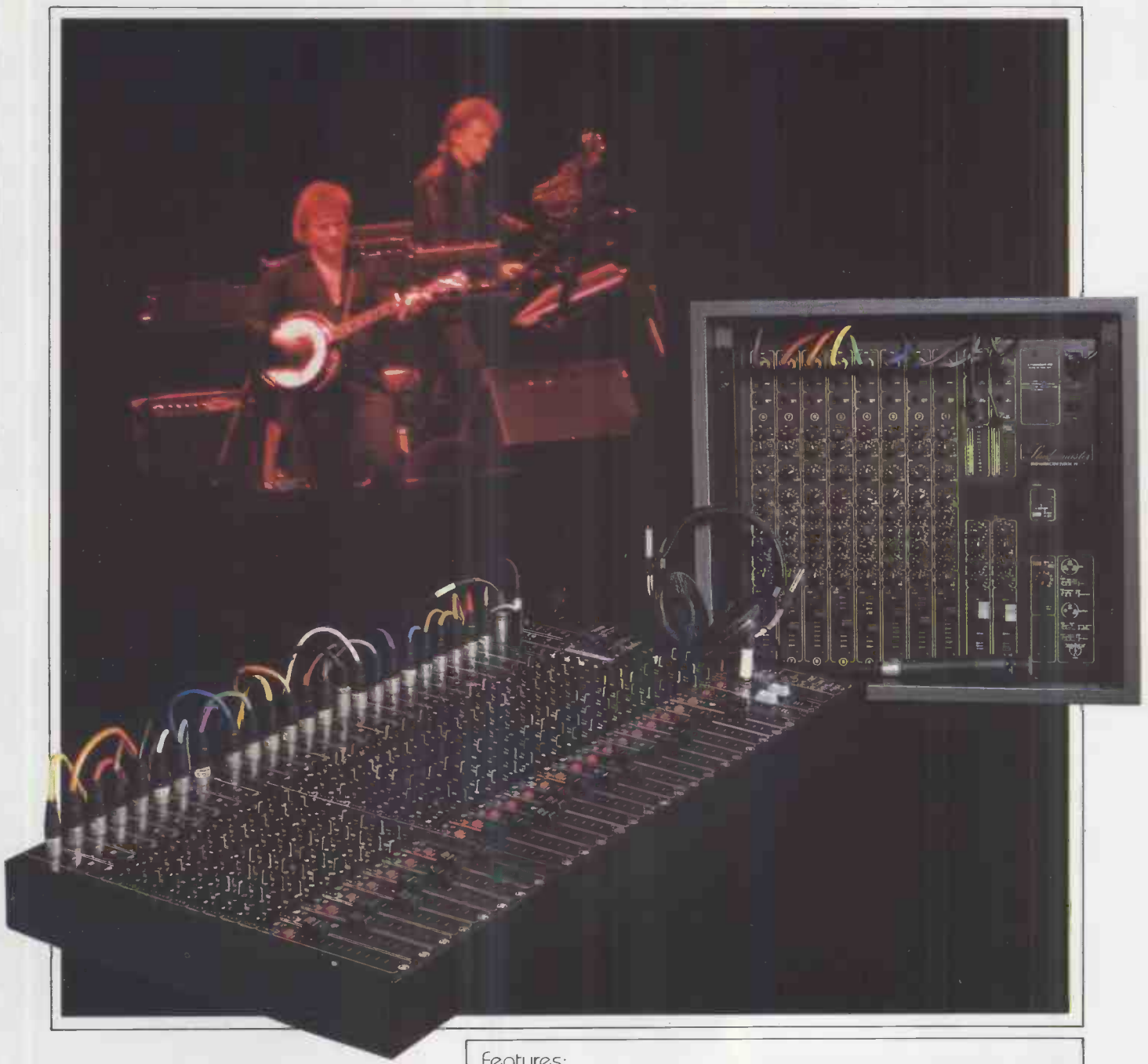

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