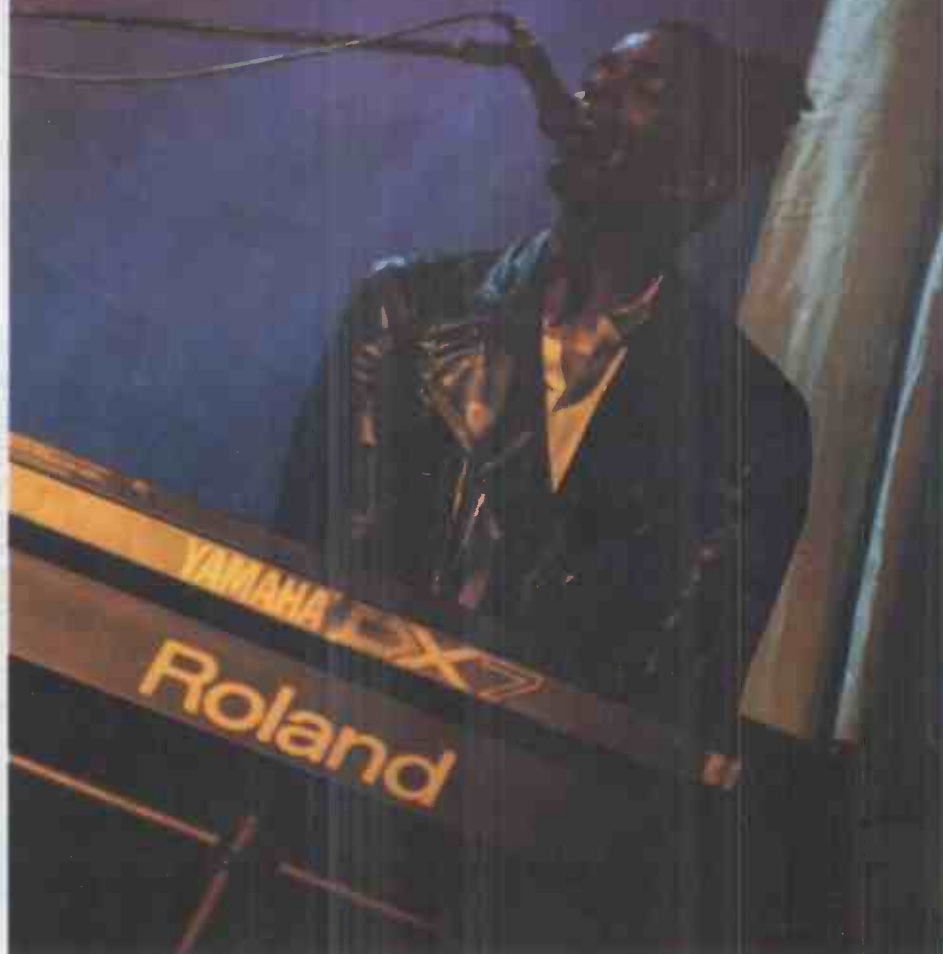


MAY 1987

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HOLLYWOOD BEYOND

Mark Rogers Speaks Out

STEVE LIPSON **KORG SQ8**

Trevor Horn's Right Hand *The Baby MIDI Sequencer*

STEREO SAMPLING **FAIRLIGHT'S FATHER**

How to Do It Right *Kim Ryrie Interviewed*

ROLAND D50

The Supersynth Reviewed

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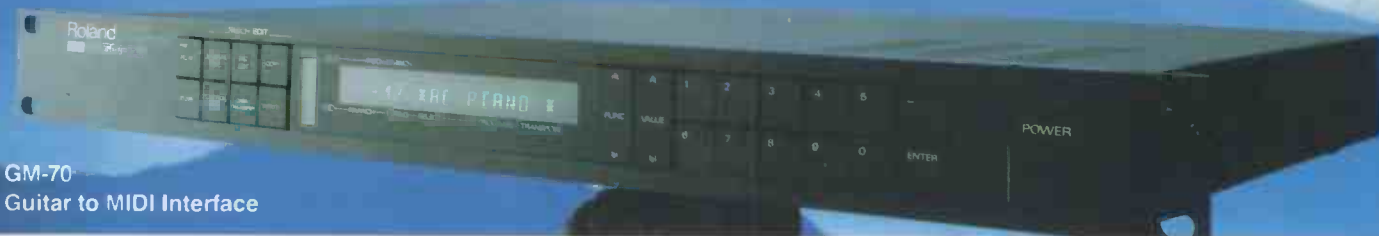
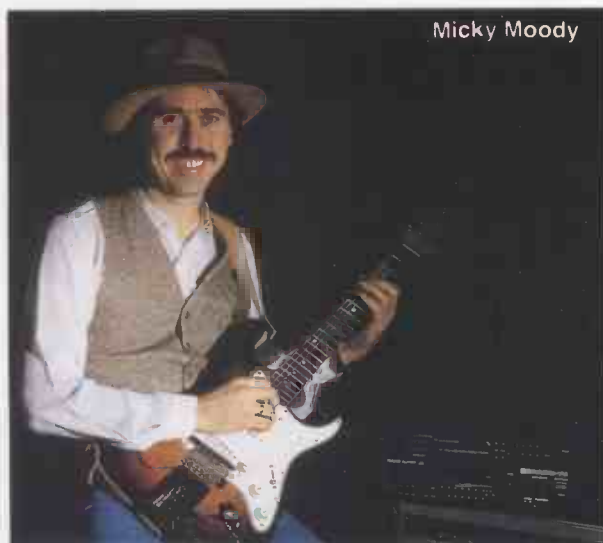
Why? Well, first of all, he doesn't have to compromise any of the above techniques and what's more, he can use his usual guitar. The special GK-1 pick-up attaches with just two screws and the guitar strap button.

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THE PEOPLE'S MUSIC

I HAVE AN APOLOGY to make. I'm about to devote yet more space to the current sorry state of British popular music. Chances are, you've already read more about this than you can stand (both in these pages and elsewhere), but there's one point I'd like to discuss briefly which hasn't, as far as I'm aware, been raised until now.

There are a number of interviews in this month's issue of Music Technology, and they range widely in the people who are featured in them and the topics they discuss. The most controversial piece, though, is almost certainly our conversation with Steve Lipson, the man who's sat behind the faders – in one capacity or another – for every recording session Frankie Goes To Hollywood have ever started.

The stalwarts among you may remember Lipson incurring the wrath of E&MM consultant David Ellis when FGTH were in their heyday, when he went on record as saying that MIDI recording systems would never catch on because the specification wasn't good enough. Lipson is now using precisely such a system, but that's neither here nor there.

Meanwhile, Frankie's fortunes have waned, but Lipson remains as controversial as ever. Among many of the points (some of them well worth hearing) that he makes to Paul Tingen in this month's interview, is the suggestion that modern pop is in the state it's in because it's become democratised. According to Steve Lipson, pop has become meaningless because there are too many people sitting at home and playing with little Casio samplers.

At first glance, this is an appealing explanation. Several art forms have suffered in the past from becoming over-popularised, and theoretically, there's no reason why modern music shouldn't go the same way.

But close up, Lipson's argument holds about as much water as a broken tea-strainer. Pop music has *always* been an area of mass appeal and mass involvement – that's why it's "pop", after all. This may be the first time hi-tech musical instru-

ments have been available to a mass market, but guitars, violins, flutes and goodness knows what else have been "popular" instruments for generations – with no adverse effect on the musical climate of the time. If anything, the mass-production of guitars (acoustic and electric) was an outstanding influence on the creation of new forms of pop music during the '60s – the very era Lipson refers to in his argument.

At Music Technology, we're committed to the idea that the more accessible music-making is, the more varied and interesting music will be. Thus far, that theory has turned out to be true for many areas, if not for some others.

British pop is in the decline it's in because the proportion of young people in our population is decreasing, and because what young people there are lack a focal point for the "rebellion" that has traditionally fostered musical innovation.

The one glimmer of hope lies in new technology and the enthusiasm of young people for picking it up and making something new out of it. And don't let anyone – big-name producers included – tell you otherwise.

ON A MORE POSITIVE note, the astute among you will have noticed a change in the staff list that traditionally lies to the left of this leader column. Yes, Music Technology has a new advertising manager in the (slightly forbidding) shape of Graham Butterworth.

Some of you may recognise Graham's name, since he began his space-selling career on *Electronics & Music Maker* about five years ago, and has been performing the same task for our sister magazine, *Home & Studio Recording*, for the last three-and-a-half years.

Needless to say, we're delighted to have Graham's vast experience and relentless "never say die" approach to magazine promotion onboard. Even if, inauspiciously, the new man has begun his term as MT ad guy by being struck down with a "mystery illness" which has left him bed-ridden for three weeks. Everybody say "ah". ■ Dg

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Comment

2

If music-making becomes more and more popular, will the quality of popular music automatically slide downwards? Is the Casio VL-tone responsible for Starship?

Newsdesk

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More hot news from the hi-tech side of the music industry; software, hardware, underwear...it's all here.

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MT readers give their views a thorough airing, and nobody is safe – least of all MT itself.

Interface

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Another selection of readers' technical queries, answered by MT's resident team of agony aunts.

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Buying or selling hi-tech gear? This is the fastest-moving, most influential classified section in the music business.

APPRAISAL

Hybrid Arts EZ-Track

20

Multi-talented sequencing software is all very well, but if you're unsure about recording with computers, you need a starter program to test the water with. Ian Waugh tries out just such a package.

Philip Rees 5X5

25

It's new, it's one of the cheapest MIDI switching boxes available, and it's designed and built in this country. Simon Trask assesses the argument for buying British.

Rice Drum Software

26

Nothing to do with paddy-fields or Uncle Ben, but Ian Waugh reviewing two versions of a new drum program for the under-used BBC computer. Is it cost-effective?

Steinberg Cosmo

48

With Casio's CZ synths showing no sign of losing popularity, Ian Waugh looks at an editing package that uses a Commodore 64 to help make Phase Distortion accessible.

Casio SK2100 Keyboard

51

You want a synthesiser, a drum machine, a sequencer and a sampler, but you've got less than £500 to spend? Home-keyboard buyers are currently being offered just such a package, as Dan Goldstein discovers.



Korg SQ8 Sequencer

68

MT new boy Bob "I'm Confused" O'Donnell checks out the cutest eight-track sequencer available. Have too many corners been cut to reduce the cost?

Roland D50 Synthesiser

76

Is this the synth to topple the DX7 from its throne? Will Linear/Arithmetic Synthesis become the programmer's new catchphrase? Will Simon Trask die of a broken heart? Find out in our exclusive review.

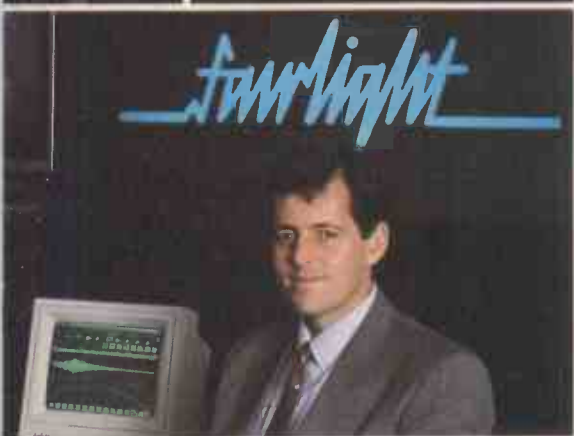
Kawai R100 Drum Machine

83

Few companies make synthesiser debuts as good as the Kawai K3. Now the same company has introduced its first digital beatbox; Simon Trask finds out if they've maintained the standard.

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MAY 1987



MUSIC

Present Yourself

28

Having trouble projecting the right image on-stage? Paul Tingem reports on a unique way of improving your performing confidence, and your outlook on music in general.

Hollywood Beyond

35

'What's the Colour of Money?' was one of last year's most inventive hit singles, but since then, little has been heard from Mark Rogers. Tim Goodyer talks to him as the first HB album is released.

Man Jumping

44

They were once a six-piece band playing "systems jazz". Now they are seven, and the music has become even more difficult to classify. Tim Goodyer tries to solve the puzzle.

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OutTakes

64

We assess records from England (Erasure), the US (Prince) and Soweta (various); tapes from MT readers; and the World DJ Mixing Championships in London.

Larry Fast

78

Tim Goodyer talks to the man who's programmed Peter Gabriel's synths, recorded a host of electronic albums under the name Synergy, and started up his own record label for instrumental music.

STUDIO

Steve Lipson

54

...Is already hugely successful as an engineer, producer, musician and programmer for the likes of Grace Jones and Frankie Goes To Hollywood. Paul Tingem finds fame has made him disillusioned and cynical.

TECHNOLOGY

The New Macintosh

30

Jim Burgess sends us an exclusive preview of Apple's powerful pair of new computers – and assesses their implications for tomorrow's MIDI-using musicians.

Patchwork

40

Another batch of MT readers' own synth sounds. Featured this month: the Korg DW8000, Roland Jupiter 6, Yamaha DX7 and Casio CZ101.

Sampling in Stereo

42

Your sampler may only have a mono input, but that shouldn't stop you taking two-channel samples for a fatter, more realistic sound. Howard Massey shows you how.

We Can't Go On...

60

...Beating Like This. Chris Meyer and Matt Isaacson with the second part in our series on better drum programming. This month: how to make your percussion sounds stand out from the crowd.

TechTalk: Kim Ryrie

72

In an exclusive interview, the co-founder of the Fairlight company and father of the CMI talks about the machine's development, and outlines his plans for the future. Simon Trask pops the questions.



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NEWSDESK

ATARIST RECORDING — EXCLUSIVE

► Scheduled for release on May 18 is a new sequencing program for the Atari ST called Iconix. Written over a 12-month period by new English software house System Exclusive, Iconix combines an easy-to-understand graphical display with powerful and flexible recording, editing and song-building functions. The program has been written to take full advantage of the ST's GEM graphics environment, which means that the screen can be configured to suit the user.

Iconix uses a form of recording based on groups. Each group can contain up to 16 channels of MIDI information, and can be as short as one bar or as long as the computers' memory will allow. Once you've recorded several groups you can combine them in any order to produce a finished piece. Up to eight separate group chains can be played simultaneously, allowing compositions of up to 128 tracks to be created.

System Exclusive claim that Iconix is so flexible, it doesn't force the user to adopt any particular approach to recording — you can alter the recorder to suit the piece you want to record. We shall see.

Iconix will initially be available through mail order only from Tigress Designs, who are marketing the program for System Exclusive.

More from Chris Palmer, Tigress Designs, 25 Burmeister Road, London SW17 0JL. ■ St

AN UPDATE FOR THE SYSTEM

► Back in MT December '86, we ran a news item on the Personal Composer 32-track sequencing package for the IBM PC/XT/AT and strict compatibles, imported from America by Brighton-based company System Support.

The company now inform us that, pending availability of Personal Composer 2.0, the list price of the current version — 1.35 — is being reduced from £370 to £270.

The good news is that all purchasers
MUSIC TECHNOLOGY MAY 1987

of the current version qualify for a free upgrade to version 2.0, which will be mailed to them immediately upon UK release. The list price of version 2.0 will be £370, so if you're smart, you'll buy now and save £115.

More from System Support Associates, Melbourne House, Melbourne Street, Brighton, Sussex BN2 3LH. ☎ (0273) 603245. ■ St

USING HIS MASTER'S VOICE

► Syndromic Music, exclusive UK distributors for Hybrid Arts Atari ST MIDI software, have announced the launch of their own ST software label in conjunction with Soundbits Software.

The first product to be released is the Voice Master editor/librarian/randomiser package for Yamaha's DX21/27/100 synths. The Voice Master provides a display of all parameters, and allows you to listen in on a sound as you edit it. Graphic display of envelopes is provided, and sounds may be transferred singly or in complete banks between synth and computer.

The Librarian provides disk storage and cataloguing of all sounds, while the Randomiser gives you new sounds at the squeak (sorry, click) of the mouse. You can also print out all information

for the voice you're currently working on, as well as lists of your entire library of sounds.

Soundbits Software have several other goodies under development, including Voice Masters for the Yamaha TX81Z and Roland Alpha Juno 1 and 2.

The DX Voice Master retails for £49.95, and is available from both Syndromic Music and a network of selected dealers throughout the UK.

More from Syndromic Music, 24/26 Avenue Mews, Muswell Hill, London N10 3NP. ☎ 01-444 9126. ■ St

RETURN OF VOYETRA

► Remember the Voyetra 8, a huge rack-mounting analogue polyphonic synth used by the likes of New Order a few years back? Well, the company behind that machine, Octave-Plateau, have since been developing a range of MIDI software for the IBM PC and compatible computers; producer Steve Lipson (interviewed elsewhere this issue) is among the users of their 64-track sequencing program, for example.

Now Octave-Plateau have become Voyetra Technologies, and their range of PC software is to be distributed in the UK by Audio FX. The range will include a new low-cost professional sequencer program, and an improved version of the already available Se-

quencer Plus 2.0.

In addition to this, Audio FX will be handling distribution of software for the Atari, Macintosh and IBM PC computers from Steinberg, Blank, Opcode and Intelligent Music, and will also be handling the Grey Matter Response E! expansion board for the DX7.

More from Audio FX, AFX House, 5/7 Buck Street, London NW1 8NJ. ☎ 01-482 1440. ■ Tg

ENSONIQ EXPANDED

► Latest little item from Red Planet (the Canadian company whose DX7 RAM packs are among the slickest on the market) is the ESR24 sequencer memory expansion for Ensoniq's ESQ1 synth. The ESR24, which slots into the ESQ1's data port, takes the onboard sequencer memory from 2400 up to a very healthy 10,000 notes. Price is £59.95, including VAT and p&p.

More from Sound Sales, Orchard Cottage, Church Hill, Ravensden, Beds MK44 2RL. ☎ (0234) 771189. ■ St

SEMINARS WITH A PULSE

► The Yamaha Music Pulse store in London — only just opened, remember — has begun a series of informal open evenings for musicians.

So far only one of these events has been held (covering the new DX7II and DMP7 digital mixing processor), but according to Yamaha it proved very popular — which is why they're going to "do it again". The second open evening will deal with home recording techniques in a budget MIDI-based studio. Although there was no firm date for the event at the time of going to press, it should be taking place within a week or so of this magazine reaching you.

Meanwhile, watch this space for details of Yamaha's European R&D Centre, shortly to open in premises adjacent to the Pulse store. Details as and when we have them.

More from Yamaha Music Pulse, 58-60 Conduit Street, London W1. ☎ 01-734 5184. ■ Tg

ATTACK IS BEST FORM OF DEFENCE



► Word of a hardware update for the Emulator II, Emulator II+ and Emulator II+HD comes from E-mu Systems.

Endearingly christened the "Attack Modification", the update improves the attack of the Emulator's transient generator, reducing the initial lag by up to 4mS. As the Emulator has long been known for its slow keyboard scanning rate, the news should be welcomed by owners trying to give

their samples a bit more "bite".

Still on the E-mu front, anyone looking for a rack-mounting sampler should take a look at the rack version of the Emax, which should be in the shops by the time you read this news bulletin. It's called, intriguingly enough, the Emax Rack, and shares the same spec as its keyboard-equipped brother, including such features as E-mu's MIDI Overflow Mode and multi-timbral operation. ■ Tg

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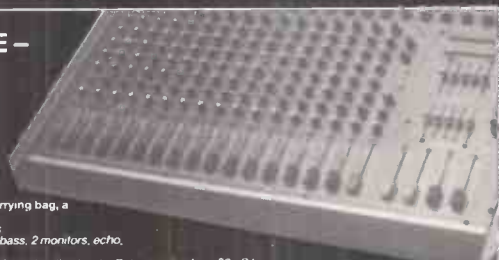
VU Meters: 2 LED bargraph meters (12 LEDs) to measure via a push-button assigned levels of Aux 1/2 – L/R

Tape section: – Aux 1/2: adjusts amount of signal from external tape recorder to monitors 1/2 – L/R adjusts amount of signal from external tape recorder to left & right outputs.

Headphone Section: – Jack, Headphone output (imped. 40 Ohms) – Headphone output level control (Phones)

Outputs: – Aux 1/2: outputs to feed to stage monitors – Left & Right: left & right group outputs – Tape rec. L/R – play L/R: clinch tape & output sockets to feed to tape or cassette recorder.

PRICE £699/£799



I'll let everyone else promote the usual dynamic HOT, stupendous, electrifying, buy-it-quick-before-it-gets-replaced-by-a-mark IV stuff . . . it's enough to state that if it is WORTH having, it's usually in stock anyway . . . – A Few Snips . . .

Well worth a mention
Simmons SPM
8:2 on demo and it's British . . .

Oberheim DPX-1	In Stock
Oberheim DBX s/h	£499
Oberheim Matrix 6 (new) synth	£1199
Oberheim Matrix 6R (new) module	£699
Rhodes Mk1 s/h	£199
Memorymoog (immaculate)	£1100
Yamaha RX21L one only	£135
Yamaha RX11 one left	£399
Sequential Prophet 2000 as new	£1150
Korg SAD-1 s/h	£299
Korg DUP-1 ex-dem	£450
PPG Wave 2.2 s/h (with case) only	£1299

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COMMUNIQUE

Write to: Communiqué, Music Technology, Alexander House, 1 Milton Road, Cambridge CB4 1UY. Free year's subscription if yours is the letter of the month.

Dear MT

The Beat Goes On

As a keyboard player turned drum programmer, I was extremely interested to read your feature *We Can't Go On Beating Like This* last month. In it, Chris Meyer and Matt Isaacson succeeded in blowing the lid off some of the more subtle aspects of intelligent drum machine programming – but did you have to let the world in on some of my best-kept secrets? Oh well.

My point is this. When I first encountered a drum machine, it didn't sound a fat lot like a drummer sat behind a kit, nor did its facilities encourage you to make it sound much like one – regardless, all us technology enthusiasts went around telling each other how much it did. In those long-gone days, you considered yourself a smart programmer if you left out the hi-hat strike (that should have happened on the snare beat when working in 16ths) because you'd sussed that a drummer only had two hands.

It was only as the drum machine became more sophisticated that we realised just how primitive it actually was. What happened? Programming a drum machine became rhythm programming as opposed to drum programming, because we understood that we were creating a beat, rather than replacing a drummer.

The light dawned: there are a lot of things a drummer does better than the drum machine is ever likely to. But equally, there are things the drum machine has always done that a drummer can't (and probably will never want to).

So let's remember that it cuts both ways: humanising the drum machine is a useful trick, but the drum machine is a useful tool in its own right.

■ Nick Fish
London NW3
10

Dear MT

All Mod Cons

As the spec sheets for synthesisers become more and more impressive, I find myself amazed that almost all manufacturers have neglected one area of development above all others. The area I'm referring to is modulation. I know this is not a new gripe, but I have a specific reason for voicing my dissatisfaction.

Unpopular though it may be in certain quarters, I'm a long-time fan of imitative synthesis – you know, ripping off everything from pan pipes to drainpipes and car horns to alpine horns. Many of the problems I face are peculiar to the sound I'm trying to copy, but in the area of conventional instruments there is one problem that crops up time after time – a human player's natural vibrato/tremolo.

Conventional modulation options usually include sine (or triangle) waveforms, which give an acceptable impression of vibrato, and sufficient control over vibrato speed to make it convincing. Yet it rarely sounds convincing in practice. Why?

I'll tell you why. Because, no matter how hard you try to make your guitar finger vibrato or flute tremolo as regular as the equivalent on a synth patch, you'll never manage it. People just aren't that perfect. So why can't Roland, Yamaha, Korg, Casio, et al provide some sort of "randomise" function on modulation speed (and maybe depth)?

Natural vibrato tends to be around 200-300Hz. Why not have a user-determinable degree of random variation on top of that basic setting, so you could express it as a percentage? Then a 2% random variation on a 250Hz vibrato would mean it varied between 245 and 255Hz.

It can't be that difficult in this age of digital technology, and in my book, it would certainly add to the realism of a high proportion of imitative synth patches.

■ Peter Stevens
Crewe

Dear MT

Studio Access

letter of the month

I was interested to read your recent news item (MT March '87) on the proposed South Bank National Studio for Electronic Music.

I suspect I'm not alone in feeling both excited and anxious about the prospect of such a centre. Excited because we need a focal point in this country for the development of electronic music in all its manifestations, but anxious because I wonder if the National Studio will fulfill that function. Will it be a Steim or an IRCAM? It seems to me that the latter institution, for all its "diversification" into the relatively accessible end of technology, remains as restricted and elitist as it has always been, and probably was always intended to be.

Perhaps I'm being too hard on the IRCAMs of this world. No doubt they do much pioneering work which will eventually filter through to us plebs (just as Chowning's discovery of FM synthesis eventually gave us the DX100).

Then again, when do we ever get to hear about what goes on in the depths of IRCAM, Stanford and the like? Now there's something for MT to tackle. But maybe Mr Boulez wouldn't exactly welcome you with open arms.

Meanwhile, I'll keep my fingers crossed for the National Studio. As you've no doubt gathered, I'm a firm believer in the open-door approach. Unfortunately, some people just don't like the draught.

■ Stan Reynolds
Norfolk

Dear MT

Eastern Promise

Since we were the only British exhibitor at the Istanbul Music Expo, I am most offended that
MUSIC TECHNOLOGY MAY 1987

THE PULSE MIDI STUDIO NO.1

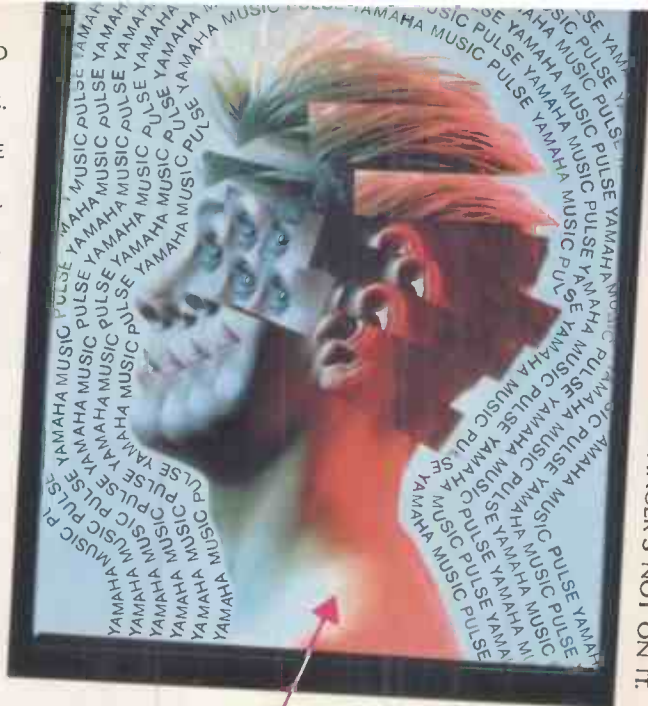
THERE'S ONLY ONE WAY TO TAKE THE LEAD IN MUSIC. PURCHASE THE PULSE MIDI STUDIO NO.1 AND WE'LL GIVE YOU ALL THE LEADS YOU NEED - FREE!

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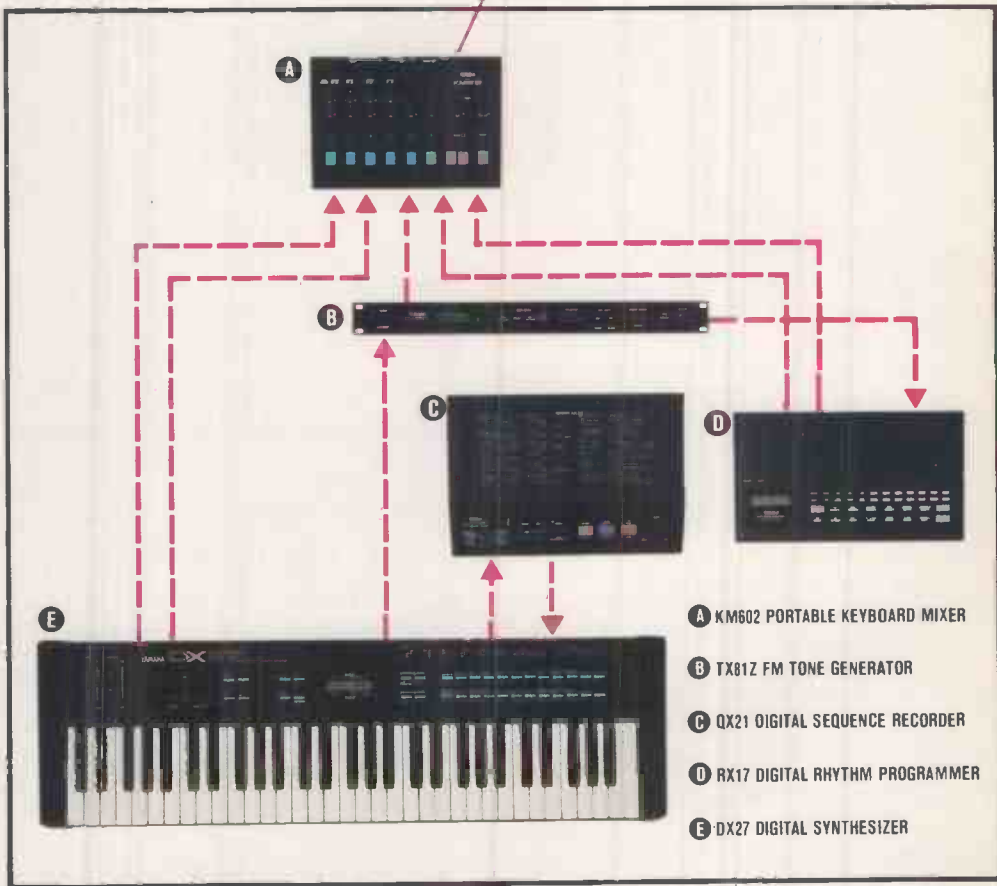
THESIZER AND TX81Z EXPANDER (EACH PART WITH DIFFERENT FM VOICES).

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SIMMONS

SPM

8:2

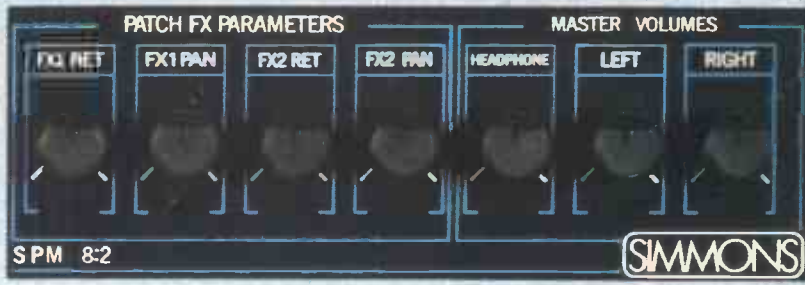
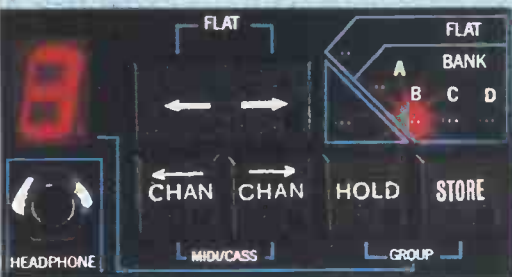
CONVENTIONAL MIXER?

CONVENTIONAL MIXER?

CONVENTIONAL MIXER?

CONVENTIONAL MIXER?

CONVENTIONAL MIXER?



SPM 8:2

A Conventional Mixer?

The SPM 8:2 from Simmons is anything but a conventional audio mixer. There are, however, some similarities: Eight channels, each with bass, treble and parametric mid-range equalization, two effects sends, pan and level controls. Two effects returns. A headphone/monitor output and left and right master outputs.

Here the similarities end because SPM 8:2 is a computer controlled device making duplication of channel controls unnecessary.

64 different mixes of eight channels, each comprising level, pan, eq and effects data can be stored in SPM 8:2s memory and individual mixes selected at will via MIDI, footswitch or the front panel. Cross-fade times between mixes are programmable for individual channels allowing fade outs and ins of different instruments simultaneously. Each channel also has a four function effects bank offering such features as variable rate auto-pan and phasing.

With a specification and price tag the envy of most "mixing desk" manufacturers SPM 8:2 has only one disadvantage... How do you fill a page with its picture?



Simmons Electronics Limited, Alban Park, Hatfield Road, St. Albans, Herts AL4 0JH. Tel: (0727) 36191 (5 lines).

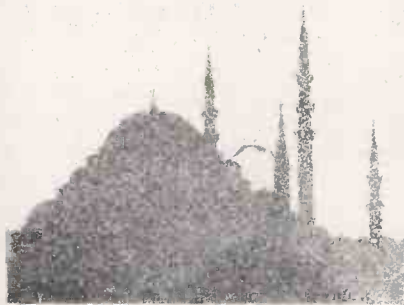


► you did not have time to stop by our stand, see our products, and include a mention of us in your review of this event (MT April '87).

We are the last remaining British manufacturers of the Afghanistan Nose Flute, and we struggle to continue to hold the world market share against strong competition from manufacturers in Kirghiz and Outer Mongolia. So our participation was surely worth a mention in your pages.

The Middle East remains an important market for these traditional instruments, and this is the reason we sent 23 of our salesmen to man the JHS booth. We also launched at this show a new tight-fitting model called the Bosphorus Passage.

The BOTB funded a special joint venture for our participation, and though we were the only British exhibitor, the British Ambassador took time to visit our booth accompanied by the Commercial Consul and a visiting dignitary from the Anglo-Turkish Chamber of Commerce. Where were you?



I realise you are a hi-tech magazine, and this may be the reason for your disinterest in our activities. We would inform you, however, that our amplified Nose Flute built-in Nostril Bogie transducer pickup renders - when correctly fitted to the nasal passage - the instrument suitable for interfacing with the most sophisticated digital synthesisers.

