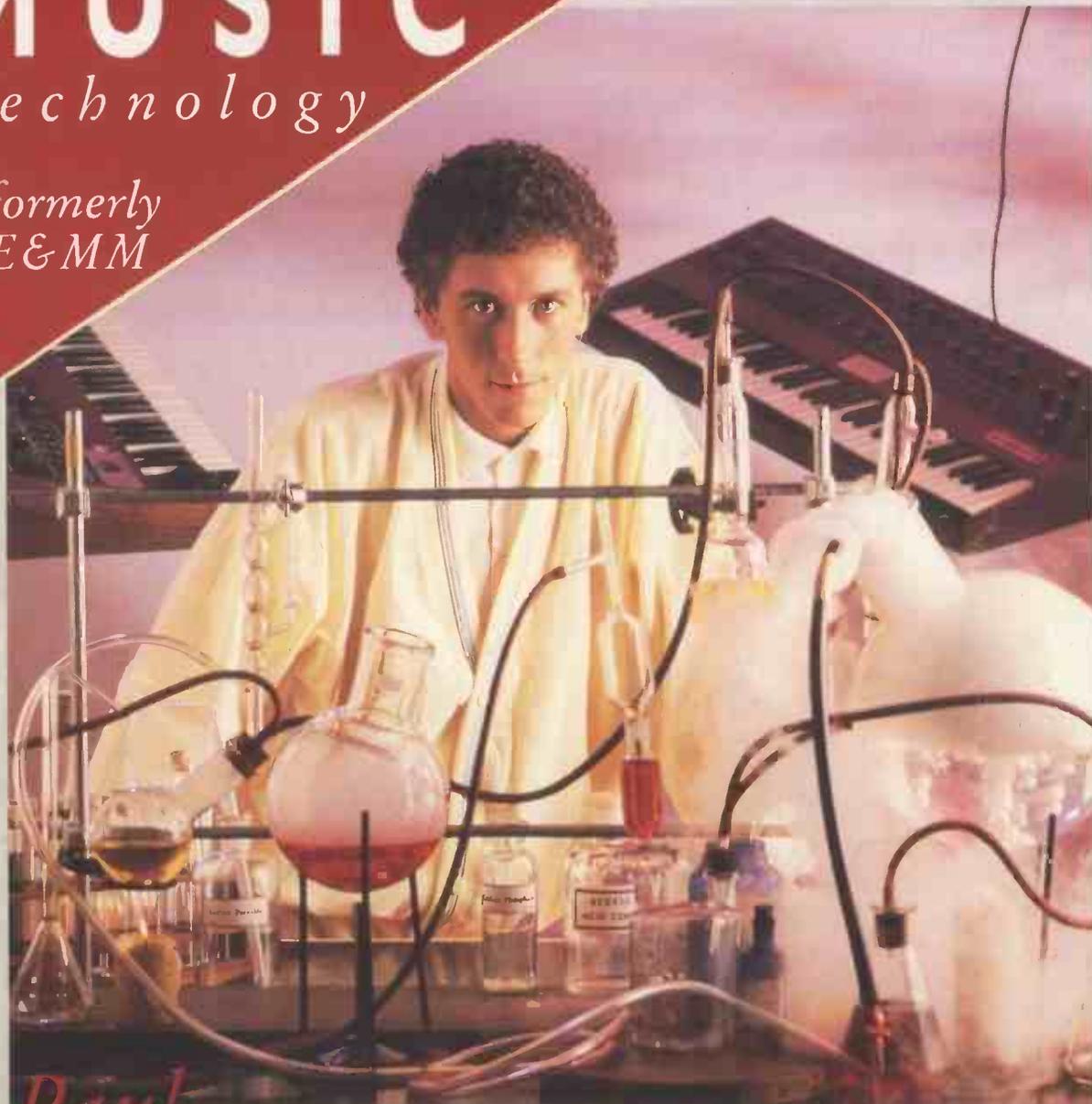


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technology

*formerly
E&MM*



Paul

HARDCASTLE

Words with the Wizard

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ROLAND DEP5

Sound FX in Series

LILLIE YARD

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VOLUME 1, NUMBER 1

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Sampling keyboards are everywhere this year, but most of them are confined to 12-bit resolution. Our US Editor, Rick Davies, gets a taste of 16-bit sampling with an incredibly cheap Atari-based system.

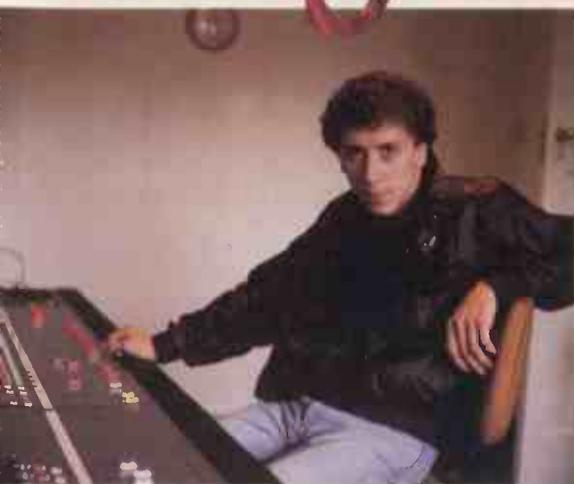
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Digital drum machines may rule the waves in the R&D labs, but one obsolete analogue device is still the record producers' first choice. Tim Goodyer dissects the appeal of Roland's classic TR808.

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New technology has already brought the music industries of East and West closer together, but how has that affected the music itself, and what will happen as the two cultures get closer still? Gary Larson gives his viewpoint.

WE SAY, YOU SAY

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FROM WHERE YOU'RE sitting – at home, in a studio, on a bus, at the back of a college lecture, wherever – this first issue of MUSIC TECHNOLOGY should look quite impressive. Revealing interviews, thought-provoking features, and tell-it-like-it-is equipment reviews, and more of them than ever. A brighter, more accessible layout, with more colour than ever. And a new name that's made your favourite magazine easier to get hold of and talk about, *without* (sighs of relief all round) having any effect on the E&MM we all knew and loved so well.

But whatever your surface impressions of MUSIC TECHNOLOGY's inaugural effort, there's one thing you'll never appreciate: just how much *work* it takes to get a relaunch issue like this one off the ground. Let me tell you a little of what has happened here in Cambridge in the build-up to making this magazine what it is.

Simon Trask, our Reviews Editor, has developed arthritis through having his hands on keyboards permanently for a fortnight, in preparation for a whole range of instrument reviews which he has since been dictating into a tape machine because his hands are too sore to type.

Music Editor Tim Goodyer is now deaf in one ear, having sifted through piles of readers' demotapes and transcribed endless interviews with big-name artists, most of which didn't even make this first issue.

Trish McGrath is suffering from acute depression after discovering that the extra work she now needs to do for the extended Patchwork section (not to mention many hours' further proof-reading without any hint of a wage increase) means the interior decorating at her maisonette won't now be completed until 1987.

And Art Editor Stuart Catterson is still reeling from the shock of discovering that an extra 24 pages take longer than 24 hours to paste up, and that none of them will give him scope to paint life-size portraits of sheep, build model garages out of Meccano, and generally do the sort of thing Art Editors like to do.

As for the Editor himself, these last four weeks have been complete and utter chaos, during which eating, sleeping and breathing have all stopped at some time or other, and even drinking has been under threat. For him, though, the sunshine of California – and MUSIC TECHNOLOGY's American office – beckons halfway through November, so there has been light at the end of the tunnel.

Now, all of us *enjoy* leading this sort of lifestyle. Which is why we all work for a company that

produces music magazines, not fibreglass paperclips or industrial mouldings.

But as a reader, there is one thing you can do to ease our burden: share it with us. How do you do this without becoming completely insane? Easy. Simply take part in what we in the publishing business call Reader Participation.

You can go about this in a number of different ways. First, write us a letter, either to our Communiqué page (where readers air their general comments about life, the universe, and five-pin DIN sockets) or to the Interface section (where readers air their problems concerning life, the universe, and five-DIN sockets, and we try to answer them).

If, for example, you *aren't* terribly impressed with an element of MUSIC TECHNOLOGY as it appears to you, tell Communiqué about it. Or if, by some rare chance, your equipment isn't working quite as you might want it to, tell Interface, and you may suddenly find your problems solved overnight.

As from next month, we'll also be starting up a readers' chart section to which you can contribute lists of music and/or equipment, together with brief explanations of what makes them special to you.

Even readers who can't write can participate in the magazine, simply by sending their own synth sounds to Patchwork (sorry, Trish), or by sending cassettes of their own music to DemoTakes (sorry, Tim).

In fact, so keen are we to hear from you in whatever way you choose to make yourself heard, we're offering free subscriptions to those readers who – in our view – make the biggest contribution each month.

So, that's 12 months' worth of MUSIC TECHNOLOGY winging its way to the writer of the best Communiqué comment and the sender of the most interesting (but ultimately solvable) Interface problem; to the creator of the best demo-tape and the most intriguing readers' chart; and to all those whose synth programs are judged to be good enough for publication in Patchwork. *Every* month.

Why are we so keen to get your side of the story? Well, apart from the fact that every reader's message helps relieve the drudgery of having to deal with our advertising department (once again, they had it easy this month), we want to know what you're doing because you're the people that matter to us most. And everything you say to us – through whatever medium – enables us to make MUSIC TECHNOLOGY less our magazine, and more yours. ■ Dg

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IT'S IMMATERIAL

“We made
‘Life’s Hard’
with a DX
and an
80 year-old
banjo player.”

Hardly an obvious combination, but obvious this band isn't.

John Campbell and Jarvis Whitehead were first shown around a DX by Jerry Harrison, keyboards man with Talking Heads, but the style is all their own.

On ‘Life’s Hard And Then You Die’ they linked a DX with a banjo player who’d made his first record in the year dot on a cylinder disc. “He recorded at Abbey Road during the Blitz.”

And they’ve even tried a DX with marimbas and a Chilean nose flute, of all things.

“We’re not technobrats,” says Jarvis. “Anyone can use one.”

A DX, that is. Not a Chilean nose flute.

IMAGE — JAIN MCKELL

YAMAHA SOUNDS LIKE YOU MEAN IT.



NEWSDESK

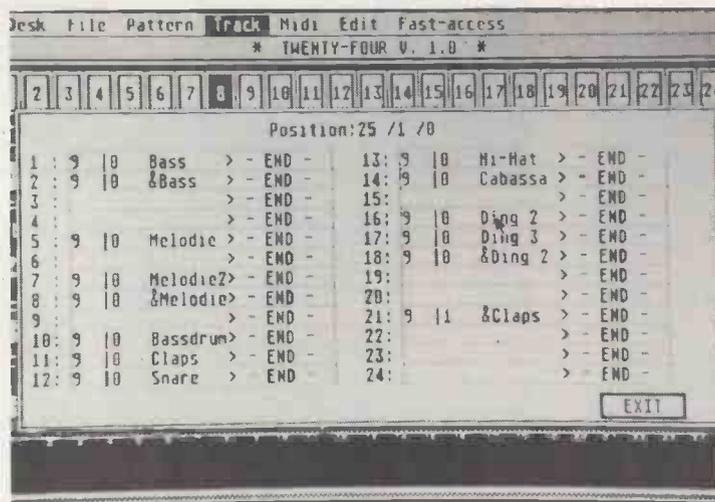
STEINBERG - THE TRUTH IS OUT

► Time to clear up the confusion which has recently surrounded UK distribution of products from German software company Steinberg Research. Distribution has passed from original importers OSC to a new UK company called, wait for it, Steinberg Research.

Steinberg will be placing the emphasis firmly on software support for dealers and end-users (that's you lot). As part of this approach, they will be starting an around-the-clock electronic bulletin board service, where users will be able to pass on advice, post queries and generally communicate with users of both Steinberg and other music software packages.

Steinberg Research have also set up their own studio to provide demonstration facilities, and to help their salesmen better understand the needs of musicians who use the software.

The change in distributor coincides with a healthy selection of new and repackaged products from the Germans. As mentioned in our recent review of the Atari 520/1040ST-based Pro24 sequencing package (E&MM September '86), a comprehensive SMPTE generator will be released before the end of the year, together with a music notation/scorewriter program to be used in conjunction with Pro24. The SMPTE unit will retail for around £600, and will be available



as a stand-alone unit for people wanting its facilities without Pro24. Also imminent is the first software update for Pro24, which will include software to take advantage of the SMPTE unit.

Another planned Atari release is a visual editor for Akai's S900 sampler, which will include the ability to transfer data for use with the Prophet 2000/2.

On the Commodore 64 front, Steinberg have repackaged their popular Pro16 sequencer, which is now available in cartridge form (software plus interface) in two versions:

Pro16 Plus and Pro16S, retailing at £299 and £239 respectively. Pro16 Plus adds graphic editing, the Scorewriter and sync-to-tape to the sequencer itself, while Pro16S adds graphic editing and sync-to-tape.

Other new Commodore 64 products are visual editors and sound librarians for Roland's Alpha Junos 1 and 2 and the Korg DW8000.

Plenty for everyone, as the saying goes.

More from Steinberg Research, The Spendlove Centre, Charlbury, Oxford OX7 3PQ. ☎ (0608) 811325 ■ St

FACTORY CHANGES ITS BEAT

► Central London 24-track studio The Beat Factory have recently been evaluating new recording techniques, and as a result, redesigned their studio to provide a fully integrated sampling, sequencing and recording facility using the latest hardware and software.

The collective rethink came about when the studio, which originally had a

separate programming suite, found their clients wanted to pull more and more equipment into the control room.

The new setup, which is integrated into the studio's mixing console, includes an Akai S900 sampler and Steinberg Pro24 sequencer, with a Yamaha DX7 acting as master keyboard and a Roland SBX80 syncing

everything to 24-track. MIDI linking is facilitated by an Akai MIDI patchbay.

Projects recently completed include Belouis Some with Guy Fletcher, Bananarama with Peter Oxendale, and Y-do-I with Richard Ashley, together with work for in-house production company The Music Method.

More from The Beat Factory, ☎ 01-388 7826. ■ St

TURNKEY'S HANDS-ON SHOW RETURNS

► It's that hands-on time of year again. Turnkey are presenting their ever-popular Hands On Show, now in its eighth year, at the Strand Palace Hotel in London on November 22-23 (10am-6pm each day).

Exhibitors will include Akai, Fostex, Tascam and Yamaha, and some exclusive product launches are expected. Effects from ART, Alesis, Symetrix, Electrospace and many other companies will be there for the use of, and live recordings are planned to demonstrate microphones and speakers from the likes of AKG, Sennheiser, Shure and Tannoy. Old but popular machines haven't been forgotten, either: if you've got an ailing A77 or B77 tape recorder, you'll be able to hand it over to Doctor Revox for a thorough overhaul.

The Akai Roadshow team will be presenting the latest Akai products, and the Gateway Recording School will be presenting sessions on locking sequencers and multitrack, getting the best from effects, and much, much more (it says here).

It's also planned to have personalities talking about their recording experiences; as from November 1, you can dial ☎ 01-637 0700 for the latest updates on just who is expected to be putting in an appearance.

Entrance to the Exhibition Hall is free of charge, but there's a blanket registration fee of £4 for the seminars (for which you'll need to pre-register).

More from Turnkey, Brent View Road, London NW9 7EL. ☎ 01-202 4366 ■ St



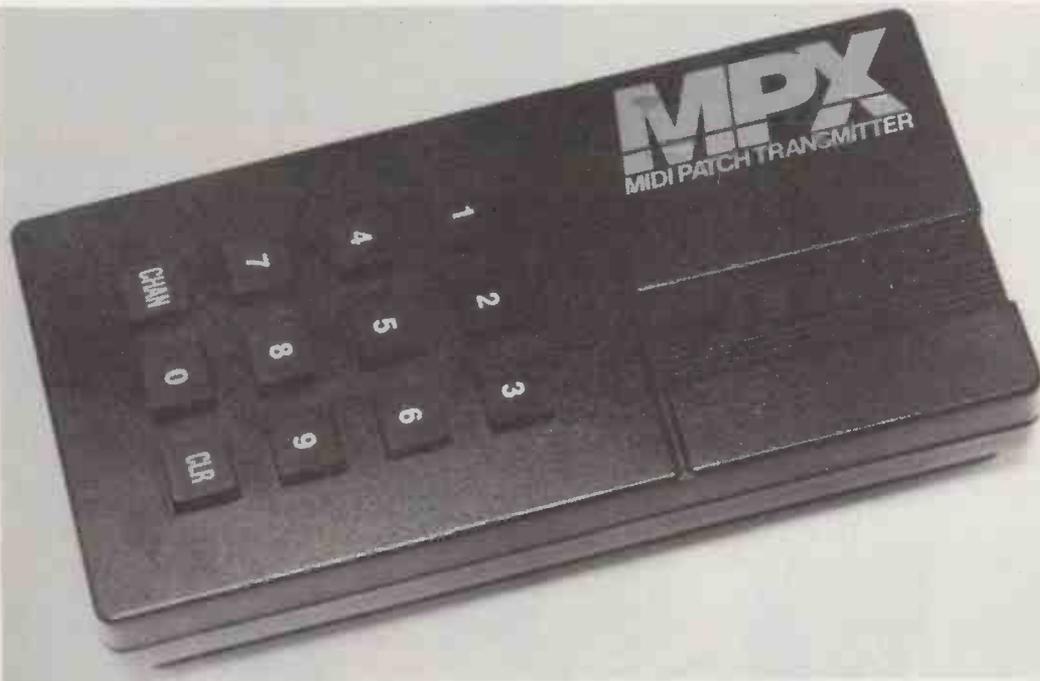
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MIDI BY REMOTE CONTROL



► New from Alesis is the MPX MIDI Transmitter, a hand-held remote control unit which allows you to send MIDI patch-changes to your MIDI equipment on any or all of 16 MIDI channels. Channel settings and patch numbers are entered from a numeric keypad on the MPX. As connection is via MIDI cable, it's possible to operate the MPX at quite a distance from your equipment – making the unit valuable both in the studio and on stage.

The MIDI Transmitter allows you to send a patch number in the range 1-100, either on a selected MIDI channel

(1-16) or on all channels simultaneously. Transmission of patch changes occurs immediately you hit the second digit. If the first key is held for at least 0.6 seconds, you can enter the second digit at any time afterwards, allowing greater accuracy in timing your changes. If the first key is held for less than 0.6 seconds, then the second keystroke must occur within three seconds or the first value will be ignored. A "Clear" key allows you to clear any digits without altering the current MIDI channel assignment.

The MPX is the sort of device which

will probably find its way into every studio which makes regular use of MIDI equipment. It could be useful, for instance, for accessing a stack of MIDI'd effects units without having to move from the desk. And musicians playing instruments without MIDI patch change capability (such as wind instruments) could use the MPX to access remote MIDI equipment. The MPX retails at £98 including VAT.

More from Sound Technology, 6 Letchworth Business Centre, Avenue One, Letchworth, Hertfordshire SG6 2HR. ☎ (0462) 675675 ■ St

YAMAHA IN THE CITY

► Yamaha dealers City Music are presenting a Yamaha Music Show at the Novotel Exhibition Centre, Hammersmith, London on 21-23 November. Emphasis is on instruments "for every member of the family", with the whole range of Yamaha keyboard instruments on show. There will be instrument clinics and live performances (starring the Yamaha Band, no less), and with the spirit of Christmas soon upon us, City Music are planning special show offers and "cash and carry prices" on all keyboards, synths and other hi-tech gear.

Entrance is free, with tickets available on the door or in advance from City Music.

More from David Burrows at City Music ☎ 01-863 1841. ■ St

UMI ALIVE AND WELL

► Umusic, creators of the much-valued UMI-2B sequencing system for the BBC Micro, have come up with a new sequencer called the UMI-3S. Software will apparently be very similar to the existing UMI-2B, while the hardware will retain "most of the interfacing required by a large cross-section of users", according to Umusic.

Priced at £195 including VAT (ie. a lot less than the UMI-2B), the UMI-3S should be available by the time you read this.

More from Umusic, 17 Parkfields, London SW15 6NH. ■ St

ROSE-MORRIS BRANCH OUT

► From Tin Pan Alley to the Stockbroker Belt. Rose-Morris have brought musical instrument retailing to scenic Hemel Hempstead, with the opening of their second music store. This one complements the existing Denmark Street store in London's West End.

The new shop (which opened for business at the beginning of October) will carry a wide range of equipment from the likes of Yamaha, Roland, Korg, Casio, Vox, Carlsbro, Laney, Fender, Gibson, Ovation, Takamine, Westone and Ibanez (phew!).

The place to be is 71 High Street, Hemel Hempstead. ☎ (0442) 217541.

And on the subject of new music shops, rumour has it that late November will see the opening of a new shop in Manchester, answering to the name of Streetwise Music. Details when we have them. ■ St



ENSONIQ IN THE NORTH WEST!

PACKAGE DEAL SPECIALS Have you got a few grand to spend? Don't waste your money, contact Dougie for the best packages (You might be surprised).

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ENSONIQ IN THE NORTH WEST

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2. ESQ1 Yes! Yes! Yes! Yes! Yes! Yes!



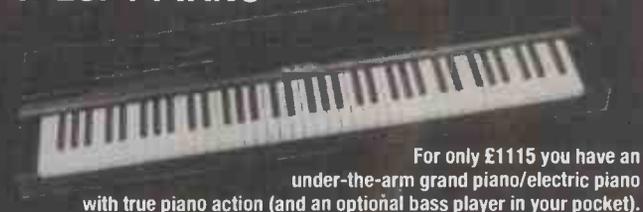
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Roland TR505/701/727.....	£POA
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Korg Poly 61.....	£450
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Roland SH09.....	£99
Roland SH101 (inc MGS1).....	£150
Roland JX3P (2).....	£450
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Yamaha CS01 (new).....	£69
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NEW EXPANDED PREMISES

CHEAP STUDIO TIME FOR UNEMPLOYED

► With music offering a much-needed diversion, or even the possibility of a career, to many unemployed people, word of someone offering cheap equipment, facilities or opportunities is welcome news indeed. The Media and Arts Centre annexe of Aston University in Birmingham, better known as the Triangle, not only boasts an eight-track recording studio, but is offering subsidised studio time to students and those on the dole.

The studio features dbx noise reduction, assorted delays and reverbs, and a wealth of musical instruments including a Korg DW6000, EMS VCS3, Korg SQDI, TR707 and two Steinway grand pianos. There's also a team of technicians on hand to help studio users get the most from the equipment.

To Triangle members the studio costs a modest £6 per hour including the studio theatre, or £5 per hour for mixdown or tape-copying sessions. Although it's only another 50p for non-members, membership is a modest

£3 for the unemployed, students and OAPs, and £5 for everybody else, so it's got to be a worthwhile consideration.

A course in recording called, with great inspiration, The Rock Recording Course, is another of the Triangle's current success stories, as is Triangle Records, the studio's own record label. The label offers an outlet for the recorded works of some of the studio's users, and is currently promoting a compilation cassette entitled *Handy Wrappers* featuring the likes of Terry and Gerry, Electric Wallpaper and The Copy.

Anyone interested in the studio should contact Bruce Hart, the recording manager on ☎ 021-359 4192/3979, or write to the Triangle Media and Arts Centre, Aston University, Aston Triangle, Birmingham B4 7ET.

Handy Wrappers is available from the Triangle, the Virgin Megastore or Tempest Records and Rockers in Birmingham. ■ Tg

PROBABLY THE BIGGEST DX ROM OF ALL TIME

► When Yamaha designed the ROM and RAM cartridges for the DX7 synth, they couldn't have envisaged that one day, somebody would put eight times as many sounds into them.

Well, Executive Audio are now importing a ROM from West Germany that does exactly that – hold a total of 512 different DX sounds in one cartridge. It's called the Monst-ROM 512, and it stores its sounds in 16 banks of 32. These banks are conveniently arranged in groups of instrument "families", so that, for instance, bank A1 is full of piano-type voices, while bank D3 contains guitar and harp sounds.

The sounds on Monst-ROM 512 have been created using "computerised resynthesis techniques", according to the importers.

Also available is a new RAM cartridge with four times the capacity of Yamaha's original, ie. 128 sounds. The Supra-RAM 128 (for that is its name) is

designed along the same EEPROM principles as the Yamaha product, and should therefore have an unlimited life without any battery back-up problems.

These cartridges aren't staggeringly cheap at £128 for the RAM and £145 for the ROM. But they are sturdily built and intelligently designed. And in the case of the ROM, £145 doesn't sound like too much in the context of a £1400 synthesiser which, let's face it, is not the easiest electronic musical instrument to program.

We'll be reviewing the sounds on Monst-ROM in a forthcoming issue of MUSIC TECHNOLOGY, and in the meantime, keep an eye out for future products from Executive Audio, such as further DX add-ons and a RAM pack and memory expansion for the Ensoniq ESQ1 synth.

More from Executive Audio, 159 Park Road, Kingston-upon-Thames, Surrey KT2 6BX. ☎ 01-541 0180 ■ Dg

MUSIC LESSONS

► Romford-based music shop Monkey Business are doing their bit for music technology in education. On offer to any interested school is a free one-hour demo of synthesisers, drum machines, sequencers and MIDI pre-

sented by the Monkey Business demo team. This educational effort is sponsored by Roland UK, Akai UK, Korg UK, Simmons and TOA.

More from Monkey Business, ☎ (0708) 754548. ■ St

ROLAND AROUND THE COUNTRY

► Roland UK take to the road in November with a tour stretching from Edinburgh to London. Billed as "The Tommy Snyder Tour '86" and co-sponsored by Roland and TOA (who are providing the PA rig and four staff crew), the tour will feature multi-instrumentalist Tommy Snyder alongside ex-Whitesnake guitarist Micky Moody, bassist Robbie Burns and keyboard player James Hallawell.

Product demonstrations will feature new and recently introduced instruments such as the Super JX polyphonic synth and MKS70 module, the S10 and S50 sampling keyboards, GM70/GK1 guitar-to-MIDI system and DEP5 multi-effects processor.

Dates are: Newcastle Crest Hotel (November 10), Edinburgh Liberty's (11), Manchester A1 Music (12), Birmingham Portland Club (13), and London Logan Hall (14).

All shows start at 8pm (doors open 7.30), and will run for between an hour-and-a-half and two hours. Admission is £3, or £1 to MU



members and the unwaged (tickets available on the door).

The tour culminates in a special clinic and masterclass, featuring key-

boardist Snyder and drummer Francis Seriau, which takes place on November 15 at Ronnie Scott's in London. Start time for this one is 3pm, and

admission is £5 (again, tickets available on the door).

More from Roland UK, ☎ 01-568 4578. ■ St

FUTURE MUSIC CRAZY AUTO SALES

<p>SYNTHESIZERS</p> <p>ROLAND JUNO 1 RRP £645.00 ROLAND JUNO 2 £890.00 ROLAND JX10 £345.00 CASIO CZ101 £555.00 CASIO CZ1000 £445.00 CASIO CZ5000 £895.00 KORG DW6000 £1249.00 KORG DW800 £649.00 KORG POLY 800H £2259.00 KORG SAMPLING SYNTH DSS1 £1599.00</p> <p>YAMAHA DX27 £549.00 YAMAHA DX21 £749.00 YAMAHA DX100 £399.00 YAMAHA DX5 £1995.00 YAMAHA TX816 £2999.00 YAMAHA TX216 £1195.00 YAMAHA KX88 £999.00</p> <p>YAMAHA F807 £1299.00 PROPHET VS £1899.00 ENSONIQ ESO1 £1115.00 SEQUENTIAL MULTITRACK £799.00 MOOG SOURCE £199.00 KORG SPECTRUM SYNTH £125.00 ROLAND SH200 £150.00 KORG MICRO PRESET £75.00 KORG LAMDA £149.00</p> <p>KORG MS10 £39.00 CASIO CT101 £39.00 CASIO CT1000 £149.00 ROLAND MKS30 £399.00 TECHNICS SK250 £299.00 YAMAHA PS25 £499.00 YAMAHA PS25 £499.00 YAMAHA MK100 £199.00 YAMAHA VS1000 £169.00 CASIO M170 £149.00 ROLAND SH89 £175.00 ROLAND JUNO 106 £499.00</p> <p>ROLAND JUNO 1 £449.00 KORG SIEMAN £39.00 KORG POLY 61 £345.00 KORG POLY 800 £299.00 ROLAND MKB200 £399.00 CASIO T101 £215.00 CASIO T102 £89.00 ULTIMATE 3 TIER STAND £39.00 MOOG TAUPLUS PEDALS £399.00 ROLAND HP70 W/STAND £275.00 ROLAND JUNO 6 £1425.00 ROLAND JUNO 6 £299.00 ROLAND JUPITER 4 £899.00 ROLAND JUPITER 6 (F-CASE) £1110.00 ROLAND SH09 £225.00 ROLAND MC202 + SHD1 £275.00 YAMAHA CS40M</p> <p>ELECTRIC PIANOS</p> <p>ROLAND R01000 EX DEMO £2799.00 ROLAND HP2000 £1349.00 ROLAND HP3000 EX DEMO £1499.00 ROLAND HP3500 EX DEMO £2200.00 ROLAND HP3500 EX DEMO £2400.00 ROLAND HP450 £1400.00 ROLAND HP350 £1295.00 ROLAND EP50 £750.00 ROLAND SP80 £1095.00 YAMAHA PF70 £995.00 ENSONIQ PIANO £1115.00 KORG PIANO S61 £1775.00</p> <p>SAMPLERS</p> <p>ENSONIQ MIRAGE K/B £1320.00 ENSONIQ MIRAGE RACK £1080.00 PROPHET 2000 £2195.00 PROPHET 2002 £1795.00 AKAI S900 £1799.00 AKAI X7000 £1999.00 CASIO 12 + DRIVE £149.00 YAMAHA VS100 £179.00 ROLAND S10 £199.00 ROLAND S50 £149.00 BOSS DS20 £2200.00 BOSS MICRO RACK SAMPLER £175.00</p> <p>DRUM MACHINES</p> <p>ROLAND TR707 PERCUSSION £549.00 ROLAND TR505 £249.00 ROLAND TR727 £259.00 YAMAHA RKT1 £699.00 YAMAHA RKT2 £699.00 CASIO RZ1 £395.00 ROLAND OCTAPAD £425.00 KORG DDM 11 £495.00 KORG DM220 PERCUSSION £175.00 KORG DDD1 DYN. 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The Autumn Collection

KEYBOARDS

SYNTHESISERS

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JUNO2

JX10

HS80

ENSONIQ

ESQ1

CASIO

CZ101

CZ3000

CZ1000

YAMAHA

DX5 £1499

DX7

DX27

YAMAHA

DX27S

DX21

DX100

TX7

SEQUENTIAL

VECTOR VS

KORG

DW8000

DSS1

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AX73

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MKS80

MKS70

MKS30

MKS20

YAMAHA

TX816 £899

TX216

TX7

FBO1

KORG

EX8000

ELECTRIC PIANOS

ROLAND

RD1000

MKS20

HP450

HP350

HP5800

HP5500

HP2000

HP3000

YAMAHA

PF80

PF70

CLAVINOVA

ENSONIQ

PIANO SDP1

KORG

SAMPLING PIANO

TECHNICS

PX1

PX9

PX7

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CONTROLLERS

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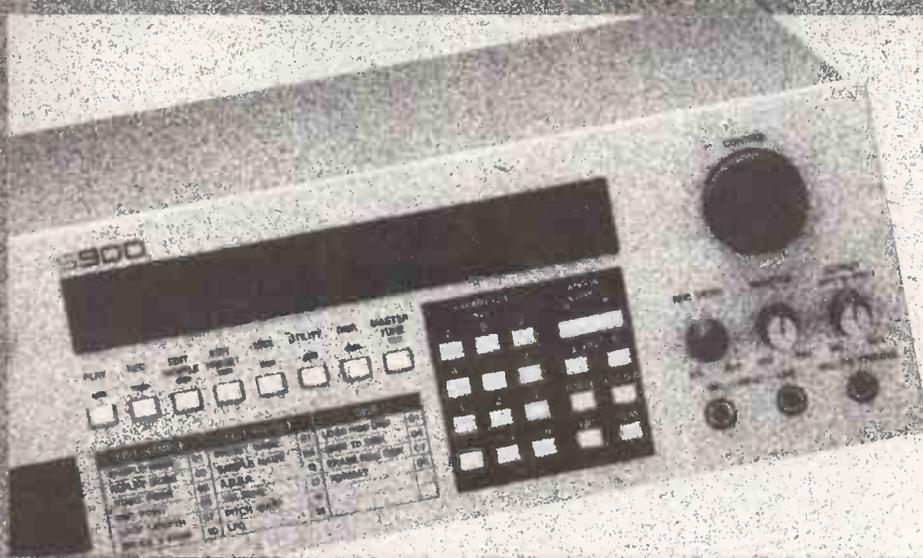
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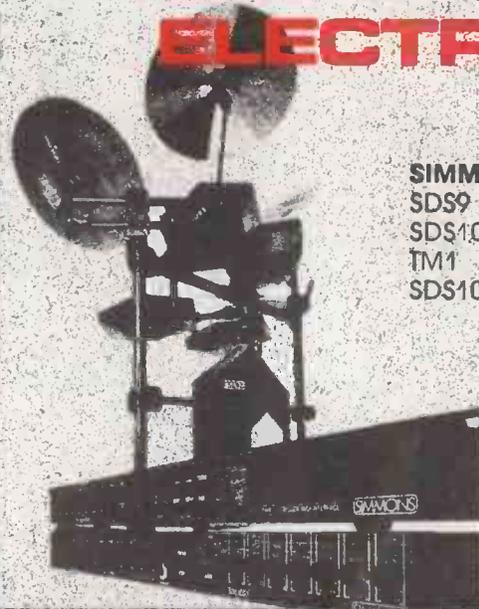


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TR727
CR1000
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YAMAHA
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RX21
RX21L
KORG
DDD
CASIO
RZ1



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Bokse SM-9 SMPTE/EBU Timecode Events Controller plus Remote.

If you use MIDI sequencers, MIDI effects, drum machines and samplers, then the Bokse SM-9 should be next on your list.

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With its ability to generate and read SMPTE/EBU timecodes, the SM-9 can be programmed to perform many functions. This includes 32 patch changes on up to 16 different MIDI effects and instruments, the starting and stopping of tape and cartridge machines, as well as triggering samplers and controlling drum machines; all of which can be precisely timed and programmed.

Furthermore, because the SM-9 gives out 'MIDI' song pointers, MIDI sequencers can be auto-located and their tempo pre-programmed.

In other words, the multi-track tape machine can be started anywhere during the track, and the MIDI sequencer will start at precisely the right point and in perfect lock with the recorded music.

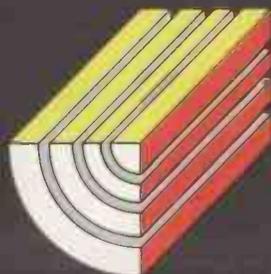
The Bokse SM-9 generates and reads four timecode standards: 24, 25(EBU) and 30 frames per second SMPTE as well as 30 drop frame, which covers the user for most eventualities.

In addition, the SM-9 can read and generate codes simultaneously, enabling it to be used as a 'stand-alone' unit without the need for a tape machine, ideal for dry run rehearsal in the studio.

A total of 128 events can be programmed into a bank of 4 cues, and everything in memory can be saved to tape for future reference. Outputs include contact closures, +5Volts output, MIDI and timing data, as well as clock gating circuitry.

A MIDI input on the SM-9 allows note information to be merged with the MIDI outputs of the unit.

The quality and facilities of the SM-9 are second to none. Contact Sound Technology for full details of this and other products in the range.



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COMMUNIQUÉ

Write to: Communiqué, Music Technology,
Alexander House, 1 Milton Road, Cambridge CB4 1UY.

Dear MT

Technology and Art

We've all been hearing how wonderful CDs are: stunning sound clarity, the convenience of the disc, the end of problems like stylus and tape head wear... What nobody seems to have noticed is how the changing format of recording media is affecting the messages they contain.

The format of the vinyl LP – two separate sections of around 20 minutes each in length – meant musicians made certain considerations when putting an album together. Should it be a concept piece intended to run from beginning to end, but divided into two sections that could be played separately? Or a collection of songs that required suitable opening and closing tracks for each side? Unless you're simply putting a collection of dance songs together, the running order of a set of songs is too significant to be overlooked.

What happened to this carefully considered running order when pre-recorded cassettes first became available? It was cut about in the interests of making both sides of the tape equal in running time. Next came tapes with additional or remixed tracks tacked on the end to make them appear better value for money.

Now we're faced with single album CDs with more tracks than their vinyl equivalents, and double album CDs with fewer tracks. Where does that leave your carefully constructed album?

Isn't it about time someone considered the effect this 'progress' is having on artists' work?

■ Chris John
Brighton

Dear MT

Classic Mistake?

As a student of the Royal School of Music and an accomplished keyboard player currently using an Akai S900, MX73 and Yamaha DX7, I feel I must air my views on the recent 'Omnibus' presentation on BBC1. I refer to a concert entitled 'Madonna of Winter and MUSIC TECHNOLOGY NOVEMBER 1986

Spring' composed by Jonathan Harvey, a combination of orchestra and live electronics.

The piece did absolutely no justice whatsoever to the electronic equipment being used. Let's face it: a TX816, DX5 and Emulator II could have put 99% of the accompanying orchestra out of work, yet this piece served only to enhance Joe Public's opinion of synthesisers as noise-making machines.

Now, we've waited a long time to see high technology incorporated into the orchestra (not replacing any of it), but my reactions to this attempt were ones of disappointment and annoyance.

As musicians we all know what these instruments are capable of (we all go to the BMF, don't we?) so isn't it high time the general public had a taste?

■ AH Clarkson
Manchester

Dear MT

Coventry Playgroup

In E&MM September, Melanie Black raised the issue of how pop music is ignored in schools. Well, we're glad to be able to inform her that here in Coventry, action is being taken to rectify the situation.

In a unique initiative, Coventry Centre for the Performing Arts has contracted our band, Playgroup, to act as pop-group-in-residence. The project has been funded by the Gulbenkian Foundation, West Midlands Arts and Coventry Council.

The weekly timetable allows time for tuition, concerts and demonstrations, and a regular day for writing and rehearsing Playgroup's own material. This means in practice that we are involved with six schools and four youth schemes throughout the city. Our role is to provide help, tuition and encouragement so that young people may learn to make their own music.

Each "band" has access to polysynths, guitars, basses, drums, PA and so on, and has the chance to rehearse during the week. Some will submit recordings as part of their GCSE; others are already out there gigging.

We hope the fact that Playgroup is not a

bunch of music teachers, but a full-time working band, will mean our advice is at least practically orientated.

■ Mandy Pilgrim
Coventry

Dear MT

Further Education

I'd like to say how much I agree with what Melanie Black has to say on the subject of music education. For far too long now, the music taught in schools and colleges has been heavily biased in favour of music that the pupils have difficulty relating to, a situation compounded by the tediously academic approach adopted by many music teachers.

This has had disastrous consequences for the popularity of music at a time when, ironically, it plays a greater part in people's everyday lives than ever before.

However, thanks to the efforts of more enlightened music advertisers and teachers across the country, this situation is beginning to change. I have overall responsibility for music in the Accrington and Rossendale College, and technology has indeed "penetrated further than a synthesiser keyboard gathering dust". The music industry and production techniques figure prominently in our full-time and part-time courses, which are available to students aged 16 and over.

We possess a comprehensively equipped synthesis studio where students produce their own compositions and arrangements using a variety of analogue and digital synths, digital sequencing and signal processing, and eight-track recording facilities. In the near future, we will be converting part of our music building into a recording studio, though we have already made a start on teaching recording techniques.

I would be happy to give further details of the courses and facilities we provide at: Accrington and Rossendale College, Portland Street, Accrington, BB5 1RH. ☎ (0254) 393521, ext 266.

■ Robert Lennon
Accrington & Rossendale College

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 After recently buying a Sequential Pro One synth and Drumtraks drum machine, I've run into some synchronisation problems. When connecting the two units together using the Drumtraks' Clock Out and the Pro One's Clock In, the Pro One's sequencer will not stay in sync.

I've tried everything I can think of, but to no avail. Are the two units incompatible, or do you think one could be damaged? If they are incompatible, is there any way of making them play together without getting the Pro One MIDI'd?

■ Philip Barraclough
Sheffield

beat recorded), and then press "Run" on the Drumtraks (which syncs playback but triggers the synth from beat 2). So if you program the last beat first, the sequence should loop correctly. ■ Rd

Q I'm interested in the BeebMIDI DX7 voice editing program DX7ED, designed by Jay Chapman and advertised in your E&MM January '86. I use a BBC B with the UMI 2B MIDI interface, and was wondering if DX7ED is compatible with this interface.

■ Peter Kirmond
Nottingham

Hampshire? If there isn't one, what is the address of the manufacturers in America?

■ Christopher Dasilva
Southsea

A As we mentioned in our roundup of keyboard stands (E&MM June '85), Ultimate Support stands are no longer imported into the UK, due to the unfavourable dollar/sterling exchange rate (though the last known UK distributors were Rose Morris, London). Ultimate Support's address in the States is: Ultimate Support Systems Inc, PO Box 470, Fort Collins, CO 80522, USA, ☎ (303) 493-4488. Incidentally, the company's new catalogue features not only their excellent keyboard stands, but also stands for rack-mounting units and electronic drum kits, and a novel microphone stand that can be easily adjusted with one hand.

