17 DUN.

December 1989
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Music Technology

ART OF NOISE face values

EXCLUSIVE REVIEWS
Korg T1 • Kawai K4 • Ensoniq VFX-SD

EXCLUSIVE PREVIEWS
Yamaha SY77 • Atari STacy

EXCLUSIVE INTERVIEW
Karl Steinberg

ON TEST

Wal MIDI Bass

Steinberg Avalon

Hollis Trackman II

FM Melody Maker Software

ART SGE Multi-fx processor

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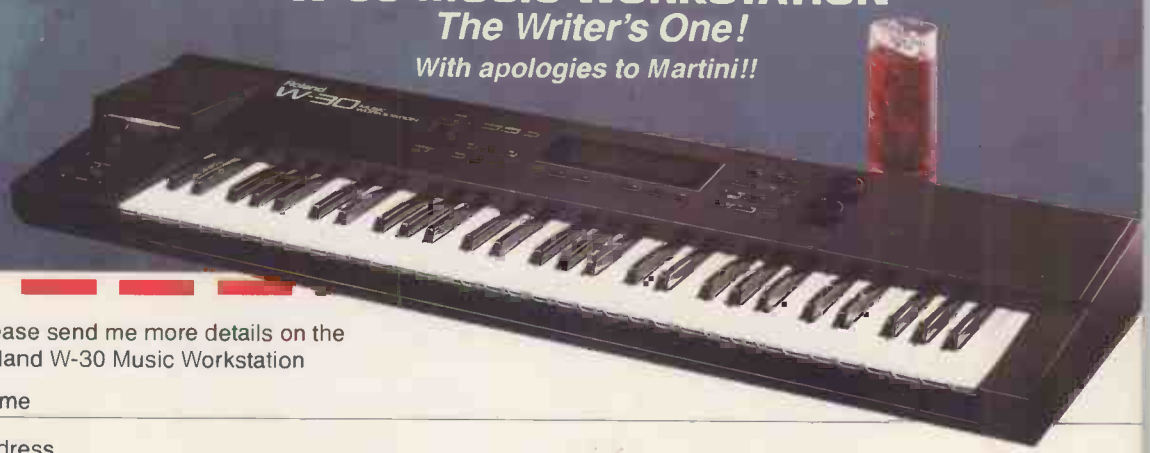

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editorial

CRYSTAL VOYAGER

THE GAME OF trying to predict what course the development of electronic musical instruments and accessories is going to take used to be a common pastime amongst those with an interest in the subject. The majority of the punters – typically – were content to envisage more of the same, only smaller and cheaper. Equally typically, the majority of those who were smart enough to have got ourselves involved in the trade knew better – we could see all manner of more significant innovation just around the corner. Of course the details were never too clear...

Amusingly enough, developments that have given us smaller, cheaper versions of state-of-the-art musical equipment have been considerably more common than those of a more "informed" nature. The digital reverb revolution, for example, and the afforable sampler. And as for workstations: weren't we talking about the same thing when we mentioned the Fairlight or Synclavier? The difference is that very few people realistically expected to be able to afford either. You come across a lot less of this crystal ball gazing these days.

Taking stock of what's happened over the last five or so years, it's been a pretty disappointing time. There has been a number of notable instruments appear but they have represented more a refinement of existing technology than advancements in it. Both popular and more "serious" music has continued to evolve in the same way it's always evolved – subject to the forces of popular opinion, record company financial policies and even in response to some of this technology finding its way into younger, more liberal hands. But the smaller/cheaper/easier technological progress of the last half of the decade is having a tremendous effect on the music being made and consumed today: it has radically altered the expectations of everyone concerned. Musicians expect different things of their instruments, record companies expect different things of their artists and the record-buying public expect different things of the record companies. Typically (once again), it's the punter who's getting the worst deal. But that's another story.

Let's concentrate on the musician. From the best-paid pro down to the enthusiast of more modest means, the musician has raised his expectations of his gear. Obviously any new piece of equipment is expected to offer more features, quieter audio circuitry and greater compatibility with everything else. More significantly, the musician's expectations for his own music-making facilities have risen by an incredible amount. From writing on a cheap synth and drum machine and taking a mental picture of a piece of music into a studio with "professional" instruments, our musician is now doing pre-production work at home and taking instruments and computers into a studio expecting to be able to rebuild a bedroom setup next to a 30-channel desk and a multitrack tape machine. Many are already producing master-quality recordings by taking care with signal levels and mastering to a DAT recorder. Some are doing this without resorting to multitrack tape at all. If your music allows it, you can get by using MIDI sequencing and only electronic sound sources – although the cost of sample memory is now making it practical to incorporate acoustic sounds and non-MIDI instruments into a MIDI studio. Ask any small commercial studio owner: there are more recordings being made in people's back rooms than he'd ever have imagined possible.

The old-style keyboard player just doesn't exist any more. These days he (or she) is as familiar with equipment and techniques that have long been regarded as the territory of the studio engineer. It's no longer enough to confine your hi-tech shopping list to technology you can play – you've got to include signal processors, mixers, patchbays, monitors... Even players on the cabaret circuit are cashing in on the convenience and flexibility of MIDI, sequencing and sampling. Today's MIDI-aware musician is realistically hoping to have a complete home studio at his or her disposal.

I suppose the logical way to sign off here is to recognise that you, the readership of this magazine, should expect different things of it – I certainly do. Recognised as a "keyboard players'" magazine, Music Technology has adapted over the years to reflect the interests and requirements of musicians using hi-tech equipment and practices. Signal processors have been a part of the regular coverage of the magazine for several years now. Last month you saw our first review of a "serious" mixing desk. It won't be the last, and you can expect to see small monitoring systems making an appearance very soon. You need to know about it to be able to use it. *Tg*

MUSIC TECHNOLOGY (ISSN 0957-6606) is published by Music Technology (Publications) Ltd, a subsidiary of Music Maker Publications (Holdings) plc, Alexander House, Forehill, Ely, Cambs CB7 4AF. Tel: (0353) 665577 (all departments). FAX: (0353) 662489 (PAN: Musicmaker)

MUSIC TECHNOLOGY (US) *is published by Music Maker Publications Inc, 22024 Lassen Street, Suite 118, Chatsworth, CA 91311. Tel: (818) 407-0744 (PAN: Musictech).*

Colour Reprographics *by CLE, St Ives.* **Printing** by *Worcestershire Web Offset, Droitwich, Worcs.* **Distributed by** *AGB Impress Ltd, London. Tel: 01-253 3456.*

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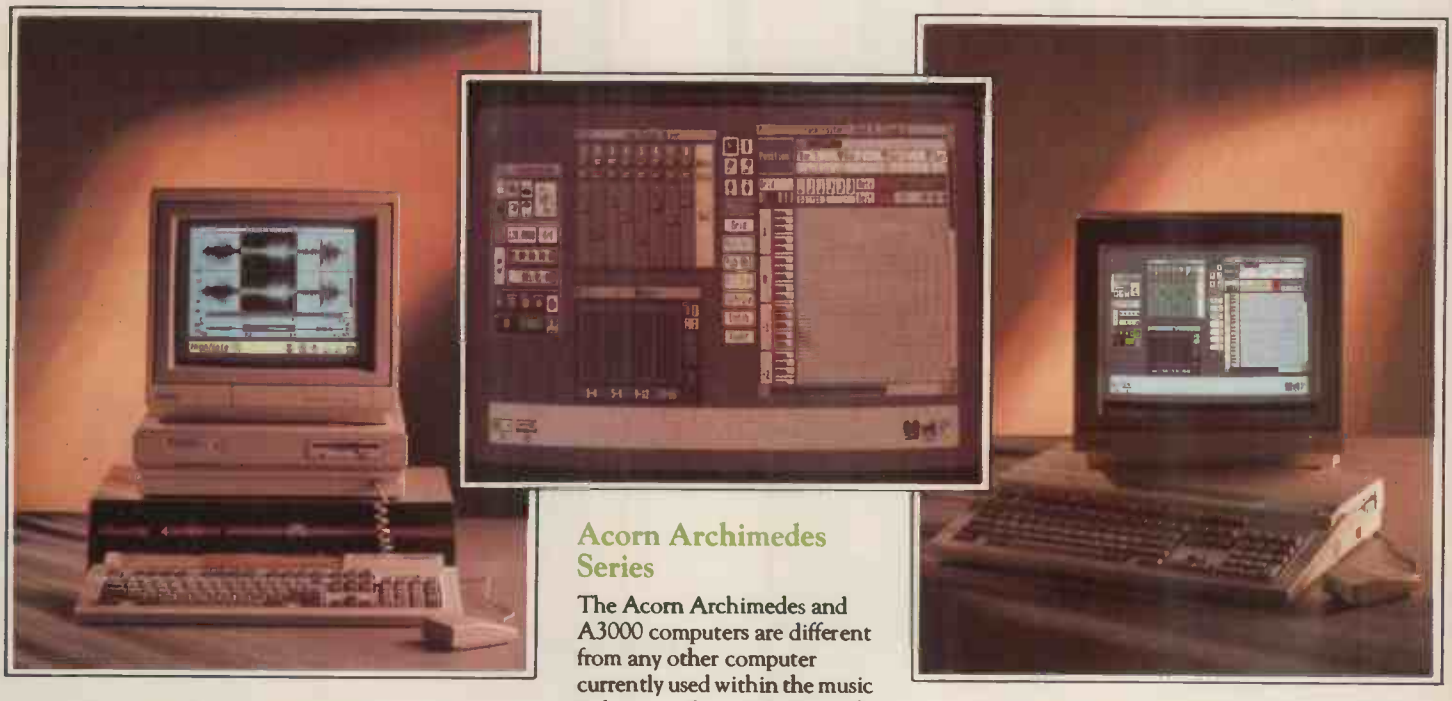
Acorn

a sampling of synthesising technology



Armadillo A616 Stereo Sampler

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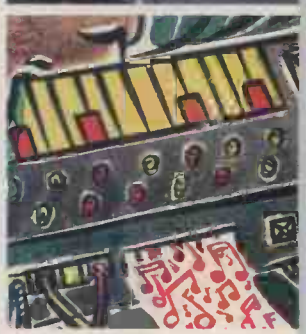

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Digital Multi Spectrum synthesis. Ian Waugh checks out some serious competition for FM and LA.

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KARL STEINBERG 64

Steinberg Research are responsible for some of the most significant developments in computer music systems in recent years. Nigel Lord talks tech with Charlie Steinberg on a rare visit to Britain.

newsdesk

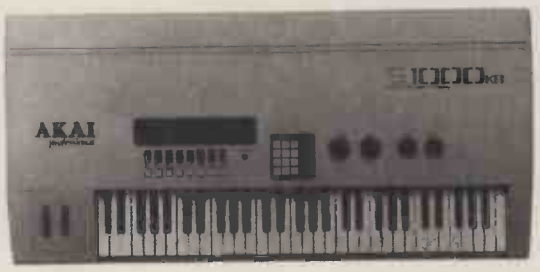
PRO TECH CLUB NO MORE

If you often read these pages, you'll be familiar with the Casio Pro Tech Users Club, formerly the FZ1 Club. With the departure of the former organiser of the Club, Mark Tinley, for the USA, the Club has ceased trading under his direction, and all assets have been sold to a club member. The new owner will be providing similar services to the Pro Tech club under a new name to avoid confusion with previous membership fees. The public domain library will continue, but discount vouchers issued to members of the Pro Tech club will not be valid for use in the new club. All previous members will be contacted with news of the new club.

Mark Tinley plans to work on a new sample library while he is in the States, which will be digitally recorded from DAT using an Akai S1000 and digital interface card, and will be available in a variety of formats. A new company will be set up to distribute the disks, and Pro Tech Club members who have discount vouchers issued by the club will be able to use them against purchases from the new disk library. ***Dp***

AKAI ACTIVE

Akai have announced the release of their new drum machine, the XR10, and the keyboard version of the popular S1000 sampler, the S1000KB.



The XR10 is a 16-bit machine with 65 internal sounds, many taken from the MPC60 and S1000, varying from the traditional drum kit to up-to-date kicks and snares, ethnic sounds, Latin American percussion and effects, as well as a bass sample and orchestral hit.

The XR10 has 50 preset patterns, each with three variations, three fill-ins and one intro, break and ending (are Akai hedging their bets and also aiming at the "home" keyboard market here?), and 20 user-programmable patterns.

Storage capacity is for up to 20 songs, and up to 99 different patterns can be used per song. Programming resolution for patterns is 1/96th (96ppqn) and tempo ranges from 40-296bpm. Sounds can be triggered via the 15 rectangular pads assigned to drum sounds on the front of the XR10, and 15 levels of accent are available. The unit is fully velocity-sensitive over MIDI.

Various sound editing parameters are available to give more control over the onboard sounds. There is also an assignable effect send which can also be used as an individual output, giving a total of three outputs. The recommended selling price of £369 reflects the XR10's particular suitability for the entry-level user, but Akai also see their new machine being used as a secondary drum machine or expander for studio use.

Moving from entry-level to pro-studio level, the S1000KB is the keyboard version of the S1000. The keyboard features a 61-note synth action with aftertouch, and otherwise has exactly the same specification as the S1000. All memory expansion facilities and optional interfaces available for the S1000 can be used with the S1000KB. It's expected to sell at £3499.

More info from Akai UK, Haslemere Heathrow Estate, Silver Jubillee Way, Parkway, hounslow, Midx. 01_897 6388 ***Dp***

TOUCH BASE

Following logically from the "magazine on a disk" idea, British company Voxel Software have produced MusicBase, a new database application for the Music Industry, running on the Atari ST.

MusicBase is a comprehensive electronic storage and retrieval database/directory of essential names, addresses and contacts within the UK Music industry. It is aimed at all Atari users involved in, or wishing to become involved in working within the Music Industry – do they mean us? They surely do.

MusicBase offers certain advantages over the traditional paper directories, in terms of ease of use, speed and efficiency in the searching and locating of contacts, suppliers and services. It is also an important aid to tracing and cross-referencing sources where inital information about a contact is incomplete. As part of an ongoing service, it can be updated quickly and regularly and can be expanded or customised for or by the user easily. The Voxel MusicBase for 1990 will be available from December '89. More info from Mr Al Straker, Managing Director, Voxel Software. 1 Hillcrest Court, Shoot-Up-Hill, London NW2 3PG. Tel: 01-452 1916. ***Dp***

THE 5000 UPDATES OF DR T'S

It's been a while since we last regaled you with the latest wodge of news from those lovely people at MCM, but we can ignore it no longer...

Dr T's have announced the release of the 1.7 update for their KCS and KCS Level II sequencers. KCS now offers many new features and a full GEM interface. The price of the software remains the same and existing owners can upgrade for £30. Come on chaps, that doesn't seem quite fair to the existing owner, does it?

Dr T's are also offering their popular Copyist notation package in a cut-down version for the Amiga, called Apprentice. The new package offers 16 staves per page and five pages per score, and full cut, copy and paste. The price of Apprentice is £79, while Copyist can be had for the sum of £225.

Continuing on the Dr T's theme, a new Atari program called Hit Man is now available for the Atari ST. This software is dedicated to film scoring, with full SMPTE event listing, cue list allowing SMPTE times to be specified for each event, and a sound fx editor which lets you assign names to specific events. There is a complete tempo map, multiple time signatures, and hooks to KCS through Dr T's MPE (Multiple Program Environment). Other special features include real-time MIDI input of hits with ability to adjust the events afterwards, tap tempo, SMPTE offset, and more, all for £199.

Latest additions to Dr T's X-OR generic editor/librarian (reviewed MT, November '89) include configurations for the Oberheim Matrix 12 and DMP7, MKS70, DX100, MX8, Multiverb, SPX 90II, PCM70. These are available free from MCM.

Finally, Passport have released their Master Tracks Pro sequencer for the IBM, giving a viable alternative to the established Voyetra Sequencer Plus. To recap, Master Tracks offers 64 tracks with full graphic editing, and SMPTE capability. It will sell at £325.

More information on any of the above from MCM, at 9, Hatton Street, London NW8 8PR. Tel: 01-258 3454.*DP*

A TONIC FOR THE ST

If you're one of the many people out there using an Atari 1040, you might be getting increasingly nervous as sequencing packages become larger and more demanding of onboard RAM. A case in point is Steinberg's Cubase (reviewed MT, August and September '89), and their multitasking environment M.ROS, which requires more memory than is available in a 1040 to function in a fully multitasking way, with two or more programs (although Cubase will of course run on a 1040).

The obvious solution seems to be the purchase of a Mega2 ST or larger, but if you don't want the hassle of first selling your existing ST and then forking out extra cash for the Mega2 (currently with a retail price of £934.99 *without* monitor), Tonic Audio of Wales are offering memory upgrades for both the 1040 and the 520.

It is possible to upgrade the 520 to either 1Meg of memory (£120 inc fitting, return carriage and VAT) or to 2.5Meg (£320 inclusive). If you have a 520 and can't afford the 2.5Meg upgrade at the moment, it is possible to start with the 1Meg upgrade at £120 and get the further upgrade later for the price of £270 inclusive. Upgrading a 1040 to 2.5Meg costs £320 inclusive.

It doesn't take much in the way of maths to work out that if you picked up your 1040 and monitor second-hand for the going rate of £400 or so, then added the upgrade for £320, you'd be equipped with half a Meg more memory than the Mega 2 ST for considerably less dosh.

Turn-around time for the modification would normally be a week, and note that the upgrade can be done on all versions of the 520 and 1040, even with TOS v1.4. Also note that the quoted costs are for RAM at today's prices, so check on price before you order. A quick query to Tonic on the validity of the warranty on your ST (should you still have one), if you have the upgrade done, resulted in the following answer: If your ST was originally bought from Tonic, your warranty will not be invalidated. If you have the upgrade done, and your ST afterwards goes wrong, Tonic will check your machine to ensure that it was not their upgrade which caused the fault; if it was, they will rectify it for you. If, on the other hand, any fault was unconnected with the upgrade, the owner of the ST would have to go back to the dealer who sold the ST to him or her (there's no sexism here, Rob Baylis of Halifax – see this month's Communique *Ed*). It's wise to bear in mind that you run the risk of your original supplier refusing to honour the warranty if the ST has been modified by someone else. Having said all this, there are not that many people around who still have a 1040 or 520 ST under warranty, so this won't affect many of you.

More info on the upgrades from Tonic Audio, Unit 20, Acorn Workshops, Harold Wilson Industrial Estate, Van Road, Caerphilly, Mid Glamorgan, CF8 3ED. Tel: (0222) 863906. ***Dp***

JUST IN CASE

Though they may seem like an expensive luxury, quality flight-cases for your gear should be seen as an essential investment if you do a lot of gigging. It hardly needs saying that when you've shelled out thousands on expensive (and relatively delicate) kit, it only takes a careless trip over a lead by an inebriated band member or roadie to reduce your pride and joy to a pile of rubble.

With this in mind, Topper Cases custom-build top-quality flightcases for literally anything you might own – from a 24-track mixing desk to a set of timpani. Topper cases are available in any colour and many materials, including glass-reinforced plastic, high-impact plastic, and fibreboard with wall thicknesses of 6mm and 12mm as standard. Every component used in the manufacture of Topper cases is strictly tested – the handles, for instance, to a minimum of 1500kg.

More info from Topper Cases, St Peter's Hill, Huntingdon, Cambs PE18 7ET. Tel: (0480) 457251. ***Dp***

COTTAGE INDUSTRY

Thatched Cottage Audio are launching a new division as of the 1st December. Thatched Cottage Digital will be headed by Thatched Cottage stalwart Rob Ferguson and Andy Bachuss – previously a sofware designer with British Telecom – who will be assisted by Sarah Dormer.

TCA sold over 600 eight- and 16-track systems last year, and believe that many of their customers will be expanding their systems in the future. Given the new wave of upmarket audio equipment expected from various Japanese companies, such as the as-yet unconfirmed Yamaha digital eight-track, the Tascam 24-track and the Fostex Timecode DAT, a digital audio division is seen as a valuable addition to TCA's range of services. The new division should be up and running by the New Year.

Congrats on the new divison, lads, but we won't even mention the holiday camp project, as we're sure it must be a wind-up.

More from Thatched Cottage Audio, North Road, Wendy, Nr Royston, Herts SG8 0AB. Tel: (0223) 207979. ***Dp***

THAT'S NEWS

A good deal could be around in the form of a new WH Smith "own-brand" range of blank audio cassette tapes. The tapes are actually being made for WH Smith by That's, the first time that these high-quality tapes have been produced as own-brand products.

Three types are being offered, Viz Ferric, Super Ferric, and Super Chrome, and are available in triple and five packs, priced from £2.39 to £4.99. Maybe that's a Christmas pressie. ***Dp***

communiqué

free sample

In his efforts to entertain us, the unfortunate Skum has stumbled across a problem that's maintained a remarkably low profile during the current copyright controversy.

Our old friend Skum lightheartedly referred to sampling and looping the opening bars of White Dance Limited's demo which was reviewed in DemoTakes in October's ish. While (I presume) he was joking, there really isn't any guarantee that the tapes you submit to various people in the quest for commercial recognition of your talents won't find their way into the hands of unscrupulous musicians in possession of a sampler. There's been plenty of fuss made about people sampling musicians' records and playing skills, and there has always been a quiet distrust of record companies' A&R departments when it comes to sending away a recording of a precious song – it's difficult to prove that it was actually you that wrote Bros' latest single when it's sitting on the No. 1 spot.

Yet no-one has commented on the possibility of having your demos SAMPLED while they're in the hands of a record company, record producer or whoever. It could happen and you need not even recognise your work when you hear it again.

I write not to offer solutions, merely to point out a situation that currently exists within the music biz. The only advice I can offer is to copy the very people who constitute part of the threat, and not to leave sounds "bare" in a mix – keep that hi-hat or bass drum running.

R Holder
Birmingham

LETTER OF THE MONTH

cd suicide?

Recent developments in chemical technology are now leading us towards recordable CD. I was alarmed to read in the latest edition of a certain hi-fi magazine that "whatever the record industry says, no-one can uninvent digital recording... the only questions now are when, and how much will it cost?".

It was reported in the same article that Taiyo (manufacturers of That's tape) are preparing to mass-produce blank CDs for around £3-£5 each, and that Philips estimate the cost of a CD recorder at between £80 and £100 more than existing play-only machines. Technology is also progressing towards erasable CDs for repeated use, which would be slightly more expensive. Manu-facturers have agreed that any CD recorded on a domestic machine should be playable on any existing CD hardware.