■ John H Skewes
Managing Director
John Hornby Skewes & Co
Leeds

Dear MT

Perfect Way

So it took the mighty Sting to teach Hugh Padgham that inaccuracies and mistakes are an essential part of putting the heart into music, did it? Well, at least someone did. How blind (deaf?) we must all have been to produce so much note- and time-perfect music in the short time since the emergence of drum machines and sequencers.

Of course I've got my own electronic playground just like all of you, and I'd be lying if I said I hadn't fallen for it, too. I've been sat here like everyone else, with the display showing 114bpm on the beatbox and the auto-correct on the sequencer working overtime.

But now the blinkers are off and I know I've gone one better than Mr Padgham already. I

don't get people to play my mistakes, I program them.

■ Tony Dicken
Bromley



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control ● 100 patterns, 20 songs, different drum kits can be memorised - Plus Much More!

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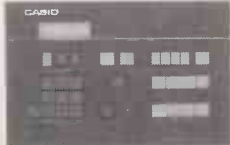
NEW ROLAND MP104 MIDI pad. Controls any instrument through MIDI system..... **PHONE**

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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 On the back of my Ensoniq ESQ1, there's a socket marked Pedal/CV. Is this a control voltage input à la ye olde modular synths, or just a simple "pot pedal"?

■ M P Lancaster
Citizen's Theatre
Glasgow

A The ESQ1 has a total of 15 modulation sources, which can be applied to such destinations as oscillator pitch and amplitude, filter cutoff, stereo pan and master volume. The pedal input that you refer to constitutes one of these sources (others include envelopes, wheels, key velocity, LFOs, and pressure from an external keyboard), and this is its sole function. You could, for instance, set it to modulate the overall output level (hey presto! you've got a volume pedal), or you could use it to control the level of an individual oscillator for fading in one sound behind another, say. If you look at pages 31-39 of your owner's manual, you'll find a full discussion of the ESQ1's modulation possibilities.

No doubt things would be clearer if you had a pedal to try out these possibilities with. Kal Dolgin of Ensoniq UK informs us that the requisite pedal is now available. It's called the CVPI, and you can get it from your Ensoniq dealer for £27.60, including VAT. ■ St

Q I have recently become the proud owner of a Spectrum 48K computer which I bought secondhand. I know the machine is a bit "old hat" by today's Macintosh and Atari ST standards, but I'm quite happy with it and would like to know what MIDI sequencing software is available for it.

■ V Bryan
Leicester

A Basically, there are two sequencing packages that should fit the bill. First off there's the XRI Micon System Controller (reviewed in E&MM June '85). As well as note-on/off, this will store patch change, pitch-bend and mod wheel information. It also boasts a particularly well thought-out step-time sequencer, helpful graphic displays and dynamic memory allocation.

Alternatively, there's the 10 Systems Sequencer

(reviewed E&MM July '86). This too handles patch change and modulation information, but will also store aftertouch and implements MIDI song pointers, which you may find useful.

Both systems are well provided for in the external sync area, so they'll fit into most keyboard/drum-machine/sequencer arrangements. Take your pick. ■

Tg

Q I have a problem that's baffled me for some time now. I own a Korg Poly 800 (Mkl) and an OSCar (software version 7). Both are MIDI-equipped and both have onboard sequencers. In theory I should be able to write a different sequence into each keyboard's sequencer and then get the two playing back in sync. However, after much experimentation and reading of manuals (not to mention tearing out of hair), I just can't seem to get things to happen.

Are the two instruments incompatible, or am I making some fundamental error?

■ M J Smith
Highworth
Wilts

A Bad news, I'm afraid. The version 7 software for the OSCar isn't able to recognise MIDI clock information, so you won't be able to sync it to the Poly 800 directly via MIDI. And the bad news doesn't stop there, because OSC are no longer active so there's no easy way to get the software updated.

On a more optimistic note, the OSCar is well provided for in terms of its sync facilities for incoming trigger pulses - I've synced one to a Yamaha RX15 by dividing the RX clock by four or nine (for different quantisation) on the OSCar. By using a sync box like the Korg KMS30, you could convert the Poly 800's MIDI clock to another clock rate, and divide that down to provide the quantisation you need. Remember the OSCar's sequencer memory is limited, so using lower quantisation - where you can get away with it - will help you with economy. ■ Tg

Q I'm thinking of buying a MIDI patchbay but I'm a bit confused about whether or not it will allow me to control one synth from two other

instruments at the same time. Do I need another device, and if so, why?

■ Eric Washington
Stoke-on-Trent

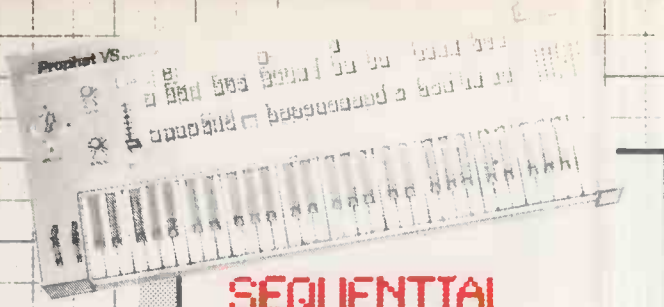
A What you require is a merge function. It's feasible for a manufacturer to include such a function in a MIDI patchbay, but the task involved is actually quite different from simple rerouting of signals - which is what a MIDI patchbay does. To our knowledge, there is no MIDI patchbay available in the UK which includes a merging option.

However, although a dedicated MIDI patchbay won't allow you to send more than one MIDI input to the same output, what you can do is route each input on a patchbay to different outputs, giving you, say, up to four signals running in parallel. Alternatively, you could select first one synth and then another to control a third instrument.

What both these examples have in common is that they make no alteration to the MIDI datastream. On the other hand, "merging" MIDI signals obviously requires that two datastreams become one (rather like getting married, really). We're talking digital data here, of course, and if even one bit (binary digit) of data becomes misplaced in the merge process, there's likely to be all manner of havoc at the receiving end.

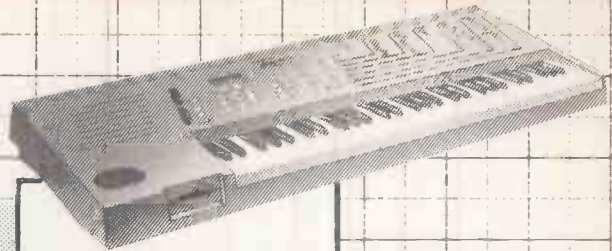
MIDI data is sent along the five-pin DIN cable in "packets" of 10 bits (a byte framed by one start and one stop bit). So the most basic requirement of a MIDI merge device is that it should retain this packet format when it combines two MIDI signals. This requires intelligent handling, but that's just the start. If you know your MIDI spec, you'll be aware that different commands have different numbers of bytes associated with them. Instruments will expect to receive MIDI information in the officially specified format, ie. a status byte followed - where applicable - by one or two data bytes. It is the status byte which specifies what the command is, and therefore what the following data byte(s) - if any - refer to.

So perhaps you can see that there's a lot of software-based work to be done when it comes to merging MIDI data. On the evidence of what's available in the way of MIDI patchbays, it seems that most manufacturers prefer to dedicate this task to a separate unit. In the UK, your choice of MIDI merge units is limited to the Yamaha YMM2, a dedicated unit at around £112, and the MCS2 from the same company, which combines MIDI merging with a range of performance controller assignment options for around £245. ■ St



SEQUENTIAL

2002 PLUS, VECTOR, STUDIO 440,
VECTOR RACK



EMAX, DPX-1, KORG DSS-1,
ROLAND S10, S50,
AKAI S7000, S700,
S900, MIRAGE,
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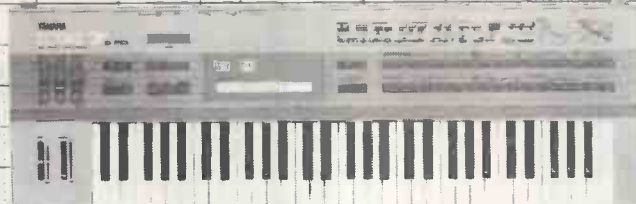
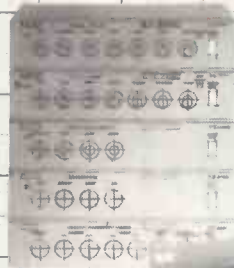
SAMPLED PIANO
ESQ-1,

CASIO

CZ 101, CZ 1000, CZ 3000, CZ 1

EFFECTS

SPX 90, MIDIVERB 2,
MICRORACK REVERB,
MICROVERB,
EX RACK.



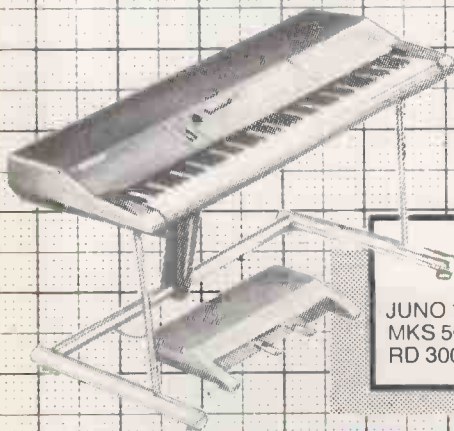
TX 81Z, DX 7MK1, DX 7MK2,
DX 100, DX 27, RX 5, RX 11,
RX 21, RX 21L, PF 70, PF 80

YAMAHA



AKAI

AX 73, MX 73, VX 90



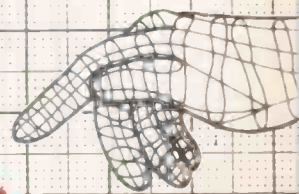
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MKS 50, D 50, MKS 20, RD 1000,
RD 300

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MIDIVERB 2, MICRORACK REVERB.



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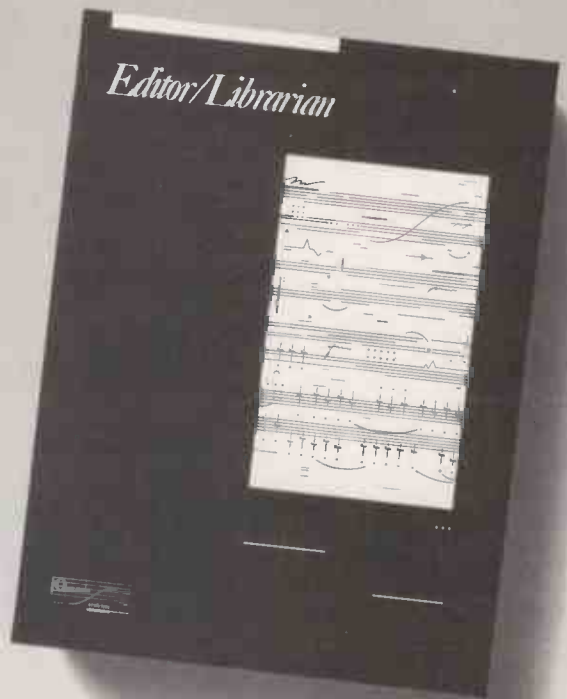
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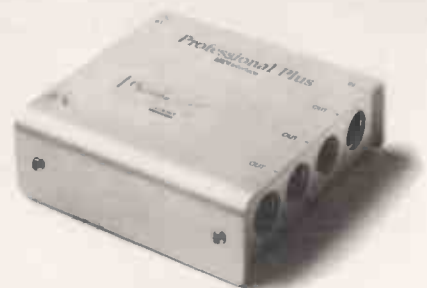
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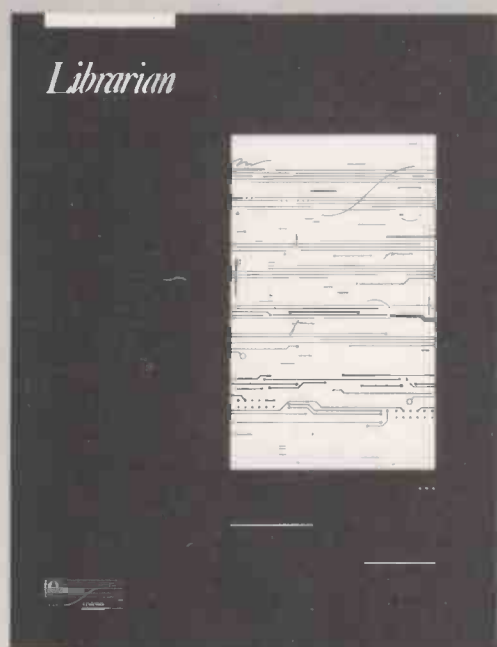


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PATCH LIBRARIANS—Don't buy RAM cartridges, you save money. Name your patches and store them in custom banks and libraries. Yamaha, Casio, Oberheim, Roland, Korg, Ensoniq, Sequential, Fender and more.



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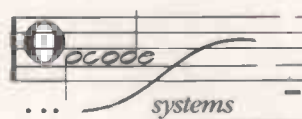
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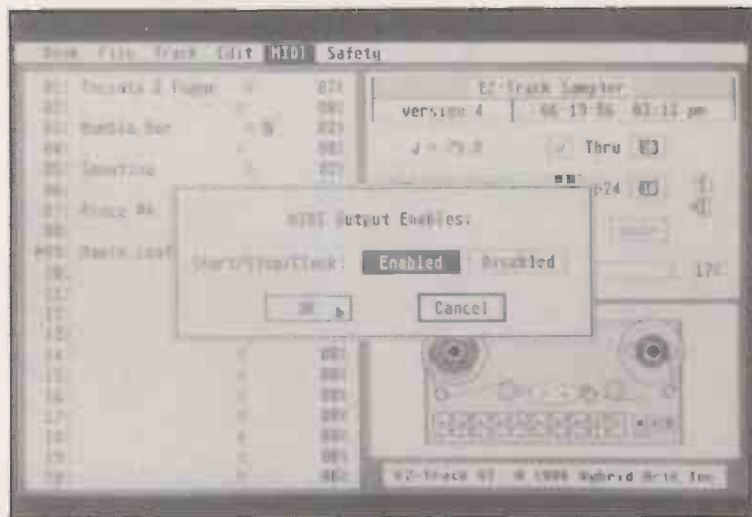
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Hybrid Arts EZ-Track Sequencer



IN A LITTLE less than a year, over 30 MIDI software packages have appeared for the Atari ST series of home computers. Most are aimed at the professional and have a professional price tag to boot. Not so Hybrid Arts' EZ-Track which, at under £60, is the cheapest dedicated ST MIDI sequencer on the market (not counting programs which use the ST's sound chip and just happen to have MIDI facilities).

Like much MIDI software these days, EZ-Track aims to simulate the workings of a tape recorder. All operations take place on one main screen, which has a track display on the left and a control display on the right. The track display lists all 20 tracks, and as you record on them, a line of information builds up from left to right. There's the track number, track name, track on/off arrow, an end of track marker, an activity indicator, a change marker, the MIDI channel number, a protect marker and a figure showing the memory used as a percentage.

Here's an explanation of the ones which may not be self-explanatory. The end of track marker appears when a track has reached its end (easy, see). The activity indicator flashes whenever information appears on that track, and there are 10 symbols which show how many notes are playing at the time. This is really just a convenient way of seeing which tracks are active. The change marker, a small red 'c', shows if you've altered a track since the song was last saved to disk, and the protect marker shows if a track has been protected so you can't record over it. Protect is selected from the Track menu.

The right half of the screen displays the controls. Here are the record/play, stop and pause buttons, and here you can alter the tempo and transpose the song. You can also switch in the ST's MIDI Thru facility, which sends info appearing at the In socket through to the Out socket.

File handling is very comprehensive. You can save a song as a new file or update an existing one. Thoughtfully, this doesn't remove the old file just in case you made a mistake. There are format disk and delete file options, too.

The editing facilities are probably EZ-Track's weakest area, though there are enough to enable you to produce good solid recordings. The good news is that an enhancement disk with better editing facilities (including looping and punch-in) is on the way.

As things stand you can copy a track, mix tracks and time-correct a track. When you mix tracks, the original channel assignments are maintained, although you can assign the

track to another channel if you wish. The correction value in time-correction can vary from a half-note (minimum) to a 32nd-note triplet, and the correction is accomplished by copying to another track. All these operations leave the original tracks intact.

Although a punch-in option is yet to come, you can simulate a punch-in by recording on an empty track and mixing the two together. Simple.

The MIDI menu has two options: Mode and Out Enables. The latter turns the transmission of MIDI clock data on and off, while the former is used to select the output mode. Individual channels can be given MIDI assignments, but the program doesn't display the last selected option, which is rather a nuisance. It also lets you switch Local control on and off, a useful facility in certain circumstances, but rather esoteric – I'd have thought – in this package.

The manual cops out of explaining the MIDI commands by referring you to your instrument's manual – okay, you guys, who's gonna explain this one? It's a shame, because this is one area where users need all the help they can get. Otherwise, the documentation is very helpful.

Real-time recording is a doddle. The program is always in record mode, so whenever you play anything, it records it. Before it stores it, however, you must click the Keep icon. If you're about to overwrite an existing track, the program asks for confirmation and you can save it to another track.

You can increment the tape counter (but not decrement it) by beats, 16th-notes and clocks. At each stage you can play a note or chord, which gives you limited step-time facilities. I found this too awkward to be practical and would suggest you record the hard bits in real-time – very slowly.

EZ-Track is a nice introduction to MIDI, and it'll be even better with the enhancement disk. If you want to test the MIDI water without spending an arm and a leg, then it can certainly be recommended. And if you like splashing around and decide you would like to upgrade to one of Hybrid Arts' bigger programs, you'll qualify for a discount, which is nice.

However, EZ-Track isn't just an introductory package; it's quite capable of being used to produce good results and good music – as the demo pieces prove – and it's incredibly easy to use. ■ Ian Waugh

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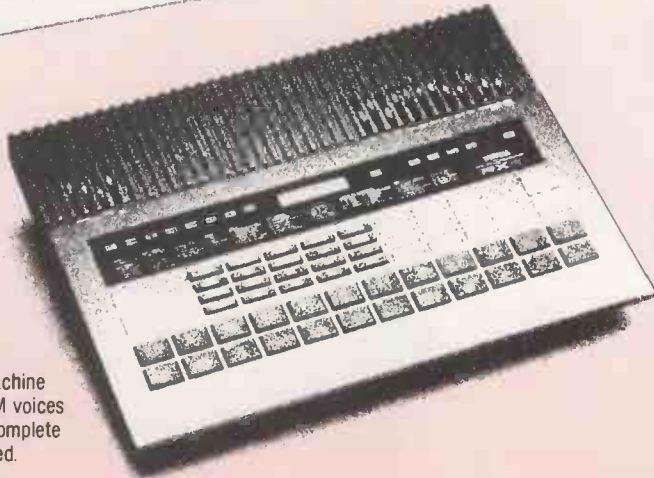
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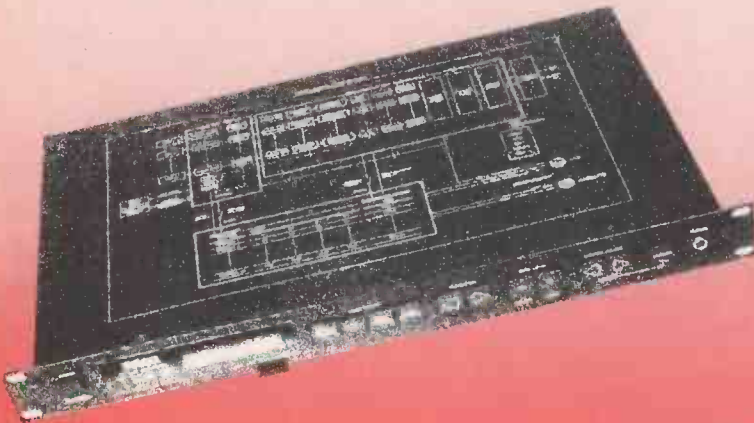
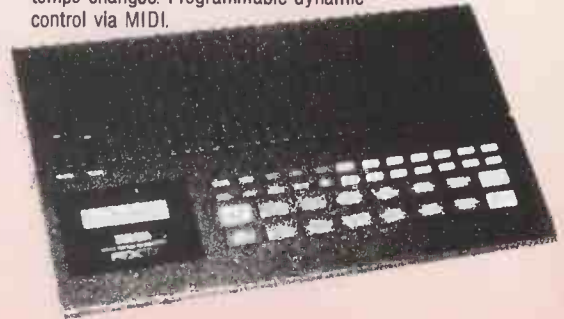
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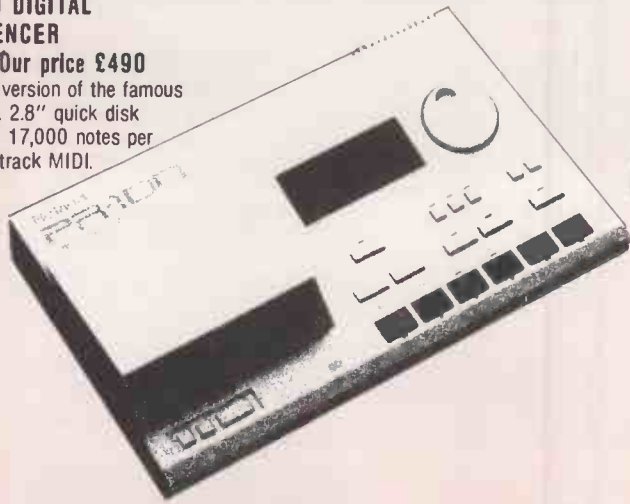
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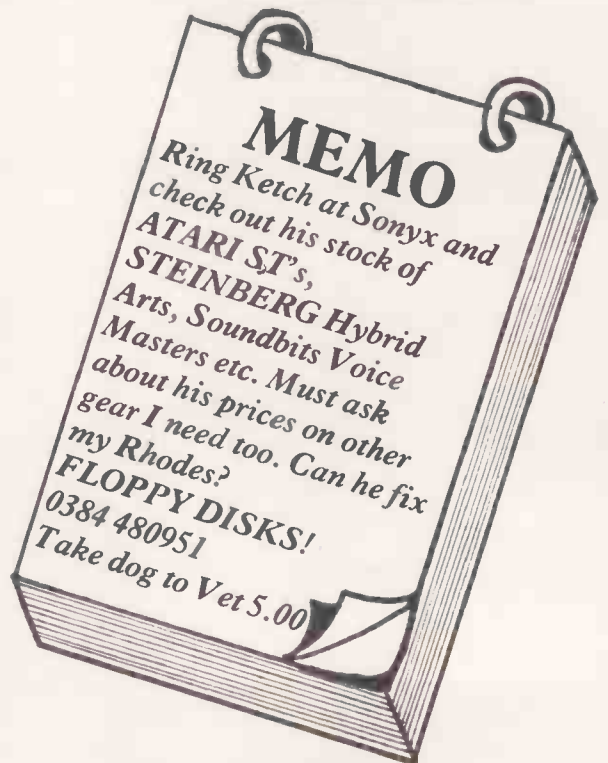
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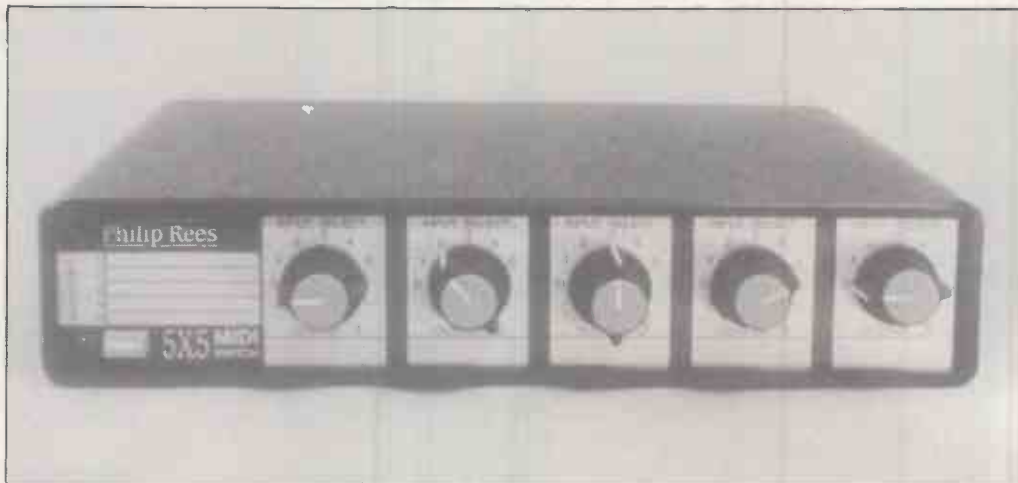
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Philip Rees 5X5 MIDI Switch



ONE AREA WHICH requires some thought when your collection of MIDI machines starts to grow is just how you're going to connect them all up. The simplest way, of course, is to chain them together. But aside from the fact that not all instruments have the requisite MIDI Thru socket, chaining is generally frowned upon due to the risk of data corruption when more than two or three instruments are linked up in this way.

The next step is a MIDI Thru box. This can be passive (merely passing the data out of several Thru sockets) or active (allowing you to switch individual Thru sockets in and out). But this is a relatively simple setup which won't necessarily provide all the flexibility you require.

Cue the MIDI patchbay, which allows you to connect several MIDI inputs to any of several MIDI outputs. Latest in a long line of MIDI patchbays which has included offerings from Quark, Sycologic, Akai, 360 Systems and Yamaha is the 5X5 MIDI Switch from British company Philip Rees. At under £100, the 5X5 also happens to be one of the cheapest MIDI patchbays, the only comparably priced unit being Akai's four-in, eight-out ME30P.

As its name suggests, the 5X5 allows five MIDI inputs to be connected to any of five MIDI outputs. The only proviso is that no more than one input can be routed to an output – this would involve two MIDI signals being merged together, which would require a level of sophistication greater than that necessitated by the mere rerouting of signals.

It's also possible to chain together up to three 5X5s, or a combination of 5X5s and X5X Switch Expanders, to give five-in/ten-out or five-in/fifteen-out setups.

Unlike the other manufacturers noted above (with the exception of Quark), the 5X5 is a hardware-only device, ie. there is no microprocessor control. There are no optoisolators in the MIDI circuitry, allowing the unit to achieve a fast throughput. The MIDI inputs are floating relative to each other, and isolation is provided by a custom-designed transformer.

By necessity, though, the above approach means that the 5X5 is devoid of programmability, and thus of the memories to be found on other units such as the ME30P and 360 Systems' MIDI Patcher, which allow you to store your routings and call them up either from the front panel or over MIDI. On the other hand, the individual input selector knobs for each of the five outputs make changes to routings an easy process. These, together with the

spaces provided on the front panel for labelling your five MIDI inputs and outputs, mean that you can see at a glance what is assigned to what.

Rees have also provided each input selector with a "zero" setting which switches off the output to the relevant MIDI device. This can be a handy way of temporarily "removing" a particular instrument from a sound texture, but as with all changes to routings on the 5X5, you need to take care to avoid the possibility of the MIDI drone.

This is because, as a hardware device, the 5X5 takes no action to remedy what is essentially a software problem. It's worth bearing in mind that if you're using instruments which send and receive MIDI active sensing then there's no problem, because the receiving instrument(s) will take care of business as soon as the MIDI data flow is interrupted. On the other hand, it can be preferable to avoid the use of active sensing – notably if you're using a sequencer, where such "additional" data can use up valuable memory.

One area where a MIDI patchbay really scores is that of storing patch data via System Exclusive codes to a central machine such as a computer running patch librarian and/or editing software – something which is becoming increasingly common. In this context, all your instruments need to be able to both send and receive over MIDI – so having an equal number of inputs and outputs makes a lot of sense. The 5X5 allows you to connect four instruments in this fashion (the fifth input/output being for the computer or dedicated MIDI storage device).

The 5X5 performs its allotted task well, if without the finesse of software-controlled MIDI patchbays. Its clear front-panel layout and ease of operation are a definite bonus, as are its expandability and its reasonable price.

Still, you should think carefully about whether you'd miss programmability and the possibility of MIDI control, whether the lack of evasive action over MIDI drones will be a problem, and whether other, more expensive units (notably the Quark MIDlink 999) will provide you with more flexibility in the long run. ■ *Simon Trask*

Price 5X5 MIDI Switch £85.95, X5X Expander £69.95; both including VAT and p&p
More from Philip Rees (Modern Music Technology), Unit A, Park End Works, Croughton, Brackley, Northants NN13 5LX. ☎ (0869) 810830, or (0865) 250709

Rice Drum Software



LET'S FACE FACTS. The BBC Micro is an excellent computer, but suffers from a dearth of musical add-ons. Whereas umpteen MIDI interfaces, samplers and goodness knows what are available for the Commodore 64, the poor Beeb is rather badly done by.

Rice Computer Electronics have thoughtfully stepped in with a drum unit for the good old Beeb, compatible with the Model B and the Master. It's similar to C64 drum software in that it uses a D/A converter to play back sounds whose digital make-up resides inside the computer. The manual says the voices are "computer-generated digital drum sounds" and digital and analogue methods were used in their creation. The result of all this scientific endeavour is the production of sounds with very low background noise – good for recording.

The Rice drum machine was released several months ago and the software has recently been updated. The current disk includes both versions, and as version 1 can do a couple of things version 2 can't, we'll start with that.

First off, the program is a cinch to use. If you've ever dabbled with a programmable drum machine, programming the Rice Drums will be like falling off a cabasa. It works thus: you program a number of rhythm patterns then chain them together to form a complete drum track.

The pattern screen presents you with a grid listing the drums down the left and the pattern steps along the top. There are eight drum sounds: bass, snare, two toms, metronome (clave), cowbell and open and closed hi-hats. What do they sound like? Well, they're pretty good. In fact, they're a pretty marvellous 45 quid's worth. You can switch the bass drum sound between a standard thump and a modern click, use normal or electronic toms, and switch between normal and bright hi-hats.

Drums are inserted with the function keys and can be entered in real and step time. During step-time entry, the rhythm keeps playing so you can hear your pattern build up.

Now for some figures. Up to 64 patterns can be programmed, each containing up to 16 steps. A maximum of 80 patterns can be linked together to form a track, and the program will store up to 12 tracks. Tempo can be varied from 1 to 80.

There are lots of nice editing facilities. You can flip from pattern to pattern forwards and backwards. You can also move to another pattern number but retain the same

setting, so it's easy to build up a set of slightly different patterns and relocate existing ones.

Other aids include being able to clear the entire pattern, erase a single line of drums, and fill the hi-hat. Keys 1-8 produce various reference grids along the top of the screen to help you see where the beats are.

There is a cute echo facility which adds a reverb effect to the drums to beef 'em up a bit. It works, too.

Patterns and tracks can be saved to disk, although they are all saved with the name Data suffixed by a number from 1 to 8, which is not very informative. It also restricts the number of files you can save to a disk to eight, which is wasteful.

Finally, as an optional extra, you can have a trigger output fitted which will control the likes of a Roland SH101 synth.

The updated software has several new features. The tempo can be varied from 1 to 255 and a pattern can contain up to 32 steps, but the trade-off is a reduction in the total number of patterns to 32. Yes, the memory limitations of the Beeb are showing – though perhaps some clever coding could solve the problem. The echo has gone (big "ah!") along with the bright hi-hats. And for some reason, when you enter step-time mode the pattern stops playing, so you have to flick to real-time to hear the pattern. A nuisance.

On the plus side, there is an auto bass-drum insertion every four, six or eight steps, and a quick way of setting the trigger pulses and tempo, too.

Although the program is easy to use, a few more instructions wouldn't have gone amiss. The key repeat has been disabled, too, which I generally found annoying. I hate jabbing at things, especially keys.

Did I like it? Well, although the software could be tidied up just a little and a few more drum sounds to choose from would be nice, let's put it like this: if I wanted a drum machine and had less than £100 to play with, I'd buy this – and get change, too.

Rice are currently adding a sequencer and bass-guitar synthesiser to the system, and the drum library is being expanded to include audio recordings as well as computer-generated ones. That lot will set you back around £85.

Nice one, Rice. ■ Ian Waugh

Price Rice Drums cassette – £45; disk – £47.50; trigger interface – £12.50.

More from Rice Computer Electronics, PO Box 2, Morecambe, Lancs, LA4 4PP.

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YOURSELF

The key to playing a successful concert is holding your audience, but few musicians have any idea how to behave on stage at all. We report on a unique way of increasing on-stage confidence.

Text by Paul Tingen.



“AN ARTIST IS either dangerous or dead” is quite a bold statement to make, but it’s one which lies at the heart of the work of the Actor’s Institute in London. Now, you may justifiably cry: “What’s a feature on acting doing in this magazine? I’m a musician/programmer/engineer/producer/shopkeeper (delete where applicable), not an actor”. Fact is, however, that the Actor’s Institute runs a weekend course called The Mastery which has led many people to take a remarkable jump in their creative and performing skills. Because, as far as the Actor’s Institute is concerned, every form of professional communication stands or falls with one’s mastery of those skills.

“Yes, The Mastery is definitely suited to musicians”, says Lynne Lesley, who’s director of the Institute, and who also leads Masteries. “It hands people a lot of techniques to improve their performance. We try to make people take risks and stimulate them when they’re face to face with an audience. That’s very important for musicians, because they have, even more than actors, the possibility to react to what’s going on in the audience, to let themselves be led by that energy.

“The point is to learn – not to recreate what happened yesterday, but to be creative in the moment. That means taking risks and it puts the artist in an exciting and dangerous position, hence our ‘dangerous or dead’ slogan. But really, the same applies for everyone who’s dealing with people.”

The Mastery, which includes individual presentations, prepared pieces, emotional exercises, improvisation and group work, was conceived by the American actor/director Dan Fauci ten years ago in Los Angeles. The explosive workshop, originally created to improve the performance skills of actors, soon proved successful with all kinds of people – secretaries, managers, teachers as well as artists – and led Dan Fauci into founding the first Actor’s Institute in New York.

Now, almost a decade later, there are Actor’s Institutes in London, New York, Boston, Montreal, Toronto, Austin, Chicago, Los Angeles, Vancouver and Paris. The London Institute is now also running courses in the Netherlands and Germany, too.