If you have difficulty obtaining the Ultimate keyboards stands, we'd recommend you take a look at the Tama range of stands (available from FCN, ☎ (0732) 366421), as these are of equal quality and versatility. ■ Tmcg



A (Our American Editor, Rick Davies, who admits to having worked for Sequential once, has the following advice to offer.)

Basically, the two units are incompatible if you connect them in the way you've indicated, simply because the drum machine is sending 24 pulses per quarter note while the synth is expecting just one pulse per step. So I would recommend using the Metronome output of the Drumtraks to trigger each step of the synth's sequencer (in External Sync mode).

Secondly (and most importantly), when using the External Sync option you'll need to record the sequence using the last beat first. This is because to run the units in time, you'll need to switch the Pro-One's sequencer to "Play" first (which inadvertently triggers the first

A As far as we're aware, the DX7ED is not compatible with UMI, though we understand Jay Chapman had discussions with UMI's designers about adapting the program accordingly.

Umusic themselves offer sales, advice and software support to UMI users, so they may be able to suggest an alternative DX7 Editor for the UMI interface. Umusic can be contacted at 17 Parkfields, London SW15 6NH. ■ Tmcg

Q Could you tell me the name of the local retailer of the Ultimate Support range of keyboard stands in

A Following the letter of distress from Rory Cargill in Interface last month, other ARP owners may be interested to know that spares and repairs for their machines are available from Music Dealer Services of Chicago (USA), ☎ (312) 282-8171. Be sure to ask about prices, though, as it may turn out to be cheaper to buy another unit secondhand in the UK, and cannibalise it for spares.

■ Martin Straw
Southampton

Q I own a Roland TR505 Rhythm Composer and, despite the fact that it has its own Latin percussion sounds, there are still some sounds I've seen on the Korg DDM220 Super Percussion and the Yamaha RX21L Latin Percussion machine that I'd like to use.

Could you tell me which of the above machines is compatible with the TR505? I presume all three of them have the MIDI! ▶
MUSIC TECHNOLOGY NOVEMBER 1986

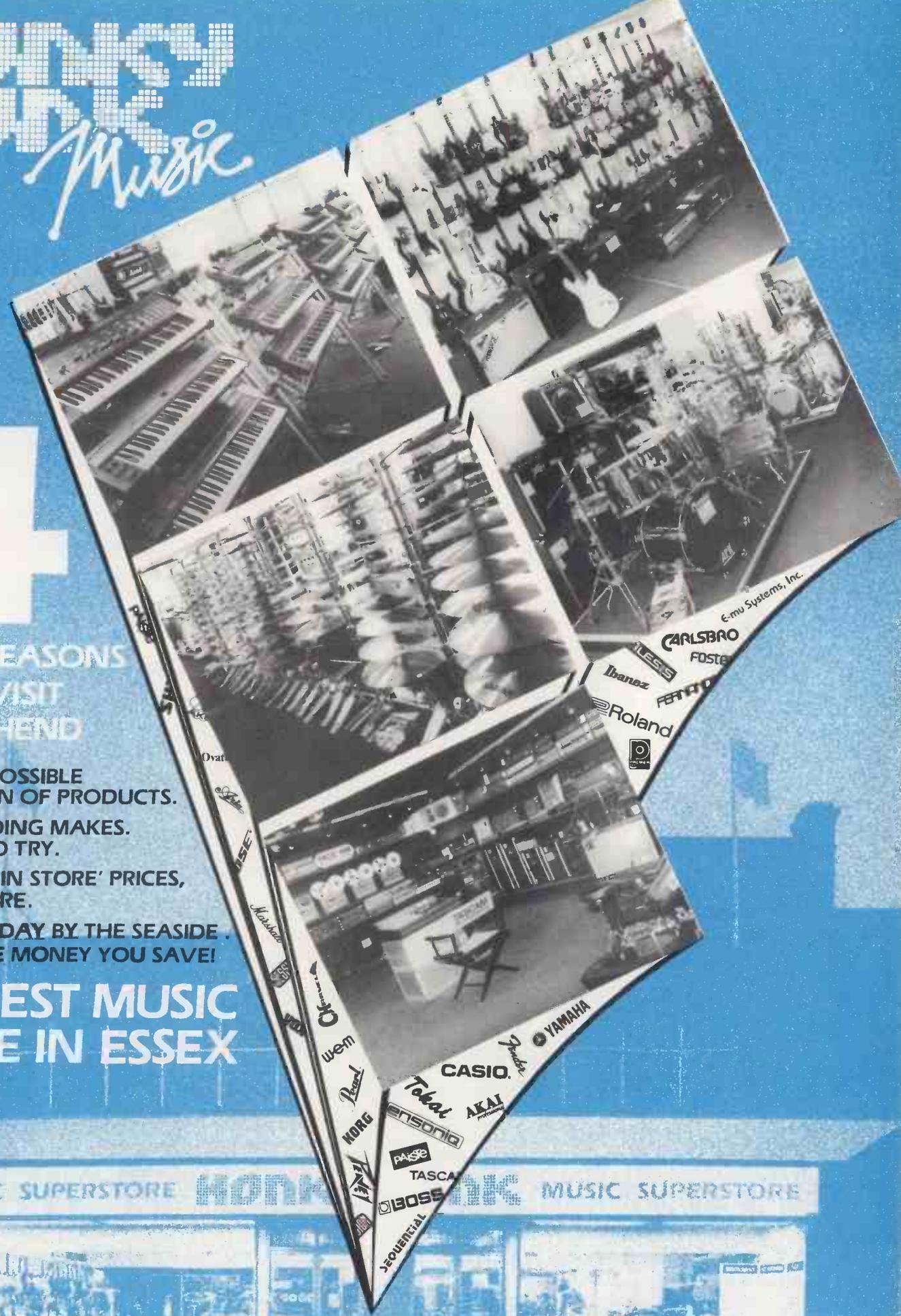
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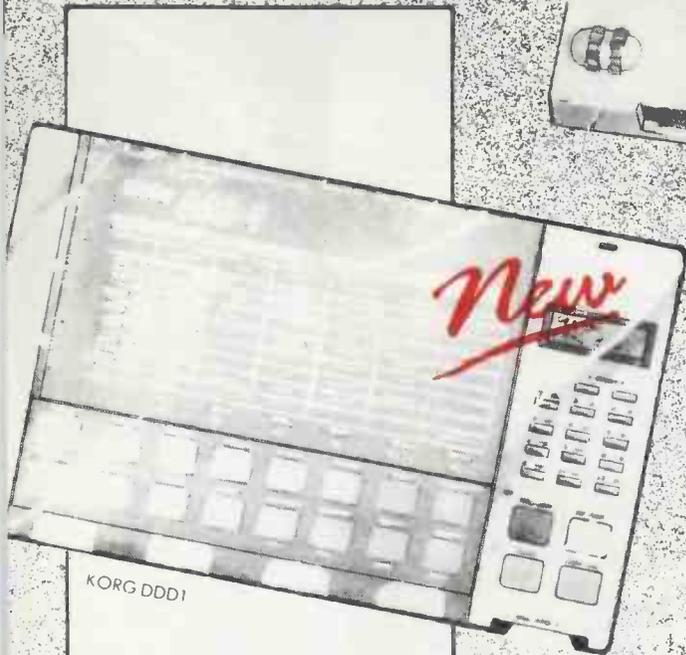


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You may not know this (because we've never told you before) but Future Music Chelsea is known to be the best, the No. 1 in its field! So are our customers, whether you're a Megastar or just a budding musician, the two of us go hand-in-hand! So when you're looking to find the latest in High Tech electronics or an extensive range of studio & home recording products, why not come on in to our two specialist outlets in London. Both are really easy to get to and both have the staff to answer your questions. We're looking forward to your visit. See You Soon.

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► facility for interconnection, but if neither of them will work directly with the TR505, what synchronisation equipment might be used?

■ Freddie Mills-Otolorin
London



A Your assumption is an erroneous one: only the TR505 and the RX21L have MIDI. The DDM220 only has Korg's 48ppqn sync standard, and so requires a synchronising device (like Korg's own KMS30) to work with MIDI machines.

The TR505 and RX21L should, however, work quite happily together using a MIDI clock sync. By simply setting either machine to sync to an incoming MIDI clock pulse, the other will be made the master unit. All that remains is a MIDI cable: master MIDI Out to slave MIDI In. ■ Tg

Q Could you give a relative newcomer to music technology some advice? I'd like to purchase a digital polysynth, but I don't know what's good and what's bad. I'm looking for a machine for about £300 that will give me the following: sequencing, MIDI, an unlimited selection of voices, and a rich, powerful bass section; some sort of programmable split-keyboard would be useful too.

I don't like the idea of being restricted to onboard sounds for too long, so I'd like a machine that I can hook-up to a music computer and other peripherals for sampling and effects. I will eventually want to take on some sort of drum or percussion machine as well as the standard delay, flanging and chorus effects.

I know there are some sampling keyboards around. Are they expensive, and would I be better off creating my own samples on a micro? And if you have a keyboard fitted with MIDI can you hook it up to any other MIDI machine, or do the machines both have to be from the same manufacturer?

Do I really need a synth to start with and then progress on to a music computer, or should I go ahead and buy a computer anyway? I feel the need to gain experience in basic synthesis before I get into anything too deep. Am I asking the impossible?

■ Dave Gayler
London

A In a word, Dave, yes. And you're not the only one either, as we receive a steady stream of letters like yours week after week.

You've obviously picked up a lot of the jargon

associated with producing music using the latest hi-tech gear, but equally obviously, you're totally confused by almost all of it. The worst part is that there's no quick and easy way for you to sort it all out: you're going to have to be patient and do your homework. But let's try to clear a few basic things up.

Easiest first. Although it's not perfect, MIDI is intended to be a universal communication system permitting different types of machines from different

allow "chaining" of instruments. Exactly what sort of MIDI data a machine is capable of implementing depends on that machine's specification.

On the subject of synths, there's no such thing as the ideal synth that your imagination seems to have conjured up – at any price, let alone the modest sum of £300. There's no shortcut to researching the facilities each synth offers you and what it costs, and then choosing the one most suited to your needs. And don't rely on other people's opinions – get down to your local music shop and make your own mind up about what sounds good, first and foremost.

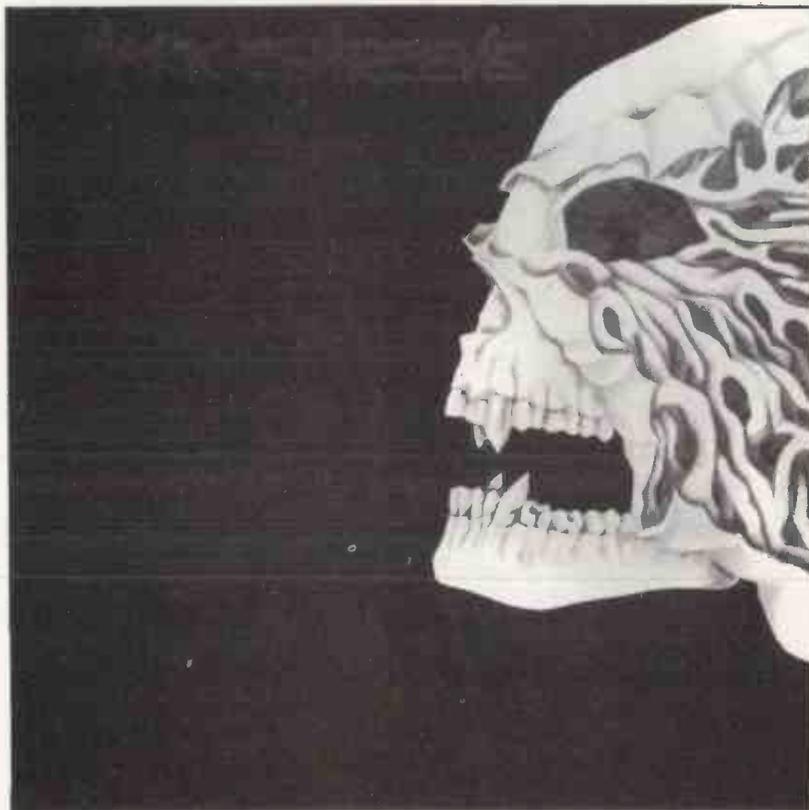
As for music computers... Well, while being potentially more flexible than a dedicated keyboard, they require a greater degree of understanding and a lot more patience before you're likely to achieve the results you desire. Perhaps that's best left for another day.

Finally, just two words of advice – MUSIC TECHNOLOGY. We're here to provide you with information as well as entertainment, and by maintaining a regular order for the magazine and reading it cover to cover (well, almost), you should have many of your questions answered for you in time. ■ Tg

Q About a year ago I managed to obtain a copy of an album by Mark Shreeve called 'Legion' on the Jive Electro label.

I was wondering if he had released any other albums, or if he had any on the way, and where I might get hold of them.

■ Baz
Essex



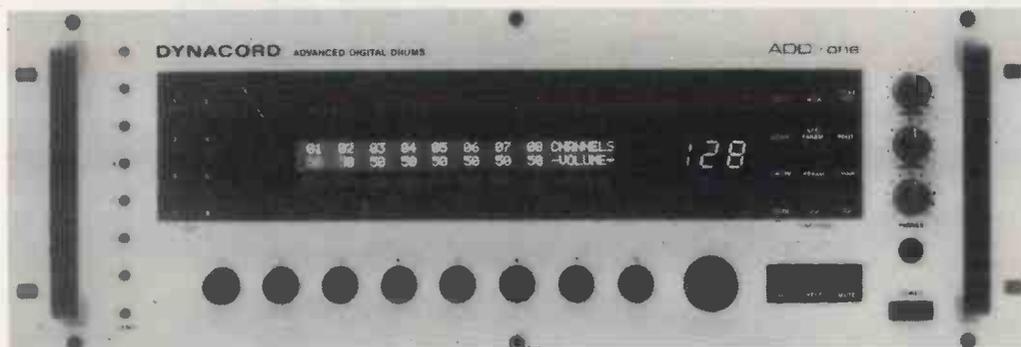
manufacturers to talk in a common language. MIDI In accepts incoming information from another machine, MIDI Out transmits information generated with one machine to another, and MIDI Thru passes incoming MIDI information on to another machine after the first machine has extracted what information it wants, to

A 'Legion' has just one predecessor entitled 'Assasin'. Originally released on Norwegian label Uniton Records, it has since been re-issued on Jive Electro (matrix number HIP 21), and should be available at all good record stores.

■ Tg

I · N · B · R · I · E · F

Dynacord ADD-one Digital Drum Module



ON A RECENT trip to Bavaria to see Dynacord's new (and rather impressive) factory, we took the opportunity to have a closer look at the company's new ADD-one digital drum brain.

Although produced by a German manufacturer, the ADD-one started life in Marina Del Rey, California, on the drawing board of ex-Oberheim designer Marcus Ryle, now a freelance researcher and programmer.

The ADD-one is an eight-channel drum brain which uses sampled sounds as the basis for its percussion voices. It comes with 1Mbyte of memory as standard, but this can be expanded up to 8Mbytes with plug-in boards which sit inside the unit.

This unprecedented memory capacity means the ADD-one can hold a large number of sounds at once. With sounds sampled at the highest rate of 50kHz, you can store 20 seconds' worth of sampling. At 25kHz, which gives respectable results on most sounds, you can have 40 seconds' worth.

The factory sounds which come with the ADD-one are grouped together internally under their generic names: Snares, Cymbals, Effects, and so on. You can assign each of the eight channels to any one of these groups, and then select one of the sounds within the group.

The same sound can be assigned to several channels if required (Dynacord call this Multiple Memory Access). There are several reasons you might want to do this. First, the ADD-one can play the same sound through several channels in what Dynacord call Rotate mode. So during a snare roll, for example, the first strike won't cut off when the second one is triggered.

It's also useful for multiple tom-tom assignments, where different pitches of the same sample can be triggered simultaneously through different voice channels.

Multiple Memory Access also allows you to take the same sound and process it differently through separate voice channels. This applies both to analogue parameters like filtering, and to digital effects like trigger delays.

As far as programming goes, nine buttons access the main modes, and there are several pages which can be stepped through. These show one parameter at a time for all eight voice channels in an 80-character backlit LCD. Alternatively, you can see and alter all the parameters for one voice channel at the same time.

The first page lets you choose which of the "groups" of sounds is assigned to which voice, while page 2 lets you go on to select the individual sample required. The

third page governs which of the eight separate inputs will trigger each voice channel. Finally, page 4 switches the Rotate function on or off.

Param mode covers the basic replay parameters available. These are Volume and Pan (allowing a programmable stereo mix to be set up for each "kit"), Pitch, Pitch-bend Amount and Decay, and Filter Cutoff, Filter Bend Amount and Duration.

An Add Param mode features more esoteric parameters like Dynamic Scale, Trigger Repeat and Decay, Filter Resonance and Bend, plus the amount of change in Pitch and Duration caused by the two optional footpedals. Of these, the Dynamic Scale offers no fewer than 256 dynamic stages which can be set to match a drummer's individual playing style, while the footpedal control of duration is especially good for hi-hat parts, as it allows a much finer degree of control over the length of a sound than the standard open/closed pedal.

The second set of additional parameters governs a second envelope which can be routed to give control of Pitch, Filter, Resonance and Pan, with programmable Attack, Duration and Decay. The third set deals with the LFO, which can be similarly routed. The complex effects which can be created using these parameters include auto-panning, tremolo and vibrato, but there isn't space in this preview to go into any further detail. Wait for our full appraisal, or listen to an ADD-one for yourself to get a taste of what's possible.

The MIDI pages cover the note and channel assignment of each voice, MIDI pitch and mod wheel assignment, Omni On/Off and Base Channel. In addition, you can set different MIDI parameters for each "kit", or copy the same MIDI setup to all the storage locations.

The ADD-one allows 128 different setups or kits to be stored and recalled. The Chain mode then allows these to be called up in any order and stepped through by a footswitch. You can also call up each kit with a Dynacord Remote Pad (sits in amongst your kit) or via MIDI program changes.

Next year will see the release of the ADD-drive, which will allow you to make and store your own samples, connecting via a seven-pin DIN socket on the back of the main module.

The ADD-one is not cheap. But when you consider how many different electronic drum units you'd have to combine with samplers and effects units to achieve the results the ADD-one gives you all in one box, it suddenly looks like very good value. ■ Paul Wiffen

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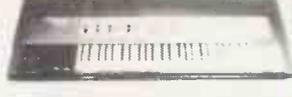
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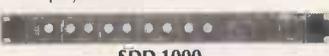
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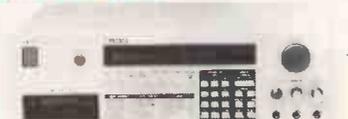


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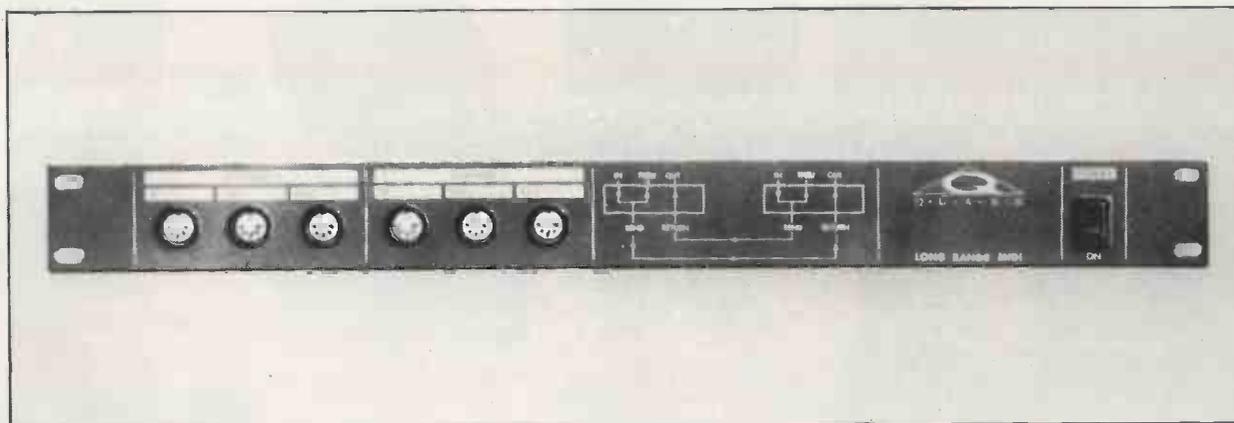
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Quark LRM2 MIDILink



It doesn't take long to work out the benefits of MIDI. And about ten minutes longer to work out its limitations. Most of these limitations – such as not being able to feed two inputs from one output, transmit from more than 15 metres, or merge two MIDI clocks – exist as part of the MIDI specifications, and they're all there for very good reasons.

But that doesn't mean it wouldn't be handy to get over some of these limitations once in a while. A London company, Quark, have addressed a couple of MIDI-related problems in the past – their 448 and 999 MIDILink units, for instance, allow you to patch different combinations of inputs and outputs together without removing any leads or changing connections.

Now, with the LRM2, they're having a go at that other little problem – the 15-metre limitation on MIDI transmission. Although the average five-pin DIN MIDI cable is carefully screened, it's recommended only for relatively short-range transmissions because any external interference can corrupt the complex MIDI signal. Transmit over long ranges and you're risking not only interference problems, but also voltage drops from cable impedance. Result? Missed notes, droning sounds, or loss of patch-change or performance information.

Why would anyone want to transmit MIDI over more than 15 metres? Apart from, perhaps, transmission from remote keyboards (for the poseurs among us), that distance would seem to be more than sufficient. But MIDI isn't confined to keyboard use any more. Traditionally, effects units in a stage setting have been controlled by the mixing engineer, but today they're as likely to be MIDI-programmable units under the control of a keyboard setup on stage. Or maybe the mixing engineer has to start or stop sequencers, or the studio engineer wants to patch bulky MIDI units such as a Fairlight through to a controller in another room some distance away.

So long-range MIDI control may be a necessity. How have Quark gone about making it possible? Voltage and cable impedance can't be changed or the system wouldn't function – but perhaps it would be possible to convert the MIDI standard to something a little more durable, then convert it back again?

Well, this is exactly what the LRM2 unit does. The chosen transmission system is RS423A, one of the computer standards which inspired MIDI in the first place. It operates along a balanced line cable, so greater-

than-normal lengths can be used without loss of signal quality, and it uses screened twisted pair cable, which can be straightforwardly connected to an ordinary XLR socket.

In practice, it's necessary to buy LRM2 units in pairs, each unit having two independent send or receive sections. On the front panel there are two sets of MIDI In/Thru/Out sockets, and these are duplicated on the rear panel (don't attempt to use both front and rear connections at once). On the rear panel there's a male XLR connector for RS423A Send, plus a female XLR for RS423A Receive.

This means a pair of LRM2 units connected by four cables can cope with two MIDI masters (say, a sequencer and a keyboard controller onstage) and two slaves (say, a pair of expanders, or even two stacks of expanders connected by their MIDI Thru ports). Standard screened twisted-pair cable, as in microphone or tie-line cables, can be used, and Quark can supply make-up cables at £8 plus £1.47 per metre.

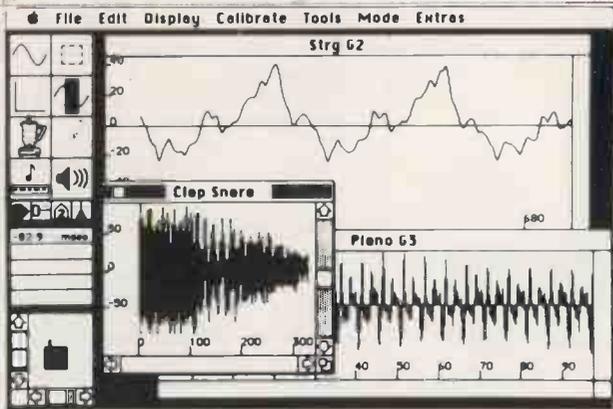
Provided the cables have all three pins connected up appropriately, the LRM2 will transmit all MIDI information quite happily for 200 metres or so. Quark's original LRM1 model was used successfully on a recent world tour, and the production version LRM2 should be reliable under the most trying conditions. Available later will be a single-channel 'DI' version, which has yet to find a suitable power supply – it consumes a battery in ten hours or so.

So, the LRM2 is a real problem-solver for sophisticated MIDI users on stage and in the studio. Existing tie-lines within any studio can be used for MIDI transmission with an LRM2 added at either end, and a stage box will carry MIDI signals quite happily whether they're intended to control remote MIDI/programmable effects, or stacks of off-stage synthesisers.

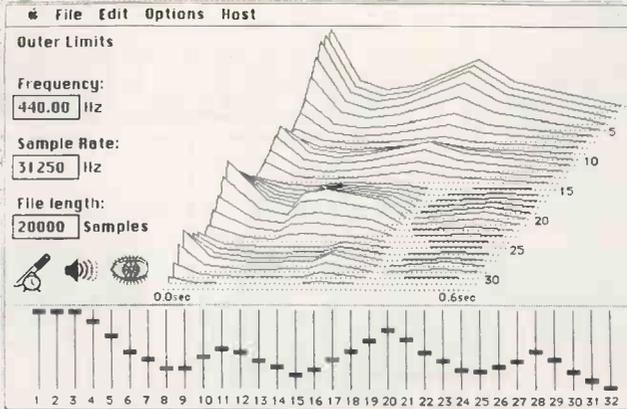
Also on the way from Quark is a Modular Distribution Interface, which allows you to install your own choice of MIDI interfaces, DI boxes and other level-matching devices for studio, broadcast and stage situations. At around £2500 for 12 assorted channels, it's a strictly professional item. But the LRM2, the first commercial unit to give MIDI a long-range shot in the arm, looks much more affordable. ■ *Anzabel Scott*

Price £239 including VAT

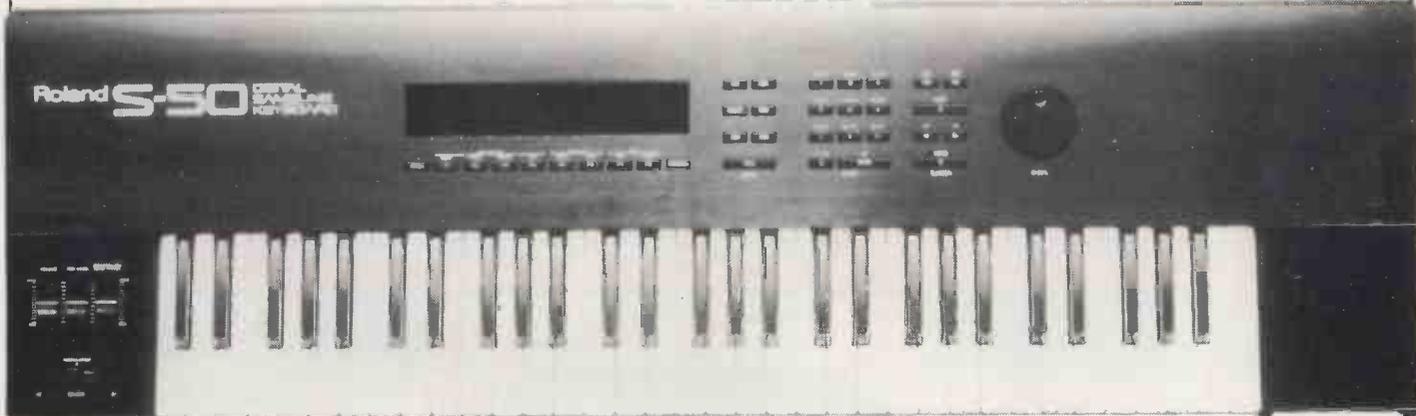
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—the A&R managers. What makes A&R people tick, and what’s the best way of approaching them? Report by Paul Tingen.

YOU’RE AN AMBITIOUS musician. You know that, to have your ambition realised, you’re going to have to deal with people. Lots of them. From musical instrument retailers, studio engineers and pub landlords, to managers, agents, publishers, and...record company executives. Of the last group, the most important person you’ll be dealing with is the A&R manager.

For the uneducated, A&R (it stands for “Artist & Repertoire”) managers are the people who sign new acts, who decide which music is profitable and which is unprofitable, who screen your attitude more thoroughly than anyone else, and who are likely to interfere with your music more than anyone else.

It’s on A&R people that good communication — any communication — be-

tween you and your company depends.

Ask any A&R manager which qualities an artist should have, and chances are you’ll hear a similar story.

“The right combination of music and image, that’s what I’m looking for”, says Mark Dean, who has his own record label, working under the auspices of Virgin. He’s only 25, but already he’s discovered ABC, Wham! and Soft Cell. “The whole thing has to be packaged. Take for example Chris Rea. His songs are as good as George Michael’s, but he has neither his style or his attitude.”

To A&R people, music, image and attitude are the three qualities, and each is equally important as any other. Dean explains:

“I like good songs. I like songs with style. But if a band has no idea about the

image they want to project, if they don't know what to tell the press, then they can forget it. It's all a question of attitude; I believe in arrogance and attitude. An artist should believe in what he's doing."

So, "Can they handle chat shows?" and "Will they make a great photograph?" are some of the questions A&R managers will ask themselves of *you* as soon as you approach them.

Or, as Tracy Bennett of London Records puts it: "There's no point in making a great record and being a fool on TV."

Of course, image and attitude form only part of what's under scrutiny here. Refreshingly – at a time when the two above qualities seem to be more crucial than ever – all the A&R people I interviewed had something (usually a number of things) to say on the subject of *music*. And all of them, curiously, made some comment about music having to be "properly meant". Leaving aside those bands put together purely for commercial reasons – and assuming that relatively few of MT's readers fall into that category – I'll leave it to the A&R managers to stress the important points. The two most important? "Talent" and "ambition".

Take Muff Winwood, Britain's most renowned A&R person. He was a musician with brother Steve in the Spencer Davis Group, became an A&R man for Island, and later had a successful career as an independent record producer, producing Dire Straits and Sparks, among others. Since 1978 he's been Head of A&R of CBS London, one of the most prestigious posts in the business.

Having been a musician himself (like, again refreshingly, many of his colleagues), he says he doesn't believe in the idea of talented songwriters failing to make it as artists because of the toughness of the business, or because they haven't had the required looks.

"If you *have* to write music here (points at his chest), and you have to make your music heard, then there is nothing that can stop you. You just have to do it, just like a sex maniac. You can't control yourself.

"If you're a genius, then you're playing in local bands long before you've left school. You'll do anything to get your music out.

"Compare it with what runners go through. They'll run as many races as they can possibly attend. They don't stay at home. If you're staying at home you aren't a genius, because genius comes out and forces its way through. Greatness rises to the surface. That's why nothing remains hidden."

Food for thought, perhaps, if you're spending a lot of time daydreaming at home with your Portastudio.

As far as Winwood is concerned, "greatness" might be any kind of artistic quality. Since CBS is a big multinational company that sells and distributes records worldwide, they can also keep great instrumentalists like Wynton Marsalis and composers like Philip Glass under contract. They make what Winwood calls "minority MUSIC TECHNOLOGY NOVEMBER 1986

music", and with CBS handling them, they can sell millions of records worldwide – gradually.

"If you are head and shoulders above the rest", Winwood asserts, "your records are always saleable, whether you're a guitarist, a saxophonist or a rock singer. It's like writing or painting. There's always a market for art. The only thing which counts for us is finding artists who last long and who sell millions of records worldwide. And with records I mean albums, because only albums make money."

BUT FOR SMALLER companies, unless they specialise in "minority music", this approach is simply not feasible. At London Records, a smaller company set up by Tracy Bennett and Roger Amer, formerly of Phonogram, maintaining an impressive track record is of great importance. Every record London release *has* to sell, and that's that.

Bennett, the man who discovered Bronski Beat, explains why: "A track record is the ratio of the number of singles you've released to the number that have charted. A&R people live and die with their track record, because if it's too low, you're finished. Mine is one of the highest in the business, and it has to be, because as a relatively small company we just can't afford to dump the market with several singles and then see which one of them happens. Making a single and promoting it is too expensive for that."

But regardless of what a specific company is after, be it worldwide album sales or instant hit singles, "talent" or "arrogance", how do they find the artists they want? Through what procedures do they contact the people who are going to bring them fame and fortune? In other words, how do they find *you*?

To begin with, *you* should know something about *them*. The heads of A&R at CBS and London Records each have four people working under them in their department, despite the difference in their companies' size. Winwood calls his team "A&R men", Bennett "talent scouts". But Mark Dean works alone, and John Hollingsworth of WEA calls himself an A&R Manager, working together with four colleagues under Head of A&R, Matt Hole.

At CBS and WEA, both large multinational companies, Winwood and Hole are in charge, and every major decision has to go through them. Most of the fieldwork is done by their subordinates.

Winwood: "They scan the hundreds of tapes we receive every week, and make appointments with bands. When they find a group particularly interesting they come and talk with me and play me the tape."

Record companies have contacts all over the country. They pick up tips from lawyers, publishers or managers, and have their informants in various places to keep an eye on local scenes.

For Tracy Bennett, it's his talent scouts which provide him with a lot of ground-level information: "They go out and spend ▶



Tracy Bennet, London *"The obvious thing is to put four songs on a demo-tape, make a presentable biography, and send it to a record company. That's the usual way, and sometimes it works: Tears For Fears came through the post."*

their time in clubs in London, Belfast or Manchester and get to know everyone. So when something does evolve, hopefully we are there. A kid lately wrote to me from Manchester asking me for a job, and he listed 22 local bands. I went down to Steve's office and said 'Manchester' and read out those 22 names. He knew 20 of them. That's pretty good considering they were very local bands."

Winwood: "Normally, if a band is of any importance, we are aware of its existence long before their demo-tape reaches us."

If all this sounds to you as if Britain's aspiring pop industry is trapped in a web of record company spies and informants, then you're probably right. Remember that this is big business, and that record companies are dependent on *you* to make their millions. So when you start to spread your wings and/or display a commercially viable talent, each label wants to be the first to get hold of you, before any of the other companies can get a slice of the action.

IF YOU HAVEN'T, as yet, got the hounds of the major record labels sniffing round your feet, you still need to know how to get your name, your act, and your music noticed.

Let's say you've just finished your demo-tape on your Portastudio in your front room (whatever Muff Winwood might say). What do you do? How do you

make the record companies find you?

Tracy Bennet sighs when I put the question to him and answers: "There are a million and one routes. I mean, how do you become President of the United States? Do you become a film star or do you first try to win the local elections? There are so many ways of doing it. The obvious answer is: put four reasonably recorded songs on a demo-tape, make a biography that's presentable, send it to a record company and try to get appointments with them. That's the usual way, and sometimes it works. It worked for Tears For Fears. They came through the post."

Muff Winwood, however, doesn't bother with biographies or photographs in the first instance.

"I only listen to the demo, and if I like it I go and see the band. Yesterday I was with a band, at their home in a street, and they played for me in their garage."

A demo-tape can be recorded on four-, eight-, 16- or 24-track. Usually a reasonable eight- or 16-track recording, which gives a good idea of the atmosphere and potential of your music, is sufficient. A four-track recording that gets the bare bones of a song across might do as well, but if it's very basic, beware, because you end up relying on A&R managers' skill to listen for the content of a song, not its form.

And Tracy Bennet warns: "I wouldn't rely on any A&R manager's abilities, purely because there are 150 singles released a week and only four or five happen. Therefore the people who're signing groups are not exactly good at their job."

Which only goes to illustrate one basic rule about the record business: there are no rules. In the end, getting a record contract could end up like reinventing the wheel.

It *does* help, though, to stick some background information about yourself with your tape, plus a photograph or three and some reasonably tasteful packaging, if only to give the label some clue as to your attitude and possible image.

After you've sent your stuff (including a phone number, of course), don't just sit and wait - phone to make an appointment. Be confident, cocky, arrogant - whatever it takes. John Hollingsworth's scouts see everybody who phones. Having your tape played and listened to while you sit there with an A&R person in an A&R office obviously increases your chances of having your music *understood*, if nothing else.

Before you go, make sure you and your band have a clear vision of what you want. Which producers do you want to work with? What are you trying to convey with your music? Do you want to be a political band, or the next A-Ha?

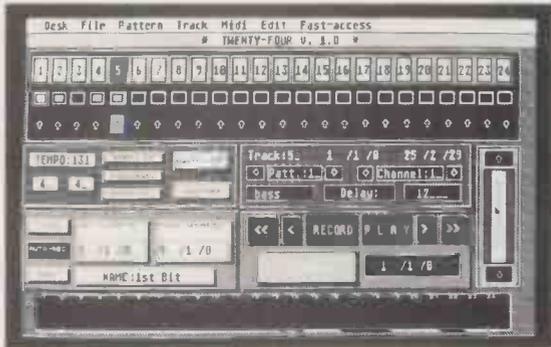
It also helps to sift out which record companies suit you and which ones don't, because they all work differently and deal with different kinds of artists and markets. Have a look at the charts and compare the different labels and their artists.

Tracy Bennet, for example, claims he's into "genuine music", and with Bronski

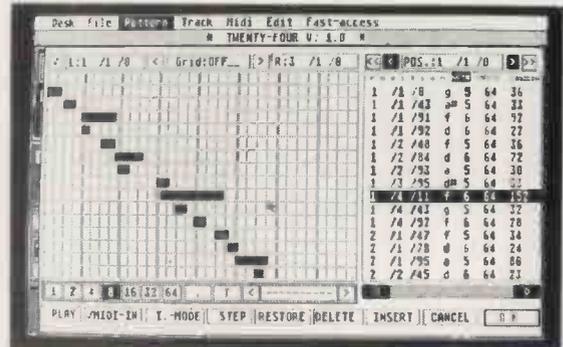
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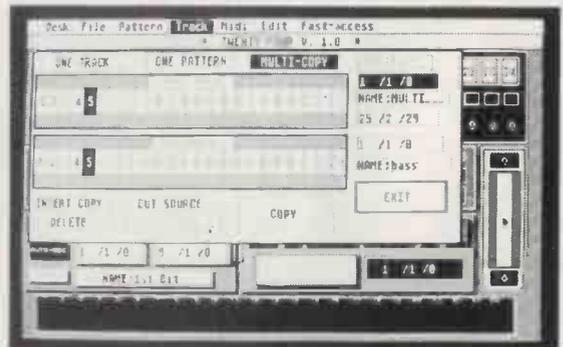
Main Screen



Grid Manipulation



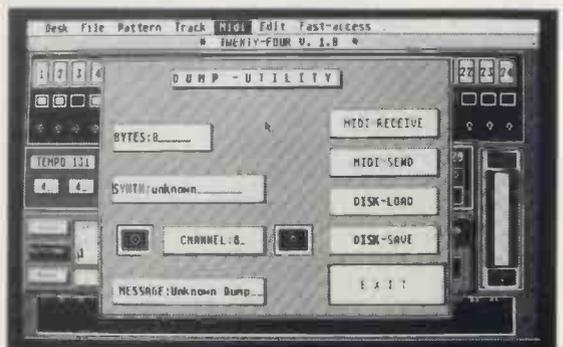
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► Beat, The Communards, Blancmange and the Fine Young Cannibals under his wing, you get an idea of what he's talking about.

John Hollingsworth wants "to present more controversial music to a wider audience than it could get through an independent"; to prove his point, he's signed semi-political band Red Box and Dutch feminist singer Mathilde Santing.

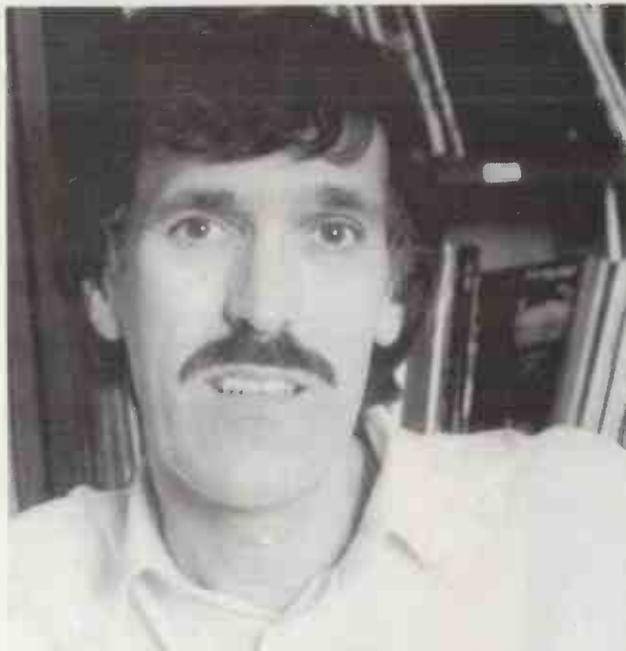
You might even try the same record company more than once, sorting out the different people who work there.

It's handy, of course, if you manage to get straight to the top and see someone like Winwood at CBS. But unless they've heard of you and have an interest in you, it's unlikely you'll get to talk to them straight away. And these people employ secretaries who tend to be pretty tough, especially after they've discovered you're offering a tape. But you can always try.

Another method is not to send your tape first, but *start* with phoning and make an appointment to present your tape and yourself face to face. Or do it the way an American salesman would: phone to get yourself noticed, send your tape, and phone again.

Muff Winwood, CBS

"I don't like signing a band for a few singles; I'd rather sign a band which I think will last a long time... If the first album doesn't happen, we keep on supporting the group."