The flippant tone in which the above-mentioned article revels in these developments is represen-tative of the attitude of consumers and hardware manufacturers: Wonderful! Soon you'll be able to buy your favourite recording and let all your friends come round with blank CDs and make perfect copies. Great for the consumer's pocket, profitable to the manu-facturers of recorders and blank CDs, and a boost for hi-fi retailers. Interestingly, of absolutely no advantage to the pursuit of "hi-fi excellence" at all. However, the luxury of multiple copies at low cost (as opposed to the purchase of fresh legal copies) places a massive burden on US – the makers of the music. Where are our royalties? How are we going to continue to finance projects when they offer greatly reduced returns?

What must be understood is that, unlike DAT, recordable CD invites piracy and "home disking" on an unprecedented level, because perfect audiophile-quality copies can be played on hardware already in the homes of millions.

What can we do? I turn to writing to MT as a route to increasing awareness amongst those who trade in the making of music. Can we enforce write-once-only CDs and charge blanket royalties? Would this really work? Can we make consumers realise that they are ripping off the musicians they admire? Can we make manu-facturers realise that if they severely damage the music industry they are shooting themselves in the foot? No musicians making music means no music to play on all these wonderful gadgets.

And how would Philips feel, for example, if I invented a machine enabling me to say to my friends: "Hey, I've got a CD player duplicator – come over tonight and I'll duplicate my hi-fi system for you. Just bring a blank hi-fi unit..."?.

Benjamin Bartlett
Richmond
London

sex crime

I was under the impression that your magazine intended to portray a modern, enlightened image. I was, therefore, astonished to read the October 1989 editorial in which Tim Goodyer repeatedly referred to "A&R men", "he", "him" and so on. You even wrote "he's just a man"!

I am sure you are well aware of the existence of A&R people who are women and, even if there were none, such sloppy writing only perpetuates the ignorance which makes women's lives a constant battle if they wish to succeed.

There are no excuses for your thoughtlessness – only apologies to your women readers.

Rob Baylis
Southowram
Halifax

I was under the impression MT did portray a modern, enlightened image – we've been happy to feature the activities of black and female artists of any nationality you care to name for some considerable time now. But you obviously didn't consider that important enough to write in and thank us for. We've also had a female Production Editor on the magazine for as long as the post has existed (over five years), without whom MT simply wouldn't function.

In fact it was to our current Production Editor that I took a problem: how to write an editorial about A&R persons, where to use terms like "he/she" and "his or hers" throughout the piece would make it all but unreadable – and to include A&R women would only make them responsible for the activities of countless A&R MEN who had preceded them. Would she, as an enlightened woman, be offended if we talked men specifically? She wouldn't, and neither should you be.

I don't regard A&R as the exclusive preserve of men, I'm only interested in the job done by the people with the power to make and break bands and dictate the direction of popular music. If you're as concerned as you appear to be about sex discrimination there are more profitable ways you could direct your energy (and your mail). How many female record producers and engineers do you know of, for example?

Oh, and you could try rewriting my editorial and see if you can bring it in as piece of readable, informative copy at under 650 words. ***Tg***

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Conclusions: If you'll forgive us for indulging in a little crystal-ball-gazing, **Proteus** looks as if it's going to be one of the top contenders for *Keyboard*'s Technological Innovation Of The Year award in 1989. It's a perfect combination - great sounds, oodles of polyphony, output routings, flexible enough for any studio, and a rock-bottom price. When the biggest thing you can find to complain about is that a synth needs more memory to store patches, you know you're looking at a winner.

Since the demise of the Drumulator, E-Mu hasn't really had an entry-level instrument in their product line. Instead, they've concentrated on high-end technology. What we're seeing in **Proteus** is the trickle-down theory in action. The high-level research that went into the Emulator Three is paying off in a device that just about any serious musician can afford. If you're shopping around for a rack module to add to your sound resources, don't take your chequebook until after you've heard **Proteus**.

Keyboard Player (USA). August, 1989

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YAMAHA SY77 & TG55

IS THERE ANYTHING truly new under the sun? Is there anything really true in the *Sun*? Such are the great imponderables of life running through my mind as I arrive at Yamaha's R&D Centre in the heart of London, only to have a brochure thrust into my hand which proclaims "The Sound Of All The Great Synthesisers In One Box Plus A Whole Lot More!". Underneath this banner are the words "Real-time Convolution & Modulation Synthesis". Pardon?

The occasion is the press unveiling of Yamaha's SY77 Performance Synthesiser – which the company hope will "set a new direction for synthesiser development through the 1990s" – and the TG55 Tone Generator 1U-high 19" rack-mount expander. The SY77 has a 61-note synth-style keyboard which is sensitive to attack velocity and channel aftertouch. Its sounds are provided by a combination of second-generation Advanced Wave Memory sample technology (16-bit linear resolution, 32kHz and 48kHz sample rate) and Advanced FM synthesis (six operators, 45 algorithms, a choice of 16 waveforms, two user-configurable inputs per operator). Twenty-four-bit internal processing and 22-bit DACs are employed to give a high degree of clarity to the sound. No less than 109 AWM waveforms are stored in an internal 2Mword ROM, with further samples accessible off plug-in 256 and 512 Kword ROM cards.

An SY77 Voice (what you and I might call a patch or a program) consists of four Elements which can be combined on the keyboard in a variety of ways using Element-specific velocity and note ranges. Each Element can be assigned an AWM2 or AFM sound, and in addition has its own pair of 12dB/octave real-time digital filters (one low-pass with resonance which can raise the filter to self-oscillation, the other switchable between low- and high-pass) – meaning that you can use up to eight filters per Voice. Each filter has its own envelope, while filter pairs can be combined to produce band-pass and 24dB/octave low-pass filtering.

In addition, each Element can have its own dynamic panning assignments, allowing you to create unique and impressive "polyphonic" spatial movements of sound. Sixty-four preset pan memories and 32 user-programmable pan memories are provided onboard the SY77.

Yamaha's new synth has a maximum polyphony of 32 voices divided 16:16 between the two types of sound source, suggesting that the actual polyphony depends on the ratio of AWM2 and AFM sounds within a Voice.

As well as a straightforward choice between AWM2 or AFM, you can layer the different types of sound or use amplitude enveloping to create LA-style combinations. But the SY77 moves beyond what other synths are capable of when it allows you to assign an AWM sample to an operator within an FM algorithm, either using the sample as a modulator for another waveform or using other waveforms to modulate the sample.

The SY77 also has the by-now-familiar workstation-type accoutrements: a 16-track sequencer, digital multi-fx, drumkit section, onboard 3.5" disk drive (which can store Voice and sequence data) and 16-Voice multitimbral capability. Front-panel operation is greatly aided by a 240x64-dot backlit LCD window. My initial impression is that the SY77 isn't overly complicated to use, but maybe that impression will change when I get a chance to investigate it more fully.

I should mention at this point that the TG55 isn't exactly a rack-mount version of the SY77, as it forgoes the synth's AFM processing, onboard sequencing and disk drive. It also has fewer effects, half the internal ROM sample memory, and necessarily loses the SY77's generous LCD window (expect ST-based editing software from the likes of Steinberg). There again, the TG55 does have a substantially cheaper price. Full shipments of both instruments aren't expected till late January.

The SY77 shows that Yamaha are capable of competing at the forefront of synth technology, but it isn't about to do a DX7 and sweep aside the competition, which is just too good to be swept aside. Yamaha's new synth takes the company significantly beyond the sonic world of "pure" FM – in fact, despite the talk of AFM it doesn't *sound* overtly FM-like.

What it does do is fulfil today's expectations of equal competence across a broad range of sounds, handling the "straight" sounds as well as any other synth which utilises samples, while also producing weird, complex "unnatural" sounds and "natural" sounds which have a subtly synthetic edge (the latter presumably by means of the SY77's unique sample-as-FM-operator facility, something which could end up being one of the most significant aspects of the synth). Its sounds also have a very musical responsiveness which should endear it to players.

The SY77 does seem to have something unique to offer. Its overall sound quality evinces an impressive clarity and definition, with an obviously digital character which is nonetheless distinct enough to suggest that it will find its own niche in the market alongside the VFXs and T3s of this digital world. ■

Simon Trask

Prices *SY77, £1999; TG55, £699. Both prices include VAT.*

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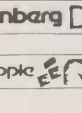

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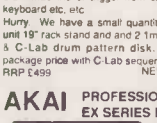

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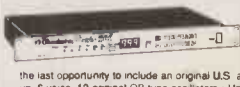

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ATARI STACY

THE DECISION TO buy a computer or a dedicated hardware sequencer can usually be based on simple ergonomics (not to mention economics). Sure, computers are much more versatile than dedicated sequencers, but there is a big trade-off in bulk, weight, price and physical reliability. If you plan to do any gigs or even studio work, you may be better off with a dedicated hardware sequencer, right? Software sequencing programs are generally easier to use, but require bulky and delicate computers and monitors. While there is a wide selection of laptop IBM PC compatibles that can be regarded as being robust and portable computers, few can support MIDI interfaces such as the MPU401. Do you have an option other than hardware?

The option may have just appeared in the form of a small, inexpensive laptop computer that might just make the decision between dedicated and computer-based sequencers an easy one. It's the new STacy from Atari. The STacy is the functional equivalent of the 1040ST, which avails it of possibly the widest range of software currently available.

Having made an early appearance on Atari's busy stand at the recent Chicago NAMM show, STacy weighs only 15 pounds (which might be considered heavy for a sequencer but falls easily into the "portable" computer category) and its flip-up lid includes a large, high-resolution, back-lit LCD screen.

The briefcase-sized unit comes with one megabyte of RAM (expandable to 4 Meg) and a single 3.5" 800K floppy drive. Also included are a numeric keypad, a built-in (somewhat small) trackball, an expansion port similar to the one found on the Mega ST series (for connecting large-screen monitors and other peripherals), a standard ST expansion port, and connectors for a mouse, external floppy drive, external monitor and joystick. And being of particular interest to musicians, Atari's highly insightful built-in MIDI ports were not forgotten.

The computer is based on the 68000 microprocessor running at 8MHz, and is configured with an internal, low power consumption 20 Meg hard drive in addition to the built-in floppy. Atari claim that the unit will run on batteries for up to 35 hours, depending on the configuration of the machine and the type of batteries used (rechargeables run down faster).

Perhaps one of the most intriguing aspects of Atari's NAMM demo of the STacy was the software they were running. When I took a look at the machine, I saw a popular Macintosh graphics program as a small, third-party company is marketing a Macintosh emulator card for the ST that will run a number of Mac programs, claiming speeds greater than a standard Mac Plus. This device is called the Spectre GCR, and is available from Gadgets By Small in the US for $299.

To answer the question this raises In musical minds "no, the Spectre won't run Mac MIDI software, or any Mac software that requires any sort of special interfaces or extra hardware". Still, for Mac fans looking for a portable to take out of the house (especially in light of the estimated $7000 US price tag on the forthcoming Mac laptop), the prospect of running some Mac programs in addition to ST software is very appealing. Those who purchase the emulator must supply the Macintosh ROM chips, which are available as a replacement part from Apple service centres as it would be an infringement of copyright to sell the device with the chips included.

The STacy is expected to cost around £1500 including internal 20Meg hard drive. There may be further versions of STacy without the hard drive but with expanded internal memory in the pipeline – which will obviously be cheaper – but this is unconfirmed at the time of writing. Of course, you'll still need to buy software unless you're already running an ST rig but want something a little more reliable to cart about with you. Any drawbacks? Well, on the prototype version the LCD display was a bit smeary, making rapidly scrolling information hard to see. Sometimes the cursor would even disappear when moved rapidly.

With the long-awaited laptop Mac still unannounced, Atari are definitely getting ahead of Apple in the portable market. This computer could encourage even more musicians to jump on the Atari bandwagon. Hopefully, Atari will begin to support the ST (and the forthcoming TT) series as diligently as Apple have with new system and utility software as musicians need very sophisticated system tools to create a functional, reliable working computer environment.

The STacy promises to bring the world of computer-based sequencing closer to that of dedicated hardware sequencers, and take it some steps beyond. I'm not sure exactly where these steps will take us, but I'm looking forward to finding out. ■

Jeffrey Rona

Price with 20M hard drive, £1495 including VAT

ENSONIQ VFX-SD

WHEN THE VFX was reviewed (MT, June and July '89), Simon Trask was particularly enthusiastic in his praise for the most innovative new synthesiser of the year. The Japanese weren't too thrilled because at long last something was threatening their domination of the industry – not just threatening, but poised to take the market by storm. The one ray of hope left for the East was that the VFX was a pure synthesiser – no sequencer, no drum section and therefore no fashionable "workstation" tag.

Enter the new Ensoniq VFX-SD, where the "S" stands for sequencer and the "D" for drums. The VFX-SD carries the same basic sound character as its sister, but adds a host of new features like a disk drive, a 24-track sequencer, four new effects, a range of drum sounds and an extra pair of audio outputs. System Exclusive storage is available, thanks to the sequencer and disk drive, and the whole thing is polished off with a new keyboard which is set to become standard across the whole Ensoniq range. How are the Japanese taking all of this? Only time will tell...

The sequencer is the first obvious change from the VFX, and is certainly the most impressive of the new features. To begin with, it's the only built-in sequencer to offer as many as 24 tracks, rivalling, so Ensoniq claim, the flexibility of software-based systems. Now I'm on very close and friendly terms with my Atari, and I'm therefore wary of losing a large monitor, graphic editing and the instantaneousness of the computer. I'm also a bit sick of the bugger crashing, and so dedicated hardware sequencers have recently attracted my attention. The VFX-SD sequencer is contained in RAM, and so can be updated from disk as easily as loading a new sequence. And it's true to say that it offers many of the editing facilities normally associated with soft sequencers.

A Sequence on the VFX-SD is a collection of 12 independent Tracks plus an effects program. The length of a Sequence is determined by the length of the first Track you play, although this can be changed at any time. Sequences are assigned to play consecutively in any order in Song mode, with up to 99 Steps and 99 Repetitions of each Step. Within each Song Step, individual Tracks within the Sequence can be muted or transposed. After a number of Sequences have been completed and linked together to form a Song, you have another 12 linear Tracks which run the entire length of the Song. Editing features include the obvious ones like transposition, quantisation, copying, deletion and insertion, as well as more sophisticated functions such as filtering, scaling and time shifting. A complete Event-list is also available.

The drum sounds appear on screen as patches in kit form like any other sound, rather than being confined to a section of their own. Unfortunately, due to the limited time during which I had access to the VFX-SD (it was the only one in the country at the time) I didn't manage to delve too far into the realms of drum kit programming, but it's enough to say that the sounds themselves are extremely impressive – as you'd expect.

The VFX-SD also contains two wave classes not found in the VFX: Drum Sounds, which contains 17 individual drum sounds, each presented as a single wave covering the entire keyboard, and Multi-Drum which contains multisampled combinations of the above waves and the original VFX Drum and percussion sounds. Drum sounds always benefit from judicious use of effects and having a built-in multi-effects unit has done those in the VFX-SD no harm at all. Incidentally, in addition to all of the effects found in the VFX, the VFX-SD has several new effects – included Gated and Room Verbs, Dirty-Roto and Delay, and Warm Chamber. For a detailed explanation of the other effects and the way in which effects are routed in the VFX, consult the review in the July issue of MT.

Next up is the keyboard. Ensoniq have a history of problematic keyboards – due to their insistence on availing their public of poly aftertouch. The new VFX-SD keyboard, by way of a contrast, is a joy to play. Ensoniq claim it is close to the feel of an ESQ1 (remember them?) but also capable of generating two types of aftertouch – Poly-Key and Channel, that is, either polyphonic or uniform across the keyboard. Poly-Key pressure generates loads of data via MIDI, and can be turned off to conserve memory when using a sequencer.

The cost of all of this? Well, apparently some samples have been lost to make way for the drum sounds. Also, a considerably enhanced specification carries a considerably enhanced price tag, but that's just the way of the world. The original VFX still stands up as a synthesiser, possessing some of the richest and most breathtaking sounds available. But if you're after a workstation and the thought of an external sequencer leaves you cold, the VFX-SD could be just the winter warmer you need... ■ *David Bradwell*

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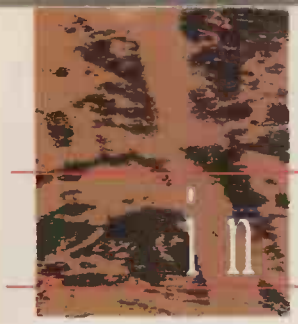
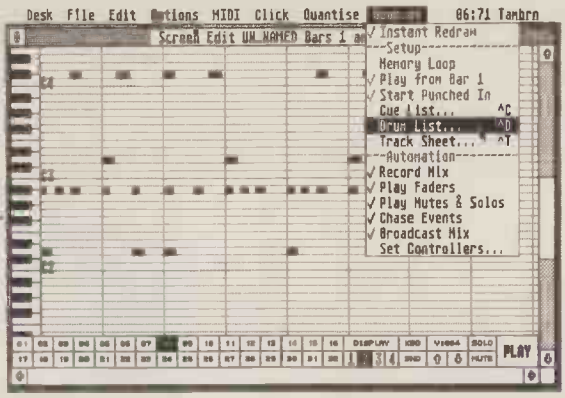


in brief

HOLLIS TRACKMAN II



THIS IS A new look at an old friend. Actually, it's not *that* old, as Trackman was reviewed as recently as our March issue. That said, we won't waste time by going over what we already know about the program. Instead we'll look at the additions and improvements.

The original review stated that the Trackman package includes free updates and several have already been sent out – particularly to owners who gave Hollis Research some feedback. Trackman II is probably the final free update and incorporates suggestions made from users and, dare I say it, reviewers, too.

Some of the alterations and modifications are minor in themselves, but the attention to detail serves to enhance the program and make it even more user-friendly: Track numbers now darken if they contain MIDI data, a Track Sheet Page lists the tracks and lets you give them 16-character names; recorded tracks, again, are darkened.

A MIDI Event Indicator in the bottom right-hand corner of the screen shows that MIDI data is arriving.

Lots of bits of the implementation have been tidied up, too: Making a Song observes the solo, mute and fader settings and the resulting sequence gives you a "neutral desk" so you can make overall adjustments to the song. When you select a new sequence, tempo, patch memory and MIDI channel allocations are copied from the previous sequence.

You can perform Bounce and Extract operations by holding down a computer key, clicking and dragging. The Undo box is renamed Redo after you do an Undo. Lets you see if you've undone an undo and it dims if there's nothing to undo – follow?

Patch changes can be sent using three formats – 0-127, 1-128 or a11-b88 – and you can record them directly into a sequence. Extract Notes has been replaced by Extract Events, Rotate Sequence shows the time in milliseconds and Velocity Rescale allows you to compress or expand the dynamic range.

On the programming front, one of the most significant changes is the ability to perform virtually any operation without stopping the sequencer. One or two operations (going to the Screen Edit screen and back to the main screen, for example) give it a very minor hiccup but it doesn't stop. You can even format disks and load a new sequence during Play, in which case it will start playing the new sequence when loaded. And should you make a mistake, Load Sequence is UNDOable. Nice.

In the Screen Edit screen the cursor becomes a cross-hair and there's a keyboard down the left of the screen. A small square shows you which note the cursor is aligned to and this is reflected in the top right of the screen as MIDI note number and note name, along with the position of the cursor in beats and ticks. This screen also remembers the vertical window position of each track.

You can insert notes directly from a keyboard in the Screen Edit screen. They take their length from the quantise value and are inserted at the mouse position. It's better than clicking notes into place but still not an ideal method of step-time input.

The sequence file format has been changed to give approximately 25% greater note storage capacity. The Sequence Index now shows the remaining note capacity – a newly-booted program offering over 100,000 notes on a 1040. Files created with earlier versions are, of course, compatible.

Channel Selects Track in the MIDI menu forces events onto the Track corresponding to the channel of the incoming data. This has several applications but the one I found most useful was the transfer of songs into Trackman from another sequencer.

Repeat in the Quantise menu now lets you program a short pattern into the repeats as you record them. You can set the metronome to MIDI clicks with selectable pitch channel, velocity and so on.

One major addition is the Goodies menu. This houses an Instant Redraw option which redraws the screen on exit from a dialogue box. You probably wouldn't miss it unless you've tried it. It also accesses a 32-point Cue List and you can name the points.

Here you'll also find the Drum List, a particularly useful item which keeps a record of which drum is assigned to which MIDI note number. The drum names appear in the top right-hand corner of the Screen Edit screen as you move the cursor over the notes. You can allocate a range of tracks for drum use and these won't be affected by transpose. Drum Lists can be saved, and four are supplied including ones for the D110 and M1. There's also a Kit file called Reverse which, when applied to a keyboard turns it upside down.

The recorded pitch of a drum can be mapped onto a different pitch on playback, allowing you to try different drum sounds. It also allows you to load a new Drum List and re-map it onto an existing drum track.

If Record Mix on the Goodies menu is ticked, you can record fader, mute and solo button movements as MIDI controller events. A Chase function ensures that program changes, MIDI volumes, pitchbend, faders and so on are correct if you start playback in the middle of a song.

Broadcast Mix enables the sending of fader, mute and solo changes over MIDI. This can be used to control MIDI VCAs and MIDI Mixing desks. Finally, Set Controllers lets you select which MIDI controller number will be used for solo, mute and fader controls, allowing you to use these to alter other controllers such as pan or volume.

One of the last pieces of code to be included is support for the MIDI File Format to facilitate import and export of both individual tracks and complete sequences.