Today, the official “purpose of Mastery” is given in the program books as: “for you to discover your own creative power and your ability to be moving and inspiring”. Pretentious wording, perhaps, but the aims are worthy enough.

All Mastery leaders are intensively trained by Fauci, and Lynne Lesley is one of them. When asked what the Mastery’s

MUSICTECHNOLOGY MAY 1987

secret of success is, she answers: "I think one of the reasons is that we have no 'method'. We bring people on stage and work with them, there and then, from where they are, and encourage them to take the risks they are willing and ready to take. That's why the workshop can be attended by both amateurs and professionals. We don't judge, and say: 'this is good or bad'. All we care about is that people discover a bit more who they are and what they're capable of."

"In that sense it's a clever workshop. On Friday we ask people what they want, on Saturday they get what they want, and on Sunday they get even more, things which they didn't expect. So they always come out winning."

As a leader, Lesley has also had a lot of experience in working with musicians. Is there anything she finds striking about their attitude to performing?

"Yes. One of the things is that musicians are usually very much focused on their technique. Sometimes it's almost as if they're hiding behind it, or behind their instrument. I know technique is important in music, but from the moment you go on stage you should be able to forget about it. The technical problems should remain in the rehearsal room. In The Mastery we're dealing with the next step, which is performing."

Which is all very well, but hardly an objective assessment of The Mastery's appeal. Sandra Turnbull, who's been managing the Eurythmics with her husband Kenny Smith for the past four years, took the course a year ago, and says it made her look at her whole life in a more creative way. It changed her attitude to managing, and gave her an abundance of energy.

To that, she adds: "I'm working with some up-and-coming bands now like State Of Play, and recommend The Mastery to them absolutely. It gives a performer a mini-version of what happens on stage, with the possibility to experiment, take risks and get a second chance. The feedback from the audience is invaluable there."

"While you're doing it, it feels monumental, like a bang on your nose, but afterwards it's very subtle and gives you a



chance to step to the side and look at what you're doing."

Phoning around to other people who've done The Mastery creates a rather unreal picture. Not a bad word, just lyrical enthusiasm.

Take Linda Lou Allen, a professional singer and comedienne for more than ten years: "It was very stimulating, it taught me to look at my work from a different angle..." Or Nigel Watson, songwriter and drummer with Three Mustafas Three: "Mastery helped me to break several bad habits which kept me from doing my work. It put me right in the middle of a flood of creativity."

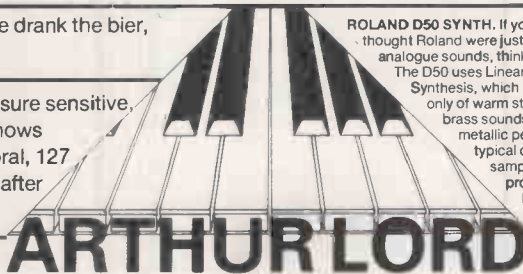
Let's leave the final word, then, to Lynne Lesley. "I remember what it felt like when I was a little girl and managed to cycle for the first time without those little wheels at the side. That was very exciting, and I think a lot of people who've done Mastery feel like that afterwards." ■

The Mastery is run once every 3-4 weeks by the Actor's Institute, 137 Goswell Road, London EC1V 7ET. ☎ 01-251 8178. Cost is £115.

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MACINTOSH

Apple have introduced two powerful new computers to the Mac family. How do their specifications compare with those of the existing machines, and what will they mean to musicians? Text by Jim Burgess.

THE SCENE: a smoky auditorium. Men in suits. The Apple logo everywhere. Dry ice fills the stage. Then, rising slowly and tantalisingly out of the fog: an IBM PC? No, it's the new Macintosh II. It just looks a little like a PC.

With much pomp and pageantry, Apple have finally let the cat out of the bag. The end result of all the rumours we'd been hearing since last year is indeed worth the wait: two powerful new Macintosh computers have been introduced, the Macintosh SE and the Macintosh II.

The SE is essentially a souped-up Mac Plus. It has the same basic appearance but offers some significant speed and performance improvements, along with expandability and a large complement of powerful new features.

The Macintosh II, on the other hand, leaves Mac tradition behind. It boasts stunning colour, six expandable slots for add-on cards, blinding speed, and enough computing horsepower to leave its ancestors in the dust.

Of course, both computers are compatible with existing Mac software. In addition, Apple's new Interfile system is designed to offer either computer compatibility with MS-DOS (read IBM) software applications, a move that should help



Apple's efforts to establish the Mac with Big Business. Further to this end, both computers offer a choice of keyboards, including one that looks suspiciously like a PC keyboard, complete with function keys.

And both the SE and the Mac II feature ADB (the Apple Desktop Bus), the low-speed serial communications bus Apple introduced on the IIGS which permits up to 16 input devices to be connected at once.

The Macintosh SE

THINK OF THE SE as an expandable, high-performance Mac Plus. Although it looks like a Plus from the outside, the SE has a

totally new internal design. For example, a single new gate chip array replaces nineteen Mac Plus chips. Like the Mac Plus, the SE comes with 1MByte of RAM, and can be expanded up to 4MByte on the logic board. It comes with twice as much onboard ROM (256K) as the Mac Plus, presumably to accommodate AppleShare (Apple's new file server) and a few new surprises. Users may choose between two 800K floppy drives or a single 800K drive plus an internal 20MByte SCSI hard disk. The IWM (Integrated Woz Machine) floppy disk controller operates twice as fast as that of the Mac Plus, making it suitable for future applications such as accommodating 1.6MByte floppy drives when they become available.

Since the SE uses the same Motorola 68000 CPU (Central Processing Unit) as the Mac Plus, you might be wondering how Apple managed to make it perform 15-20% faster. Part of the answer lies in a change in the ratio of video accesses by the CPU, which effectively makes it available for computing about twice as often as its predecessor. Hard-disk users will be pleased to note a doubling of the SCSI transfer rate, partly thanks to a newer, faster version of the SCSI driver on the SE's ROMs.

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Most important of all, SE actually stands for System Expansion. The SE-Bus is a 96-pin connector that provides direct access to the 68000 (and the rest of the logic board). Custom third-party expansion cards can be installed easily and, if necessary, can be connected to outside peripherals via the Accessory Access Port on the back panel. Speaking of the back panel, it looks pretty much the same as the back of a Mac Plus: you'll find the same Modem and Printer ports, a disk drive port and a SCSI connector. Two ADB connectors (they look like the Modem/Printer ports) replace the mouse port and keyboard jack.

Because of the major internal design changes mentioned previously, Apple cannot provide an upgrade policy for existing Mac 128, 512 or Plus owners. Since just about all of the boards are different, I suppose Apple think it makes more sense to sell your Mac and buy an SE if you're so inclined.

The Macintosh II

NOW IT'S TIME to get serious: this is one very powerful computer. And with luck, its arrival will mean that MIDI users get a constant series of treats from third-party hardware and software manufacturers over the next few years.

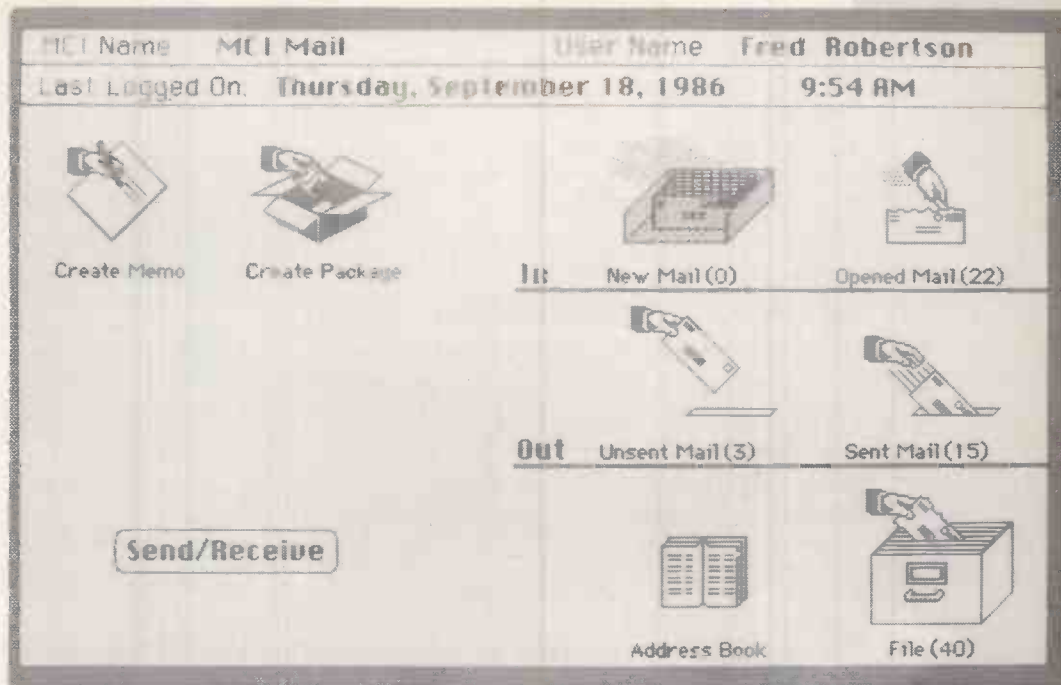
From far away, it really does look like an IBM PC. Not for long, mind you; as soon as you get close enough to see the screen, you know you're looking at something new — brilliant colour with amazing resolution. Prospective Mac II owners have a choice of either a 12" monochrome or a 13" RGB monitor. Those of you who have been squinting at those puny 9" screens for years can take heart.

The standard Mac II video card offers 640x480 pixel resolution and supports either monitor. It offers a palette of over 16 million colours, of which it can simultaneously display 16. An optional eight-bit Video Expansion Kit permits the video card to generate up to 256 colours or shades of grey at once.

Unlike that of the IBM PC, the Mac II's software never needs to know which video card is installed. That means you'll never have to buy a special video card to use a certain program. In the US, high-performance, third-party video cards are already on the way. SuperMac Technology have shown a prototype eight-bit video card with 1024x768 pixel resolution, enough to provide a huge high-resolution display. And AST Research have announced an eight-bit per pixel video digitiser for grabbing real images in colour. Computer animation may never be the same.

Perhaps the best news of all lies in the six expansion slots that conform to the NuBus specification, a bus protocol originally developed at the Massachusetts Institute of Technology and already in use by Western Digital and Texas Instruments. NuBus offers card developers unparalleled flexibility in direct, 32-bit interfacing with the Mac II's CPU and logic board.

Some specs to drool over. The Mac II is based on Motorola's new 68020 32-bit processor, which operates at 16MHz. It also comes standard with Motorola's MUSIC TECHNOLOGY MAY 1987



68881 floating-point arithmetic chip, a co-processor that can perform math operations up to 200 times faster than the 68020 can on its own. This enables the Mac II to process data at a rate of over 2 million instructions per second. The Mac II's SCSI port transfers data at a rate of over 1MByte per second.

The computer is available with a number of different drive configurations. All Mac IIs come with at least one internal 800K floppy drive. The second drive can be either another 800K floppy, or your choice of 20, 40 or 80MByte internal SCSI hard drives. As with the Mac SE, a revised IWM floppy controller chip capable of supporting the soon-to-come 1.6MByte floppy drives comes standard.

► *“Apple cannot provide an SE upgrade for existing Mac 128, 512 or Plus owners. Just about all the boards are different, so it makes more sense to sell your Mac and buy an SE if you're so inclined.”*

The Mac II comes with 1MByte of RAM on the logic board, expandable to 2MByte. But towards the end of the year, you'll be able to buy the Mac II with 4MByte of RAM onboard, and expand to 8MByte if necessary.

If that's not enough for your memory requirements, don't worry — external NuBus memory cards can be added at will. ►

► And the back panel of the Mac II features the very same type of Modem and Printer ports as those on the Plus and SE, assuring compatibility with most existing peripheral devices.

Appletalk (Apple's own networking communications system) comes standard,

► "Mac II users will have the option to use someone else's operating system. In addition to IBM MS-DOS compatible products, Apple will provide a version of the UNIX operating system known as A/UX."

but the Mac II will also be able to take advantage of more powerful networking protocols such as Ethernet (boasting a 10 MByte/second transfer rate).

On the subject of communication, Apple plan to break with tradition by giving Mac II users the option to use someone else's operating system. In addition to the aforementioned IBM MS-DOS compatible products available for both the SE and the Mac II, Apple will provide a version of the UNIX operating system known as A/UX.

What about the sound? At last Apple have seen fit to improve the Mac's sound capabilities, much to the benefit of musicians. The Mac II features four-voice stereo sound generation featuring a new custom sound chip. The ASC (Apple Sound Chip - what else?) offers two 1K sound buffers, permitting the computer to

play wavetables or samples. Sony chips handle audio functions like filtering and amplification. Best of all, the Mac II can generate sound without tying up its CPU in the process.

The Potential

WHAT ALL THESE specification details mean is this. The expandable, high-speed Mac II opens the door to more advanced computer music applications than have ever been available. The upward software compatibility offers an existing library of the most powerful music software currently available. And many new music-related products are already under development.

The first thing we'll probably see is a cheap Mac II MIDI interface on a NuBus card. And a SMPTE/MIDI/MTC card should also be under development soon.

But that's only the beginning. It shouldn't be long before a number of companies introduce high-quality 16-bit A/D and D/A converters that will turn the Mac II into a self-contained digital audio workstation.

Synthesizers may look very strange when they first start showing up in the form of PC cards, but we'll get used to it soon enough. Why not? There are enough plastic ivories around already, and the idea of a software-controlled card containing high-quality components like DACs, VCFs and VCAs should catch on fairly quickly, even if previous attempts on more primitive systems won relatively few friends.

A couple of closing thoughts. I can't help but think that somebody's going to take advantage of the UNIX operating system for musical applications. UNIX's multi-tasking capabilities must be able to play a role in the recording studio of the future, especially if that studio contains a number of Mac IIs assigned to different real-time control functions.

The availability of colour and much more powerful graphics will undoubtedly have positive implications for music software. Besides making programs look nicer and perhaps more convenient to operate, colour offers a whole range of useful new ways to display certain types of data more effectively. Fourier displays, multiple envelope shapes, sequencer note event-editing grids and other types of crowded graphic displays will reap the benefits of colour to make them more informative.

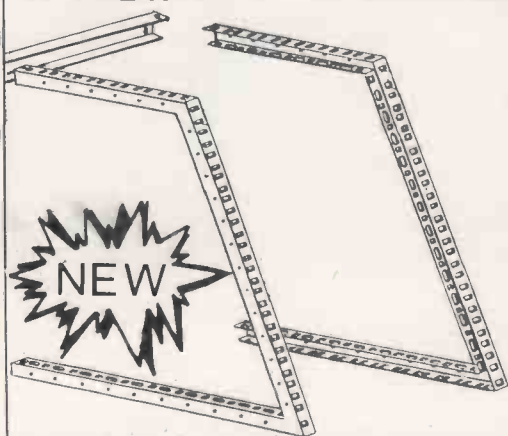
And I hope to see programs that use the Mac II's great graphics and high speed to bring the creative elements of music and graphic art closer together. Animation driven by music; music created by animation.

In the UK, the Mac SE and (especially) the Mac II will not come cheap. The former will set you back at least £2500 (for a dual-floppy machine), while the latter will leave you little change from £5500 if you want a 40MByte hard disk unit.

Hardly Amstrad money, but then these are hardly Amstrad machines. And when you set those prices against £60,000-odd for a Series III Fairlight, you begin to see why I'm so enthusiastic about these computers. Their initial impact may be small, but it will be very significant. ■

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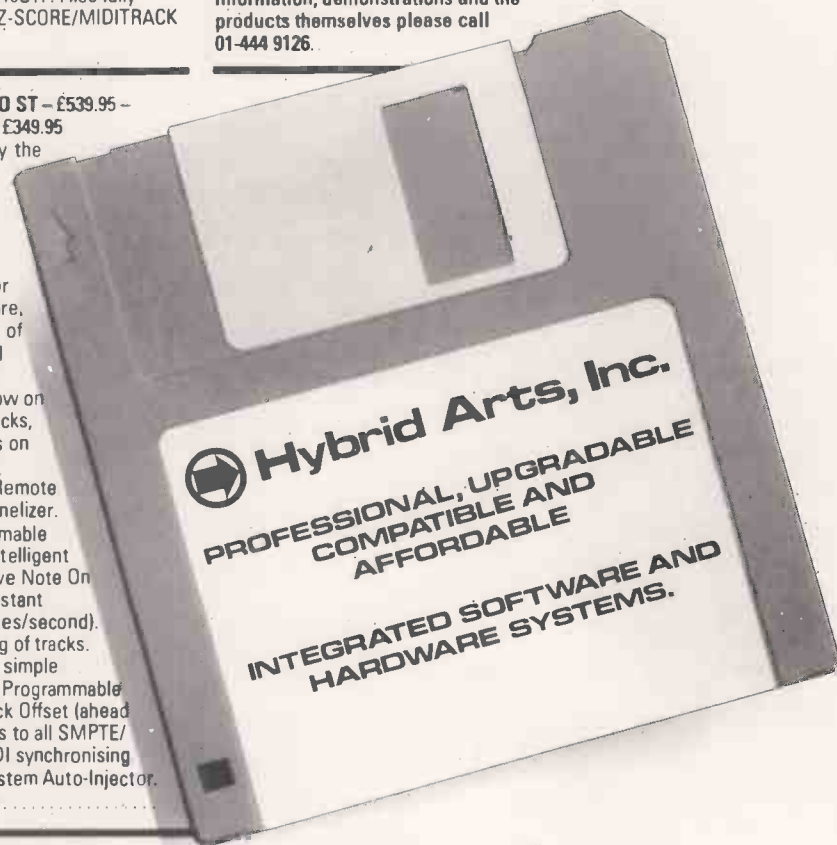
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B E H I N D h o l l y w o o d B E Y O N D



...Is Mark Rogers, musician, singer, songwriter and artist. Why has he not had a hit single since 'What's the Colour of Money?', and why did it take six producers to help make his debut album, 'If'? Interview by Tim Goodyer.

QUESTION: WHEN IS a band not a band? Answer: When it's a flexible collective of musicians assembled to perform one man's songs. Not a new idea, admittedly; in fact, it's one that occurs to most musicians at some time or another. The advantages are obvious: nobody ever tells you your latest song stinks, or asks you to play things you know you'll never get your fingers round this side of Trevor Horn's next production. There are drawbacks, too, but let's remain positive for the time being.

The collective in this case is Hollywood Beyond, who you may remember for a powerful little ditty entitled 'What's the Colour of Money?' that climbed high in the singles charts last year. If you missed that, it's unlikely you'd have noticed its successor, 'No More Tears', which failed to build on the success of 'What's the Colour of Money?' despite the fact it was basically a better song. So much for the fickle British pop market. Undeterred by this failure, both band and record company seem confident of success with single number three, 'Save Me', and a stirring LP of thoughtful pop called *If*, waiting in the wings for May release.

Hollywood Beyond are the creation of singer/songwriter/keyboardsman Mark Rogers, who did the rounds in his native Birmingham before making the move to London and signing to WEA. He's in a perfect position to decide if a band built around one man's music is the perfect vehicle for self-expression, or merely a severe attack of egotism.

"I'm not a dictator", he says, "but I've done time in bands and it's not for me. If you believe in what you do, people call you arrogant. But if you don't, then nobody else is going to either. I think the reason bands form is because they have secrets to keep. I've got my secrets but I'd like to share them with lots of other people.

"I welcome constructive criticism but I've been in too many bands that couldn't make their minds up about things, or where people have said 'OK, I'll play it' without believing in it, which is even worse. If you ain't got a vibe for something, you shouldn't be playing it."

But don't get the idea that Rogers is either arrogant or egotistical. He sits relaxed in a record company office, happy to talk about himself and his music. I ask a question, he pauses to consider his answer. Suddenly I know I'm talking to a man who is the product of the continual frustrations ▶

► of playing in pop bands, but with ideas and ambitions he still needs to realise. Cue Hollywood Beyond.

"It's actually three people", he reveals, "There's myself, Jamie B Rose and Cliff Whyte. Cliff's an engineer who does our live work, Jamie does a lot of lyric writing with me and also helps visualising things. We're all from Birmingham and we put Hollywood Beyond together as an umbrella under which we can fulfil our ideas."

If I wasn't convinced by Rogers' own insistence that he's no one-hit wonder, a quick rundown of the producers called in between London, New York and LA to polish up the sound on *If* made his air of optimism contagious: Mike Thorne (Soft Cell, Communards), Stephen Hague (Pet Shop Boys), Bernard Edwards (Chic, Power Station), Phil Thornalley (Robbie Nevil), and Marcus Miller and Tommy LiPuma (Miles Davis). Hot stuff.

"I've worked with a lot of cream producers", Rogers concedes, "but I don't want to shout about it because people will start asking who the hell I am to get all these big name producers. Well, my management and record company have been right behind me, God bless 'em, and I needed to learn how different people get to the same point – the finished song. I wanted these people to help me bring out what I wanted from my songs. For example, 'Vision of Love' is a very up-tempo R&B track, so who's the baddest rhythm section going? Bernard Edwards, right? So it's got to go to him."

"Another reason I wanted to keep changing producers was to avoid settling into their routines. I don't want anyone else putting their stamp on my music – I'll put my own stamp on it."

On another, more technical level, Rogers also has his reasons for mixing and matching producers from both sides of the Atlantic.

"One thing I like about the American approach to recording is that everything is laid-down with effects on it. That way, your picture starts taking form as soon as you press the button and go. Some producers record things flat and say it'll be alright in the mix, but that's bullshit. As soon as you put anything to tape it's got to be effective so that, by the time you've put your last part down, you know how well your song is working and where its inadequacies are."

"When you put your basic tracks down, it should be like a painter putting the first wash on a picture; then you can look at it and say 'I'd like to colour here and here'. At the moment I don't really know what I learned, it's all swimming around in my head, but I'm waiting for the right time for it to come out."

WITH A LIST of credits looking like a 'Who's Who' of modern producers, it's taken as read that high technology has played its part in the proceedings. Rogers is adamant that, like the musicians and producers who have helped him, equipment is also there merely to fulfil his requirements.

"One of the tracks I did in America on the Synclavier. It was the first time I'd ever used one and I was seeing all these disk drives empty and thinking 'shouldn't I be filling these?'. I was having this fight with myself: *I'm* in control, this machine is here to do a part of this job. OK, it's a Synclavier, but that's not the point. What I'm trying to do is to create a song and this is something that is supposed to make my job a little bit easier."

And though Rogers admits that New England Digital's finest helped him get the basis of a song together, it seems that in the midst of the latest state-of-the-art technology, it was human beings who provided the vital musical spark.

"There are certain things that make up music and they don't include a product that's had all the feeling produced out of it. Music is something that's emotive and only happens now and again. It's a performance, and the more performance from different people there is on a track, the more it comes alive to me. Check out all the great songs of the '60s and '70s – there are all these out-of-tune guitars going on, but it still sounds brilliant. What they created was music because it was played with feeling."

"A lot of music now has no guts, no soul. What people call soul isn't what I call soul. It's not a category in a record shop, it's someone who sings or plays from the heart regardless of the music. It's like delivering a vocal: it's how I feel about it on the day, it's not the definitive vocal performance. Live I'd deliver it in a different way, that's the only way to do it. I never piece vocals – I'll do maybe four takes and then pick the best from those. If you try to get one phrase right at a time you come out sounding cold."

"The most important thing is casting a record – you have to know what feel you want and what musicians have that feel. For example, I used Bruce Smith from PiL on 'What's the Colour of Money?', and the moment I heard his snare go down I knew he was right for it."

"I'm into technology because it makes life easier, but only as long as it's sympathetic to my needs – I don't want the machines taking over. I'm getting to the point now where I'm cutting down on my equipment, because I want to get back to the basics of writing a song. A good song should translate with just a vocal and a guitar – if you've done that you know you've got a good song."

"I have a UMI system at home which is great for working on my own. With a band you can say 'OK, eight bars of this then we'll switch to this', but with the UMI I can chop my arrangements around and listen to them instead of having to imagine them. That's a very useful thing for arrangements, but it's no good plugging it in to write on and expecting it to do something itself. The most important factor in creativity is the exchange of ideas."

"What I really like about UMI is the sound library – it means I can have a large selection of sounds available without

MUSIC TECHNOLOGY MAY 1987



having to have a huge amount of equipment. I drag things in, I steal their sounds, I put them on disk and that makes life a lot easier from a writing point of view. Different sounds evoke different emotions, so the bigger your library, the greater your choice of emotions."

THE SOFTWARE FORMS the basis of Rogers' home writing and arranging suite, which also contains an Ensoniq ESQ1, Roland RD1000 electronic piano, Yamaha FB01 FM expander, a Yamaha four-track recorder and a drum machine whose identity remains a closely guarded secret.

"I won't say what it is because I hate it. It's not an SP12, because I've worked with that and I'd like to get one soon, and it's not a TR707 because I like that, too. I'm not very good with drum machines, so the display on the TR707 is great. When I'm writing, I don't pay too much attention to the start and end of the bars - I like to play with the tap facility and try to get into the feel of the rhythm I want. The trouble is that if the pattern doesn't fall into a proper bar in the machine, it can be difficult to isolate the bit I want. With the 707 I can read it from the display and reprogram it. I'm not a drummer and I don't pretend to understand a lot of rhythmic things from a drummer's point of view so, to me, that little screen is one of the most valuable parts of the machine.

"I find the ESQ1 invaluable for writing because it allows me to voice so many different sequences. Then I can string them together in songs, edit them and mess with them. When I went to Jamaica and New York I dreamed up this 'travelling unit' with the ESQ1, a drum machine and the four-track machine all in one case. It was a great idea until I picked the bloody thing up..."

As a classically trained pianist, Rogers is in no doubt about the RD1000.

"It's the only keyboard I've found that comes close to a grand piano", he asserts. "Synthesiser keyboards just don't have that kind of weight. I use it for my writing and as a MIDI controller for the FB01. I like the FB01 but I've gone off that digital sound at the moment. I want to get back to big fat analogue sounds. I feel synths should sound like synths, not like other instruments, so I'm toying with buying a Moog - there's nothing like that sound and that knob-twiddling search for sounds."

But the sounds come as a secondary consideration to the songs. A sneak preview of *If* reveals a collection of refreshing pop songs where a classical cello may find itself alongside a koto and a collection of vocal samples, but only where the song demands it, not where it makes the kind of production sense that boosts record sales. The key lies in Rogers' approach to writing. As often as not, inspiration strikes when he's away from what he refers to as his 'tools'.

"The ideas tend to come when I go walking or something. I like making rhythms with my feet and things like that.

That's how I tend to write, not necessarily when I'm near a piano. I'll be walking down the street and I'll start whistling something and that's an *idea*. Everybody must have them, if only they'd put them down. I tell people this and they say 'but I can't play anything'. You don't have to be able to play anything. There's this big taboo about musicianship; if you appreciate music, then I think you're musical.

"Right now I'm trying to brush up on my technique because my piano playing is disgusting. I'm losing a lot of electronic gadgets in order to go back and learn my basic playing technique. But that's not because I need it for my writing, it's because I need it for myself - it gives me pleasure.

"When you have an idea, all you need is the ability to get that idea over. I believe everybody who loves music must be able to create music. All you need is something like this thing I'm talking into now to hum your melody line into. There are enough people out there that can play it for you - it's the ideas that are the important thing. People tend to forget that.

"I need another Walkman or a dictaphone myself at the moment. I need something I can just scribble ideas onto because I've been in situations where I've got an idea in my head and I daren't talk to anybody until I've got to a piano and got the idea down. I'm not a hit merchant, I can't sit down and say 'today I'm going to write a hit'. How do you do that? You've got to get a vibe from somewhere, but then, I can't sit around waiting for one to reach me. I need to capture the ideas when they come."

ONCE THE INSPIRATION stage has been and gone, Rogers develops his songs in different ways.

"I write mid-tempo and slow songs on piano. If I want something a little bit rocky then I'll go to a guitar. My first instrument is the piano but I tend to disappear up my own arse with it sometimes, so I limit myself with a guitar or bass. If I have an idea in my mind of what I want to say then the music comes very easily. Songs like 'After Midnight', 'Crimes of Passion' and 'What's the Colour of Money?' took me literally only five minutes to put together."

Once written and arranged, songs are demoed onto four-track cassette. The limitations of the four-track format give Rogers a balance of freedom and discipline that currently pleases him, though the route to this enviable position hasn't been easy.

"When I wrote some of the tracks on this album I didn't have a multitrack machine - I used to have to bounce across between two stereo machines. But I got my ideas down and that's all that's important. When you get your hands on some money you think yeah, let's go for it. But if you're not careful, you get so much into the equipment that you start to forget about your songs. My job is to find the ideas to put into the songs."

In this instance, "going for it" has left ▶

"A lot of music now has no soul... Soul isn't a category in a record shop, it's someone singing or playing from the heart."



► Mark Rogers with a Fostex eight-track machine he's never used.

"That's caused me nothing but bloody trouble since I bought it – I don't mind telling you that because I've already told Fostex. I've had it for two years and it still hasn't worked properly. They assure me now that it's working, but it's going because I don't need an eight-track anymore. With the UMI and the ESQ1 I only need four tracks: a drum track, a sync track, a track for bass or guitar and a track for my vocal, and that's all I need to construct a song."

Songs written and recorded, the next move is to take them out on the road, where Rogers' flexible band enables him to pick the right people for the occasion. But this doesn't preclude the appearance of a few regular Beyonders like guitarist Matt Backer.

"Matt's a young American guitarist who's like jack of all trades, master of all. He's lived in a lot of places and taken his guitar with him wherever he's gone, so he's picked up a lot of styles and influences. What I particularly like about him is that he's open to ideas, he's not too muso.

"I only have three regular people that I've used to date – the rest are a variety of people who were available at the time I needed them. Another thing I don't want is bread-heads. I don't want someone who will come in and do a job but keep looking at his watch. If you look towards creating something, then the money will follow. I never work with anyone unless I love them, and they have to feel the same way about me. I want something a little extra on top of my money's worth."

And what does Rogers want for his money?

"A lot of people want to sound like somebody else; I respect a lot of people but I sure as hell don't want to sound like

them. Someone from Chrysalis once came to see me play and said 'I like the music but at the moment we're looking for another Blondie'. I said 'Well that I ain't!'

"I want to do anything that's danceable and interesting, anything as long as it's not bland. Yes, I want hits, but I want them to be good enough songs to be singles, rather than songs that should be in the charts because they've been released as singles. I can't sit down and write a single. Having written a song I can say that's possibly a single, but I can't write overt pop music. It's a formula that would be very easy to follow, but I'd like to find my own formula. Music itself is endless, so there must be things we haven't dealt with in pop yet. At the moment I think we desperately need a new movement. England is a very small, if prestigious, market – perhaps it's time for people to start thinking global..."

"Unfortunately, you need to have successful singles so that people know you're out there and will buy your album. We were discussing all the bands during the '70s that never used to sell many singles but had huge album sales. I can't think of how people got to know about them. I think it was because there was a much bigger gig circuit then."

DEPLETED THOUGH THE current live circuit may be, Hollywood Beyond intend taking full advantage of it, with an imminent tour and an aggressive use of visuals that will accompany it.

"We're not trying to blind everyone visually to what's actually going on musically", elaborates Rogers. "Everything must be complementary. We're paying a lot of attention to set design, lighting and so on. It's a show. I can't expect everyone to like what we do, but I want people to enjoy watching us.

"I think gigs generally now are very tired. I know there's a limited number of things you can do live, but you have to move on, there have to be new ideas to keep up with the way other things are going. I believe the longevity of a band is in its live appeal. If you can't cut it live, I'm not interested. People like U2 and Prince have the ability to translate their recorded work into live performance, and that's part of what makes them good. I've done things in the studio that I won't be able to do live, but the essence of what I put down I can still translate into a live performance."

Hollywood Beyond, then. A pop band that care about their art, or a pop band with artistic pretensions?

"There's this thing about art and money... The music business is bullshit, it's a contradiction. How can you have music and business? They're opposite things. One's art and one's money, but somehow the two of them have to gel somewhere. You can't be totally art-self because if it's art it belongs to everybody. I never liked the Tate Gallery because I couldn't go and touch the bloody paintings."

Oddly enough, I found Mark Rogers' 'After Midnight' quite touched me. ■

"If a pattern doesn't fall into a bar in the machine it can be difficult to isolate what I want. But I can read it from the TR707 display and reprogram it."