IN REALITY, THOUGH, all these approaches are relatively unimportant compared with the music you're presenting, and the buzz which you've created. Tracy Bennet hits the nail on the head:

"The thing is to *force* the attention of the record companies on you. The best way of doing that is to get a great demo and then not to rely just on that, because we get hundreds of tapes sent to us a week. You've got to have something else. You can do it like Sigue Sigue Sputnik – get the image together and the friends, create a hype. Or get the local club scene happening and create a live following. Or get a good manager. They help a lot, but I don't think there are a lot of good managers in this country. If I get a call from a good manager, I'll go and see him and listen to the bands he wants me to get interested in."

OK. So you've taken one of the routes suggested above – perhaps a combination of several – and been in one A&R office and stirred some interest from one record company. They've even bothered to phone you back, which is rare and always a good sign.

What happens next? As ever, there are various options. Your record company might show interest, yet still be unsure whether they actually want to sign you up. A common procedure at this stage is that you may get given a couple of thousand pounds and told to come back with a better demo. Usually the label will take an option on that recording (it in fact becomes their property), though they are of course aware of the risk that you can make a copy and play it to a rival company.

This kind of "second demo" recording gives the label an idea of what working with you will be like. With luck, it will also give them more insight into the potential of your music. Naturally, it should also teach *you* a lot about the record company as well, and you might decide, suddenly, that you don't like the atmosphere of the label, or that you wouldn't trust the A&R manager to buy you a quarter-pounder.

If, on the other hand, your initial demo gives the company sufficient idea of what your music is about, the first meeting is followed by several others, again to explore what both sides want, and to see whether you can work with each other. Sometimes a record company and an act fall out because the label can't work with the group's manager. A&M Records, for example, dropped the Sex Pistols because they didn't think that they could work with Malcolm McLaren.

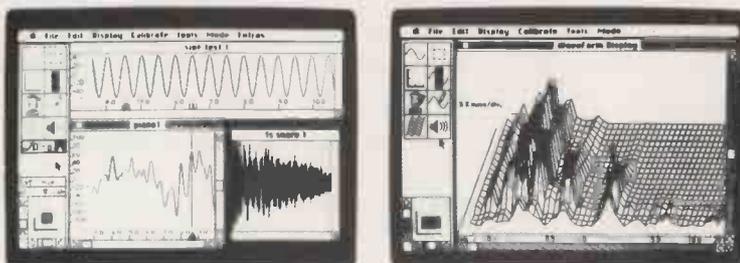
As soon as it starts to look as if a contract may be looming, a record company will usually give you the names of various independent lawyers to help you with negotiating. This is an expensive thing to do, and if for some reason the contract doesn't happen, you can end up facing some pretty fat legal fees that need to be paid.

But whatever you may face if things go wrong, it's better than being fleeced by a record company into signing your life away for a pittance. And in any case, most record labels these days simply don't attempt to blind new signings with solicitors' jargonese and endless quantities of small print. They *know* contracts have a profound impact on an artist's life, and they want to make sure you understand what you're signing, rather than risk a judge ruling the contract null and void because you clearly had no idea what the contract was about.

Most long-term contracts sign you for a period of between five and eight years, or at least give the record company an option on your work for that period. But they can still drop you after releasing three singles and not put out anything else. A long-term deal is almost always preferable to a short-term one, so it's important that a company believes in you enough to stick ►



The Emax

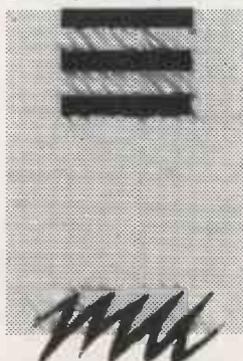


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Muff Winwood says that staying with a band is part of his policy in general.

"I don't like signing a band for just a few singles. I'd rather sign a band which I think will last a long time. Anyone who signs with us always signs for an option of 10 albums. If the first album doesn't happen, then we keep on supporting a group.

"Take Prefab Sprout. When they came here a couple of years ago, I knew that success was a long-term matter. But I loved them and had them make a very cheap first album, so that they didn't lose too much money. Then came the second album, *Steve McQueen*, produced by Thomas Dolby, and again we were very careful with our budget. That sold well over 100,000 copies, but we still didn't really break through. Now the point is to get Prefab Sprout a Top 5 hit single, and then sell a million albums a year. And I will stick with them until we've achieved that."

Tracy Bennet tells a similar story.

"We sign an act for eight years, with options all down the line. Usually we start with releasing a couple of singles or a mini-album, just to see how it's going. Then we have options to release more, so we're roughly in control of the act's career all the time. We can pull out at any stage, though so far we haven't actually dropped anybody."

THE OTHER THING about a contract is that, unless you hand the company a finished recording which they can then simply release and market, it'll get you advances for recording, equipment and often day-to-day living. These advances will be deducted from your royalties once they start coming in, so you won't see any money from your records until they've been paid off. Advances can add up to very large sums indeed.

Winwood: "From the moment we sign a group, it means an investment for us of a quarter of a million pounds. Count it out: the livelihood of a band and its manager, some decent equipment, and organising a tour together will cost us at least £100,000. Recording an album requires the same figure, and that's not to mention the video clip and all kinds of other expenses."

All this is usually counted as part of an advance, apart from the promo video, the cost of which is usually shared between label and band.

London Records have a slightly different policy from CBS.

Bennett: "Our advances aren't too wonderful. We don't go around throwing lots of money like CBS. But our royalties are the highest in the business. Depending on what act, we usually give the top-rate Phonogram royalty, which is about 10-12% of the retail price."

The actual amount of your advance and the budgeting for recording, marketing and publicity relate directly to the number of records a company expects your act to

sell. And all kinds of factors make their presence felt here. What kind of market will the label aim you at? Teenagers? The clubs? A "serious" audience in the 25-30 age group? What kind of producer will be engaged, and which video director? The list goes on.

Few aspiring musicians realise this, but it's at this "post-contract" stage that the A&R person who signed you starts to play an even more crucial role than before.

But the A&R managers' position here is an ambiguous one. On the one hand, they represent the record company to you and will bother you with commercial considerations at moments when you least want to hear them. On the other hand, they're your representatives within the company, lobbying for you, trying to get the budget as high as possible and, if they respect you, defending your artistic freedom.

John Hollingsworth of WEA is part of a new generation of A&R managers. He's 25 and, after a history of working for independent labels like Cherry Red, he started working for WEA two years ago. As part of the A&R team working under Matt Hole, he's well aware of his delicate position:

"As an A&R manager, I'm responsible if things go wrong. One of the paradoxes of working in a large multinational company is that when a group is successful, everybody wants to be part of the success, so you have to make sure that everybody knows a band is yours and that you did the work on them and that the credit comes to you, because the people above often try to steal the credit. On the other hand, if things go wrong, they always end up on *your* shoulders, even if they weren't your idea. It's part of the apprenticeship that you have to learn to take shit all the time.

"The system at WEA is that when you sign a band, you're personally responsible for everything to do with them. You're the label manager, you're the artistic director, you're everything the band needs."

So even if you're lucky enough to have stumbled across an A&R manager who really believes in you, and even if they've managed to persuade the whole A&R staff to give them a bonus for signing you, they've only won a battle, not the war. So have you.

John Hollingsworth again: "I have to consult lots of people, because I have to get money out of them. No A&R man gets a blanco budget. Only the A&R department has an overall budget over which its director has control. If I find the three best bands in Britain and I need a million pounds to sign them all, then I get that million and nobody else will get anything. If I come up with vague plans for a vague band then the money will be accordingly vague. When I sign a band I really have to think of the structure of the company: unless I think that by the time I'm going to put out records I can win all the people over, it's not a very good idea. The promotion and marketing department, the sales department, sales representatives ►

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One aspect of an A&R manager's job which artists *always* see, and which often results in conflict, is the meddling with a band's music and career. If you get signed up, your A&R person will assume the responsibility of a second manager (some A&R people, like Hollingsworth, don't even accept a manager working next to them because they don't want any sharing of responsibility), someone who deals with publicity, maps out a strategy, suggests photographers, helps create the image, gets you on TV and in magazines, and most important of all, has a big say in the direction your music is to take.

Muff Winwood: "A&R people are like executive producers. They're involved in finding the right producer and finding the right studio. They listen to the songs while they're being built up in the studio. They choose the material which gets on the records and give their opinion on the

various mixes and arrangements of songs. Really you're like a producer, only you don't do all the work!"

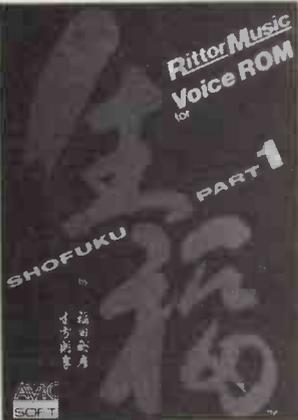
This is why it's so important for a band and their A&R manager to understand each other, and to be able to work together. A certain amount of mutual trust is essential, and it's vital that you and your A&R manager have similar goals.

Hollingsworth: "Artists also want to be successful and sell lots of records. It's only the artistic price they're willing to pay that varies. So be prepared for a hard struggle all along the way."

"As a little boy I always wondered what it would be like to be involved in the record industry and have hit records. Now I'm having hit records and I'm involved in the music industry and I'm a key person for certain people in a large company. And it's not that great. It's a lot of hard work and I don't even earn a lot of money, but I love doing it. I love success. I love working with creative people. I love artists. I'm not very creative myself, so I like to be surrounded by stylists, singers and musicians.

"But the only way to survive in this industry is to be ruthless. I'll tread on as many people's heads as I think is necessary to succeed. That's within the record company - artists are different. Without the artists' trust and support I'll never get anywhere, but the record company respects only ruthlessness, loyalty and money."

Or, as Muff Winwood would put it: "It's a very tough business." ■



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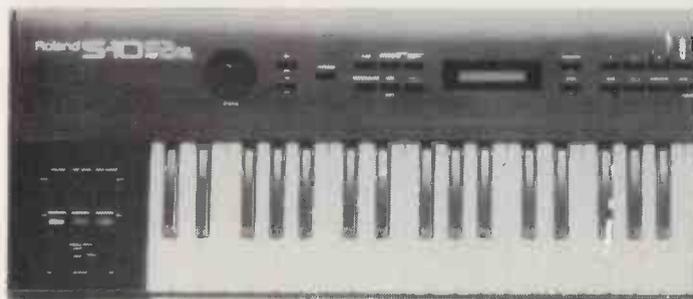
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EMM

KORG DDD1

Digital Drum Machine

It had to arrive sooner or later: an affordable drum machine that offers the potential for hassle-free memory expansion and—in the near future—user sampling of percussion sounds. By Trevor Gilchrist.



QUESTION: WHAT'S WRONG with drum machines? Answer: Not much. Except that, at the moment at least, they offer very little in the way of a future. Aside from the advent of MIDI, most machines put you in a kind of dead end: you spend your money, you set your limits—unless, of course, you can afford something E-mu SP12-ish (which, in its own ways of cost and complexity, can establish equally stifling restrictions).

The main problems lie in the areas of memory and flexibility: While the new Korg DDD1 does little about the actual *quantity* of memory, it does store a greater *variety* of things than most—a topic we'll come back to in a little while.

First, let's face a fact: drum machines are now becoming as viable a means of generating rhythm as any other. But the art of maintaining an audience's interest in an "artificially" produced beat *still* lies in the skill and feel of the programmer. At least, that's where it lies when the machine is capable of doing justice to the inspiration behind a song. Sadly, most "affordable" drum machines are just not up to it, and push out a strange compromise between the initial idea and a machine's vague interpretation of same.

Thankfully, the Korg refuses to compromise in almost all respects. The name DDD1 actually stands for Dynamic Digital Drums. And in the interest of convenience—and because it's arguably the most important new inclusion on an affordable drum machine since the power supply—we'll start with the dynamics.

What are dynamics? Well, *you* are dynamic. The harder someone hits you, the louder you'll scream. In the same way (though with appreciably less discomfort), the keypads of the DDD1 have a dynamic range which allows the programmer to "play" the machine more like

a kit during recording. The harder you strike the key, the louder that particular instrument is recorded in the final pattern. Snare, cymbal and hi-hat parts, in particular, benefit from this more realistic recording method. The life that drum machines have lacked in the past is immediately apparent in finished recordings.

The Korg's dynamics are flexible, allowing a choice of five different dynamic envelopes to be selected. This determines how the level of volume changes with the strength of key touch. Selecting them couldn't really be easier, the system being the same as for selection of each of the DDD1's other functions, which I'll be covering in more detail later on.

Suffice to say, though, that this dynamic element works well, providing ample opportunity for expression—previously a rather neglected area in this branch of technology—and a whole new perspective on the art of programming. The process is more immediate and less laboured, which means the resulting patterns are truer to the original inspiration.

OK, so SP12s, AHB Impulses and Linns have all featured dynamics in the past. But they've also all featured high price-tags, and the Korg is really the first decently affordable machine to provide such a feature.

But not content with this dynamic improvement, Korg have provided a fistful of other functions on the DDD1 that make up a very flexible percussion system indeed.

To begin with, the front edge of the machine has four ports to take ROM memory cards. Not much thicker than credit cards, each one of these carries a selection of voices that can be assigned to the keypads on the face of the machine.

The basic keypads—minus the cards—each represent

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► “A clear matrix chart on the front panel lists all the machine’s parameters; it’s divided logically into six modes, and each mode is sub-divided into eight functions.”

► a “standard” kit or percussion sound, 14 in all, and have each been allocated a letter between A and N. These basic 14 sounds act as the building blocks for your programming, and there’s really nothing especially striking about the bass-drum, snare, hi-hat, tom arrangement except, of course, for the dynamics. Insert a ROM card into port No. 1 and the voices it carries can be freely assigned to any of the 14 keys.

There’s more. Not only can you have up to four of these cards to choose between when assigning voices to pads, you’re also presented with an extremely effective voice-tuning facility, control over voice decay, and the

ability to assign the same voice to every one of the 14 pads at different tunings for, say, melodic tom patterns or huge percussion ensemble effects.

In addition to this, the maximum output level of each instrument can be altered, as can the touch-sensitivity of each individual pad.

Programming

THIS FAR, at least, Korg seem to have got their act together. The DDD1 gives programmers the opportunity to start off by writing a far more realistic-sounding pattern using the machine’s dynamics, and then to chop and change the voices that feature in that pattern as the urge takes them.

For example, let’s assume you’ve written a basic bass-drum, snare and hi-hat pattern. You don’t like the sound of the bass-drum so you alter its tuning and decay. The tuning covers a useful 127-steps-to-the-octave range, but you’re still not happy, so you insert one of the ROM cards and step through the choice of (say) Fusion,

Electronic or Rock bass-drums, altering the tuning as you go, until the sound is right.

You can now do the same for the snare and hi-hat parts until the whole thing is as you like it. If you don’t like the way the emphasis falls on certain snare beats, you can simply erase the offending notes and re-record using different dynamics.

Dipping into the pool of Korg voices, you can then proceed to add percussion parts, china cymbals, splash cymbals, special effects (gunshots, breaking glass, cash registers and so on), until you reach either the threshold of 249 notes per pattern, or 12 instruments occurring on a single beat, or until your brain explodes.

And there’s more. Reach further into your pocket and Korg will sell you a 12-bit sampling board which fits inside the machine and allows 3.2 seconds of sampling time to be added to your armoury. Though 3.2 secs doesn’t at first sound like a very long time (and I didn’t have a board to try out), it should prove a more than interesting addition to an already vastly competent machine – even if (as it appears at the time of writing) there’s no means of dumping your samples to an external medium such as RAM card or tape.

But there’s still more. One of the real pains about using drum machines (and this applies to units spanning the entire price range) is the way it inevitably involves hordes of multi-function buttons. Getting into the process of recording can often be a real chore. On the DDD1, such buttons are, thankfully, not so inevitable.

Instead, there’s a clear, simple matrix chart on the front panel which lists all the machine’s available parameters and functions. The chart is divided logically into six modes, and each mode is further sub-divided into eight functions or control parameters.

Accessing these is simplicity itself. You just use the Mode Select key along the bottom of the chart to enter the mode you want (Pattern Record, Pattern Edit,

Instrument Setting, whatever), followed by the relevant function key along the side to select the parameter.

Having accessed the parameter to be altered, whether it be tempo change, instrument decay or whatever, a data slider – or the +/yes, –/no increment keys – are used to adjust that parameter's particular values. The machine's bright blue, 36-character LCD conveys (almost) all the information you're ever going to need, and is quite a friendly little soul with plenty of "OK!"s and "ARE YOU SURE?"s to guide the forgetful and the insecure.

Additionally, there's a lot on the DDDI that hardly needs mentioning, simply because it corresponds closely with what everyone has come to expect of drum machines. Old friends such as real-time and step-time recording options, a wide range of available time-signatures, Tap Tempo facility, Swing and Resolution (quantisation) parameters, Erase, Copy, Append and linking functions...all of these are fairly straightforward, and have been included by Mr and Mrs Korg on their new baby.

As far as memory goes, the machine will hold up to 100 patterns (from 00 to 99), the length of each being variable between 1 and 99 measures (or bars). The maximum number of notes that can be written in any one pattern is 249, so those with a complex bent (or a bent complex) should be well catered-for.

Ten songs can be stored internally, with each accepting up to 255 parts. Now a "part", in the case of the DDDI, can mean a single pattern or a whole song (one of the other nine). So Song 2 might be made up of Song 6, Song 7, and Song 1, plus 252 further complete patterns. Nice one.

Alternatively, the DDDI's entire memory can be transferred onto a RAM card (there's another port for this on the front edge of the machine) or onto tape.

MIDI

MIDI ON the DDDI fulfils three separate functions: synchronisation of patterns, dynamic triggering of individual sounds, and control of tuning and decay.

The DDDI transmits and recognises the MIDI clock, plus the associated Start, Stop and Continue commands. So it can be used as either a master or slave device in conjunction with MIDI sequencers and/or other drum machines.

It also implements MIDI song pointers, so with the help of other machines which have this facility, you can start synchronised playback from any point in the song. This means you don't actually need to put your drum part onto multitrack tape in the studio; by keeping it in sync via a SMPTE/MIDI converter (like the Roland SBX80 or Fostex 4030), you can rewind and start the tape from any point, and the DDDI will know where you are and start with the right pattern for that point in the track.

Individual sounds on the DDDI can be triggered via MIDI, with dynamics being transmitted as MIDI velocity codes. So you can use a MIDI keyboard to program drum patterns or even sequence a keyboard dynamically from the DDDI. The actual note assignments can be set for each sound across the MIDI note range 25-71 (C#0 to B3 on most keyboards) and reception and transmission of these notes can be disabled – vital if you're using MIDI just for synchronisation.

The rest of the MIDI note range is used to control tuning and decay of sounds. Values below note number 24 control the decay, with maximum decay on note 0 and the shortest on 24. Not that many keyboards actually go this low, but several of today's sequencers

can specify notes in this range, so you're able to use this facility for step-time programming.

MIDI note numbers 71-96 are used to control tuning. This is the same range used by Sequential, so it should be possible for the two companies' machines to communicate tuning changes as well as trigger each other's sounds.

Both the decay and tuning levels apply only to sounds (ie. assigned note numbers) being held in the middle range (25-71) when the tuning or decay notes are sent or received.

All in all, the MIDI on the DDDI mirrors the programming flexibility of the rest of the machine, making itself useful in several different areas. But I'd like to have seen the ability to put different sounds on different MIDI channels to give a bit of extra flexibility with simultaneous multiple tunings and decays, even though this is something most programmers would miss.

Can the DDDI possibly have anything else to offer? Well, when the machine is in Assign mode, a further three options are available to decide how you want your chosen voices to sound.

"Poly" allows each instrument to sound out to the full – layering up to 12 complete sounds on top of each other for any given beat. "Mono" mode does the opposite, cutting off any previous sound the moment a new key is tapped. Lastly, an "Exclusive" status can be assigned to selected instruments that should not be sounded at the same time, such as open hi-hat and closed hi-hat, or mute and slap conga sounds when using ROM cards.

Verdict

THE THINGS that really make this machine special are its dynamics and its superb flexibility. The sounds themselves are all digital samples, and range from the ridiculously enjoyable – all of the cymbals, most of the bass-drums, snares, toms and special effects – to the ridiculously unconvincing, like the bongos and a few of the simpler hand-held percussion instruments like, of all things, the tambourine.

Tuning saves most of the lesser sounds, but you have to remember that I only had access to five memory cards, which represents only a small part of Korg's ROM library (there are about 30 altogether).

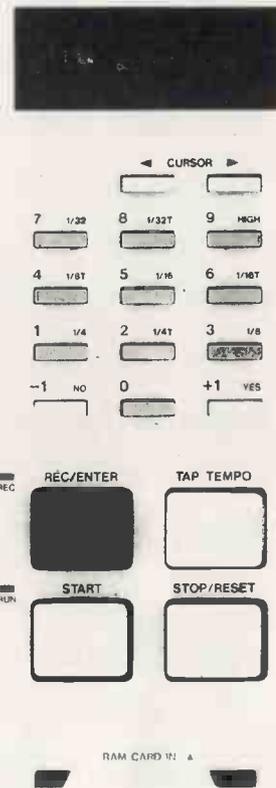
Put everything together in a pattern and the resulting sound is very impressive. Most of the instruments are

sharp and strong, becoming more so once you've got accustomed to playing the dynamic pads, and with programmable Roll and Flam controls, the flexibility of the DDDI sound is more than remarkable.

An inadequate interfacing section could have let the whole show down, of course. But Korg have thought of that, too, so in addition to the MIDI implementation mentioned above, you've got eight separate (and assignable) audio outs, an audio in, trigger out, and so on.

Flexibility is the word, logic was undoubtedly the guideline, and a very impressive drum machine is the result. The DDDI won't harm the lowest end of the drum machine market, but it should certainly pose a serious threat to just about everything else around... ■

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words with

THE WIZARD

He was a heavy metal fan, a dancefloor addict, and a mediocre keyboard player in a mediocre band. Then '19' shot Paul Hardcastle to overnight stardom, and a string of hit singles and tv signature tunes has followed.
Interview by Tim Goodyer.



Photography Tim Goodyer

PAUL HARDCASTLE IS a busy man these days. Apart from recording a new theme tune for *Top of the Pops* – now released as a single, 'The Wizard' – he's been occupying himself with film work, television commercials and taking delivery of the UK's only New England Digital 16-track Direct-to-Disk recording system.

Hardcastle is best-known, internationally, as the man who made '19'. The single, released in the spring of '85, not only made his name, but also left an indelible mark on contemporary pop music and the way it's made. '19' employed a compelling dancefloor TR808 drum pattern and a strong MiniMoog bassline, over which Hardcastle skirted round the problem of a vocal with a found-source narrative. The narration was taken from a Channel 4 documentary on the Vietnam war called 'Vietnam Requiem'. But more consequentially in musical terms, it employed one of technology's latest tricks: sampling.

Although the n-n-n-nineteen style of stuttered sample has now become a cliché, it added momentum to the growth of sampling as a technique. And the track

itself remains high on Hardcastle's own playlist.

"'19' is one of the songs I still like to pull out now and again and give a listen", he admits. "I think it's still my favourite record, not because it sold, but because I can still sit down and enjoy listening to it and watching the video."

For Hardcastle, the route to '19' began with a short-lived band called Direct Drive. A couple of singles emerged, courtesy of Charlie Gillett's Oval label.

"I started playing around the end of '81 with an old Korg 700", Hardcastle recalls. "I was into dance stuff at the time but before that I'd been listening to Hawkwind, Black Sabbath and Deep Purple. I saw this ad for a keyboard player in *Melody Maker* and went up for it. I really was the pits then, but I'd put some things down on tape and they liked my ideas and my approach, so I got the job."

"I stayed with them for seven or eight months, then myself and the singer split and we became a group called First Light. We had a couple of singles out on London Records, and that was when I started getting into instrumentals. I was doing all the B-sides to the singles on my own, and

MUSIC TECHNOLOGY NOVEMBER 1986

they were getting more attention than the A-sides."

A dispute with London resulted in the formation of Hardcastle's own Total Control label...

"The first single we put out was a cover of D-Train's 'You're The One For Me' which got to 41 in the national charts – and that was only bad luck due to poor distribution. I then put out a record called 'Rainforest' on Bluebird which, again, stopped at 41, one place away from getting at least five Radio 1 airplays."

By this time, Hardcastle had become an attractive enough proposition for the Chrysalis label to approach him. In contrast with the unhappy association with London, he found the attitudes at Chrysalis much more to his liking – and to his advantage.

"I took them '19' and said: 'there's my single!' One bloke there raved about it and it was through his enthusiasm that everyone got behind it. They released it and suddenly it was everywhere. I don't think they really took it all in until it was over. It went to number one here, and we had 13 number ones in all. The only place it didn't make it was Italy, where it stayed at number two for five weeks – I still don't know which bastard kept it off."

THREE-AND-A-HALF MILLION single sales later, Hardcastle had to face one of the oldest dilemmas in pop: how to follow a successful single. The '19' man needed advice, but ended up getting too much of it.

"It was like 'now your next record is going to be...' In the end I was trying to accommodate everyone, but I'd never do that again. You think you don't want to upset the record company, but that's rubbish because you just upset yourself instead. I think I'd rather upset the record company. One thing I stand for now is doing exactly what I want. Obviously I can't start making ten-minute singles, but as to what's in them, that's mine."

The chosen sequel to '19' was 'Just For Money', a musical look at the Great Train Robbery and the St Valentine's Day Massacre that drew on the talents of actors Laurence Olivier and Bob Hoskins for its narrative. It was a more conventional single than '19', but its successor, 'Don't Waste My Time', was more conventional still. Yes, it was actually a *song*, with singer (as opposed to narrator or actor) Carol Kenyon standing under the vocal spotlight.

Both singles sold well, but neither created the same excitement as '19'. Their creator, though, has a wider overall view of his activities, and isn't overly concerned that he hasn't been able, as yet, to equal the success of the Vietnam cameo.

"I never really saw myself as being like Five Star, who have to have a record out every five weeks or something. I like my
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singles to be a little bit special or a little bit different. Although I'm not berserk on the band, you have a feeling it's an event when a Frankie Goes To Hollywood single comes out. It's not like a conveyor belt.

"'Just For Money' was a bit of a mistake because you need to see the video to appreciate it. If the video had been shown it would have been a massive hit. Everyone who's seen the video says they've totally changed their opinion of it. Making that so dependent on the video was a mistake, but I saw it as a visual thing then. We've won an award for the video, but you can't win 'em all, can you?"

"I think people were expecting a lot more of the same sort of stuff as '19', and I was being told not to do the same sort of thing *because* everyone was expecting it. You can never please everyone.

"When I made 'Don't Waste My Time', although it was a hit people from Radio 1 said 'you're not as adventurous as you used to be, are you?'. Then there were the people who bought 'Don't Waste My Time' saying 'I'm glad you didn't do another weird record'. You're in the middle and you have to make your own mind up – that's the only way to do things.

"I've also been doing a few tracks for films, a couple of commercials, remixes and production work for other people – just exploring different areas. I know I'm classed as dance-based but I've produced records for Phil Lynott and Ian Dury. I don't hold myself in one category. Music-wise I make hard driving beat records, but that doesn't influence what I do with other people's records.

"On Third World's remix I just went into the studio and put all the tracks into

► *"I took Chrysalis '19' and said: 'There's my single!' One bloke there raved about it and it was through his enthusiasm that everyone got behind it. They released it and suddenly it was everywhere. I don't think they took it all in until it was over."*

Record except the lead vocal. After that I became very good at playing LinnDrum hi-hats, bass and snare live, because all I had to go on was the spill on the lead vocal track!"

Extremes have played a large part in Hardcastle's work, and his acquisition of the Direct-to-Disk system being the latest – and most expensive – example. But such luxuries weren't always the status quo, as Hardcastle is quick to point out.

"I recorded '19' on what must have been the cheapest 24-track system in the world; that was the Aces setup. It cost me about ten grand when I bought it and it was the first thing I saved up for ages to get. I'd had it for about three days when I recorded this little instrumental called 'Rainforest' which went on to sell about 350,000 copies in America. After 'Rainforest' I did the album, and that's done ►



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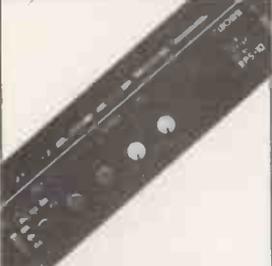
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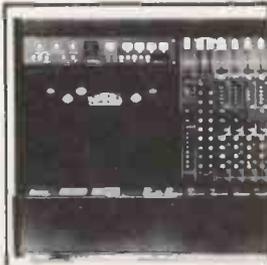
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▶ pretty well. Then I recorded '19' on it. It's funny because you can knock it and say it's the cheapest in the world, but then my Ivor Novello award says I sold more singles than anyone else internationally in 1985.

"So it's *not* all about technology. But, when you get into recording, you always want to go up and up. It's like a bug, a dangerous drug. A hit like '19' helps a lot, but I've ploughed most of the money from that back in now. It's always been my dream to have an extremely good studio setup."

UNCHARACTERISTIC THOUGH IT may be, this understatement leads Hardcastle onto what is obviously his current passion. The arrival of the Direct-to-Disk system itself was pre-empted by the more common Synclavier system which, by his own admission, took a while to get used to. Now the painful learning process is about to be repeated, and it seems unlikely there'll be a users' group to compare notes with...

"I've had a guy from New England Digital in for about three weeks installing it and getting things to go right. This is the only 16-track that's been ordered in this country. It went out at the same time as Pat Metheny's in America, but Sting is supposed to be getting a four-track version."

The Direct-to-Disk system is designed to replace the multitrack tape stage of recording, using Winchester disks to store



a digital representation of analogue signals.

"It's not a glorified sequencer", Hardcastle stresses. "It's a live recorder. The easiest way to describe it is like having 16 Compact Discs, but all with the ability to record, and all with twice the sampling frequency of CD. And even if I sample at half the maximum sampling rate, it's still clearer than Compact Disc.

"The tracks are 13½ minutes long each, but one of the best parts of it is that you can go straight back into play after recording without rewinding, because it's random access memory. I had a sax player over here helping me beef up the *Late, Late Breakfast Show* theme, and he couldn't believe that he'd just played his part and I

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was playing it straight back to him. That's only normally possible with a sequencer."

It's no surprise, then, to learn that Hardcastle rarely has any use for two-inch or quarter-inch tape any more.

"I master straight onto a Sony PCM F1. The only problem with that is you can't edit on it. If I do need to do some edits I can still go across to the Revox without too much loss in quality because it's all been put down so clean. It's usually at the 24-track stage that you manage to build up a lot of noise. If there's none there in the first place, you find it doesn't really hurt at all to bounce onto analogue.

"There are 16 *stereo* tracks on the Direct-to-Disk, not 16 mono tracks. It's like a 32-track recorder because all the

▶ *"I'll be happier when I know how to use the Direct-to-Disk. I hate sitting down with the manual; I just want to get up and press buttons and see what happens. Sometimes I've been pressing the wrong buttons and it's been saying 'Read Error' and all that rubbish."*

things you'd normally want to do in stereo you can do without losing another track. The voices on the Synclavier are all stereo too, and now the sampling's stereo. What New England Digital tend to do is put a lot of facilities on a machine, and then work on the software for a particular area at a time. There are buttons that aren't in use yet like the Chain, Insert and Delete functions. Very soon I'll be able to write a verse and a chorus into the Synclavier and, if I want to try taking one part out and putting it somewhere else, I'll be able to do that like you can on the LinnDrum.

"The Direct-to-Disk uses cartridges to download all the information when you get to the end of the 13½ minutes. There's such an amount of memory to take off – 13½ minutes recorded at that sort of quality takes up around 156 Megabytes of memory. Think how long it takes a micro to load up a program from cassette, and remember that's only around 64K. This is 156 *million* bytes. I've only used it once so far, though, and that was for the *Late, Late Breakfast Show*.

"It's the most advanced recording technology in the world, and it's going to take

▶ *"I do all the drum programming from the Synclavier now. It's 20 times easier and I can do a lot more with the sounds – like adding dynamics, taking an 808 cowbell and chorusing it, or putting it at an octave or a fifth to the original sample."*

people a long time to catch up with that. Now NED are going into the video post-production market."

With so much exciting new technology to occupy him, Paul Hardcastle can only be a happy man...

"I'll be happier when I know how to use it! I hate sitting down with the manual, I just want to get up and press buttons and ▶

► see what happens. Sometimes I've been pressing the wrong buttons and it's been saying 'Read Error' and all that rubbish... There's so much you can do that I'm learning new things every day."

MOVING ON TO the subject of songwriting, Hardcastle seems unable to pinpoint the approach that's given him a string of charting singles. There's no rigid formula he can define that's been responsible for his success, though it quickly becomes clear that without technology, life would be a good deal more difficult.

"I write every way, I mean *every* way. The '19' thing started with the TV programme off a video. 'Just For Money' was when I was thinking about the Great Train Robbery for some reason. I get ideas from lyrics, rhythm tracks, chords, riffs, any little thing that you might think of.

"My songs have been put together in totally different ways. I used to work with Steve Levine and we both agreed that you can go into the studio and just get a sound, like making a Rhodes sound really big and chorousy, and it will sound so great that it sounds like a hit on its own. It sounds silly but it can give you inspiration like a guitarist with an amp; take half the heavy metal guitar players and take their amps away from them, and they won't have half the inspiration to start doing these 20-year-long solos. I like long guitar solos so I'm not criticising that, but I couldn't come up with bass riffs on a Casio, or a DX7 for that matter, because I don't find them very inspiring. Give me the Prophet or the MiniMoog and it's a totally different thing."

And speaking of inspiring sounds, those TR808 drum noises must have been one of the crucial elements behind '19's beguiling appeal. Yet the machine itself is now

► *"You like the sound of what you're doing and you tend to leave it unchanged for a while. But then there comes a time when you say: 'Hang on, I've been doing this type of thing for quite a long time now', and then it's time to make a change.*

redundant, as Hardcastle uses its sounds as part of a library of percussion voices that issue from his Synclavier.

"I do all the drum programming from the Synclavier now", he says. "Number one: it's 20 times easier; the 808 is the worst drum machine in the world to program. Number two: I can do a lot more with the sounds - I can add dynamics, I can take an 808 cowbell and chorus it within the Synclavier. When you do that, it automatically duplicates that voice. Then I can put it at an octave or a fifth to the original sample.

"I tend to use a bass drum from the 808, a snare from the Linn plus a sample, a hi-hat from the 707, handclaps from the 808

and 707... I've got a whole page of drum machine sounds and a live kit as well.

"If I'm using the sequencer for putting down the drums and I don't like the sound of the bass drum, I can replace it with another one. If it's on track one I can just replace, say, a LinnDrum bass drum with a TR707 bass drum, and that's fantastic.

"I can substitute anything across. If I've got a synthesiser chord riff playing I can drop a guitar sample in instead to see what it'd sound like with a guitar. A lot of the things I'm doing now start off one way and then totally change. I've done a remix of 'The Wizard' that I haven't made electronic; it's more acoustic.

"You find you like the sound of what you're doing and you tend to leave it unchanged for a while. But then there comes a time when you say: 'hang on, I've been doing this type of thing for quite a long time now' and then it's time to make a change. Not a small change like just leaving the cowbell out, but 'Whack!' - change over the lot.

"So now I'm using sampled acoustic drums a lot because I think people are starting to get a bit fed up with LinnDrums and things. What I used to do with the 808 was not take a lot of time or care programming it, but I don't think it makes a lot of difference with an 808 because it's a synthetic drum machine. I used to find the LinnDrum was awful for triplet bass drums, but grab an 808 and suddenly there it is."

But if anything were capable of being all things to all men Quentin Crisp would have a patent on it by now, and so it is that even a Synclavier has its shortcomings. As a result, it sits in Hardcastle's East London studio with a selection of more modest synthesisers for company.

"The one thing the Synclavier really falls down on is piano sounds", Hardcastle admits. "But I love the DX Rhodes - I took the original preset, 11 I think, and fiddled about until I got a little more top on it.

"I've also got a Roland Jupiter 8, the trusted Prophet 5, which to me is still the best analogue synth that's ever been built, and a MiniMoog, or part of a MiniMoog anyway - I got rid of that horrible keyboard, and now I play it from the Synclavier or DX7. A friend of mine from a studio called Soundsuite who builds the UMI converter built one for me.

"And I got one of the new Korg DVP1 vocoders recently, though I haven't used it properly yet. Other things have been put to one side lately to make way for the Direct-to-Disk unit, but when I've got it all sussed I'll have a bit more time to sort things out."

It'll be interesting to see what future innovation deposes the Synclavier from its throne, and captures the imagination of one of music technology's most talented - and down-to-earth - Wizards. ■

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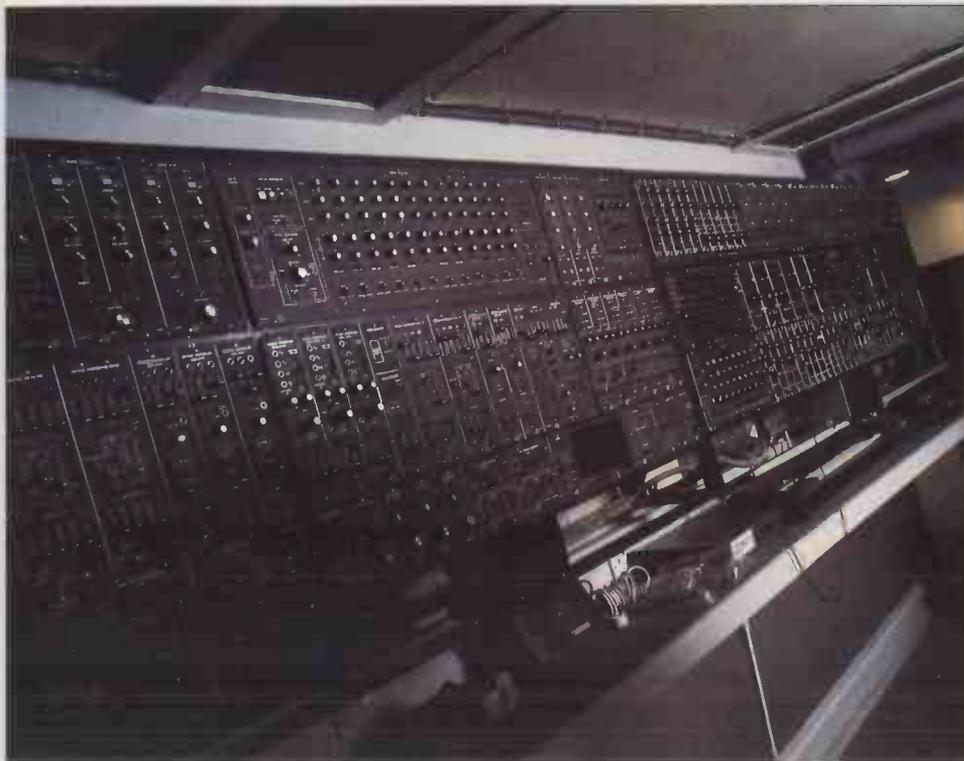


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YARDS AHEAD



Tucked away in one corner of Earl's Court is Lillie Yard, a recording studio whose equipment list stretches all the way from a massive analogue modular synthesiser to the latest digital technology.

Report by Matthew Vosburgh.

TO THE AVERAGE LONDONER, Earl's Court is famous for housing The Ideal Home Show, large numbers of Australians, and similarly large numbers of homosexuals (though not, as far as I know, homosexual Australians). What the average Londoner doesn't know is that Earl's Court is also home to a remarkable 24-track studio with its own programming suite – Lillie Yard.

The studio is owned by two successful film music composers, neither of whom are homosexuals or Australians – Hans Zimmer and Stanley Myers. E&MM (sorry, MUSIC TECHNOLOGY) readers will probably remember Zimmer for his work with Warren Cann under the name Helden; the duo's London Planetarium performance, reported in these pages a few years back, was notable mainly for its use of five Fairlights – they borrowed Syco's entire stock.

While continuing to work with Cann on an occasional basis, Zimmer has since gone on to do a vast amount of work, penning soundtracks for some critically acclaimed British movies like *My Beautiful Laundrette* and Nic Roeg's *Insignificance*.

This makes Zimmer a respected up-and-coming film composer. His partner Myers, on the other hand, is an extremely well-established one, with years of experience behind him, and credits that include *Theme from The Deerhunter* among many others.

With owners like these, it's not surprising that Lillie Yard has been designed with working "to picture" firmly in mind. The facility is equipped for three different video formats (U-matic, Betamax, and VHS), and has both a professional video

patchbay and all the sync devices you could possibly want, like an SRC Friendchip, a Fostex SMPTE machine and a Q-Lock. (Technical Note. The Q-Lock makes syncing your Fairlight to a feature film a slice of Battenburg. It also costs a vast amount of money. I'm not saying what I'd do if I had that much money, but it involves Bananarama, a small tropical island, and a large amount of whipped cream.)

A lot of money's been spent on the audio side, too. Would you believe *eight* different digital reverbs? (That's an AMS, an Ursa Major, a Lexicon, two different Yamahas, two different Dynacords and a Roland.) And that's not counting the two Yamaha SPX90 multi-effects processors.