If you're a Trackman owner you should already have received this little parcel free of charge. If you're not, you can become one for £199 and there are now over 50 more reasons why you should consider buying it. You've read most of them here! ■ *Ian Waugh*

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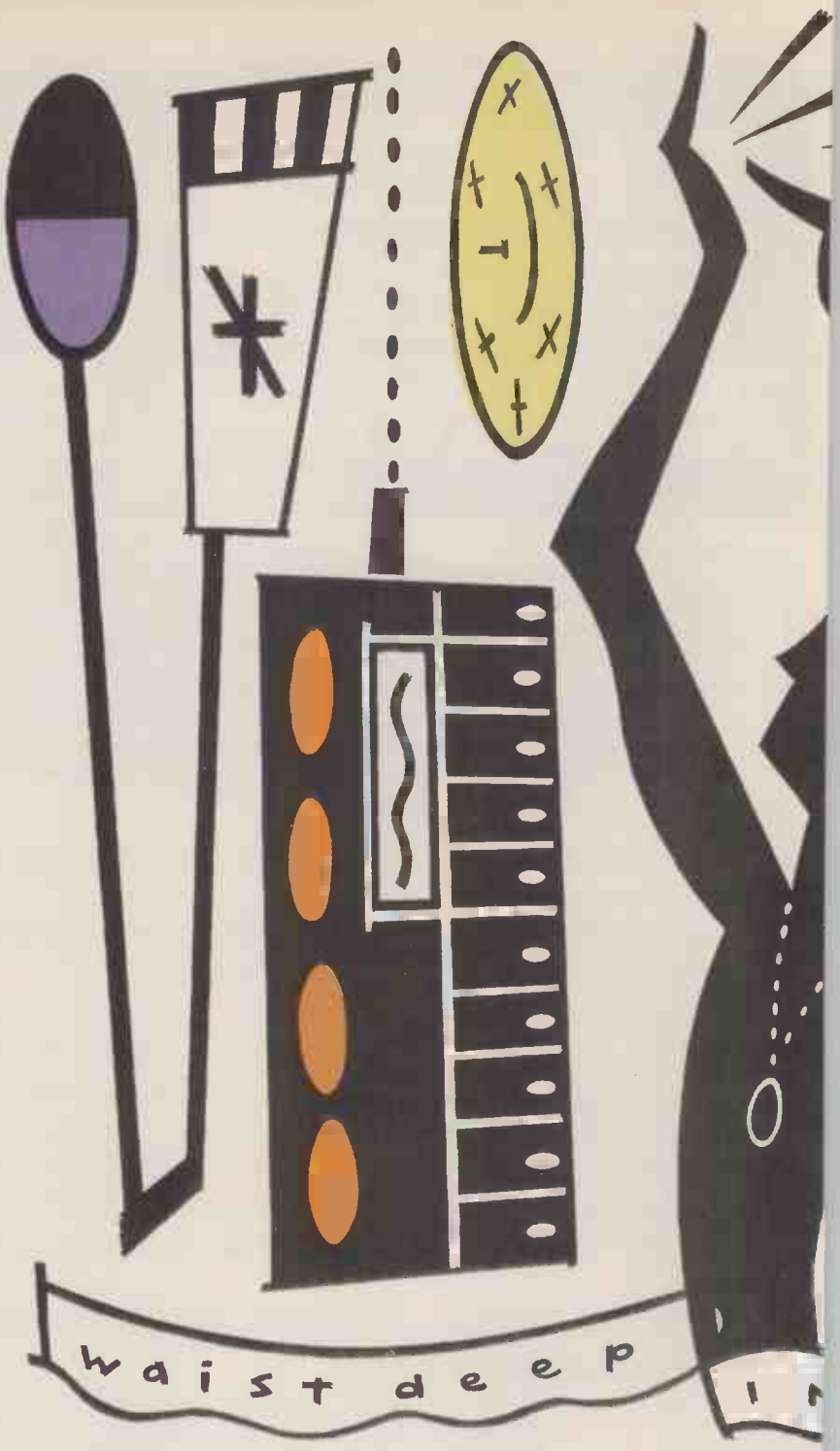


PART 5

IN PART FIVE OF OUR RHYTHM PROGRAMMING SERIES WE ENCOUNTER THE TRIPLET – THE RHYTHMIC FIGURE AT THE HEART OF MUSIC AS DIVERSE AS SWING AND HIP HOP... TEXT BY NIGEL LORD.

BEFORE GETTING OUR forks stuck into this month's rhythmic meat, I'd like, if I may, to clear up a little confusion which may have been caused in my last article through the use of the term "Rimshot" in place of the intended Side Stick or Cross Stick. As most (though not all) drummers know, a rimshot is played by hitting the drum head at the same time as the rim, whereas the side or cross stick stroke involves laying the stick across the drum and tapping it on the rim. In sonic terms, the difference is that of a loud "crack" (the rimshot) and a subtle "click" (the side stick). Playing last month's examples with a rimshot would have produced a rather overbearing effect, and that wasn't what was intended at all.

Actually, the problem stems from the fact that the terms have become almost interchangeable in beat box parlance, but the two are quite distinct and shouldn't be confused – as I rather carelessly did. Still, it's been worth putting the record straight if only because the side stick is an instrument which features quite heavily in our investigations this month, which concern that most misunderstood of rhythmic beasts – the shuffle.

I don't know about you, but I spent years steadfastly avoiding any rhythm which carried the shuffle label – ranking them just below foxtrot and beguine in terms of potential usefulness within a contemporary setting. Even the name is enough to put you off – it conjures up

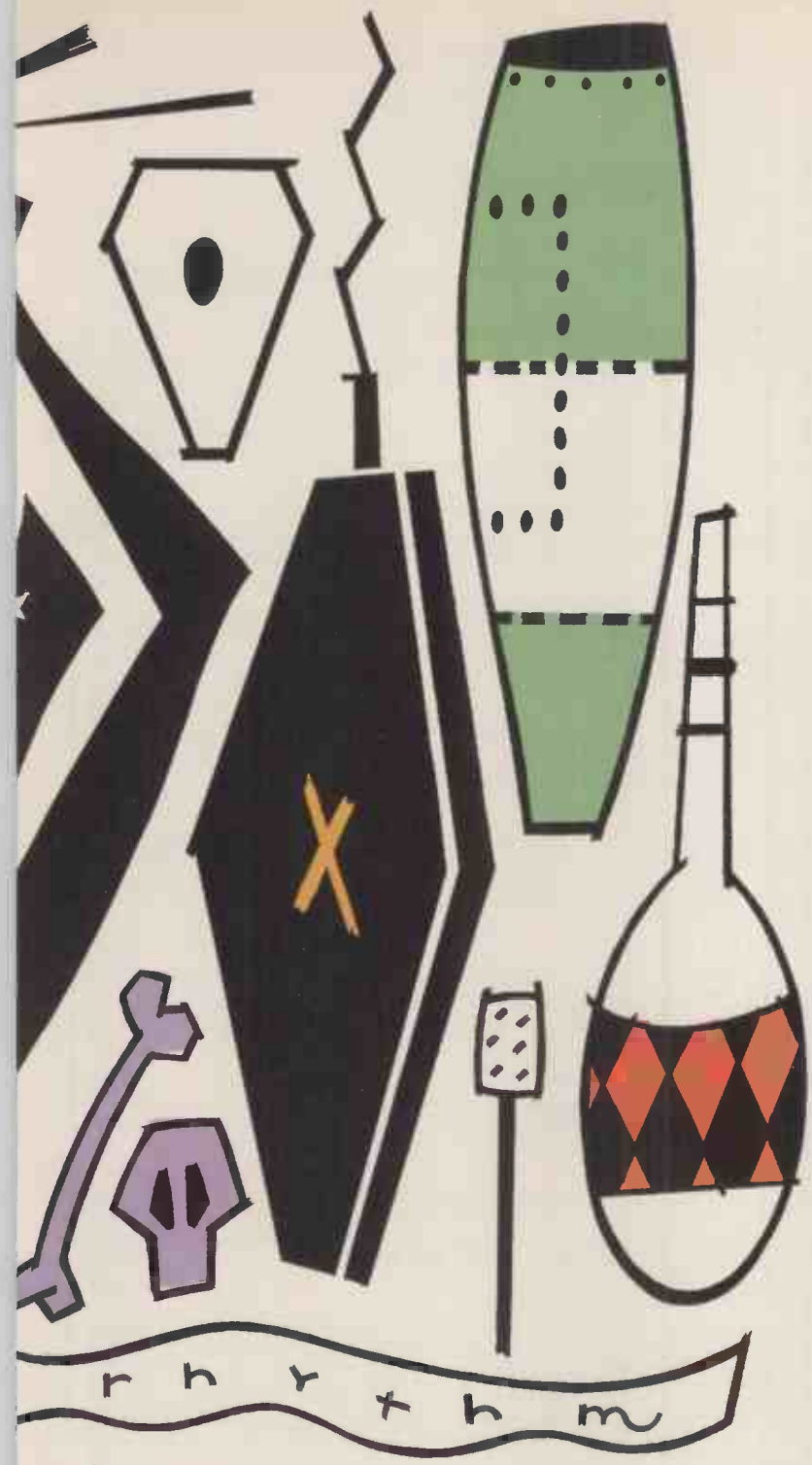


ILLUSTRATION: CLIVE GOODYER

images of sweaty, ageing R 'n' B pub musos who've been out of it for the last ten years but who've got together just for a few laughs and a pint. Or is that a laugh and a few pints...

Fact is, there's no such thing as a shuffle rhythm at all – at least not in the same sense as, say, a reggae or samba rhythm. Shuffle is simply a way of playing a particular pattern in order to alter its basic feel, and as such can be applied, with varying degrees of success, to practically any groove. Thankfully, with the advent of quite sophisticated shuffle facilities on machines like the Roland R8 and R5, this fact is becoming far more widely appreciated amongst rhythm programmers, and the considerable potential of shuffle rhythms is at last coming to be realised. Certainly, that elusive foot-tapping quotient I referred to a couple of months ago can be increased considerably by the application of a little judicious shuffling, and happily it represents a form of rhythmic variation available to users of even the most humble machines.

At the heart of any rhythmic shuffle is the triplet – coincidentally, one of the most important elements of hip hop rhythms. This is commonly played on the hi-hat or cymbal, but can equally be applied to the bass drum or indeed any instrument. The triplet is a group of three notes played in the time of two (and indicated by a small number 3 above them in conventional music notation). Because of their two-beat duration, instruments playing triplets can be accommodated within the standard 4/4 time signature of most contemporary music, but alongside other instruments the effect of this is to produce a rolling rhythm with a pronounced swing to it.

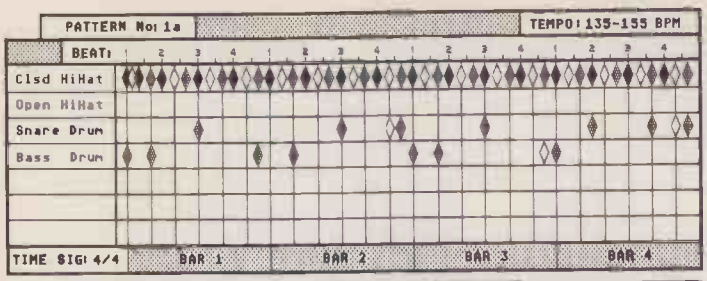
Interestingly, certain notes within the triplets can be replaced by rests without losing the basic shuffle feel, and this, of course, gives us much greater flexibility when tailoring rhythms to a particular song or track. Very often, in fact, so many of the triplet notes are stripped away, it becomes difficult to identify a shuffle groove simply by looking at it on paper.

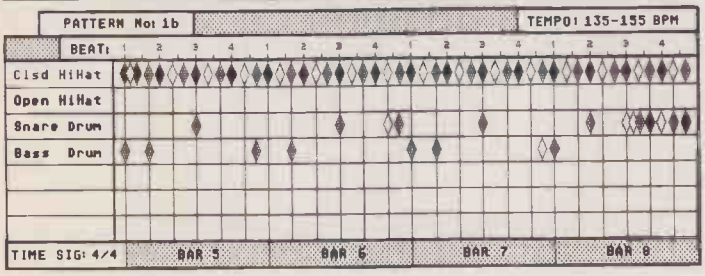
Speaking of which, the standard drum grid method of notation is not, perhaps, the best way to visualise a shuffle. The existence of the "three-based" triplet within a "four-based" time signature can often be rather confusing. If, however, you keep an eye on the small figures at the top of the grids numbered 1-4 in each bar, it shouldn't be too difficult to work out what's going on and when. To make it easier, I've set all the instruments for each example on the triplet-based grids – even though instruments such as the snare drum quantise as 8th or 16th notes. I've done it this way to make life easier for those programmers with machines which cannot quantise individual instruments for triplets.

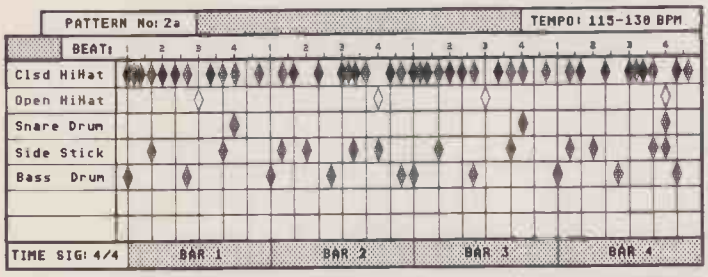
Unlike earlier articles in this series, where, despite some quite extensive alterations each rhythm preserved the same basic feel, applying a shuffle to a pattern alters its whole complexion, rhythmically, and often prevents it being used in the same musical context as the original. Because of this, I haven't included the "base patterns" with this month's examples – the six rather distinctive shuffles we'll be looking at stand very much on their own feet.

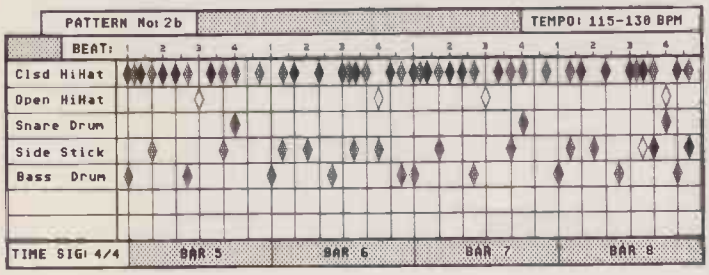
That said, I must once again stress these patterns provide examples only of what *can* be done, and are intended to act as a starting point for your imagination and programming skills. Take a little time programming them into your drum machine (or sequencer) note by note – but once there, take them apart, change them around, take parts out, put your own parts in. Above all, try to adapt what you see and hear to your own programming.

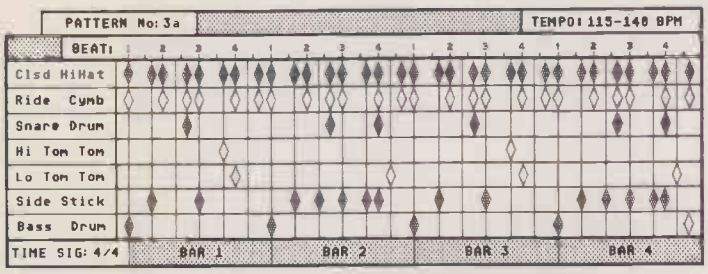
Following the standard set in last month's article, the low, medium and high dynamics of individual beats are represented by open, dotted and solid diamonds. But remember: these dynamics ➤

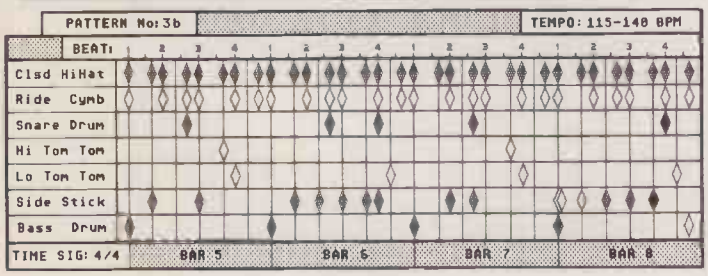


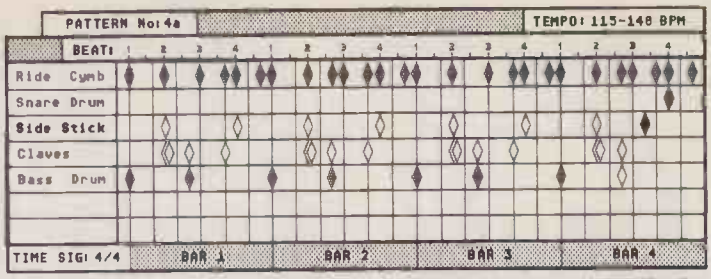


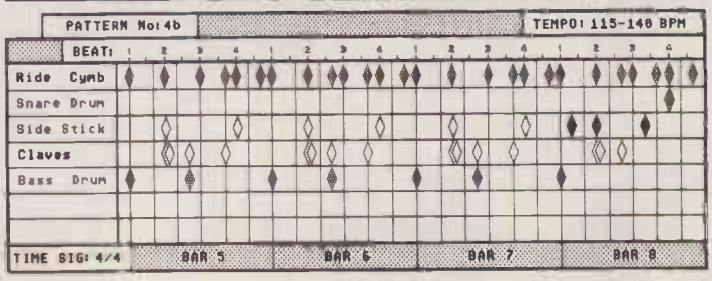


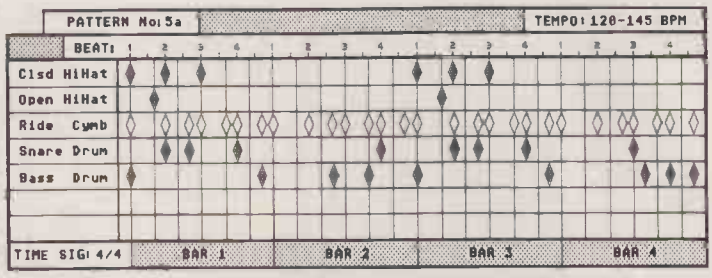


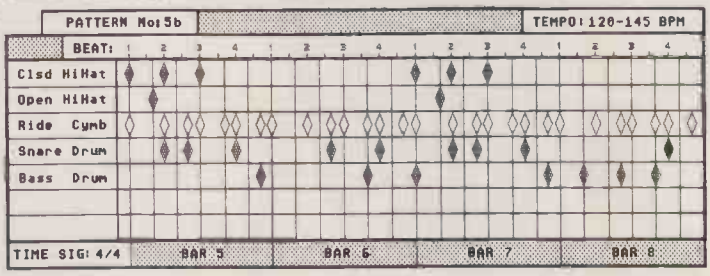


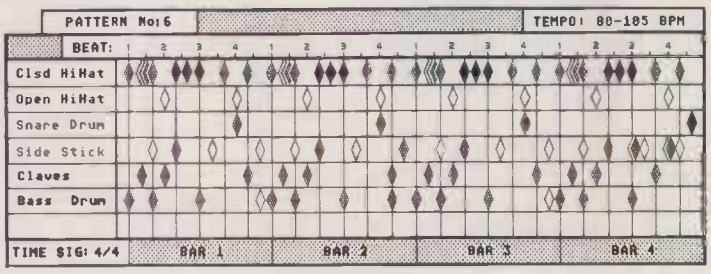












➤ relate only to the levels within each instrument line. Establishing the relative levels between instruments isn't possible on the printed page, I'm afraid, so you'll need to set up the balance for yourself.

To get the ball rolling, we'll start with a fairly simple groove but one with a broader range of uses than many shuffle rhythms. If, like me, you've had a natural prejudice against shuffles in this past, Pattern 1 might serve to change your mind.

The triplet notes are provided by the closed hi-hat, but as with many shuffles, one of the notes has been replaced with a rest. To indicate its position within the bar, however, there is a short opening motif comprising a full triplet which has the added advantage of giving the rhythm a little extra definition. The snare drum figure at the end of Bar 4 also helps define the pattern, and leads nicely into the second half of the rhythm where a more elaborate version of the figure forms a natural cadence at the close of Bar 8.

Of course, the patterns may be restructured so that the two snare drum figures fall in the most rhythmically useful position in the track, and there's nothing to stop you adding extra parts should they be required. A quite fast rhythm, it needs to run at around the 150bpm mark if the snare and hi-hat figures are to sound coherent, and as with all triplet-based rhythms, the dynamics are absolutely essential if it is to have the feel of a true shuffle.

Patterns 2a and 2b also make use of an opening triplet on the hi-hat, but apart from this have little in common with Pattern 1. Altogether more complex grooves, they make full use of the accompanying side stick part

weaving in and out of the snare/hi-hat lines.

Once again, take careful note of the dynamics – the three levels included represent an absolute minimum in terms of expression. And you'll also need to keep a watchful eye on the tempo: at around 120bpm, they're slightly slower than would normally be associated with rhythms of this kind, but this is necessary if the patterns aren't to sound cluttered.

As is often the case when tom toms are introduced into a rhythm, Patterns 3a and 3b have quite a full-bodied feel, despite the fact that the drums only contribute one or two notes every other bar. The inclusion of an additional triplet line on the ride cymbal helps give this pattern a rather jazzy groove and this is complemented nicely by the repeated off-beat side stick figures at the end of each two bar phrase.

The rather peculiar symbol at the beginning of Bar 8 is in fact a flam – a pair of notes played in very quick succession. If your machine has a flam facility, this should pose no problem, if it doesn't, you'll need to program the two notes individually – consecutive 32nd-note triplets should sound about right, but try experimenting. Also, this last side stick figure (Bar 8) would sound rather better with steadily increasing dynamics rather than just three levels, if your machine can handle it. If it can't, and it isn't capable of producing flams or resolving to 32nd-note triplets either... well, now might be a good time to think about an upgrade.

With their strident bass drum lines, Patterns 4a and 4b have a rather monolithic feel to them, but this is offset to a considerable extent by another jazzy ride cymbal part and a neat little clave motif repeated throughout the rhythm.

As you can see, there are more flams to program (32nd-note triplets), but these aren't quite as essential in this pattern and could, perhaps, be replaced with a single, medium dynamic note. In fact, the entire clave line could be given over to a wood block, or maybe even a cowbell, providing it is subtle enough and kept well down in the mix. You might also try using a cymbal "bell" sound (the cup in the centre of the cymbal) in place of the conventional ride cymbal – or maybe even a shaker providing it has a long enough duration.

Patterns 5a and 5b, though fairly conventional in structure, have a "call and response" feel to them provided by the first and second bars in each of the four phrases. And whilst they appear here as one continuous rhythm, they can be re-assembled in any order you please.

Rather than programming dynamics into each instrument, this rhythm relies on the interplay between instruments to provide light and shade – the only exception being the accented snare beat at the end of Bar 8. It's fairly tolerant tempo-wise, running from 120 to over 145bpm, and relying as it does on quite conventional instruments it should sit quite happily in most machines. Nothing more I can add, really.

Finally, we come to Pattern 6 – a rhythm designed to run at a much slower pace than the rest of this month's examples.

Distinguishing features include a rather subtle clave line, 64th-note triplet flams (sorry) for the side stick in Bar 4, and 32nd-note triplet double flams (sorry, sorry) for the hi-hat at the beginning of each bar. Oh, and if you're feeling particularly masochistic, you might try lowering the level of the second note in the double hi-hat flam (that is, the third note in from Beat 1) to give the figure a little more definition.