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ROLAND JUPITER 6

Ford's Fender

Ford Elliott, Folkestone, Kent



There's a definite accent on axes this month, and 'Ford's Fender' typifies the sound made famous by sixties heroes the Shadows. Being one half of a duo comprising keyboards/bass, Ford finds it useful for impersonating a non-existent guitarist. And if rock 'n' roll's your cup of tea, you'll get the beat going with this one. ■

CASIO CZ101

Nightporter

SD Fletcher, Notts

'Nightporter' was programmed (surprise, surprise) in an attempt to recreate the mood of the Satie-influenced Japan song of the same name. If the sound comes across rather too sweetly for your taste, reduce the Fine Detune to around 09 for a more piano-like sound. Some slow modulation delayed to the tail-end of the sound adds a different dimension, too. ■

TONE NAME	CARTRIDGE NO.	TONE NO.
NIGHTPORTER		

PARAMETER

LINE SELECT 1+2' <small>(1.2.1+2.1+1)</small>	MODULATION		DETUNE				VIBRATO				OCTAVE	
	RING	NOISE	+/-	OCTAVE	NOTE	FINE	WAVE	DELAY	RATE	DEPTH	+/-	RANGE
	OFF	OFF	+	0	00	12	1	0	50	0	+	0
	<small>(ON/OFF)</small>		<small>(+/-)</small>	<small>(0-3)</small>	<small>(0-11)</small>	<small>(0-60)</small>	<small>(1-4)</small>	<small>(0-99)</small>	<small>(0-95)</small>	<small>(0-99)</small>	<small>(+/-)</small>	<small>(0-1)</small>

1

DCO 1

WAVE FORM	
FIRST	SECOND
1	0
<small>(1-8)</small>	<small>(0-8)</small>

E N V (PITCH)								
STEP	1	2	3	4	5	6	7	8
RATE	50							
LEVEL	00							
SUS/END	END							

DCW 1

KEY FOLLOW
9
<small>(0-9)</small>

E N V (WAVE)								
STEP	1	2	3	4	5	6	7	8
RATE	60	12						
LEVEL	60	00						
SUS/END		END						

DCA 1

KEY FOLLOW
0
<small>(0-9)</small>

E N V (AMP)								
STEP	1	2	3	4	5	6	7	8
RATE	95	30						
LEVEL	99	00						
SUS/END		END						

2

DCO 2

WAVE FORM	
FIRST	SECOND
2	0
<small>(1-8)</small>	<small>(0-8)</small>

E N V (PITCH)								
STEP	1	2	3	4	5	6	7	8
RATE	50							
LEVEL	00							
SUS/END	END							

DCW 2

KEY FOLLOW
9
<small>(0-9)</small>

E N V (WAVE)								
STEP	1	2	3	4	5	6	7	8
RATE	77	12						
LEVEL	50	00						
SUS/END		END						

DCA 2

KEY FOLLOW
5
<small>(0-9)</small>

E N V (AMP)								
STEP	1	2	3	4	5	6	7	8
RATE	95	30						
LEVEL	99	00						
SUS/END		END						

LFO I		
Rate		4
Delay		0
Wave		~
VCO MOD		
LFO		0
Env 1		0
VCOI & 2		Off
PWM		
PW		5
PWM		1½
LFO		
CROSS MOD		10
Manual		10
Env 1		0
VCO I		
Range		8'
Wave		~
VCO 2		
Range		32'
Wave		~
SYNC		On
VCF		
Mode		BPF
Frequency		2½
Resonance		0
Envelope		-2
Env		4
LFO		0
Keyboard		4
VCA		
Env 2 Level		10
LFO		0
ENV 1		
Attack		1
Decay		4
Sustain		5½
Release		0
Keyboard Follow		2
ENV 2		
Attack		0
Decay		4
Sustain		5
Release		6½
Keyboard Follow		4½
Glide		Off
Arpeggio		Off
ASSIGN		
Unison Detune		2½
Mode		Unison
Key Mode		Whole

SAMPLING *in* STEREO

Your sampling keyboard may not have the stereo inputs, but using some simple techniques, you can make your own stereo samples – and reap some rich rewards. *Text by Howard Massey.*

THAT SAMPLING INSTRUMENTS are growing increasingly popular these days is indisputable. Whether this upswing is a result of, or a cause of, their rapidly dropping prices is open to conjecture, but the fact remains that more and more

► *“Recording two simultaneous audio signals instead of one makes for an audio experience far closer to ‘reality’ – after all, those of us not named Van Gogh have two ears, not one.”*

musicians are getting into using these devices in order to augment their arsenal of sounds.

Problems

THE AMOUNT OF available memory in these instruments is largely a function of their price, though as raw computer memory gets cheaper, we shall undoubtedly start to see more and more powerful samplers available for less and less cost.

► *“We need to synchronise the two sides so that the total stereo image begins at the same time, even if one channel starts a bit later than the other. Let’s use good old-fashioned physical reality – tape.”*

Hugely expensive samplers like the Fairlight Series III and Synclavier not only offer higher-fidelity samples, but allow you to sample literally minutes (if not hours) of signal. Because their hefty price-tag implies mammoth amounts of onboard memory, you can not only sample monophonically in these instruments, but you can actually feed a stereo signal in and sample in stereo – though this quite naturally halves the total amount of sampling time available to you.

Smaller, more affordable samplers like the Emulator II, Emax, Prophet 2000, Akai S900, Korg DSS I, and Ensoniq Mirage have much less available onboard memory (generally well less than a minute of sampling at any kind of decent fidelity), and so don’t offer such an option.

But recording engineers everywhere know the value of working in stereo. Recording two simultaneous audio signals instead of one makes for an audio experience that is far closer to “reality” – after all, those of us not named Van Gogh have two ears, not one. Synthesizers with stereo outputs generally produce sounds of a richer quality, largely because of the inherent phase cancellations and reinforcements caused by stereo spatiality.

Furthermore, virtually all final recordings these days are stereophonic. Samplers are today increasingly becoming an extension of the audio tape recorder, as they allow manipulation processes like looping, splicing, and editing to be performed easily and without the need for barbaric devices like razor blades. (Shave and a haircut, please, and while you’re at it, can you edit in a new chorus...?) One of the most common uses for sampling in a recording situation is to feed a word or phrase directly from the multitrack recorder into the sampler and to then “break, break, brbrbr breakbreakbreak” to your heart’s content, in real time to the final mix. More often than not, however, vocals (particularly backing vocals) as well as instrumental tracks have been submixed into a stereo image. If you then take that stereo image and sample it monophonically, it’s obviously going to take a fair bit of tweaking to then lay it back into the stereo mix with any kind of continuity.

Solutions

SO WHAT DO you do? Hire in a Fairlight? Fine, if you’ve got the dough. But if you already own one of those less expensive samplers, you can pocket your money, because what I’m going to do here is tell you how to obtain stereo samples and play them from your existing machine.

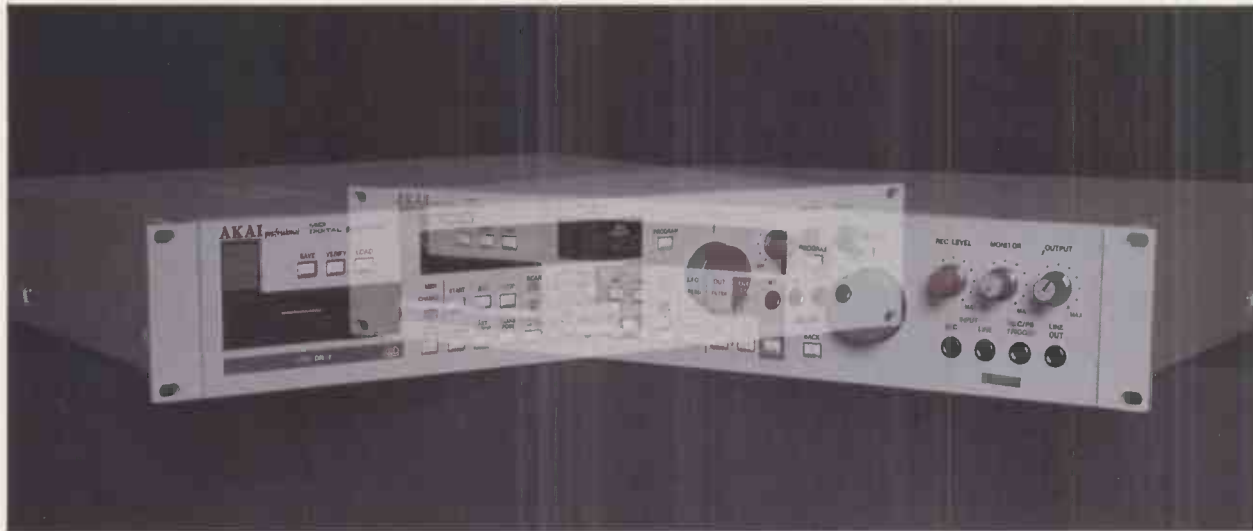
This technique was perfected on an Emulator II, which is the sampler I find myself using most often, but there’s no reason why it won’t work on many of the other aforementioned samplers just as well. The only real conditions are that: 1) your sampler must offer you the ability to assign two voices to a single key; 2) it must provide separate outputs for each voice (this leaves out the Mirage, I know – sorry about that); and 3) it must give you the ability to truncate the beginning of the sample.

It will also be useful, though not mandatory, to have an adjustable audio threshold setting in order to actually start the sampling process.

First of all, of course, you’ll need a stereo source signal. This could be a record, tape, or CD, or it could be a stereo output from a single stereo synth, or it could be a stereo submix from either a tape or a MIDI system. Let’s presume, for this example, that our source signal will be the stereo output from a submix of several backing vocal tracks taken from a multitrack master.

One problem that needs to be dealt with is that the signal in the left channel may not begin at precisely the same time as that in the right channel – after all, in a stereo submix you can place any part of your total sound anywhere in an imaginary 180-degree plane. Let’s suppose, for example, that the backing vocals are singing the phrase “stick it in your ear” and that the male backing singers are singing right at the start while the female vocalists just come in for the “in your ear” part. You might want, for example, the male vocals in the right channel and the female vocals in the left. Or you might put all the vocals on one side and a short digitally delayed version on the other. You see what I’m getting at, I hope – the point is, both channels won’t necessarily start at the same time.

So we’ll need to somehow synchronise the two sides so that the total stereo image begins at the same time, even if one channel starts a bit later than the other. Does this mean we need to resort to an arsenal of expensive sync boxes? No way. Let’s get more basic than that, and use



good old-fashioned physical reality instead. Meaning – tape. Or cassette. Or (best of all) a VCR tape medium for digital recording (like the Sony PCM systems). If we dub our stereo source signal onto one of these media and precede it slightly with some kind of recognisable percussive signal, then clearly, the distance between the start of that percussive signal and the start of our stereo source material (the stuff we really want to sample) will remain constant, so long as the tape or VCR speed remains constant.

Therefore, do the following. Record some kind of sharp, percussive sound onto your tape, cassette, or VCR (if you're using the PCM system), making sure that it is recorded on both tracks at the same VU level. A second or so later, record the actual stereo sound you want to sample. Try to keep the gap between the two as short as possible, for reasons that will be obvious in just a moment.

The real purpose of this percussive "leader" is simply to trigger our sampler into starting the sampling process – assuming you're working with an instrument that provides you with an audio threshold control. If your particular sampler doesn't have that feature, however, there's a way around that problem, though one which isn't quite as precise. Instead of recording a single percussive sound, record four of them in rhythm to act as a kind of count-in. What you'll then need to do is manually start your sampler sampling on the fourth beat. If you've got any kind of decent sense of rhythm, this should work pretty well.

Obviously, since none of the samplers we're discussing here has a stereo input, we'll have to sample each channel separately. If your instrument has an adjustable threshold control, be careful to keep it at

exactly the same level for both samples. If you're not, try to start the sampler precisely on the fourth beat both times. If you feel underqualified to do this accurately, call up your sister's boyfriend who happens to be a drummer and have him hit the button for you. The trick, in either instance, is to get the start of the sample the same for both channels. This will ensure synchronisation of the final signal.

The next step, after you've sampled both the left and right channels (and saved them to disk – you don't want anyone tripping over the power cable after all this hard work) is to edit out the percussive trigger. Listen to both samples individually, and determine by ear which one seems to start earlier – this is the one to edit first. If they both seem to start at the same time relative to the percussive trigger, then you can work with either one first. While monitoring just the one sample you've decided to edit first, use your instrument's truncate feature to remove everything from the percussive trigger, right up to the start of the sound itself. Before you make the truncation permanent, write down the value of the new start point (in bytes or seconds, whichever way your instrument displays it). Now go to the other sample, and without even listening to it, simply truncate its start at exactly the same point.

Since we took great pains to ensure that both samples started at precisely the same instant (through either the threshold control or your sister's boyfriend's phenomenal sense of rhythm), we can truncate them both at the same starting point, with confidence that they will remain synchronised.

All you need do now is assign both samples to the same key or series of keys (up to a two-octave range on the Emulator II, possibly more on other instruments),

and then utilise the individual outputs offered by your instrument. Feed the sends into your mixing desk, and pan them hard left and hard right accordingly. On the Emulator II, you can achieve as much as four-voice polyphony of your stereo sample by assigning the left sample to

► *"Having taken great pains to ensure that both samples started at precisely the same instant, we can truncate them at the same starting point with confidence that they will remain synchronised."*

channels 1-4, and the right sample to channels 5-8 – then simply pan channels 1-4 of your mixing desk to hard left and channels 5-8 to hard right.

Results

THE SUBTLE BUT important phase differences in a stereo image should immediately yield huge benefits when you listen back to your stereo sample – you'll undoubtedly find that your sound is immediately "bigger" and far less directional, which will in turn make it much easier to mix in with your final stereo signal. We've gone a long way since the days of mono, after all.

There's no reason why your sampling instrument should be providing only monophonic sound sources if it has the capabilities outlined above, most of which are pretty standard these days, anyway.

Try it. You'll like it. ■

beating the

S Y S T E M



Seven-piece ensemble Man Jumping have left the "systems" tag behind on a new album for EG. What problems does their line-up pose, and how successful can they be now that their music can't be pigeon-holed? Interview by Tim Goodyer.

BEFORE MAN JUMPING made their first album, they beat a path to virtually every record company in London. Almost unanimously, the reaction they met with was: "This is the best thing we've heard all year". The material was then sent to each company's marketing department, and came back with the message: "We think it's great too, but who do we sell it to?"

And there, in a nutshell, you have the dilemma facing any modern musicians who have enough courage to strike out in a musical direction of their own. If your music can't be categorised, you can't beat the system.

Man Jumping are a seven-strong collective whose chosen musical direction continues to be a cause of concern to the music industry establishment – and to journalists given the task of reviewing their music. Me? I'd call it jazz – with complications.

There's no doubt that Man Jumping's influences are many and varied; jazz, classical and systems musics meet latin, funk, calypso and rock rhythms in an invigorating fusion of rhythms and melodies that is unlikely ever to make *Top of the Pops*, but which moves the feet and amazes the ear regardless. You can check it out yourself on the above-mentioned album, titled *Jumpcut* and eventually released on Cocteau Records – if you can still find a copy in the shops. If you can't, try the second album, *World Service*, freshly released on MJ's new label, EG.

"EG have a healthy policy of marketing fairly whacky acts, but what goes on in the heads of A&R men is a mystery. I don't think anything goes through their heads, it all goes through lunch."

The speaker is Glyn Perrin, one of Man Jumping's four keyboard players, along with Shaun Tozer, Charlie Seaward and

Orlando Gough. Perrin's the one currently wearing a wry grin.

The remaining Men Jumping are saxophonist extraordinaire Andy Blake, bass player (and part-time keyboard player) John Lunn, and drummer Simon Limbrick. Almost all of them graduated through the ranks of Lost Jockey (an ensemble that specialised in a large, fluid membership and a fusion of rock and systems music), with Limbrick joining the line-up late, missing out on *Jumpcut*.

"It's certainly not systems music any more", asserts Perrin, "let's get that straight. And jazz is one of those words that just seems to be convenient for a lot of people at the moment. I don't think there's very much we do that's in the true jazz tradition, but there are a lot of people here that listen to jazz."

While MJ are obviously moving away from the systems style, there's still sufficient structure in the music to prevent it straying too far. Blake's sax, while powerful and emotive, never quite attains full solo status; the textural ties are just too strong to break.

ARGUMENTS ABOUT STYLE aside, another major force in Man Jumping's music is high technology. That's not to say the music has become an excuse for four keyboard players to indulge themselves in technical fantasies: all MJ's members are musically trained to a frightening degree (if you get my drift).

"Unless you're prepared to keep bringing in other players, technology is the only real way of incorporating tonal variation into a small band", says Perrin.

We've been a live band since the DX², adds Blake. "It gave us our own horn section without having to drag another nine or ten people around with us. Almost from the start, Shaun and Glyn have been able to program sounds that blend in with the sorts of sound I produce."

"Then there's another dimension in tones that you can't produce with conventional instruments anyway", interjects Perrin. "Nobody in this band treats gear as little black boxes. I've read so many interviews where people have said: 'I'd love to be able to program the DX but I haven't got the time to sort it out'. If you tot up the time it takes to get to the first interesting stage of DX programming, it's about 15 hours' hard work. Thereafter you can fit it in as you go and you don't need a vast amount of technical ability; you just have to have a degree of concentration."

In an age of DX preset madness, *World Service* presents the listener with a refreshing selection of DX sounds which, while

MUSIC TECHNOLOGY MAY 1987

still FM-clear, are obviously not the result of a quick five minutes spent messing with one of the presets.

"I suppose that's where our trained background comes in", muses Perrin. "It gives us the ability to analyse what a sound does and how it does it. When I was learning to play the piano I had a couple of years of great perplexity when my teachers were trying to explain the thousands of different shades of tonal gradation you can produce on a piano. I was peering inside the piano, watching a hammer hit a string, and saying: 'I just don't understand - either I'm kidding myself, you're kidding yourself, or it's actually true'. And the fact that it is true: if you listen to any good pianist from any style of music, there are enormously different sounds to be had out of the one instrument.

"So you learn what happens within a sound, especially at the front of the sound - that's the most important because that's where all the information is - and when you come to programming, that's one of the first things you have to deal with. You have to listen to what a 'real' instrument does if you want to imitate a 'real' instrument, and then apply that analysis to the synth."

It's not only FM synthesis that's played a part in the synthesised textures of Man Jumping's music, *World Service* calls on the services of wavetable synthesis in the form of a PPG, analogue synthesis from an Oberheim OBXa and a Roland JX8P, and the sampling power of three Akai S900s.

"There are a couple of interesting Iranian vocal sounds that we, er, lifted", confesses Tozef, "and we've been making a lot of our own vocal samples too. But using the Akai isn't just a case of lifting things and thinking they're nice. It's trying *not* to get the sound of acoustic instruments because the original instruments will always do it better.

"Simon's got one S900 fitted with trigger inputs so he can fire it from an Octapad. That's provided us with a lot of interesting ideas: on one of the tracks we've got eight different snare sounds which are gated to eight different vocal sounds. The aim is to get away from the idea that the snare sound you first hear in a piece is a fixed element. It's often very bombastic and you tend to filter it out after a while and ignore it. We experimented a bit with it and ended up with some incredible effects."

WHILE THE BAND themselves may consider seven a perfectly workable number of musicians to accommodate within a group, it's still beyond the levels of tolerance for most, especially when it comes to searching out a balance between everybody's musical interests. On the other hand, it does provide a larger than average pool of ideas...

"I think having everybody creatively involved in the project, rather than having a hierarchy with generals dishing out orders to the ranks, is a far more exciting way to work", says Perrin. "Musically the results tend to be far more

radical: if there's anything in a track that starts to smell of compromise it gets kicked out, so what actually goes down is something everybody's happy with. The result tends to be something no one person or subgroup within the band could have come up with.

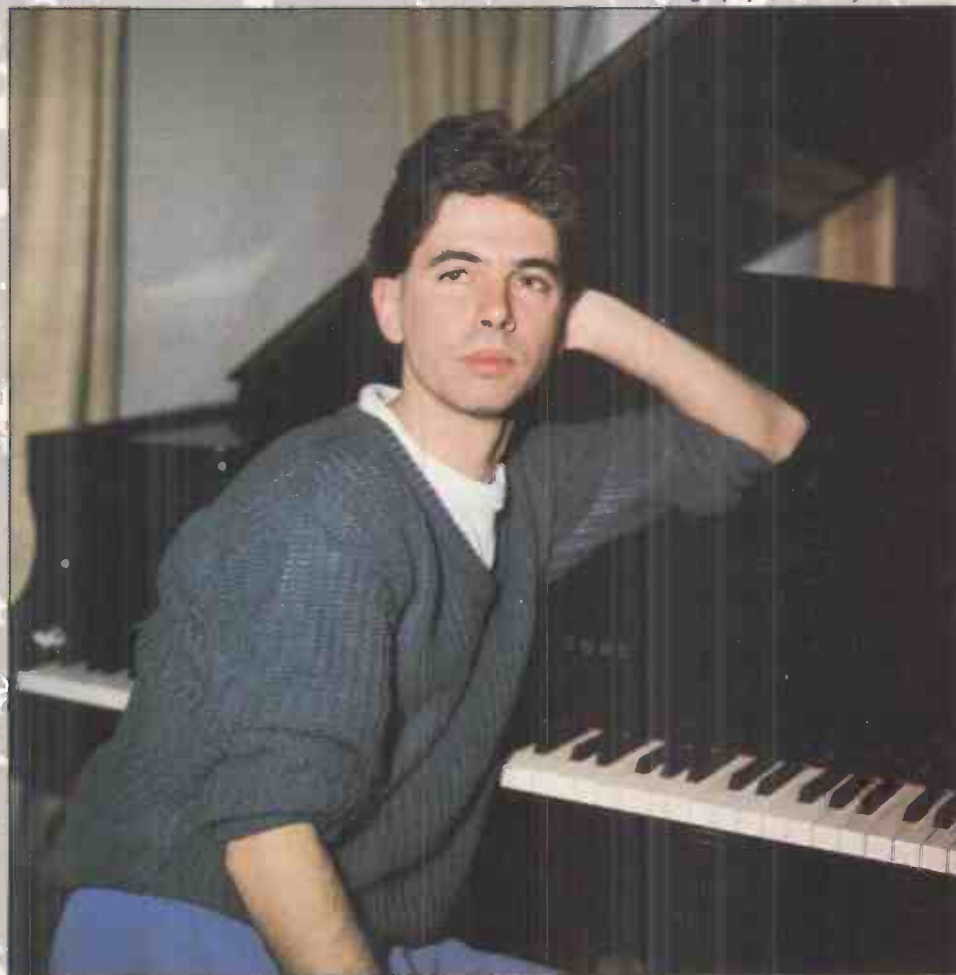
"Everyone in this band has a really committed interest to everyone else's ideas, even if they don't agree with them all the time. Everyone spends at least as much time thinking about what everybody else has produced as what they're trying to do themselves. You sit there and you worry at night: what is this part supposed to be doing in the arrangement, because I don't think it's working? So you get on the phone to the guy that's written it and spend the next two hours talking about where the piece is going. And I wouldn't sacrifice that process for the world. Sometimes there are some real crises and other times things will come together that no-one could have foreseen. You think: 'Wow, where did that come from?'. And the answer is it came from all seven of you working together. The complete band is bigger than the seven individuals that make it up."

The trouble with a line-up as big as this one, though, is that it's impossible to talk about *anything* without the subject becoming complicated. Take MIDI, for example. This band uses a lot of synthesisers, so the topic is bound to come up in conversation sooner or later. I talk MIDI, they talk classical arrangements...

"There seems to be a law of diminishing returns where, if you MIDI too much together, you lose the focus on the

"On one of the tracks we've got eight different snare sounds... to get away from the idea that the snare you first hear in a piece is fixed."

Photography Tim Goodyer



► purpose of a sound”, Perrin opines: “I can understand that very well from conventional classical orchestration: once you’ve got a flute to carry a particular part, you don’t double it up with two other flutes because they start to cancel each other out.”

“Hmmm. Strange how rules centuries old still hold good in the face of modern technology. But what of the mysteries of the stave? How do The Dots fit into the scheme of things in 1987? Perrin takes up the challenge.

“There’s a great mystery surrounding written music which I think is partly due to our education system: it’s made it out to be some hyper-specialised, esoteric art when actually it isn’t. In the last 20 or 30 years it’s become more of a lost art.

“All my older teachers could read and ‘hear’ things off the stave, and that was because they didn’t have access to gramophone recordings when they were young, and only to live concerts if they lived in London and could afford to go to them. Their solution was to go to the public library and borrow a score. I have a composer friend who is a great reader and can imagine huge arrangements for those very reasons. But now I’d say the vast majority of music is made by ear.”

So how valuable is the lost art to seven modern, technology-obsessed musicians?

“Well, there are some pieces that we’d written and performed live that we didn’t have a record of – apart from the dots – before we got into the studio. Obviously when you’re playing inside a band you have a very particular perspective of what’s going on. Sometimes it’s only when you sit down in the studio that you realise how certain parts are supposed to go together, or why something isn’t working. So the dots are quite useful – they let you see in theory how something works.

“The trouble is, a lot of the time the dots go down without a specific idea of what they represent in sound. If you change the sound of one of the parts, that can significantly alter the perspective of the piece. When you’re recording, that might mean that something else has to change or even go altogether.

“The four keyboard players in the band all play quite differently; they all have different strengths and abilities. Some of us have been brought up more on pianos like me, while Charlie has always been a synth player. There are certain ways he gets around synths that it’s going to take me a good while to learn.”

“When we record and arrange for live work, who takes each part is determined by each player’s strength”, elaborates Tozer. “But at the same time everybody is stretching themselves. It’s not the case that there’s one player who will always play the rhythm parts.”

“There are times when having too much technique actively prevents you from seeing things clearly”, Perrin continues. “When there are seven people out there generating a lot of energy, it can be very difficult to see the simpler side of things. There’s always the temptation to develop an idea more and more.

“At the end of the process, you find yourselves having to go back and strip things down to something that’s far more manageable – that’s where you have to rein in your technique. Everybody here knows they can play more notes per second but that’s not the point, and it doesn’t mean there aren’t challenges. For example, without a guitarist in the band we have certain problems. There are things that rhythm guitar players do that contribute sound in a very specific way, and we have to get round that in other ways. On any keyboard that’s very difficult. There are various different solutions, but to get to the way a rhythm guitarist would actually articulate is something that interests me a lot.”

DENOUNCING THEIR SYSTEMS background may be in keeping with Man Jumping’s musical policy, but it’s unlikely to help make the music more easy to pigeon-hole – and therefore sell. Which brings us back to where we were at the beginning. How much success can Perrin & Co, with their rambling line-up and unclassifiable repertoire, reasonably expect to enjoy?

“We’ve actually got to sell quite a lot of records to keep this band alive”, Perrin confirms. “Supporting seven musicians equates to considerable commercial success, but everybody has the aim that we could generate enough work through albums, filmscores, gigging, and whatever to bring in enough money so that we don’t have to do half the other things we have to do at the moment to stay solvent.”

“Films are definitely an interesting area”, agrees Tozer. “In the last two or three years the work we’ve done with dance companies has proved quite popular. We did some stuff for the London Contemporary Dance Theatre last summer and we’re starting on another piece for the Second Stride company in April. It’s a whole area that’s developing for us. We’re rather like a team where making albums, gigging, film work and dance are all important aspects.”

Perrin: “There’s obviously a lot more happening down on the ground than ever gets on to Radio 1 – hip hop, for example, seems to be a far more dynamic scene than pop music, certainly in its use of technology and the lack of respect for the conventional use of technology. You just carve it up and see what it does.

“But then there’s this view that everything that flows out of Radio 1 is complete pap, and I don’t think that anything’s ever that bad. I think the listeners become a particular kind of expert about the music simply because of the amount of exposure they’ve had to it. They may not be able to sit down and articulate about it, but they’re experts in the same way people that go to football matches are experts. If you just construct music to a formula, ultimately you’re going to be crushed under your own cynicism.”

“It’s very dangerous to underestimate your audience in just how tough they are”, Tozer concludes. “The average punter is a pretty tough cookie.” ■

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“There’s a great mystery surrounding written music due to our education system: it’s made it out to be some esoteric art when it isn’t.”

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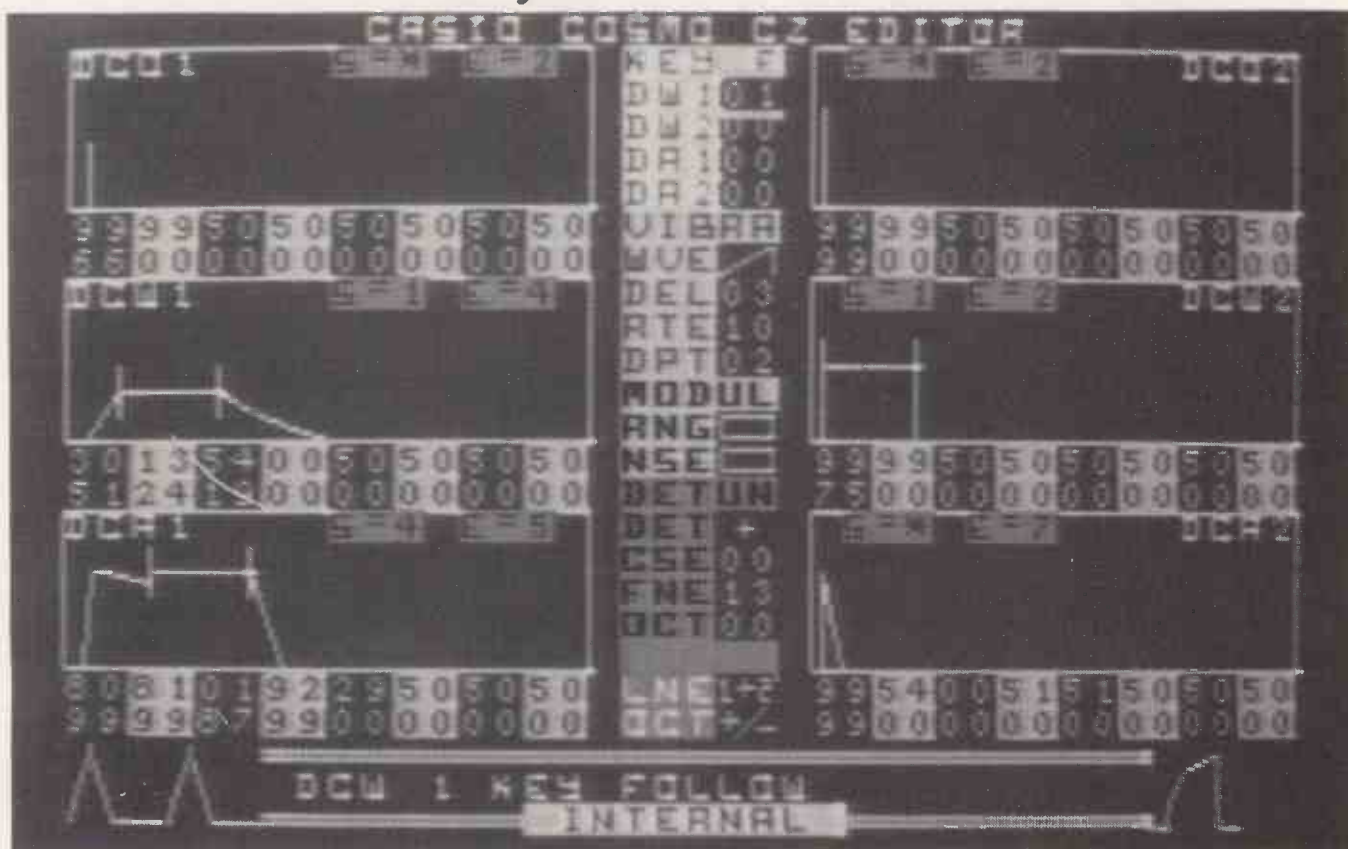
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STEINBERG COSMO

CZ Voice Editor for Commodore 64/128



Of all the ranges of voice-editing computer software currently available, Steinberg's is one of the biggest. We put their Casio CZ package to the test. Review by Ian Waugh.

DIGITAL SYNTHS SHOULD carry a Government Health Warning. I mean, you know where you are with an analogue synth: the VCO's connected to the VCF, the VCF's connected to the VCA, the VCA's connected to the amp. And you can plug your LFO into just about any VC you want. All jolly good, clean, straightforward stuff.

Not so the digital synth. All those numbers and not a graph in sight. That's probably why many owners never get around to programming their instrument. That's also probably why a number of voice editors have appeared on the market: the software companies saw a gap and proceeded to plug it, Steinberg among them. In fact, Steinberg have voice editors for Yamaha's FM synths, Ensoniq's Mirage, Korg's DW8000 and Roland's AlphaJuno synths. But today it's the turn of their editor for Casio's CZ synths, cutely named Cosmo.

If you look at the manual – which all good software reviewers should do at least once during a review – the first thing which strikes you is the Germanic English and some incompatible spellings. The second thing which strikes you is just how few instructions there actually are. Whoopee! The program is a doddle to use and the textual incongruities don't seriously hamper the process, though I tend to think that when you're paying this sort of money for something, you're entitled to some comprehensive documentation.

Format

BUT ENOUGH WHINGEING – what of the program? The main screen shows the two sets of Casio DCOs, DCWs and DCAs both graphically and numerically. Down the centre of the screen are the wholly numeric parameters such as key follow, vibrato, ring modulation, noise and detune settings, and so on. You move around the screen with the cursor

keys, and a text window at the bottom of the screen spells out exactly which parameter has been selected. All very neat and tidy.

The two sets of waveforms for the DCOs are displayed graphically, and you can flip through them with the function keys. F1 selects the first waveform and F3 selects the second, but to switch off the second one you must press F2 (which is F1 plus Shift); I'd have thought F4 (F3 plus Shift) a more logical choice.

You alter the parameters with the + and – keys, a method similar to using the Casio's value buttons so seasoned programmers should feel at home. The graphs are re-drawn as you alter the parameters which helps enormously, but you can't latch onto a section of graph and pull it about.

The sustain point is shown by vertical lines cutting through the graph at the appropriate places, which is a great help when trying to visualise what the sound is actually doing. I do have a gripe about the way the end points are handled, though. If a node has a positive level value and you decide to stick an end point there, the level naturally enough reverts to 0. On the synth, if you then shift the end point you get your original value back, but in Cosmo it is lost forever. There is a compare function, however, which flips from the current sound to the original one, which is very handy.

As soon as you boot the program, it grabs the contents of the synth's internal presets and stores them in its own internal edit bank. In order to keep these presets safe, you must transfer them to one of the program's other eight banks and preferably save them to disk. The program can only access the synth's internal presets, so cartridge voices have to pass through the internal bank.

All editing, loading and saving operations take place within the internal edit bank. When you load a bank from disk it automatically replaces the synth's internal voices –

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which is why you must be sure the originals are safe.

As you edit a voice, the changes are immediately transferred to the synth so you can hear what it sounds like. You can give the voices names, too, which is essential when you come to organise your creations.

One of Cosmo's best features is the way it lets you handle banks of voices. It uses a separate screen for this, and lists the internal edit bank down the left and one of the eight other banks down the right. A total of 128 voices are provided on disk to start you off, and some aren't at all bad – maybe I'll pinch a few. A voice is highlighted on each side of the screen, and you can scroll through the sounds and change banks with the function keys. The aim is to line up a voice from one of the eight banks with one from the internal edit bank. Having done that, you press Return and the two sounds swap. It's simplicity itself to pull together the voices you require to make your own sound banks, and it's particularly useful being able to work with eight banks at once. You can get a printout of any screen, too.