Make no mistake. When it comes to hardware, these guys are *serious*.

Lillie Yard also has classic MIDI and pre-MIDI synthesisers (including the largest modular analogue system I've ever seen), the most expensive drum machine known to man, and a Fairlight. Most important of all, the studio has a truly *post-MIDI* design philosophy. More on this later.

All this does not, of course, come cheap (it comes at £650 + VAT per 12-hour day, actually). But then, Lillie Yard aren't exactly in the business of cutting corners.

In the flesh, Zimmer is 28, very hi-tech, and has more energy than a Real Roxanne gig. (Technical Note. A Real Roxanne gig generates as much energy as a large nuclear power station, but doesn't kill quite as many people. That's why there isn't a Real Roxanne Exhibition Centre.)

Tell us, Hans, how the studio started.

"I bought the place in '79 but didn't do anything with it until a couple of years ago. Basically my partner and I got a Fairlight, and then we decided we needed a mixing desk, and then a few monitors, and then a tape machine. So you see, it started up as our 'home' studio and it grew from there. It wasn't *designed* or anything like that, it was just *done*, if you know what I mean.

"We've always had friends coming in, but really it was never designed to appeal to anybody other than ourselves; we were just lucky that keyboard studios caught on. Everybody's building them now. It's only since this April, though, that we've started having serious clients here from the big bad outside world."

Since April? Well yes, Zimmer and Myers had a spring-clean which consisted of re-equipping and re-wiring the entire place. In fact, £25,000 was spent on wiring alone. This is partly because the studio was wired for 48-track, so it's now just a case of hiring another 24-track machine and flipping a switch when more tracks are needed. Another reason so much wiring was needed was the size of

the new mixing desk installed – a large and fairly unusual console made by a company called DDA.

“We were guinea pigs with this desk, because no one other than Steve Levine had one at the time”, says Zimmer.

Does it have Total Recall? (Technical Note. Desks with Total Recall, most SSL desks for instance, can remember and “set” the positions of their various knobs and sliders, so they can do the mixdown for you.)

“No, nothing like that. In fact that’s one of the reasons we got it. With all the electronic stuff that we’ve got in here, I wanted the desk at least to be nice and clean, and not *add* anything to the signal. We did think about getting an SSL for a bit, but (a) everybody else has got them, which I think is really boring, and (b) they don’t actually sound that good.

“We found that the more electronics you have in a desk, the worse it sounds. I was talking to Steve Rance (old friend and probably the best Fairlight Series III programmer in the world) about it, and he suggested I go and have a look at this thing (he gestures at the imposing DDA desk). You see, all the stuff that he does now is digital, and he’s found that the SSL is just far too noisy for that sort of thing. I agree. We were doing some remixing here the other day, of stuff that had been recorded on two Sonys via an SSL, and it *was* pretty noisy. This desk is far quieter, and because it’s completely balanced internally, there’s no crosstalk either. And anyway, I needed a very large desk because of all the synthesisers and everything that are permanently coming in.”

The desk certainly *is* large, with 24 fully-equipped monitor channels becoming inputs in remix mode, giving 60 inputs in all. This means the Fairlight and all the sequenced keyboards and drum machines can be kept off-tape until the final mix, saving tracks and increasing sound quality.

“Another reason we chose this desk is because DDA were prepared to do all the mods I wanted them to do. We had them add an extra patchbay, which was a bit of an experiment for them. The one on the far right is not quite standard – in fact there are so many wires going into it that the bottom lid doesn’t fit anymore!

“We have *all* the control voltages for the effects coming up on the second patchbay, which is something I don’t think any other studios have. We do have a lot of effects, and I can get at everything now. A certain amount of experimentation went on with how to label all the sockets. DDA’s idea was to have a book with it all written down, but I can’t expect my people to work like that. We ended up with it all colour-coded.”

The Lillie Yard array of sound manipulators is pretty extensive, stretching past the various reverbs to encompass such things as four dedicated DDLs, two different harmonisers, and all the normal dedicated phaser/chorus/flanger kind of stuff.

“We do a lot of 12-inch remixes here because we have all these toys and effects,

and because we’re able to run everything live in the mix. We had one guy in who had been paying £350 a day somewhere else, but £600 a day in equipment hire. Here, he didn’t have to hire anything.”

And there’s another good reason to have all those different reverbs, as Zimmer explains.

“As you know, we do a lot of film work here, and you do need a lot of gear for Dolby Stereo mixing. Very few engineers know how it works, but really, with Dolby Stereo you’ve got three tracks: the centre track is the main, heart track, and the two side tracks (ie. hard left and hard right) have your echo and stuff on them. The Dolby system then looks at the two side tracks, and anything that’s out of phase between them gets sent to the speakers at the *back* of the theatre, which is how it creates the ambience.

“That means you can’t just have one AMS reverb going left and right, because the Dolby system then thinks everything’s out of phase, and sends it all to the back speakers. To avoid that, you really need a separate reverb for each thing.

“Of course that’s just the short version of what Dolby Stereo does – there’s a lot more to it than that. It does quite a bit of playing with the academy curve – the 8kHz roll-off and stuff. If you listen to a Dolby Stereo mix without the system in, it just sounds *borrendous*, but it’s great for cinemas.

“I do love doing cinema sound, because you don’t have to worry about how it’ll sound on little speakers. They just want lots of bottom, and you can do big things, and proper stereo.”



Photography Matthew Vosburg

▶ **A**way from sound treatment and on to sound creation, starting with drum machines. In addition to the fairly standard Sequential Drumtraks, Lillie Yard also have a Linn 9000. It's a machine with considerable virtues, combining a digital beat-box programmed from small dynamic rubber pads, with a sophisticated MIDI sequencer. (Linn's final product before bankruptcy, the MIDISTUDIO, was really just a repackaged version of this.)

Despite a mammoth price-tag, the 9000 has found favour with quite a cross-section of musicians and producers. And Lillie Yard's Linn has had the user sampling upgrade, which adds to the machine's usefulness as a drum machine considerably.

The multitrack real-time sequencer aspect of the Linn is the cornerstone of Lillie Yard's post-MIDI studio philosophy – something that also requires a fair number of MIDI sound sources to work. Luckily, there are quite a few of these. And whereas the Linn is the brain of the system, the underrated Yamaha DX1 is the heart – its weighted keys make it a fine master keyboard, but it is also capable of generating some uniquely complex and dirty FM sounds of its own. The studio also has a Yamaha TX816 rack (effectively eight DX7s), making its FM capabilities pretty awesome.

There's a PPG Wave 2.3 on the equipment list, though this is "subject to availability", because it's shared with the programming room upstairs. The purely analogue side is taken care of by a Roland Super Jupiter module and a multi-timbral Oberheim Xpander.

Spread throughout the keyboard area are the various bits of the (MIDI) Fairlight. Zimmer has had Steve Rance write some special filmscore software for it.

"You just log all your cues into the Fairlight and it works out on which beat things fall; it's like painting by numbers now – you just fill in the gaps!"

Surprisingly – given the studio's devotion to the latest technology – the Yard hasn't yet been equipped with a Series III Fairlight. I'm told it's in the pipeline, but that the owners are waiting for a few more pieces of the system to be finished before they buy it. Typically, Lillie Yard are thinking of having their cake and eating it, by keeping their old Fairlight when they eventually upgrade.

In the meantime they've bought an Akai S900 sampling module which, with 12-bit resolution and a large sample memory, comfortably handles areas where the Series II Fairlight dare not tread.

The advanced MIDI system forms a strange contrast to the huge black modular wall, which evokes memories of the earliest days of synthesis. Pride of place here is given to an ancient Moog 55 system, which Zimmer bought from Tangerine Dream. It's one of the first synthesisers ever built, and it's a classic. More modern is the extensive collection of Roland System 700 and 100M modules – the sort of equipment responsible

(thanks largely to producer Martin Rushent's enthusiasm) for the most interesting noises on the Human League's album *Dare*. The system is completed by four of the French-made RSF Kobol units (each is a self-contained modular dual-VCO synthesiser) that Depeche Mode are so fond of.

All this (33 oscillators in total) can be controlled with a Roland four-note poly keyboard controller, an MC4 Micro-Composer, or from MIDI via a Roland MPU101 interface. Viewed in conjunction with the MIDI equipment, it is that rare commodity, a keyboard system with the best of everything, and beautifully integrated into the studio of which it forms a part.

Upstairs is a separate programming room, where most of the MIDI keyboards from downstairs are duplicated – another Fairlight, another Linn 9000, another TX816 rack and so on. However, there are some things here that don't exist downstairs – like an Oberheim Matrix 6R module, and a DX7 that justifies its existence because a lot of programmers have their own collection of DX7 sounds on RAM cartridges, which are no use if they've only got a TX816 rack to work with. Master keyboard here is a Yamaha KX88.

The programming room also houses one *very* rare item – an E-mu Alpert modular analogue synth. Now I don't know about you, but I'd *never* seen one of these before. In case you don't recognise it, it's the big silver thing in the top right-hand corner of one of the photographs.

The upstairs room also has an Akai MG1212 12-track recorder, to help people get their ideas together, and a few outboard effects.

All in all, a pleasant programming environment, complete with daylight coming through the skylight in the ceiling. It's also completely wired up to the main studio downstairs.

Back downstairs, the main control room is well thought out, too. It's full of neat touches, like the two large Sony Profeel colour monitors between the speakers, the left-hand one of which shows a video picture of the meters on the multitrack – a way of keeping in touch even though the machine is nowhere to be seen.

"I wanted to hide the tape machines out of the way, so that you don't hear all the clinking and clonking", explains Zimmer. "All you're supposed to hear is the music. Another thing is the heat aspect; everything that makes a lot of heat is behind a partition, and the amps are all in a separate room anyway."

As soon as the VCR starts, the left-hand monitor switches over to video, while the other monitor is normally used to put the Fairlight display up where the engineer can see it. As I arrived, it was being used to show the display of Steve Rance's special Fairlight program mentioned earlier.



The most recent Lillie Yard purchase is the aforementioned Q-Lock, but why did they need one when they already had two perfectly good sync units?

"All the engineers who work on films in this country are used to Q-Lock", says Zimmer. "It doesn't matter if there's a better system around or not, it's the fact that with Q-Lock they can just come in, sit down, and start work. Alan, who does all my film recording, still has problems with the Fostex, because being so used to the Q-Lock, he expects something to happen when he presses a certain button, and it doesn't."

There's been another major addition to the studio recently. A sizeable room on the ground floor, formerly rented out to a photographer, has now been turned into a live room for the studio, making the facility rather more than just a keyboard-based setup.

"We had all these wonderful plans about what to do with the live room when the photographer moved out", says Zimmer. "What happened in the end is that we stuck a drum kit in there and it sounded so great that we're going to leave it just as it is. Everything here is a bit designed by accident, and if that works, great! If it doesn't work, we get somebody clever in to give us a hand."

The live room is also now the home of an Ibach acoustic grand piano, though Hans feels that this now has unfair competition.

"We've just got one of those Roland MIDI pianos, and they sound really good, I mean, they're good enough for 'in the track' any day. You have to tweak the internal sounds a bit, but really they're very good. The vibes in particular – I think there's going to be lots of vibes on everything coming up. We only got the rack-mounting version of it, simply because we don't have space for any more keyboards; everything runs off the DX1. I'm just worried that all my chaps are going to forget how to mic up real pianos.

"Our MIDI is pretty well sorted out

here. Syco gave us one of those M16s and now we have to get the expander for that, because we've just run out.

"It's funny. Every time you do something you think that you're going to over-budget and overdo it, like on wiring. Two months later you've run out and you have to get the guys back to lay a few cables. It never stops.

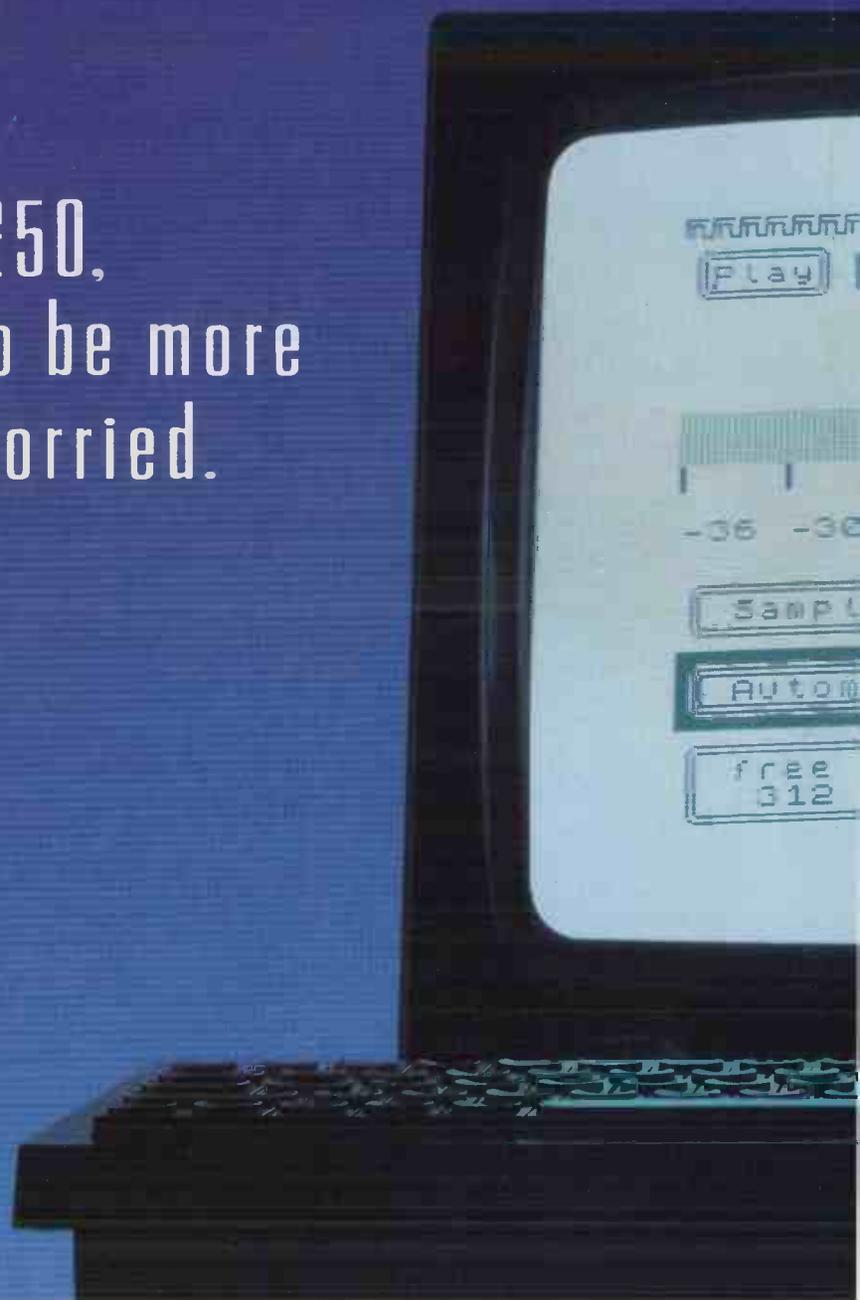
"We get a lot of people coming round here saying: 'We want to build a studio, what's your advice?' And my advice is always the same – don't. It's crazy. I find it hard to understand how a studio which is just there for the sake of being a studio can make money, because you *do* have to buy new gear all the time. Here, the money is also being made through our own music.

"I really never was interested in making this place revolutionary. I just wanted it to be very functional, and to have all the things in here that you normally have to hire in."

So Lillie Yard is just a well-designed, functional studio with more or less everything you'd ever need. For synthesised film work it's pretty unbeatable – the price is probably justified by the Q-Lock and the reverbs alone. The programming room is pretty extensive too, and as it duplicates so much of the MIDI gear, it enables you to get the bulk of your sound-creation work out of the way upstairs, before moving down into the more expensive main studio – an excellent idea, and one that may well become more widely applied.

Overall, I'd say Lillie Yard is one of the nicest studios I've seen in London, and I've seen quite a few. In fact, I think this might be my Ideal Home... ■

At around £50,
Fairlight ought to be more
than a little worried.



While the legendary Fairlight CMI may have to remain a dream for most of us, it's astonishing to see how much the rather more modest sum of £50+ will buy.

Music Machine* from Ram is a remarkable new peripheral that transforms a home micro into a powerful computer music system. It provides most of the facilities you'd expect from a fully-fledged studio system.

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All the samples can be played either from the computer, or from a MIDI instrument.

WERSI MK1

Polyphonic Synthesiser

When we first looked at the MK1, it overwhelmed us with a vast range of programming options. We've since played with it for longer, but will working musicians have time to do the same? By Simon Trask.

THE BIG JAPANESE manufacturers – Casio and Yamaha especially – have brought the synthesiser and the home keyboard closer together than ever. For them, the difference between a home keyboard and a synthesiser has now become one of how the technology is packaged, rather than what the technology actually is.

Which is fine for the sort of economic and marketing structures the Japanese employ, but not quite such good news for European companies – like Elka and Wersi – who have made a name for themselves as manufacturers of quality organs and home keyboards, but who now have to work at break-neck speed just to keep up with the Far East.

Elka are already well known for their diversification into upmarket synths with the renowned Synthex, and have now come up with the EK22 and EK44 analogue and digital synths (both reviewed in E&MM October '86).

And Wersi are now claiming their stake in the action with the MK1 polysynth (previewed in E&MM July '86), and they too have chosen to aim their sights upmarket. As such, it would be reasonable to expect a highly-specified instrument – which, as it turns out, is exactly what the MK1 is.

The Wersi comes in eight-, 12- and 20-voice versions. Lurking beneath its unprepossessing exterior are eight 'internal manuals' (the organ terminology makes its appearance pretty quickly), each of which can be looked upon as a polyphonic synth in its own right, with its own sound which can be selected internally or via MIDI.

Each "sound" on the MK1 can in fact consist of up to four

components, each of which can be a sound in its own right and can be given its own volume level. Routing allows you to send each component/sound to left, right or both audio outputs.

The MK1's layering ability allows you to put together some very effective sound combinations. What's more, it's possible to link together pairs of manuals when playing from the keyboard, to allow even more components to a "sound". In fact, it's when you start layering sounds that the MK1 really comes into its own.

Format

THE MK1 ALIGNS itself with other new synths such as the Prophet VS and the Kawai K3 by adopting the Additive Synthesis approach to sound creation, combined with familiar analogue filtering. Wersi have also included software-implemented effects processing (still something of a new technique), providing onboard flanging, chorusing, rotating-speaker effects, feedback, distortion and "strings" (the latter an "ensemble" effect).

Wersi have provided up to four different waveforms (imaginatively labelled "bass", "tenor", "alto" and "soprano") spread across the five-octave keyboard (which is sensitive to both velocity and pressure, by the way), an approach similar in principle to multi-sampling.

The bass waveform is active over the lowest two octaves of the keyboard, while the other three waveforms occupy an octave each. The bass and tenor waveforms can have up to 32 harmonics apiece, while the alto and soprano have up to 16.

The amplitude value for each harmonic (which has 12-bit resolution) can be set using 16 front-panel sliders. Starting from scratch, it's a laborious process just to define a sawtooth wave (which the manual – or perhaps I should say "user guide" – tells you how to go through). The route for most people will be to modify existing sounds through a combination of additive synthesis and the various sound-processing options that the MK1 has onboard. At present the sounds available for the MK1 aren't plentiful, but according to Wersi, several sound cartridges will be available imminently.

The current selection of sounds includes strings, piano, bass, organ, vibes, guitar, bells and brass – a reasonable selection to begin programming with.

The MK1 allows you to select a single floating split-point, with dynamic allocation of voices to each side of the split. Manual zero corresponds to the right half of the keyboard, and manual one to the left half.

To the far left of the keyboard are sliders for master volume, left volume and right volume (corresponding to each side of a split) and Balance/Solo/AOC. The effect of the latter depends on which function you have activated. Balance allows you to alter the volume level of each component in a sound (which, remember, can have up to four components); Solo allows you to adjust the balance of the top voice and the remaining voices in a chord; while AOC has a similar function in allowing you to adjust the volume balance between the played note and the other chordal notes that are automatically generated in the right



hand on the basis of the chord played with the left hand.

Confusingly, the Wersi's voices are organised in three different groups, going under the guise of DMS Instruments, CV Instruments and Total Instruments.

DMS voices are presets in ROM (20 onboard, a further 20 on ROM cartridge), while CV voices are the same as DMS voices except that they are held in RAM (20 onboard, a further 10 on RAM cartridge) and can consist of a maximum two components compared to the DMS instruments' four. To make a four-component CV sound, you have to link two CV instruments together.

Total Instruments (16 onboard, a further eight on RAM cartridge) are equivalent to performance memories. So this is where you store split information together with volume settings for all voice components, touch-sensitivity and wheel settings, and such parameters as routing and tuning for each sound.

The complete contents of a RAM cartridge can be transferred to the MKI's memory, into either upper or lower "banks", and either of these banks can similarly be transferred to cartridge.

Controls

ALL OF THE MKI's plentiful functions (and there are enough of them, believe me) are accessed through something called a Function Control Matrix, on the right-hand side of the front panel. This has six "levels" which are selected by pressing various combinations of buttons to the right of the matrix display. To see which parameters you are accessing on each level, you have to refer to a clip-on spiral-bound booklet (only the Play level is printed on the instrument itself); it's a far from ideal device on a professional instrument, and is bound to come unstuck (sorry) at some stage or another.

The Wersi's filter section allows you to select between low-pass and band-pass filtering, four-pole and two-pole cutoff, tracking frequency offset, and whether or not the VCF will be retrigged with each note. You can also define a two-phase frequency envelope with four frequency levels and adjustable time span.

Wersi have given the MKI's touch-sensitivity a healthy array of voice parameter assignments. Velocity can be assigned to VCF frequency (with a choice of three scales), volume and "voice" (the latter including attack time, release time, vibrato and detune), while aftertouch can be assigned to vibrato, volume, VCF frequency and pitch. The ranges within which these dynamic effects operate can be limited; in the case of velocity, you can define ranges for the whole instrument and for individual voices.

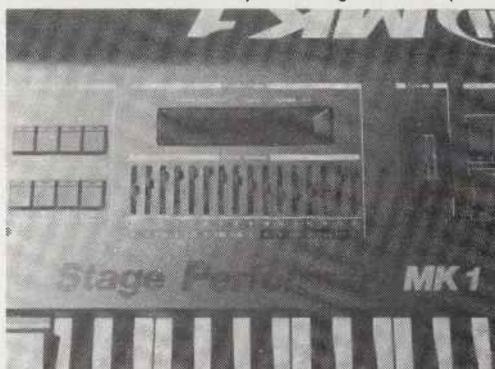
Assignability is also the name of the game with the MKI's performance controllers. Wheel 1, which is centre-sprung, can be assigned to control vibrato (up for frequency, down for amplitude) and/or pitch-bend. Wheel 2 can also be set to control pitch-bend and vibrato, along with any of VCF frequency, VCF resonance and timing for the two phases of the VCF envelope.

Foot control comes in the form of one footpedal and two footswitches. The footpedal (or "swell-shoe", as Wersi put it) can be assigned to control any of volume, VCF frequency and VCF resonance. Both footpedals can be set to control rotor effect on/off (assuming the effect has been set for the selected sound), sustain on/off and "Hawaii". The last transposes all currently-playing voices down a semitone when the footswitch is depressed, and then automatically glides back up to the initial pitch (or immediately returns if the footswitch is released). It's meant, as you may have guessed, to be an imitation of a Hawaiian guitar.

Finally, you can use the two footswitches as increment/decrement controls for transposing the whole keyboard in semitone steps, and/or for stepping through the Presets. MUSIC TECHNOLOGY NOVEMBER 1986

The MKI includes a sophisticated implementation of MIDI Mono Mode, similar to those found on instruments like the Casio CZ1 and Ensoniq ESQ1. Thus each of the Wersi's eight internal manuals can be played polyphonically from a different MIDI channel, and can respond independently to MIDI patch change commands.

In fact, the Wersi allows you to assign a manual (or no



manual) to each of the 16 available MIDI channels – meaning that each manual and the sound assigned to it can be played from more than one MIDI channel. Voice assignments appear to be dynamic, and the 20-voice version which we had for review managed to sound virtually limitless, even when using four-component sounds. At times, it was hard to believe such a wealth of sound could be coming from one instrument.

The MIDI basic channel (on which pitch-bend, controller and aftertouch data are received) can be set to any one of the 16 channels, and in turn assigned to any one of the internal manuals. MIDI transmission and/or reception of pitch-bend, controller codes, patch changes, aftertouch and note data can be selectively disabled.

Overflow mode (familiar now from instruments such as the Prophet 2000 and Ensoniq ESQ1) allows only notes which can't be handled by the MKI's onboard voice capacity to be transmitted over MIDI – allowing a second MKI to be hooked up for a simply huge (ie. many-voice) system.

Verdict

THERE'S NO DOUBT the MKI is a powerful, flexible and full-sounding instrument. It's far from being a half-hearted attempt at grabbing a slice of the pro synth market, and employs some pretty sophisticated technology to achieve its ends. In fact, it's hard to find any one important area in which the MKI's designers have skimped.

If anything, Wersi may actually have built *too much* into their first synthesiser. Because although you can only admire the thoroughness of the MKI's design, it's also difficult to ignore the fact that all that power isn't exactly presented in the friendliest, most easily accessible way. No synth player – no matter how experienced – is going to view that front panel with anything other than mild bemusement, even though it's the gateway to a huge archive of new sounds. And experience teaches us that instruments which overwhelm their users don't get used to the full.

The working musician who's in a position to afford the MKI may not have the time to uncover all its features, and that's something of a pity, when you consider how sophisticated the Wersi really is.

A promising first entry into the synth market, then, but a machine unlikely to achieve classic status until its facilities are presented in a more easily understandable way. ■

Prices MK1 eight-voice £1653, 12-voice £1850, 20-voice £2337, ROM cartridge £49, RAM cartridge £45.50; all including VAT

More from Wersi Organs and Pianos, Royal Oak Centre, Purley, Surrey CR2 2BG. ☎ 01-668 9733

► "Confusingly, the Wersi's voices are organised in three different groups: DMS Instruments, CV Instruments and Total Instruments."

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FOSTEX E16

16-track Tape Recorder

For the past few years, the Fostex B16 has been the centrepiece of thousands of small 16-track studios all over the world. Now all that is set to change with the introduction of the machine's successor, the E16. By Paul White.



EVER SINCE THE B16 was first announced, I've been half-expecting a competitor to appear. Now, more than two years on, Fostex have supplanted the B16 with the E16, and still the competition hasn't emerged.

There should be some, of course, but maybe the initial predictions of woe that surrounded the B16's launch were enough to deter would-be rival designers. After all, the pundits of the day were a constant source of horror stories as to what might happen as soon as anyone tried to record 16 tracks onto a miserly half-inch wide strip of tape – which is just what the Fostex B16 set out to make possible.

They predicted horrendous drop-out problems (which we didn't get), and intolerable crosstalk (which the Dolby C noise reduction kept to a minimum). They said the results would be noisy (which they weren't), and that the noise

reduction would ruin the sound (which it didn't).

True, there were one or two early reliability problems, but things soon settled down and the format was quickly accepted. Even the "Nirvana is a two-inch tape running at 30ips" brigade grudgingly conceded that they were impressed.

Still, there's no such thing as the perfect machine, and the B16 did offer scope for improvement. So what do we have in the new E16?

First – and most immediately obvious – the styling has changed to fall into line with newer Fostex products. This is a very subjective thing, but my personal view is that the B16 looked a lot nicer. The E16 is now finished entirely in darkest matt black with orange trim. The control buttons are also black, so it's getting to be a little like Hotblack

► Desiato's spaceship in *Hitch-Hiker's Guide*; all it needs now is black lettering to complete the picture. The meters now shine through a sheet of orange perspex instead of neatly machined slots in the front panel... But what the hell? It all works.

In the facilities department, there are now multi-pin accessory sockets on the rear panel, one for the Fostex 4030 synchroniser and one for the 4050 autolocator. Because of the number of B16s already being used for A/V production work, the ability to plug a SMPTE synchroniser straight in with no mods or interface boxes is bound to cause a lot of interest. Furthermore, you could lock two E16s together to give you a 30-track recording system.

There's also a socket for connecting the meters, should you want to mount them away from the machine. This is useful if you want to use the recorder in a horizontal position, and a meter remounting kit is available for this configuration.

► *"A headshield covers the tape when the E16 is in use, and prevents magnetic fields from causing hum problems. It's possible to work with this shield retracted for marking edits."*

There are several refinements to the transport control section, including autolocate and autoplay in addition to the stop-at-zero facility that the B16 had. This enables the tape to be cycled between pre-programmed start and stop points, and even allows drop-ins to be terminated automatically and accurately. Though no mention is made in the manual, it seems the drop-in and drop-out times are faster than on the B16, so you can drop in or out quickly without erasing parts of the existing recording that you want to keep.

One improvement instantly evident to B16 users will be

the much-improved transport start time. Now the tape reaches running speed almost instantly, whereas the B16 took a good second or so. This really helps when cueing up the start of the tape prior to mixing, where you want a clean start to avoid all those bumps, bangs and count-ins that somehow got left on tape.

Additionally, there are said to be marginal improvements to the high-end frequency response of the machine. Well, considering that the E16 doesn't cost much more than the B16, these improvements have got to be good news.

Overview

FOR THE benefit of readers currently returning from a five-year trip to the planet Tharg, I'll start from the beginning in describing the E16, assuming that you haven't seen a B16 before.

The new machine is a compact 16-track multitrack recorder capable of simultaneously recording all 16 tracks, onto half-inch tape running at 15ips. Because of the narrow track arrangement, Dolby C noise reduction is fitted to keep down crosstalk and noise. This works surprisingly well, and doesn't dull the sound like Dolby B or kill transients like budget dbx systems.

The machine accommodates a single reel size of 10½" diameter, and varispeed is fitted so that any recordings can be tuned to fit in with less accommodating instruments – such as Steinway grand pianos which, despite their prestigious market position, still don't have a Master Tune control.

The same head is used to record and play, thus eliminating sync problems, and the whole machine is no larger than some competitors' eight-track recorders. Both input and output signals are to the –10dB standard, and there are no level controls or mic inputs; you have to use a mixing desk with the E16.

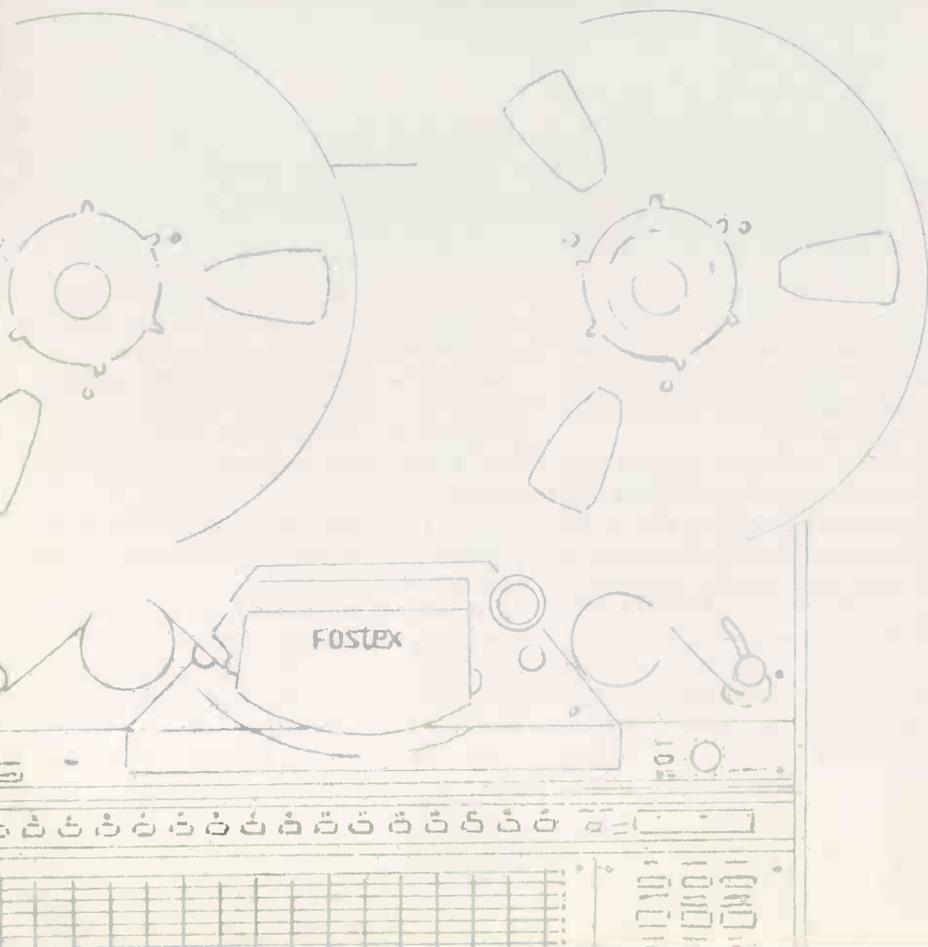
Control-wise the E16 is fairly conventional, but there are one or two nice touches to make monitoring easier and so on. So, the next stage is to see how the beast looks from the driver's seat.

Bar-graph peak-reading meters are used as an alternative to the VU meters found on other makes of recorder, and one is provided for each of the 16 channels. These monitor the signal level going onto tape in the record mode, and the off-tape level in replay mode. Above each one is a Record Status button, which puts that track into ready-to-record mode. Once a channel is thus armed, an LED flashes above the switch, and when the machine is put into record, the LED stays on.

The transport control section is a little on the busy side due to the extra autolocate and autoplay buttons. There are 12 altogether, and these include the usual Play, Stop, Record and fast wind buttons. The others are Reset, Memory 1 and 2, Autoplay, Locate 0 and 1, and finally Auto-return 1-2.

Reset zeroes the tape counter, which incidentally indicates tape running time rather than some arbitrary tape counter figure. Pressing Memory 1 stores the current counter readout in memory, and Memory 2 operates similarly.

As you may have guessed, Locate 0 causes the tape to return to and stop at zero. Locate 1 causes the tape to return to and stop at memory 1. If the Auto Play button and



either of the locate buttons are then pressed, the tape transport will automatically go into play from fast wind when the memory location is reached. Similarly, when Auto Return is active, the tape stops and then rewinds automatically once it reaches the memory 2 location. If both are used together, the tape can be made to cycle between memories 1 and 2, repeating the section ad infinitum so that you can practise drop-ins or solos. This is also invaluable for setting up effects, since there's nothing so frustrating as getting the reverb nearly right, and then having to cross the room to re-run the tape.

By setting memory 2 at a drop-out point and invoking Auto-return, the system can be used to drop out of record for you prior to rewinding to memory 1. Though it may sound complicated, this method is actually surprisingly accurate and simple to use.

Usability

MONITORING IS simple with the E16. If the tape is stopped, pressing a Record Track button arms that track and the LED blinks. If the Record button is pressed but not Play, the meters and the line outputs monitor the input signals for any tracks that are armed ready to record. Pressing Record again cancels this mode and returns to monitoring tape out. If the Record and Play buttons are now pressed simultaneously, the machine goes into record.

The outcome of all this is that any already recorded tracks can be monitored off-tape at the same time as the input signals from the tracks being recorded. And you can set the monitoring to change from off-tape to input as you drop-in to record, which means you can monitor the track right up to the drop-in point. If, however, the Input Monitor button is down, all the outputs and meters monitor the line inputs—a quick way of checking all your input levels.

Another neat touch is the Varispeed control. When this control is being used, the tape counter reads the tape speed in terms of its percentage deviation from normal. When the pitch control switch is set to off, the varispeed LED goes out and the tape speed is fixed at 15ips.

Threading the tape is easy, and there's also good access to the heads for cleaning as the entire head cover now hinges up. A headshield covers the tape when the machine is in use, and prevents stray magnetic fields from causing hum problems. It's possible to work with this shield retracted for marking edits, and it needs to be moved for tape threading.

Tape must be on 10½" reels with NAB centres, and the NAB hubs fitted to the machine lock the reels very positively. A photoelectric end-of-tape detector stops the transport when the tape winds off the reel in either fast wind or play modes, and a cue lever is fitted to the head block so that the tape can be monitored in fast wind. This should be done with the monitors turned down; if it isn't, you could cook your tweeters. Be warned, also, that excessive use of this facility is likely to cause premature head wear. Fortunately, you can still hear the tape by only partially depressing the cue lever; the signal may be at a reduced level, but working this way is less likely to cause wear problems.

All the line inputs and outputs are on phono connectors located on the E16's rear panel. Here too are the accessory

sockets mentioned earlier, and the connector for the meter extension cable. Additionally, and most usefully for solo recordists, there are two footswitch jack sockets—one for remote dropping-in/out, and one for Play/Locate 1. When the machine is in stop, the latter switch starts it. If it is not in stop, the tape winds to memory 1 and then stops.

Verdict

SUBJECTIVELY, I must admit I couldn't really detect any difference in sound quality between this machine and my B16.

But the improved and added features are certainly welcome. The snappier drop-ins and quicker standing starts really do help, even if you're not doing anything sophisticated. And the extra auto functions are a boon when you're working alone; I used them most for practising drop-ins, setting up effects and automatically dropping out (maan).

On the negative side, I found the new control layout a bit cramped, and it's going to take many users some getting used to. There's a tendency to panic when the drop-out point is coming up, and when that happens, you can't remember where the Stop button is. Coloured buttons would have been a much better idea.

The transport solenoids are also a little on the loud side, as indeed they were on the B16. If you're sitting by the recorder, engineering, singing and trying to drop in at the

► *“Recording quality is excellent, and though the Dolby C does have subtle side-effects, these are somehow positive rather than negative, making recordings sound clean and tight.”*

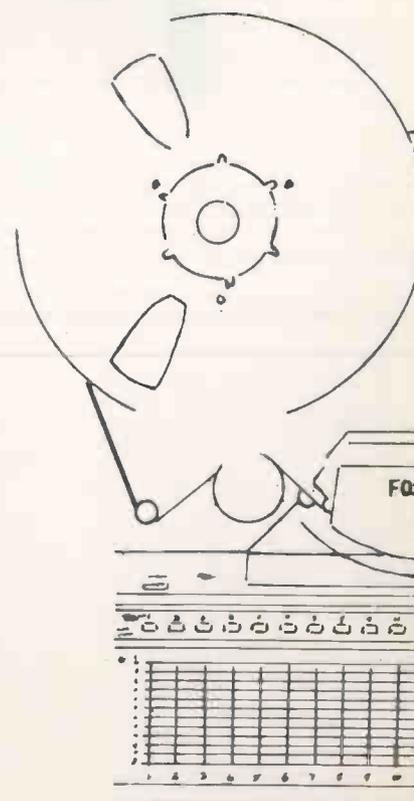
same time, you could end up recording a clunk as you drop out again. The best way around this is to drop out by hitting Stop immediately followed by Play, which has the effect of exiting record without the transport stopping. On the B16, this could be done by running your finger across the switches, but the new button shape and layout makes it more difficult.

In all other respects, the transition from B16 to E16 is quite painless. The sound quality is excellent, and though the Dolby C does have subtle side-effects, these are somehow positive rather than negative, making recordings sound clean and tight. Crosstalk is minimal unless you happen to have a heavily recorded timecode next to your acoustic guitar track, but in any event, it's best to leave an empty track between the timecode and the rest of the tracks.

So quite apart from being the only half-inch, 16-track tape machine currently available at any price, the new E16 is a synchroniser-compatible machine that can earn its keep by producing master quality music recordings or complex film soundtracks—and you don't have to spend a fortune on external noise reduction.