This all sounds much more complicated than it actually is, and given the difficulty often experienced in programming slow tracks, it should certainly prove worthwhile. Tempo at the top end shouldn't go much beyond the 100bpm mark, but can drop to well below 80bpm should this be required.

And that's about all for this month. Next month we move on yet again, so till then, keep your feet on the ground and keep reachin' for the off switch... ■

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K4 & K4R

PHOTOGRAPHY: JAMES CUMPSTY

Kawai's new K4 comes to us with a new method of synthesis: – Digital Multi Spectrum – but how much is new and how much is more recycled technology? Review by Ian Waugh.

GIVE IT A cursory once-over and you could be forgiven for thinking that Kawai's new K4 is actually their old K1 in disguise. A superficial glance at the controls reveals familiar pitchbend and modulation wheels (what, no joystick?), two-line LCD, Multi and Single buttons, four bank select buttons and two rows of patch select buttons. Kawai have obviously decided not to give their followers any future shock.

In many other ways, too, the K4 reveals its heritage, and anyone familiar with the K1 may be forgiven for sharing a sense of *deja vu* as they read this. But there are differences, so read on and all will be revealed.

The K4 has a five-octave velocity- and pressure-sensitive keyboard with the pitchbend and modulation wheels situated to the left, rather more convenient than their placement above the keys as on the K1. The buttons are plastic as opposed to the K1's squidgy rubber ones and the keyboard has a sprung synth action which should be responsive enough to satisfy piano players who don't violently object to playing synth keyboards.

The sound sources are produced by a DMS (Digital Multi Spectrum) tone generator (more about this in a moment) which is presumably an updated form of Kawai's VM (Variable Memory) synthesis used in the K1. It is capable of handling up to 16-note polyphony.

A single sound or Tone is referred to as a Single patch and a combination of Tones is referred to as a Multi patch. There are 64 of each type of patch stored in four banks of 16. A RAM card can be used

to store an additional 64 patches of each type.

The first thing you do with a new instrument is check out its presets. I can't tell you what the default sound is like – the one that usually makes you want to buy the thing – because someone decided to replace it with a duplicate of the sound in position two. A quick run through the other sounds, however, quickly reveals the K4's forte: pads, combination and layered sounds – yes, even some of the Single sounds move and swirl and contain several different types of Tone within them.

Multi sounds allow you to combine up to eight Single Tones into one gigantic arrangement. The potential complexity of such a combination has to be heard to be believed, especially as one of the major additions to the K4 (over the K1) is a digital filter. Now we're getting down to business.

SOURCE SECRETS

DMS IS A 16-bit system and the sounds it produces are squeaky clean. The perfectionist may detect an ever-so-small amount of background residue when some of the effects are used but I'd have no hesitation in using the K4 for recording and I've no doubt it will have already appeared on many a record even as you read this.

As the sounds do bear a passing resemblance to those produced by Roland's LA and Korg's AI synthesis, let's look at the K4's Tone structure. (If you've managed to master Roland's LA synthesis in its myriad forms, this will be a piece of fish.)

A Single patch can be built up from four Tone Sources which can be in a Normal, Twin or Double arrangement. Normal allows two Sources to be fed to a single filter, Twin allows two pairs of Sources each to be fed to separate filters and Double routes the Sources through the filters in series. It's worth noting, though, that Twin and Double modes reduce the polyphony to eight notes.

A Source can comprise of one of 96 DC (Digital Cyclic) waveforms composed of up to 128 harmonics, or one of 160 PCM waveforms. The DC waves include traditional analogue-type waves (sine, square, rectangle and so on) plus a variety of instrument sounds such as organ, bass and piano. Some you may use alone but many will find a home alongside other waves to help add character.

The PCM waveforms are sampled sounds and include pianos, strings, voices, guitars and basses along with many other instrumental sounds and 23 Reverse and Loop effects.

Four Source buttons on the front panel are used to select the Sources during sound construction and editing, and four more are used to mute them. The LCD helpfully tells you if the wave is DC or PCM but you have to look up the name in a separate Wave List manual. Shame, as there's room in the LCD for the name, too. It seems Kawai haven't learned from criticisms of the K1, as the lack of wave names was its biggest fault (some would say only fault) except, perhaps, for the lack of a filter.

The DCO button is used to set the waveform values, fine and coarse tuning, pressure, vibrato, autobend and key tracking (whether the keys are to play normally or play a fixed pitch).

The editing functions are accessed from buttons on the front panel. Parameters are altered with a Value slider (shades of the DX7's data entry slider) and +/- buttons. A Recall button lets you compare the original patch with the edited version and you can copy Sources and filter settings from one patch to another.

The Common Group edit functions act on all the Sources in a patch. They include ring modulation and a variety of keyboard modes which determine what happens if a key is pressed before the other is released. You can assign individual pitchbend, pressure, modulation and velocity parameters to each patch, plus autobend, which is useful for voice effects and ethnic instruments.

The Source Common functions allow you to introduce a delay time for each Source from the time the key is pressed to the start of the attack phase (arguably this may be have been better placed in the DCA section). It allows you to construct sounds which build up in complexity by introducing Sources over time and to create echo effects.

Here, too, you can select one of eight velocity curves ranging from a direct linear response curve to ones which only produce sounds if the keys are struck hard or soft (more scope for the layering of sounds). There are also eight keyboard scaling curves which change tone and volume depending on the position on the keyboard of the key which is played. Use these to set up crossfade effects.

The manual includes helpful diagrams which show exactly how the volume relates to velocity and key position (but make sure you read the correction sheets for the full picture).

The DCA section has traditional ADSR (Attack, Decay, Sustain and Release) phases plus an overall Level (volume) control. Some die-hard synthesists may prefer a multi-stage envelope but this will do me just fine. The number of waveforms and editing options more than compensate, and don't you think life is complicated enough?

The DCA Modulation functions determine how the level is affected by the keyboard. Options include setting velocity, pressure and keyboard scaling depth, and time modulation velocity, time modulation release velocity and time modulation keyboard scaling. The time modulation parameters let you alter the envelope attack, decay and release times according to how hard the keys are struck and their position on the keyboard. This may be merely useful when used with a Single patch but its potential is far greater when that patch is used within a Multi patch.

Vibrato can be produced by adding LFO to the DCO, and wah and filter sweep effects are possible by adding it to the DCF. There are triangle, sawtooth, square and random waveforms and the LFO can be made responsive to pressure. The vibrato for each Source can be turned off and a delay can be added.

THE FILTER

AND SO TO the filter section. This is probably the biggest difference between the K4 and the K1 and, arguably, its greatest contribution to digital synthesis. You can filter any of the waveforms, not just the DC ones, and two filters can be assigned to a Single patch as previously mentioned.

DCF parameters include cutoff and resonance frequencies (specified numerically rather than in ➤

➤ Hertz, but no less useful for that) which operate in a similar manner to analogue controls. This is nice. There are also velocity, pressure and keyboard scaling depth controls and the LFO can be toggled on and off.

The DCF Modulation parameters are similar to the DCO Modulation parameters and are used to alter the filter from the envelope and keyboard.

THE EFFECTS

THE K4 CAN store 32 effects internally (number 32 is normally used as a bypass) with 32 more on a RAM card and you can route a patch through one of these. In comparison, the K1 II (reviewed MT, October '89) effects begin to look like the afterthought they undoubtedly are. There are 16 different types of effect including reverb, delay, overdrive, chorus, flanging, feedback and various combinations of these.

"The K4's Source Common functions allow you to construct sounds which build up in complexity by introducing Sources over time and to create echo effects."

Each effect has three parameters which vary according to the type of effect it is. For example, the reverb parameters are pre-delay, reverb time and tone (brilliance). The effects certainly enhance the sound – which is why they are there in the first place.

A patch can also be assigned to a Submix Channel, A to H. These contain pan positions of the sound (-7 to +7) and effect levels. This allows you to create settings in the Submix section, and route the sounds to any of them by assigning them to a Submix Channel – rather like plugging the sound into an audio mixer channel. It's easier in practice than it may sound on paper.

MULTI PATCHES

A MULTI PATCH is a combination of up to eight Single patches along with various parameters which tie the sound to key velocity, keyboard range, tuning, transposition and so on. The two rows of eight patch select buttons are used to select and mute the eight patches (or sections in K4 talk) which make up a Multi patch.

The Edit button lets you set the overall Volume of the patch, the effect to which it is routed and its name.

There are four basic editing functions: Instrument Group, Zone, Section Channel and Level. As on the K1, internal Multi patches can't use external Single sounds (the ones in a RAM card) and vice versa. Otherwise any of the 64 Single patches can be assigned to any of the sections.

Zone is used to set the upper and lower note limits for the individual sections. If you set the low limit higher than the high limit (are you still with me?) the patch will only play at the upper and lower ends of the keyboard and not in the middle. There is also a velocity switch here which can make a section sound only if either you play the keys hard or soft – more scope for layering.

The Section Channel is used to set the MIDI receive channel of each section. Simply, it gives you easy access to eight multitimbral sounds. It also allows you to say whether the section can be played only from the keyboard, via MIDI or both.

Level sets the volume level, transpose and fine tuning parameters for the sections. It also routes the sections to a Submix Channel which works in the same way as for Single patches.

If you've been following this (and I'll be asking questions later) you should realise how the K4 excels at "moving" sounds – the delay before the envelope sets in, the layering of four Sources into a single patch, the subsequent combination of up to eight of them into a Multi patch and, of course, the inherent harmonic movement produced by the filter all lend themselves to superb layers and banks of sound. You could use the K4 to write a film soundtrack all by itself. (If someone gives me the commission I'll do it.)

The K4 is capable of more stationary sounds, too. The instrument PCM waveforms, for example, can produce convincing solo instrument sounds although the presets, naturally, concentrate on combination sounds. The pianos are convincing but don't top the ones in Yamaha's EMT10, for example. Other than that minor observation, there should be a great enough variety of strings, basses, choirs, guitars, brass sounds and so on to keep you happy until you start creating your own.

THE DRUMS

IN KEEPING WITH popular trends (as evidenced by Kawai's own K1 II), the K4 has a separate drum section, independent of the Single and Multi patches. It can be played from the keyboard by pressing the Drum button but, more usefully, it can be used to play drum tracks created on an external sequencer.

A set of 61 drum patches, one for each key from C1 to C6 can be programmed. The drum section uses two Sources for each key and settings for wave, decay, tune and level can be made for each Source. There are 42 specific drum-type sounds again, all PCM, but any of the waves in the waveform library can be used. The range of sounds is very good – I especially liked the timbales – although there's no quijada.

It will be interesting to see what the programmers make of the K4. The potentially limiting internal architectural structure of a synthesiser based around a fixed number of sampled tones may have been side-stepped by the inclusion of a filter but, although its contribution towards shaping the sounds should not be underestimated, the number and variety of separate and distinct sounds remains to be determined.

SYSTEM FUNCTIONS

THERE ARE A host of options lumped together and accessed by the System button. These include tuning, transposition, local control and velocity switch point (to determine at which point the switch between playing loud and soft takes place).

System is also used to set transmit and receive channels and to determine what MIDI data is transmitted and received – program changes, pressure, bender, modulation, hold and velocity. The ➤

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R.R.P. £699.95 inc VAT

The **CHEETAH MASTER SERIES 5V** is a 61 note velocity sensitive Master Keyboard with full size keys and a full feature specification. The facilities available will provide a level of performance to satisfy professional and semi-professional musicians needs, yet still be within the budget of home recording and home keyboard users. The **MASTER SERIES 5V** offers features and performance never before available at this price, including full size keys, 8 user definable keyboard zones, 4 independent MIDI outputs, MIDI effects and 80 performance memories. The **MASTER SERIES 5V** is ideal for any user who requires the best facilities at an affordable price.

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The **CHEETAH MQ8** is a low cost, full featured MIDI sequencer with a difference. In addition to the normal features you would expect from a 16 song, 8 track MIDI sequencer, the **MQ8** has the ability to become a complete MIDI performance system. With facilities for live control of your sequences via MIDI input, and user- programmed effects which can be added to your performance in real time, the **MQ8** is more than a conventional MIDI sequencer. A powerful tool for enhancing your compositions, the **MQ8** allows each performance of your songs to be as different as you wish. A new world of flexibility in performance is at your fingertips.

● 8 modes of sequence playback including Echo, Arpeggio, Embellish and Vector Chord ● Sequences may be triggered and transposed in real time from MIDI controllers ● Two users may independently control sequences and effects during a performance ● 8 Tracks ● 16 Songs ● 256 Sequences ● Real Time and Step Time entry ● Entry may be from the Instrument or Keypad in Step Time ● MIDI Monitor facility ● 20,000 MIDI Event Capacity ● Footswitch Stop, Start and Punch In/Out facility ● Load/Save facility via MIDI System Exclusive or Tape ● MIDI In x 2, Out and Thru

R.R.P. £249.95 inc VAT

Cheetah

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➤ recognition of system exclusive data can be toggled on and off, too.

The top left-hand corner of the LCD shows when MIDI data is being received – a feature that's becoming more common and can be very useful. The sounds can be saved and loaded via MIDI data dumps either individually or *en masse*.

MIDI & MULTI MODES

SINGLE PATCHES ARE selected over MIDI using program change numbers from 0 to 63, Multi patches are selected with numbers 64 to 127. Patches in RAM cards must be selected from the front panel or

by sending a system exclusive message. I kind of think a program change table would be useful here, but I won't quibble.

You can change the patch in a section in Multi mode by selecting Section in the Receive channel options and then simply sending the relevant patch change number on the section's MIDI channel. That's the way multitimbral setups should work, of course, but they don't on some instruments.

POWER & THE MANUAL

THE POWER SUPPLY is still external (like the K1) and although it reduces the possibility of mains interference finding its way into the audio signal, it does make it easier for a power lead to be pulled out or snapped off during a gig.

The Link Play function, inherited from the K1, allows up to eight patches to be called in a specific order by pressing the +/YES and -/NO buttons – this definitely is useful for live work.

The manual is full of diagrams, although it could still be more informative and better laid out (couldn't they all?), but I don't think anyone will have trouble getting to grips with it. It has comprehensive MIDI data tables (mainly for the programmers) and it even has an index. With just a little knowledge of synthesis you should be able to program your own sounds and create your own Multi patches with relatively little effort.

THE K4R

UNLIKE THE DELAY between the launch of the K1, the K1M and K1r, Kawai have released the K4 and its rackmount version at the same time. The K4r is a 2U-high 19" module with all the buttons on the front panel – so operation is just as easy. It has no pitchbend or modulation wheels (natch), and none of the built-in effects either, but it has six separate audio outputs as well as right/mono and left stereo outs, and the headphone socket is mounted on the front panel for easy access.

The lack of effects is based on the premise that most people who buy rack-mount gear will have an effects unit as well. I could live with that although I still wouldn't say no to having the effects included.

VERDICT

IN SPITE OF anything you may have read about the difficulties of digital synthesis, using and editing the K4 is relatively painless. Full marks to Kawai for this. You won't need an external programmer although I've no doubt a software voice editor will make an appearance soon – and that should make editing even easier.

I'm personally glad Kawai haven't adopted the "workstation" approach and included a sequencer, but then I speak as someone who prefers the power and versatility of a software-based sequencer and the opportunity to pick one of my own choosing.

After the initial honeymoon period with the K4 was over, I donned my devil's advocate hat and voiced the disappointment that the K4 is, broadly, based on K1 technology rather than offering something new. Although if Yamaha can keep FM synthesis going for six years through God knows how many incarnations of instruments, surely there's room in the musical world for a third Kawai VM (DMS?) instrument.

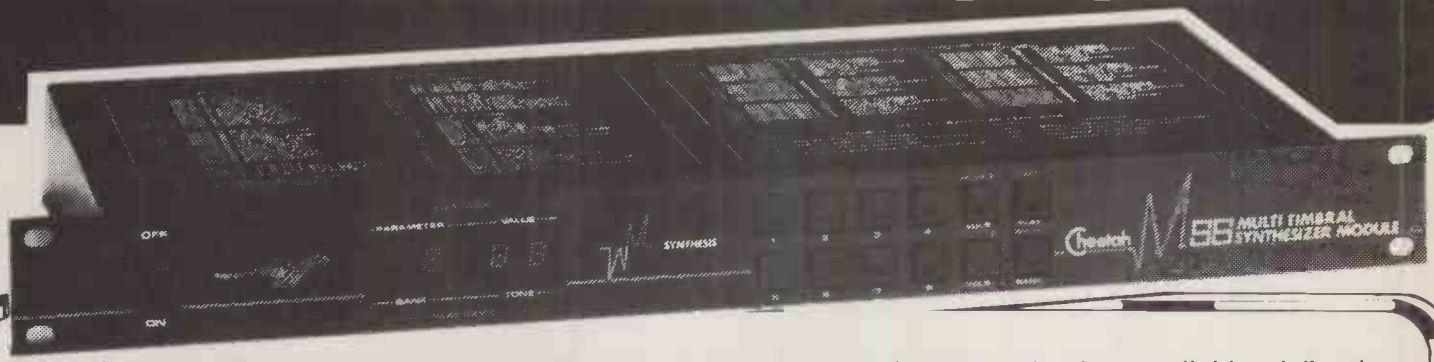
The K1's RRP is still £595 but it can now be seen advertised at up to £100 less (surely a good deal). If you are already a K1 owner I'm not sure I'd recommend that you rush out and trade it in for a K4 (unless you can afford the loss on the difference). But if you've been contemplating buying a K1, I'd think you'll be sorely tempted to beg, steal or borrow the extra for a K4.

And if you haven't yet invested in one of the new generation, PCM sample-based instruments then the K4 is one baby you really must see before spending your readies. Even if you are hovering around an LA synth or even the M1, the K4's filters, ease of programming (an enormous plus), multitimbral capabilities and impressive range of sounds (some mini performances in their own right) demand that you hear it.

And when you pop along to your local music shop, make sure you take your wallet with you because, make no mistake, the K4 will be in demand.■

Prices *K4, £895; K4r, £695. Both prices include VAT.*
More from *Kawai UK Ltd, Sun Alliance House, 8/10 Dean Park crescent, Bournmouth BH1 1HL. Tel: (0202) 296629.*

CHEETAH MS6 MULTI-TIMBRAL PROGRAMMABLE ANALOGUE SYNTHESIZER MODULE



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VELOCITY	YES	NO	NO	NO	NO	NO	YES
AFTERTOUCH	YES	NO	NO	NO	NO	NO	YES
2 OSC'S PER VOICE	YES	YES	NO	NO	YES	YES	YES
VCF PER VOICE	YES	YES	YES	YES	NO	YES	YES
NO. OF SOUNDS	416	64	1/64/128	32	64	120	1000
NO. PROGRAMMABLE	96	64	1/64/128	32	64	120	COMPUTER REQUIRED
NO. PERFORMANCE MEMORIES	64	8	0/0/0	0	0	0	COMPUTER REQUIRED
PRICE	£299	£600 S/H	£300 S/H	£250 S/H	£300	£400 S/H	£450

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SPECIFICATIONS ● 96 User Programmable Sounds ● 320 Pre Set Sounds ● 64 User Programmable Performance Memories which may consist of up to 6 instruments with Polyphony assigned as required.
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THE BIG SCREEN

Once Hollywood represented the ultimate dream of aspiring actors and actresses, today it represents the dream of aspiring musicians wanting to make it big in film scores. Gary Chang has already made it big... Interview by Lawrence Ullman.

QUALIFICATIONS IN BRIEF: COMPOSER, arranger, computer musician and performer, with extensive experience in film/video underscoring. Skills include: computer music programming on the Synclavier, Fairlight CMI, and MIDI synthesisers; engineering in a 24-track studio; and operation of various SMPTE synchronisation equipment.

With qualifications like these, it should come as no surprise that Los Angeles-based film composer Gary Chang is a very busy man. His film credits include the scores to *The Breakfast Club* (for which he received a gold disc), *Electric Dreams*, *Miami Blues*, *Dead Bang*, *Firewalker* and *52 Pick-Up*. Presently, he is working on Michael Caine's new movie *A Shock to the System*. As an arranger, session synth programmer and performer, he has recorded with

PHOTOGRAPHY: MELODIE GIMPLE

Ute Lemper, Art Garfunkel, Robbie Robertson, Al Jarreau, Eddie Money, Kansas, The Motels, Supertramp... The list goes on.

Chang has used his considerable expertise with music technology to open many doors. Technology has moulded his compositional style and made it possible for him to effectively communicate difficult musical ideas to other musicians. And, of course, it has made it possible for him to achieve something that remains a dream for most composers – a successful career in the fast-paced and unforgiving world of Hollywood film making.

He first became involved with music technology in 1972 as an undergraduate composition student at Carnegie-Mellon University in Pittsburgh, Pennsylvania. Like many budding academic composers in the early '70s, Chang's initial exposure to computer music was working with what he terms "the archetype of computer music programs" – the minicomputer-based and totally non-real time "Music5" system.

After completing his degree at Carnegie-Mellon, Chang moved to California to do graduate work with composer Morton Subotnick at the California Institute of the Arts (better known as CalArts). After the conservative atmosphere of Carnegie-Mellon, CalArts' relaxed attitude proved to be ideal.

"There was very little structure at the time (1977). It was good for me though, because I just lived, ate, and slept what I was hoping would be my business eventually, which is trying to do everything and make music in a situation where I had complete control of everything, like my teachers did."

The juxtaposition of various musical elements and styles is an important element of Chang's music. His initial exposure to this eclectic approach was through the jazz of the early '70s. He soon realised, however, that this technique was not limited to jazz.

"As a composer in graduate school, I had this fascination with what Miles Davis, Weather Report and Herbie Hancock were doing", he recalls. "Although they probably have a completely different description of what it was, I always sensed it being a different way of making musical feel by simply juxtaposing identifiable, yet opposite, elements."

At CalArts, Chang was exposed to compositions by Charles Ives and Elliot Carter, both of whom often employ juxtaposed themes, styles, rhythms, and other musical elements within a more "classical" context.

"This became kind of a gestalt for one of my main musical styles. I've gone back to a contemporary chamber music approach that combines elements of jazz, rock, minimalism, and 20th-century avant garde."

CHANG NOW SPENDS MOST OF HIS TIME AS a composer, which is what he likes to do best. But this was not always the case.