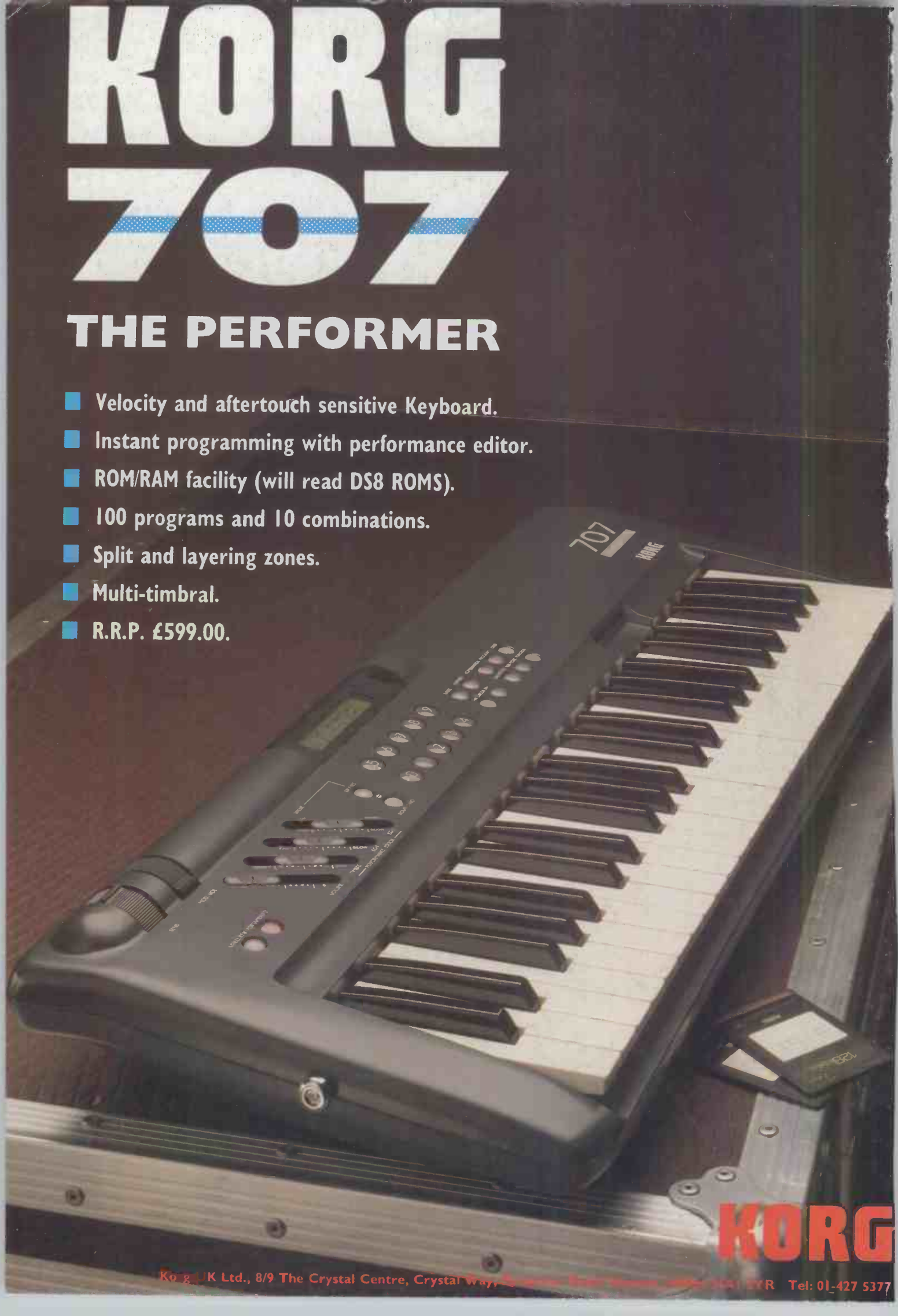

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