The B16 was a miracle. This is better. ■

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Finally, Yamaha have implemented MIDI Mode 4 on an FM module to provide a multi-timbral source of DX-type sounds. But you need a computer and software to program your own voices. By

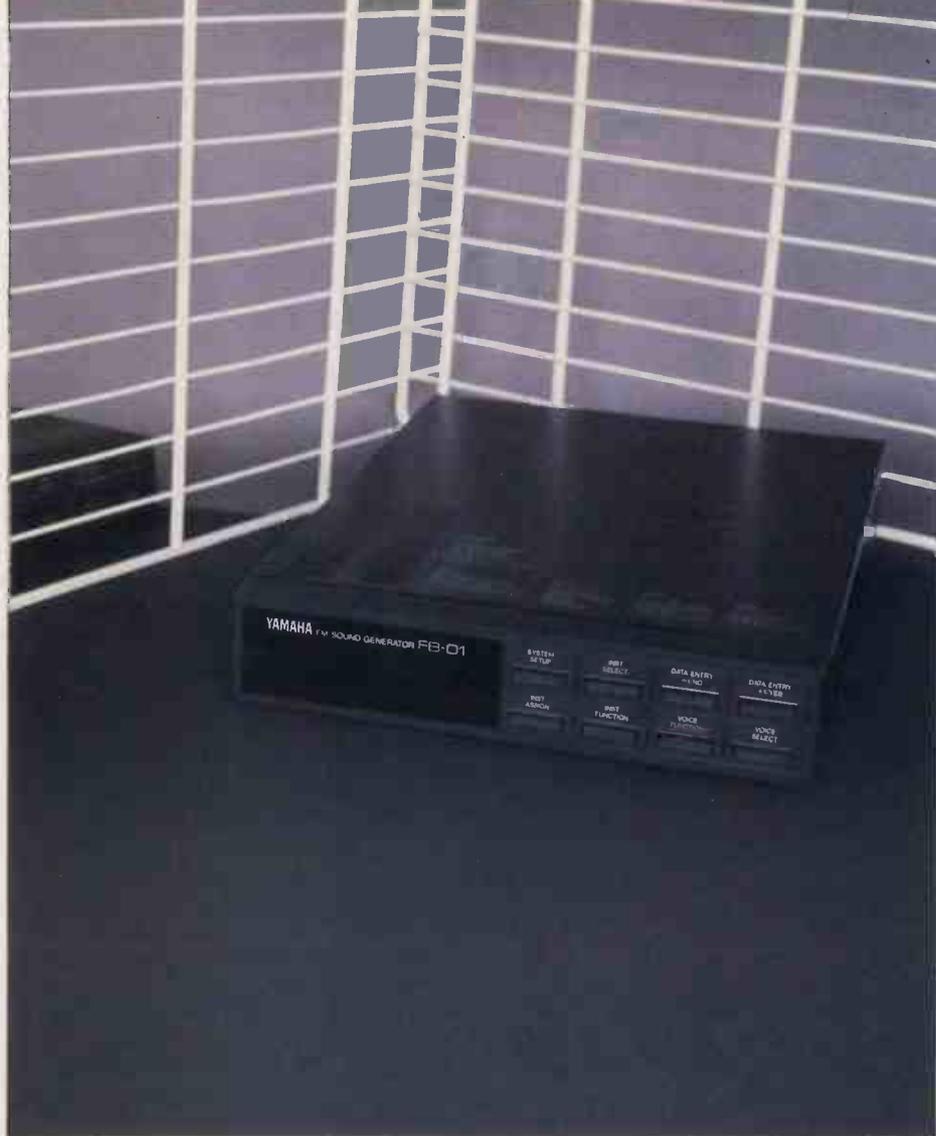
David Ellis.

THE TITLE attached to Yamaha's latest offering in the continuing tale of their domination of FM waveforms suggests great things. In truth, the bland facade of the FB01 hides a sound source that's already been met in several previous incarnations — namely, the four-operator FM chips used in the DX9, DX21, DX100, and DX27 synths, as well as in the CX5M computer's SFG05 module. So, contrary to the rich six-operator tradition of the DX7 and its rack-mounted modular counterpart, the TX816, the FB01 belongs to a more minimalist camp, where imaginative programming is needed to escape from the limitations of just four operators.

But the FB01 does mark one important break from Yamaha's previous product line philosophy — namely, that the FB01 operates in MIDI Mono Mode (Mode 4). Yamaha have been longer than most to come round to the delights of multi-timbral voices from a single unit. The TX816 is, of course, an exception to this generalisation, but some would argue that the "eight DX7s in a box" approach is like taking a sledgehammer to crack a nut. And in any case, eight TFI modules hardly come under the description of a single unit.

No. There must be a cheaper (and easier to program) way of getting a multi-timbral box of sounds. At a fraction of the price currently being charged for a TX816, the FB01 seems to fit the bill — on paper, at least. The question is: can it really be likened, in practice, to "a monophonic TX816", as Yamaha's representatives claim?

In photographs, the FB01 tends to look smaller than it really is. Or at least, what it lacks in height (1.9") it makes up in depth (11.4"). The front panel is fairly basic, with just a small, backlit amber LCD (nicely legible under all



Photography Tim Goodyer

lighting conditions) and eight of Yamaha's customary multi-function buttons. The FB01's backside includes the stereo out jacks, a memory protect switch, and a MIDI DIN socket trio for In, Thru, and Out.

An impressively thick manual is also supplied with the FB01, but further exploration reveals that only 61 of its 183 pages are in English, of which a large proportion is taken up by an explanation of the FB01's MIDI protocol, explanations on interconnecting the unit with other Yamaha gear, and the usual sub-literary padding under the heading of "getting started".

Format

THE FB01'S sounds ("voices") are constructed along standard lines: eight available algorithms for interconnecting the four operators, with individual ADSR envelopes for each operator plus keyboard scaling. One improvement over its predecessors is that the FB01 allows velocity-sensitivity to be applied to envelope attack rate as well as level. This has the welcome effect of making timbral variation more realistically velocity-responsive than on, say, the CX5M computer. But as with the CX5M's sounds, only a single LFO is available for all eight output channels, so it's important to switch off the modulation source from those channels you don't want to be affected.

The voice definition is only one side of the story, though. Because the FB01 responds to Mono Mode MIDI data, it's necessary to provide some means for deciding how MIDI data is to be allocated to the eight

YAMAHA FB01

FM Sound Generator

available channels, and which sounds are to be played. This is achieved by selecting one of eight possible "instruments", and then assigning a MIDI channel, the number of notes to be allocated to that instrument, its lower/upper note limit (or MIDI zone), octave transposition, output volume, any detuning, LFO enable, and stereo position (limited to left, right, and centre, as on the CX5M).

These eight potential instruments then have respective voices allocated to them and various performance parameters added, ie. pitch-bend, portamento, poly/mono operation, and the type of modulation controller defined—aftertouch, modulation wheel, breath controller, or foot controller. All this organisation comes under the heading of "configuration", and 20 memory spaces are provided for this data, of which four are pre-programmed (numbers 17-20) and 16 are available for the user's own definition (1-16). Three of the stock configurations are as follows:

17: Single instrument receiving all eight notes on MIDI channel 1. Brass voice (01) from bank 3 selected, with maximum output, centre pan, no detuning, LFO enabled with modulation wheel, and pitch-bend selected.

18: Eight monophonic instruments receiving notes on MIDI channels 1-8. Voices 01-08 from bank 3 assigned to respective instruments, all with maximum output, centre pan, no detuning, LFO enabled with modulation wheel, and variable pitch-bend on each instrument.

19: Single dual-stacked instrument receiving all notes on MIDI channel 1. Brass voice (01) from bank 3 on both four-note instruments with +4 detuning between the two. All instruments with maximum output, centre pan, LFO enabled with modulation wheel, and pitch-bend selected.

So, to recap. Sounds are constructed as banks of 48 "voices"; pitching, dynamic, and MIDI details come under the heading of "instruments"; and putting the whole shooting match together for all eight channels is termed "configurations". Well, the more you stick with it, the more usable it becomes, and it certainly makes for a comprehensive voice-patching system. I'd give anything, though, for a decent display and more buttons, in the vain hope of clearing the inevitable cobwebs of multi-function confusion. If only Yamaha would switch over to something like the nice 80-character display and "soft" buttons used on Ensoniq's ESQ1 synth...

Sounds

THESE ARE divided into 240 presets in onboard ROMs (banks 3-7 inclusive), and 96 voices stored in battery backed-up RAM (banks 1 and 2).

The first bank of 48 ROM voices is basically equivalent to (and compatible with) that in the CX5M's SFG05 module, with a fair mixture of decent brass, average strings, bright metallic percussion, and the usual weird sounds that Yamaha insist on adding when their musical imagination runs out (or seemingly so, anyway).

Bank 4 covers a good range of keyboards, from a workable upright piano that excels in the middle but

flounders at either end, to some neat electric pianos and funky variations on the theme of Clavinets and things that get plucked in the night.

Bank 5 is dedicated to brass, strings, and wind. As usual, it's the brass end of the instrumental spectrum that comes off best, with some pungent horns and "hard brass" that work well over most of their allotted ranges. Less impressive are the strings and woodwind, which just tend to sound like four operators doing their best on a bad day.

Bank 6 is better, with all manner of sync'd synths, upright, fretted, bowed, and lying-down basses, and some typical (though less rich, again because of the four operators) FM percussion.

Finally, there's bank 7, with the usual display of organs, a good assortment of plucked instruments, and yet more sound effects.

If you're unhappy with Yamaha's own programming endeavours, CX5M software for the FB01 is on the way

in the shape of the YRM506 voicing cartridge. But while the FB01 is probably a dream come true for existing CX5M owners, its appeal may be limited outside that circle. It's a shame, really, because the notion of a Mono Mode FM expander module is an attractive one. If Yamaha had de-multiplexed the stereo outputs to provide eight individual outs, and provided the display and panel controls to allow at least basic voice programming, then I'd be a good deal more enthusiastic about the machine.

As it is, the FB01 is filled with 240 adequate (and occasionally significantly more than that) preset sounds, which, while hardly damaging Yamaha's reputation, aren't quite enough to make the unit bear comparison with a monophonic TX816.

In sonic terms, the FB01 makes a fine expander for the CX5M (if you want to program your own sounds) or a source of "instant DX" noises (if you're not too concerned about originality) to contrast with the sounds from another MIDI synthesiser, piano, or whatever. Personally, I'm not sure it's quite up to standard for use in a professional sequencing environment, despite its Mono Mode implementation.

Maybe it's about time Yamaha took their expertise at FM synthesis a stage further, rather than recycling the same old sounds and technology, along with miniscule displays, confusing multi-function buttons, and a programming environment that's a nightmare for the average musician.

There's no question that the FB01 is what a lot of keyboard players and MIDI system users have been waiting for. It's just that somehow, it lacks a little in the inspiration department. ■

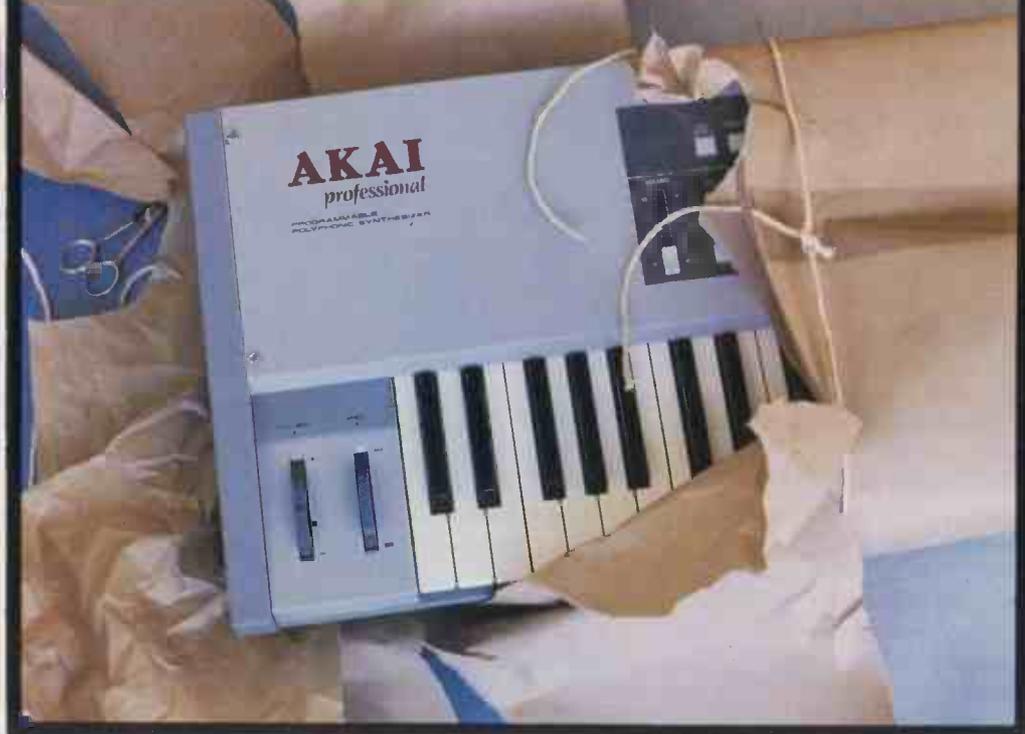
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MISSION *impossible*



Part 1: The Closest Thing to Heaven

OVER THE NEXT few months, we'll be celebrating this magazine's relaunch as MUSIC TECHNOLOGY with a free-to-enter, once-in-a-lifetime competition. It'll be in several monthly parts, but each part will be a self-contained quiz in its own right, with its own rules, its own prize, and its own closing date.

The prizes are some of the most valuable – and sophisticated – machines we've ever given away, so winning one of them won't be that simple. The questions we'll be asking won't be impossible to answer (despite the event's title), but they won't all be straightforward, either, and many of them will require you to do a bit of research under your own steam. Don't be put off by this: unlike simple lotteries and pointless guessing games, Mission Impossible will reward entrants who do their homework by giving them a greater chance of winning.

And remember: you don't have to enter every part of Mission Impossible to stand a chance of winning one of the prizes. If you're only interested in one machine – or there's only one part of the competition you can do – don't panic: just enter for as many different parts as you like, with the one proviso that you *only enter each part once*.

Part 1 of Mission Impossible features a brand spanking new polyphonic synthesiser from Akai – the AX73 – as its prize. It's a six-voice analogue synth with a 73-note, velocity-sensitive keyboard. Aside from the usual oscillator, filter and envelope parameters, the AX73 has a programmable chorus unit built in, a two-way splittable keyboard, and a unique sample data input, which allows you to modify sound samples from Akai samplers with the parameters onboard the synth, or to combine them in parallel with synth voices.

The AX73 normally retails at £699, but this being a competition, we're giving one away for no more than the cost of a postage-stamp.

To stand a chance of winning our AX73, you need a (very) rough knowledge of the principles of analogue synthesis. Failing that, a quick trip to your local music store to check out the synth in person should do the trick, for reasons that will soon become obvious.

There are 100 preset sounds stored within every AX73. These are listed in the back of the user manual, and when you punch in the appropriate number on the front-panel keypad, a snappy title appears in the Akai's LCD.

One of these snappy titles is 'Heaven', and it's this sound that's the basis for Part 1 of Mission Impossible. As its name might imply, 'Heaven' is a glittering, rather ethereal sound in its preset-form. It begins with quite a punchy attack, but doesn't really grow to its volume level for a second or two, after which – assuming you hold the note down for long enough – the filter opens up, leading to a fattening of the sound.

To get to 'Heaven', Akai's programmers have used a sawtooth wave from the VCO's selection of four waveshape sources, while the LFO gets triangle waveform as its source material.

Now, what we want you to do is (a) tell us something more about the way 'Heaven' is created (no religious dissertations will be considered), and (b) give us some idea of what you'd do to improve on the preset sound.

Discounting, for argument's sake, those parameters relating to sampler input, chorusing, MIDI programming and sound labelling, there are 36 different variables that go up to make each sound on the AX73. As usual, some of these are implemented as simple on/off switches, while others are continuously variable parameters, adjustable over a range of anything between 0-2 and 0-100.

Within the entry form for this part of Mission Impossible, you'll find six of the AX73's parameters listed, along with the ranges over which they operate. In the spaces provided, simply indicate the value you think each parameter is programmed for in 'Heaven'.

Then, in the somewhat larger space provided later on, state the one parameter out of the six listed that you think could be altered to the sound's best advantage, and tell us what value you'd alter it to.

After that, all you need to do is clip the coupon and send it to us, post-haste; this competition closes on Monday, December 1.

The first half-dozen entries containing all-correct parameter value listings (or the six that come closest to being all-correct) will then have their entrants' modifications entered into our AX73 and judged by our own reviewing team – the people who bring you Patchwork each month.

Whoever makes the most intelligent, most appealing and most original modification wins the synth. It's as simple as that.

Part 1: The Closest Thing to Heaven

ENTRY FORM

Parameter	Value
VCA Keyboard Velocity (Parameter 3; range 0-100)	
VCF Resonance (Parameter 11; range -50/+50)	
VCF EG (Parameter 13; range -50/+50)	
VCF Keyboard Follow (Parameter 14; range 0-100)	
EG VCA Release (Parameter 24; range 0-100)	
LFO Frequency (Parameter 42; range 0-100)	

OF THE SIX listed here, the parameter I'd modify first is:

THE VALUE I'd set it to would be:

Name.....

Address.....

.....

.....

..... Postcode..... Daytime ☎.....

Send this form to: **Mission Impossible (Closest Thing to Heaven), MUSIC TECHNOLOGY, Alexander House, 1 Milton Road, Cambridge CB4 1UY**, to arrive no later than second post, **Monday, December 1, 1986**.

Employees of Music Maker Publications Ltd, Akai (UK) Ltd, and their relatives, are ineligible for entry. The judges decision will be final and no correspondence will be entered into.

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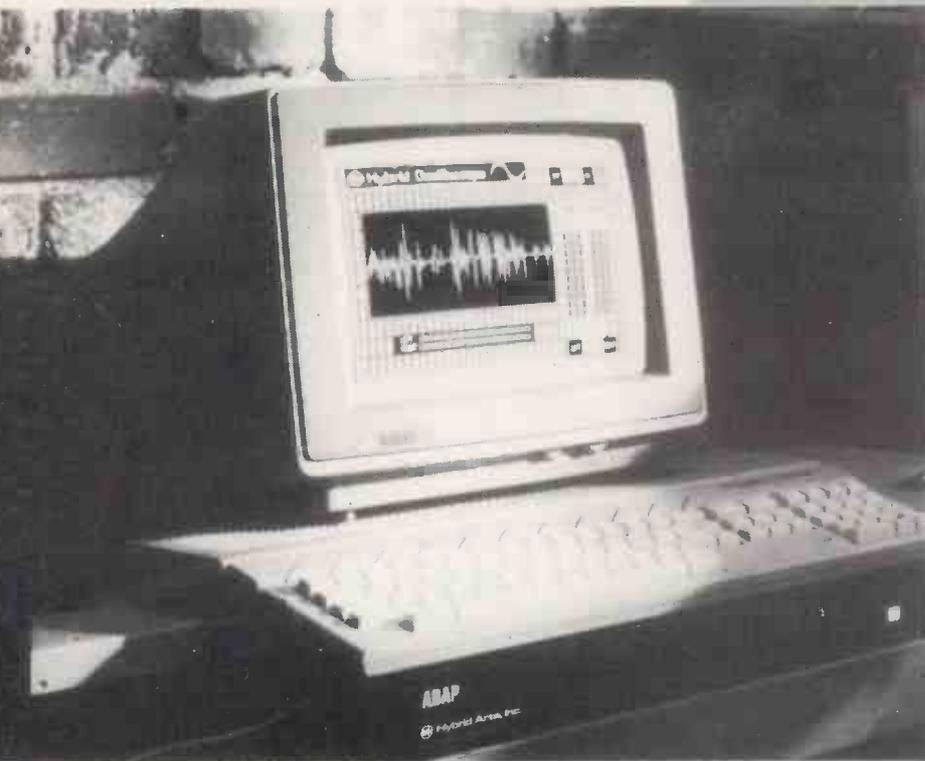
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HYBRID ARTS ADAP

Computer Sampling System



Just when 12-bit sampling systems were becoming the norm, Hybrid Arts come up with an economic 16-bit system based on Atari ST computers. By Rick Davies.

IT SEEMS LIKE only yesterday that 12-bit samplers had managed to settle comfortably under the £3000 mark. The keyboard and rack-mount samplers offered by manufacturers differ in the ways most electronic instruments do – control layout, quality of factory-supplied sounds, interfacing capabilities – but for the most part, there's enough room in the market for all of these models, and it seems that soon, manufacturers will be producing 12-bit samplers at roughly similar prices.

Perhaps that's why Hybrid Arts' ADAP SoundRack came as a surprise at this year's summer NAMM show in Chicago: no one was expecting 16-bit stereo sampling to fall into the same price range as these 12-bit instruments so soon.

The ADAP (Analogue/Digital Audio Processor) is a hardware/software package that turns the Atari 520ST or 1040ST computers into powerful sampling systems – for just \$1995 in the US of A.

In some respects, Hybrid Arts' approach may be considered a bit risky. After all, many musicians are still hesitant to incorporate personal computers into their music system, perhaps due to the staggering number of systems to choose from, or due to the questionable roadworthiness of personal computers.

On the other hand, just by looking at the number of sample editing systems based around personal computers, it seems inevitable that samplers will need some extra processing help if any heavy work is to be done. So why not keep the hardware cost down as much as possible?

The ADAP consists of a simple 1U rack-mount chassis

which houses A/D and D/A hardware, and matching left and right quarter-inch jack inputs and outputs, a ribbon cable which connects to the ST's cartridge port, and the software that makes the whole thing work. The ST houses the system's MIDI jacks, and, depending on which ST model is used, a disk drive for storage of samples. Colour or black-and-white monitors serve equally well for displaying function menus, prompts, and other pertinent information.

If you're not convinced by the idea of being able to "play" a computer the same way you would play an instrument, perhaps the lure of stereo 16-bit sound quality will eventually persuade you to give such a system the benefit of the doubt.

Format

WHAT THE ADAP does is far more than simply sample and play back any audio source you can find. It also provides an assortment of cut and paste-style editing tools which can rearrange passages of music or dialogue into any shape you can imagine; provides two channels of digital audio so that each channel can be edited independently of the other; and provides flexible conversion facilities which allow samples to be downloaded to digital audio equipment using the standard 48kHz sample rate, or to MIDI-equipped samplers implementing the MIDI Common Sample Dump Standard format. Not exactly run-of-the-mill features, those.

Since the ADAP's sample quality is as good as just about anything else on the market, its flexibility lends itself to editing short musical passages with accompanying dialogue, editing and filing of samples which can be dumped to other samplers as required, as well as the standard application as a musical instrument.

The back panel of the ADAP rack is simple enough – though that simplicity may not be to its advantage. There are two inputs, two outputs, an input level control, and a power connector and switch. But the demand for individual outputs on sampling instruments has been made clear over the past few years, and the stereo outputs on the ADAP may well be viewed as insufficient for many of the applications engineers and musicians will doubtless conjure up.

The ribbon connector between the rack and the ST is the 16-bit parallel pipeline that enables the ST to control and access the rack's conversion hardware. Beyond outside appearances, this system bears no resemblance to other computer-based sample-editing systems, because the rack cannot do anything without the ST, which co-ordinates everything – from the response to incoming MIDI data to the routing of the audio sources to the audio outputs.

Comparisons

AT SOME POINT, it's necessary to consider the pros and cons of a system such as this one, and specifically, how it compares with dedicated sampling instruments.

First of all, there is the question of sound quality. The ADAP can sample at 44kHz, 22kHz, 11kHz or 48kHz in

MUSIC TECHNOLOGY NOVEMBER 1986

stereo or monophonic. As usual, the sample rate affects the amount of available sample time. Less usually, it also affects the number of notes that can be played simultaneously. For example, at 44kHz sample rate, a 1040 ST-based ADAP system can sample 20 seconds of mono audio (10 seconds stereo), and later play back with six-note polyphony. At the 22kHz sample rate, however, the sample length doubles, and 14-voice polyphony is possible.

This is a unique trade-off to my knowledge, and should be a popular one at that. One of the ways that the ADAP is able to pull this off is by not having VCFs on each voice, as is typical of most instruments with a fixed number of voices. This means there are no filter sweeps available, but the ADAP's digital EQ should help tailor the tone of your samples to some degree.

In its finished production form, the ADAP will be able to hold 64 multi-samples (sample time allowing), playable over MIDI by various controllers. (Unfortunately, the prototype I looked at did not yet have the ADAP's entire MIDI specification implemented.) Again, the dynamic voice allocation helps the samples to get out in an orderly fashion, but is also probably responsible, in part at least, for the two-output limit.

If separate processing of each sample is the major concern, then the ADAP's internal digital effects "rack" should help compensate for the lack of individual outputs. In the "rack" portion of the program, the screen displays five spaces in which you can place effects such as delay or reverb. These programmable effects are merely algorithms which may be applied to samples upon playback which affect the sample data, rather than the final analogue audio signal. Better still, samples can be stored on disk in processed form.

ADAP will be available with reverb and delay effects as standard, leaving three additional "rack spaces" for other effects which may be purchased on separate disks. It'll certainly be interesting to see how these internal effects compare with conventional treatments when the ADAP is in production.

The central element of the ADAP program is the Command screen, from which you select functions using the ST's mouse. This screen also displays a portion of the sample currently under examination, and lets you hone in on the desired section with "Zoom-In" and "Zoom-Out" functions. Also on this menu are the various "cut and paste" functions, as well as sample reverse and looping facilities.

This menu is also where you select either the left or right digital audio channel for editing. Think about this for a minute: this could lead to some truly off-the-wall sounds. Imagine a stereo sample having one channel looping while the other plays backwards... An extreme application? Certainly. Fun? Absolutely.

An oscilloscope function allows you to monitor the audio inputs in real-time with eight-bit resolution (the screen

graphics require too much of the ST processor's time to allow better resolution).

This brings us to the matter of sample storage. Files are saved to disk using graphics programs, and each 3½" disk can store one full 1040ST memory. The addition of a hard disk to the system allows storage of 30 files, and would also speed up the loading time considerably.

If desired, these files could be transferred over the Atari's serial interface with little fuss, allowing other digital audio systems to use the data.

Wendell Brown, President of Nilford Laboratories, who co-developed ADAP, has indicated that they intend to use a sample file header in the same format as the one used by Digidesign's Sound Designer files, so that files can be swapped between the two systems.

Similarly, should an ADAP system be joined by a sampler which uses the MIDI Common Sample Dump Standard Format, samples could be transferred back and forth as desired.

► "You select either the left or the right digital audio channel for editing; imagine a stereo sample having one channel looping while the other plays backwards."

Verdict

ALL IN ALL, the ADAP strikes me as an impressive and rather clever way of getting the best musical use out of contemporary computer technology. The sound quality, sample editing features, and attention to detail look extremely promising, and considering the price, it's excellent value – even with the additional cost of the ST computer which, needless to say, would obviously come in useful for other things as well.

Since the system's performance is dependent on software, and software can be updated, ADAP could have a much longer useful (no, make that "competitive") working life than some dedicated sampling machines. Several different versions of the ADAP system – with varying specifications – are being discussed at the moment, and although the structure has not yet been finalised, the potential is clearly huge.

With luck, the ADAP's multiple personality will not confuse many people. It may not replace dedicated sampling instruments in all situations, but it's certainly working in new territory without losing its footing in more common areas. It will be interesting to see with which other areas of digital signal processing the ADAP will deal. In time, of course. ■

Price To be announced
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Beat Box Chic



With so many fine-sounding, immaculately presented digital drum machines on sale, Roland's analogue TR808 is still the most widely recorded beat-box of them all. We find out why it's still the black box to beat.

Report by Tim Goodyer.

WITH THE ARRIVAL of "affordable" user-sampling machines like the Korg DDD1 and Casio RZ1, the curtain opens on another new era for the now ubiquitous drum machine.

Roger Linn's revolutionary LinnDrum now lies subdued in the corner of recording studios, relegated to the reserves bench; the old Boss Dr Rhythm is quieter still, buried under piles of forgotten text-books on shelves in student bedrooms; the Anvil seems destined to remain no more than a romantic dream.

Roland's curious TR808, however, continues its insistent rattle from transistor radios, and thumps its way across nightclub speaker systems the world over — three years after the last one rolled off the Hamamatsu production line.

The TR808 made its public debut in 1981, beginning a short but eventful production life that lasted until it was replaced by the TR909 in the winter of '83-'84. Unlike the LinnDrum, the TR808 didn't boast digital sound samples, an

abundance of voices, or a frightening price-tag. What it *did* offer was a selection of the best drum sounds analogue circuitry could conjure up, a set of individual audio outputs, complete user programmability, and a character all its own. And, for a cash price of around £500 (though the original RRP was a little higher), it cost roughly a fifth of the price of a Linn.

Before the 808 came along, a programmable drum machine was something only the privileged few could afford. The rest of us had to risk the stigma attached to semi-programmable machines like Roland's CR78 ('Vienna', 'In the Air Tonight', et al), or more primitive drum boxes intended as add-ons for home organs.

The release of the TR808 meant that, for the first time, a serious programmable drum machine lay within the financial reach of semi-pro and amateur musicians.

But this "affordable" status didn't prevent the 808 from finding favour with established as well as aspiring acts. Witness Marvin Gaye's 1982 hit '(Sexual) Healing',

which used the TR808 exclusively to supply its distinctive, trend-setting rhythm track. Or the Freeze dancefloor hit 'IOU', which combined a thundering collection of heavily reverbed TR808 sounds with triggered vocal samples. Or Afrika Bambaataa's 'Planet Rock', which had Kraftwerk's 'Trans Europe Express' strings played over a backdrop of swirling orchestra hits and (inevitably) a cheap-sounding TR808 drum pattern to balance out the pomp. The Human League even used an 808 live alongside a LinnDrum during the *Dare* days, though not without a sprinkling of frantic mid-set program changes.

Producer Laurie Latham switched an innocuous-sounding 808 pattern into the backing track for Paul Young's 'Wherever I Lay My Hat', and found himself with an unlikely hit that launched the career of one of today's most popular male singers. And New Order, following up the huge international success of 'Blue Monday' in the summer of 1983, turned away from thundering electronic bass drums to

record 'Confusion' with an 808 providing all the backing; producer Arthur Baker ensured that remixes on the 12-inch single (there was no seven-inch) offered a chance for each of the drum machine's voices to shine in turn.

More recently, the TR808 has undergone a resurgence of popularity, settling down as a more regular dancefloor personality than Madonna. Paul Hardcastle's hard-hitting '19' brought it back into the pop charts 18 months ago, while hip hop has embraced the misfit beat box like a long-lost sister, placing it alongside scratching and rap vocals. In 1986, cheap is chic, and the TR808 is the height of drum-machine chic.

So what is it about this unassuming black box that has elevated it to "classic" instrument status, alongside the MiniMoog, Prophet 5 and Mellotron? It's certainly nothing to do with a vast program memory—a mere 12 songs divided into 24 32-step (or 12 64-step) patterns and only eight fill-in patterns saw to that. Nor is it to do with quick and easy program storage and retrieval; there's no dump-to-tape facility, let alone disk storage. It seems a laughable omission now, but the only way to preserve your diligent hours of TR808 rhythm programming beyond the power-down memory stage is by writing it all out on a piece of paper. And before you ask, the answer is no—the 808 was not equipped with MIDI, either.

What it all comes down to, as so often with musical instruments of whatever age, is sound. The sounds resident within the 808 represent the standard rock drum kit—bass drum, snare, toms, hi-hat, rimshot, cowbell and one cymbal—along with a few token latin sounds—congas, claves, maracas—and an unmistakable handclap. Some of these sounds feature variable, though not programmable, tuning and there are other user-determinable parameters like decay and tone, not forgetting the neatly termed "snappy" control on the snare, that help tailor sounds to personal taste.

The standard of these voices varies from very high to quite excruciating, as it does on many drum machines, before and since. But whereas the sound quality of digitally sampled voices depends mainly on the bandwidth and maximum sample length of the machine in question, analogue synthesis of acoustic sounds presents subtler, more intricate problems, as anyone who's attempted an acoustic piano patch on a Juno 60 will tell you. Yet analogue synthesis provided Roland with the means to make the TR808 an "affordable" machine, and so ensure its initial success.

What its designers could never have known at the time was that the analogue voice structure would turn out to be the TR808's greatest asset. Not because it made the sounds convincing, but because it gave the machine its character...

Let's look at those sounds in detail. Though it may seem an odd place to start, it's worth making early mention of the handclap. It's certainly one of the most convincing sounds on the machine, and proved so popular that Roland reused it on the TR909, and may well have used a digital sample of it (well, it sounds that way) on the now current TR707. The clap is a bright, punchy, tightly packed ensemble sound, with just a hint of an echo; if it were a sample, you'd swear some of the recorded acoustic had got tagged onto the end of it.

The snare, by contrast, is topky and lightweight—though arguably, this is more closely reminiscent of a lot of acoustic drum kits, where a good snare tuning can be as elusive as Lord Lucan.

The bass drum is also sloppy and lacks attack, especially when set up against the tightly gated, punchy kick-drum samples that are as fashionable now as they were when the 808 was first released.

Most human of all the sounds are the tom-toms. There are three of these, each of which may be switched between a tom and a conga—little more than a shift in pitch between the two, I'd say. They were never likely to be realistic, and they never had the bite for Phil Collins impressions. But lying somewhere between the thrilling crack of a rock tom-tom and the gentle charm of a conga, is a genuine-sounding, rather charming trio of voices that can only be heard by switching on a TR808.

As for the most distinctive 808 voice, that has to be the cowbell. Clumsy, clonky and hopelessly underpitched, it sounded more like a sick monosynth than a cowbell, and initially found little favour with users. But then somebody, somewhere put one on a record, and more than any other TR808 sound, the cowbell has refused to lie down since. Even where more realistic-sounding drum machines have been used for a record's rhythm track, the 808 cowbell has put in an appearance; Stock, Aitken and Waterman's production of the current Mel & Kim hit 'Showing Out' credits the drum track to "A Linn", but the cowbell is pure vintage Roland.

Writing your own patterns on the TR808 isn't too difficult. By today's standards it's a bit of a trial, but in 1981 it was a revelation—of sorts. In a variation on real-time input, events are entered into a rhythm pattern or fill-in by running that pattern in Write mode. The pattern touch-switch LEDs along the bottom of the panel now represent the steps in that pattern in two groups of up to 16. Each LED lights momentarily, indicating your present position within the rhythm pattern. The voices are selected in turn and entered in one of two ways: either by pressing the touch-switch of the relevant pattern step, or by hitting a "Tap" button at the instant the voice is required to sound. Easy.

Easier still is song construction. A song consists of a series of rhythm patterns and fill-in patterns entered in real-time. Simply select the starting pattern, press Start, and from then on, select each subsequent pattern just prior to the finish of the

current one (or the current one will repeat).

Simple—unless you make a mistake. Wrongly entered patterns may be overwritten by the correct one, but make a song too short and it's back to square one.

And there's precious little programmers can do to make their 808 patterns appear more lifelike. No swing function, no humanising options, and only a single accent facility that affects all voices programmed on each beat it's applied to.

Little wonder, then, that most TR808 patterns appear more mechanical than those programmed on more recent, more "human" beat-boxes.

Yet the TR808 only began to approach its heyday when musicians and producers realised it was no use trying to turn the machine into something it wasn't—namely a facsimile of a human drummer hitting a traditional drum kit.

'(Sexual) Healing' was one of the first records that used the 808's low-tech electronics as a deliberate feature, rather than as an excuse for a conventional kit. '19' did much the same three years on.

Both those productions used the Roland's voices in the most obviously appealing way, taking advantage of the 808's separate outputs to treat each sound individually, and making the rhythm track appear a lot larger than it really was.

Since then, though, other artists and producers have taken things a step further by throwing the TR808's faults into light relief. Witness Run DMC's 'Peter Piper', which relies on the long decay of the Roland's bass drum—a feature earlier users had regarded as a curse—to carry off its rhythm track.

When Roland dropped the TR808, they replaced it with a machine—the TR909—that added MIDI, a more logical programming system, and digitally sampled hi-hats and cymbals to replace the 808's tinny endeavours. But gone was the ridiculous cowbell, gone were the congas, and with them went much of the 808's character, too.

But now even the 909 is becoming something of a collector's piece, since its relatively short production run was ended by the arrival of the all-digital TR707. Now, the 707 is many people's idea of a "good" drum machine, and indeed it satisfies the need for a collection of clean, well recorded drum voices.

Yet somehow, a gutless snare, flappy tom toms, sandpaper maracas, and a detuned cowbell interact to produce a more complete-sounding instrument than a disparate collection of samples. More recent machines may boast better paper specifications, greater convenience, and superior programming versatility. But few contain a set of sounds so well matched to each other, and few are likely to stand the test of time as well as the TR808 has.

So pick up one of Roland's gems while they're still freely (and cheaply) available. It may be the closest you'll ever get to owning a Synclavier, but in some future museum of musical and technological progress, the two will probably be sitting next to each other in adjacent cases. ■

Getting the Most from...

MONO MODE

MIDI Mode 4 is used to control machines that produce sound in a fairly obvious way. But what are the benefits of applying it to a device that merely treats sound, like Yamaha's SPX90 multi-effects processor? By Paul Wiffen.

THE MAIN USE we have seen so far for having instruments which are capable of "looking at" more than one MIDI channel at once, is to receive note information which is to be applied to different timbres or samples. We've not really concerned ourselves with program changes (though we did note in passing that the Casio CZs could alter program numbers separately for each voice if the program change came in on the appropriate channel).

With the Yamaha SPX90 that's under scrutiny this month, the situation is reversed. For while it can usefully interpret note information to specify transposition intervals (when in Sample or Pitch Change modes), the main use of its MIDI capability is to enable it to receive program change numbers, to change the signal-processing role it is performing. In this it is basically similar to most other MIDI effects units, though more versatile than many.

Originally, MIDI signal processors merely changed the number of the currently

get round this problem. This was done by having an interval memory number assignable to each MIDI program change number. So, for example, you could make your DDL or reverb switch to program number 20 every time it received MIDI program change number 47.

This system has several advantages. First, you can make the effects unit switch to program 20 when it receives MIDI program change 3, 58, or 127. In other words, you can use that favourite flanging effect on several different synth patches. Second, if you have fewer than 128 memories on your effects unit (and few devices offer more than that), you can still usefully receive all 128 MIDI program changes (which many synths do send) to select from your more restricted pool of effects programs.

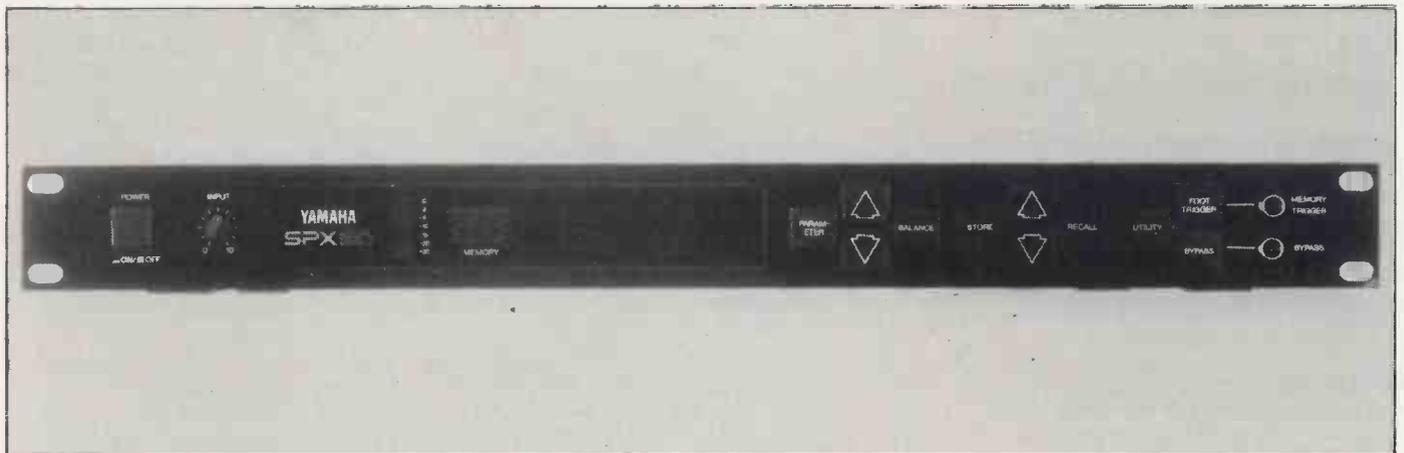
But there's still a problem. Suppose you are using several MIDI instruments, but only one MIDI effects unit. Via this unit, you are processing signals from different

several MIDI channels at once, the same program change number can be interpreted differently, depending on which MIDI channel it's sent along.

How is this configured on the Yamaha? Well, the machine actually has four banks of program change assignment. Each bank works exactly as described above, assigning one of the 90 programs available on the SPX to each of the 128 program change commands which MIDI provides. So, each of these four banks has the flexibility to assign an SPX90 effect to every program on a certain MIDI instrument.

But each of the banks can be set to look at a different MIDI channel. So, you could set each bank to match the MIDI channel of a particular synth, allowing the SPX90 to call up a different set of program change assignments depending on which (of up to four) instrument's MIDI channel the instruction is received along.

There are three possible ways of configuring this system to get the best out



selected memory according to the incoming MIDI patch-change number. As musicians and engineers soon discovered, this was not always that useful. Just because you wanted patch 23 on your synth, didn't necessarily mean you wanted the effect set up on memory 23 of your DDL. You could always juggle patches around on either your synth or your effects unit (or both), but this was time-consuming and still not entirely satisfactory.

Manufacturers soon realised this, and the second generation of MIDI-equipped signal processors came with the ability to

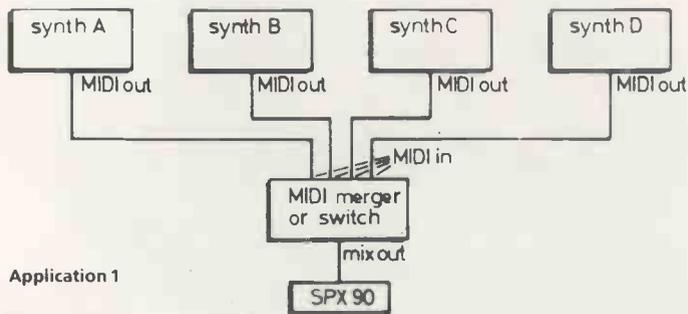
instruments at different times. What happens when you want to use program 22 on two different synths, with a different effect on each? Whichever memory you set to be selected when program 22 is received will automatically be called up when you select program 22 on either synth – assuming that the effects unit is connected to the output of both synths via a MIDI mixer.