Verdict

IT SEEMS A CZ editor is certainly a good thing. Programs like this are rife in the States, where almost anybody who happens to run a software company seems to have produced one. In the good old UK, however, there are not so many around – but the most well-known ones will be Joreth's (at £45) and Dr T's, from Take Note (at £65). The burning question, therefore, has to be: how do they all compare?

Joreth's CZ Editor (which works with the Steinberg interface) got the once-over in our March '86 issue and generally got the thumbs up. It has lots of extra editing features such as copy and exchange envelopes, time scaling,

envelope reset to initial values and access to cartridge memories. It also handles the end point in the same way as the synths. Dr T's program has not yet come under our eagle eye, but it also has rescaling features, envelope copying, and so on. And both programs have a sequencer

▶ *“The sustain point is shown by vertical lines cutting through the graph at appropriate places – a help when trying to visualise what the sound is doing.”*

option which will play a tune while you muck about with the sounds.

Compared with these programs, Steinberg's Cosmo seems a little short on frills, not to mention a little heavy on the wallet – but this may have more to do with the value of the pound against the Deutschmark, rather than the intrinsic value Steinberg place upon their wares.

Cosmo does score heavily in the ease-of-use department: you get 128 voices and I really like the way it handles banks of sounds. In fact, I was really very happy with the program and it is only in comparisons that it suffers.

If you are a committed Steinberg aficionado and voice

▶ *“Cosmo scores heavily in the ease-of-use department: you get 128 voices and I really like the way it handles banks of sounds.”*

organisation is top of your list of priorities, then stick with the company you know. If you would like a few more editing facilities and perhaps have an eye on your bank account, it may be worthwhile checking out the others. ■

Price Cosmo £80; MMI Interface £55; both including VAT

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CASIO SK2100

Portable Sampling Keyboard



Photography Tim Goodyer

Take the ingredients of today's MIDI music system, put them in one instrument, and you've got today's portable keyboard. Does its appeal stretch beyond the home? Review by Dan Goldstein.

MUSIC TECHNOLOGY MAY 1987

IF YOU WERE asked to name the main ingredients for a small, modern MIDI-based music composition system, what would your reply consist of? A synthesiser (maybe two, maybe more). A sampler. A multitrack sequencer, whether of the dedicated or computer-based kind. And a drum machine, with the option of a few pads to play it from. Link that little package of goodies to some recording equipment, and you've got yourself the archetypal small electronic studio of the late 1980s.

But there is an alternative. One that puts all the non-recording ingredients mentioned above into a small box, is easier to get to learn and use than any of them, and is also cheaper than any of them are likely to be.

Ladies and gentlemen, I give you the Casio SK2100 – flagship of the company's "SK" range of instruments (keyboards that are aimed at the home market, but which feature sampling as a major selling point), and by any standard a very tidy piece of technological packaging indeed.

It's a sampler, obviously. Actually, it's an eight-bit polyphonic sampler with a sampling rate fixed at 10.113kHz, and various editing functions – but we're not at the detailed spec stage of this review yet. It's also a synthesiser, with a 49-key splittable keyboard, 12 preset sounds for the upper section, 10 for the lower, and a one-finger chord option to

make playing easier for the novice. And it's a drum machine, with seven percussion sounds, 20 preset patterns (all with their own fill-ins), and provision for programming your own patterns in real time. And it's a sequencer, with capacity to store two separate "channels" of information: the first can hold 2000 notes, while the second can hold 1000, plus a total of 159 chord changes.

There's even an amplifier, twin speakers (the SK2100 does everything in stereo), and a microphone for sampling – so that, in Casio's own words, your keyboard is "built to boogie, whenever and wherever you are".

Format

IT'S A PRE-REQUISITE for an instrument like this that the options it offers, no matter how sophisticated, must be quickly and easily accessible. Amateur musicians, dabbling at a keyboard in their living-rooms because there is nothing special on television (yet), are likely to be even less patient and diligent than their pro and semi-pro counterparts, so things must happen fast on the SK2100 if the people most likely to gain from using it are not to lose interest.

Thankfully, things happen very fast indeed. Selecting a ▶

▶ preset synth sound involves pressing only a single button. Sampling involves pressing two.

Actually, there are quite a number of buttons on the SK2100's front panel, which on the one hand makes the first encounter perplexing, but on the other hand means that very few switches are called upon to perform more than one function. For weary programmers disillusioned with the multi-function, multi-layered parameter access systems used by many "pro" hi-tech instruments, this panel is a sight for sore eyes.

From the left, we begin with the power switch, which continues the Casio tradition of incorporating an automatic cut-off circuit to save on battery wear when the keyboard is not being used; leave the SK2100 alone for a little over five minutes, and it switches itself off – though your rhythm patterns, your sequences, and (crucially) your samples remain intact during the procedure.

Next come four slider controls for adjusting the relative levels of the SK's bass, chord, rhythm, and sample sections, plus a fifth for varying the overall output level. If you want to

▶ *"Things happen very fast indeed. Selecting a synth sound involves pressing only a single button; sampling involves pressing two."*

hear how your auto-chords and arpeggios are coming along without the interference of the Casio's drum sounds, all you do is steer the relevant slider down to zero.

A small but critical assortment of switches follows – small because the switches are neatly and economically arranged, critical because their position dictates which "mode" the SK2100 is in. For it's here that you select whether you want to start up the drum box, adjust its tempo, or bring in one of its fill-ins; and whether you want to split the keyboard, and then play it manually or call upon Casio's auto-chord system for assistance.

Next come four "pads" (really little more than big, non-dynamically sensitive plastic switches) which you use to trigger samples manually in time with the rhythm pattern – or at whichever moment seems appropriate. You can also use them as a means of inserting and deleting drum voices to/from your own rhythm patterns in real time, if you don't fancy playing those voices from the lower section of the SK2100's keyboard.

The biggest and most complex array of switches comes next, well away towards the top right of the instrument. Essentially, these buttons are what you use to select whether you're playing synthesised or sampled voices from the Casio's keyboard, which rhythm pattern the drum

machine is playing, and whether you wish to start making use of a number of auxiliary operations like sampling.

Finally, we come to an input level control for sampling (this actually raises or lowers the threshold of the Casio's auto-trigger system to match the level of the signal you're sampling, and is allied to a five-LED ladder for level indication), and a sweet little microphone that springs out of the instrument's case on a looped cord – though I ought to point out that this is one of the worst microphones I've ever used for anything.

As I've intimated, there's a speaker at either end of the SK2100's keyboard, though a pair of output jacks on the rear panel allow you to use external amplification – the results of this are certainly worthwhile. Other rear-panel connections are few and far between: just a headphone socket, a connection for a volume footpedal (optional), the plug for the mains adaptor (9V DC, and also optional), and two jack inputs for microphone and line signals to go to the sampler. Then there's a master tune control (50 cents either way) and that's that.

Sounds

THE DOCUMENTATION MAKES no mention of the manner in which the SK2100 generates its synthesised sounds. But after listening to them all thoroughly, I'd be willing to bet that digital technology plays a large part in their creation; there's brilliant, sparkling clarity, great precision, and...the inevitable quantisation noise.

Like most digital systems (for in truth, this is something that can be said for even the most sophisticated sampling systems available), this one excels at reproducing acoustic timbres that have a percussive attack and a comparatively short decay time, but falters when it comes to longer, sustained sounds because it is simply not "clever" enough to recapture the sort of sonic movement that goes on when, say, a string section is in full, sustaining flow.

Thus the best of the SK2100's sounds are the likes of the vibraphone (richly resonant and, well, vibrant) and the celesta (a truly glittering occasion), while the piano is also usable if a little on the dull side. The solo violin is also nice, if not especially violin-like – the basic envelope characteristics are there, but some of the timbral details are not. With the brass and organ sounds, things start to stray dangerously into Toytown territory, and the less said about the unimaginative "Synth Sound" and "Synth Ensemble" programs, the better.

The SK2100's drum voices are PCM-sampled, but are nothing like as bright as those of some other, similar machines – including some of Casio's own. The bass drum is little more than a soft, dull thud, the snare an insistent crackle, the cymbals and hi-hats weak splashes, and the handclaps a tinny, half-hearted crunch.

Unpromising though they may be in isolation, however, these voices contrive to sound like a pretty credible little ensemble when played together as part of the SK2100's preset rhythm patterns. These patterns are modern (less waltz, more rock), interesting and well thought-out, and it's while playing along with them that you realise this is what modern rock and dancefloor rhythms are all about. Steady, metronomic pulses, filthy sounds, and neat fills that alter the direction of the pattern subtly without shoving the all-important groove off the rails.

The other main ingredient of today's rhythm is, of course, the spice we know as samples. Those naggingly infectious, ultra low-quality vocal snippets, orchestra hits and reversed drum sounds that distinguish today's dancefloor workout from those of the late '70s or early '80s.

Well, the Casio can do those, too. In fact, it comes with four such samples onboard, safely protected from corruption



in ROM so you'll never be free of them. There's a piano with a truly excellent "plink" to it, a vibraphone that's a pleasing if gritty contrast with the Casio's synthesised version, a slightly muffled conga, and a French horn with an identity crisis – though I'm not sure what it actually thinks it is at all.

Sampling

IF YOU WANT to sample your own sounds, you can choose whether you want to use all four of the RAM locations, which'll give four samples each 0.81 seconds in length, or whether you want to merge the locations together to form two bigger ones, each 1.62 seconds long.

Whichever you decide on, however, the sampling rate remains the same at 10.113kHz. This is a pity, since I'd have thought an option to double the sample rate to give two higher-quality, 0.81-second samples would have been handy to have. There surely comes a time – even for domestic keyboard dabblers – when sound quality matters more than sound variety, but perhaps Casio's engineers reckoned an additional "rate" parameter would confuse people more than it would help them.

As with any other sampling system, the best way of minimising noise problems with the SK is to sample at as high a level as you can without encountering distortion (so that the playback system doesn't have to impose its noise characteristics on the sample in order for you to hear it), and to use a line input wherever possible (so that microphone noise doesn't have a chance to intrude, either). I used all three input possibilities (built-in mic, external mic, and line-level) during the test period, and can confirm that the least noisy results – though not necessarily the highest-quality ones – can be obtained using the last option.

Once you've taken your sample, you can play it back polyphonically (maximum three voices) from the SK2100's keyboard, use it as an instrument in a rhythm pattern (preset or user-programmed), and do a number of other things with it. However, since it's not possible to play more than one sample back from the keyboard at any one time, you can't use your four memory locations to record the same instrument at four different pitches. In other words, you can't "multi-sample" with the SK2100. So, depending on the signal you've sampled, the pitch range over which it can be played while remaining realistic can be rather narrow.

Of those "other things" mentioned above, the most interesting fall into the category of sample manipulation, rather than sample performance. You can loop your sample, reverse it, mutate it so that it follows a choice of five different envelope shapes, and transpose it by as much as eight semitones down or seven semitones up.

The reversal and envelope procedures can be particularly rewarding, and they're a cinch to use. There's no tricky LCD of values or monitor-full of waveforms to deal with here – just five drawings of different envelope shapes matched to five of the keys in the lower half of the Casio's keyboard; get into the right mode, press one of the keys, and your sample suddenly has a new envelope imposed upon it.

Looping on the SK2100 is done automatically by internal software, and though this means that it can be accomplished just as quickly as any of the other editing options, it also means that the finished product rarely complies with any legal use of the term "glitch-free".

Sadly, Casio haven't made any provision for users to dump their samples as digital data for retrieval at a later date – even to humble cassette tape. They're retained in memory during power-down, but as soon as you put another sample into a certain location, the sound that MUSIC TECHNOLOGY MAY 1987



previously occupied it is erased. Home-keyboard users may not want sound of the highest quality, graphic editing packages, or velocity-sensitive keyboards, but they sure as hell would like to build up a library of their favourite family samples. Wouldn't you?

Verdict

YOU MAY HAVE wondered, from the outset, why this magazine was even looking at a keyboard like the SK2100 in the first place. I hope I've made our reasons fairly clear during the course of the review, simply by outlining what the instrument is capable of doing.

First, it represents a sensible choice for the amateur musician who's keen to get into sampling, sequencing, drum programming and so on, but can't hope to afford to do so unless all those things are available within a single package.

Second, it is exactly the sort of instrument that domestic "non-musicians" – people who at the present time do not have any particular ambitions to play modern music, but who may acquire them someday – to let their creativity loose a little bit more than instruments in the £100 league will allow them. Casio have sold over a million of the baby SK1 sampling keyboard, and they know that the SK2100 players of today are the FZ1 programmers of tomorrow.

Third, it makes a fine addition to the arsenal of instruments possessed by pro and semi-pro musicians. It can be a practice keyboard for those last-minute, hotel room

► *"There's no tricky LCD of values or monitor-full of waveforms – just five drawings of different envelope shapes matched to keys."*

panics; it can be a handy tool for songwriters to map out simple arrangements of new material; and it can be a cheap and relatively painless way for, say, accomplished piano players to find out for themselves whether sampling really can be a musically useful technique.

Ultimately, the Casio SK2100 is a toy. But it's also of great educational value, and it has a number of other aspects to its character that give it a broader appeal than most home keyboards could have aspired to a couple of years back. And I, for one, am glad that it's around. ■

Price £425 including VAT
More from Casio, Unit 6, 1000 North Circular Road,
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the PRICE of FAME

Steve Lipson is the man whose engineering skills threw Trevor Horn into production superstardom, and whose Synclavier programming launched Frankie Goes To Hollywood. But success has disillusioned him to a frightening degree. Interview by Paul Tingen



Photography Matthew Vosburgh

AS HE ENTERS the room, Steve Lipson looks strikingly unfashionable. With his long hair, beard and tatty old clothes, he comes closer to the old hippie stereotype than anything else. Not exactly the kind of person one would expect to be closely associated with the well-packaged, acutely-marketed world of ZTT. We are in Sarm West in West London, one of two studios part-owned by Trevor Horn. The predominant colour is a stylish blue, and there are '30s Coca-Cola adverts on the walls, giving the cafeteria a slight American feel. Yet the breakfast menu pushes you abruptly back to British reality: "sausages, bacon, eggs and toast", all for £2.50.

Lipson pours us some tea, then guides us

with frightening speed through the three studios before settling in the "programming room" where we are surrounded by two digital Sony 24-track recorders, a Trident mixing desk, an IBM personal computer, an Akai S900 sampler and, right in front of us, dominating the room, a Synclavier.

Lipson – tall, loutish, sitting awkwardly in his chair with his legs under his backside – lights a cigarette. We talk about the studio, his only prior experience with a journalist ("I was immediately misquoted – that's how the story that Frankie couldn't play came into the world"), and his production work with Frankie Goes To Hollywood, Propaganda and, most recently, the Tommy Chase Jazz Quartet.

Suddenly he makes a wild gesture and says: "The sort of conversation that we're having is really a bit funny, because I don't know what the fuck I do. When I'm starting work on an album or a song, I have no idea what's going to happen. I haven't got a vision of how it's going to be. I've got no vision at all. I find it suspect when people claim they've got a vision in this business, unless they've scored it all out, like an arranger. Working in the studio is like walking with a blindfold on, and anyone who tells you differently is blowing themselves up a bit.

"We're in a pop world here and we're trying to move forward, but inevitably, the only good things that happen are by accident, by a freak of circumstance. I mean, do you really think that people sit down in the studio and go 'morning, morning' and next they've got a great sound? That's not at all what happens. What happens is that people are desperate and say: 'Fuck, what are we going to do? This track sounds terrible.' And nobody's got a clue. Then somebody thinks: 'Oh, well, what happens if I press this button?', and then utters in amazement: 'My God, that's fantastic!' That's how it goes.

"The way I work in the studio is by complete hit and miss, and I don't know anyone who doesn't work like that. It's the art: you keep going until you think it's happening."

Lipson shifts his position in his chair, then continues. "I know Trevor Horn works like that. Grace Jones' *Slave to the Rhythm* happened like that. Really, the whole album is a collection of experiments in which we were trying to create a good single. The way that worked was that we would have something which was OK, but just not good enough to be a single. Trevor would have a bit of doubt, and I'd say: 'Oh, yeah, great, I'll start again', because it was no skin off my nose. So Trevor gave me a week, and I recreated the song on the Synclavier - I did nearly the whole album on the Synclavier, by the way. After a week Trevor would come back and say: 'Oh, yeah, that sounds good'. So we'd go back into the studio, look at it, and then suddenly he'd say: 'No, no, no, not really. How about if...?' And I'd work again on it for another week.

"To this day we're still like that with each other. If I'm thinking during a mix: 'Hmm, it's not quite there', then he picks up on that immediately, and off we are again into the land of nowhere."

Yet the discoveries Horn and Lipson have made in this "Land of Nowhere" are among the most spectacular-sounding and influential in the world of late-'80s pop. Their collaboration dates from the beginning of the decade, when Lipson got a call from Horn, asking him to do a bit of engineering work.

Lipson wasn't exactly pleased with Horn's request. "I'd been engineering for a while in London and France, and was rather fed up with it. Engineering on its

own is a nothingness - you're not doing anything. It's a terrible activity because it's so boring. You're just sitting there pushing up the faders while everyone makes fools of themselves, and nobody's having a musical idea.

"By the time Trevor phoned me I was fading out of it. I was finding myself projects to produce. They were just tin-pot productions for which I hardly got any money, but I preferred it to engineering. So I went to Trevor feeling like I didn't want to do it, that I was only going to work there my way.

"And of course, that was exactly what he wanted. He wanted somebody who would just do his own thing, giving him the opportunity to come in now and then and give some comments. So I thought: 'This is good fun, because I can do whatever I want with this guy', and stayed. On top of that Trevor also liked my guitar-playing a lot, so all of a sudden, from being hired as an engineer, I was doing everything that I wanted to do: playing and producing. Trevor would have the grand overview on the production side, telling me to start a song again or something, and I'd do everything. I learned a lot from that because I didn't have the responsibility: he took the rap and I made the record."

STEVE LIPSON STARTED his musical career playing guitar in a band in the beginning of the '70s. "It was a great band, we had a great concept and a lot of interest from record companies, but we didn't think that anything they offered us was good enough. Basically, we blew it."

Next the former hippie met someone who wrote jingles, and who needed a studio of his own. He employed Lipson to build a studio, and once that was done, asked him to engineer it.

"I said: 'Me?' because I'd never set out to become an engineer. But I did it. I got a bit over-enthusiastic and put 30 microphones in front of everything, to figure out what they would do at a certain angle and distance and so on. That served me well. But even then, if you're working in the studio the fun is in telling the keyboard player to move up an inversion rather than in pushing a fader.

"Also, by default, I learned why my guitar never sounded good. It wasn't because of the engineer or the equipment, as I always thought, it was because I was a naff player. The sound of an instrument comes from the way it's played, not from the equipment."

It was a way of looking at the recording process which led Lipson to produce several artists, amongst them Lindisfarne and Sniff 'n' The Tears. He had a hit in the USA with the latter with the song *Driver's Seat*, and did an album with them, *Fickle Heart*. Disagreement with the studio over the distribution of that album's royalties ►

"If you're working in the studio, the fun is in telling the keyboard player to move up an inversion rather than in pushing a fader."

► led him into a career as a freelance engineer which, as we saw above, he soon began to loathe.

Yet the call from Trevor Horn kept him in the engineering business, albeit in a different way. Lipson became assistant producer, guitarist and engineer on Frankie Goes To Hollywood's *Welcome to the Pleasuredome* and Grace Jones' *Slave to the Rhythm*, and went on to produce Propaganda's debut album *A Secret Wish*, a yet unreleased album by The Tommy Chase Jazz Quartet and, of course, Frankie's latest album, *Liverpool*.

To start with that most recent and most impressive-sounding venture, how come Lipson, not Horn, ended up as producer?

"There are loads and loads of reasons that I could give you, but primarily, I suppose, if Trevor had done the album, there wouldn't have been much room for the lads. That's what it comes down to. You know, when Trevor is involved in something, he's not easily satisfied. He likes to work with either the best musicians or no musicians at all. The lads aren't either. They're musicians, but not the best. So Trevor would have gotten frustrated. He wouldn't have spent two weeks trying to get the drum track for 'Rage Hard' as I did. Even during the recording of *Pleasuredome* there were moments when he walked out of the studio in frustration.

"On the other hand, the record company had suddenly thrown Frankie in the deep end and said: 'Right boys, you have to behave like a normal band now and make a record'. The album really had to sound like a group album. We all felt, me inclusive, that the group had to prove themselves.

"Initially I was very dubious about doing the album. I mean, who wouldn't be, after that series of number ones? There was no way that, during the course of events, they would have written the same calibre of songs. I wasn't interested at all. Then I heard the demo of 'Rage Hard', and that convinced me to do it."

In the end, the album took nearly six months to complete, and was largely recorded – for tax reasons – at Wisseloord Studios in Holland. The main thing the band kept telling Lipson was that the album had to sound "heavy". The demos contained only the bare outlines of songs – melody, some chords and a rhythm – with which Lipson and the band started work in the studio.

"They're not workaholics, you know. Only one of them is, the drummer – he goes bonkers. Still, it was important that it went the way the band wanted it to go. I wouldn't have done them justice otherwise. And at the end of the day, we got a No. 4 hit here, and we've done very well in Europe, which is good, because it could have been a total failure."

As for the process of recording *Liverpool*, Lipson admits to having used an unusual and laborious method. You could also call it a bit outrageous. Working with two 24-

track digital Sony tape recorders, he could make as many 24-track copies of any song as he wanted and play around with them, always keeping the original...

"Let's say that the drummer goes out and does eight takes of drums. With those two machines I can piece together a really good drum track, all A1 quality. For example, I can use the first verse from the second take and combine it with the second chorus from the fifth take. I did the same with the vocals. Rather than sampling a whole chorus and flying it in, which makes records sound like clockwork, I can make copies with the 24-track and compose a good vocal."

Working in this way, Lipson ended up with *over fifty* 24-track versions of 'Rage Hard'. To keep track of all the multitrack versions of various songs and what was on them, the producer wrote his own database program on the IBM computer.

"I run the whole session from this computer. I mean, digital is the business nowadays. Perhaps not so much the sound quality, I can't be bothered too much about that, but the convenience of being able to make these copies is staggering. You can be very bold with your erasures. That's what made me realise that I needed this program, because you can go on and on."

Apart from listing all the different multitrack versions of a song, Lipson's database program lists and stores all the different sequences he's used for various songs, all his Synclavier and S900 samples, and all the two-track masters of songs in his collection, whether PCM digital, 1/2" analogue or 1/4" analogue.

"It's also a calculator", Lipson adds. "It automatically works out the bar numbers for me if I give it the time signature and the tempo, and it makes SMPTE calculations. It calculates the offset between two tape machines when I'm linking them up. So synchronising is really easy."

Apart from his database program, Lipson uses an Octave Plateau 64-track MIDI sequencing program, a Wordstar word processing program ("for writing and editing lyrics"), a DX editing program called DX Design, and Patchmaster, which stores *all* his MIDI synthesiser patches.

YET DESPITE THIS proliferation of technological opportunities, Lipson is well aware of the danger of not seeing the wood for the trees, and of holding onto work which should really be discarded, but which took too much blood, sweat and tears to make.

"It's a vital thing in production to be willing to throw away something that's taken you a solid week of work. If you can't do that, you're nowhere. So I have people coming into the studio to listen to what we've done. A good producer should listen to what everyone has to say. I get angry with artists when they get angry with people coming in and making com-

"Initially I was very dubious about doing the new Frankie album. I mean, who wouldn't be, after that series of number ones?"

"It's vital in production to be willing to throw away something that's taken you a solid week of work. If you can't do that, you're nowhere."

ments. It's a love and hate thing, really. I really hate it, but I love it because it's input, and the people might be right.

"Jill Sinclair (MD of ZTT and Sarm) is very good at it. She comes in now and then and makes those incredibly sweeping remarks, like: 'Great, but I lose it somewhere, because there's something going on which I don't like'. So I say 'What?' and I think about it, and nine times out of ten she's hit the nail on the head.

"It's back to the trial and error process. That's why it always amazes me that some producers never wanted to hear what I had to say while I was still working as an engineer. I could never understand that. I remember one time when I was engineering for Gerry Rafferty at Monserrat. They were doing a track, and the guitar player was playing something. I went up to him and said: 'Hey, if you did this bit in that bit it would sound amazing', and he agreed. Suddenly Rafferty asked him: 'What was that?', and the guitar player explained. Then Rafferty looked round to me and said: 'Look, you stick to engineering, right?' I was perplexed. I couldn't understand it."

We've touched briefly on some of Lipson's association with the new music technology, but there's one area which hasn't yet come under scrutiny. Apart from being one of the country's foremost engineers and producers, and apart from being a guitarist, a composer and, apparently, a computer programmer, Lipson is also acclaimed as one of the world's leading exponents in the use of the Synclavier. It's the Synclavier which enables Lipson to recreate any part played by a musician – either because the musician lacks proficiency on his instrument, or for conceptual reasons, as on *Slave to the Rhythm*. And it's the Synclavier which lies at the root of his studio and arranging work, and which has enabled him to develop his own style of production.

It was maliciously suggested to us (by reliable sources) that Lipson created *Liverpool* almost entirely on the Synclavier, vocals included. Only the guitar parts weren't played on the Synclavier, these being played by Lipson himself... The producer shrugs his shoulders when quizzed about this, and doesn't want to talk about it. Yet later, in a different context, he says that all the bass and drum parts on *Liverpool* were played by the band. Then again, he explains his attraction to working with bands with limited playing capabilities.

"When you work with a group that can play, your work is cut out for you, you've got nothing to do. It's all very straightforward, you know what the record is gonna sound like from the start, and you're hardly likely to make a record that no one's ever heard before".

Clearly, then, Lipson has an ambition to express his own musical ideas through (or with) the band he's working with.

But leaving aside the issue of what Lipson does and does not play on Frankie's

records, Grace Jones' *Slave to the Rhythm* certainly *was* largely "performed" by Lipson on the Synclavier. Despite that, it's a remarkably human-sounding record, showcasing Lipson's ability to endow a machine with human characteristics. Every track sounds as though it has a different drummer at work. How does he do it?

"I've figured out how to program personality into the Synclavier. I can adjust one track to another within one millisecond, and I can change the starting time of one track as opposed to another. Doing that shows me everything, it shows me how feels are created. You know, if you lay a snare drum a bit back, if you make it a bit lazy, it becomes someone, and if you make it a bit pushy, it becomes someone else. That's what makes the sound, really. The sound of something has to do with the way it's played – whether it's a program or a player – and of course the part. It's the part and the attitude of the player that makes the sound."

Lipson first got confronted with the Synclavier during sessions for the Propaganda single 'Dr Mabuse', when Dave Whittaker rolled one in and Trevor Horn bought it because he was impressed with its sampling quality. The machine then spent an eternity sitting unused in a corner of the studio, simply because nobody knew how to use it. Until, that is, Lipson figured out how to write a bass drum sequence into it. He used it for the first time on Frankie's 'Two Tribes', as part of a programming and recording ▶

"If you lay a snare drum a bit back, if you make it a bit lazy, it becomes someone, and if you make it a bit pushy, it becomes someone else."



"Pop music is in a cul-de-sac at the moment. I see a new group coming along, and all I see is a new haircut. It's meaningless to me."

► endeavour which took an epic three months to complete.

Lipson recalls: "At the time of 'Two Tribes' the Synclavier was in its infancy. To get a sequence working in it then, you had to write the sequence by hand – you physically wrote it in on the computer, compiling it into computer language, and then you played it on the thing while it would spit out whatever it could spit out. Then you had to run it again and write in the notes which it hadn't managed. For a bass drum you had to run it four times, which gave you four tracks, so after getting the level right you finally had a bass drum track. Those three months were mainly spent on programming. In the end, we had a track which sounded remarkably like Frankie's original demo."

NOWADAYS THINGS ARE, of course, very different, with Lipson having the full Synclavier system at his disposal at Sarm West. "I prefer it to the Fairlight, because the sound quality is way better. Even Fairlight III is no comparison, though neither is the price, of course."

Lipson and Horn now each have their own programming suite across the road from Sarm West, which they use for writing sequences, editing, and other musical activities. Lipson's has his IBM computer there, together with the Akai S900, an Oberheim Matrix 12, Roland TR707 and TR727 drum machines, a Yamaha FB01 module, an Akai 12-track tape recorder, and a complete hi-fi system.

What does he think of the impact new music technology has had on music?

"Well, Michelangelo used technology, didn't he? For the statue of David he had to use a lot of technology to get that bit of rock where he wanted it. A lot of people in the art world use technology. Really, it's the mix of science and arts which is important."

Suddenly his tone of voice changes. "But recently, pop music has gone a bit...science only. I think technology has had a terrible influence on music. The

songs have gone. That's why there's a '60s revival. I mean, what's in the charts now? '60s and black dance music. That says it all really, doesn't it? Nobody's interested anymore in today's music. Ten years ago you'd buy a record and it would mean something to you, you would *live* to that record. But things are different now. You can now buy a Casio drumbox sampler for £99. That means music is everywhere, you can do it at home, and at the same time it's nothing. I can see all those people sitting at home with their little drumboxes, going takka, takka, takka. And they say: 'Oh, wow, great, let's release it', or 'I like that bass sound'. But what's a bass sound got to do with music, with a good *song*? That's why pop music is in a cul-de-sac at the moment. I see a new group coming along, and all I see is a new haircut. It's meaningless to me."

But hasn't Steve Lipson played a part in bringing this state of affairs into being? Doesn't he have any ambitions to make some more meaningful music? The producer looks genuinely surprised.

"Me? Change the world? No, thank you very much. Basically I'm earning a living, that's what it comes down to. I mean, I know what I want to do. I would like to write some film music, but further. And I'm working, I get immersed in what I'm doing, making the same rubbish as everyone else – though one likes to think with a little bit more class. In the end of it all, technology is meaningless, and all that really matters is the tune."

"Apart from that, in the grander scheme of things, pop music is totally unimportant. And that's what I love about it: the sort of nothingness of it. The silly haircuts on stage. I like the music and I like its irrelevance. We're in a business that isn't like designing a 700-seater aircraft, or being a politician. I mean, it's nothing really, is it? It's just morons in these rooms, doodling and making bits of music."

For a man whose work has helped give listening pleasure to millions, Steve Lipson is not a very optimistic man – or a cheering one. ■

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Samplers have been used for replacing drum sounds in recording studios for some time now. In the second part of our series on creative drum programming, we look at how to make your sampler behave more like the percussion instruments it simulates.

Text by Matt Isaacson and Chris Meyer.

WE SPENT QUITE some time in the last issue slamming your typical drum machine as a percussion playback device. Add to this the primitive pattern programming on most drum machines, compared to the current generation of MIDI sequencers, *and* the fact that more and more musicians are using their "main" sequencer to sequence their drum and percussion parts, and it becomes obvious that we should perhaps look elsewhere for the supplier of our beat.

Let's see — where should we look? Well, what were the problems we outlined with drum machines? Hmm... Lack of dynamics (volume, pitch, and timbre), no dynamic allocation of voices if we wanted it, length and variety of sounds... Hey! Aren't these

things that have come to be expected by keyboard players?

You bet. And if we're truly using another sequencer to play back drum and percussion parts, a sample playback module turns out to be about the best thing there is for our sounds. Playback modules are velocity-sensitive, have a wider variety of sound-modification options (envelopes, filters, and the like) than your typical drum machine, have a wide and easily expandable library of sounds (which can be modified at will), and have a variety of playback modes and voice allocation techniques for layering, velocity fading, velocity switching, and so forth.

If you already have a drum machine, and feel like keeping it around (or it already

contains your best work), bless the MIDI jacks that are (we hope) on the back of it — with their help, you can slave sample playback modules off it to double up on or replace its sounds, and eventually transfer your patterns to a sequencer if you so desire.

So, if we want to use a sampler for playing back our drum and percussion sounds, what kind of sampler do we look for? Well, bad news first — the least expensive MIDI'd sampler you're going to find costs what an upmarket drum machine would. Now the good news — the least expensive sampler you can find will sound better and be more expressive than all but the most expensive drum machine. And unless you plan to be playing keyboards as

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well, or will be using the keyboard to enter your rhythms (a cost-cutting measure for those who are keyboardists and not percussionists at heart), you can do more than just get by with a rack-mounting sampler, which tend to cost slightly less than their keyboard-equipped counterparts. The money you save will be better spent on percussion-style controllers, whether you're a drummer or not.

The criteria to use in choosing a sampler for percussion work break down into four categories: sound (quantity and quality), price (an obvious one), features, and hassle. "Hassle" encompasses how hard it is to use the machine, how big the sound library and support is for the sampler, and the mystical problem of sampler delays. "Features" are what you need to put into practice the various programming techniques that we'll be discussing for the bulk of this instalment – pick out the ones you think you'll be using, then pick out a sampler that has those features on it. Balance them out against "price" when it comes time to purchase. And while you're at it, go ahead and look at some of the brand-new drum machines – they too have caught on to the problems we discussed last month, and are adding features (including sampling) to give us a better beat.

But for now, on to those promised tricks (including how to avoid certain pitfalls). We're going to divide these into two areas – those that affect the way a single sound is heard, and how different sounds or restrikes of the same sound can interact.

Velocity and Envelopes

VELOCITY REFERS TO how fast something (such as a drum stick, or your hand) moves, which tends to correspond with how hard you strike. One of the amazing little quirks of nature is that the harder you hit something – a drum, your kid brother, whatever – the louder it sounds. It also tends to change in tone and pitch (your brother's voice may get higher and more strained, for example). Our desire is to translate, or as it were, properly interpret, this quirk so as to have more realistic-sounding drum and percussion voices at our disposal.