"When I got out of school, I was a closet-case computer musician. I didn't know what to do with my chops, and I wasn't a great keyboard player, but I had an established aesthetic and a writing direction for what I wanted to do with the technology. But the technology didn't exist at any level outside of the university at that time."

Getting a job at Fairlight as a product specialist turned out to be a case of being in the right place at the right time, and one thing soon led to another.

"As the Fairlight evolved into a more viable instrument for the industry, more people became interested in using it. I eventually started moonlighting with the Fairlight at the Village Recorder. One of the projects that I did was *The King of Comedy*, a Warner film. That was produced ➤

"I wanted to get back to being able to actually write music without having to re-learn the technology every couple of years – I was looking for an instrument I could spend a long time at."

➤by Robbie Robertson, and led to a friendship with Robbie that still exists."

Word soon spread, and Chang found himself greatly in demand as an arranger, session player and programmer.

"One of the first projects I did was an entirely electronic score for a feature film *Purple Hearts* in 1983. After that, I started working with Pat Williams, because he had a Fairlight. I guess I'd say that was probably the most popular time for me as a session musician. I did a lot of sessions, programming the Fairlight and other synths. I got to work with Al Jarreau, Barbara Streisand, Supertramp, Kansas, the Motels, Martha Davis, America, Eddie Money. . . "

Even though things were going well for Chang as a session musician, he had never planned to make his living as a player and was not really happy in the role.

"I wanted to go back to what was comfortable for me – and frankly, walking around LA from studio to studio was very uncomfortable. I was used to fooling around with tape recorders in my parents' den, or sitting at CalArts in an electronic music studio. I'd rather be by myself behind closed doors, not watching the hundred dollar bills take wing and fly out the window."

In 1984, Chang worked for Giorgio Moroder and contributed music to several films including *Electric Dreams* and *The Neverending Story*. Then his film scoring career really took off.

"At that point, I met Keith Forsey, who was contracted to do the music for *The Breakfast Club*. Working with Keith on that project led to my first actual 'additional music by' credit."

At that time, Chang was still doing sessions, particularly with Robbie Robertson, but he did score a feature film called *3:15*.

"The following year, I did *52 Pick Up* and *Firewalker*. I slowly edged away from the session work, and took on more and more film work, until now I'm just doing features. This year I did *Dead Bang* for Warner Brothers and *Miami Blues* for Orion. As you can see, the bulk of my work has moved both towards and away from playing because, frankly, I can play my music a lot easier than I can play someone else's."

THE IDEA OF BEING ABLE TO COMPOSE and perform his own music with total control over every aspect has long been the driving force behind Chang's love-hate relationship with music technology. His efforts to find a music composition workstation (which you simply turn on and start making fully-produced music) led him to build up a large MIDI system. He has now pretty much abandoned this approach in favour of his current love, the NED Synclavier.

"When basic MIDI stuff came out, it really excited me, but at the same time it really depressed me. The stuff that I could afford was seriously limited – I think it's wonderful that things are affordable. But at the same time, it seems like it's created a whole bunch of non-essential information for us. In order to amass a system that's large and versatile enough to create complete music projects, you end up creating this interface nightmare of unpublished information, inter-manufacturer hidden secrets known only by consultants – whatever you want to call it."

The idea of a convenient yet versatile system is a dream of many electronic composers, and Chang is no exception.

"You should be able to go to a system and actually say, '*this* is what I'm going to make music with', and not have to bring a ton of extra things to it. Certain companies have tried to create such a system, let's say like the Yamaha QX1/TX816 system. That is an alleged complete system with the addition of a DX7. Obviously, it's not really a complete system, or else everyone would just stop right there, and that would be the end of it. When I was working with the Fairlight, notes became an issue because there were only eight notes it could play. I mean, how do you orchestrate when you realise you only have two notes left to work with? So I moved away from instruments like the Fairlight and the Synclavier at that time."

Instead Chang soon amassed a huge and complex MIDI system. But, as many composers have discovered, the weight of what is supposed to be creative technology can become a limitation in itself.

"My MIDI system is basically a rack with four Roland MKS80 Super Jupiters, a Yamaha TX816, a Roland MKS20, and a pair of Roland MKS70s. I have a PR7 Beetle that's controlling the TX816, and an MEP4 MIDI Event Processor. It's all being controlled from a laptop Toshiba T3100 PC with a Roland MPU401. For sequencing, I run Roland's MESA and I also use the Bacchus software for editing and organising the FM instruments.

"The straw that broke the camel's back arrived when I started getting more work writing for films. When I did *52 Pick Up*, there was an hour and 15 minutes of music including source cues, and it was many different kinds of music. So file maintenance became really difficult. After every single cue I had to save each bank of each instrument, and then put it some place where I could easily get back to it. And not only that, the turnaround time between cues became progressively slower and slower. I'd have to figure out where the sounds were in the first place. So I had this basic problem, and then things started to get *really* difficult. I was doing a film project and I'd get a record project in the middle of it. How do I put anything on the shelf? How do I remember what I'm doing?"

In the end, Chang decided that the Synclavier wasn't such a bad option after all. He's owned one for almost two years now, and obviously loves it.

"My Synclav has 16 Meg of RAM and 32 voices. It has MIDI and SMPTE interfaces", he explains. "It's created an older feeling for me, a more

familiar feeling that represents what this medium is all about. The idea for me was to get back to music, get back to being able to actually write the notes without having to think about technology or re-learn it every couple of years. Or to transfer all of my information, whether it be in my head or on disk, to another medium altogether. I was looking for an instrument I could spend a really long time at.

"The beautiful thing about the Synclavier is that the sequences include SMPTE offsets, tempo changes, whatever. Now, if I have to stop doing a record project to work on a film, I just swap disks and load the sequence – everything is on one disk. I'm using my own sounds entirely now, and so my music has a very individual kind of sound to it."

CHANG HAS FOUND THAT ELECTRONIC musicians wear a lot of hats, and therefore must structure their time effectively.

"What I found in doing scores is that I make very particular formal changes in my duties at any given point in time. When I'm composing, I have one patch on the patchbay, and I'm facing towards the Synclavier keyboard. The mixer – a Soundcraft 200B – is configured in a particular way. I don't even look at the multitrack. Everything sits in a particular way and I write. When I'm done writing, I archive it onto disk. That's my writing environment.

"When I go to record, I become a recording engineer. I put the Synclavier in SMPTE sync. I put two-inch tape on the tape machine, and I'm a recording engineer. I don't look back at the Synclav anymore. I just write down where all the instruments are and I'm at the board. In other words, I've tried to become less integrated, because it allows me to become more musical."

Another component in Chang's setup is a Sony MCI 24-track tape machine.

"I always thought it was necessary to get away from the tape recorder. The reason I have it is because it's my industry interface. It's what allows me to do industry work at home. When I do a feature film, I can just take the two-inch tape downtown with me if I don't mix here. And that's a heck of a lot more convenient to carry than all my synths."

Unlike many electronic-based composers, Chang usually doesn't start with a simple rhythmic groove as the foundation for a score.

"The best film music is really sensitive to the picture. So the first part is analysis. I'm more structure-based, kind of like a minimalist composer. What I tend to do is break the cue down into smaller segments, and then weigh the segments as to where everything should be, density-wise. In other words, if there is dialogue, you can't have much density. So I tend to look at the density first and then try to write the melodic elements. I see how to solve the puzzle, so to speak, from that aspect. And then I simply live with the basic structure for a while and write a piece of music for that structure."

If the project doesn't call for an all-electronic score, Chang uses live players to create dynamics and excitement, and he uses technology to communicate complex musical ideas to them that would be very difficult to convey using a written score.

"Live players create energy", he explains, "so if I need more dynamics in a piece I'll use live players to create it. But when things get really small, the Synclavier is creating that. What the live players do is stop anyone from being pissed off at 'yet another electronic score'. It sounds like an ensemble – it sounds exciting, more magical. Computers haven't replaced the player – they've replaced the paper. Now I'm able to make particular edits and I can get players to come up and actually play something that could be completely abstract. Now they can hear it, and in very particular ways. Suddenly, it's not obtuse any more. It's simply music."

When working with live performers, Chang creates a private rehearsal tape for them.

"I just make a tape with a finished vocal on it, and hand it to the player and have him absorb exactly what it is. He would also get a chart with all the eccentricities written on it. But the idea ultimately is to make it convincing."

But with all the power and control available from the Synclavier, why bother with live players at all? As ever Chang has his answer ready.

"It's like the difference between hand-written calligraphy and a word processor. People don't want to hear computer music. They just kind of automatically turn their ears off and say 'give me the human being'. It does work in pop music, though. You can have all-computerised music because there's a vocal on top of it. So there's something to focus the music. I guess what I'm saying is that computers create the best accompaniment, because they have no personality and they never take up any of the foreground. So, I use live players when things are to be featured, because it sounds natural. It's a very natural feeling for the audience to be immediately drawn to the human rather than the track. That's why I'm always integrating."

Perhaps the real secret of Chang's success lies-in his attitude towards technology as a means to an end, rather than an end in itself.

"I just want to get back to the music", he protests. "I want to get back to traditional sensibilities. I want to get back to what I feel – or what I felt when I was younger and excited about music. And it's not just that. It's a matter of coming to terms with my career. I compete with composers who don't know technology, but do know music. Technology isn't really important at all. All it has done is make more expeditious certain types of expression that were previously considered 'adventurous'. And you know, I'll tell you honest to God, the only thing that really counts is the music." ■

"Computers haven't replaced the player, they've replaced the paper. I can get players to come up and play something completely abstract – but it's not obtuse any more, it's simply music."

Roland

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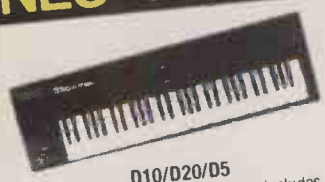

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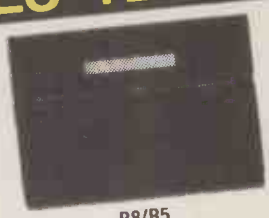

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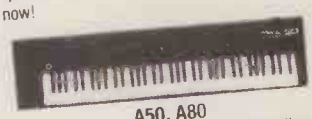

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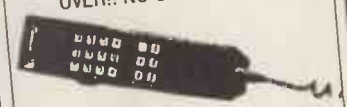

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MB4 MIDI BASS

PHOTOGRAPHY: ADAM JONES

As MIDI controllers grow in type and complexity, one instrument seems to have been overlooked – the bass guitar has always been the guitar's poor relation...

Review by Ollie Crooke

AS A BASS player who works a great deal in a MIDI pre-production studio, I have spent the last few years gnashing my teeth in jealousy as controllers for drummers, guitarists, saxophonists and trumpeters have come on to the market; there just didn't seem to be much commercial interest in making MIDI accessible in any acceptable form to bass players. I contacted Yamaha, who make guitar and saxophone controllers (both of which I have bought in frustration) to ask if they had any plans to develop something to help me, and was told that although the technology was of course available, such a development was highly unlikely, as there was not a sufficient market to make it worth their while. Well, all I can say to that now is that I hope this instrument proves them wrong.

I am hardly unbiased, but I believe that the potential of a MIDI bass controller is immense – even more so when coupled with a machine like the Simmons SDX and a good drummer. Whole rhythm sections can be recorded into a sequencer, edited, looped, tightened up and generally manipulated, giving whatever balance of human feel and computer precision you require. Exciting, eh? Like drums, although great bass parts can and have been programmed from a keyboard, most of them don't sound the same as they would if they were played by a real bassist or drummer. Neither is there any of the spontaneity or interaction generated by a good rhythm section playing together. And as there just happens to be a Simmons SDX lying around in my studio, perhaps you can understand my desperation for a decent MIDI bass controller...

Enough of this, onto the review proper, or at least a brief history of the instrument. It came about as the result of a collaboration between Steve Chick of Bass Technology and Pete Stevens of Electric Wood. Steve is the Australian-based designer of the MB4 system, while Pete, together with the late Ian Waller (hence the name of the guitars) has been responsible for the highly professional and popular range of Wal bass guitars since 1978. A mutual respect for each others' work led to the collaboration which spawned this instrument. In essence, it amounts to an Australian MIDI system fitted, with some improvements, into a heavily

customised Wal Custom bass.

The Wal/MB4 comes in three separate units: the bass itself, a 1U-high 19" MIDI interface and a fairly small pedalboard. The bass in question is a four-string model, but built into the body of a Wal five-string, with a two-octave rather than the standard 22-fret neck. At first glance it looks like a particularly fine example of a normal Wal Custom bass. It certainly doesn't scream out "MIDI" at you. The craftsmanship on the guitar itself really is outstanding, with the kind of exotic woods and laminations which are only seen on hand-made instruments. As these basses are made to order, you can choose between Paduk, Shedua, American Walnut and Wenge as facia woods. One of these sandwiches a central core of Brazilian mahogany.

MIDI BASSICS

FOR THOSE WHO are unfamiliar with the tone control system on Wal basses, here goes: there are four controls, the first being a master volume pot. This has a click-up position, more of which later. The second is a panpot between the pickups, the centre detent representing both pickups being full on. Being a panpot rather than a switch, it can mix any combination of the pickups, though the overall output level of the guitar will always remain at the level set by the master volume control. Underneath are two quasi-parametric controls, one for each pickup; clicking up the knob produces a boost of around 10dB to the harmonics at or near to the roll-off frequency set by the rotary position. Lastly, when the master volume control is clicked upwards, "Pik-Attack" is introduced – a narrow band of high frequency is added to the overall tone setting to provide extra attack. Both the overall output level and the level of Pik-Attack are trimmable from inside the battery compartment of the bass.

The only external signs that this is not just a normal bass, are (a) the MIDI Bass logo on the headstock, (b) a small extra pickup next to the bridge which is wired though the body to (c) a computer port socket on the back of the guitar. All very neat, and by far the most discreet MIDI system I've seen on any guitar. The obvious advantage of all this is that you are still playing a real instrument (and a very fine one at that,) and it is still entirely possible to go out without the MIDI interface and play a gig as though you'd never heard of MIDI.

The computer port on the guitar is attached via a special multicore connector to a similar port on the interface. This is a slightly fiddly process, as there are four screw-like attachments which fasten from the ends of the lead into the receiving sockets. However, once fastened, they hold the connections extremely firmly, and eliminate any chance of the sockets being damaged whilst in use.

On the front of the interface itself, there are two rotary control knobs, and five slider switches, with a standard quarter-inch high-impedance audio output socket. The first knob controls the sensitivity of the unit to different playing strengths. Next to it, the Velocity control has two functions: its setting represents the maximum velocity that can be generated by the system (0-127), and for the "scanning" of a sound – pluck a string, twiddle the knob, and you can hear it scroll through the different velocities as you play.

The Style switch has three positions: A for finger style and slap playing, B for plectrum playing, and C for two-handed tapping. it has also taken on some software-related functions (more of which later on). Next, there is a three position Octave switch – 0 being the centre position, with octave up and down positions to the right and left respectively. The next control is Dynamics Off/On, which in effect switches on velocity sensitivity to the synthesiser, or in the Off position, transmits constant velocities at the level set by the Velocity control. Then there is a fairly self-explanatory Mono/Poly switch; if you're playing only single lines, then the Mono setting is for you, but if you're trying to play guitar power chords, then perhaps it's not so appropriate. Just before the Power switch, there are two LEDs – a MIDI active, and Power On indicator. The Audio Out from the interface sends a high-impedance signal, which is not suitable for studio use – for that you plug an XLR into the socket for the DI box which is built into the guitar itself. On the back of the interface there is a multi-pin connector for the pedalboard and a MIDI Out socket. The pedalboard is rather pleasingly mounted on a nicely polished piece of wood, and contains three DX7-type pedals – the first for patch changes, the second for modulation, and the third a Hold pedal.

Does the system actually work? Does it track well enough? The answer to these is a resounding yes. I must say that I've never felt so comfortable with a guitar controller of any kind. This is because you're playing a conventional instrument of the highest quality which just happens to have very accurate MIDI triggering. The adjustments in playing technique are, for a player with a reasonable basic facility, about as minimal as MIDI will allow them to be, especially when you consider some of the crazy guitar controllers that have come out. Of course, your fretting needs to be cleaner and more precise, and good left and right hand co-ordination is necessary to avoid double triggering. It is also best, as usual, to pluck as near to the bridge as possible. I found that practising these things sharpened up my own technique quite substantially.

I have been told that the tracking time is under two milliseconds, and I never had any reason to believe otherwise. It is a fret contact system, working in two stages – underneath the fingerboard and in the MIDI pickup itself. All note information is derived from electronic sensors beneath each fret, thus bypassing the delays associated with string vibration/pitch sensing systems. The pickup senses only the dynamics of a note, and translates them into velocity information. Hammer-ons are interpreted using pitchbend information, a system which works very well for most uses, except that the interface will not respond to string-bending – a sacrifice perhaps, but one which is worthwhile when you consider that most ➤

"In the short time I've been in possession of the bass, it has got me practising something I swore I would never do – two-handed tapping."

"You are still playing a real instrument and it's possible to go out without the MIDI interface and play a gig as though you'd never heard of MIDI."

➤ bassists use hammering and sliding techniques far more often than string-bending.

The system is a very simple one, but the important thing is that it actually works, and has the advantage of being mounted on a real instrument, allowing you to mix the synth signal with the audio signal, a huge advantage, especially for live work.

IN USE

IN THE SHORT time I have been in possession of the bass, it has got me practising something I swore I would never do – two-handed tapping. In Style position C, which reads data from the fingerboard only (at a fixed velocity determined by the setting of the Velocity control) some highly spectacular results can be achieved. Using a good lead guitar patch, it's easy to program some of those over-the-top Van Halen imitations that we all know and (some of us) love. On a more subtle front, it is possible to orchestrate huge, widely spread chords – a lush string sound on a couple of strings, and a brass sample on the others. In position A, where it will most commonly be used, a slapped audio bass line mixed in with a little tracked synth bass can sound truly thunderous; if you've got a good fretless bass sample, then you're playing a programmable fretless bass on which it's impossible to go out of tune. Find a good Moog bass, and you're really in business: get a good groove or two on a drum machine, rent yourself a warehouse for the night and party!

Another nice touch is the patch-changing system. The first 16 frets on each string represent 16 patches, giving a total of 64 sounds instantly accessible from the bass itself. All you do is press the fret of your choice whilst tapping your foot on the Patch pedal, and you've changed sounds. The other two pedal functions are useful, only the Modulation seeming a little limited, in that being an On/Off switch, it sends a fixed rather than variable amount of modulation (controller 1) information to the synth. The Hold function is fairly self-explanatory, and useful too, especially for slow, graceful passages.

In order to get the most realistic feel from the instrument, it's necessary to use the Poly mode to trigger a multitimbral module, receiving on MIDI channels 1-4 in Mono mode (the G string transmits on channel 1, the low E on channel 4.) Slides come out very well in this mode, though good results can be obtained using the Mono position on the interface, the catch being that you are effectively playing a monophonic synth.

VERDICT

ANY CRITICISMS I have of the system are minor, and must be tempered with the fact that it seems to be the only one around that actually works. It would have been nice to have had the possibility of different tunings (a good feature of the Yamaha G10 guitar controller,) and while the fixed channel MIDI transmission is fine for live work, it can seem a bit limited in a studio setup – some flexibility would be useful. The manual, is on the whole, extremely good, but the order of some of the material has become somewhat misleading, due to the fact that software improvements have taken place (which depend on the setting of the Style switch prior to powering up the unit,) and are relegated to the back pages.

All in all, I really can put my hand on my heart and say that in 24 years of music-making on a variety of instruments, I have never been as excited about an instrument as this. I can't stop playing it, and when I'm not playing it I'm staring at it because it's so lovely. Divorce proceedings are imminent! I also find it refreshing that two small companies have got together and between them created something which other, much larger companies seemed to have decided was not commercially viable. I also admire the success with which they have achieved it.

And now, the final question: should every forward-thinking bass player now rush out and order themselves a Wal MIDI Bass, or should they have the MB4 system installed in a bass of their own choice (perhaps even their vintage, unique, totally original 50's Precision?) If you opt for an MB4 retofit on your own bass, you send it to Australia with a cheque for $2000 (Australian) plus freight costs, and eagerly await the arrival of your souped-up, MB4-ified bass. At this point it must be mentioned that Electric Wood have extensively repackaged the MB4 system for use with their Wal basses. On a retrofitted system, you will receive a rather flimsy and insubstantial plastic box housing the interface, with the dreaded external psu to plug into the mains. The three pedals would have to be bought over here, as they are not actually supplied as standard with the MB4, and each pedal has a separate lead going to the back of the unit, thus creating a spaghetti-like state of affairs. Add to this the fact that an old neck might not appreciate the drastic surgery, refrets and so on, which are necessary to install the sensing system, and that such a system might not work too well with a dodgy neck. Any problems which might occur would have to be referred to Steve Chick at Bass Technology In Australia, who, I'm told, is experiencing exactly these problems; while the folks at Electric Wood are extremely helpful, they can hardly be expected to take any responsibility for other people's work.

I'd think very carefully about subjecting an instrument that was dear to me (especially a neck-through-body type) to such a process. I would install the system on a cheaper instrument such as a Tokai. For roughly the same price, however, you can get around £1000 worth of very fine bass guitar, the interface housed into a 19" rack unit which plugs straight into the mains, one single multipin-connected pedalboard, endless cups of tea, advice and backup service from Electric Wood in High Wycombe. Suffice it to say that I'm already selling a piano, a fretted, a fretless and double bass, two amplifiers and two speakers to buy the Wal MIDI Bass, and I've never been happier to buy anything. ■

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The Analogue Sampler

ILLUSTRATION: ANDREW KINGHAM

IF YOU'VE NEVER SAMPLED AN OLD ANALOGUE SYNTH, YOU'VE BEEN MISSING AN EASY WAY TO EXPAND YOUR SOUND LIBRARY AND TAKE THOSE OLD SOUNDS INTO THE '90S. TEXT BY GREG TRUCKELL.

VARIOUS THINGS BROUGHT about the end for the analogue monosynth – cheap programmable digital polysynths, sampling, and MIDI, to name but a few. Curiously, some of these have turned out to be part of the reason for the analogue resurrection. As the price of second-hand analogue monosynths plummeted, the machines themselves fell into the hands of the smaller studios, who, having enough time to fiddle around, began to realise their musical potential. Acid, house, and the sounds of the various other dance musics, all contributed to a demand for the analogue sound.