The only alternative seems to be replugging the MIDI cables between using one synth and the other – unless you have an SPX90. Because the SPX can look at

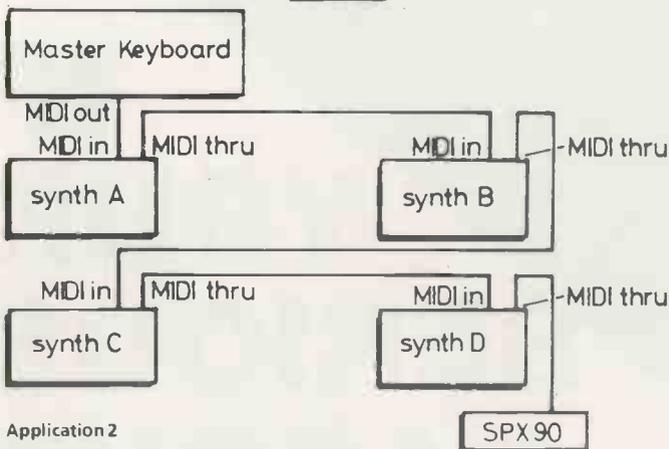
of its MIDI flexibility, and each requires a particular piece of MIDI equipment to make it viable. The first (and cheapest) option uses a MIDI merger, the second a MIDI master keyboard, and the third a MIDI sequencer.

The following examples all show MIDI synthesisers, but any MIDI devices capable of sending and receiving program changes can be used.

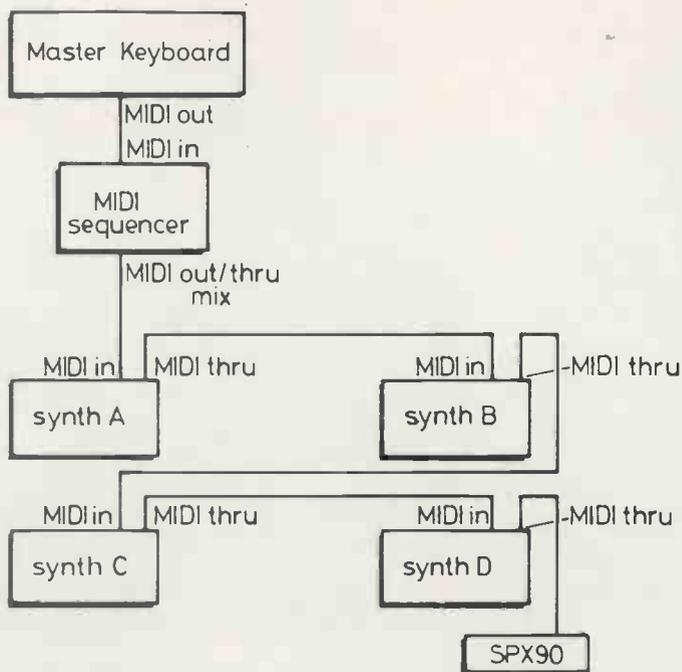
In all these applications, it is assumed that synth A is set to MIDI channel 1, synth B to channel 2, synth C to channel 3, and synth D to channel 4. Similarly, the four
MUSIC TECHNOLOGY NOVEMBER 1986



Application 1



Application 2



Application 3

banks of the SPX90 would be set so that A is looking at MIDI channel 1, bank B at 2, C at 3, and D at 4.

To set this up on the SPX90, start by hitting the Utility switch twice. This will get you to the MIDI control page. Here you'll see the Bank letter (A, B, C or D) on the left and the MIDI channel number (1-16) on the right. Use the left-hand Δ/∇ switches to change the bank to A, then the right-hand Δ/∇ switches to change the MIDI channel to 1. Then step up to bank B and set this to channel 2. Repeat this for bank C (channel 3) and bank D (channel 4).

The channel numbers you actually use are *not* critical, provided each bank is set to look at the same MIDI channel as the synth it is meant to work with. In other words, synth A must be set to the same channel as bank A on the SPX90, and so on.

Now you can move on to setting up the assignment of MIDI program number to SPX90 memory, by hitting Utility when bank A is showing (select this with Δ/∇ switches if necessary). This takes you to the MIDI program page. Here you use the left-hand Δ/∇ switches to select each MIDI program number (shown on the left of the display), then use the right-hand Δ/∇ switches to choose the corre-

sponding SPX90 memory. Repeat this procedure for each program change you need to allocate for bank A.

To move onto allocating bank B, go back to the MIDI control screen and step up to bank B. Then hit Utility again and you'll be able to set the corresponding SPX90 programs for this bank. Repeat this procedure for the last two banks.

In Application 1, the four MIDI Outs from each synth are mixed together via a MIDI merger such as that made by US company J L Cooper. Whenever a program change is made on any of the synths, the SPX90 will know from the MIDI channel which synth the instruction came from, and will select the appropriate effect you've assigned to that program change number in that particular bank.

In Application 2, one master keyboard is used to control all the program changing and MIDI channel switching. If you send a patch change on MIDI channel 3, not only will synth C change to program 38, but the SPX90 will automatically set up the effect you have matched to that program.

Application 3 is basically an expansion of the second, using a MIDI sequencer to record whatever you play on the master keyboard. Note that to hear what you're

playing, you'll need to set the MIDI Out/Thru to Mix mode on your sequencer. If you don't have this function, you'll need to reconfigure your system each time you switch between record and playback. Avoid this if you can: it's not a lot of fun.

When you start overdubbing on your sequencer, you won't be able to use two different effects processes at the same time. But you can still "timeshare" the SPX90 in the most efficient way, affecting one synth in the verse, another in the chorus, a third in the middle eight, or whatever. And the effects programs will be switched at the same time as the patches are being changed.

But, I hear the sceptical cry, why is this any better than sequencing the SPX90 on its own MIDI channel? Well this way, you're saving both a MIDI channel and a track (or overdub) on your sequencer, which can be used for other things. This may seem like an unnecessary economy, but when you start using multi-timbral synths and samplers in Mono Mode at the same time (as we've been doing in previous features in this series), 16 MIDI channels suddenly don't get you very far.

Remember: every MIDI channel you save is an extra sound you can sequence. ■

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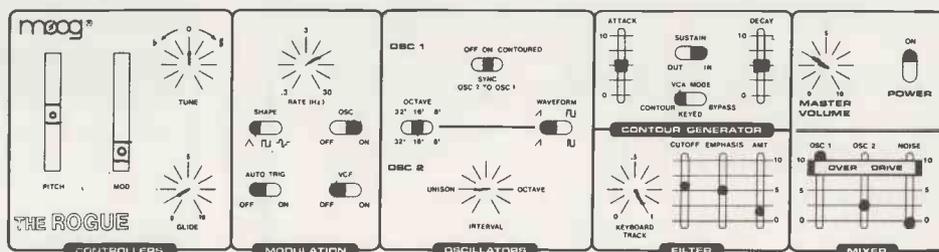
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MOOG ROGUE

Resonant Violin

Al Ferrier, Surrey

NOW HERE'S a popular synth that's so far eluded the Patchwork limelight. Although the Rogue didn't set the synth world alight when it was launched in '81, it's nevertheless capable of producing some very usable sounds for bass and lead line work. 'Resonant Violin' is described as a decently realistic violin voice, useful for "long instrumental breaks", whatever that might mean. Al recommends fiddling on the top and bass octaves for best results. ■



CASIO CZ101

Rebecca

R Davies, Notts

IT SAYS HERE that 'Rebecca' has been created, nay inspired, by the programmer's love for a girl of the same name. Cue the violins. Seriously folks (and put the tissues away), 'Rebecca' did win the MT Blindfold Test against a selection of other notable CZ sounds.

As it's seen here, 'Rebecca' is actually the alternative version of two supplied; you may prefer the original (DCO1 Waveform values of 4:1). However, if the sound is sustained it becomes very flat indeed, so keep your playing mildly staccato for best results. ■

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FIRST	SECOND
6	1
<small>(1-8)</small>	<small>(0-8)</small>

E N V (PITCH)								
STEP	1	2	3	4	5	6	7	8
RATE	99							
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	63							
LEVEL	00							
SUS/END	END							

DCA 1

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

E N V (AMP)								
STEP	1	2	3	4	5	6	7	8
RATE	94	21	32					
LEVEL	99	00	00					
SUS/END		SUS	END					

2

DCO 2

WAVE FORM	
FIRST	SECOND
1	5
<small>(1-8)</small>	<small>(0-8)</small>

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

DCW 2

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

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

DCA 2

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

E N V (AMP)								
STEP	1	2	3	4	5	6	7	8
RATE	83	35						
LEVEL	99	00						
SUS/END	SUS	END						

patch W.O.R.K

KORG DW6000

'Compilation'

Rudi Cazeaux, Whitstable, Kent

PROG. NO.	PROGRAM NAME	OSC 1			OSC 2				NOISE	VCF				CHORUS	VCF EG					VCA EG				MG			BEND		PORTAMENTO TIME	ASSIGN MODE							
		OCTAVE	WAVEFORM	LEVEL	OCTAVE	WAVEFORM	LEVEL	INTERVAL		DETUNE	CUTOFF	RESONANCE	KBD TRACK		POLARITY	EG INT	ON/OFF	ATTACK	DECAY	BREAK P	SLOPE	SUSTAIN	RELEASE	ATTACK	DECAY	BREAK P	SLOPE	SUSTAIN			RELEASE	FREQ	DELAY	OSC	VCF	OSC	VCF ON/OFF
		11	12	13	21	22	23	24		25	26	31	32		33	34	35	36	41	42	43	44	45	46	51	52	53	54			55	56	61	62	63	64	71
	STRAVOX	16	4	31	16	4	31	1	5	8	37	25	2	1	0	1	0	31	0	0	0	0	17	5	31	20	23	16	16	0	2	0	2	0	6	P1	
	'DX' STRINGS	16	1	31	16	7	11	5	4	0	36	7	2	1	10	1	2	7	21	8	8	0	10	6	31	21	24	12	7	15	1	0	2	0	5	P1	
	JAZZ ORGAN	16	4	31	16	4	31	1	2	0	31	8	1	1	31	1	0	3	0	24	0	18	0	0	31	0	31	7	8	11	0	0	12	0	0	P1	
	SYNTRUMP	16	1	31	16	4	31	1	2	0	0	5	2	1	23	1	4	23	29	24	19	22	0	23	26	4	5	23	0	0	0	0	2	0	0	P1	
	PEARL	4	8	31	4	8	19	1	4	3	28	4	2	1	6	1	0	9	16	26	0	18	0	31	31	21	28	20	3	0	1	0	12	0	0	P1	
	LEAD/BASS	16	6	31	16	1	31	24	0	0	19	2	1	24	1	0	17	21	22	0	0	0	31	31	31	31	0	8	0	0	0	2	0	0	0	U	
	DOUBLE BASS	16	2	28	8	1	18	1	4	0	19	5	0	1	10	0	0	10	2	0	0	18	0	8	21	15	3	14	8	0	0	2	0	2	0	U	

A NEWCOMER TO Patchwork is Korg's DW6000, so we'll celebrate in style with this compilation of seven very impressive sounds.

On Rudi's short demo cassette, the first couple of sounds were our favourites: 'Stravox' a warm strings patch ideal for backing and moody pieces, and 'DX Strings', a much punchier strings sound with plenty of resin.

'Jazz Organ' has a nice chime effect in the attack phase followed by a quiet sustain, while 'Syntrump' is a rich, brassy sound whose VCA EG can be tweaked for a stronger sustain, and both attack and release altered for different effects.

Reminiscent of a tinkly electric piano is 'Pearl'; with it, a lovely atmosphere can be built up by sustaining notes in the lower octaves while playing a solo melody over the top.

'Lead/Bass' offers the classic filter-sweep sound and should prove useful for those funky tasks no other patch can master, while 'Double Bass', though to our ears not that "acoustic" in quality, comes with the following descriptive prose from Rudi: "Playing staccato will give a long release, while holding the keys gives a damped sound (as if damped with the palm). A bit of string buzz and fingers on the fretboard also come through, and try adding some pitch-bend." ■

YAMAHA DX

Real Grand

Mikael Arctaedius, Sweden

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K-Muse Sound Composer
Sample Disks for Ensoniq
Mirage

SINCE ITS RELEASE over a year ago, the Mirage has been one of the best-supported samplers in terms of factory sounds. But this hasn't discouraged a number of independent sources from coming up with their own Mirage samples.

The latest and perhaps best-presented of these is the Sound Composer range from K-Muse in America. K-Muse have chosen to present their sounds in five sets of ten disks each, and this is the only way they are available. Each set costs \$199, and features a complete range of sounds (say, drums on disk 1, bass sounds on disk 3, orchestral sounds on disk 8, and so on) chosen to fit within a certain classification. These classifications are either descriptive – 'Techno' and 'Classical' – or geographical – 'London', 'LA' and 'NY'.

The 'London' series ranges from modern drum sounds through some haunting, breathy voices and orchestral hits (presumably taken from a Pink Floyd album, judging by their name). The 'LA' set includes movie soundtrack-type strings (called 'Hollywood'), some jazzy brass, and FM-type bell sounds. 'NY' is a treasure-trove for the home hip hop enthusiast, with some great slap bass, brass and choir hits, and an astounding selection of percussion sounds that includes various pipes, keys and glass.

'Techno' features some great digital-type sounds (originating in FM for the most part) and also works well in the context of modern musical styles like hip hop.

In stark contrast, the 'Classical' set is for the arch-traditionalist, with string sounds ranging from bold baroque quartet to horror movie "tremelando". Other sounds in this set include the compulsory piano and brass.

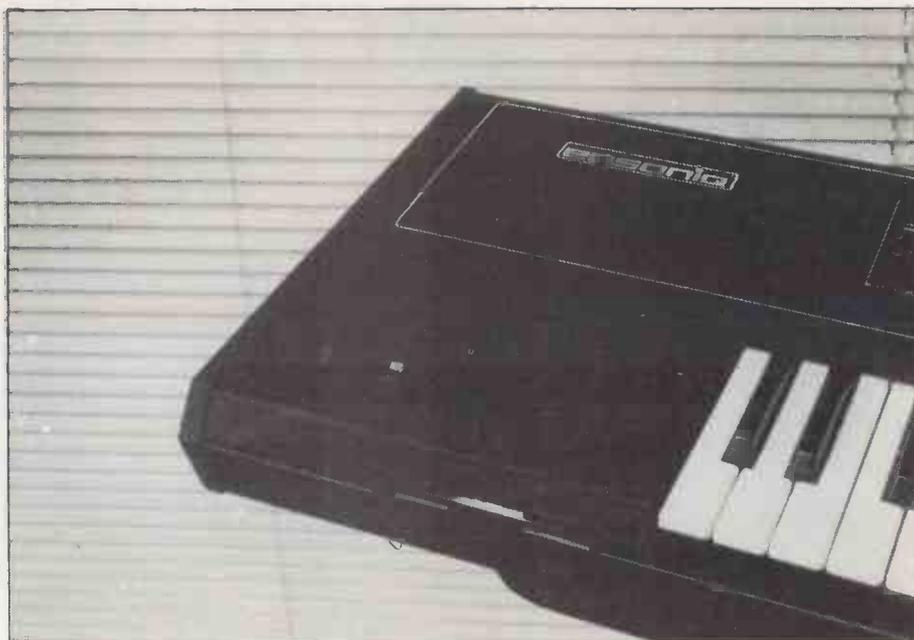
One of the major selling points of the Mirage is its internal sequencer, and K-Muse's Arnie Schulze, who developed the sounds, has put this to good use with demos on each disk that show off the sounds to best effect. These also serve as a guide for the playing style which best suits each sound, enabling you to hear each sample "in context" before you put fingers to keys.

Some of the sound sets are more aptly-named than others: 'NY' is perfect, but I don't hear too much of my home town in 'London'. Still, this doesn't detract from the library's variety, or its usability.

I have a feeling that the large section of traditionalists among sampler owners will make 'Classical' the most popular set, but K-Muse have certainly catered for every taste. \$199 may seem a fairly large sum of money, but when you consider you're getting a minimum of 50 well set-up sounds in each set, the whole thing begins to look more like a bargain.

And if you still have doubts, a 'Sampler's Sampler' set of five disks (with sounds taken from the five sets, plus a free demo disk) is available for \$99; this allow you to test the water and see which sets are likely to serve your needs best. ■

More from K-Muse, 8954 Mason Avenue,
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MUSIC TECHNOLOGY NOVEMBER 1986



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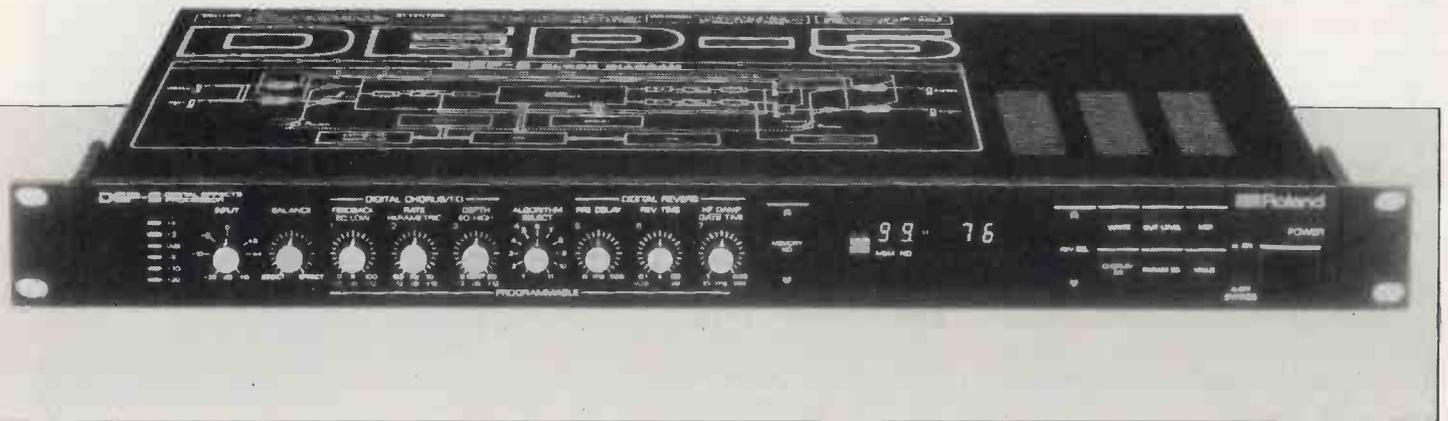
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ROLAND DEP5

Multi-effects Unit



With the help of 28-bit processing technology, Roland have introduced a signal processor that can generate digital reverb, delay, chorus and flanging effects – and combine them together to produce new treatments. By Paul White.

WHAT A DILEMMA. Here I am, with a 1U-high, rack-mountable multi-effects unit, and no earthly idea how to start the review with any phrase other than "Roland's DEP5 is a 1U-high, rack-mountable multi-effects unit – with a difference". I know. I'll start it with "What a dilemma"... If it's a fault, make it a feature, as they say. But I still wish modern effects processors would come in different formats, other than the standard one.

Anyway, the difference just mentioned is that the treatments the DEP5 produces can be used in combination, as well as singly.

Essentially, there's a classy digital reverb, gated or reversed reverb, delay, stereo chorus and three-band EQ. There are four different basic reverbs to choose from with variations on each, in addition to gated or non-linear types, and all have a 12kHz bandwidth. The converters are 16-bit, giving low noise and distortion, and the internal processor handles 28 bits.

Acknowledging the fact that there are a lot of ways you can use these effects, Roland have given the DEP5 a total of 99 memories – including 29 preset effects – all of which can be called up via MIDI as well as from the front panel.

You don't, however, get to choose exactly how you configure the different effects sections. Instead, you have to select from 11 possible flow algorithms, and then set up your own parameters. Because of the way in which the effects can be internally configured, it's worth devoting a few lines to examining those algorithms in detail.

Algorithm 1 is stereo chorus only, while number 2 is reverb only. Number 3 is stereo reverb, the output of which is treated to give pitch modulation effects. Algorithm 4 gives a chorused reverb, number 5 has the reverb and chorus in parallel rather than in series, while number 6 is very similar to the previous algorithm, but with a stronger chorus element. Number 7 is gated reverb, 8 is gated reverb with modulation, and 9 is a parallel combination of non-linear reverb and chorus. The delay section makes an appearance in algorithm 10 in parallel with reverb, while number 11 is described as being low density, non-linear reverb with modulation.

So, with the exception of EQ – which can be set up for all algorithms – no more than two effects can be operated simultaneously. This dispels the myth that the DEP5 lets you use all your effects at once, but the machine does have some powerful surprises in store.

The delay section, for example, has an impressive maximum time of two seconds, while the reverb can be adjusted all the way from an almost immediate decay to a huge 99 seconds' worth. It's also possible to program the number of repeats for the delay program, and stereo delay effects are available.

Controls

THE NICEST THING about the control section is that the DEP5 actually has one. Yes, there are knobs for everything that you might want to twiddle, and that's good news. One odd feature, though, is that the power switch doubles as the effects bypass. Now, I've heard of economising on electricity, but that is ridiculous; it must have been designed by the sort of person who switches off their windscreen wipers going under bridges...

Anyway, from left to right we have a bargraph level indicator, followed, not surprisingly, by the input level control which Roland have decided to call the Input Attenuator. This doesn't actually turn down to zero, which is an odd arrangement.

Next is the dry/effect balance control, which would probably be set to effect only for use with a mixer. For use with an instrument amplifier, though, this control is used to set the depth of the effect.

The next three controls are dual function in true Roland tradition, but don't panic; their operation is very logical. In one mode, they control the three EQ bands, providing up to 12dB of cut or boost at 100Hz, 10Hz and across a parametric band sweepable from 300Hz to 12kHz. When not handling the EQ, they control the chorus rate, depth and feedback.

The next control is in fact a rotary switch, which should appeal to *Spinal Tap* fans because it's calibrated up to 11. This selects the desired algorithm, determining which effects are active and in what order they are connected.

Reverb parameters are set up by the following three controls. They set the Pre-Delay time, the Reverb Time and the HF Damping. In non-linear mode, they also control the effect duration. Then there's the Reverb Selector button, which allows four different basic reverbs to be called up. These are Room, Hall, Plate and Special – more of Special later.

We mustn't forget that gated reverb is on offer, and

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that it's possible, using the non-linear programs, to create backwards type effects, which the manual doesn't really stress.

The memory number may be stepped up or down using a button to the left of the display, and the display itself shows a lot of useful information – including the current memory number, the parameter value currently being adjusted, and the effects that are active for the current algorithm. In reverb mode it shows the room size, while MIDI information also comes up here when the MIDI parameters are being edited; these include MIDI channel number and mode. Program numbers can be assigned to MIDI patch numbers in the range 0-127, so you don't have to reprogram all your effects from scratch to get them to match up to your synth programs. And as you might expect, you can select any of 16 MIDI channels or select Omni mode.

Onto the bank of buttons to the right of the display. The Reverb Selector button we've seen already, but the next row contains the Write and Chorus/EQ select buttons. Write is used to lock your memory and the other switch, as its name implies, selects whether you're editing the chorus or EQ parameters.

The Output Level control is used in conjunction with the Reverb Selector button to program the output level of each effect. This is A Good Thing, especially while so many manufacturers are still overlooking the fact that you don't want all your programs to be implemented at the same level. You can also program a different effect balance for each memory – essential for stage work, but again, still absent on some programmable effects units.

Fortunately, there's an alternative to switching the power off if you want to bypass the effect – you can use a footswitch connected to the socket provided. A footswitch can also be used to step through the first eight program memories in ascending sequence. The ninth switch operation returns you to program memory 1. There's MIDI In and MIDI Thru, but no MIDI Out, as the DEP5 can only take orders, not give them.

Sound

THE MOST EXPENSIVE part of a unit like this is the reverb, and it's on the quality of this that the success of the DEP5 largely rests. As I've already stated, there are four basic reverb types, and the rooms and halls offer a choice of room sizes – from shoe-box to the Royal Albert Hall in sensible increments. The plate setting has two options, as does Special.

The basic reverb sound is bright and reasonably smooth, but slightly metallic. It is, however, a good deal more flexible than most budget reverbs. In a mix the slight colouration is not a problem, and the reverb succeeds in sounding good on both percussion and melody instruments. By comparison with a more sophisticated reverb, the effect is a bit low on diffusion, the decay tail is slightly cyclic, and the overall effect is a little unrefined. Even so, it still sounds great on pop music productions, and that's where its main market lies.

The rooms and halls are effective and fairly convincing, while the plate is very bright indeed. The pre-delay helps to make the sound more interesting and adds to the sense of space, with the HF damping helping to give a more natural sound. And these days, being able to change such parameters at the twirl of a knob is little short of total luxury.

The gated and non-linear sounds are good, too, and there's a surprising variety, from snappy gated drum treatments to eerie, reversed effects. Both gated and reversed settings can be varied in length, and there's

one low-diffusion gated effect that sounds terrific on handclaps. Some of the non-linear sounds have a built-in panning effect, too, which can be quite spectacular.

The Special reverb setting is decidedly odd, though. It has a strange high-frequency frying sound to it which can be really stunning on some sounds, but totally inappropriate on others. Using this setting, I got one percussion treatment which sounded as though someone was hitting a hot metal plate onto which cockroaches were being dropped at regular intervals. A bit obscure, I know, but it's the only way I can describe it properly.

When the reverbs are combined with chorus (or with feedback flanging), the effect can vary from subtle to monstrous – but in all cases, the result seems to be far more than just the sum of the parts. These treatments seem to be aimed at keyboard players: the cheapest synth can be made to sound deceptively PPG-ish, and flanged, reversed reverb on a bland strings sound can transform it into something a Series III Fairlight would be proud of.

The chorus used on its own is all that we've come to expect from Roland; they were the first people to develop it as a serious effect, after all. It's bright, wide and thoroughly dynamic...and a twist on the feedback control instantly transforms it into vicious flanging.

The delay is surprisingly effective when several repeats are programmed, and here too, impressive stereo treatments are available. Having the facility to use EQ really adds to the flexibility of the DEP5, and the parametric section, especially, is useful for 'peaking up' a sound.

What continues to amaze me, though, is the way all these treatments not only sound good in isolation, but can also create such intriguing effects in combination. Setting the sounds up is easy because you only have to call up a preset that's something *near* to what you want, and then fiddle with the controls to get *exactly* what you want.

Verdict

I EXPECTED THE Roland DEP5 to be one thing and it turned out to be another. As a multi-effects unit, it doesn't offer as many obvious options as Yamaha's SPX90, and it doesn't have a pitch-shifter. However, it does have a respectable and flattering-sounding digital reverb which is easy to use and offers lots of options. There's a stereo chorus which may be used as a stereo flanger, and then there's the delay, which in itself offers more variety than you might at first think.

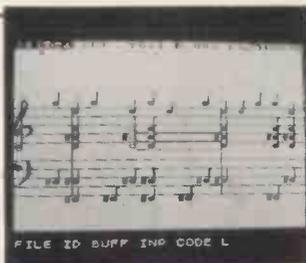
But it's the *combination* of reverb, chorus and EQ that yields the most unusual results. Most of these treatments work well given the right kind of input signal, and most sound spectacular when used with modern synthesizers; knowing Roland's position in the keyboard market, maybe this isn't really surprising.

Combining this machine with your keyboard gives you a totally new instrument, but you really do have to hear one in use to appreciate what it can do. In some ways, the DEP5 is an education in how various delay treatments interact when used simultaneously.

On paper, a reverb, delay, chorus and equaliser in one box no longer sounds a big deal. But once you plug the DEP5 in, it's somehow a lot more than that. ■

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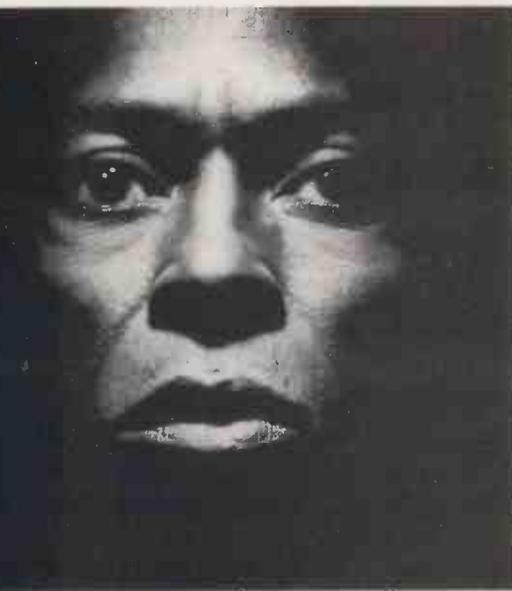
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vinyl T·A·K·E·S

Miles Davis *Tutu*

WEA CD/LP

Always a controversial figure, jazz great Miles Davis has built on his reputation for innovation by advocating the drum machine for use as a serious jazz instrument. It may not make him too popular in purist camps, but it's helped make one hell of an album of *Tutu*.



Eight instrumental tracks comprise *Tutu*, each providing a vehicle for Davis' muted trumpet excursions with the exception of a cover of Scritti Politti's 'Perfect Way', where the original melody is preserved in a manner most unbecoming of jazz. Thus, 'Perfect Way' is the most restricted and least satisfying cut on the album.

The title track more accurately reflects the tone of the remaining pieces: percussion overdubs enliven an unadventurous drum program, polysynths and Fairlight orchestra hits blending effortlessly with Davis' fluid trumpet in precisely the way they have no right to.

Subtle use of unrelated synth patches and vocal samples – along with Tommy LiPuma's and Marcus Miller's clever co-production – creates space within the pieces for the listener, as well as the musicians. And it's some of Miller's own synth programming, along with that of Adam Holzman and George Duke, that gives Davis the springboard for his improvised forays into jazz harmony.

Tutu has touches of Weather Report and Jean-Luc

Ponty, but the authority only Davis can command puts it head and shoulders above both, and proves new technology does have a place in modern jazz. ■
Tg

ScHoolly-D *ScHoolly-D*

ScHoolly-D Records LP

Technology and the recording studio have always gone hand in hand, so it's no surprise that a technology-intensive music like hip hop is at home in the studio in a way that few other musics are.

On the one hand this has led to the state-of-the-art exploitation of technology typified by Mantronik (it's no coincidence that he's rapidly become a much-in-demand producer), but on the other, it's music which can be produced on a limited budget with limited technological means.

Philadelphia rapper ScHoolly-D's debut album shows just what can be done by adopting the latter approach. He's recorded the album at home, and he's responsible for the rapping, the drum programming, synth playing and production, and has overseen the album through to finished product, even designing the cartoon-style album sleeve himself. Not surprisingly, it's on his own record label, too. The only outside input comes from DJ Code Money on the turntables.

The result is hardcore hip hop: music stripped down to the basics of rhythm, eschewing the niceties of melody and harmony. Underpinning everything are the quirky, loping mid-tempo drum machine-rhythms, while DJ Code Money's razor-sharp, dislocated scratching skates across the top in an attempt to disintegrate the beat.

ScHoolly's lazy rapping style, the epitome of coolness, enhances the often violent verbal imagery. What's not so immediately apparent, though, is the way he structures his vocal delivery to add rhythmic punctuation to the music. Everything is rhythmic.

Particularly impressive is the careful use of reverb to create a characteristic beefy sound – hip hop's version of the Wall of Sound – while at the same time managing not to obscure any of the music's rhythmic definition.

The result is a fascinating rhythmic tapestry which, apart from making irresistible dance music, has an enduring interest for anyone who wants to sit down and try to work out what's going on.

This is an uncompromising album, raw and direct. But it's precisely these qualities that make it so refreshing at a time when so many records are over-produced and lacking in spontaneity. ■ Sr

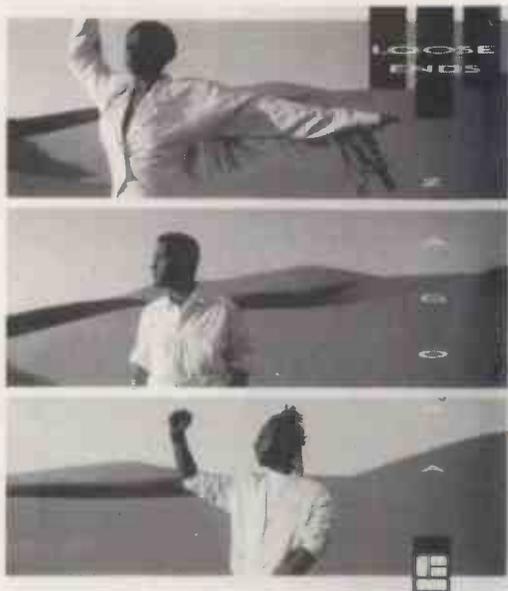
Loose Ends *Zagora*

Virgin LP

Building on last year's slick Nick Martinelli production, *So Where Are You?*, *Zagora* represents a logical progression for Loose Ends' brand of hi-tech soul. Produced, once again, by Slick Nick, it covers the territory already mapped out on its predecessor, but this time explores it a little more fully.

Maintaining the level of attention lavished on the sounds that made up *So Where Are You?*, Martinelli has created an Aladdin's Cave of subtle synth programs and sound treatments in *Zagora*. The equipment listing reads like a checklist of modern music technology – Fairlight, Mirage, Jupiter 6 and, of course, DX7 – making the previous flirtation with a Jupiter 8 and DX7 look positively conservative.

But you won't find too many factory presets



lurking in here; each sound leaves the impression the song has been crafted around it, rather than the other way around.

Between them, band and producer have developed a definitive sound for eighties soul. It works best where it should – on the better songs. Unfortunately the band have a habit of undermining the authority of their best work with sentimental diversions. Last year's Top 20 hit 'Hangin' On A String' is revisited in 'Slow Down', complete with rolling sequences, insistent TR808 pattern and Clavinet break in the middle – though this time a Fairlight has usurped the keyboard's role.

At its best *Zagora* is state-of-the-art soul music, perfectly crafted by the perfect craftsmen. At its worst, it's disappointingly soft and self-indulgent. ■
Tg

Richard H Kirk *Black Jesus Voice*

Rough Trade

Black Jesus Voice is the third and final part of a musical triptych involving a 12-inch and a mini LP, *Ugly Spirit*, from Richard Kirk.

Kirk is probably better known for his work with Cabaret Voltaire, where he represents the instrumental half of the partnership, a fact underlined here by the absence of any vocal work apart from a little vocoded scene-setting.

Instead, there's a heavy dependence on found-source sound samples, used to create a mélange of

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▶ human sounds with no obvious identity. Accompanied by relentless programmed drum patterns and analogue filter-swept bass sequences, these provide the basis for the seven pieces here.

The most tangible outcome of this formula is 'This Is The H-Bomb Sound'. This draws on a more conventional construction involving (shock, horror) a recognisable chord sequence, where the sampled voices assume the identity of a race contesting its imminent destruction with typical human futility.

There is more variation in sound to be found on *Ugly Spirit*, where pounding rhythms occasionally give way to more gently intriguing pieces such as the eastern 'Hollywood Babylon', which employs more inventive synth programming and a cautious TR808 to good effect. ■ Tg

demo T·A·K·E·S

A COMMON EXCUSE for poorly written songs and badly recorded demos is lack of equipment. "Sorry about the quality of the recording, but it was all done in four hours on a borrowed Portastudio. It'll sound great once we get the Fairlight and AMS on it", the letters go. In all probability, though, the results would be even worse had the limitations of time and budget been lifted—technology is no replacement for talent. On the other hand, given a degree of talent, technology becomes an invaluable tool for the creation and recording of new and interesting sounds to embellish a good song.

Consequently, an equipment listing that includes a TR707, TR727, TR909 and RX11 drum machines, an MSQ700 sequencer and Jupiter 8, JX8P, TX7, and Emulator keyboards places Kevor Kian in a delicate position. But, somewhere in his constant travels between Brussels and the South of France, Kevor has managed to acquire not only a feel for commercial songwriting but an excellent ear for sound. Never predictable, the synth programming throws eastern drones alongside rich orchestras and African percussives. Drum patterns are varied, calling on different voices to keep them interesting without ever losing sight of the purpose of the rhythm track in popular music.

The vocal style owes a little to Limahl, China Crisis and Tears For Fears, but retains a healthy individuality. Subtle use of sampled voice fills out the vocal arrangement without unduly challenging the lead vocal. The recording was made on a B16, and sounds very clean.

By comparison, *Always The Stranger* sound rather dry and underproduced. The first of three songs (released on the independent Unlikely Records label) is a rather lifeless piece of pop employing harsh flute and string sounds over an early Genesis acoustic guitar to no great effect whatsoever. But as it transpires, 'As The Beauty Fades Away' is an unnaturally inoffensive diversion from the direction established by the remaining two tracks, where mesmerising CX5M rhythm patterns set the scene for a

video T·A·K·E·S

Weather Report *Japan Domino Theory* (Live In Tokyo)

Hendring Video

Despite Weather Report's lengthy history, the band's live performances have rarely been captured for posterity, either on record or on film. Which makes this hour-long video originating from CBS/Sony in Japan something of a rare treat.

Contrary to the video's title, only two tracks from the *Domino Theory* album have been included: 'Db Waltz' and 'Swamp Cabbage', the latter as part of a medley of seven Report favourites which rounds off the performance.

Duran Notorious

EMI 45

Now short of two Taylors—Roger, quiet drummer, and Andy, rock 'n' roll guitarist—Messres Le Bon, Rhodes and Taylor (John, heart-throb bassist) have decided it's time to axe half their name and turn out a further piece of glamour-pop imagery.

Twelve months have passed since Duran last put a single together, and now as then, their sights are trained patiently on the nightclub dancefloor. So, 'Notorious' is really no more than another unremarkable chunk of Duran's funk metal. Its component parts are those we've grown to recog-

nise, arranged in a subtle variation on the standard order, and reaching out to embrace a tasteful brass arrangement—the single's saving grace.

The B-side, 'Winter Marches On', bears a closer resemblance to Arcadia's recent output, and presents a far more attractive proposition: a sullen slow waltz that makes serious use of vocal samples. Here, Duran don their 'art' hats, put the dance priority to one side for four minutes, and paint a picture in which rhythm is gently nurtured by esoteric bells, while a Fairlight coyly offers up ethereal plucked strings and oboe samples. Le Bon's voice moves carefully amongst them, as if afraid to upset the delicate balance of sounds.

Pretension, yes. But at least they're good at it. ■ Tg

real tinkling glockenspiel and dissonant synth tones that unnerve and discomfort. A soothing vocal attempts to re-establish some form of harmony before being disturbed once again by menacing synth chords. Not a mainstream act, but a deserved candidate for a little Unlikely success.

Quickly establishing, and equally quickly dispelling, images of Gary Numan's Tubeway Army, *Sympathy Party* are next to take the dancefloor. The band comprises keyboard player Malcolm Palin and three American musicians: vocalist Bill, drummer Kevin and George on yet more keyboards. The material here is all solid (perhaps too much so), self-penned pop. A Yamaha eight-track has helped make production easier and the recording attractive. This time an Oberheim OB8, Xpander, DX7, Emulator II and Prophet 600 provide the keyboard sounds, while a DMX/DSX drum machine/sequencer arrangement keeps everyone in step.

The synth programming belongs to the dark-grey Ultravox school, giving all the songs a dense and occasionally claustrophobic feel. Huge string sounds and crystal-clear bells do justice to the OB8 and DX7, while the Emulator is conspicuous only by its absence.

A little more space within the arrangements would help the songs and the musicianship shine through, but it's still the songwriting that demands close attention in order to raise the standard from good—read unremarkable—to exciting. Easier said than done but you wanted to be the pop stars...

Not much information here about the equipment being used, so perhaps it's the count-in at the start of 'She Said' that suggests all the electronic drums are being played live. 'She Said' is the first of four tracks from a London all-girl trio calling themselves *The Touch*. Settling neatly into the (small) gap between soul and funk, guitarist/synth player George Okey and drummer Lucinda Cook's vocals lie effortlessly on top of the tightly delivered backing tracks.

The drums and percussion play a large and inventive role in keeping the songs in time and on course. And Gill Moon's

fretless bass playing is worthy of a special mention, as it occasionally raises its head into view to intrigue the listener, before slipping back beneath the guitar chops and synth swells. The songs aren't brilliant, but they're well arranged, well played and well suited to live entertainment.

Back to synth pop in true Depeche Mode style for *Busy Busy World's* opener 'Night Without Day'. Sadly, it lacks the inspiration or sincerity of the originals; cheerful enough, but lightweight and ultimately throw-away.

There are some neat tricks here, though: colourful use of stereo panning, and complete instrumental drop-outs leaving the (unimaginatively) programmed TR707 and Boss DR110 ticking away unaccompanied before the return of the massed synthetics.

'A Scream And A Prayer' introduces a female vocalist, Jane, and a couple of "real" instruments: congas and the odd bit of clarinet. Relegated to supporting roles, the mundane patches of a Juno, Casio 1000P and Moog Rogue become more appealing, and we have an approximation of good pop music. Later an alto sax joins the rosta of tradition, and further undermines the band's apparently casual approach to the synthetic elements of the music.

Conclusive evidence of talent, then, but too many clichés, careless drum programs and bland synth sounds keep BBW from ever really taking their place on the starting line. Maybe I shouldn't be saying this in a magazine about new technology, but if the band took as much care over their electronics as they do over conventional instruments, they'd be in serious contention. ■ Tg

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Other pieces are 'Where the Moon Goes' (from *Procession*) and an improvised duet between Joe Zawinul and Wayne Shorter. The medley includes 'Black Market', 'Badia' and 'A Remark You Made', before closing with the inevitable 'Birdland'.