Let's start with that "harder equals louder" effect. Velocity modulation of the amplifier (also known as the "VCA" level, and virtually the only dynamic control available on drum machines) is standard on all but toy samplers. The sampler version also happens to be more useful. Sampler velocity resolution is greater, with up to 128 discrete levels resolved – most drum boxes offer 16 or fewer levels, and some have only a cumbersome two-level normal/accident option.

Some samplers also allow subtle (or blatant) modulation control by note, dynamics. This is important, because it is often preferable to apply different amounts of velocity modulation to different sound parameters. More on this later.

Real percussion instruments tend to vary in timbre, as well as in volume, when they are struck with different velocities, so MUSIC TECHNOLOGY MAY 1987

it's useful to have dynamic control over a sampler's timbre, too. Time, then, to look at several common methods of achieving this.

If your sampler offers dynamic filtering (most do), velocity modulation of the filter cutoff frequency is a good starting point. When the sampler is programmed so that a higher note velocity opens up the filter, louder sounds also sound brighter, with more edge to the attack and more meat revealed in the rest of the sound. This is usually presented as velocity modulation of the filter envelope amount, since the filter cutoff sets the lowest or average filter frequency from which the filter envelope shoots up. Samplers without envelopeable filters, such as the Akai S900 and Roland S50, tend to use velocity to modulate the cutoff directly.

Let us not belittle the filter cutoff frequency – in addition to providing a simple control over timbre, it's helpful in masking shortcomings of the sample playback mechanism. In particular, where it is possible to have VCF cutoff track the sound's pitch, you have a method for covering up the clock noise which becomes audible in most samplers when the pitch of a sound is transposed down far enough.

Another shortcoming of samplers, quantisation noise (that rising hiss as the sound dies away), can be hidden with the normal filter envelope by starting out high for the attack and fading down towards the end of the sound to mask the hiss. This is especially helpful with toms – it allows them to retain a fat roundness with all of the grit of the attack, so long as the controls are set right.

A warning. It often becomes a plate-spinning act to prevent velocity from uncovering all of the nasties you were trying to hide by lowering the filter cutoff and envelope amount. Samplers that route velocity to the filter envelope amount instead of to the filter cutoff are much easier to control in this respect. But be wary of samplers that do not have controllable filters on their output stages: while some will tell you (truthfully) that the absence of such filters cuts down on the noise in the output, we often need them for improving the lot of our problem samples.

In the same way that the filter envelope can be used to mask noise at the end of a sample, a sampler's VCA envelope can be used to tidy up samples which cut off before the original sound was able to die out completely – a useful technique if you find yourself running short of sampling memory. We're only offering it as a cure to an undesirable situation – remember that one of our main complaints about drum machines was the shortness of their sounds. In general, you will find that the longer the sample you can afford to take, the more realistic it will sound.

Of course, envelopes do have purposes in life other than fixing faults – they can be used creatively. Sounds that are lacking in a proper percussive envelope (such as something that was over-compressed, or a sound that was never intended for percussion in the first place, like a steam blast) can now have such an envelope imposed upon them. A sound that was not gated can now become gated – either trim its length,

or have an envelope cut it off.

Almost all envelope tricks deal with the decay or release portion of a sound's envelope. Samplers that allow routing of velocity to decay or release times (humorously the opposite of what keyboard players tend to want – they like to have velocity affect the sound's attack stage) are great at simulating another unusual artefact of struck objects – namely that hitting something harder tends to make it ring out (or cry out, in the case of our kid brother) longer.

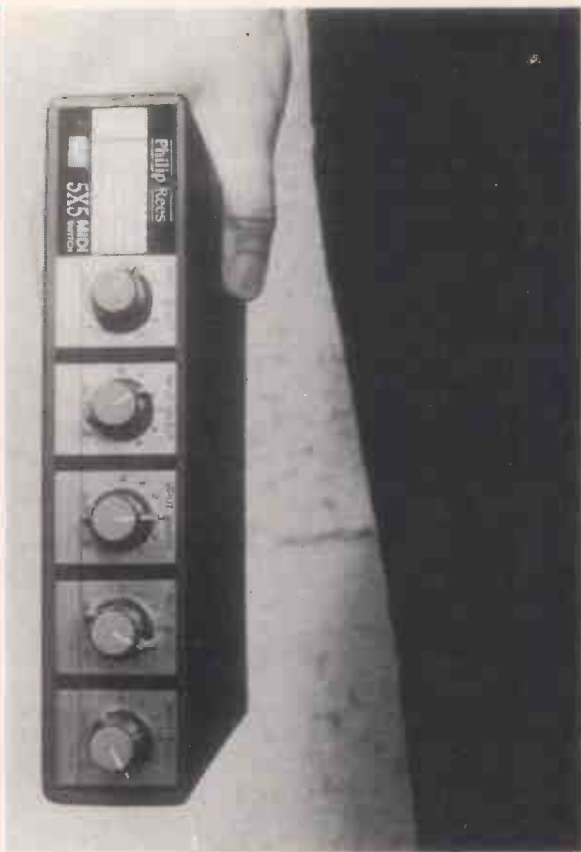
This feature (as found on samplers like the Prophet 2000 and Studio 440) is particularly useful for processing long open hi-hat samples by allowing them to vary between an abrupt cutoff (simulating a closed hi-hat) to extending out to their full length, faking many of the nuances of live hi-hat playing. If the sampler you're eyeing does not have this feature, many of the effects can be simulated if it has a "second release" or "hold" function (allowing a footswitch to select between a normal release time and a second or "infinite" time). Failing that, you can always control the sustain stage of the envelope by playing the samples from a keyboard; many drum pad-to-MIDI converters do not allow dynamic variance of the gate time.

More Tricks

TIME TO MOVE on to tricks (and features) that are a bit more esoteric, but certainly useful. Some samplers (like the Prophet 2000, Studio 440, and forthcoming Simmons SDX) provide a feature known as velocity start-point modulation, in which velocity is used to set the point at which playback starts in the sample itself. This can be extremely effective in breaking out of the "same sound, different volume" syndrome, and works best with sounds such as snare drums, which have a rapidly-decaying attack transient.

Sample, or load from disk, a drum that has been hit extremely hard. Next, set the sound up so that lower velocities cause playback to begin further into the sound. When this happens, some of the attack transient is skipped – we come in on the sound at a point where it has already settled down somewhat in both timbre and volume, and this sounds remarkably like a softer hit on the drum (velocity-to-VCA or -VCF may, at this point, seem superfluous). However, some restraint is in order with respect to the amount of this modulation, otherwise you may miss the sound entirely on the softer hits by coming in at the end.

Unfortunately, jumping into a sample at random points like this can create pops and clicks in the attack. These are most noticeable on soft hits, where the attack transient of the sample is not played and is therefore not available to mask them. Notching the VCA attack time up slightly (ie. making it slower) from the usual instantaneous setting used for drum sounds will cover these noises up nicely, but will destroy the hard edge of the attack on hard hits. Unless, that is, the same sampler allows routing of velocity to attack rate – you can then set it so that higher velocities ►

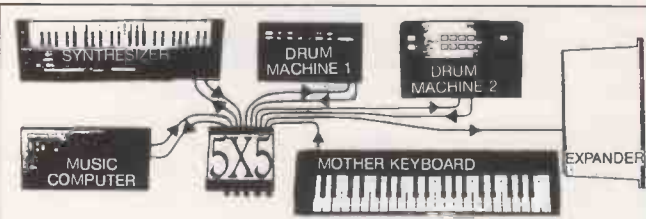


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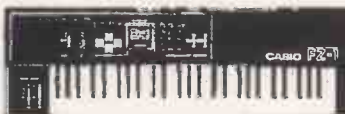
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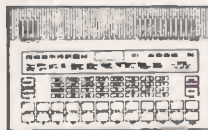
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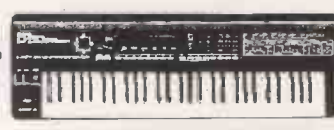
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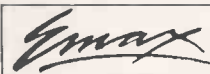


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► cause the VCA to open more quickly.

This method provides an interesting effect of "distance" modulation, precisely because the softer hits have a less distinct, more diffuse attack – qualities which our ears associate with sounds arriving from a distance away.

Another feature is that of pitch-bend envelopes. Ever notice how a tom tends to drop in pitch from the initial strike? This is because the drum head is stretched from the impact of the blow, raising its pitch. As things calm down, the head relaxes, and the pitch settles back to "normal". The harder you hit the head, the more it is initially distorted, creating a higher initial pitch and a deeper bend. While this effect tends to be over-mimicked by electronic drums, it's useful – or just plain interesting – to impose it on other sounds. And as you've no doubt guessed, the ability to route velocity to the bend depth will more closely mimic the real thing.

This is as good a place as any to mention three other tricks that are possible on virtually all samplers. The first is transposition – very few drum machines allow you to tune their sounds, whereas *all* samplers allow this. A sampler's pitch range also tends to be as wide as, or wider than, a typical drum machine's. Now you can fine-tune a conga or snare to match what you really had in mind; play chromatically along with the rest of the music; create a set of octabans or a 12-tom kit from a single sample; or just go for weird effects.

Another trick is the ability to reverse a sound – perhaps the perfect reverse reverb, assuming you're not already sick of that sound. Mating reverse playback with gated release time allows precise timing of where that sound ends.

The third trick is looping. To be honest, looping does not work well with the vast majority of percussion sounds – there's just too much difference between how our sounds start and how they finish up (toms included). However, long crossfade loops are useful for those sounds which *do* have a steady-state period – such as ride cymbals, gongs, and open hi-hats – in which case memory can be saved, and unnaturally long samples can be taken by crossfade-looping; a sampling keyboard generates its longer sounds in this manner. Remember to take a longer sample than you plan to keep, so you have some extra sound to fold back in for the crossfade – you can throw that extra bit away when you're done. And some sort of filter envelope is usually necessary – few things can be as eerie as cymbals that refuse to die...

Multiple Voice Playback

HAVING COVERED THE setting-up of individual sounds in isolation, it's time now to deal with more than one sound going at once. One of the advantages that samplers have over the average drum machine stems from the flexible manner in which they allow samples to be played back. Often referred to as "voice handlers", these modes of operation are an area of control which simply does not exist on MUSIC TECHNOLOGY MAY 1987

most drum machines, but must be understood in order to make them work for you – and to understand and recognise subtle feature differences between different machines.

We'll now cover a sampling (sorry) of issues and answers related to output control, along with tips on how to exploit some of the different voice handler options and keyboard/playback modes.

Typically, you have eight voice channels at your disposal. This is already more than most drum machines have, with the added option of polyphonic assignment. In plain English, this means that a given sound can be triggered many times, and each instance of triggering will be given a different voice channel to play back on, instead of all of them stepping on each other in an attempt to get out on the same channel. Use this with any sound which is prone to being retriggered before dying away (that is, most of them), and amazingly enough, cymbals fade smoothly into one another, tom fills ring in fullness, and snare drum rolls sound like snare drum rolls, by gum.

Wonderful. But there's a catch. Actually, there are a few catches. In some cases, a mass pile-up of voices on one sound is not what you want. Ever noticed how, on your drum box, the closed hi-hat faithfully cuts off the open hi-hat if it's ringing? This is because both sounds play through the same voice channel. In sampler parlance, this is known as fixed assignment (monophonic playback and so on), and the hi-hat example is one reason why it has been carried over to samplers. A more basic reason applies to machines in which each voice channel appears at a separate output. In order to make effective use of individual audio outputs (for example, to process sounds individually), it is necessary to confine each sound to *one* of the outputs (and probably also necessary to keep other sounds out of that output).

Wait. We're not done. Not all samplers provide individual voice outputs, and not all of them provide a monophonic assignment mode. For treating one or two sounds differently from the rest, it's nice to be able to use just one or two of the voice channels in monophonic mode and leave the others in dynamic assignment mode. Some machines (like the Emax) will let you do just that; others (like the Akai S900) restrict you to setting the mode for groups of four voices at once; while still others (like the Prophet 2000 and Akai X7000/S700) require all voices to be in the same mode at any one time, limiting their usefulness as total drum sound playback units. The more flexibility your sampler has in using monophonic and polyphonic playback modes simultaneously, the better off you'll be.

There's a hidden gremlin in polyphonic assignment. Hitting one pad very fast, or two pads with the same sound on them, can mean that two identical sounds get started so close together that they actually flange. This can be avoided by having two pads play the same sound at slightly different tunings – say, a semitone apart. This sounds more realistic, particularly with snares, than hitting exactly the same sound – on two-handed rolls, the drummer's one hand is always stronger than the other, or hits the head a little further away

from centre, causing the two-hand strokes to sound different.

So much for assignment modes and making sure we don't get burned. Time to start mentioning the potential of some "keyboard" modes samplers provide that make our life more interesting. As we said earlier, note which of these you think you'd like to try, and look for them on the sampler you're considering purchasing.

Perhaps the most common first – a keyboard mode called "velocity switch". What this means is that hits below a certain level play back one sound, while hits above that level play back a different one. Obvious uses include switching between normal- and hard-hit snares, palmed and slapped congas, and so forth. What may not be so obvious is using this feature to switch between two similar but subtly different sounds – such as two different kicks, or two different strokes on a rhythm guitar.

Remember, we're trying to imitate humans, and humans can rarely do the same thing in exactly the same way twice in a row. Tricks like this go a long way towards muting the cry, "I'm a machine".

Next come various ways of layering sounds. A straight layer of two or more samples allows you to build huge, unlikely mixes of sounds – a trick studio engineers use all the time (such as layering four kicks to get one monster bass drum). Many samplers allow velocity to crossfade between two or more sounds – a very soft hit gets one, a medium hit gets both, and a very hard hit gets the second.

And although not quite as versatile, positional crossfading (a low note plays one sample, with higher notes playing a mix including more and more of the second and less of the first) is also good for getting smooth mixes between two sounds over pitch, such as from a high octaban down to a low floor tom.

Other tricks, such as pressure or mod-wheel crossfading between two sounds, are great for keyboard players, but are of little practical value to us – often, all we get is a pitch and how hard it was hit. If you are buying a sampler strictly for percussion, don't let features like these lure you into buying more than you'll need. On the other hand, if you *are* planning on becoming a drum sound demigod, look for samplers that allow the above layering or switching modes with more than two samples. The Akai X7000, Roland S50, and Casio FZ1 are examples of such samplers. Layering two samples is quite enough for most of us, but taking the time to program *more* is well worth the more realistic and varied results.

Finishing Off

THAT'S OUR STUDY of the playback stage. In the next few instalments, we hope to be looking at initiating those sounds. And in the spirit of the golf course greenkeeper's motto – that you've got to think like gopher to kill gopher – we'll be taking the notion that you've got to swing at things like a drummer or percussionist to sound like one.

Until we "beat" again... ■

video T·A·K·E·S

The Art of Mixing

There's no doubt that the DJ plays a major role in today's music world. So, ever mindful that Music Technology should investigate as many avenues of contemporary interest as possible, I trolled along to this year's edition of the annual International DJ Convention.

This turned out to be a two-day event that was both a celebration of and a showcase for the world's DJs, sponsored by Technics (who make the industry-standard SL1200 MkII turntable) and organised by the Disco Mix Club (the UK-based DJ organisation which has 22 branches worldwide and 5000 DJ members).

While the DJ Day industry binge was held appropriately enough at the glitzy Hippodrome club in London's West End, the following day saw a packed Royal Albert Hall transformed into the biggest disco in town (complete with 40 Kilowatt sound system and massive lightshow) as it played host to the World Disco Mixing Championship Finals – an opportunity to witness record mixing as an artform.

Sixteen competitors representing such countries as Finland, France, Germany, Britain, America, Switzerland and Singapore took part, performing in front of an 11-strong judging panel as well as the sizeable audience. Each competitor had exactly seven minutes to show what they could do, and massive video screens on each side of the stage ensured that everyone could clearly see what was going on.

Maybe you thought your record deck was just for playing records, but with two decks and a mixer you have a powerful new instrument and a new way of creating music. The art of mixing today embraces a wide range of techniques: not only mixing one record into another sequentially (itself no mean feat when done properly), but syncing one record on top of another, cutting rapidly between two records, and of course scratching (the latest variant of which is known as transformer scratching, originated by US hip hop DJ Jazzy Jeff). Just as importantly, successful mixing also requires a profound understanding of how music in general "fits together".

Showmanship has its part to play, too, but as the contestant from Singapore discovered to his cost, using shoes, feet and elbows to cue up records is of little value if you only play three records in seven minutes.

In contrast, last year's runner-up Chad Jackson (from the UK) managed to combine showmanship



Photography Matthew Vosburgh

with a virtuoso technical and musical ability that clinched the world title for him.

Which musicians and producers do the world's DJs think the most of? Well, the DJ awards (polled from DMC's 5000 members) yielded Loose Ends as the best UK funk/disco group, Mel and Kim's 'Showing Out' as the best UK dance record, and Stock, Aitken and Waterman as the best UK producers. No prizes for guessing the top female

vocalist and the best producers worldwide: Janet Jackson and Jam & Lewis respectively. And it's a measure of how important DJs are that all of these wonderfully famous people were present to receive their awards – the American contingent flying in especially for the event.

As for this wonderfully unfamous person, I discovered just how exciting – and innovative – the DJ's art can be. ■ S:

vinyl T·A·K·E·S

Erasure *Circus*

Mute LP

While many musicians use pop music as a stepping stone to establish themselves (and make a few quid) before moving on to better respected areas of music, Vince Clarke remains an unashamed pop devotee. From Depeche Mode to Yazoo, then through various short-lived collaborations

to Erasure, Clarke has untiringly explored and exploited the four-minute, 4/4 format.

Circus is Erasure's second album, following the underrated *Wonderland* released last year. It sees Clarke's formula of strong rhythms, simple bass-lines and interactive chord sequences overlaid with the kind of catchy vocal melodies that have served him well for years. Andy Bell's vocals mesh well with Clarke's technology, and are finally dispelling the illusion that he is Alison Moyet under a pseudonym – if only by the lyrical content of the songs.

More than anything else, *Circus* is an analogue album – and better for it. The synth textures are unmistakably those of filtered oscillators doing their best to drift out of tune the moment your back is turned. What you assume to be vocoded voices turn out to be clever manipulation of a filter cutoff. And there is always more to the apparently simplistic rhythms than you realise, even after repeated listening.

For my money *Circus* doesn't quite measure up to *Wonderland*, but makes more chart sense as 'It Doesn't Have to Be' is currently proving.



Mind you, if Clarke's track record is anything to go by, the sound of success only indicates that it's time for a change. On that basis, I wonder how much longer Erasure have left to run... ■ Tg

Prince Sign "O" The Times

Paisley Park Double LP

Four sides of vinyl, 16 songs, around 95 minutes of music, and almost every note written, played, produced and sung by Prince.

The title-track is the best single of '87 so far, no

question. That stop-dead, gated-dry drum machine, manic guitar and from-the-heart vocal couldn't have presented a more appealing oasis in today's singles-chart desert.

The cut introduces the album, so you find yourself expecting (no, demanding) more of the same. You don't get it. Instead, you get a motley collection of dancefloor workouts, disco-pap sing-alongs, and soulful ballads that are about as inspiring as waiting for a bus on a rainy day in Milton Keynes.

There are moments of promise, like the George Clinton-inspired raucousness of 'Housequake' and the beguiling tranquility of 'If I Was Your Girlfriend' which approaches 'Sign "O" The Times' in the sparse-but-beautiful stakes.

And there are shorter (but more frequent) moments of genius on almost every track: a neat beatbox fill-in, a sizzling sample, an elegant synth arrangement, a brilliantly written lyric.

But the quality control just isn't there, and 95 minutes of music is an awful lot to sift through when all you're looking for is a bit of inspiration. ■ Dg

Various Artists Sounds of Soweto

EMI LP

You don't have to look too far in music these days to find yourself confronted with The Beat. Popular music is becoming progressively more and more involved with it - elaborately produced drum

sounds and intricately programmed beatboxes are on records of almost every conceivable genre, and then there's hip hop with its total rhythmic obsession to the exclusion of almost all else. What started out as a reference for dance steps has become an intimidating obligation to get to your feet. And with so much attention currently being placed on rhythm, people are looking further afield for ideas and inspiration...

To places like South Africa, where we have "township music", a sound indigenous to the native black community that has now become a cry for help. *Sounds of Soweto* is an album of songs (some of which have already been banned in their homeland for their political content) from some of South Africa's biggest-selling acts. The four sides of music here feature artists like Condry Ziqubu, Johnny Clegg & Savuka and Brenda Fassie and the Big Dudes, none of whom are household names here, but all of whom have enjoyed success in South Africa.

What better place than to listen in on the rhythm of a nation and draw on it for inspiration? Theoretically none, but you'll find *Sounds of Soweto* laden with drum machines, sequencers and DX7s. No doubt this represents exciting ground for the musicians concerned, but it's cost them their original identity. The spirit of South African music is there, but it's expressed with the tools of white western pop.

An enjoyable album, then, but more a fine example of the way South African music has been infiltrated by new technology than a fascinating source of unlikely musical material. ■ Tg

demo T·A·K·E·S

AN UNUSUAL PIECE of computer-generated music opens this month's selection of readers' demos. It comes from **Andy Bridle** who has also written this composition program for his Acorn BBC+ and Hybrid Technology Music 5000 synthesiser. The program has utilised the AMPLE Nucleus and BCE languages to generate controlled random note generation and timbre variations from the Music 5000 and a Roland Juno 6.

More specifically, the "random" generation of 'Life in Zanzibar' is based on an eight-bar loop that is modified on each pass. As the piece consists of a number of separate parts, the options available to each "Player" are influenced by the other Players to ensure a degree of musical consistency.

Not content with all that, the program has been run twice with both results laid down on a Tascam 244 Portastudio (with the addition of some recorded voices and treatment from a DDL) effectively producing two simultaneous, but unrelated, performances.

In most styles of music, there is a danger for the theory to become far more interesting than the results. But, try as I might to be sceptical about 'Life in Zanzibar', it remains a convincing ambient piece with melodic and atonal passages drifting through it. At one point there's even a charming rhythmic passage - presumably, this too is a chance occurrence. On hearing alone it would be easy to presume that the whole piece had been scored - all the conventional aspects of musical interplay are accounted for, and the sympathy for the piece that human players would have injected is apparently present. As music, 'Life in Zanzibar' would be most effective in an art gallery or exhibition of sculpture, and that's intended as anything but a criticism.

Only one question remains unanswered: was the piece manually terminated, or did it commit suicide after deciding it had fulfilled its musical purpose in life?

In stark contrast to Bridle's intellectual exercises, **Martin Straw's** lone instrumental, 'Slow Growth to Triumph', sounds as if it could do with more sunlight and some regular doses of Baby Bio.

Two ARP Quadras and a Korg Trident are responsible for the rich string and synth textures that could, and should, have represented traditional analogue synthesis at its most impressive. Instead, they are devalued by slowly-opening filters that sound painfully trite in these days of attacking FM voices and sampled drums. Rolling analogue bass patches also belong to the synth sounds of yesteryear, leaving only a handful of pretty bells to add atmosphere and retain their self-respect.

Straw owns up to being a follower of Vangelis, but I can't help feeling he's trying to avoid having an accusing finger pointed in his direction than anything else. Perhaps the one area in which he should heed his master's voice is that of sequencing; I know part of the beauty of manually played music lies in its inaccuracies, but the bass parts here are a little too loose for comfort.

Moving on, **Name** have produced a demo of three numbers that begin as jazz/rock and (d)evolve into more ambient atmospheric abstractions.

From the moment you're faced with a name like Name, you know you've got problems. The biggest one here is inconsistency - maybe the imagination that obviously wasn't lavished on the christening of the band has found itself involved in devising the fiendish riff that opens 'Hey! You!'. And fiendish it is: Simon Burham's guitar spars with deliberately disjointed DDM110 drum patterns while Jonathan Foulkes' CZ101 and SH2 alternate between antagonistic chord work and ethereal wind chimes à la Japan's 'Ghosts'. But there the magic stops, because 'Hey! You!' lacks any real direction or structure. The concluding vocal sample may be a neat touch, but it's not really worth the wait.

'White Out', meanwhile, is a slow, abstracted number that makes effective use of a reversed slide guitar. The result is something akin to a (successful) collaboration between Brian Eno and Ry Cooder which neatly leads into 'Piece Three'. Here, long vocal samples from a Boss DSD2 Sampler/Delay pedal form a base over which bass guitar and assorted sound treatments build gently. Again, the

influence of Eno is inescapable while the guitar work brings Michael Brook to mind.

The one consistent factor throughout the three pieces is the exhaustively creative use the ensemble have made of what is undeniably a limited range of equipment - a lesson we can all learn.

On the subject of equipment, **Marble Arch** inform me they're intending to replace their DX7 and Oberheim OB8 with two Korg DSS1s. They claim it's in the interest of creating "a more natural sound" and also to break away from DX predictability. Now, I don't know how it'll work out for them, but I do know I'd think twice about investing that much cash in two machines that are going to do essentially the same job, rather than two instruments with complementary facilities (which is what they possess now). And where the DX7 is concerned, they could do worse than to take time out to learn to program it.

Purchasing decisions aside, it's the DX and the OB8 that hold court on this demo, and a fairly good job they make of it.

Apart from the synths, Marble Arch are a pretty "acoustic" band - guitar solos, real drums, and a singer who sounds like OMD's Andy McCluskey in his better moments. Not that that's a bad thing either, or that they're poor musicians, but the songs...

This is a demo of how *not* to write a pop song. Sorry boys, but that's the way it is. It's all here: tired-out chord sequences, listless melodies, mismatched verses and choruses, you name it. Pop writing options are few, so you need to make every note count. If what you're doing has all been done before, you'll never convince your audience they're hearing something new. I normally think twice about saying this, but would a manager help? ■ Tg

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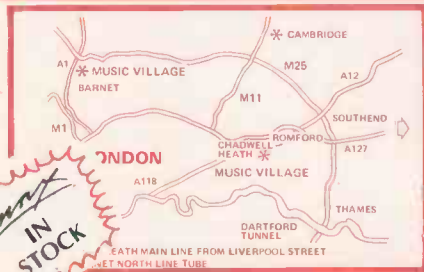
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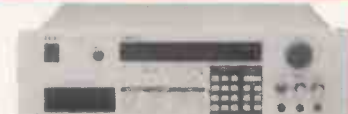
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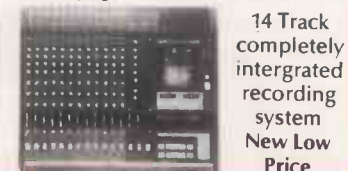
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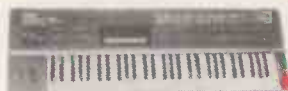


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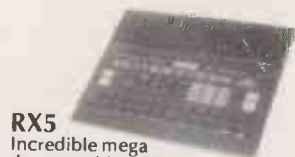


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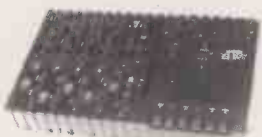
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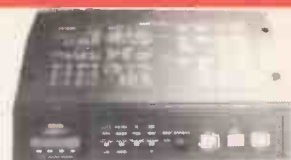
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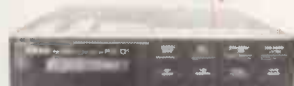
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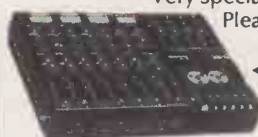
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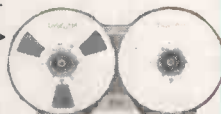
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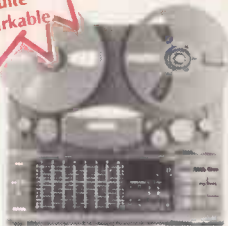
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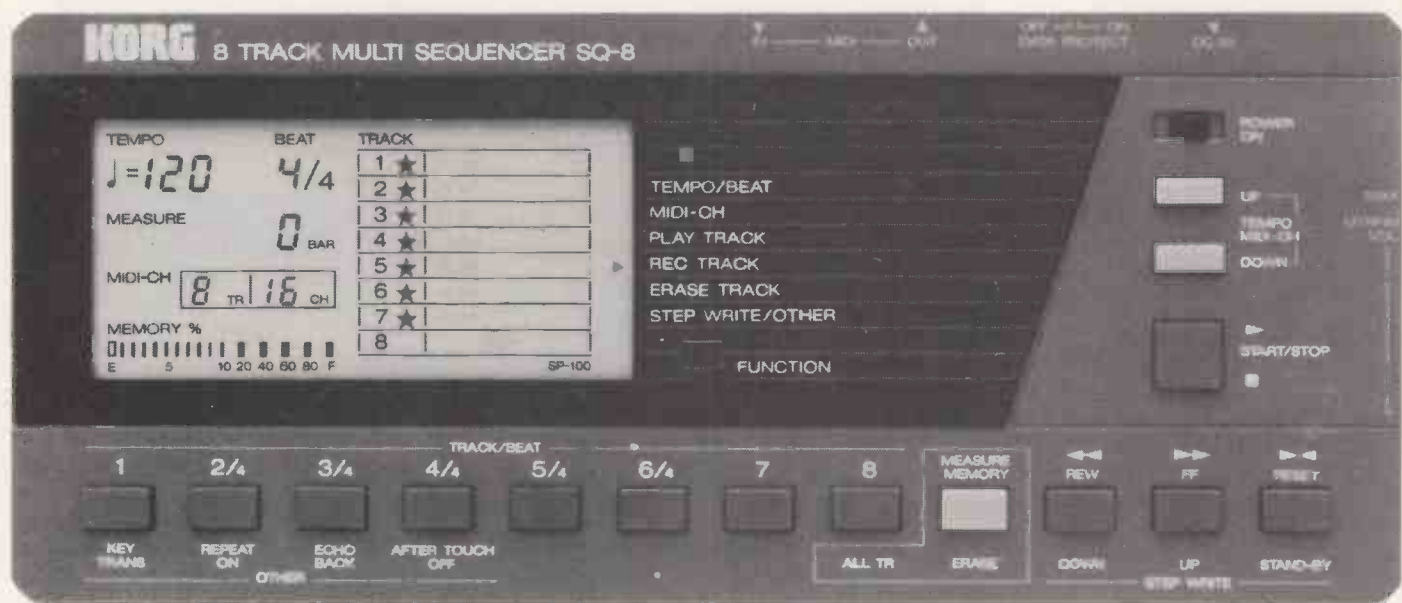
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KORG SQ8

Eight-track MIDI Sequencer



This dinky little box of tricks brings stand-alone eight-track sequencing to a new price level. Have Korg cut too many corners to get it there? Review by Bob O'Donnell.

DESPITE THE POPULARITY of many sequencing software programs, dedicated hardware sequencers seem to be making a comeback. Roland's MC500 is proving to be incredibly popular, and with the recent introduction of the company's less expensive MC100 and Yamaha's QX5, the future of hardware sequencers is looking quite positive.

First-time sequencer buyers, in particular, seem to be attracted to the easy portability and overall affordability of stand-alone units. Even though many hardware units lack the editing capabilities of software programs, many first-time users prefer the simple operation of hardware sequencers. Korg have apparently taken notice of this phenomenon, and with the introduction of their inexpensive SQ8 eight-track sequencer, they're addressing this growing market in earnest.

Basics

THE GENERAL SPECIFICATIONS for the SQ8 include the ability to record up to 6500 notes with velocity on eight individual tracks, each of which can be set to its own MIDI channel; the ability also to record pitch-bend, modulation, program change and aftertouch data (which can also be filtered out); and the possibility of being operated in either real-time or step-time recording modes. Pretty basic, perhaps. But I did forget to mention one small point: it does all this in a package that measures a little over 7" x 3" x 1", and weighs less than two pounds.

Korg have added to the simplicity and convenience of operating the SQ8 by thoughtfully incorporating a stand into it. As a result, it can either be laid flat on top of a keyboard or other nearby surface, or propped up for easier viewing. Unfortunately, Korg haven't applied this convenience principle to powering the unit. Despite the fact that it requires a mere nine volts to operate, the SQ8 does not offer the option of battery power. Korg do include an external power supply with the SQ8, but having to use an adaptor definitely decreases the unit's potential portability.

The SQ8's connections to the outside world are very

simple: a MIDI In port, a MIDI Out port and a mini headphone jack for monitoring the unit's metronome output. In one of Korg's many cost-cutting measures, however, the SQ8 does *not* come with headphones. It doesn't have an internal speaker either, so if you want to listen to the metronome's click as you record, you'll have to supply your own Walkman-type headphones. Thankfully, the volume level of the click is adjustable, but that small benefit doesn't excuse Korg from omitting what should have been a standard accessory. To be fair, the unit does have a blinking visual display of the tempo, but how many people will really depend on that?

In addition to its compact size, one of the first things you notice about the SQ8 is its well-organised, uncluttered front panel. A row of multi-function keys runs along the bottom and right-hand side of the unit, and an informative, pre-printed LCD (much like those fitted to Roland's drum machines) fills the upper left-hand portion. All relevant information about tempo, time signature, measure number, MIDI channel(s), track status, current function and remaining memory can be displayed at once, making it very easy to determine exactly where you are in the sequencing process.

Operation

THE SQ8 OFFERS six basic functions, each of which has an effect upon the sequencer's overall configuration or the status of individual tracks. To access any of these functions, you simply push the centrally-located Function key until the arrow points to the function you wish to use.

Thanks to its battery backed-up memory, the SQ8 displays all the information stored from the last time it was used as soon as you switch it on. The function cursor defaults to the Tempo/Beat location and allows you to reconfigure the basic recording and playback parameters quite easily. The tempo is variable from 40-192bpm, and the time signature (which Korg refer to as Beat) can be chosen from one of five possibilities: 2/4, 3/4, 4/4, 5/4 and 6/4.

Now, for 90% of the music you may want to record, these time signatures will probably suffice; but if you want to record that 7/8 groove that's been floating around your head, you're going to need another sequencer. Another limitation (pointed out in the very basic owner's manual) is that once you've started to record or play back at a particular tempo, you can't change it; the tempo remains fixed until you stop. Admittedly these are not major faults, but unfortunately, they are typical of the corner-cutting measures that are found throughout the SQ8's operation.