The inadequacies of the antiquated internal arpeggiators and sequencers led to a need for MIDI compatibility, and now we have it. Prior to the availability of MIDI-to-CV convertors, a few studios looked hard at their analogue systems, and many found that there were parts to be played. For as many years as there has been cheap sampling, there has been another way to incorporate the sound of the monosynth in your MIDI system.

If you've got a sampler – even a sampling drum machine – you can capture analogue sounds that you might spend days trying to emulate on your DX11, D10 or K1. These sounds from bygone days can be sequenced polyphonically via MIDI, taking full advantage of your sampler's touch sensitivity and multitimbral facities.

Other significant advantages of sampling analogue synthesisers abound. If you can sample and sequence it, then you don't need a seperate track on your multitrack for each analogue sound. Gone are the wild fluctuations in amplitude at the slightest touch of the filter – and no longer need you worry about the beast going out of tune when you turn your back on it. You can take your analogue sounds on stage, and call up a new sound over MIDI instead of having to tweak those front panel controls. No more worrying that your mellow flute patch might turn into a liquidiser full of snails because you got a couple of the settings mixed up. What follows then, is a guide to sampling analogue monosynths, from the Rogue to the Minimoog, on the S612 to the S1000.

It's worth pointing out at this early stage that samplers, possibly even the most expensive systems, will never faithfully reproduce the true character of an analogue antique, whether it's your EDP Wasp or your SCI Pro One. Probably the single most significant contribution to the overall character of the sound of any particular model of monosynth is made by the filter – often by the shortcomings (technically speaking) of the particular model of filter. The tonal warmth of a Minimoog or early Prophet 5 had a lot to do with the distortion of the filters employed.

If your sampler has a filter, then that's the filter that is going to colour the sound in the end. So, if you plan to sample on a Mirage, you can stop worrying about the monosynth's filters, and start worrying about the Mirage's filters instead. I must of course qualify the above by mentioning

that we have now reached the "can't tell the difference" stage with the more expensive samplers. But most of you own a "we'll get away with it in the mix" sampler – and it is for most of you that this article has been written.

THE SOUNDS

SUBTRACTIVE SYNTHESISED SOUNDS (from analogue monosynths) are based on relatively simple waveform structures, typically derived from a handful of waveforms – sawtooth, square, triangle, and variable pulse. Sounds with simple waveforms are particularly easy to loop, and a very short loop of one or two wavecycles is often enough to recreate the sound of the original (thereby saving sample memory). If your sampler lets you detune a sample against itself, then some reasonably fat sounds can very quickly be at your disposal, even from a short loop.

The whole approach of sampling leans towards the idea of sounds consisting of an interesting and complex attack transient decaying into a sustained note with a more or less steady waveform. Most of the effort that went into programming interesting analogue synthesiser sounds went into creating a sound which provided a convincing sustain, but which had an attack transient that bore more than a passing resemblance to a bow scrape, flute chiff or mallet strike. Given the limited features of the average monosynth, you hardly need reminding how poorly they fared here. Monosynths came from an era when synthesisers were supposed to sound like synthesisers.

Of course, you could easily synthesise a really unusual "event" in the context of an attack transient, sample something a little longer for the decay and loop, then mix the two samples together. Part of the problem with the analogue attack transient is to do with the relatively sluggish envelopes to be found on many monosynths. A DX7 envelope set to its fastest attack rate gives a good impression of a Batman sound effect – the attack rates often have to be decreased for sounds that you might ordinarily think of as percussive. In contrast, the fastest attack time on an analogue instrument can still have quite a lazy feel to it. However, for every octave you transpose your sample up, you halve the sample playback time – and therefore double the attack rate. Take this feature to extremes of three or four octaves, and you can turn a woolly analogue synth tom drum into a sparkling woodblock, claves, or weird tiny afro logdrum.

It may be the case that, when carefully analysed, the attack transient that you want to create requires features that your analogue synth is unable to provide. Perhaps there is just a chiff of noise right at the start, but there is plenty more happening before the decay phase of the sound. An extra envelope generator would come in really handy to attenuate only the noise generator, but we're missing the power of the sampler here – sample the noise transient first, then the oscillators, and then combine the two samples.

Alternatively, remember that you have a spare hand when you're sampling, and that it could be pressed into service turning down the noise generator (or whatever other edit or modulation you require).

Hang on a bit though – isn't this getting a bit spontaneous? I mean, sampling's difficult and it takes ages, right? Wrong; at least part of the point of sampling is to be able to easily recreate something which would otherwise be impractical, like expecting you to be able to tweak something exactly the same way every time. Don't simply think in terms of what sounds your monosynth can make that you could sample. Think well beyond your monosynth's ordinary performance, in terms of monstrously unlikely and unrepeatable events.

As an alternative to synthesising the attack transient, you could even sample something else entirely (nip into the kitchen with a hammer and a microphone), and turn it into an instrument by adding an in-tune synthesised loop. This approach can be considerably faster than trying to get a loop out of acoustic source material, and is often just as effective. It's also much cheaper than buying a Roland D50 or Korg M1, which use just the same principle – sampled attack transients, synthesised sustain sections. More importantly though, it can be immensely creative and original – now when did you last hear that said about sampling? If your analogue system has external signal processing features, then you could sample something which has been put through the analogue signal processors, and so has had filters, resonance and envelopes imposed on it, before you even have to employ your sampler's processing power. And it goes without saying that analogue synthesisers are not the only means of analogue processing which can provide worthwhile sample fodder – guitar combo overdrives, wah pedals, and good old thick analogue chorus come to mind.

Of course, it's difficult to get a good loop out of the kitchen – none of the stuff in there was built to have music performed on it. While you may not be able to get a loop out of whacking the wok with a pasta spoon, it is almost second nature to the seasoned (pun) samplist to be able to imagine what they might sound like if they could sustain a note. Imagination, analysis, synthesis; and the analogue monosynth's area of excellence is in sustained sounds (more later).

We can approach the above technique in a number of ways; it is quite possible to sample an attack transient without any thoughts as to its pitch, and to subsequently sample something intended to provide a wonderful hybrid sound, only to realise you have no idea how to get your second sample in tune with the first (assuming that you want to merge, rather than layer, the samples). The obvious solutions are (1) to document your archive of samples that might come in handy someday (I know, I was kidding), or (2) to find the source and calculate the pitch and sampling frequency at which it was made from the relative tuning and unity playback values (I said I was kidding!). The only alternative is making our samples during the same session – by far the simplest approach...

"TURN ANY SOUND INTO AN 'INSTRUMENT' BY ADDING AN IN-TUNE SYNTHESISED LOOP – IT'S CHEAPER THAN A D50 OR KORG M1, WHICH USE THE SAME PRINCIPLE."

Tune your monosynth to the acoustic source, and you are ready to sample. That leaves us with the problem of how to balance the relative volumes, and how to line up the attack transients of the two samples. The most effective method I have come across so far was suggested to me by a bassist who had never before used a sampler, and to whom I am indebted (thanks Blackie); you get your hammer in one hand, put the other hand on the synth, and go "one, two, three, bong". Uncannily, the technique is even able to effectively synchronise more than one instrumentalist.

Suppose your monosynth has two ➤

➤ oscillators, two envelope generators, and one low-frequency oscillator – sound familiar? How would you like a huge modular system with ten oscillators, ten envelope generators, five filters, five LFOs and a handful of ring modulators or what have you? No problem. Analyse the sound you might create with such a monster, and break it down into, say, five parts. Synthesise the sustain – sample and loop it. Now synthesise and sample the part that lasts furthest into the decay section, and be sure to fade it out before it's as long as your first sample up to the loop start. Now add the samples together.

Since you saved your first sample to disk, if you get things wrong you can easily recover things. Proceed with whatever elements you need to add, right up to the attack transient, remembering to fade them out short of the loop start, otherwise you might find your loop difficult to perfect. Add high harmonics wailing out of tune and vanishing; sub harmonics growling and stuttering into silence. If you find that using your sampler's onboard editing or a computer-based sample editor gives an "unnatural" edge to the fadeouts, then try shortening the synth's envelope generators. Some monosynths sport exponential rather than linear envelope stages, which have a lovely natural feel to them.

In five or ten minutes you can create awesome, complex sounds that put even the likes of a TX816 or Matrix 12 to shame – without the programming sabbatical, the computer-based visual editor, or even the huge financial outlay. The speed with which these sounds can be created is itself quite inspiring. Too many keyboard players these days shy away from the thought of creating new sounds, but lock them up with a sampler and a monosynth and they'll be sending out for a couple of boxes of blank floppy disks before very long.

GOING LOOPING

SO FAR WE'VE covered short loops, complex attack transients, and extended attack/decay phases. Part of the power of the analogue monosynth was the ability to lean on any parameter during performance. The "meaty sync-bend", almost forgotten on contemporary synthesisers, stands out in my mind as the performance effect most likely to raise the hairs on the back of your neck. How can samplers recreate such drastic and complete changes in timbre, executed so smoothly on monosynths? A modulation wheel-controlled crossfade between two extremes is hardly close enough – but what about a velocity switch? Sample the performance effect itself, as well as an unmodulated event. Remembering that monosynths lacked touch sensitivity, disable amplitude modulation from velocity to the sampler's envelopes. The top of the MIDI velocity range can now be reserved for the huge sync-bend sample, enabling it as a velocity-switched performance effect.

"IN FIVE MINUTES YOU CAN CREATE SOUNDS THAT PUT EVEN THE LIKES OF A TX816 OR MATRIX 12 TO SHAME – WITHOUT THE PROGRAMMING SABBATICAL."

We said we'd return to sustained sounds, and here we are. Even with a limited number of modulators, a sustained analogue monosynth is the standard against which the depth of movement of any synth patch is judged. Even if your sampler supports oscillator detuning, you're not going to be able to create lush, moving sounds with short loops. Analogue oscillators and filters are always drifting around their control settings, and the amounts of any modulation drift similarly. The drift is not so large as to be obtrusive or undesirable – quite the contrary in fact.

It has been said that there are only two kinds of good loop; short and long – who said size wasn't important? The catch with long loops is quite simple; they don't half take up a lot of memory. The usual rules apply (sort of) when sampling any modulated sound. Remember that if you transpose the sample up an octave then you halve the period of any modulation. This can actually be used creatively; LFO modulation of pulse width, filter cutoff, or even pitch, when sampled and replayed polyphonically, will effectively create independent LFOs for each voice. Be sure to keep the modulation amounts subtle though, as extremes don't transpose well. Oscillator beating effects will also behave like this when sampled.

Suppose though, that you want to sample a sustained synth texture with slow and not-too-subtle tonal modulation; slow pulse-width modulation for example. So long as the effect is cyclic, there should be no problem, as long as you set up the sound to be sampled properly. There are certain things to be borne in mind. Most obviously, if you're creating a long loop, then it has to be during the sustain phase of the sound. The loop can't start during the decay phase, as that would give rise to ramp-shaped amplitude or timbral modulation over the loop, caused by either the amplitude envelope or the filter envelope. If you are short of sample memory and have set your heart on a particular sampling rate, then you may find that you can't have both the length of loop you want and the attack/decay characteristics of your original sound. In this case you'll need to reduce the length of the attack/decay phases, and later use the sampler's envelopes to recreate the original. This will free more of the sample time for the loop. You might even be able to recreate the original envelopes entirely on the sampler, discarding any material before the loop.

If you've ever used sample editing software on a computer, then you probably know how cute sampled synthesiser waveforms look on a screen (see diagram 1). Even apart from the educational value of such software, it is worth its weight in RAM when it comes to finding a good loop. The effects of cyclic modulation can be seen on screen, even with simple 2D software. Having allocated your memory and compressed the initial phases of the synth sound, it then becomes a simple matter to tweak the LFO frequency until one cycle fits into the memory allocated to the loop. One cycle will give better results than two, three or more, and with a one-directional, forward-only loop. Repetition of a loop pattern, in this context, is considerably more offensive to the ear than a simple loop, which will be perceived as modulation.

You will have noticed that for a long and modulating loop, I didn't suggest crossfade looping. There is good reason for this; analogue modulation is typically smooth and continuous. Crossfade looping may be smooth, but it is still a change in the relative balance of two discrete timbres, not a smooth modulation from one timbre to another, covering all the intermediate timbres. That rather nicely encapsulates the difference, by definition, between analogue and digital systems. Bearing in mind the way in which only analogue fills the gaps that digital cannot reach will help when it comes to recreating the sound with a sampler.

FILTERING IN

WE DISCUSSED FILTERS in some detail without discussing filter resonance. In the good old days, analogue filter resonance was created by feeding back some of the filtered signal into the filter, thereby boosting harmonics around the filter cutoff ➤

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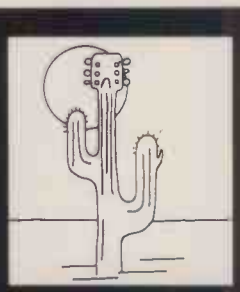

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➤ frequency, and giving rise to a far fuller sound than is obtained by contemporary filters, which instead create resonance by attenuating frequencies away from the cutoff frequency. The technicalities may sound the same, but the analogue method introduced more distortion, and therefore was a warmer sound.

Analogue waveforms without resonance can be transposed over the full five octaves of your sampler without much concern for the usual munchkinisation effects. This is because the pure waveforms contain no formants, or enharmonics for that matter. I'll qualify that right now; oscillator sync, cross-modulation and ring modulation can all introduce enharmonics (partials which have a frequency which is not an integer multiple of the fundamental frequency). Enharmonics generally differ from formants in that enharmonics will maintain their tuning relative to the fundamental over the full range of the instrument, whereas formants (which we'll be discussing in more detail in a future article) have their frequency more or less fixed regardless of the pitch at which the instrument is played.

"SAMPLING ANALOGUE SYNTHESISERS IS EASY; IT CAN ALSO BE VERY SPONTANEOUS. IT WILL ALMOST CERTAINLY FILL HUGE GAPS IN YOUR SAMPLE LIBRARY."

There are a couple of ways in which analogue synths can create formants. One is to dedicate an oscillator to the creation of formants by disabling keyboard tracking for that oscillator. The other way, much more commonly employed, is to use filter resonance with little or no filter keyboard tracking or filter envelope contouring. It's probably fair to say that resonant, formant-based sounds have been used by many a synthesist who wouldn't know a formant if it leapt up and bit him on his modulator.

As many of you will know, formants are responsible to a great extent for sample munchkinisation, as they do not remain at their original frequency when the sample is transposed. Getting round the problem usually involves extensive equalisation before and after sampling, as well as considerable multisampling. Why on earth did I bother to mention them on analogue synths? Easy; now that you know about filter resonance, you will understand why your sampler always seems to create the effect of unity keyboard tracking (one octave per octave) – this is the only sort of filter keyboard tracking that your sampler will be able to reproduce without multisampling (you could create similar effects using the sampler's filter, but you will lose the character of the original). Of course, the effect of formant shifting can be used creatively to excess to create analogue synth sounds which sound very "sampled" without sounding like badly sampled acoustic stuff.

Another fairly common filter trick is envelope polarity inversion. If you invert the modulation polarity of a standard ADSR filter envelope, then the filter will start wide open, close to a minimum over the attack time, open over the decay time to a sustain level, and open even further on key-release. This effect requires what is usually termed an after-envelope. That is to say, in order to create the effect, you need more control after key-release than a simple release time. The reason for this is that a non-zero level is involved after key-release; envelope polarity inversion is the simple way to address the problem. Sampling the effect has its own problems. Unless your sampler allows you to jump to and play from a stage later in the sample than the loop on key-release, then you will not be able to accurately recreate the effect.

Or will you? Try making two samples; sample 1 with the filter attack and decay characteristics you require, but with a zero filter (and probably amplitude) sustain level. If you are being faithful to the original model, then the attack time should also be zero – but feel free to experiment. The second sample should have a slow filter attack time rising to full filter sustain. Merge the two samples and create a loop during the sustain phase of sample 2; discard anything after the loop and use the sampler's amplitude envelope set to acoustic-piano type values, but with a release time equal to the decay time. This will give you the effect of unsustained filter-envelope modulation polarity inversion. Experiment with different filter envelopes on both samples – you could also try making sample 2 a percussive filter sweep, then reversing the sample before merging and looping.

Sampling analogue synthesisers is easy; it can also be very spontaneous. It will almost certainly fill huge gaps in your sample library – it is also such a pleasantly creative process that you might find yourself creating new samples for specific projects, rather than depending on your existing library. Hybrid procedures, combining conventional samples with analogue sounds, are just as much fun, and will create completely new and original sounds. If you own a sampler and a monosynth, then you really can't resist the challenge. If you own a sampler but don't own a monosynth, then buy one now before they become expensive again. ■

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T1

PHOTOGRAPHY: JAMES CUMPSTY

Korg take the Advanced Integrated synthesis of the M1 upmarket with three new "mega" synths. But are they out of this world or simply out of reach? Review by Simon Trask.

FOR MANY YEARS now the £1000-2000 price bracket has been the starting point for new synthesiser ranges, with subsequent synths in the range progressively descending the price scale. To some extent Korg have conformed to this pattern by following their M1 synth with the M1R and then the M3R rack-mount expanders. But the new T-series synths – the T1, T2 and T3 – represent a more unusual move upmarket, in the T1's case into somewhat rarified financial heights.

The chief difference between the three new synths lies with the keyboard: the T3's has 61 notes, the T2's 76 notes and the T1's 88 notes. Only the T1's keyboard is of the wooden weighted variety, and very nice it is too, sitting comfortably between synth- and piano-style action; in fact, both its feel and its range are spoiling me rotten – how can I ever go back to a five-octave plastic synth-style keyboard?

All three keyboards are responsive to attack velocity and channel aftertouch. Increased keyboard span also means increased casing size and increased weight, and at 35kg the T1 certainly scores zero points for portability. The T1 is also the only one of the three synths to have a control-wheel option (the new synths come fitted with the familiar Korg joystick).

But in every other respect (synthesis capability, effects processing, sequencing power) the three T-series synths are the same. So why, you may well ask, is MT reviewing the biggest, the heaviest and the most expensive of the T-series synths? The reason is simple. Reviewing the T1 allows us to check out the EXK-T PCM RAM sample board, which comes as standard on the T1 but is an option on the T2 and T3 – what's more, an option which won't be available till around Christmas time (so now you know what to ask Santa for). I've dealt with the T1's sample board at some length later in this review, not only to give you a clear idea of how useful it may or may not be to you, but also because it represents a significant addition to the sonic flexibility of The Synthesiser, beyond the expandability offered by the M1's ROM sample cards.

Clearly the T1 will have a relatively small market, and it's very much a prestige instrument for Korg (not to mention for anybody who buys one). Of the three Ts, the T3 stands the most chance of attracting musicians in an upward financial direction (OK, encouraging them to fork out more money), so the important question has to be whether or not there are enough differences between the M1 and the T3 to warrant investing in the latter.

I should mention that the T3 is also up against stiff competition from Ensoniq's new VFX-SD synth (see update review elsewhere in this issue) and Yamaha's (genuinely) new synth, the SY77 (see preview elsewhere this issue), both of which operate along similar workstation lines to the T-series while offering their own variations on the synthesis/sampling theme.

My main aim in this review is to point out the differences between the M1 and the T1 (and therefore the T2 and T3), so if you're not already familiar with the M1 then the original review in MT July '88 is probably a good starting point.

Returning to considerations of size and weight for a moment, the T3 not only has the same keyboard span as the M1, it's as near as dammit the same size and the same weight, so there are no benefits (or disadvantages) in portability between the two instruments. The most obvious physical differences between the M1 and the T3 are the latter's larger backlit LCD window (64x240 dot), altered front-panel layout and addition of an onboard disk drive (taking *high-density* double-sided double-track 3.5" floppies only). The two card slots for PCM ROM sample data and RAM Program/Sequence data cards have been retained, only where the M1 put the former on the rear panel and the latter on the front panel, the T3 unfortunately puts both on the rear panel. Wrong move, guys. The T-series synths retain the M1's 1/L, 2/R, 3 and 4 audio outs, headphone jack (carrying the 1 & 2 stereo signal only), sustain pedal jack input, two globally-assignable footpedal/switch jack inputs and MIDI In and Thru sockets. However, they make a significant addition in the form of four MIDI Out sockets, organised as A and B pairs to give 32-channel MIDI output.

The larger LCD window not only allows more effective parameter grouping on the T-series, it makes possible some neat display tricks. For instance, when you press one of the Bank/Page buttons in the Program and Combination modes a software-created window pops up to prompt you with a list of the ten Programs or Combinations in that Bank, while whenever you select a VDF or VDA envelope parameter to edit, a graphic display of the envelope appears which changes as you alter the parameter values. And when you're editing the effects placement and output routing of the Programs, a diagram of the relevant configuration pops up in the LCD to help clarify what's going on.

PROGRAMS & COMBIS

THE NUMBER OF onboard programs has been upped from 100 to 200, while the number of Combinations stays at 100. Foot controller settings, scale type (equal temperament 1 & 2, pure major, pure minor and user-programmable – the latter within a "master" octave and globally defined), and velocity and aftertouch curves (one of eight types in each case, positive direction only, and affecting both onboard sounds and MIDI transmission) are now selectable per Program. However, the synthesis architecture, the 33 effects and the utilisation of those effects remain exactly the same as on the M1.

The Oscillator Mode still allows you to choose between Single (16-voice), Double (eight-voice) and Drumkit (16-voice). Four Drumkits can be programmed utilising the synth's Drum samples: the parameters are the same as those on the M1, with the exception that the number of sounds which can be included in a Drumkit has been upped from 44 to 85 in line with an increase in the number of Drum sounds (see below).

Combination mode (where combinations of up to eight Programs can be stored) sees the axing of Single, Layer, Split and Velocity Split types, leaving only what was previously referred to as the Multi type – a Combination of up to eight Parts (or Timbres, as Korg call them). This isn't unreasonable, as all of the axed types can be created using the velocity-range and note-range window settings of individual Timbres. As on the M1, a single group of effects settings can be programmed for each Combination.

The T-series synths do add some Combination parameters, however. You can now select for each Timbre within a Combination separate internal and MIDI-transmit velocity and aftertouch curves, and MIDI transmit patch number and volume level, while for all Timbres within a Combination you can set joystick functions (X, +Y and -Y), foot controller settings and a scale type.