In addition to Zawinul and Shorter, the personnel consists of Victor Bailey on bass, Omar Hakim on drums and Mino Cinelu on percussion—a line-up that's been retained over the last several albums. On this live showing they are a fluent if sometimes meandering outfit—the 14-minute opener 'Db Waltz' could certainly have been a few minutes shorter (so to speak).

In contrast, Zawinul's and Shorter's improvised duet is worth every one of its 12 minutes. Shorter is at his most thoughtful and lyrical on soprano sax,

while Zawinul's supportive keyboard textures are both inventive and sensitive. It's a fine testament to the unique musical empathy which has grown up between these two musicians over the years, and following Shorter's recent departure from the band (now renamed *Weather Update*) it's a timely reminder of the human element that his lyricism brought to the music.

As a video 'Japan Domino Theory' isn't entirely successful. Too often, seemingly arbitrary editing serves to obscure rather than clarify the music's organisation. It's most effective during that duet, where the slow unfolding of the music allows the camera to linger lovingly on one or other musician.

One for the confirmed addict, rather than the newcomer to the band's music. ■ St

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H O R I Z O N S

Former jazz-rock drummer Richard Burgess now devotes his energy to production, where his credits include Spandau Ballet and King, and where he's come even closer to the technological evolution that's changed the face of modern music. Interview by Tim Goodyer.

WHATEVER ELSE it may have done, the nation of New Zealand hasn't contributed all that much to the development of modern music. It has, however, given us Richard James Burgess, an inveterate traveller – both geographical and musical – who's succeeded in staying one step ahead of the field while wearing several different guises: notably those of songwriter, musician, arranger and producer.

He may have been born a New Zealander, but Burgess first made his mark on the music industry in Britain, with an inventive jazz-funk group called Landscape. Since then he's moved on to work with a wide range of artists in an equally wide range of locations, and now finds himself a resident of New York.

"New York has always fascinated me", he admits. "It's the ultimate city in the sense that it's the total city environment and a very exciting place to live. It's also a hard city and, at the time I moved there, I was getting a little complacent. I'd had a lot of success, a lot of hits and money wasn't a problem. I felt I was losing the edge of needing to work and needing to push forward. New York really put me back on that edge again. I like moving around, though, because you get the feel of different studios and the feel of different cities."

Burgess was back in London at the time I interviewed him, taking a breather at Trident 2 recording studio after helping Sly Dunbar and Robbie Shakespeare produce *10 Days in an Elevator* for Sheffield industrial electro-poppers Chakk.

Near the start of Burgess' career, three albums and a string of singles on RCA put Landscape on the map as a forward-looking experimental electronic outfit with an offbeat commercial appeal. Back in 1981, they managed two charting singles: 'Einstein a Go-Go' and 'Norman Bates'.

"Probably the best aspect of Landscape was before those hits", muses Burgess with the benefit of hindsight. "I like those songs, but the most exciting phase of the band was the instrumental jazz-funk before that. The only accurate representation of that time is the EPs we put out on our own label."

As a band Landscape are now dead and gone

► "MIDI's like going back to building up sounds from scratch: you can create sounds that are hard for anybody else to stumble across. That helps preserve individuality."

with no likelihood of a reprieve, but Burgess and his comrades, trombonist Peter Thoms, synth player Chris Heaton, flautist and lyricist pioneer John Walters, and bassist Andy Pask, are all still active in various fields.

Burgess' own transition from drummer to technician was sparked by dissatisfaction with playing the traditional drum kit...

"When I got tired playing drums on sessions I

started doing a lot of computer work. I was finding it intensely boring doing two and four on the snare drum, eights and 16s on the hi-hat, and the odd fill every 16 bars. I thought you could do it much better with a machine and a few tom overdubs.

"The electronic pads available then, like the Syndrum, weren't really any good, and you could get a much better sound out of them by sending a 15-volt spike and scaring the hell out of them.

"This was in the early days of computers back in the late seventies. I was trying to convince producers to start using computers like the Roland MC8, but they couldn't come to terms with it. I realised I was ending up virtually producing that kind of session. There was little point in me going in giving all my expertise away to somebody else – I might as well make the record myself.

"So John Walters and I put our heads together and worked on stuff for the *Tea Rooms* album, and that was when Landscape made the big change-over to computers."

The MC8 was the first in a series of compositional computers that Burgess was to encounter.

"I got to the MC8 through drum synthesis. It'd always fascinated me and the MPX outputs on the MC8 were beautifully set up for drum triggering. At the time I had about four Simmons SDS3s all linked up in order to create the kind of sounds that we were later creating with the SDS5. That was what got me fired up."

HIS INVOLVEMENT WITH electronic percussion led Burgess to Dave Simmons' formative company, where he was to be instrumental in the development of the revolutionary SDS5 electronic kit. Eventually, his interest in using dedicated drum synthesisers to create percussion sounds expanded to encompass the synthesiser technology of the day.

"My setup in those days was an MC8, the SDS3s and a pile of Roland System 100s. I still think that's one of the best synthesisers ever made.

"My start in synthesis was through an EMS Synthi A, but they were really only good for making noises with – they weren't too great for playing tunes on. The Synthi A, the VCS3 and the ARP 2600 were the best of the stuff that was around at the time. I was always more interested in pure synthesis – sounds and textures – and I've found that's been very useful in recent years with things like the Fairlight.

"The frustrating thing about the System 100 was that you had all your programs in the MC8 saved, but the System 100 had no facilities for storing programs. You'd get a great sound on it one day and the next you couldn't find that sound again.

"Then I heard about the Fairlight. I think I had the second one that came into the country, and on

MUSIC TECHNOLOGY NOVEMBER 1986



that John Walters and myself did all the programming on the Kate Bush album *Never For Ever*.

"I jumped from the MC8 to the Fairlight, then I went back to the MC4. The Fairlight seemed the perfect thing because you could not only have the sequence, you could save the sounds as well. The only problem was that, at the time, it didn't have Page R; it was all MCL, and that was very primitive and very complicated to use. I think Page R cracked the Fairlight open to the world."

Few musicians can mention the name Fairlight without referring to sampling and its implications, yet Burgess faces a potential minefield with typical objectivity.

"I prefer to let other people argue about whether sampling is valid or not – I'll just keep on doing it! All I need out of music is something that stimulates me. If it doesn't excite me any more then I don't bother doing it. That was the reason I gave up playing drum sessions. The Fairlight gave me a kick up the bum; as did the MC8 and the MC4. But I think sampling's the best thing that's happened in the last 15 years."

And what of MIDI, that other great recent development of which, both as drummer and as producer, Burgess has been a prime beneficiary?

"In the beginning Roland went into things in a very intelligent way adopting their 'open' system, but all the other companies were really stupid about it – MIDI is just what the 1V/octave system should have been.

"MIDI's like going back to building up sounds from scratch. You don't have the problem you have with the Fairlight where, although the library is very good, you can recognise a lot of the sounds and even if you can't recognise the sounds, you can recognise the technique. You can create sounds with MIDI that are quite hard for anybody else to recreate or stumble across by accident. I think that helps preserve some sort of individuality of sounds."

But the usual – and least imaginative – way of using MIDI as an aid to sound creation is to layer synth patches over one another. Burgess, on the other hand, adopts a linear approach to sound construction, using different instruments to

supply different aspects of a sound as it progresses.

"That comes from the early days of working with drum sounds", he reflects. "I realised way back in the seventies that you couldn't get a drum sound out of the EMS Synthi A because the envelope generators weren't fast enough. A drum sound happens very suddenly, gets very loud and then dies away. Once you start to analyse sound like that, you find that some instruments are better at producing transients. The DXs are better at cutting things while the Jupiter 8 is better at

► *"There are bands that know nearly as much about recording as I do, but I don't feel threatened by them. I'll let them do as much as they can, then lift them that last little bit of the way."*

warm, rich sounds. Other people probably do it without realising it, but I've got an analytical mind.

"The way I use MIDI is a lot more primitive than some of the ways it could be used. From the multitrack angle the full use of MIDI isn't really so relevant, but it's very useful from the artist's point of view. Artists want to sit at home and put all their stuff together and then go into the studio and refine the sound."

THE MOVE TO the role of producer is something Burgess casually writes off as 'accidental', but he accepts it as a logical progression from his later days with Landscape.

"What used to drive me crazy when I was an artist in the studio was this compulsion of producers to justify their position by changing things. If I can walk into a situation where I change nothing then I'm very happy – it makes my job easy and I think it's a valid thing for a producer to know when to back off.

"Now there are bands coming up that know nearly as much about recording as I do, but I ►

► don't feel threatened by them. I'll let them do as much as they can do, then I'll try to lift them that last little bit of the way. I don't see the producer and artist as being in separate camps – I see the producer as being a consultant or adviser. I try to find out why people want to hire me, and most times it's because of something I've done that they've liked. In that way it's your subjectivity,

► *"The charts were full of wimpy two-man synthesiser bands, but I never wanted synths to be wimpy; what attracted me to them originally was the richness, the power you could get from them."*

rather than your objectivity, that people hire you for. I like it to be that way. I like to be hired for what I do best, rather than because I have a reputation.

"I suppose I've got quite a technical mind and drummers have this overall view of what's going on: it's like a goalkeeper can see what's going on better than anyone else. There are a lot of drummers in production.

"Spandau was my big break into production. The only stuff I'd done before, apart from Landscape, was for a group called Shock which was pretty successful in the dance charts in Europe. But Spandau was my first sole production role, so I have fond memories of it."

And with such a prestigious start to Burgess' new career – 'Chant Number One' was his handiwork – more offers of work were soon to follow.

"Perry Haines approached me about a group that didn't have a deal. I heard the stuff and knew it'd be successful. I was working on Adam Ant in Sweden at the time, then I went to the States and Perry called me to say they'd got a deal with CBS, and would I do the album?"

The band in question were King. The album was the huge *Steps In Time*.

"But it didn't happen for nearly a year. They released three singles off the album, then they released 'Love and Pride' again – which was the song I really believed in – and it went to number two. Of course it was easy after that. I think we were probably a little premature with it but 'Love and Pride', like 'Chant Number One', had an anthem quality about it – and you don't come across too many of those in your life.

"Because I was one of the first people to do heavy electronic and computer music, I'd got saturated with it long before most other people. One of the reasons I was really interested in King was because the charts were full of wimpy two-man synthesiser bands. I never wanted synthesisers to be wimpy: it seemed like a misappropriation of the instrument. What attracted me to it originally was its richness, its bigness, the power you could get from it. When I heard King, it seemed like the way I was thinking."

Moving on to the present, a fair part of Burgess'

reputation is now built upon his work with 12-inch remixes.

"I grew up with 12-inch mixes", he explains. "As a drummer I made a lot of 12-inch recordings, and then my first work as a producer was all 12-inch, which I later edited down to seven-inch and album versions.

"My major influence was reggae. Dub work was the thing that got me fired up – the way it'd suddenly go down to a hi-hat and then build up again. But anything goes now, so I don't see the 12-inch as being related to seven-inch or album mixes at all – it's a totally different art form. It's linear: you don't have to keep building like you do on seven-inches, and things can change dramatically.

"You can't over-indulge yourself, though. There are certain restrictions. Unfortunately there are a lot of 12-inch singles made these days that never should have been made, just because of the market that's out there. There are certain songs that don't have the right beat for a 12-inch, but get turned into one anyway because the record company demands it. Personally I'd prefer to work just on computer dance mixes."

Burgess is now distanced from the spotlight of chart success, his name only coming to light in amongst credits for management and sleeve design. How has yesterday's pop star come to terms with his musical middle age?

"I used to think it would be agony not to have my own records out, but now I realise just how much agony it actually was. I think it gives me a real insight having been through that: I know how people feel on Tuesday morning waiting for the chart positions to come out. But producers can be very blasé about something that is a month or two months out of an artist's life. They've got three or four other projects going on. If it hits then that's great, it increases their bank balance; if it doesn't then maybe the next one will. I go into things with the attitude that not only do I want this to be a hit record, but I want the artist to be proud of it too."

And as someone who divides his production time between home-grown and Stateside acts, how does Burgess see the difference between the two?

"The aims are the same, but I think American artists are more aggressive in their attitude towards things. If you don't keep running, you fall over and get trampled on.

"Technically the musicians in America are better, but the British musicians make up for that by being more quirky. One reason for that is the musical education system here isn't as good, so you get the situation where people have to develop their own technique, usually over a very short period of time. So they tend to develop very unusual techniques whereas, in America, they're able to play anything but they don't necessarily apply their minds as they should. But, having said that, where would British music be without R&B?"

Where indeed? ■



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COMPUTERS, MUSIC *and* ART

Morton Subotnick is a prominent avant-garde composer whose music makes new demands of new technology. He began by designing synths with Don Buchla; now he's using MIDI, computer control, and Yamaha's X-series gear. Interview by Ron Briefel.

IF YOU'RE AN intrepid reader of electronic music history, or even just an occasional browser, you won't need much of an introduction to Morton Subotnick. As a seminal influence on the development of the field in the late fifties and early sixties, Subotnick is still very much at the forefront of creative activity.

If, on the other hand, electronic music history is not one of your greatest passions, some facts about the man would probably come in useful.

Born in Los Angeles in 1933, Subotnick became an accomplished clarinetist at an early age. He studied composition with Darius Milhaud, and by 1958 started writing music for the theatre. It was at this time that he started getting involved with tape machines, and began to use them for his productions. He then co-founded the San Francisco Tape Music Centre in 1959.

However, Subotnick was soon finding the laborious process of splicing, editing and manipulating recorded sound increasingly cumbersome. By the early sixties, he'd started looking toward the possibilities of the transistor and voltage control techniques.

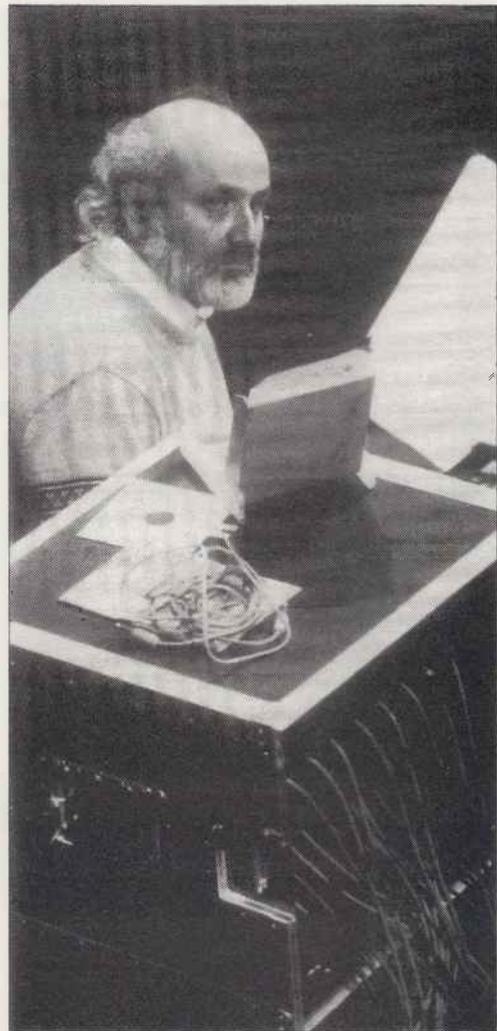
He began to work closely with the engineer Donald Buchla, and soon a series of synthesiser modules appeared that led to the emergence of one of the first integrated synthesisers, the Buchla 100, in 1966.

Subotnick was to use this system on the first electronic music to be commissioned for an LP. Called *Silver Apples of the Moon* (Nonesuch, 1967) it gained much critical acclaim with its intricate interplay between timbre changes and pitch/duration events.

The rich sound imagery of Subotnick's music was already giving it a strong theatrical element (still very much alive today), and to develop this, Buchla designed further circuitry that resulted in something called the Ghost Box. The ideas for this grew out of earlier experiments in voice-activated control and manipulation of sound in live performance. Originally, Subotnick's voice was recorded on tape, and would act as a control track to bring about various modulations and specialisations of the live sound.

Buchla then designed the Ghost Box as a programmable control system which used an EPROM chip instead of a voice tape. So each piece of music had its own control chip. The word "ghost" is used to indicate the presence of a phantom composer controlling the sound.

At the end of September this year, Subotnick appeared in London to present



some of his latest works, performed by himself and the Metanoia Ensemble. The appearance kicked off a new EMAS concert series, and one of the pieces played, 'After the Butterfly', used the Ghost Box system to good effect.

Schedules in London were tight, rehearsals hectic, but somehow the composer found time to talk – at some length, as it turned out – about music technology and where it's likely to go in the future.

If Don Buchla was the man behind much of Subotnick's past music technology, there's no doubt about who's behind him now – Yamaha.

Subotnick has composed his most recent pieces on the QX1 and TX816 system, and is full of praise for its capabilities. However, he's about to embark on a period of development to extend the system further. How does he go about adapting mass-market music systems, made by big companies with few goals beyond selling as much product as possible, to suit personal requirements? Or to put it another way, how well does he get on with

Yamaha? Subotnick detects a new, refreshing attitude.

"I think most companies now are intelligent enough to understand the potential. They realise that they've got to not just look for existing markets, but to create new markets, and that's something that the earlier commercial makers of instruments never really saw."

The composer sees an increasing emphasis on open-ended systems which (with the help of MIDI) will continue to encourage the growing software and small-scale hardware "cottage industry", as he puts it.

"The real problem now is for us to tell them what's possible. They'll do it - well, maybe not everything - and they'll listen because they know that they're going to survive by listening."

An exciting prospect for Subotnick is the new hardware-based sequencer due out from Yamaha shortly.

"It will be twice as powerful as the QX1 and half the price", he says. "And it will be able to communicate more directly with microcomputers and other devices like printers, for example."

THEN THERE'S the support now being offered by the advanced facilities and expertise of academic computer music establishments, such as MIT, Stanford and IRCAM. Subotnick is about to spend two months at MIT where he will be working on a Yamaha QX and Macintosh-based MIDI composing and performing environment system. The system will also incorporate something called the "MIDI Baton", an intelligent, interactive timekeeper for performing musician and "live" QX sequencer. Subotnick has visions of a performing situation where a number of MIDI'd mallet-type instruments, as well as sampling keyboards, are feeding information to the MIDI Baton, which immediately processes their performance data and instructs the QX to start, stop or slow down according to a preprogrammed score. All this would be done via the Macintosh. If one or other of the musicians happens to make a mistake, then within certain boundaries, the baton will detect it and compensate for it, just waiting for the musicians to correct themselves.

On the composition side, it seems the Macintosh-QX link up would greatly facilitate editing, voicing and control procedures via the advanced graphics capabilities of the Mac. You could also dump entire programs from the QX, and in general terms give the sequencer much more freedom to do what it's best at - driving the TX816 or other MIDI instruments via its powerful parallel processing architecture.

So in view of the rapid advances in sequencer procedure and the possibilities of intelligent timekeepers and controllers, what future does Subotnick see for traditional music notation?

"I think this is probably a delicate area right now. There is software around at the moment that deals with traditional no-



tation via MIDI, but it can be quite limiting, especially at the lower end of the market. But there is a terrific advantage, depending on your background, of still using traditional notation.

"For myself, I can't really imagine reading a sort of sequencer grid or bar code notation, and being able to hear the music in my head like you can with traditional notation.

"What I think is going to happen is that software for traditional notation will continue to improve, and it will become

"Most mass-market companies are now intelligent enough to understand that they can't just look for existing markets. They've got to create new markets, something earlier commercial makers of instruments never really saw."

incorporated with sequencer notation which will give control, editing, processing and assignment information. So there will be two parallel notation systems.

"There is already a good program out in the States called Switcher, where you can nest, say, four sequencer programs and load them simultaneously with a manuscript program. Both are then available so that you can be writing music in traditional notation, and immediately switch to its sequencer counterpart for editing and introducing control data and so on.

"So I think this sort of merge software is ideal. I don't think a totally new notation will come about. However, I do recognise that there are a number of composers doing good work without using traditional notation at all - Laurie Anderson, for example. ▶

"My guess is that the long-term future of technology will be pencil and paper and voice. By this I mean we'll be writing music on a graphics tablet with a graphic pen. The system will also accept voice input, either as a verbal command or as a purely musical construction or control mechanism.

"The computer would be able to address itself to any notation system that you

"For myself, I can't really imagine reading a sort of sequencer grid or bar code notation, and being able to hear the music in my head like I can with traditional notation."

chose to use, including spatial and graphics notations. Conversion programs could then transfer one notation into another to assist the compositional process, or simply as a means of communication with others – musicians, for example.

"My guess is that this is really around the corner – within a decade certainly – and it will mean a lot when it happens. The programming capabilities are already there; it's really just a matter of speed and memory."

AND SO TO the music itself. At Subotnick's London concert, there were two pieces that employed the QX1/TX816 system as it's currently operating (ie. in its standard performance role). Subotnick "performed" mainly by switching the system on and off and controlling tempo – functions that

will eventually be carried out by the MIDI Baton.

The first piece was QX1/TX816 on its own. Called 'Return' the piece was commissioned as a public work to commemorate the return of Halley's Comet. It incorporates music from different periods of history, sometimes invented and sometimes direct quotes. It comes over as a sort of gigantic "harpsichord concerto", the TX816 alternating between enormous timbral clusters of sound and 18th and 19th Century and Bach-type tonal melody layering.

It was certainly an invigorating piece to hear, especially in the large, resonant Union Chapel venue. There was also an accompanying – and rather effective – slide/light show.

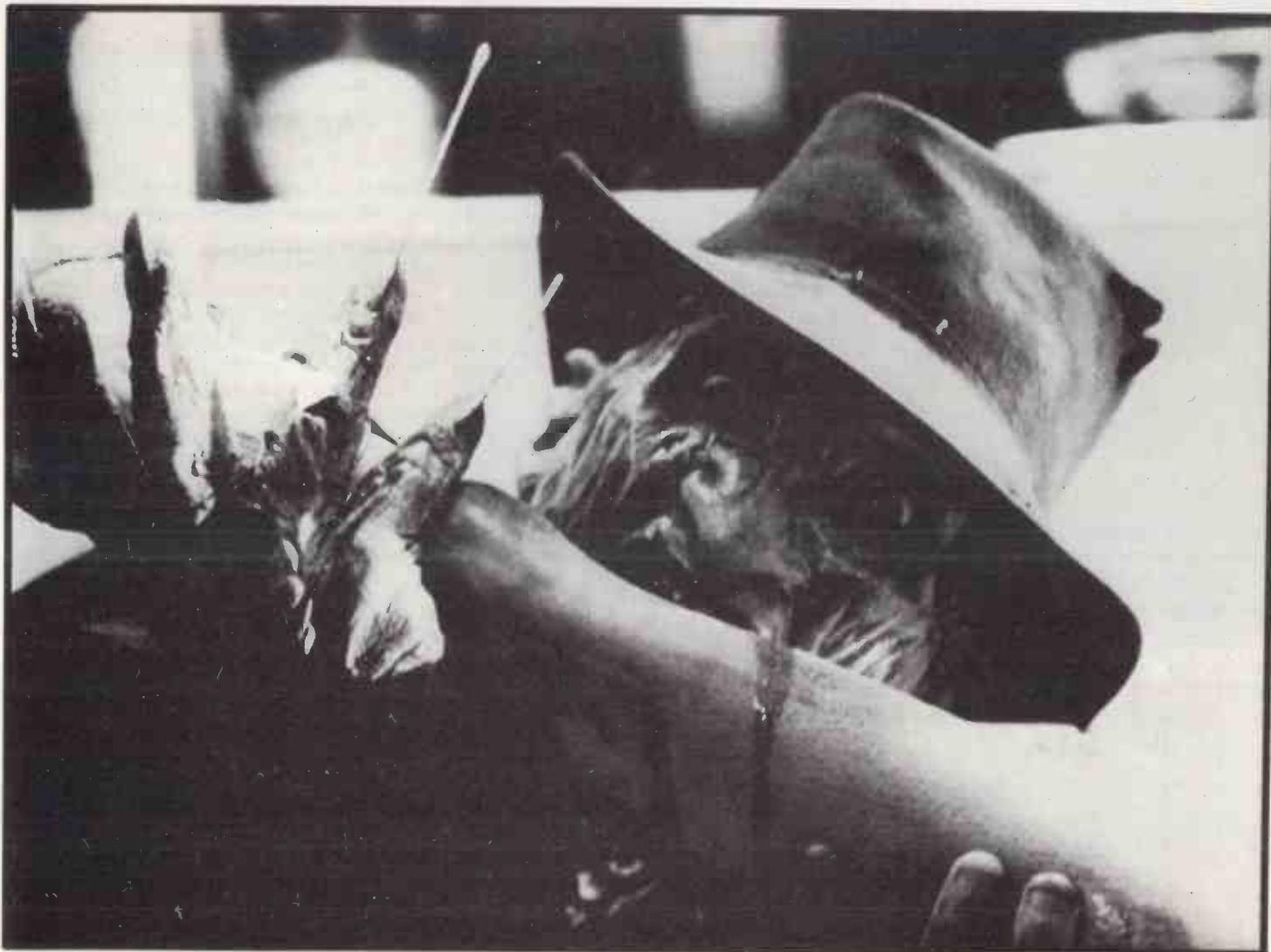
The second piece, 'Key to Songs', had the TX816/QX1 performing with the Metanoia Ensemble. Once again there was an interesting interplay between timbral masses and rhythmic/tonal events. This time, though, there was the added dimension of the musicians at times appearing to be playing what was in fact being produced by the QX1 – the sequencer system acting as a dramatic foil for the musicians and, ultimately, the audience. ■

A complete performance of 'Key to Songs' will be broadcast by BBC Radio 3 on November 29. More information on the EMAS concert series can be had from Carol Butler, 10 Stratford Place, London W1. ☎ 01-499 2576

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MUSICOM

Music Instruction System



Roland's *MUSICOM* is a sophisticated computer-based music education system. What does it offer tutors and students that conventional teaching methods can't, and is it cheap enough for Britain's fund-starved schools? By David Ellis.

AT ODD TIMES in the past – and under its previous title, of course – this magazine has taken a look at the role of computers in music education.

Reviews have covered the comprehensive (but expensive) range of Micro Music programs from Temporal Acuity Products, written for the Apple II computer, which utilise a low-quality DAC board to output sound, and the higher quality Music Tutor package for Passport Designs' Soundchaser system.

Other features have explored type-in Computer-Assisted Learning (CAL) programs for the BBC Micro, including a number of simple pitch training programs from the author's own book, *Creative Sound on the BBC Microcomputer*.

And E&MM's pages also kept readers up-to-date with the activities of such organisations as TIME (Technology in Music Education), which seemed to promise much for establishing some sort of quality standard and curriculum for computer-assisted music education. But sad to say, what once looked to be a growth area for imaginative music teachers turned software writers, seems to have lapsed into inactivity over the last year or so.

What might give a boost to this flagging spirit is the new GCSE (General Certificate of Secondary Education) exam system. Although the GCSE doesn't actually label CAL as the saviour of secondary education (it certainly isn't), the exam system does reflect the notion that what children really need are practical skills acquired through experience and investigation, rather than from pure book work and formal classroom teaching. And the right sort of CAL is an excellent way of guiding students through new or difficult knowledge areas – music included.

However, the arrival of a new curriculum inevitably means that finances are likely to be tight until the precise direction of the GCSE music course has been mapped

out with certainty. So, although there may be a lot of enthusiasm to equip school music departments with the necessary equipment for students to explore every facet of contemporary music, putting that enthusiasm into practice is likely to be an uphill struggle.

Faced with this crossroads of changing systems and financial constraints, the MUSICOM system would hardly seem to have come at the most auspicious time. Conceived as a complete music instruction system, MUSICOM was put together by a team of teachers and programmers in Israel, under the aegis of a company called Xanadu International, and distributed by Roland UK. The computer used (the IBM PC) in this system is a little out on a limb from those normally encountered in education in either the UK (the BBC Micro and RML machines) or the USA (the Apple II and Macintosh).

For their part, Roland must be hoping that the advent of the Amstrad PC1512 and a rush of cheap IBM PC compatibles will change the balance of computing power in education. Personally, I don't see that happening to a huge extent. It's true that there's a switch away from the BBC Micro (and rightly so), but it's to the Atari ST, not to the IBM PC. And in music education, the situation is further complicated by Yamaha's CX5M, which, despite being hampered by the truly awful MSX standard, has become a popular addition to music departments by virtue of its effectiveness as a compositional tool – and its fairly low selling price.

Hardware

AS THE IBM PC itself is limited to a feeble monophonic beep, the sound output for the MUSICOM system is arrived at by the addition of a MIDI interface (Roland's MPU401) and some sort of MIDI keyboard (preferably one that's velocity-sensitive). In addition, a card has to be plugged into one of the IBM PC's slots to connect the micro with the MPU401. Although Roland make their own IBM PC card for the MPU401, the MUSICOM system requires the use of a special card (the Xanadu IFM-PC) that adds on a so-called "pitch and rhythm detector" circuit. This takes the input from a microphone, inwardly digests it, and then sends extracted pitches in the general direction of the MUSICOM software.

But whereas the MPU401 retails for £219, the Xanadu IFM-PC card sells for a mildly ridiculous £660. So, even without any software, computer, or MIDI keyboard, the basic MUSICOM hardware already costs more than twice as much as the entry level Amstrad PC1512 – or a quartet of secondhand synths that could be used to form the basis of a school synth band.

Luckily, the MUSICOM system doesn't seem to be too fussy about what sort of IBM PC it uses, and any compatible should do fine. What it does require is the Colour Graphics Adaptor card for the graphics display (the equivalent of which is already built into the Amstrad PC1512) and a colour monitor. At a conservative estimate, a standard IBM PC compatible thus equipped for colour, with a couple of disk drives, will add on a further £1200 to the bill. And should you go for

the Big Blue original, that figure will read more like £2200. Don't tell me I didn't warn you...

One final hardware feature that's worth noting is that after booting-up the IBM PC with the MS-DOS operating system disk, and then inserting one of MUSICOM's course disks, the IFM-PC card imprints a serial number on the disk. This means that those disks and that interface card are wedded together for life. So, if you're a music department that's lucky enough to be able to afford a number of IBM PCs and sets of Xanadu hardware, you still have to buy duplicate sets of software for each machine. A nasty copy protection trick.

Software

XANADU ORGANISE their music course into a number of blocks, each of which is available separately in beautifully presented ring-bound form, with the disks slotted into pockets at the back of the manual. But beautiful presentation usually costs an arm and a leg, and the MUSICOM packages are no exception to the rule. For the record, here are the various courses and their prices:

Course A1 – Ear Training and Sight Singing (£386).

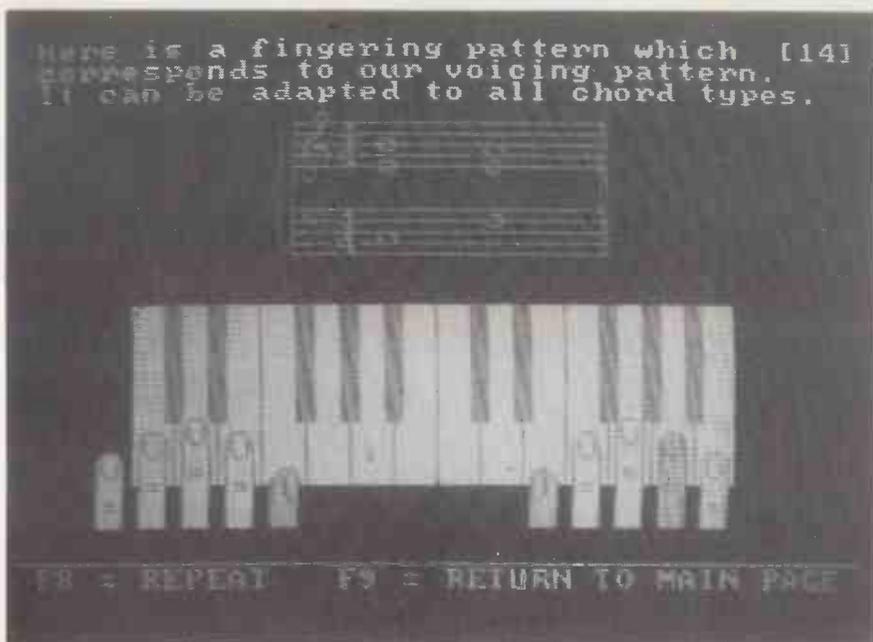
Course B1 – Keyboard Fundamentals (£424).

Course C2/C3/C3A – Concepts in Two-Part Writing/Triad Structure/Triad Structure (supplementary) (£534).

Course P1 – Rapid Piano (£415).

Course J1 – Jazz for the Keyboard (£360).

The Ear Training and Sight Singing course makes particular use of the pitch detector, and requires the



student to sing into a microphone whatever notes are displayed on-screen. To avoid the system glitching when attempting to detect pitches, this has to be done fairly deliberately and in strict tempo with a computer-generated metronome. This involves some acclimatisation, but the real-time display of notes and durations as they're sung is certainly informative, and definitely ▶

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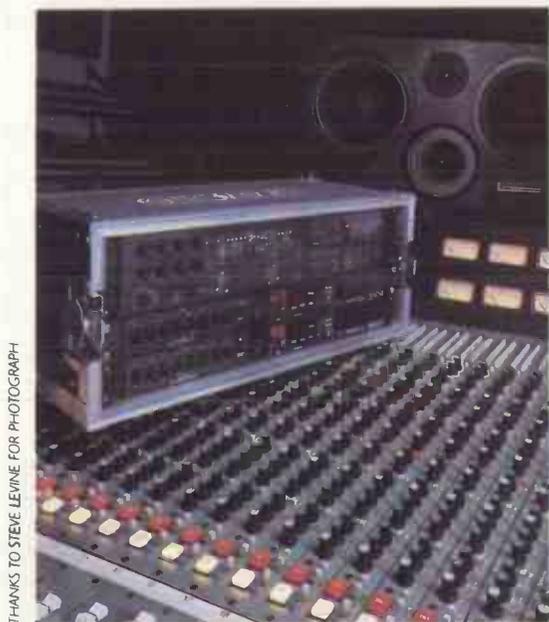
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more valuable to the student than a rap over the knuckles from an irascible piano teacher.

One thoughtful feature is that the software asks you to sing your highest and lowest notes in order to determine your singing range before commencing the exercises proper. A neat touch.

The pitch detector also copes with the input from most instrumental sources (flute, violin, and trumpet, for instance), so students with no pretence at singing ability can also be catered for by this program. In fact, Xanadu have it in mind to produce programs specifically designed as tutors for particular instruments.

Keyboard Fundamentals comprises a set of four disks,

and is designed to teach basic keyboard skills to children at (roughly) primary school level. It covers music notation, simple melody and rhythm, and playing notes on the keyboard. Undeniably worthy, but the course does seem a little on the dull side, especially bearing in mind the age of the children that are likely to be using it.

I'd have thought that, at this early stage of music education, the computer should be exploited to the full, with touches of arcade games graphics and sound effects to add some spice to the whole business.

The austere titles of Concepts in Two-Part Writing and Triad Structure continue the academic flavour of MUSICOM. Again, all good stuff in terms of presentation and depth of content, but these aren't the sort of programs to shove under the average musically-inclined student's nose unless they're really set on wading through the Associated Board exams or passing 'A'-level Music.

Fortunately, MUSICOM comes nearer to clearing the academic cobwebs in its Rapid Piano and Jazz for the Keyboard courses. Rapid Piano covers about a year's study of basic keyboard skills, including using the hands, turning the thumb, fingering scales, and playing arpeggios. This is done with style, tact, and the infinite patience that should be part and parcel of any decent CAL system.

Better still is the two-disk Jazz for the Keyboard package. Divided into rhythm and harmony sections, the course starts off by (re)orienting the student to the delights of triadic harmony. Once this has been

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accomplished, you're then invited to explore the strange, new world of seventh chords. From there, you move on to using those chords in open-voiced harmony, with sample basslines derived from Thelonius Monk and other jazz luminaries.

The software also allows you to record your own version of a piece, reading from chord symbols and a bassline, and then compare this with the original. Add the rhythm side, which teaches syncopation and off-beat accents among other things, and you've got an excellent package that does a lot more than just teach music. Highly recommendable, and the best value of all the MUSICOM courses.

With so much material to choose from, the above run-down on MUSICOM's contents is inevitably skimpy. If you're seriously interested in the system, you'd do well to book an appointment with Alistair Jones at Roland (see address below), who'll take you through its workings in detail.

Verdict

THERE'S NO doubt the MUSICOM system is superbly presented – both on the screen and in the manual. And although many teachers (and most students, I guess) will turn their noses up at the overly academic slant of the theoretical courses, MUSICOM gets through a huge amount of inevitable musical tedium efficiently and with a good deal of imagination.

But the course that stands out (for me, at least – I'd give anything to be a competent jazz pianist) is the **Jazz** course, which is not only fun, but actually leaves you with the feeling that you've acquired useful musical skills.

The biggest problem with this system is the choice of

micro – for the UK market, anyway. A version for the Atari ST would seem to make a lot more sense for the UK and general European market, and that micro has the major advantage over the IBM PC of a built-in MIDI interface.

And as I've already intimated, MUSICOM isn't cheap by today's standards. True, buying an IBM PC used to cost thousands, and software companies could get away with charging hundreds for their products. But with the advent of IBM PC compatibles, and especially the Amstrad PC1512 (no, I don't have shares in Amstrad – though I wish I did), the more streetwise software houses have seen the sense in lowering their prices to fit in with the change of fortunes in the hardware industry.

So as things stand, Xanadu are in exactly the same position as many publishers of business software for the IBM PC. Those that cut their prices will reap the benefit of a whole new market; those that hang on may simply sink without a trace, or be swallowed up by software pirates or copycats.

I think MUSICOM is worth saving from that fate. The fact that Roland are prepared to consider educational discounts certainly goes some way towards easing the

► *“The jazz software allows you to record your own version of a piece, reading from chord symbols and a bassline, and then compare this with the original.”*

pressure on the pocket, and it'll be interesting to see what path Xanadu themselves decide to take – both price-wise and micro-wise. ■

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MIX *down* LOW *down*

You may have the finest piece of music this decade has seen, brilliantly played and beautifully recorded...it can all be ruined by indifferent mixing. In the first part of a new series, we guide you through some basic points about creative mixing. *By Paul White.*

CREATING MUSIC, particularly pop music, is not unlike painting a picture. A cliché, I know, but think about it for a while: artists' approaches can range from the emulation of real life (realism) to a completely unnatural style that appears to break all the rules (surrealism), and much the same can be said of composers,

musicians and producers. And while painters rely on a palette of colours and painting techniques, producers use the mixing console and effects to shape and direct what has already been recorded onto tape.

This phase of recording is incredibly significant, as the producer brings together several independent musical elements that

may originally have been separated by space, as well as time, and blends them into a cohesive whole.

Just how the sounds are mixed and treated depends on the result you want to achieve, but the processes can usually be divided into two groups: those that are necessary as a result of the physical limitations of recording equipment or performers, and those that are applied to create a specific, er, creative effect.

I'll call these two areas corrective and creative, though as we'll see later, they can overlap.

Corrective Measures

BY THIS, I mean the type of processing that has to be applied to minimise noise or crosstalk, control dynamic range, and to correct for tonal inadequacies created somewhere along the line.

The first line of defence here is the noise gate, but there are more sophisticated expanders and dynamic noise filters available, so there's no shortage of weaponry in the fight against noise.

Where possible, gating is best applied on a track-by-track basis rather than on a complete mix or submix, because a gate is only useful if there are gaps in the music where it can be allowed to close. When the signal is present, so is the noise, so there's no point in having the gate open at the start of a mix, only to stay open to the end: you gain nothing other than a quieter start.

But gating a single track, such as a vocal line, effectively mutes the tape noise



Photography Tim Goodyer

between words, and as an added bonus, cuts out any crosstalk that might be on the track. However, you have to set the gate's controls carefully to avoid losing any wanted portion of the sound. The Threshold and Release controls are vital here, and you'll always have more success gating a dry sound and then adding delay effects to the gated signal, than you will gating a signal containing a significant amount of reverb or echo.

Apart from the obvious problem of making sure the reverb tail doesn't get chopped off, adding an effect such as echo or reverb to the gated sound may well hide any premature cutoffs caused by imperfect gating, or by awkward signal dynamics.

As a rule, expanders are a little more forgiving when it comes to setting-up, but are still best used on a track-by-track basis. But dynamic noise filtering can be applied to a complete mix with minimal side-effects, providing you're careful not to apply more than the bare minimum of processing needed to improve the noise performance to an acceptable level. Used on individual tracks, these devices work well as they're almost undetectable in operation – though it's rarely cost-effective for the small studio owner to own more than a single two-channel unit.

As always, prevention is better than cure: it's always worth trying to minimise noise when recording, by keeping an eye on levels and planning track bounces carefully.

Dynamic Control

THIS IS a complicated way of saying 'controlling levels'. Obviously, you have control over levels using the sliders on the mixing-desk. But what I'm referring to here is the use of compressor/limiters to tame those sounds which vary too much in level to be usable as they stand, and which do so in such an irregular way that correction using console faders becomes difficult, if not impossible.