A much larger problem stems from the SQ8's inability to sync to the outside world. While it does output MIDI clock, start, stop and continue commands, it does not respond to any of those messages. Consequently, it must serve as the master clock for any MIDI system it is being used in, and in this context, its rigid tempo controls take on a greater significance, too.

The next section accessed by the Function key is MIDI Channel mode. This allows you to specify any of the 16 MIDI channels for each individual track. To do this, you simply hit the key assigned to the track you want to change the MIDI channel for, and then use the up/down buttons to choose the appropriate channel. The SQ8 only operates in the Omni Off/Poly Mode (Mode 3), so transmission and reception of MIDI data can only occur on the properly selected channels.

The Play Track function comes next for some reason, but I'll follow the example set by the manual and skip over that to discuss the Record Track function first. Once you've entered the record mode, all you have to do to begin recording a sequence on the SQ8 is select the track you wish to record on (you can only record on one at a time) and push Start. The bar indicator counts down two measures of whatever time signature you've chosen to record in, and the SQ8 then begins recording automatically. The letters "REC" initially appear blinking in the display next to the track you are recording on, but as soon as the unit begins to receive data, the display stops blinking. (This subtle little feature prevents you from missing that "incredible take" as a result of dodgy MIDI connections.)

To stop recording, you simply press the Start/Stop button and the record display begins blinking once more. You can then begin recording again from the point where you had stopped, but be forewarned that the SQ8 only works in complete measures. This means that if you stopped in the middle of a measure, the recording starts at the beginning of the next measure.

An odd feature which deserves mention is the SQ8's ability to record in fast-forward. I'm not really sure what purpose this serves, except perhaps to reduce the drudgery of recording whole notes, but it's there if you want it.

When you've finished recording a track, some of the more serious limitations of the SQ8 start to become apparent. To hear what you've just recorded, the owner's manual tells you to press the Reset key, which automatically converts the recorded information into "play" information (signified by a star next to the track number in the display). What it doesn't tell you, however, is that once you do that you've made it impossible to alter that track with the few editing features that the sequencer offers. Believe it or not, once you've converted recorded information into playable information, the only way you can change it is by erasing and re-recording the entire track. In other words, to hear if there are any mistakes, you have to put the information into a form that you can't alter anyway. Now, if this isn't a serious Catch-22 situation I don't know what is.

If you are absolutely sure that you made a mistake, however, the SQ8 has a nice feature which does allow for some basic editing. Once you've stopped recording, you can press the Rewind button and the sequencer outputs the MIDI information in reverse (!), so that you can listen for the point at which the mistake was made. Once you've found it, MUSIC TECHNOLOGY MAY 1987

you can punch in (recording can only start at the beginning of a measure, remember) and re-record the track to the end. Punch-outs, unfortunately, are not possible. If you made more than one mistake, make sure that you rewind to the point where the first one occurred, otherwise you'll have to record over your first punch-in.

One other small point that you need to be aware of (and which, again, the owner's manual doesn't address) is that the SQ8 erases as it rewinds in record mode, so if you

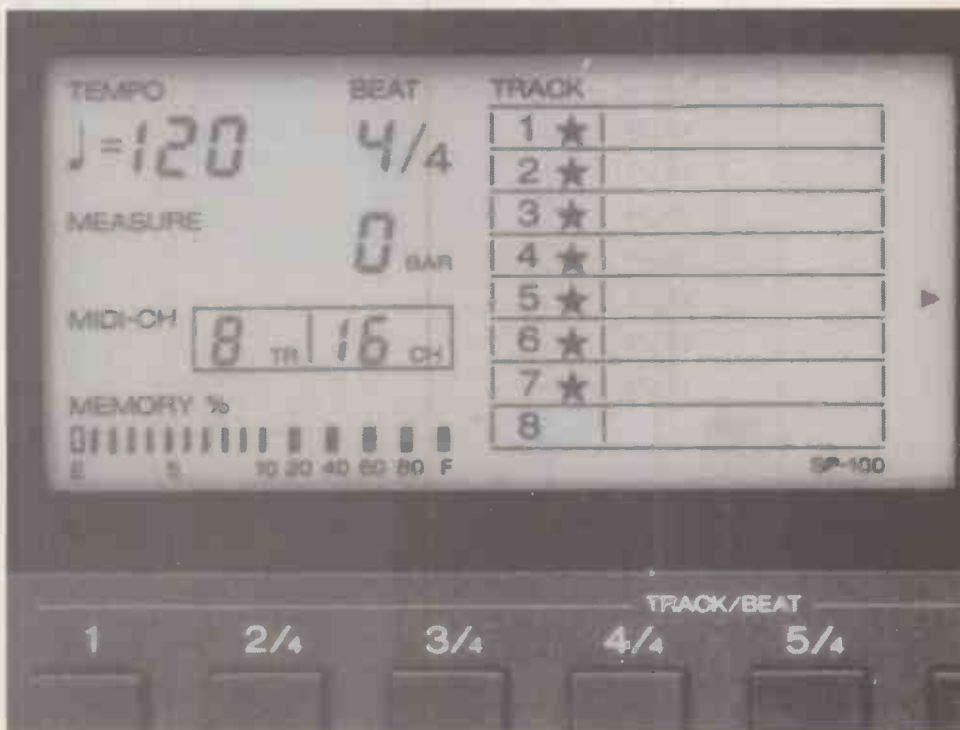
► *"While it outputs MIDI clock, start, stop and continue commands, the SQ8 doesn't respond to any of those messages, so must serve as the master clock for any MIDI system it's used in."*

rewind too far you'll have to re-record starting from the point you rewound to. Hitting the Fast Forward button won't do any good because it only starts to record in fast forward. Needless to say, this is a frustrating and serious drawback.

Returning now to the Play Track function, the SQ8 allows you to listen to or mute whichever tracks you want, as long as the selections are made before playback is started. This flexible setup allows you to record and store two or more individual songs in the unit, even though it has no special provision for this application. Making use of my trusty CZ101, I was able to record one multi-timbral sequence on tracks 1-4 and then, while muting the playback on those tracks, record an entirely different sequence on tracks 5-8. A glamorous application of technology it is not, but given the SQ8's healthy 6500-note memory, it does represent a viable way of squeezing out as much performance from the machine as possible.

Another nice feature available in Play mode is the Measure Memory function. What this allows you to do is locate a specific measure at which the SQ8 will automatically stop. With a bit of intelligent planning, you could also use this feature to record two independent eight-track sequences, one on each side of the marker. (To do so you'd have to record track 1 of song 1, then track 1 of song 2, then track 2 of song 1, then track 2 of song 2, and so on.) Fast forward and rewind are also available in Play mode, but thankfully, they operate in normal tape transport fashion, without destroying any information.

Erase Track is the fifth function which can be accessed by the Function key, and it operates just as you would expect it ►



► to. You can either erase tracks individually or do all eight collectively. The SQ8 also features a data protect switch, which allows you to prevent accidental erasure of important sequenced material.

The final function is the ominously titled Step Write/Other. Like the rest of the machine's functions, the SQ8's step-time mode is somewhat limited and can be a bit frustrating to work with. The smallest increment that you

► "To hear if there are any mistakes, you have to put the information into a form you can't alter anyway; if this isn't a serious Catch-22 situation, I don't know what is."

can use is a 16th-note, and every note that you input has to be divisible into 16ths, so triplets are not possible in step time.

The actual inputting process requires you to hold down the note that you want to enter, and then press the Up button as many times as there would be 16ths during that note's length. A half-note, for example, requires eight button pushes, while an eighth-note requires only two. If you don't hold the note down while you're pressing the Up button, the SQ8 interprets these button pushes as rests.

I'm happy to report that you can enter the step write mode from the real-time recording mode, but unfortunately, you can't do things the other way round. Once you leave the step write mode, you can only go to the unalterable play mode.

The Step Write/Other function also allows you to turn four general system parameters on and off. Key Transposition allows you to change the key of the sequenced data based upon a MIDI note input, but only if the machine is reset, stopped or repeating; Repeat On can be used for the entire sequencer's memory, or, in conjunction with the Memory Measure feature, for a small segment of a complete

sequence; Echo Back allows the incoming MIDI data to be sent out of the SQ8's MIDI Out port, like a MIDI Thru feature; and Aftertouch Off tells the sequencer to ignore incoming (and memory-hungry) aftertouch data. For some unexplained reason, the status of these functions cannot be stored in memory, so they have to be reset each time the power is turned on.

Verdict

AS A BASIC vanilla flavour, real-time recording sequencer the SQ8 does a perfectly respectable job. It offers very simple operation, a decent-sized note memory and, with eight individual recording tracks, more flexibility in recording than most of the competitors in its price range. It seems one of the main reasons behind the introduction of the SQ8 was to offer a machine which quickly and easily displayed the multi-timbral capabilities of Korg's impressive new DS8 synthesiser, and that it should do well enough.

So, if you're the type of musician who doesn't like to mess around with editing and you're in the market for a portable, inexpensive first sequencer, I suggest you take a look at the SQ8.

If, on the other hand, you're looking for a sequencer with a healthy selection of editing features and a bit of flexibility, I suggest you look elsewhere. The SQ8 simply overlooks too many insignificant (and significant - like the lack of an external storage medium) details to justify its addition to most sophisticated MIDI systems. In fact, the limitations it places upon the user can turn what should be an enjoyable experience into a tedious and frustrating one. ■

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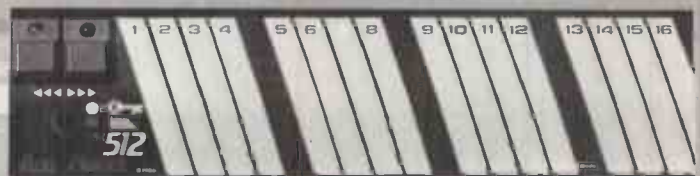
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Fairlight's father



In the first half of an exclusive two-part interview, Fairlight co-founder Kim Ryrie outlines the background behind the CMI's invention, and gives a sneak preview of what his company may be doing in the future.

Interview by Simon Trask.

YOU MAY HAVE heard the story of the two Australians sitting by Sydney harbour, eating their lunch and arguing about what to call their new company. The harbour hydrofoil sped past while the two were in mid-argument, and they both noticed the name. Problem solved.

The two Australians were Kim Ryrie

and Peter Vogel, and the hydrofoil was called "Fairlight". A star was born, but the origins of the Computer Musical Instrument have more to do with one man's enthusiasm for music and electronics than with water transport.

"In 1970 I started a magazine called *Electronics Today International*. We tried to come up with four DIY construction

projects each month – a new garage door opener, things like that.

"After the *Moog* and *Switched On Bach* came out, I decided to run a do-it-yourself synthesiser construction project in the magazine. The result was an analogue synthesiser called the ETI4600. It was a bit of a monstrous beast, but it was fun."

However, that fun soon turned to dissatisfaction with what could be achieved using analogue techniques. Ryrie called in Peter Vogel, an old schoolfriend who also happened to be a wizard electronics designer. It was the start of a partnership which is still going strong, with Ryrie now managing director and Vogel head of R&D at Fairlight.

"I said: 'How about we start a company and build a new synthesiser? We could use these new microprocessor things...' My original plan was for a digitally-controlled analogue synthesiser – something like the Prophet 5 turned out to be. But around 1975 we met up with a computer consultant called Tony Furse, who was Motorola's consultant in Australia on the 6800 range of microprocessors, and who'd previously worked on the design of integrated circuits for Fairchild in the States.

"Tony had been working for some years on an all-digital waveform manipulation system. This would generate by means of additive synthesis a whole series of complex waveform cycles and in effect 'animate' them. So we picked up on this and worked on it for several years."

The prototype system consisted of some 20 circuit boards and 4K of static RAM (a large amount in those days), could handle eight voices, and was about twice the size and price of the current CMI – not a very viable device, commercially. But around 1977, the team turned their attention to the new 16K dynamic RAM chips that were starting to become available, and that, according to Ryrie, was the turning point.

"We got hold of some chips and designed one channel onto one card – memory access time wasn't fast enough to allow us to put all eight channels on a single card.

"Having designed this new system we then thought: 'Gosh! We've got so much memory – 16K for each channel – maybe

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we could actually sample a real sound and play it back'. So it wasn't until we'd designed the hardware that the thought came to us to do that. It wasn't hard to implement – you could buy eight-bit ADCs which weren't outrageously expensive because they were used in many other applications. Sampling didn't require anything particularly profound, technologically. We were just using two 6800s talking out of phase to the same waveform memory – a single 6800 simply didn't have the power to do what had to be done in real time.

"The first sampled sound ever came from a dog which belonged to one of our programmers. You could tell it to speak and it would bark. We sampled that onto the first prototype board, which had wires trailing all over the place. That sample ended up in the original Series I sound library."

Years of R&D doesn't come cheap, of course. Fairlight initially financed their operations by producing an Electronic Paintbox which converted a monochrome signal into six colours, and which sold well to local TV stations. Subsequently, the company produced the hardware for a business computer marketed by Remington Office Machines.

"We didn't get rich doing that, but it certainly made us enough money to keep going. That lasted for about two years, which was long enough for us to start being able to sell the CMI I."

Ironically, it was Japan's entry into the business computer market which prompted Fairlight to phase themselves out of that area, feeling it would no longer be profitable for them.

The Series I CMI made its debut in 1979, with sampling as the star of the show and the original additive synthesis system relegated to a supporting role on Page 4. The Series II followed a few years later with essentially the same architecture, but offering improved fidelity, and replacing the 6800s with dual 6809 processors.

TODAY, THE FAIRLIGHT has achieved such fame that even non-musicians are aware of what it does. But what did musicians and producers make of the CMI when it was first launched?

"We had the CMI at an AES show in New York in 1979, and the reaction was universally 'Oh my God, that's amazing – what would you use it for?', which was a bit depressing. The software was rather basic, but we were able to play sounds on the keyboard, and some people immediately thought it was wonderful – but as a whole it took a while to get moving. In terms of sales the response was enough to keep us in business, but we weren't about to turn into a multinational overnight."

But if the response from many people

was initially one of non-comprehension, the underlying ramifications of the system's arrival were bound to set in before too long. Here, after all, was a technique which couldn't create any sound of its own, but which could imitate the sound of any other instrument. Was the initial idea behind the CMI that it should be a "transparent" instrument?

"I don't think we did necessarily feel that a flute should sound like a flute. At the back of everyone's mind, of course, that's the ideal situation, but it was more a matter of going for what you could – what could we do? Many productions were done with flutes not sounding like flutes, but it seemed right for the piece of music. So we really didn't get involved in those discussions; it wasn't really our department.

"Obviously one of the big questions was: Aren't we going to put all these acoustic players out of business? But that was never the intention; rather, the intention was just to be able to play any sound – and traditional instruments just happen to be a subset of that.

"We made the machine because we wanted things to sound complex, not necessarily like a classical instrument. I personally love classical instruments, and I love real orchestras. We're starting now to be able to do that on the Series III, and even then it's only quite reasonable. That personally gets me terribly excited, because I love the power of a real orchestra and I'd

never heard that reproduced on an electronic instrument. So in a way I'm thrilled that we can do it, but we weren't disappointed when we couldn't."

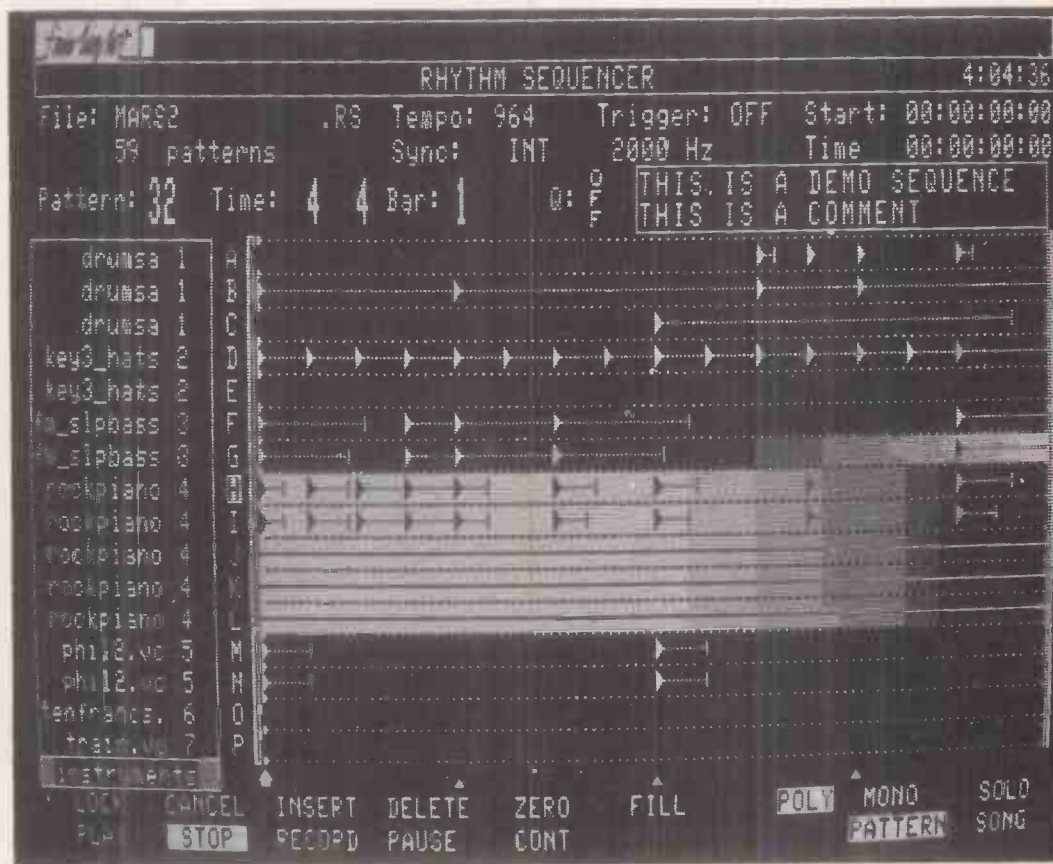
While the CMI's sampling ability stole the limelight, there was another aspect of the Computer Musical Instrument which

► *"The first sampled sound came from a dog that belonged to one of the programmers... We sampled it onto the first prototype board, and it ended up in the original sound library."*

had a profound impact on the musicians who actually used it: the famed Page R. How did the rhythm page come about?

"While working on the sampling, we were also working on a keyboard sequencer which we called Page 9. It was an overdubbing keyboard sequencer that recorded key velocity, but which didn't really have good editing facilities at all.

"I think it was at the 1980 AES show that Roger Linn came along with his drum machine. We let him share our booth, and we gave demonstrations on the half-hour, alternating demos with Roger. I honestly thought that Roger was going to slash his wrists by the end of the show. Everyone was coming in and playing with his drum machine, and saying: 'That's amazing. What would you use it for?'. He was so



depressed...

"I was quite impressed by the organ-

► *"We had the CMI at an AES show in New York in 1979, and the reaction was universally: 'Oh my God, that's amazing - what would you use it for?'; which was a bit depressing."*

isation of his drum sequencer, with patterns and so on. I thought that approach

could work on the Fairlight with all our sampled sounds. So I drew up a very simple display page with blobs for the notes, and we thought we could call it the Rhythm Sequencer. Our programmer, Michael Carlos, wrote Page R from that basic specification, and although we intended it to be rhythmically oriented, we found that people were using it increasingly for more general music composition.

"So we added more and more features that we felt composers would want, and

Page R developed into a very interactive sequencer because of the way the memory is structured. It has a block of memory with X number of bytes in it all the time, whether they're used for notes or not. So it's incredibly inefficient as a memory storage system, but it's terribly interactive because of that structure. That's why it's only 16 monophonic channels - eight on the Series II - and of necessity is quantised to some degree.

"The new CAPS sequencer for the Series III is the more traditional form of sequencer, in that it records note-ons and note-offs and so forth. The idea is that you can use Page R to get the structure of your song together, and once you've done that you can transfer across to CAPS and move on to the rest of the song."

As you may already know, CAPS is an 80-track sequencer which integrates MIDI into the Fairlight scheme of things. The software is only just being made available on the Series III, but Fairlight are already planning dramatic new developments.

"We've just purchased the exclusive rights to something called 'Clynes' micro-structure', which we're intending to make available in the second stage of CAPS.

"Dr Clynes is the head of the electronic music department at the New South Wales Conservatorium. He spent about five or six years researching what he calls the 'pulse' of composers. His claim is that all of the classical composers, for example, have an inherent 'pulse' - the way that they play things. For instance, the third microbeat in some part of music will always be played slightly ahead of time by a few milliseconds, and perhaps at a slightly lower amplitude, and perhaps the note will attack and decay in a slightly different way. He spent an awful lot of time analysing all this on his department's computers, and he's come up with all these pulses for all the classical composers.

"We'd been sitting on the sidelines watching all this develop, because we were a little bit sceptical. But the results are absolutely startling. You could play in a piece of Bach and it might not sound particularly authentic. But you would then run his software through the composition - in this case the Bach algorithm - and the music would actually come back sounding like Bach.

"In fact the way that it's played seems to make it sound more like Bach than the notes themselves, because you could then run the Beethoven algorithm on the same piece of music and it would come back sounding more like Beethoven than Bach, even though it was Bach who had composed the notes.

"So it's a fascinating concept, and one of the reasons why it's quite involved is because it does involve the way in which notes attack and decay. We apply what are

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Like all E-mu products, the EMAX sampler's most important feature is the sound quality. Utilising a proprietary data compression format it offers the resolution and dynamic range of 12 bit linear coding. Sampling time is 19 seconds at the standard 28kHz rate. For maximum flexibility and fidelity six different sampling rates are available from 10kHz to 42kHz. EMAX offers a powerful range of digital processing functions. Samples may be combined with other samples, parts of different samples may be sliced together to form entirely new sounds, and probably most important to anyone who has ever spent hours trying to find an acceptable loop, the new Crossfade Looping technique ensures glitch-free loops for virtually any sound.

Another E-max innovation is its channel

configuration. In addition to a full complement of analog processing modules (VCF, VCA, LFO, 5-stage envelopes), each EMAX voice can consist of two individual samples (think of them as being equivalent to two VCOs on an analogue synth). This makes possible a whole new range of combined sounds as well as allowing chorus and doubling effects with no decrease in polyphony. Like the Emulator II, EMAX uses an extremely flexible sample assignment scheme. Up to 122 individual samples can be assigned to any point on the keyboard at one time. Voices can be stacked with crossfades controlled by key velocity, key position, pressure, or any of a number of real time controls (wheels, footpedals, switches, etc). For ease of post processing, the EMAX provides individual channel outputs as well as stereo outputs with true programmable panning. Other EMAX features include a multi-track MIDI sequencer, a full feature areppgiator, an RS-422 computer port for high speed data transfer, and all at a remarkably low price.

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called Beta functions onto the attack and decay slopes, and of course you can't get that information through MIDI – there's no way for it to handle that. So all this has to happen within the CMI system, between CAPS and the internal voice-generating section of the machine. However, we can send out key velocity and differences in playing time over MIDI – that does give you some of the effect, but the whole effect requires control over the envelopes. Where notes are played will define how they're shaped.

"Now, Clynes' work relates to classical music, and one of our big concerns was whether or not this would be of interest to popular musicians. So then he started doing experiments in that area, and it really does seem to make a difference. You can also come up with your own algorithms – put in any old thing and it comes up sounding interesting.

"We don't know where it's heading, but we feel confident that it's heading somewhere. There's still a fair amount of research to be done in putting Clynes' system on the Series III, but there may be a release before the end of the year."

AS WE ALL know, technology doesn't always keep pace with human imagination. Did the Fairlight team want to achieve more with the early CMI than the technology of the time allowed them to do?

"Oh, I think so. But we tended not to think of that at the time, but just go for whatever we could do with the available technology rather than get depressed about it. I don't think you get anything done if you concern yourself with what you can't do.

"If you're producing a piece of music and you're always concerned about what the hardware won't allow you to do, then that's the end of your composition, because suddenly your whole mind is working in limitation mode rather than getting-something-out-the-door mode.

"So it really wasn't much of an issue. When something new came along we'd start playing with it and seeing what we could do with it. That's why we kept the Series III in a very modular arrangement. The first version of Series III had all of the analogue outputs and inputs on a couple of large circuit boards, but in the end we felt that wasn't a very good idea because if someone were to bring out a new startling and amazing anti-aliasing filter, or a much better A-to-D, or a better de-glitching arrangement, we'd have to redesign the whole thing and sell that.

"What we've done is come up with a very modular arrangement of circuit boards, with each channel's A-to-D on a separate board. We do have an ongoing hardware development program which
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will make new versions of some of the CMI modules depending on how the technology is moving. It's one of the advantages of a modular system versus the approach of everything on one card in one box."

Another reason for the CMI's success has been its emphasis on user-friendliness. As Kim Ryrie explains, there's a good reason why that has always been a priority.

"Well, I hate computers. I've never been able to sit down at a computer and program it. I have an Apple II at home which I use only when I absolutely have to.

"I know the way musicians feel about computers. The hard thing is to get programmers, who love typewriter keyboards, enthusiastic about the idea that some people like knobs and buttons and seeing things on screens and not having to type much – being able to poke at things with pens rather than having to type at 300 words a minute.

"So user-friendliness was part of a very early philosophy, and Peter was always in agreement about that. And because we had quite a number of musicians working on the project, they also felt strongly about that aspect of it. It became a bit of a thing to see who could make the most user-friendly display page.

"That wasn't too difficult with Series I and II, but with Series III it became a big problem. Whereas you could teach anyone how to use the Series II in 10 minutes, the III was a whole different ball-game. Instead of having sounds that were always 16K in length, you suddenly had 14Mbytes of RAM, variable sample lengths, 64 sub-voices per voice, as many voices as you liked in an instrument...

"It's been a real challenge getting the Series III software as user-friendly as the Series II was, because there's so much more involved. Just to give you an example, control parameters such as vibrato rate and attack and decay rates can be set for subvoices as well as voices – local and global parameters – and that's quite hard to orchestrate and make accessible to the user."

WHILE THE JAPANESE music industry concentrates on producing ever more sophisticated instruments at the budget end of the market, Fairlight has remained resolutely at the top end. But although we're unlikely to see a £2000 instrument from the company just yet, times are changing.

"We work towards a system that will allow what we consider to be state-of-the-art production. If we could do it for £2000, we would do it.

"In fact, we've had a lot of interest from people who can't afford a Fairlight who have asked us if we could do a smaller, cheaper one. But the amount of R&D that goes into the Fairlight is so enormous that

we feel we really just want to concentrate on one design at a time. That's not to say that we aren't working on the next generation, which may allow a more powerful system to be produced a little more cheaply, but our mind is always on what can be produced, rather than how much it costs – though we do try to get the cost as low as we can.

► *"We added features we felt composers would want, and Page R developed into an interactive sequencer because of the way it's structured. It's inefficient as a memory storage system, but it's very interactive."*

"What we are doing is bringing out a new configuration of the Series III which will use 20Mbyte floppy disks rather than hard disk. It'll use the Series III's hardware and software – so, for instance, it'll have CAPS – but a typical configuration will probably be eight voices with 4Mbyte of RAM. The advantage of that may be that some people would be able to afford to



make it part of their production system, and then add to it as money allows – it'll be upgradable to the complete Series III system.

► *"We're working on the next generation, which may allow a more powerful system to be produced more cheaply, but our mind is always on what can be produced rather than how much it costs."*

"The eight-voice/four-meg configuration allows you to play virtually any Series III sound that is now around; most multi-sampled sounds on the III take about 4Mbyte. So what it means is that people who can't go for the full system will at least be able to get those sounds that they can't get using the cheaper sampling instruments. That's something that we're hoping to bring out quite soon..." ■

ROLAND D50

Linear Arithmetic Synthesiser

Few instruments cause as much stir in the MT office as this: a synth that sounds brilliant, looks relatively easy to program, and doesn't cost a fortune. Superlatives are not enough. Review by Simon Trask.



Photography Tim Goodyer

"THE ROLAND D50 is very different from any other synthesiser, past or present, and as such heralds the dawn of a new era in synthesis."

Yes, it's 1987 and the synthesiser is alive and well (as, so it seems, is the enthusiastic manual writer). The D50 is Roland's first all-digital polyphonic synth (and their first 16-note polyphonic synth), and the company have come up with a new name – and a new synthesis system – to delight us all with: Linear Arithmetic Synthesis, which is implemented on a new custom-designed chip known not surprisingly as the LA Chip.

In fact, so new is the D50 that we've decided to spread our review of it over two issues. We could say that this will give you more time to get to grips with the D50, but in fact, it's your Reviews Editor who needs more time, owing to the fact that MT's review model arrived on the doorstep just as the magazine was going to press. We couldn't pass up the opportunity to tell you about the D50 as soon as possible – but not at the expense of thoroughness. So this first part will concentrate on providing an overview of the instrument, while part 2 will look in more depth at just what the D50 can and can't do.

Before we start considering the delights of Linear Arithmetic Synthesis, consider the scene on a Wednesday afternoon in MT's offices. One of only five D50s in the country has just arrived courtesy of Securicor, and the staff are stirred into something resembling activity. In a matter of seconds, the D50 is up on the stand and plugged into a passing keyboard amp. Fingers are laid to rest on keys, and suddenly the office is filled with vibrant sounds which instantly mark the D50 out as something a bit special.

Now, the MT staff are as capable of child-like excitement

and fascination as the next idiot musician, and the D50 is certainly doing its best to bring out the best in us. Could Roland's enthusiastic manual writer be right after all?

Well, put simply, the D50 retains all the richness of tone that you typically associate with Roland's upmarket analogue synths, and couples it with a "bite" and "sparkle" that is more generally associated with digital sound-generating systems. And the whole is definitely greater than the sum of its parts.

Background

BUT WHAT IS this Linear Arithmetic Synthesis, and do you need a PhD in Mathematics to understand it? Well, if you were designing the D50 you probably would, but fortunately, all you have to do is play it and program it.

The programming system which Roland have devised isn't the easiest to understand initially, but if you stay cool, most of it clicks into place without too much brain-ache. And in true Roland fashion, there's an add-on programmer which allows you to adjust all the D50's sound parameters using analogue sliders. The PG1000 (for so it is called) is the most sophisticated programmer that Roland have yet come up with, which seems reasonable enough for what is really the most sophisticated instrument they've yet come up with.

Essentially, the D50 achieves its results by providing PCM samples of the attack stage from a wide range of acoustic instruments, which can be combined with sounds created in the instrument's synth section. The idea behind this is that

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you get the realism and bite that comes from the attack of a real sound (always an important element in the definition of a sound) combined with the sonic flexibility of a synthesiser section.

The D50 has 100 PCM samples onboard. Forty-seven of these are one-shot and 29 are looped. The remaining 24 are combined and looped versions of the other samples, for some more unusual effects. Roland's attack samples include all manner of percussion instruments together with piano, harpsichord, organ, electric and acoustic guitar, electric and upright bass, flute, clarinet, trumpet, trombone, violin and cello (often with several versions of each instrument type).

These PCM samples provide one type of sound source (the other being the synth section) for what is known as a Partial. Don't get these confused with harmonic partials; a D50 partial is really a complete sound in its own right.

Two partials together with various parameters that are collectively known as a Common block (because they apply to both partials – it's easy, really) make up what is known as a Tone, which constitutes a single voice on the D50. As each partial can be either a PCM sound or a synth sound, you can of course decide to combine two of the former or two of the latter. You can get some very effective sounds very quickly by combining different PCM samples (a violin scrape combined with a flute chiff gives a very convincing impression of the shower scene music from *Psycho*). Further flexibility is provided by the D50's ability to balance the volume of your chosen two partials.

Structure

ROLAND HAVE PROVIDED seven Structures which determine whether each partial is a PCM sound source or a synthesiser sound source (this setting is one of the Common parameters). These structures are printed in graphic form on the D50's front panel – providing an invaluable amount of feedback when you're trying to figure out what the hell's going on. Essentially you can have sample + sample, sample + synth and synth + synth. But you can also choose structures which bring in ring modulation (digitally implemented, of course).

The synthesiser section allows you to choose between sawtooth and square waveforms (the latter with adjustable pulse width). The synthesiser sound generator has three sections: WG (Waveform Generator), TVF (Time Variant Filter) and TVA (Time Variant Amplifier), while the PCM sound generator misses out the filter section. There are also three LFOs and a five-stage pitch envelope which can be applied to various parameters of each generator.

The "Time Variant" label is cleverspeak for envelope – filter and amplitude respectively. As with the pitch envelope, these are five-stage affairs, with level and time settings. The filter envelope allows you to select the filter cutoff point for a synthesiser sound dynamically – not that common a feature. And remember that these envelopes (which are adjustable in real-time) are digitally defined – which makes the D50's filtering a great improvement on the digital filtering found on, say, Roland's S10 sampler.

Carrying on up the hierarchy, two tones can be combined into a single Patch, of which there are 64 onboard the D50 (organised in Bank/Number format). A further 64 patches can be stored on one of Roland's new wafer-thin memory cards (like credit cards, but cheaper in the long run), giving instant access to 128 patches at any one time. The D50 comes with a ROM card which duplicates the factory set of internal patches (so you can overwrite the latter without fear of losing them), but you'll also be able to get RAM cards, and it seems likely Roland will be supporting the D50 with a sound library.

The way the two tones (specified as Upper and Lower) are placed on the keyboard is taken care of by the keyboard

mode – essentially whole, split and dual. While whole mode obviously gives you 16-note polyphony and dual gives you eight-note, split can be either 8+8, 8+1 or 1+8. You can also set the instrument to whole solo and dual solo, while separate and separate solo modes take you into the weird and wonderful world of MIDI.

Dual mode actually allows you to layer up to four sounds (2x2 partials), while you can adjust the volume balance of the two tones in a patch – which means, in effect, that you can balance all four partials. Volume balancing is accomplished using an onboard joystick (which can also be used for coarse adjustment of all parameter values – inc/dec buttons take care of fine adjustments). This shouldn't be confused with the Prophet VS' joystick-based mixing of timbres.