However, the most significant difference between the M1 and the T-series synths is undoubtedly the latter's doubling of the onboard ROM sample memory from four to eight megabytes, which in practical terms ups the number of Multisounds from 100 to 190 and the number of Drum sounds from 44 to 85. Just to be clear, all the M1's Multisound and Drum source samples are retained for compatibility purposes. Added to the Multisounds are a healthy number of "real" instrument samples together with a mixture of familiar and unfamiliar tuned and untuned percussion sounds, a few synthy wavesweep sounds, and some more pulse and spectrum waves, while the Drum section is augmented by a mixture of kit and Latin sounds and some more wayward metallic percussive sounds such as 'Potcover', 'Techno Zap' and 'Gamelan 1 and 2' (some of which appear to have been derived from the Multisounds). In fact the Drum section has a wonderfully eclectic range of percussive sounds, ranging from familiar kit sounds to the weird and the wonderful, and should suit anyone who likes to be experimental with their rhythm sounds. Certainly it wins out over the narrowly-defined collection of drum sounds on the new VFX-SD, which has been derived from LA session drummers and sounds like it: straight rock kit sounds and precious little else.

Personally speaking, I love the T-series' combination of the ethereal and the metallic, the smooth and the spiky, and the overall sound quality of 'ice beauty' (eagle-eyed readers will notice that I've nicked that description from Holger Czukay, who used it in a different context in last month's Can interview – but what the hell, it's appropriate).

By the way, you absolutely must listen to factory demo sequence No. 4, the appropriately-named 'Marshalman' – you too will believe without question that there's a crazed widdly-widdly merchant lurking inside the T1's casing.

It's worth pointing out that M1R owners can get their ➤

"The T1 also takes account of sample loop points, so that any instrumental sounds or rhythm samples using loops can be successfully transferred to the synth."

➤ expander's ROM sample memory upgraded to add the same extra sounds as are found in the T-series, while if you've yet to buy an M1R, Korg are bringing ExM1Rs into the country – M1Rs with the upgrade already fitted. Both of these options mean forking out extra money, of course. M1 owners can forget about getting their synths upgraded, however; because of the way in which the M1's innards are organised, upgrading the memory is, apparently, impractical.

Incidentally, the M1 didn't implement MIDI Overflow mode, which meant that if you wanted to use an M1 and an M1R together for 32-voice polyphony you had to set the M1 to Local Off, the M1R to Overflow On and route the M1R's Thru output back to the M1; the T-series synths make life easier by implementing Overflow mode.

SEQUENCING & STORAGE

THE ONBOARD SEQUENCER on the T-series synths still has eight tracks, with each track able to play one of the synths' Programs at a time and with dynamic allocation of the synth's 16 voices across all eight tracks. However, the number of Patterns has been doubled from 100 to 200 and the number of Songs from ten to 20, while sequencer memory has been significantly increased from 4400 notes – 7700 if the number of Programs and Combinations on the M1 is halved to 50 – to a much more respectable 50,000 notes (these figures, incidentally, are reduced as soon as other MIDI data is recorded).

The structure and facilities of the sequencer are essentially the same as the M1's sequencer (again, see the M1 review for fuller details), with a combination of track- and pattern-based recording, and the ability to insert patterns anywhere in a track and to extract a portion of a track into a pattern. Real-time (including punch in/out and, in the case of patterns, loop-in-overdub) and step-time recording are available, as is event editing (here benefiting from the larger LCD window on the T-series synths). The maximum length of a Track has been increased from 250 to 999 bars, while the maximum length of a Pattern (and therefore also of the section of a Track that can be extracted) has been increased from eight to 99 bars. Sequencer resolution has been kept at 48ppqn, however.

One of the complaints I had about the M1's sequencer was that, although you could play a Combination via MIDI from an external sequencer, you couldn't use a Combination within an onboard sequencer track. Korg have rectified this situation with the T-series synths, but not in an entirely satisfactory way. You can now assign note-range and key-range windows (using bottom and top values) for each sequencer track, so that, effectively, you can recreate the texture of a Combination within a sequence, playing and recording into the relevant tracks by setting Multi record. As each Track can still only play one Program, the more Programs you have in your sequencer "Combination" the less sequencer tracks you have left (for playing parts on external MIDI instruments, perhaps). Other new features include Track Protect, filtering out types of event from the MIDI data display, appending one Song to another to create a new composite Song, and programming foot controller settings, scale type and velocity and aftertouch curves on a Song basis.

MIDI SysEx transfer of parameter and sequence data is essential for any MIDI device nowadays, and especially so where a company needs to maintain some degree of data compatibility between their instruments. T-series Programs, Combinations and Global data can be MIDI-transmitted in T1/T2/T3 or M1/M1R formats, while Sequences and All Data can be dumped to other T-series synths but not to an M1/M1R. Data from an M1/M1R can similarly be loaded into a T-series synth via MIDI, while Korg ROM sample data cards can be read by all the M-series and T-series synths and expanders.

M1/M1R Program, Combination, Global and Sequence data stored on a RAM card, and preset M1/M1R Program data stored on a ROM card, can be loaded into the T-series synths. T-series Combinations, Programs (Bank A or Bank B) and Global data can be stored to RAM card and loaded into the M1/M1R, but T-series Sequence data can't be stored or transferred in this way.

The T-series' onboard disk drive makes life a lot easier and a lot cheaper. There are two possible disk formats (formatting is, of course, done from the synth): Program/Sequence/PCM (one file containing the complete contents of memory) or Program/Sequence (four files, each containing the complete contents of memory minus the PCM RAM samples). Memory must be saved to disk in bulk, but you can load Programs, Combinations, Patterns, Songs, Drumkits and samples individually or in bulk.

Korg have also given the T-series synths the ability to act as a generic SysEx librarian, receiving and storing to disk SysEx files up to 64Kbytes in length. Like most sequencers which tack on such a facility, it seems a bit half-hearted given the variety of transmission protocols in use (even the manual admits the synths can't handle all SysEx data); for instance, you can't send SysEx requests to instruments which aren't able to initiate their own data dumps.

SAMPLING THE T1

AS MENTIONED EARLIER, the T1 comes with a 512Kword RAM sample board fitted as standard, while the same board can be fitted as an option on the T2 and T3. If the sounds you load into the T1 have been sampled at 44.1kHz, this gives you around 11 seconds duration. The sample board's contents aren't retained through power-down, so you'll need to save any new samples to disk before switching off the T1.

There are two sources of samples for the T1: samples from Korg's own DSM1 sampler (but not their earlier DSS1) and from forthcoming T-series sample disks which are loaded from the synth's onboard disk drive, and samples from any other sampler loaded in via MIDI. Because the T1 has to convert from the DSM1's 12-bit resolution to 16-bit resolution, you have to select a special DSM1 loading routine – and then you can go and make the proverbial cup of tea, because loading is a slow process. However, once you have DSM1 samples in memory you can save them to another disk as T1 samples, in which case they'll load a good deal more quickly the next time. After trying out a healthy variety of Korg DSM1 sample library disks I can say that the samples transfer very well to the T1, exhibiting clarity and good dynamic range.

But by far the more flexible option is to load samples into the T1 via MIDI. Korg's synth will accept samples stored in MIDI Sample Dump Standard format, which

"The most significant difference between the M1 and the T-series is the doubling of the onboard sample memory which ups the Multisounds from 100 to 190 and Drum sounds from 44 to 85."

means that if your sampler can't transmit samples in this format then you'll need an intermediary stage: generic sample editing and librarian software.

For the purposes of this review, an Akai S900 sampler and Steinberg's Avalon generic sample software for the Atari ST were called into play. The beauty of this setup is that Avalon handles the translation from S900 sample format to MIDI Sample Dump Standard format for you; the only adjustment you have to make manually is to choose 16-bit resolution for the Sample Dump Standard transmission from Avalon, as the S900 is a 12-bit sampler and the T1 appears to only accept samples in 16-bit format. Otherwise all you have to do is drag Avalon's S900 icon onto a sample-slot icon, then when the sample has been loaded into Avalon, drag that icon onto the MMA icon and instigate the transfer to the T1 (first of all ensuring that the T1 is set to "Recv Sample Dump" on the relevant Global menu). Oh, and if you're aiming to do a lot of sample transferring then a MIDI patchbay will come in handy – much manual repatching of MIDI leads is the alternative.

Both Avalon and the T1 tell you if the transfer has been successful or not. However, once you've sussed out the few necessary steps the whole process is very straightforward, and there's no reason why you should encounter problems. There's no reason why the transfer process shouldn't work equally well for other samplers included in Avalon's (or any other generic sample software's) library of sample formats.

It would appear that the T1 takes account of sample rate (indicated in the Sample Dump Standard header as sample period), as there was no transposition of samples from S900 to T1. Crucially, the T1 also takes account of sample loop points, so that any instrumental sounds or rhythm samples using loops can be successfully transferred to the synth.

Once you've loaded some samples into the T1's EXK-T RAM board via MIDI, how can you use them within the synth? Well, samples have to be incorporated into the T1's four onboard Drumkits, with or without a selection of the synth's 85 Drum sounds. If you think about it, this makes a lot of sense: a T1 Drumkit requires samples to be mapped across the keyboard rather as you would map samples across the keyboard on a sampler. As samples can only be transferred individually to the T1, and there's no means of telling the synth how they should be mapped, multisamples from another sampler have to be recreated manually within a T1 Drumkit.

On the T1 a Drumkit sample will automatically spread downwards in pitch across the keyboard until the next sample-allocated note is reached. Samples do *not* spread above their allocated "root" note, so if you want a sample to spread a fifth, say, above its original pitch, then you need to assign it to the note which is a fifth above that pitch and raise its pitch by a fifth (the maximum range is +/- 1 octave).

So what else can you do with your samples once you've included them in a Drumkit? Well, as with the Drum sounds you can adjust their level, decay time and pan setting; the latter governs their routing through the T1's effects, and allows you to position each of them in the stereo spectrum of outputs A and B or route them to outputs C or D. And as a Drumkit can be assigned to an oscillator within a Program, you can globally apply any of the associated VDF, VDA and MG parameters to the samples.

You can't layer or velocity-switch between samples within a Drumkit, so you have to turn to Combination mode for this. Layering can be achieved by assigning the relevant Drumkits to different Timbres and assigning those Timbres to the same MIDI channel, while velocity-switching can be achieved by the additional means of setting a different velocity window for each Timbre.

So as far as samples transferred via MIDI Sample Dump Standard are concerned, I'd say that the best use of the RAM sample board is for turning the synth (or at least its Drumkit section) into a sampling drum machine, allowing you to incorporate anything and everything from your local scrapyard favourites to that essential looped breakbeat. Some of you might alternatively find it useful for sound effects.

However, it seems that T-series samples and resaved DSM1 samples can be loaded as Multisounds from disk into the Single or Dual oscillator configurations of individual Programs, because their sample maps are stored with them in a way which can be read by the T-series synths. This opens up a completely different angle on the use of samples in the T-series, being as well suited to multisampled instruments as to multiple percussion and sound fx samples.

VERDICT

I OPENED THIS review by drawing attention to the unusual upmarket direction of the T-series synths in relation to the progenitor M1. However, there are precedents – notably Yamaha's DX5, Oberheim's Matrix 12 and Roland's JX10 synths. Each of these instruments is basically two of another instrument combined in a single box: the DX5 is two DX7s, the Matrix 12 is two Xpanders, and the JX10 is two JX8Ps. And each of them could rightly be labelled "megasynth".

The same label springs to mind for the T-series synths – especially, given its price, for the T1. But do the T1, T2 and T3 also conform to the "two-in-a-box" philosophy of the other instruments? Well, compared to the M1, a number of things *have* been doubled, but these don't include the effects processors, audio outputs, Timbres, sequencer tracks or – crucially – voices ("prohibitively expensive", say Korg), which is a shame, particularly as Ensoniq's VFX-SD and, quite possibly, Yamaha's SY77 (which I have yet to hear as of writing this review) are going to be snapping at the T3's heels in coming months. Still, there's enough that's new on the T-series to warrant looking beyond the M1, particularly with the additional sounds and the RAM sample board (whose significance shouldn't be overlooked).■

Prices *T1, £3700; T2, £2999; T3, £2399; EXK-T, £TBA. All prices include VAT.*

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ART I

The Art Of Noise have long been at the forefront of the musical technology revolution. Fairlight programmer JJ Jeczalik takes time off to explain where they are and where they're going. Interview by David Bradwell.

DEEP IN THE HEART OF RURAL BERKSHIRE stands the Monster Rat studio, the country home of the Art Of Noise. Having recently moved from his dining room to a converted garage, Monster Rat is JJ Jeczalik's pride and joy. JJ is the studio half of the Art Of Noise, a band who are now a two-piece following the departure of Gary Langan around 18 months ago. The other half is Anne Dudley, equally as famous for her film scores (*Buster*, *Silence Like Glass*), string arrangements (Liza Minelli, Wet Wet Wet, Paul McCartney), keyboard playing (Wham!, ABC, Malcolm McLaren, Frankie Goes to Hollywood) and TV commercial production (Kellogg's Cornflakes, Bols, Revlon) as she is for her contribution to the Art Of Noise.

JJ, meanwhile, has produced or mixed hit singles for acts as diverse as the Pet Shop Boys, Paul McCartney, Billy Idol and Jean Paul Gaultier. Throughout the '80s he's been in constant demand as one of the finest Fairlight programmers in the business, working on countless sessions and contributing to countless classic records. The Fairlight still occupies centre stage in Monster Rat, ironically perched atop a Black and Decker Workmate. As individuals, the Art Of Noise have a formidable track record. As a duo they're about to release *Below The Waste*, their fifth album and the source of the recent near-hit single 'Yebo'.

Despite the level of his success outside the band, JJ claims the Art Of Noise is still his primary concern. It doesn't have to be – both band members could survive quite happily without it, but behind his claim lies a genuine enthusiasm for the work he does and a desire to make the Art Of Noise much more than just a showcase for two session musicians.

"The question of priority is not an empirical judgement", he begins. "Priority to me implies a mental state apart from anything else. I think it might be more of a hobby for Anne, but it's very important for me. I tend to be the one who does the mixing and the studio work because that's something I know about and care about, and I'm not sure that that's necessarily her interest. Her interest is more in standing in front of a group of musicians and conducting them."

JJ first encountered the Fairlight when he was a keyboard technician for Geoff Downes, who was working with Trevor Horn in his band The Buggles. Geoff bought the ninth Fairlight to be imported into the country, and it was delivered to JJ's flat in London. Disillusioned with the factory clarinet samples, he immediately set out to create some weird and wonderful sounds of his own.

"The sound of a car starting or horses moving around or doors slamming was a lot more interesting to me than trying to replicate – badly – real musical instruments", he explains. "At the time we were working with very good musicians and it struck me as being completely ridiculous to replace somebody like Luis Jardim playing percussion because he's so good, and a machine can't do that. They're two different things.

"The problem with the Fairlight initially was that because it was so expensive it became the preserve of a few rich people. Music is something which should be enjoyed by everybody. Now that you can go out, spend a few hundred pounds and get something which is supposed to be equivalent makes the point that you have to have the ideas and it's absolutely irrelevant how much the technology costs. Fairlights haven't got a right to exist any more than any other bit of gear – they have to survive in the market place like anybody else."

JJ approaches sampling in what he admits to being a very slapdash fashion. Although he tries to avoid obvious technical problems like distortion, he finds no sense in working with a sound that doesn't excite him early on. He's about to buy a portable DAT player, and will carry it around in the same way as a

STIC License

photographer always carries a camera – hoping for that elusive scoop.

"I'm constantly listening and appreciating the sound of things", he declares. "Once you start doing that it can be quite irritating for other people,

but inevitably your ears become attuned to hearing things."

One notable success from the policy of always keeping a tape recorder handy was the famous car starting sample from 'Close (To The Edit)'. JJ explains its origin:

"Years ago, when I lived in Highgate, I went out with a tape recorder to try to record some horses going by. My neighbour drove past in her Golf, stalled the car, then restarted it and drove off. I recorded that and without realising it got what turned out to be a really definitive Art Of Noise sample. I went back into the house, listened to the horses, rejected that, and the car starting became 'Close (To The Edit)' and a few other things, and the horses went into the bin. It's like cooking – you have to keep things on the back burner ticking over and maybe they'll have a place later on that you can't see at the moment.

"I might wake up with an idea in the morning or hear something that stimulates an idea, and having a Fairlight is a blessing and a problem. If you have a guitar there's basically a finite number of records you can make with it, but with any of these new synthesisers the problem is in deciding what you want to do before you even fire it up. You can have a symphony of landing aircraft or a mad guitar solo – it's your own ideas and perceptions that get you into the bigger brain that lives within the Fairlight. You have to keep your own brain in a jolly mood through not working too hard and keeping fit because otherwise you run out of ideas. The Fairlight won't do anything unless you do something to it. It annoys me when people say you press a button and away you go, because it's not like that. You have to have ideas and you have to have the input."

As you've probably gathered, JJ is an exponent of experimentation. With demos, however, he recommends keeping ideas as simple as possible, and not getting too carried away with the technology.

"There's no mileage in making demo recordings over-complicated because music is still about harmonic structure, melody and rhythm", he begins. "If you shovel tons of samples onto something you may bury something which is very good. If it's not very good to begin with you can't bury it, because there are too many people who know about these things. They'll strip off all the wonderful sounds and listen to the tune, and if there isn't one it's a waste of time. Samplers are fabulous and very cheap, but it's back now much more to the fundamental roots of music. You have to have the melodic idea, you have to have the harmonic structure and you've got to have the rhythm. Ultimately what you play it on is irrelevant. What you mustn't do is pretend that ten tons of concrete falling out of a building is a good tune, because it isn't."

THE NEW ART Of NOISE ALBUM features guest vocals from African vocal group Mahlathini and the Mahotella Queens on four of the tracks, all of which were recorded during one busy day in Paris. The collaboration came about after JJ went to see them play at The Electric Ballroom earlier in the year. Dudley and JJ had come across Mahlathini and the Mahotella Queens in a previous life, when they were part of Trevor Horn's production team for Malcolm McLaren's *Duck Rock* album. Although the two parties never met, the Queens were very influential to the early Art Of Noise.

"When I saw them play it reminded me of how strong all that music was", JJ recalls. "*Duck Rock* was, in its own way, far too far ahead of its own ➤

"What you mustn't do is pretend that ten tons of concrete falling out of a building is a good tune, because it isn't."

time. I suppose Malcolm's outrageous ideas and perceptions of the music business gave us the impetus to do what became the Art Of Noise. His attitude was 'well, why not?' rather than 'you can't do that'. He was always exploring mad avenues that nobody in their right mind would do, with the attitude that it didn't really matter how you did anything or what you did with it, as long as it was fun and interesting at the end of the day. When we came back to thinking about this album and I'd been to see the Queens and so on, I decided it would be an interesting revisit for us to work with them again, as it were. The rest of the album is virtually made up of out-takes.

"If people perceive it as a gimmick it's something that I have no control over – you can't second-guess what people are going to think. There are so many people in the world that it's impossible to please everybody, so the best thing to do is ignore them. I don't think we exploited African music with 'Yebo'. The irony of it is that Mahlathini and the Mahotella Queens will probably do better out of the raised profile of their music than us, at the end of the day. If you ask them you'd find they're very happy with the circumstances and the way everything's recorded and the style of it. This is probably one of the first records that's been put out with entirely Zulu lyrics. I know they feel very strongly about that in a positive way, because it's the first time they've actually been able to do their thing on a Western record. It's obviously caused quite a lot of problems because people can't sing it, but that's something we wanted to do."

The lack of English words doesn't mean it's impossible to discern meanings in *Below The Waste*. The Art Of Noise have always hidden messages and references throughout their records and packaging, in many ways compensating for the lack of straightforward band photography and commonly-perceived image. According to JJ, one of the greatest things about all forms of instrumental music is that it's a bit like radio and you have to use your imagination.

"If you ever listened to the original radio version of *The Hitch-Hiker's Guide To The Galaxy*, it was the most brilliant thing, because you had to imagine everything and your own imagination is the most powerful thing there is. When *The Hitch-Hiker's Guide To The Galaxy* went onto television and other visual forms it failed to work for me because it never fulfilled what my imagination had built up. And if there are any messages in what we do, the rest of it is down to the imagination of the listener, and that's part of the fun.

"For that reason videos are dreadful. I unilaterally think that they're one of the worst things ever to happen to music. It costs £50-60,000 to make a video – that's not much less than you spend on an entire album and it pisses me off. That's not to say that there are not good video makers around, but things are a bit arse about face really."

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THE DIGITAL MUSE

That's one of the best things about the Art Of Noise. They combine a classic regard for the purer elements of music with some of the most advanced and least traditional technology they can lay their hands on. For every 'Moments In Love' there's a 'Beatbox', for every wash of sweet strings there's a blast of thunderous electronic disco. JJ sees all his external projects as rehearsals for what he does on his own or with Dudley, although he's constantly on the lookout for new ideas, people and perspectives. This shows in the wide variety of collaborations the group have got involved in: Max Headroom, Duane Eddy and Tom Jones being the three most obvious. A typical Art Of Noise audience doesn't seem to exist – a fact that became obvious to JJ when they went on tour in 1986.

"There's no mileage in making demo recordings over-complicated because music is still about harmonic structure, melody and rhythm."

"Based on the people who turned up at the Hammersmith Odious (sic) it was an extraordinary range. In a row that my friend was sitting on there was a middle aged couple of Asian origin, some young Chinese kids, a couple of black kids in their early teens and a whole range of white people of all ages. I think that every time we put out a record we get bought by a different set of people. When we did 'Kiss' with Tom Jones in America we didn't sell into our old black audience because it wasn't a black record in the way the Americans perceive things, and it was only bought by his fans. I think there is enough in the albums for people to buy them for very different reasons.

"This is a job like anything else, and the fun part of it is in investigating areas that you don't really know much about. Record companies hate it, it's nice for them to put a record out which goes into the shops in the rock and pop category A to Z and away you go. With ours they don't really know what to do with them.

"If you're working on your own at whatever level, you're entirely responsible and it's up to you what you do, what is deemed to be finished, what is unfinished, and so on. When you sign a record deal and ultimately have to make albums to order, all that changes, because you have to fulfil a requirement. A common problem that you get with acts overall is that the first album a band makes for a record company tends to be very good, very fast and representative of what they are. The reason for that is that they've been gigging for a long time and that album can represent six years or however long it is the group has been together. Suddenly, within 12 months the same group of people have to do it all again. That's when they spend lots of money, run into problems and so on. Part of the trick is constant writing and constant reviewing of where you're at, because when you're faced with a deadline it's the worst possible time to make yourself feel relaxed and hip and enjoy doing the things that you find interesting rather than things you know will just finish off the requirements. It's a real battle. Now the pressure's off for this album, which is why I'm starting on the next one."