A professional studio might well use a bank of compressors to control several tracks within a mix, but again, the small studio is likely to be limited by financial considerations. From experience, I've found that the singer whose voice doesn't need some amount of compression is a rarity, though you can get away without compressing most other parts of a mix, so long as they're carefully recorded and competently played.

It's possible to get around the problem of having only one compressor by applying some compression to the vocal track as it is recorded. This has the advantage of giving you a higher than average signal level on tape, and consequently a better noise performance. But you can also compress the signal coming off tape, just so long as

you bear in mind that every dB of compression is a dB of degradation in the signal-to-noise ratio of that particular track. Again though, this isn't too much of a problem if you keep the amount of compression as low as possible, bearing in mind the job in hand. Many units now feature built-in expander gates, and these are a great help in cutting out any noise brought up by compressor action.

Finally, a few words about compressors' user-variable parameters and their implications. You'll probably be familiar with the term 'compression ratio', but in this instance it doesn't refer to a new Jaguar, or indeed any other form of motor transport; it's simply a way of expressing the change of output level in dBs for a given change in input level. So, a compression ratio of 2:1 means that a 2dB change in input only causes a 1dB change in the output level. The higher the ratio, the more severe the compression, and the less effect any change in input level has. A really high ratio may be called limiting, as the maximum output level becomes virtually independent of the input level, and you have, in effect, a fixed maximum output signal level.

For normal applications like levelling vocals or bass guitar, low ratios between 1.5:1 and 4:1 are adequate. And the lower the ratio, the less obtrusive the processing.

Apart from the Ratio control, there are also Attack, Release and Threshold control settings to consider on compressors. But these are simple enough to choose, so long as you understand what they are actually doing.

The easiest way to explain the action of these controls is to look at what used to happen before compressors were invented – gain riding. This was the process whereby engineers had to change the gain manually during a mix, using only the mixer's faders. As soon as the engineers heard that a sound was getting too loud, they'd turn the gain down. They'd be too late to correct the first part of the sound because they couldn't respond instantly, so some of the loud sound would get through before it was brought under control.

This delay in responding is analogous to the Attack parameter on a compressor. After all, the compressor also takes time to respond to a rise in level, even though it's obviously much faster than any engineer. With a fast attack time set up, there's little overshoot because the compressor reacts very quickly, but there are occasions when it's desirable to have a slower attack time, to lend emphasis to the leading edge of a sound. If this is the case (typical examples of this kind of application are adding impact to bass-drum sounds or bass guitars), set up the Attack control by ear.

The release time is the time it takes for the compressor to stop applying gain reduction once the input signal level has fallen below the threshold. If the release is

set too fast, the signal seems to pump. If it's set too long, the compressor hasn't time to recover and applies gain reduction to following low-level sounds that don't need it. If you're in doubt as to which setting to choose, set a fast attack time and a release time of half-a-second or so, and start from there.

On a gate, the threshold is the level above which no change to the signal takes place; for a compressor, it's just the opposite. A signal below the threshold passes through unchanged, but once it exceeds the threshold, the compressor starts to apply gain reduction.

When compressing vocals, I tend to set the threshold so that gain reduction is only just starting to occur on average-level signals; most compressors have a readout

► *“Most singers' voices need compression, but you can get away without compressing most other parts of a mix, so long as they're well recorded and played.”*

of some sort to show the gain reduction. With this method, low-level signals remain unchanged while the louder sections are controlled, which in turn allows you to use a higher average level in the mix so that quieter sections don't get lost.

Tonal Correction

PRETTY STRAIGHTFORWARD, this. You should be familiar with using the EQ controls on your own mixer, but what do you do if these aren't enough to cope? Well, you can patch in an external equaliser – either graphic or parametric. Either method will let you home in more accurately on the section of the audio band that needs treatment. The parametric offers more precise control, but isn't as easy to use as a graphic.

If you need to cut a frequency because of an unpleasant colouration in the sound, the best way to find it when using a parametric or sweep equaliser is often to set the equaliser to maximum boost, and then home in on the offending area using the frequency control before applying cut. This is a lot easier than setting the ►

► equaliser to cut, and then vainly hunting for the area that needs cutting.

Graphic equalisers are easier to use because the slider positions give a good indication of what is going on. But if you don't have a graphic with a lot of bands, the frequency you want to affect might fall between two bands where you can't tweak it without affecting frequencies to either side. However, the graphic does give you the chance to equalise different parts of the audio spectrum simultaneously.

But there are occasions where EQ alone can't help because it can only affect sound that already exists. So what do you do when faced with a muddy sound that refuses to be brightened? Well, you could turn to the trusty psychoacoustic enhancer. Such a machine generates additional upper

► *"If you use an input channel as an effects return, make sure the auxiliary sends are turned right down, or you'll create a feedback loop and the whole system could start shrieking..."*

harmonics to complement whatever input signal is fed into it, synthesising a new top end rather than trying to boost one that doesn't exist.

Whether you use enhancement or EQ, adding top invariably means emphasising any noise present in the recording, so you may need to use gates or a dynamic noise filter to keep things clean if the recording is especially noisy in the first place.

Effect Connection

SO FAR so good. You've got a whole heap of outboard toys, and you've got a good idea of what they're used for and how to go about using them, at a theoretical level. But where do they fit into the scheme of things when it comes to connecting them up? Exactly what plugs into where?

As far as connecting up goes, there are two basic types of signal processor: those that treat and alter the whole signal, and those that create an effected version of the input intended to be mixed back with the dry signal.

In the first category we have effects like gates, compressors, equalisers, enhancers

and dynamic noise filters. Whatever is fed into them is processed, and the output then replaces the original signal.

The second category comprises effects like echo units, reverbs, multi-purpose DDLs and so on, which generate a treatment that needs to be added to the dry sound before it sounds acceptable. Some of these units contain a Balance control so that some dry sound may be mixed into the output but, when used in conjunction with a mixer, it is normal to set these so that only the effected sound appears at the output. This way, the right amount of effected sound can be added to the dry sound using the console controls.

Any piece of equipment from the first category should be connected via the mixer's insert points, and should not be connected to the auxiliary or effects send circuit. If you have no insert points, you can unplug a tape return from the mixer and feed it into the processor; the output of the processor will then feed the mixer input.

If you want to effect the entire stereo output, you have to connect a stereo or two-channel processor to the master insert points, or between the mixer and your master tape recorder if insert points aren't available.

When using a two-channel unit to process a stereo signal, use the stereo link switch (if one is fitted) so that both channels track properly. This is especially important with compressors, gates or dynamic noise filters, as the control circuitry needs to be fed from a mix of the two input channels if serious image shifts aren't to appear.

If you do have to patch in between the mixer and the mastering machine, remember to monitor the two-track output rather than the mixer's left/right outputs, otherwise you won't know what effect your processing is having.

If you're using anything other than EQ, this last arrangement can make fading difficult. For example, if you're using a level-sensitive device such as a compressor on the whole mix, it'll try to turn up the gain as you're turning it down. You will win in the end, but the fade won't sound right. If you're forced into this situation, you can avoid the problem by doing the fade using the level controls on your mastering machine, rather than the faders on your desk.

The second category of processors is generally connected via the auxiliary (or echo) send controls on your desk, because in this way, several channels can share the same effects unit without being restricted to the same amount of effect. But if you've already used all your effects send facilities, you can patch in, say, a single DDL to a specific channel via the insert points and use the DDL's own mix control to set the dry/effect balance. This limits you to using

that effect on only one channel (or subgroup), but that may be all you need.

Echo send controls are known as post-fade auxiliaries, because they're connected internally at some point after the channel fader in the signal path. When the channel gain is reduced, the send to the effect unit is also reduced. So, turning a channel down will also vary the level of the added effect in exact proportion. And if you turn the channel right off, the effect will be turned off too.

The other type of auxiliary control that you'll almost certainly have on your desk is the foldback or pre-fade auxiliary. This is independent of the channel fader, and it's important to bear this in mind if it's used to drive an effects unit. If you have a reverb connected here, for example, you can set a perfect balance between the dry and the effected signal. But if you then fade the dry signal using the channel fader, the effect level will remain the same as it was before. So, this method of connection should only be used if you're not going to change the levels much within a mix, or if you actually want to fade the dry sound and leave only the effect present as a specific production trick.

Take care with effects when subgrouping, too. Imagine a situation where you have several channels, each with effects added via the auxiliaries, all mixed down to one or two subgroups. You'll find that unless your effects returns are routed to the same subgroup or subgroups, you'll get the same problem: turning down the subgroup level using the subgroup faders will not affect the level of any added effects.

On the other hand, you may want to use a specific effects unit on some channels that are subgrouped and some that aren't, so you can't simply route the effects returns to those subgroup faders. You have a problem, and one for which there is no easy answer. Don't give up, though: if you can anticipate these difficulties before they arise, you can often plan around them.

Now let's look at effects returns, or auxiliary returns as they are sometimes known. These are often considered to be something separate from the rest of the mixing console, but in reality they are just simplified input channels; you can plug line inputs into them, or you can plug effects into channels and use them as returns.

The only real difference is that the auxiliary returns only work at line level, and their facilities are much simpler than those found on a main input channel. But if you do use an input channel as an effects return, make sure the auxiliary sends on that channel are turned right down, or you'll create a feedback loop and the whole system could start shrieking at you.

And the last thing you want, when you're in the middle of an important mixdown, is something, somewhere, starting to shriek at you. ■



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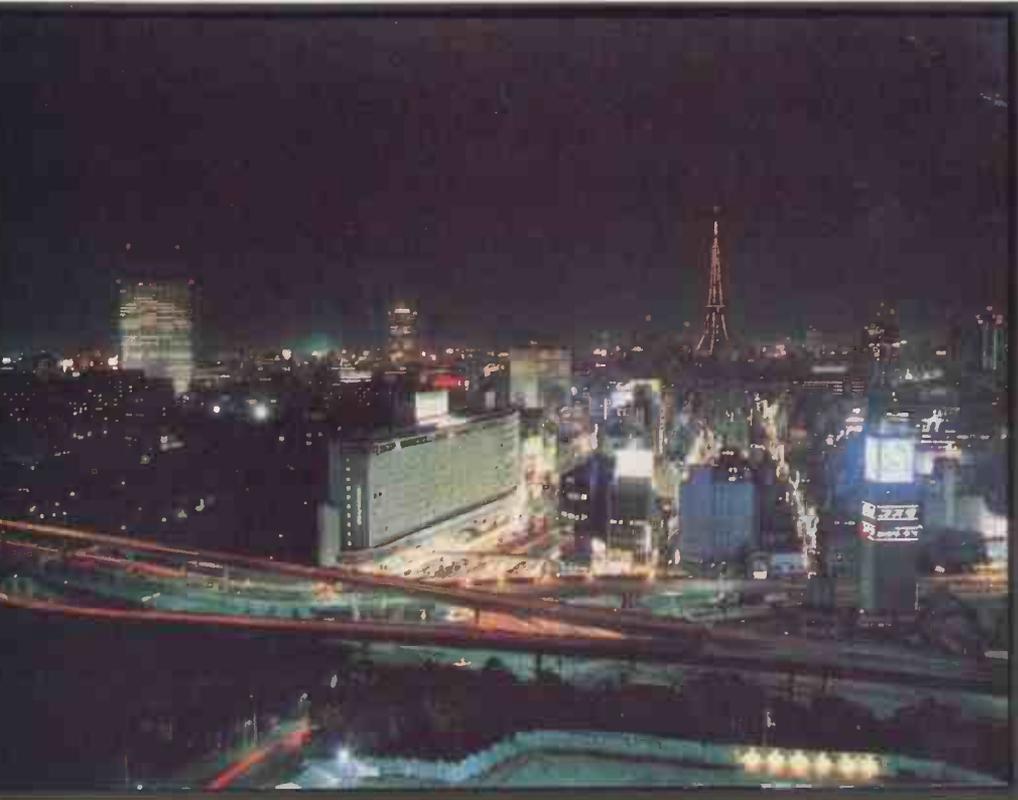
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HOW EAST



Everyone knows technology makes things more accessible, but how have electronic instruments benefitted from East-West dialogue, and what advances are likely to be made as that dialogue becomes more intensive?

By Gary Larson.



"OH EAST IS East, and West is West, and never the twain shall meet..." The immortal words of Rudyard Kipling, written at a time when any cross-fertilisation between the two sides looked unlikely, to say the least.

Well don't look now, but in electronic music, at least, the twain may finally be meeting. The first formal link was established in late 1982, when representatives of American and Japanese synthesiser companies created what everyone who is anyone now knows to be the Musical Instrument Digital Interface (MIDI), a hardware and software protocol.

If nothing else, MIDI has cured many of the compatibility problems that still afflict microcomputers, and it has provided us as well with all manner of new gadgets and programs. In time, it may even realise its full potential as the basis of a computer music network, with bulletin board systems serving as portable IRCAMs, winging new music and new ideas about music into our homes.

In the meantime, while we await that golden age, there is another aspect of the converging twain that should not be overlooked. Thanks largely to some technology from the West – semiconductor chips, digital synthesis algorithms – as exploited by some revolutionary devices from the East – most notably Yamaha's FM synthesisers – the complex world of electronic music has another, more fundamental common denominator: a shared means of producing sounds.

The music itself is still as varied as ever (some would say as restricted as ever), but growing numbers of players – from unknown garage bands to the galaxy of rock 'n' roll stars, and even academic composers tucked away on college campuses – are using essentially the same instrument, one of the several Yamaha DX/TX configurations.

Thus, while electronic music's Tower of Babel still stands, at last there now exists the possibility for communication between some of the diverse tongues. In short, MIDI has given us a way to talk, and digital FM synthesis has given us something to talk about.

And it's about time, too. From the very start, the world of electronic music was a divided one, with the divisions not so much linguistic or geographic as economic (the "haves" versus the "have nots") and professional (the "insiders" versus the

MET WEST

"outsiders"). Some composers – that is, generally those with certain institutional affiliations – enjoyed access to high-priced equipment, while others had to make do with bargain-basement items.

Among the pioneers, a fortunate few (Schaeffer and Henry in Paris, Eimert and Stockhausen in Cologne, Berio in Milan) were able to ply their trade in state-owned radio studios. (Notably absent from this list is the BBC, whose Radiophonic Workshop neither encouraged experimentation nor welcomed outsiders; Roberto Gerhard was the lone exception among composers, which led to others, including Tristram Cary, Peter Zinovieff, and even the BBC's own Desmond Briscoe and Daphne Oram, to do their experimental bidding elsewhere.)

In contrast to the state-radio "insiders", John Cage resorted to simple audio-tape recordings and variable-speed phonographs in his revolutionary *Imaginary Landscape No. 1*, of 1939 (and 12 radios in *Imaginary Landscape No. 4* ten years later).

Similarly, Vladimir Ussachevsky and Otto Luening, in their historic 1952 tape music concert at the Museum of Modern Art in New York, used borrowed equipment to create and perform their works.

Countless others, many with only razor cuts and frayed nerves to show for their efforts, studied Frederick Judd's 1961 classic *Electronic Music and Musique Concrète*, and attempted home-brew versions of the new sounds.

And once this new music became established, the "insiders" tended to be those with university affiliations. Milton Babbitt, for example, parlayed Rockefeller Foundation money and the generosity of the Radio Corporation of America into a near-monopoly of the RCA Mark II synthesiser, a \$250,000, room-size, one-of-a-kind item at the Columbia-Princeton Electronic Music Centre.

Similar enclaves were formed at the University of Illinois (where Lejaren Hiller programmed the university's giant Illiac computer to compose works), and the University of Toronto, and eventually major centres were established in Paris (IRCAM), Utrecht, Stanford University, and the Massachusetts Institute of Technology.

And while England has no single University studio of the stature of these centres, the work of composers such as Denis Smalley at the University of East Anglia

(whose *Tides* was one of the artistic triumphs at the International Computer Music Conference in Vancouver last summer) should not go unnoticed. And digital studios can be found at Universities in Durham, Nottingham, and York.

Historically, the most important exception to this general dominance of academic institutions was equally remote from the composer in the street – the Bell Telephone Laboratories in Murray Hill, New Jersey. It was in this unlikely location that computer music got its start in the late fifties when Max Matthews, hired by the telephone conglomerate to research speech synthesis, hit upon the idea of using the high-speed computer to produce musical sounds. Out of Matthews' efforts grew MUSIC IV, a music programming language that mathematically replicated analogue synthesis modules, and which became the basis of similar languages used at computer-music installations all over the world. Still, this was a restrictive medium – yet another weapon in the arsenal of the "haves" that further separated them from the "have-nots".

Even with the advent and subsequent popularisation of small, portable analogue synthesisers in the sixties and seventies, when serious electronic composition and performance became viable outside the university, the distinction between, say, Walter Carlos' or Keith Emerson's mighty Rolls-Royce modular Moogs and the Ford Fiesta MiniMoogs that just about everybody else drove, amounted almost to a caste system.

In time there were lots of compact synths to choose from, and some pretty sleek ones at that, especially after Sequential Circuits introduced the microprocessor to analogue synthesis with the Prophet 5. And with the Japanese invasion of Korg, Roland, Yamaha, et al, a whole fleet of inexpensive synths – the Hondas and Toyotas of the trade – became available.

Not surprisingly though, the question soon became one of numbers, with one's musical prowess seemingly related to how high a stack of keyboards one could command. And not even all that musical horsepower carried much weight among academic composers, who scorned those who played more keyboards than chord changes.

Enter Dr John Chowning, one of those composers in white coats, labouring away

in Stanford University's Artificial Intelligence Laboratory and seeking the same elusive trumpet tones that Jean-Claude Risset had tried to capture several years earlier (1964) at Bell Labs. But whereas Risset had painstakingly used 16 or so digital oscillators to create separate envelopes for each harmonic, Chowning employed a mere two oscillators and elegantly simple frequency modulation algorithms to create a similarly rich and dynamic spectrum. Before long, bell-like FM sounds were ringing through computer music installations throughout the world.

But it was not until Yamaha acquired the exclusive rights to market the process that the digital revolution first reached beyond the academy to touch musicians everywhere. "The Performance is About to Begin", proclaimed American media ads when the DX7 and DX9 were introduced in 1983. That was perhaps the first understatement in the history of the business.

It was not the extent to which popular musicians embraced the new instrument that was surprising, though. Rather, it was the emergence of the DX7 (or its rack-mounted, eight-headed big brother, the TX816) as the instrument of choice among so-called "serious" composers, the erstwhile "insiders" who became intrigued by the power of FM and its potential to create a diverse community of sonic explorers.

In Vancouver last year, for example, several works – highlighted by Canadian composer David Keane's *Elektronikus Mozaik* – were based on sounds generated by Yamaha DX instruments. Long-time Buchla synthesist Morton Subotnick (see interview elsewhere this issue) is now working exclusively with Yamaha equipment, and even Max Matthews has brought a DX7 and TX216 into his studios at Bell Labs.

A cottage industry has grown up around the development of DX software, and users' groups have been formed to exploit the new technology to its fullest.

Other flavours of digital synthesis – Casio's Phase Distortion or Sequential's Vector Synthesis – may prove equally fruitful. But regardless, it is clear that the "insiders" no longer have the electronic music market cornered. The new sounds are there for all of us to explore, and thanks to MIDI, we can now share our explorations with others. ■

I · N · D · E · X

January 1985 to October 1986

(as compiled by Eddie, MUSIC TECHNOLOGY's onboard computer)



"DON'T PANIC! At last, an end to rummaging through all your old E&MMs for our exclusive report on the Zlatna Panega ACS100, or that immortal interview with Sigue Sigue Sputnik (isn't Zaphod looking good these days?). For while the rest of the MUSIC TECHNOLOGY team were busy giving your favourite magazine a facelift, yours truly was busting bytes compiling this amazing Index to E&MM reviews, features and interviews during 1985/86. Now, the chances of my getting any thanks for this have an improbability factor of about five billion to one..." (All right, that's enough - Ed.)

APPRAISAL

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 XRI Micon Seq (Spectrum) Jun 85
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 Yamaha DX21 Editor,
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Keyboards

AKAI AX80 touch-sensitive synth, £375 ono. DX100 £235. Both excellent condition. Will p/x for DX7. ☎ 01-805 6632.

AKS synth by EMS, vgc, 3VCOs, patchboard etc. great sounds but no keyboard. Offers? ☎ (0933) 681019, after 6pm.

ARP EXPLORER I monosynth, old but stable and working well, £50. John ☎ (0942) 715027.

ARP ODYSSEY, £250. Arp Axse £90. CR78 Compurhythm £90. Fal Stereo 10-band graphic £50. Ian ☎ (0784) 259448.

ARP ODYSSEY, £145. Korg Polysix £345. Powertran digital sequencer, good for mono synth, offers? Brian ☎ Southampton (0703) 463445.

ARP QUARTET exceptional strings, £145. Casio CT202, 49-polyphonic presets, £125. SpecDrum + Editor, Latin kit, £25. Mike ☎ 01-805 0827.

BALDWIN SKYLINE electronic organ, ideal for beginner, twin manual, pedals, rhythms, good condition, £180 ono. Martin ☎ Wimborne 882156.

BIT 01 synth expander, as new, boxed, manual, £350 or exchange for Tascam 244 or Teac A3440. ☎ 01-837 4542.

CASIO CT101 (as used by J Hayward) to good home. £120 inc solid case. Andy ☎ (0793) 721417, after 7pm.

CASIO CZ101, mint, boxed, manuals, psu, £215. Roland SH101, mint, boxed, manual, £125. Kevin ☎ Galston (0563) 820635.

CASIO CZ101 excellent condition, home use only, with hard case, power supply, manuals, £245. Chris ☎ Bristol (0272) 791169.

CASIO CZ101 manuals, power supply, boxed, immaculate, £200. Swap for CZ230S or TR505. Steve ☎ Beaconsfield (049 46) 3544.

CASIO CZ101 boxed with manuals, psu and cartridge, vgc, £180. Can deliver. ☎ 061-456 0795.

CASIO CZ230S, £200. Also Fostex X15, £180. Both guaranteed, perfect, reason for sale. John ☎ Manchester 998 9781.

CASIO CZ230S with programmable drums, 4-channel sequencer, 2mths old, guaranteed, MIDI, only £200. I Briarwood Avenue, Brooklands, Wythenshawe, Manchester.

CASIO CZ1000, boxed, home use only, £340. Korg Super Section, digital drums, with backing, £175. ☎ Deeside 810478.

CASIO CZ1000, 3mths old, £275. TR505 drums brand new £190, guaranteed. Glenn ☎ Manchester 061-764 1514.

CASIO CZ1000, cartridge, psu, boxed, £350. Korg DDM110, boxed, psu, £150. Yamaha MK100, portable, psu, £150. ☎ Coningsby 43939.

CASIO CZ1000, £300. Roland SH101 £110. Korg KPR77 drum m/c £80. Peavy KM4 mixer, £110. £550 the lot. Rhyl ☎ (0745) 38094.

CASIO CZ1000 mint condition, WEM 30W bass combo, EDC 99 drum m/c, £330. Sean ☎ 01-856 5533 X2428 (Woolwich).

CASIO CZ1000 one month old, £325. Andy ☎ (Hounslow) 01-572 5062 mornings, or after 9.30pm.

CASIO CZ1000 home use only, boxed, with psu, £265 ono. ☎ 01-848 7224, eves.

CASIO CZ1000, £300. Casio SZ1, £170. Both in good condition, together £450. ☎ Blackburn (0254) 582913.

CASIO CZ5000 polysynth, MIDI, onboard sequencer, brand new and boxed, £600. Sean ☎ 01-669 0944, after 5pm.

CASIO CZ5000, £500. Casio RZ1 £200. Tascam 244 £500. GBS reverb £100. Fostex digital delay £100. ☎ 01-965 2704.

CASIO CZ5000 superb, home use only, £600. ☎ 01-673 5642.

CASIO MT70 polyphonic keyboard, 20 sounds, memory, Casio chords, drums, bar code reader and psu, £90. ☎ Cardiff (0222) 752652.

CASIO PT80, 2½ octave mini-keyboard, 8 sounds, 12 rhythms, ROM pack, new condition, only £45. Ideal for beginner. ☎ Headley Down (Hants) 713757.

CASIOTONE MT68 portable keyboard, 20 sounds, 12 rhythms, mains adaptor included, excellent condition, £75. ☎ (0727) 38650.

CRUMAR STRATUS polysynth/organ, £250. Roland MC202, brill partner for SH101, £95. Offers please. ☎ Caergwrge 760649.

CRUMAR TRILOGY, vgc, bargain at £250 ono. ☎ (0204) 41940.

ELECTRONIC PIANO HHP73, 73-key weighted, touch-sensitive. Piano, harpsichord, stereo chorus. Stand. MIDI capability, £250 ono. Phil ☎ Leicester 354747.

E&MM SPECTRUM semi-modular synth, good case, good sounds, £120. Ibanez DM1100, 3.6sec DDL, £150. P/sex? ☎ (0643) 4502.

FARFISA 61-key fully polyphonic synthesiser, 3-voice overlays, excellent pianos, harpsichord, brass & strings. Preset & programmable, £400 ono. Phil ☎ Leicester 354747.

FENDER RHODES 73 good condition, offers? Yamaha PF10 + f/case, £385. DR110 £80. Cutec reverb/delay £50. Eric ☎ 051-727 8166.

FENDER RHODES Stage 73 piano, needs servicing and tuning, £200. Mike ☎ 01-278 5266.

HAMMOND X5 portable organ plus Leslie 760 speaker, immaculate condition, home use only, £895 ono. ☎ Hull (0482) 839031.

HOHNER CLAVINET E7 The funkiest keyboard in the world. Excellent condition, fully serviced, £175 ono. John ☎ 01-641 4781.

HOHNER CLAVINET Pianet Duo, immaculate, home use only, £100. SCI Pro One £160. ☎ Manchester 061-798 9864.

KORG DELTA polysynth, £190. JBL 2x15" cab, f/cased, £290. Marshall 100W Bassman valve amp, £150. ☎ 061-969 8275.

KORG DW8000 home use only, immaculate, £760. ☎ Southend (0702) 586847.

KORG DW8000 immaculate, £850. Prophet 600, mint, £500. Fostex X15, inc psu, unused £200. ☎ (0772) 861368.

KORG MONO/POLY four-voice poly synth, hardly used, £225 ono. Martin ☎ (0843) 581086.

KORG MONO/POLY an excellent lead/bass synth, slight external damage means bargain price, just £190 ono. Hurry! ☎ 01-561 7806 (Hayes).

KORG MONO/POLY + f/case, excellent condition, powerful 4VCO analogue synth, £225 ono. Geoff ☎ Lancin (0903) 763759.

KORG MS20 good condition, leads, manual, £160. Music 500 + ATPL keyboard for BBC micro, only £175. Swap both for OSCar, or MS20 for EX800 or Siel EX80. Simon ☎ (0625) 523845.

KORG POLYSIX great library sounds, chorus, phase, ensemble, chord memory, ungigged, must be heard, £350 ono. ☎ 01-310 8307.

KORG POLY 61 MIDI, still in box, immac, £350 ono. ☎ Bexhill 211184.

KORG POLY 800 Mk2, 6mths old, boxed, mint never gigged, £450. Dave ☎ Bridgend (0656) 63683.

KORG POLY 800, £260. Yamaha CX5M, large keyboard, 2 software, £260. £500 the pair. Moses ☎ (0970) 617007.

KORG POLY 800 boxed with manual and lead, immac condition, £295. Ian ☎ Cannock, Staffs (054 35) 77314.

KURZWEIL 250 excellent condition, £6500. ☎ 01-272 7545.

MOOG PRODIGY excellent condition, still boxed, £120. ☎ (0977) 82408 (West Yorkshire).

MOOG ROGUE monosynth, good condition, £80 bargain. Pete ☎ Stevenage (0438) 723192.

MOOG ROGUE, £90. SCI Pro One £100. Both vgc. Mark ☎ Bridgend (0656) 50820.

MOOG SOURCE programmable monosynth, great sounds. £250. Monica ☎ 091-265 0536, 11am-6pm.

OLD MELLOTRON one of the first made, ex-ELO, collector's dream. Beautiful piece of furniture. £250 ono. Len ☎ (0990) 23762, (0753) 23200.

ROLAND ALPHA JUNO 2 boxed, unwanted p/x, £625 ono. John ☎ Huddersfield (0484) 546062.

ROLAND HS60 61-key, 128 patch programmable stereo synth, 8W speakers, portamento, boxed as new, manuals, £500 ono. ☎ Cardiff (0222) 752652.

ROLAND JUNO 6 absolutely immaculate, £255 ono. Roland Jupiter 4, mint, £285 ono. Both boxed. ☎ Nott'm 211309.

ROLAND JUNO 6 perfect condition, with f/case, £300. ☎ Dronfield (0246) 416513, anytime.

ROLAND JUNO 6, £230. Clef Microsynth £70. Crimson 40W amplifier £70. Wanted: Bit 99. Tim ☎ 01-968 6387.

ROLAND JUNO 60 plus JSQ60 plus stand plus hard case plus manual and extra patches, £465. Peter ☎ (0844) 52829.

ROLAND JUNO 60 home use only, perfect condition, £395 ono. ☎ Northampton (0604) 27644.

ROLAND JUNO 60 with MIDI conversion, hard case, manual, £495. Hohner Pianet T + stand, £95. ☎ 01-302 0114.

ROLAND JUNO 60 + MD8 + semi-f/case, all mint condition, £500. No offers. ☎ (020 488) 2871.

ROLAND JUNO 106 with hard case, excellent condition, c/w pedal and dust cover, £460. ☎ Woking 67384.

ROLAND JUPITER 4, £275. Wem ER40 amp and 2 speakers, £50. Yamaha MR10 drum m/c £50. Home use. ☎ (0476) 74117, 8-9pm.

ROLAND JUPITER 6 boxed + stand, home use only, great analogue sounds! Only £695. Owner getting married! Kevin ☎ (0992) 39775. (Congrats! - MT)

ROLAND JUPITER 8, £1000, or swap for MemoryMoog. Wanted: Tom drum m/c, £300 waiting. Marc ☎ Plymouth (0752) 550401.

ROLAND JUPITER 8A f/cased, studio use only, immaculate, £900. P/x considered. Craig ☎ 01-348 4761.

ROLAND JX3P + hardcase, as new, £480 ono. Roland TR606 Drumatix £80. Yamaha FG260 12-string, £80. All immaculate, ungigged. Mike ☎ 01-349 0932, eves.

ROLAND JX3P, £400 ono or swap Clavinova CLP30 plus cash. Chris ☎ Leeds (0532) 646856.

ROLAND JX3P for a really crucial sound, only £300 + 3-tier keyboard stand. ☎ 01-609 5405.

ROLAND JX3P immaculate MIDI synth, Calzone professional f/case, DCO sync, polyphonic sequencer, stereo chorus, £395. ☎ (0424) 218711 (E Sussex)

ROLAND JX8P case, PG800 programmer and memory cartridge with great sounds, £625 ono. ☎ Luton 508956.

ROLAND 100M dual VCF module, 49-note keyboard, 3-rack. £95 the lot. ☎ Bristol (0272) 561855.

ROLAND MKB1000 with KS1000 stand,

vgc, home use only, reasonable offers. Steve Tyson ☎ (0524) 65201, X377.

ROLAND SATURN 9 fully polyphonic, nice sound, with f/case and custom-built stand for keyboard plus drum m/c, £220. Adam ☎ (0902) 739613.

ROLAND SH101 monosynth including MGS1 grip, bargain, only £95. Hugo ☎ Brighton (0273) 777938.

ROLAND SH101, £100. MC202 £120. Bassline £70. Korg Mono/Poly £200. ☎ Ashton-in-Makerfield 718779 (Wigan).

ROLAND SH101 + PSA 220 psu, manual, boxed, £135. ☎ Hornchurch (04 024) 54418, eves.

ROLAND SH101 + MGS1 + case, £120. Boss DR110, £60. Both excellent condition, home use only. Tony ☎ Boston (0205) 61173.

ROLAND SH101 + MGS1, £69. MC202 £59. TR606 £59. Korg KMS30 £105. All in excellent condition. ☎ 01-777 2372 (Croydon).

ROLAND SH101 boxed, manual, Boss power adaptor, home use only, amazing value, £100. ☎ Ashley Bracknell (0344) 427914.

ROLAND SH101, adaptor, with MGS1, £125. KMS30 sync-to-MIDI converter £79. Both boxed, hardly used. ☎ Shropshire (074 62) 2971.

ROLAND SH101 with handgrip, immaculate, £150. Arpeggio, 100-step sequencer, ideal for drum sounds. ☎ C'field (0246) 30296.

ROLAND SH101 + MGS1 strap, lead, adaptor, home use only. £130. Steve ☎ 01-467 5735 (Chislehurst), after 7pm.

ROLAND SH101 very good condition, manual and psu, £100. ☎ Kilmarnock (0563) 821863.

ROLAND SH3 excellent analogue monosynth, original owner, £125 ono. Buyer collects. Steve ☎ (0524) 416313.

ROLAND VOCODER PLUS excellent order, £480. Bob ☎ (0376) 48847, pm.

SCI MULTITRAK six-voice multi-timbral, 6-track sequencer, separate voice outputs, etc., immaculate, £495. Paul ☎ (0706) 50897.

SCI MULTITRAK immaculate, home use only, boxed, manuals, £430 ono. ☎ 01-997 0806.

SCI PROPHET 10 superb condition, twice five voices, poly sequencer, accessories and f/case, bargain £2000. Daniel ☎ 01-450 0838.

SCI PROPHET T8, 6½ octaves, touch sensitive synth, 128 memories, split etc, £1500. ☎ (0942) 722 345.

SCI PRO ONE excellent condition, £120. EDP Warp synth and Spider sequencer, £75. Glenn Jarvis ☎ (0733) 75160.

SCI PRO ONE vgc, £160. Hohner Duo Clavinet Pianet, vgc, £160. ☎ 061-798 9864.

SCI SIXTRAK polysynth, 6-channel sequencer, multi-timbral, arpeggiator, MIDI, boxed, as new, £350. ☎ 01-644 0269, after 7pm.

SCI SIXTRAK, £250, or swap for Casio CZ1000. Roland MC202 £80. Both machines absolutely immaculate. Kevin ☎ (0532) 87498.

SIEL MONOSYNTH 6mths old, excellent condition, £150 ono or swap for CZ101. Buyer must collect. Tim ☎ (0924) 862710, after 6pm.

STRING SYNTH insta strings, classic sound, excellent condition, ideal for young keyboardist. £50. ☎ 01-223 7511.

SWAP old Tele + spare Strat neck for DX7 + JX3P. Sue ☎ Headley (0935) 22264, office hours.

SWAP brand new Olympus OM10 camera for Casio 1000P or Korg Mono/Poly. Carey Nutman ☎ Wearside 584 4141.

TECHNICS SXK-200 boxed, volume pedal, two RAM packs, £220 or swap for Casio CZ101. David ☎ 01-552 4575.

TECHNICS SXPV10 ten PCM voices, three effects, etc. Swap for £500 or Chase Bit Master keyboard. Matt ☎ (0245) 268581.

WURLITZER ELECTRIC PIANO and Yamaha amplifier 100 B212, two+two channels, seldom used, £495 complete. ☎ (0702) 76702.

WURLITZER EP200 electronic piano, velocity sensitive, vgc, £180. ☎ Norwich, mid-Cheshire (0606) 44240.

YAMAHA CS10 monosynth, 37-key, £75 ono. Casio CT403, 49-key, 25 voice, £95. Both immaculate and home use only. ☎ (0702) 525389.

YAMAHA CS15D monosynth, good condition, £95, or swap Akai 4000DS etc. ☎ Penarth (0222) 706187, after 6pm.

YAMAHA CS30 monosynth + case, onboard sequencer, 2VCOs, 2VCFs, 2VCA, 3EGs, LFO, ring mod, very versatile, £225. Also Hohner Clavinet C, £100. ☎ (0602) 724048.

YAMAHA CS80 perfect condition, stand, pedals, etc, £650 ono. ☎ Portsmouth (0423) 374401.

YAMAHA DX7 ROMs and RAM, in mint condition, £850 ono. Yamaha CX5M system & YK10, £230. Korg EX800 £135. ☎ Edinburgh 031-668 3740.

YAMAHA DX7, £799. Fostex A8 £850. Ensoniq Mirage £900. Drumulator £249. Roland MSQ100 sequencer £149. ☎ (062 84) 74752.

YAMAHA DX7 as new, f/case, 100s of voice charts included. Mike ☎ 021-354 3020.

YAMAHA DX7 excellent condition, £800 onvo. ☎ Huddersfield ☎ (0484) 602193.

YAMAHA DX7 + ROMs, £825. Roland Jupiter 6, £725. Roland SDE3000 studio DDL, £460. All immaculate, boxed. Greg ☎ (0229) 42145.

YAMAHA DX7, £800. SCI MultiTrak synth, £500. Both excellent. ☎ 01-582 9254.

YAMAHA DX21 brand new, still boxed, including X-stand, bargain £520 ono. ☎ Rushden, Northants (0933) 315878.

YAMAHA DX21, £475. Roland Juno 60 plus JSQ60, £375. Dokorder 4-track reel-to-reel, £175. ☎ Russell (0264) 65439.

YAMAHA DX21 home use, guaranteed, as new, 160 new sounds, + sustain pedal, offers? Kenny ☎ 01-504 0964, 01-460 8257.

YAMAHA DX21 perfect condition, £490. Arp Axse monosynth, £60. Chris ☎ 051-733 6502.

YAMAHA DX27 (boxed), JX3P (boxed), Drumtraks (boxed + EPROM), Pro One (as new), home use only. Sensible offers. ☎ Sheffield (0909) 3564.

YAMAHA DX100 boxed with manuals and mains unit, excellent condition, £275. ☎ Largs (0475) 674034.

YAMAHA FS50 multi-keyboards, excellent condition, home use only, £3499. ☎ Emsworth 374477, after 8pm.

YAMAHA MK100 keyboard, programmable drum patterns, chord, bass, drum, tune memory, instrument voice variation, £190. Darren ☎ Horndean 591504.

YAMAHA PF10 electronic piano, good condition, with semi-flight case and other accessories, £400. David ☎ Woking 67384.

YAMAHA PF15 home use only, £600 ono. ☎ 01-586 6515.

YAMAHA PS55 32 voices, 16 rhythms, stand, pedals, case, excellent condition, home use only, £300. ☎ Salisbury (0980) 610411.

YAMAHA PS55, 32 voices, PCM drums, backing, stand, £250 ono. Deliver Manchester or Brecon areas free. ☎ (0874) 3780.

YAMAHA PS6100 five-octave, split, MIDI, 64 rhythms, 18 orchestral, solo with aftertouch, boxed, perfect, £530. ☎ Ashford, Middx (0784) 255632.

YAMAHA PS6100 top of range keyboard, 36 FM voices, 64 programmable rhythms, cost £1000, sell £650. ☎ (0602) 658581.

YAMAHA PS6100 16 PCM drums, etc, sequencer, FM voices, home use only, £660 ono. ☎ Southampton (0703) 223454, eves.

YAMAHA YP40 Clavinova, vgc, 12mths old, home use only, sustain etc, £600 ono. ☎ Tamworth (0827) 899137, eves.

Sampling

AKAI S900 DISKS: Drums I, Strings I, Guitars I, £7.99 each. Sampling cassette, £4.99. Sound on Vision, 113(E) Bonchurch Road, Brighton.

ELECTRO HARMONIX Super Replay including drum pad, £200. Hohner B2A bass. ☎ (0602) 784677.

EMULATOR II, double disk drive, mint condition, studio use only, substantial sound library. Being sold by Rupert Hine (Producer), £4,500. ☎ 01-286 9532.

ENSONIQ MIRAGE keyboard, MASOS, ASG, f/case, sequencer cartridge disks, mint, £950 ono. Also Roland CR78, £80. Mark ☎ (0935) 824738.

GREENGATE DS:3 MIDI, Apple IIe, vgc, looping and digital delay software, excellent system, reluctant sale, £1150. Kevin ☎ 01-393 2236 (Surrey).

MICROVOX PRO monophonic sampler for Commodore 64, 19sec sampling, digital delay, sequencing, MIDI, £210. Paul ☎ 021-778 1561, eves.

PROPHET 2000: good sounds wanted. Nicolas Rollinger, 12 Square Andre, L-1127 Luxembourg, Grand Duchy of Luxembourg.

POWERTRAN MCS1 kit, MIDI sampler + 32sec DDL, still in box, £275. Peter ☎ 01-360 4968.

YAMAHA VSS100 + PSU, still under guarantee, £135 or p/x considered. Pete ☎ Dundee (0382) 738089, after 6pm.

YAMAHA VSS100 sampling keyboard, 2mths old, as new, £150. Korg M500 micro preset monosynth, £60. John ☎ (025 485) 3402.

Sequencers

CASIO SZ1, four-track sequencer + manual, boxed as new, £170. Paul ☎ 01-751 0280, after 6pm.

ROLAND MSQ100 sequencer, immaculate £155. Powertran 1.6sec, digital delay, £100. ☎ (0255) 436932, after 6pm.

ROLAND MSQ700, £375. R1000 Digital Reverb, £199. Casio 2x8 MIDI Thru, £18. All perfect, boxed. ☎ Ashted (03722) 75293.

ROLAND MSQ700, 8-track MIDI/DCB sequencer with Sync 24. Perfect condition, with box and manual, £450. ☎ Bristol (0272) 561855.

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