Processing

INTEGRAL TO THE D50 are onboard programmable digital reverb, chorus and EQ. As Roland are keen to point out, all processing on the D50 takes place in the digital domain. The reverb is patch-programmable, while chorus and EQ may be programmed for each partial within a patch. The D50 has four output modes (again represented graphically on the synth's front panel) which determine whether the programmed reverb effect is applied to a mix of upper and lower tones, upper and lower tones individually, the upper tone only or the lower tone only. Output mode is programmable for each patch, as are the balance of "dry" and reverb signal, and the choice of reverb type – and that's about the extent of the control you have over reverb on the D50. There are 32 reverb types, providing rooms, halls, chapels, boxes, single delays and cross delays, gates, caves, gated reverb, reverse gate, slapback and twisted space(!).

Another patch-specific feature implemented in software on the D50 is Chase Play. This replays notes that you have just played to give a DDL-type effect according to level and time settings. If you're familiar with the Roland JX10 synth (reviewed E&MM June '86), you'll no doubt be familiar with Chase Play. It's a very effective feature, and a dedicated front-panel button allows it to be switched in and out with ease.

Coming Soon...

IF YOUR LOCAL music shop salesman starts talking about the LA sound, you'll know now that he's not referring to the latest American West Coast craze. But the D50 does have a sound – and ultimately it will sit next to other synths with other sounds. We racked it up with the DX7II, and a wonderful combination they made, too. As we said at the start, the D50 excels at lending sparkle (thanks to the PCM samples) to warm synth sounds that have plenty of movement.

From the factory programs, those with the greatest impact are "breathy" sounds, strings sounds, and special-effects voices with complex envelope settings. But the existing piano and brass sounds are not the D50's forte, and there's nothing to compare with the best acoustic guitar sound on the DX7II, for example.

But the D50 is an exceptionally impressive and intriguing machine which looks capable, perhaps more than any instrument since the original DX7, of bringing a new quality to sound synthesis. Next month, we'll go in the deep end. ■

Prices D50 £1445; PG1000 £320, both RRP's including VAT

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F • A • S • T

talking



Photography Tim Goodyer

Larry Fast is known both as an electronic composer in his own right and as the provider of Peter Gabriel's synth textures. He's in love with the synthesiser and the orchestra, but sampling is another matter. Interview by Tim Goodyer.

UNLESS YOU'VE BEEN an ardent follower of electronic music over the last decade or so, the six-album history of an act called Synergy is unlikely to have made much of an impression on your listening diet.

If, on the other hand, you follow the fortunes of lesser-known "serious" electronic composers, you'll already know that the man behind Synergy is Larry Fast, an American composing and recording artist who has spent the last 12 years trying to create a credible fusion of classical and popular music, and performing the results on all manner of electronic instruments.

Alternatively, you may recognise Fast's name from numerous LP production honours, not the least of which include all but the most recent Peter Gabriel album. (He recorded material for *So*, it has remained "canned" for another day.) He's enjoyed credit for synth playing and programming, as well as contributing to Gabriel's music both on vinyl and on stage.

Fast's latest undertaking is co-producing the forthcoming Dream Academy album, with Hugh Padgham at London's Lillie Yard studios. And so it is in Lillie Yard's lavishly equipped programming suite that I sit with Fast to talk about the life and times of a young American composer.

Things do not begin well. There is a

misunderstanding with his American office, and he is almost an hour late for the interview. He is eager to make amends for my wait with coffee and enthusiastic answers to my questions.

But where to begin? A little background? The relentless advance of technology? His ten-year association with Peter Gabriel? We settle for Synergy album number seven, *Metropolitan Suite*, just on release in the States after a six-year break due to commitments to Gabriel.

"The music grew over a long period of time", Fast recalls. "It's a product of my fascination with historical periods as they relate to music and architecture. In both, technology has a big influence over how people live and the form their lives takes, so I thought that made a very nice area from which to pull musical ideas.

"I've used musical styles from the early part of the 20th Century and incorporated them into a very late 20th Century playing style. That's not unlike the way post-modern architecture uses earlier styles of building and earlier styles of embellishment, but with new materials: it uses composite plastics and high-efficiency glasses in just the same way that I've used electronics and digital recording technology to express earlier harmonic structures."

An ambitious undertaking, but then Fast is an ambitious composer. Synergy's debut album bore the intimidating title

Electronic Realizations for Rock Orchestra... Well, it was 1975, but Fast bravely stands by the title as a declaration of his intentions.

"I wanted to blend what I knew of composition and the classics with the more driving approach of rock. I also knew I wanted to use what were then very new sounds."

THOSE EARLY DAYS saw Fast working with a mixture of Moog and home-grown synthesiser modules. Since then equipment has come and gone, but the orchestral influence is as strong as ever. Now, on *Metropolitan Suite*, there are undeniable shades of George Gershwin.

"Gershwin started out as a pop writer in the early years of the century, and managed to evolve to the stage where his pieces are now considered to be almost part of the classical repertoire. I would like to try to follow that pattern", Fast concedes with a smile.

When the time was right to record *Metropolitan Suite*, Sony offered Larry Fast free use of their PCM 3324 24-track digital recorder and PCM F1 two-track mastering machine. In fact, Fast's studio turns out to be a good destination for such technological experimenting, since the Sony affair represents just another line on a list that already includes development work on the Polymoog and work with Bell Laboratories' multi-million dollar mainframe computer. How did this technical adventure start?


"As well as my teenage obsession with classical and rock music, I was fascinated by electronics. At the point where my electronic tinkering and my musical obsession converged, I thought there was a way to make art out of technology. I was still at college at the time and I managed to use the music I was doing as a senior composition project in 20th Century composition. And that material became the basis of the first Synergy album a couple of years later.

"From that point I more or less followed the popular history of synthesisers: the modulars gave way to the MiniMoog, that evolved into the first polyphonic synthesiser, which then gave way to polyphonic synthesisers like the Prophet 5, then came samplers...

"It was around 1976 that I got to do some consulting work with Bell Laboratories on the earliest laboratory-based digital synthesisers. These required mainframe computers to run and they were wonderful; they showed me then what was going to be happening to synthesisers in the future. We were able to run software emulations of FM synthesis based on the papers that were being published at Stanford around that time. The early versions of those were like the Yamaha FM series of synthesisers is now, but with a lot of additive synthesis which hasn't really caught on yet. We even had a very sophisticated sampling system which was the first opportunity I'd had to grab a sound, throw it into the computer and play around with it. It was also my first

exposure to the C programming language which has since become a standard – in fact C was developed at Bell Labs.

"The system was a combination of the in-house mainframe running a large series of wire-wrapped boards which were performing specific functions required by the digital synthesiser, and a series of linking programs in C. That way, the hardware could be reconfigured to work in different ways within the mainframe. You could turn the system from an additive, 256-oscillator, variable-partial synthesiser to,



"Post-modern architecture uses composite plastics and high-efficiency glasses in the same way that I've used electronics and digital recording technology to express earlier harmonic structures."

say, an 18-operator FM synthesiser by rewriting the linking programs. Fortunately I didn't have to worry too much about that because I had the help of a brilliant young engineer called Greg Sims.

"Looking back, the thing that surprised me more than anything else was the cost. The mainframe was in the \$2-3m range, but by 1983 the DX7 had appeared costing only \$2000 – I remember thinking that someday synthesisers with these facilities would be available a lot more cheaply; I just never envisaged it moving that quickly. Now, with the MkII DX7 available, we're going to start seeing DXs for under \$1000. I'm sure that advances in digital recording and other related digital technologies will move even more quickly. And there will be other surprises all along the way – pleasant ones."

GIVEN FAST'S CONSIDERABLE experience with synthesiser technology and his evident enthusiasm for the subject, it would be easy to think that technology could do no wrong by him. Not so...

"I've always had mixed feelings about sampling", he reveals. "I don't categorically reject it – it can be a very useful tool – but I have reservations about the wholesale lifting of sounds. There's even a market in trading sampled sounds now: how can that give a composer an individual identity? I'd rather retain the control over sounds that pure synthesis gives you so you can tailor them to fit your music; that's very hard to do with straight sampling."

A quick listen to *Metropolitan Suite* confirms the absence of any obvious samples, but Fast's reservations go beyond the odd stolen cello or snare drum.

"Grabbing a whole four-bar section off somebody else's record or co-opting somebody else's drum sound is as bad. I think it devalues what they've done and what you're doing, it takes some of your individual creativity away. It has good points as well as bad points, but I think sampling is fraught with dangers for the uncreative mind."

Fast's smile returns with the mention of resynthesis, a process that involves the ►



► sampling and subsequent recreation of the sampled sound.

"A sample is taken in by the sampling part of the instrument and *analysed*, rather than just spat out again as a sound that gets more Mickey Mouse-sounding as it gets higher and Gregorian as it gets lower. A sophisticated computer then sets the dials on the synthesiser part of the instrument so that it's as close to the original patch as possible. Once it's in there you can work on any element as if it were the original sound.

"It's only a starting point, but the hardest part of duplicating a sound is if

"I don't categorically reject sampling, but I have reservations about the wholesale lifting of sounds. There's a market in trading sampled sounds: how can that give a composer an individual identity?"

you're dealing with 256 or 512 oscillators working as harmonic partials. Then you're talking weeks of manual work to create something you may not want quite like that anyway, so it's a good jumping-off point. That's where I see the future of sampling.

"When I deal with sampling myself I tend to use it as a waystation to resynthesis. If I want a string section I won't lift it wholesale, what I'll do is try to isolate the bow-scrape from the front of a sample and synthesise the remainder. I could do it all on a synthesiser but it'd take me a long time, so I look at a snippet of a sample as being the way to getting a complex waveform, and then use that in conjunction with other synthesised elements to create my sound.

"I don't deny there's a laziness factor involved, but sometimes it's more important to be working on a composition than spending three days on a little bow-scrape at the start of a sound."

Fast's involvement with technology has taken him through several generations of synthesisers. Some, like the Bell computer, he never actually owned, but many others involved the investment of his hard-won cash. And if you've ever wondered what happens to the gear that keyboard "wizards" put on the backs of their LP sleeves...

"I do have a lot of obsolete equipment, little Micromooogs and string synthesisers and so on. A lot of them aren't up to much any more: they're not very flexible, they don't integrate into the MIDI system, or they're very noisy – so they end up in storage because they're not really worth anything any more.

"But I'm lucky in that it's my business, so my accountant can write off the tax depreciation on them. Other things, like some parts of old modular systems, still sound good and I still use them now. They can't have much of a resale value any more, but that doesn't really enter into the equation because they're still a good way of getting an idea onto tape.

"If an older instrument has proved its musical value, then it can become a fabulous secondhand bargain. On the other hand, if it's, say, a two-generation old sampler and sampling isn't even what the composer's goal is, then its musical and monetary value might as well be zero.

"The point is that the flashiest new blinking-light equipment isn't important unless it justifies itself as a musical tool. I've always subscribed to the view that the composer should view instruments as tools to achieve his ideas. I've always been completely opposed to instruments *driving* compositions.

"The trouble is there's always been an element of the sports car collector in electronic music, just like there is with guitars. If there's a fabulous blues player whose '57 Strat with a maple neck makes a difference to him then more power to him, or even to a pure collector who doesn't pretend to have a musical interest in the things he's collecting – I can respect that. It's thinking that the equipment makes the music that's a fallacy – musicians make the music. Good music is hard to kill, it may sound 15% better on the latest equipment, but the music is what ultimately counts – as you can tell from the charts at the moment."

AND WITH THE top of the pop charts dominated by re-released "classics" and cover versions of old songs, it would be easy to agree. But couldn't it simply be acute nostalgia that's got everyone wearing Levi's and playing Ben E King's 'Stand By Me'?

"I think 'Stand by Me' and 'When a Man Loves a Woman' are now so old that the majority of the record-buying public are too young to remember them from the first time around.

"I'm more inclined to look at the American model which is: whatever the

media push at any given time, whether it's commercials or movie scores or whatever, that is what's foremost in the public eye. Of course, good records are good records so they tend to be a bit timeless, but something has to push them back into circulation. 'Stand by Me' was a hit in the States a while back because of the Levi's ad - just like here, but not to quite the same extent.

"The power that film and TV have in mass-marketing is so much stronger than what's traditionally been available to the radio and record promotion markets, that anything getting into that film and TV pipeline tends to overwhelm the conventional marketing that exists for records released through the usual channels. When MTV arrived in the States it provided a single national forum for music videos, and it immediately became the prime dictator of what was going to become a hit and what wasn't going to become a hit. It completely overwhelmed 20 years of album-oriented rock FM radio overnight. It's tapered off a little bit now because competition has come in from other cable video sources, and I suppose a little bit of boredom has set in anyway. But I'm a firm believer in the power of the visual image as a marketing tool.

"There's a whole tradition of film and TV marketing, and the marketing penetration of the music video is closer to the way other consumer items are brought into the living room and sold. It worked

for toasters, candy, food, cigarettes, and now it's working for music. Radio might have seemed pretty heavy-handed over the last 25-30 years of rock 'n' roll, but it's still mild in comparison to anything with a visual push, and especially now that Hollywood has linked filmscores to any kind of pop record that can be piggy-backed onto them. It's almost got to the

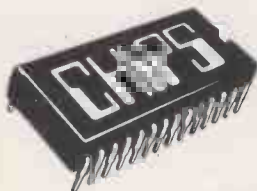
"The marketing penetration of the music video is closer to the way other consumer items are brought into the living room and sold. It worked for toasters, candy, food, cigarettes, and now it's working for music."

stage where there *has* to be something that can be pulled from a film as a music video, whether it's appropriate to the film or not. And that's led to some ridiculous juxtapositions of music and images in films that never really needed it."

Very true. Our conversation draws to a close when the call comes for Fast to return to pre-production duties with the Dream Academy.

"We've got the greatest drum sound going down there at the moment", he enthuses, "but it'll be a while before the serious electronic treatments begin".

And with a last smile, Larry Fast is gone. He seems to have enjoyed our conversation, but I think he'll enjoy the remainder of the day in the studio a lot more. ■



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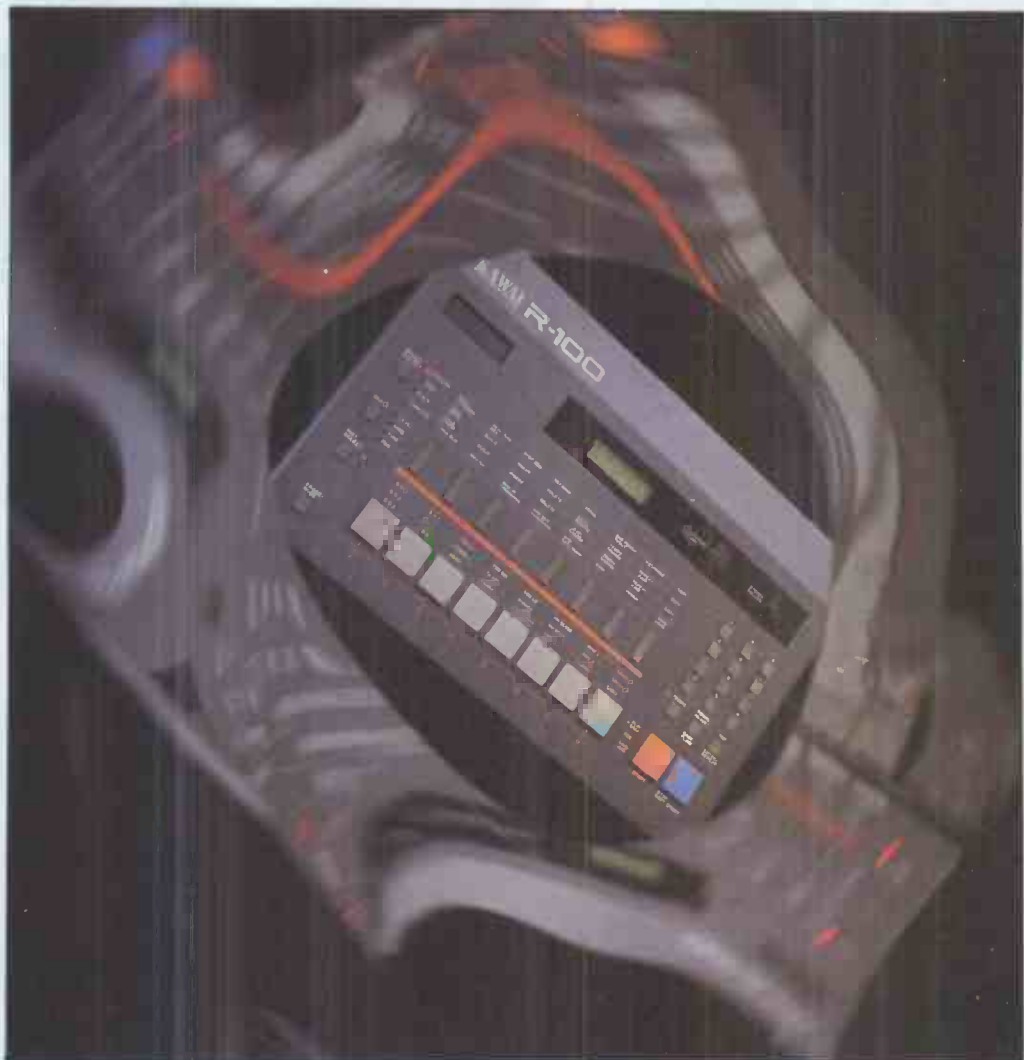
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KAWAI R100

Programmable Digital Drum Machine

From one of the largest musical instrument makers of all comes the R100, a well-specified machine in a competitive market. Is it individual enough to succeed? Review by Simon Trask.



KAWAI'S FIRST DRUM machine, yes? Well, yes and no. The R100 is certainly the Japanese company's first "serious", professionally-oriented, dedicated beat-box. But it isn't the first time Kawai have dabbled in electronic rhythm – they've been building preset drum machines into their home organs and "multikeyboards" for years.

Luckily, the R100 bears no traces of this ancestry. As they did with their K3 synth (and, it seems, with the new K5), Kawai have managed to come up with an instrument that rarely suggests it is their first effort in its field.

While the R100 isn't a sampling instrument, Kawai have managed to include on it just about everything else you might want on a drum machine nowadays. This includes 24 sounds onboard, eight velocity-sensitive pads, eight individual outputs, programmable tuning and panning for each sound, and a thorough MIDI implementation.

Sounds

THE R100'S VOICES (or "instruments" as Kawai call them)

have all been sampled in 12-bit PCM format at a sample rate of 32kHz. For your money you get three bass and three snare drums; hi, mid and lo toms (separate samples, unlike on some drum machines where they are the same sample tuned to different pitches); open and closed hi-hats; one china, two ride and two crash cymbals; and cowbell, claps, agogo, shaker, tambourine, conga, timbale and claves. A sensible collection, and the good news is that you can add further sets of sounds – but more on that later.

The Instant Appeal award goes to bass drum and snare drum 2. These have both been given the gated cavern treatment – in other words, they're massive. Bass and snare 1 make a good representation of "standard" acoustic kit sounds; snare 3 is in fact a rimshot, while bass drum 3 is the one weak sound in this particular area of the kit. The remaining sounds are bright and clear, though you won't find the longer sounds decaying for their full duration – a fact which suggests sampling memory has been kept at a premium. Most of the R100's sounds have been recorded dry, presumably so that you can take full advantage of the machine's individual outputs during recording – this tends to lend them an upfront, immediate character. ▶

► When the voices of a drum machine are tunable, as these are, it becomes difficult (and to a certain extent, meaningless) to talk about a single set of sounds – percussive sounds often take on a completely new character when retuned. In fact, tuning can be used to good advantage on the R100, so if you're keen to experiment with the sounds that make up your rhythm parts, you'll get on fine with this machine. It's possible to get some metallic, contemporary sounds in this way – and once you start

► *“Most of the sounds have been recorded dry so you can take advantage of individual outputs during recording – this lends them an upfront, immediate character.”*

making use of the variety of sounds you can get from a tunable machine you'll wonder how you got by without them.

The R100's 24 sounds are organised in three groups of eight (clearly labelled in rows on the machine's front panel), with one group at a time being accessible from the eight pads. A button to the left of the pads allows you to cycle through the three groups at any time while you're in pattern mode, with small red LEDs indicating the currently-selected group. What this means in effect is that all 24 sounds are equally accessible from the pads during pattern recording and playback.

Programming

KAWAI HAVE GIVEN their drum machine 100 patterns, 100 songs and 10 chains. Each pattern can be anything from 1-99 bars long, while a song can link together up to 999 patterns, and a chain can link together up to 999 songs. Large numbers indeed, but at least you shouldn't feel constrained.

This three-tiered organisation of pattern/song/chain deserves some further mention. Kawai's labelling suggests one obvious way of using it, but equally, you could use the song level as a means of grouping patterns into song sections, with a chain then becoming a song.

Useful features for organising your rhythm parts in memory are pattern, song and chain copy and pattern exchange. Pattern copy allows you to copy up to two patterns into a single new pattern. On the face of it a simple feature, but in practice tremendously useful, as it allows you to start off with relatively short rhythmic phrases (four bars, say) for some instruments and then add much longer phrases (perhaps eight or 16 bars) on other instruments. If you find yourself running short of patterns, you can always combine two or more patterns that you know you want to use together (though you can't do the opposite and split patterns up).

But it's worth bearing in mind that the R100's memory isn't unlimited (3700 notes, apparently), and depending on the length of your patterns and how busy they are, you're more likely to run out of memory before you run out of patterns.

Pattern recording can of course be in real or step time. Kawai have provided just about all you're likely to need in

► *“Memory isn't unlimited, and depending on the length of your patterns and how busy they are, you're more likely to run out of memory before you run out of patterns.”*

the way of time signatures: each pattern can be from 1-99/4, 1-99/8 or 1-99/16. Quantisation for real-time recording can be set between 1/4 and 1/192nd note, including triplet values like 1/24. The R100 has an inbuilt metronome, with level adjustable from a dedicated front-panel knob, which is transmitted over the stereo and headphone outputs; this

can be set from 1/4 to 1/32nd note resolution.

Each of the 24 instruments has four parameters which are accessed on the front panel from the Multi button. These are: level, sensitivity, tune and pan. The latter two can be defined for each note in a pattern, in both real and step time recording. All four can be set on a scale of plus or minus eight.

The R100's two-line LED display is put to good use, providing bar-meter displays for each of the current eight voices; values are adjusted up and down with the eight Command Select keys positioned above the instrument pads. Involved though all this may appear on the printed page, Kawai's system is actually incredibly interactive – so much so that you can almost alter values in real-time.

Erasing notes follows the time-honoured practice of pressing an Erase button together with the appropriate instrument pad at the appropriate time while you're in real-time record. Other options allow you to erase whole instrument parts from a pattern, and to erase entire patterns. You can also go the whole hog if you want to start with a clean slate, by erasing the entire memory (a procedure which, rather fortunately, necessitates pressing quite a few buttons).

Step-time recording allows you to select a single instrument at a time, with the eight instrument pads then being used for inputting note and rest durations for that instrument (1/4-1/16th values, straight and triplets). The pads remain touch-sensitive, so step-time notes are recorded complete with dynamics.

There's also a flam feature: hold down the appropriate button while striking one of the pads, and you end up with two notes in the time of one, with the second note slightly louder. If you take some care in getting the dynamics right, this can be a very effective feature.

Kawai have provided a bar punch-in/out feature at the pattern level for real-time editing. This comes in handy when you want to edit patterns longer than four bars. You predefine both the punch-in and punch-out points and a play start point (so you can have a lead-in to the section you want to edit). Unfortunately, the R100 doesn't cycle around a punch-in/out section; when it reaches the punch-out point, it returns to the very beginning of the pattern. To get round this you have to press the stop/continue pad, which takes the R100 back to the punch-in point.

The R100 includes two further pattern editing features: reframe and swing. The former allows you to change the quantisation on an existing pattern or on an individual instrument in a pattern, while the latter allows you to introduce a “shuffle” feeling by introducing delays on the even notes in a pattern (again, this can be applied to all instruments or individual instruments).

Master tempo is variable from 40-250bpm in single-bpm steps. The value is reset to 120bpm each time the drum machine is switched on – something that can soon become annoying.

Song and chain creation and editing on the R100 allow you to insert and delete steps and to introduce both tempo and level changes between patterns (in songs) and between songs (in chains).

Undoubtedly useful, but there's something awry with the tempo changes. For a start, all changes are specified as +/- values relative to the master tempo. Then there are more difficulties owing to the fact that the current song tempo becomes the new master tempo – surely an error. Basically, this makes life difficult where it needn't be.

More encouraging are the repeat and jump commands, which give you greater control over your song and chain sequences. You can use up to 10 repeats and jumps in each song or chain, and each one can repeat once, 99 times, or anything in between.

While repeat allows you to repeat any section of a song or chain, jump allows you to jump backwards or forwards to

any position in a song or chain (in both cases to pattern or song resolution respectively). The purpose of these commands is to allow you to introduce the sort of repeat, dal segno and coda structures that are found in music without having to program them out in a linear fashion. It's a nice idea, even if too much jumping about can tie you up in knots, if you see what I mean.

Ever keen to provide the user with programming flexibility, Kawai have come up with a rather interesting feature which they've labelled overdub. This allows you to record a single instrument part (which can be any one of the 24 instruments) in real-time over a song or chain, complete with dynamics. All eight pads play the same instrument, but usefully, the tune and pan values assigned to each pad are recorded as part of the overdub.

The intention behind this feature is obviously to free you from the constraints of pattern-based recording, allowing you to record the sort of spontaneous extended percussion workout that the pattern-based approach of drum machines tends to preclude, while still building up the underlying rhythm using that very approach.

You'll need to make sure that you've finalised the relevant song or chain, as any changes in order will erase the overdub part. And, as the manual honestly points out, overdubbing uses twice as much memory as ordinary recording. It's worth bearing in mind, also, that the R100's pattern copy facility, coupled with a maximum 99-bar pattern length, can allow you to achieve a similar sort of thing with more instruments and less memory.

Interfacing

AS MENTIONED EARLIER, the R100 has eight individual audio outputs as well as stereo outputs. Each instrument can be assigned to either stereo or individual out, or to both. Assignment of instruments to individual outputs is preset: the first sounds in each group of eight are sent through output 1, the second sounds through output 2, and so on. This means that each voice channel shares three instruments, only one of which can be played at a time. A new instrument replaces or cuts short any instrument in that group which is already sounding – a feature which can sometimes be put to good use.

While Kawai have obviously attempted to group mutually exclusive instruments together (three bass drums on voice channel 1, three snares on voice channel 2, for instance) it's clearly impossible to do this for all 24 instruments – which can sometimes prove irritating.

Keeping to the R100's rear panel, there's a start/stop jack which allows you to control both recording and playback from a footswitch, while the enigmatically-named HH jack allows you to switch rapidly between open and closed hi-hat while playing the instruments of either group 1 or group 2 – something you can't achieve from the R100's front panel alone. Also to be found on the rear panel are a metronome out jack and a trigger out jack, the latter allowing you to trigger an external source in the rhythm of any of the 24 instruments.

Kawai have put plenty of thought into the R100's MIDI implementation, most notably on the input side of things. For example, you can take full advantage of the machine's tuning facilities because in addition to being able to assign any one of the 24 instruments to any note within the MIDI range, you can also assign a tune and a pan value to each note. This is particularly useful when you want to play several tunings of an instrument within a single pattern – it certainly beats cycling round a pattern and dropping in retuned notes each time.

Further good news is that you can record patterns into the R100 from a MIDI source (which could be a set of

MIDI'd pads or a MIDI keyboard – preferably velocity-sensitive), taking advantage of all the above-mentioned features.

While all MIDI input is limited to a single MIDI channel, for MIDI output each instrument can be individually assigned to any one MIDI channel (1-16). However, each instrument can only be assigned to a single key number, so there's no way of indicating tune and pan values. In addition to key information, the R100 can also send and receive velocity and program-number data and receive volume data.

In addition to its usual bulk data transfer function, the R100's System Exclusive section allows you to remotely edit instrument level, sensitivity, tune and pan, and to change MIDI In key number assignments. An American software house called CompuMates are offering an R100 editing package for the Atari ST which takes advantage of

► *“You can assign a tune and a pan value to each note, which is useful when you want to play several tunings of an instrument within a single pattern.”*

these options, and which boasts some exciting-looking colour graphics. But there's no UK distributor yet.

MIDI synchronisation (the machine has MIDI In, Out and Thru) provides for the usual start/stop/continue commands, while MIDI song pointer information can be received but not sent. The R100 also features DIN sync, clock sync and tape sync in/out. Clock in can be set to a 24, 48 or 96 timebase, but its usefulness is limited by the fact that clock and tape in share the same socket.

Kawai have also given the R100 a timing adjust feature, which allows you to adjust the drum machine's timing relative to an external device (MIDI, DIN, tape or clock), in 24th-note steps on a scale of +/-9.

Verdict

THE ONLY MAJOR disappointment on the R100 concerns the expandability of its sound library. Not that Kawai aren't making further sounds available (they are), but you have to open up the R100 and slot in a new 24-instrument ROM to get them. While this shouldn't be too tricky (ROMs are inserted into a ZIF socket), the chief disappointment lies with the fact that you either have one set of sounds or another. This compares unfavourably with Korg's DDD1 or Yamaha's RX5, which seem to have sonic expandability as one of their priorities.

Still, variety is the spice of life, and a list of sounds for Kawai's first addition to their ROM library (which unfortunately wasn't available in time for this review) reveals that the R100 will be able to branch out into the realms of “non-percussion” sounds such as bass guitars and orchestral and brass hits, alongside the more familiar array of electronic and acoustic kit sounds. It's just a pity you won't be able to use them in conjunction with the sounds already in the machine.

Without question, though, the R100 is one of the most sophisticated drum machines currently available. It's cheaper than the RX5, yet incorporates several of the features of that “state-of-the-art” machine, plus a few more.

Well-designed and flexible, the R100 is also accessible enough to be genuinely interactive with the people using it. And it has a sonic character all its own. ■

Prices £595; RAM cartridge £45; ROM chips £50 approx; all including VAT
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CASIO CZ1000, SZ1 sequencer new: swap for MemoryMoog, Korg Trident Mk2, JX3P + programmer, WHY. Terry **01-388 2206**, after 6pm.

CASIO CZ101, £150. Korg EX800 £100. Many other items, ring for details. Dave **0462 895791**.

CASIO CZ101 + RAM pack, £150. Roland PG200 programmer (for JX3P), £85. Mike **Cardiff (0222) 488400**, before 1pm weekdays.

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Sequencers

CASIO SZ1 4-tr sequencer, boxed, manual, psu, vgc, £145. Neil **Durham (0385) 700142**, after 6pm.

CASIO SZ1 sequencer, 3mths old, as new, £150. **0303 41880**.

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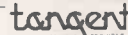
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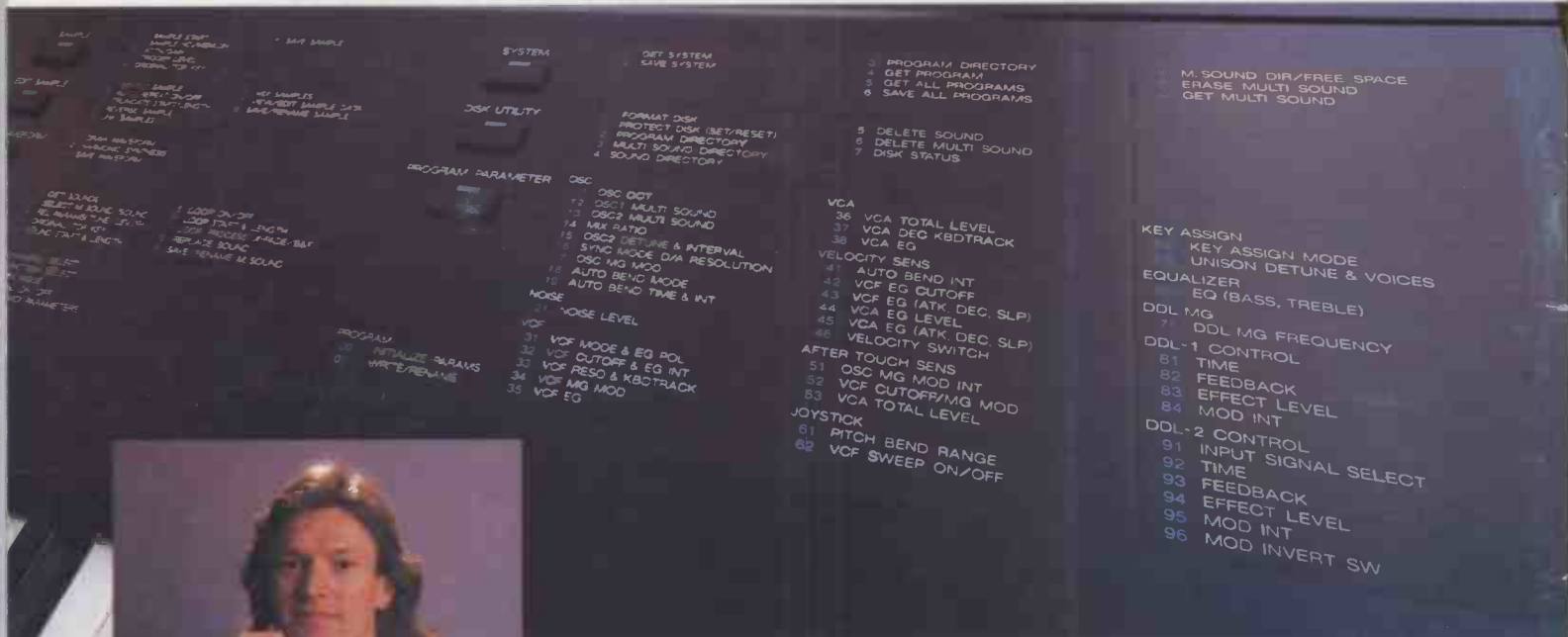
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