JJ's other project at the moment is the establishment of his own publishing company. He's continually on the lookout for new songs and artists, and if, after reading this feature, you fancy sending him a tape, he would be more than happy to hear from you. But what exactly is he looking for?

"Although I work in the electronic realm myself, I'm interested in any type of material, whether it's a couple of acoustic guitars or a heavy metal band", he begins. "I think Heart are one of the best groups ever invented. It may not be to everyone's taste, but they have all the ingredients that make up perfect pop – the melodies, sounds and the structures and a good live show, which is what you need – it's entertainment.

"You have to acknowledge that to copy somebody is pointless and you're kidding yourself and everybody else if that's what you do. Having said that, to make reference to, and research what people do and the style in which they do it is fine, but within that framework you have to allow your own personality to run riot and express itself.

The most important thing is professionalism and it makes such a difference. At a basic level you're working with other people, and they have as much of a right to express their views. The only way you can survive is by being polite and professional. Nobody has got a God-given right, especially in a band situation, to say 'I'm right'. Also, never trust anyone who says 'trust me'."

He might say that, but JJ Jeczalik is the sort of person you feel you can trust. While *Below The Waste* is being promoted, the next album is already on its way, and in the midst of everything JJ is working on album of children's songs – another complete contrast. Living in Berkshire allows him to combine both music and his other great love, cricket, holding, as he does, the captaincy of the Windsor and Eton 1st XI. The Art Of Noise should have a long and happy innings. ■

Tapes for JJ Jeczalik's publishing company should be sent to: 119/121 Freston Road, London W11 4BD.

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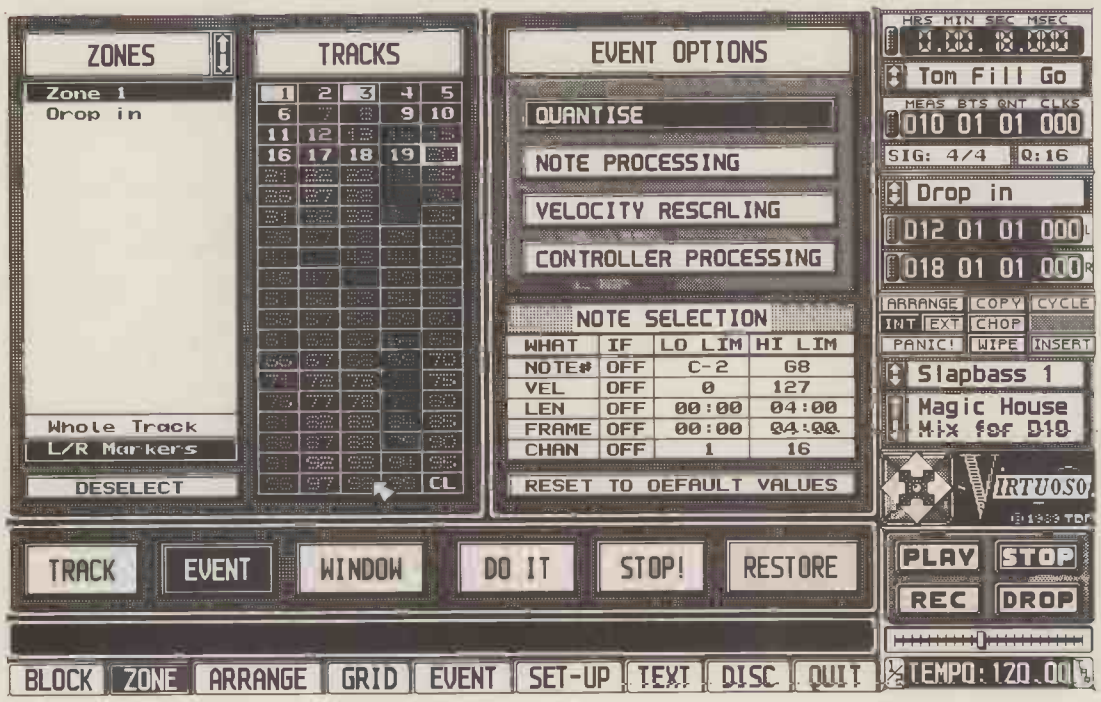
competition

VIRTUOSITY



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As Virtuoso's cost is in line with its facilities and comparable software – around £300 – we thought you might like the opportunity to grab a copy of Virtuoso for free. So here goes...

1. How many tracks does Virtuoso offer?

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3. What single feature would you most like to see incorporated into sequencing software?

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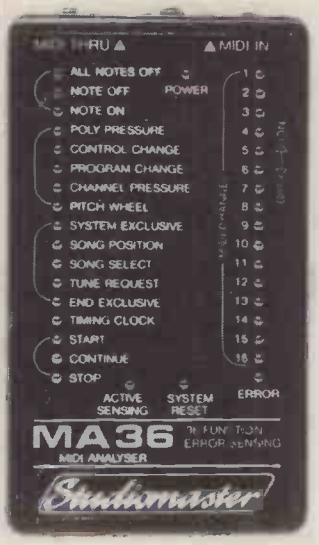

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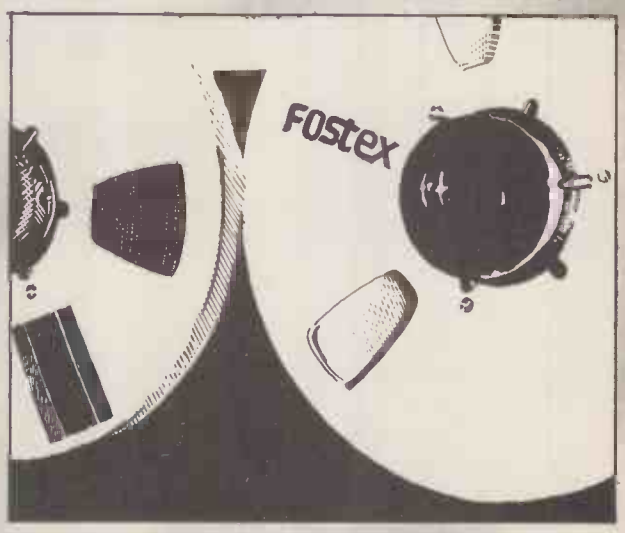

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Music

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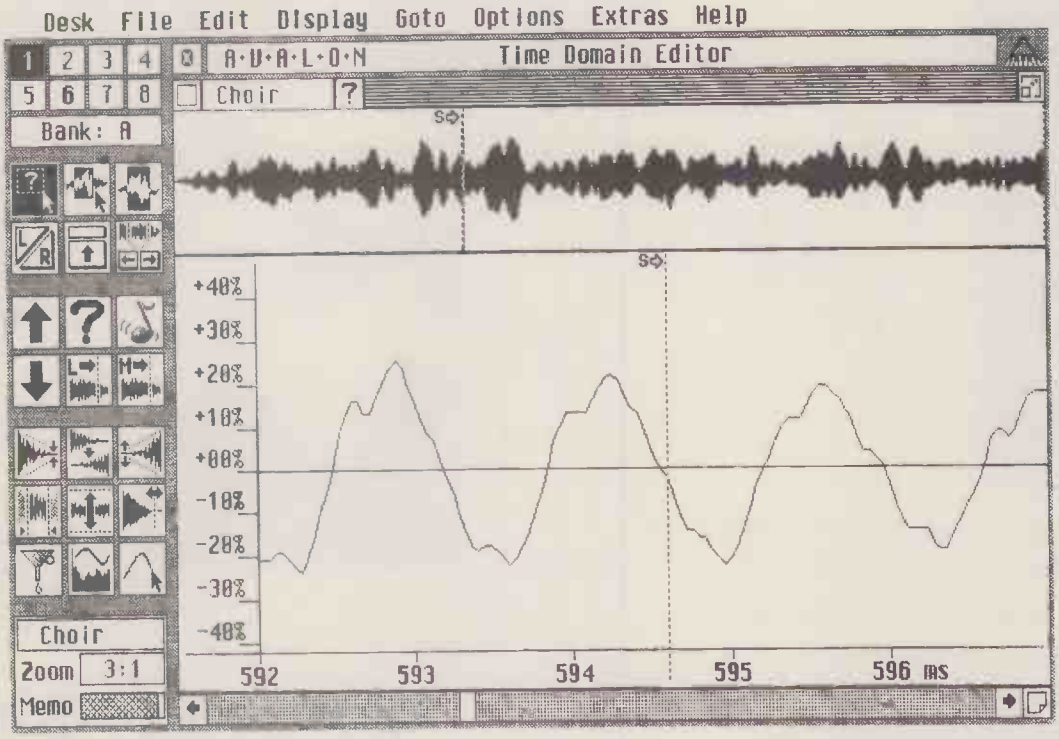
AVALON



ZOOM AND OVERVIEW MODE

Between them, samplers and MIDI offer immense power over sampled sound; all that's needed is software smart enough to take advantage of the situation. Steinberg's Avalon aims to be that software. Review by Vic Lennard.

ALTHOUGH THE MIDI standard was set up some nine or so years ago, certain grey areas in its implementation still exist – particularly where system exclusive information is concerned. One application of this is the transfer of programming parameters to and from a software editor of some description. Although the MIDI Manufacturers Association defined a sample dump standard as long ago as 1986, various samplers have entered the market not adhering to it.

The situation is further confused by the differences between samplers – specifically, some are of 12-bit, others of 16-bit resolution. The number of bits determines the fidelity of the sampler; it also complicates the task of transferring a sample from one machine to another.

Basically there are two problems facing anyone writing sample editing software. Firstly, a different piece of software would seem to be required to work with each sampler. Secondly, a system must be developed to transfer samples between machines of different resolution.

The answer is to have a generic sample editor, and one or two companies have ventured into this area, the latest of which is Steinberg with Avalon.

OVERVIEW

AVALON CAN BE divided up into three areas; the Mapping page, where data can be transferred between samplers (Avalon will read and write Sound Designer files), the Atari ST and disk; a Time Domain editor which displays the sample waveform and allows you to edit it in various ways; and the Frequency Domain Editor where sounds are broken down to their frequency components and can be altered and then resynthesised.

The Mapping page presents itself on booting up and looks like a standard GEM desktop with different icons. Samplers are shown by keyboards and various are displayed, lettered from "A" onwards and identified by the sampler's name. At present, nine samplers are catered for, with more being planned for the future. Avalon can hold up to 32 samples in memory, subject to available memory space, and these are divided into four banks of eight samples (shown as empty windows). Floppy and hard disk icons are shown according to your system configuration, and should you be fortunate enough to have the Steinberg D/A board installed, this will also be shown.

The remaining icons are a clipboard, for storing samples to while editing (as edits are generally made to the original), an edit icon for moving to the next page, and an information question mark. This last icon is part of Steinberg's "software manual" philosophy – simply point to anything onscreen and a dialogue page appears explaining it. It certainly beats hacking through a manual. Unfortunately there appeared to be a bug on the review software because, once a sample had been loaded from disk,

it was impossible to re-access the manual – it kept telling me to insert the disk with the manual on.

A double mouse click on any of the sampler keyboards shows the MIDI setup information with the sampler ID letter, name, MIDI channel and input/output ports being used (ST or SMP24). Not all samplers are automatically displayed, instead they can be added to the Mapping page as required. This prevents the page being cluttered with devices you don't own.

Avalon offers various options intended to help make time spent editing easier: the Atari's Undo key can be used to undo the last edit; Normal/Expert mode gives you the option to change your mind after selecting any function; Screen Settings determines how the screens fade, whether a clock is displayed and whether screen black-out will automatically occur after a number of minutes to save you burning a permanent image into your monitor. There is the standard Steinberg Mouse speeder and the visible keyboard for playing back samples from modular samplers. All settings, including the map, can be saved to disk and automatically loaded at booting, though Avalon requires a full Meg of RAM in which to work.

Before you can edit a sample, you have to Get one from your sampler. This is achieved by dragging the sampler icon onto one of the sample windows. The Get Sample Data box opens and allows you to select the sample number to obtain the required sound. It then tells you the name and length of this sample. A data flow chart fills up as the sample makes its way into the ST's memory, and a dialogue box opens at the end of the transfer to indicate success – or otherwise. The sample window also changes to show a waveform and incorporates the name of the sample. As transferring sample data over MIDI is a slow process, it is worth saving data to Atari disk if future editing is envisaged – this is achieved by dragging the sample window onto the disk icon.

The number of samples which you can save on a disk will depend on their length, but if you are in possession of an orderly mind (unlike me) you may like to group samples together in folders. Disk Scan mode lists all samples on a disk, irrespective of how they are filed. If you drag the disk icon onto a bank, the first eight sounds will be loaded into the respective sample windows for that bank. A double click on the disk icon will prompt a display of the used and free disk space (both in numbers and as a graphic column indicator), and dragging a sample/bank to the question mark icon will call up information on the sampling rate, time, length and loop points of the sample. You can even type in up to five lines of details to be saved with a sample. Nice touches, all of these.

TIME DOMAIN EDITOR

DOUBLE CLICKING ON either a sample window or the edit icon takes you into the first editing page. This is split into two parts: the sample waveform window(s) – where you can display up to eight waveforms on screen at the same time – and the toolbox – which houses the editing functions. The icons are reasonably self-explanatory.

The sample display is of a black waveform in a white window and while I'd rather work with a white-on-black display, the layout is very clear. The X-axis of the display (time) can be scaled in milliseconds or in the word length of the sample, and the Y-axis may either show the sample amplitude as a percentage of its maximum or in numeric form between -32768 and +32767 (16-bit format). One of the menu options is Show X-position, and this gives you the precise current position of the mouse on the display.

Before any editing takes place, it is very likely that you will want to look at a particular region of the sample more closely. Zoom lets you grab a section of the waveform and then fills the entire sample window with this area – displaying the "zoom factor" in an information box just below the toolbox as it does so. You can then scroll along the sample using the scroll bar beneath the sample window. Unfortunately the scrolling is very jumpy and could really do with being smooth, as the sample appears to be visually disjointed. There is a quick zoom where you hold down the Atari's "shift" key and position the mouse on screen at approximately the correct position within the sample.

The resolution of the sample window is rather important here. If the zoom factor is 1:1, this means that 512 sample points are being displayed on the screen. Factors less than this (1:2, 1:3 and so on) mean that not every sample point can be seen, and as this could lead to an incorrect display of the sample (for instance if the first point from a group was always displayed) Draw All Samples checks the group of points and selects the highest value. A nice Idea. Zoom factors of greater than 1:1 show less than 512 sample points, and so you can decide whether you wish to see the points as vertical lines, linked dots or as filled areas. I found the latter two preferable when attempting to visually loop a sample.

There are also occasions when vertical enlargement is useful, like when a sample has been recorded at a low volume and needs to be looped. The Y-Zoom feature deals with this; here you'd be well advised to use the vertical scale in the percentage mode – unless you really want to work in fractions of 32768.

Once a part of a sample has been zoomed in on, you're confronted with the problem of seeing this portion in the context of the complete sample. Overview Mode displays the entire sample in a smaller window above the main one, and has the enlarged area shaded in a lighter grey. You can also select a new area to inspect from this window, otherwise you have to exit from Zoom mode to the whole sample each time you want to define a new area. The Playback facility lets you select whether you are playing the entire sample or just the zoomed part.

One of the principal uses of a sample editor is to help you set up loops (so that the sound gives the aural illusion of never ending). Avalon has two looping facilities. The first of these is Set Loop Points which allows you to select the start and end of up to eight loops simply by clicking with the mouse on the screen. This is a very quick way to achieve approximate loops. Split Loop Points is a little more complicated but far more powerful. The loop is set in the same manner as for the first method, but the overview window shows the complete sample with loop pointers marked on, while the main window splits into two halves. The left-hand of these has the ➤

"The question mark icon is part of Steinberg's 'software manual' philosophy – point to anything onscreen and a dialogue page appears explaining it."

"Scroll bars allow you to move two parts of the sample until the loop appears to be visually correct – you can audibly monitor the sample as you do this."

➤area of the sample approaching the end of the loop while the right-hand one displays the start of the looped portion. This lets you see the actual point at which the loop is spliced, and using the scroll bars beneath the windows it allows you to move the two parts until the loop appears to be visually correct. You can audibly monitor the sample as you are doing this as all edits of this nature are sent to the sampler real-time. A feature called Zero X-Snap is useful here as it automatically moves you on from one zero crossing point (where the sample waveform cuts through zero amplitude and where most loops are set) to the next one.

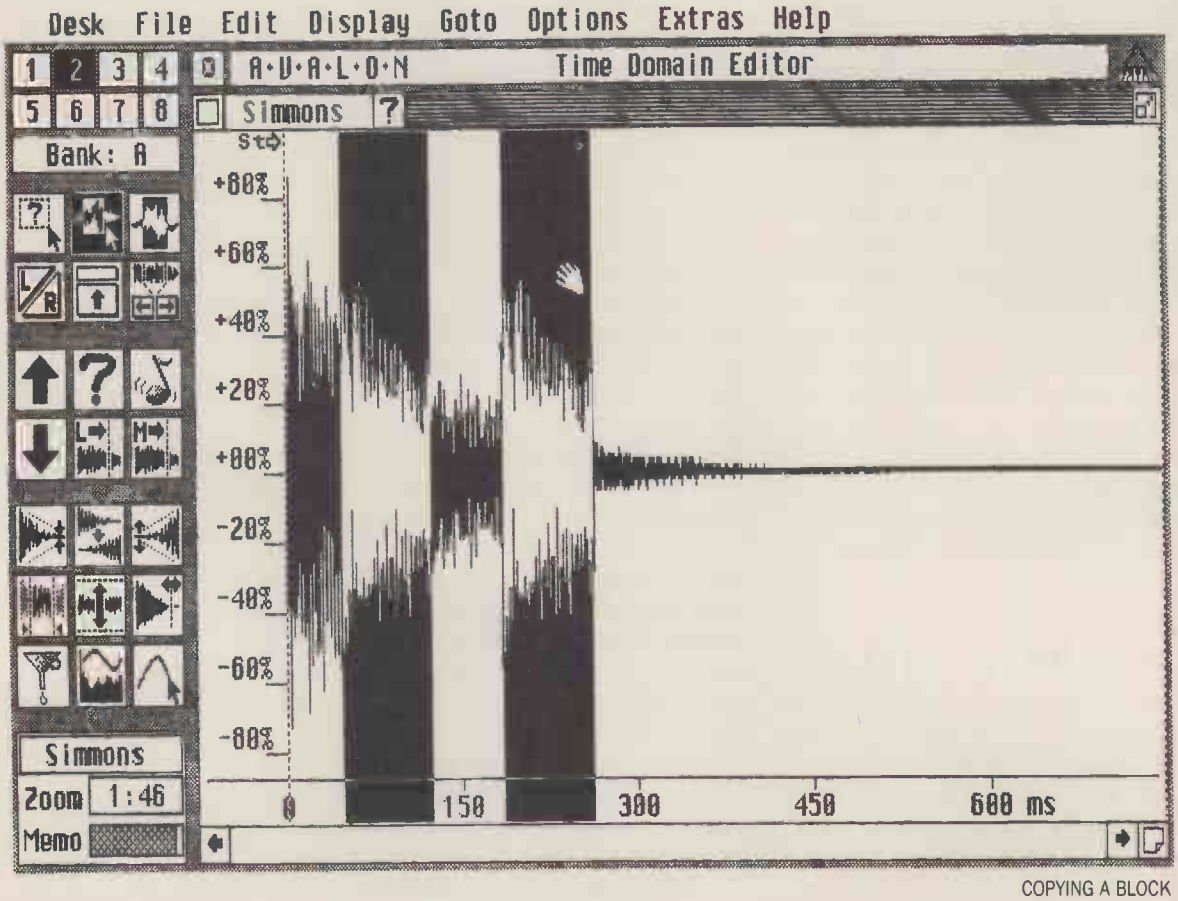
One of two situations may arise within the Split Loop mode. The first is that a loop may sound correct apart from a slight glitch which cannot be eradicated by marginal movement of the loop points. This is where the Loop Crossfade function comes in. An area of the sample outside the loop points is mixed into the loop to create a smoother crossover from end to start. This can give good results if used intelligently. The application of this within Avalon works well, especially with samples that rapidly die away (like a piano note). It sounds as though a degree of modulation has been introduced into the sound and is certainly an effective way to create a loop where one wouldn't normally exist.

The second situation is one where no loop point can be found. Some samplers have an Autoloop feature in which points having approximately the same level and gradient are found. Avalon has this facility – called Find Loop Point – and it has one rather useful refinement. It informs you of how well the loop points match up as a percentage figure.

That covers most of the functions in the first two sections of the toolbox. The third section deals with editing the envelope and shape of the waveform. Fading in and out, reversing and truncating (cutting off an area at the start and/or end) can all be achieved as you would expect. Another important feature is Optimize – a percentage optimising value can be set such that the sample point with the highest amplitude is set to this value and all others are increased proportionately (the Linear option) or with a bias towards smaller amplitudes (the Squareroot option) or larger amplitudes (the Square option). This function can also be used to slice off parts of the waveform which are not part of the original sound (perhaps caused by a spike in the mains), after which the sample can be correctly optimised. You may want to add your own dynamics to a sample by drawing the envelope – which is what Re-envelope will allow you to do. Similarly, you may have a glitch which you can identify visually on the waveform display – Draw lets you adjust a small part of a waveform by redrawing it with the mouse.

Digital equalisation is to be found under Filter (you can't miss this icon – it's an old fashioned oil spout), which gives you options of Lowpass, Highpass, Notch and Peak filtering with the relevant choices of cutoff frequency and bandwidth (Q). This is a little drastic as no control over the amount of filtering is offered, and has to be used very carefully because any edits made here are irreversible.

Resample is a facility which few samplers can deal with because of the degree of number crunching involved. The length of a sample can be changed by selecting the factor by which it will be resampled – for instance, 0.5 will give a sample one half of its original length. It does this by using one of two ➤



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"The two parts of a stereo sample are displayed above one another and you can edit each side separately, erase either side or copy one side to the other."

➤ methods: the standard method is to change the pitch of the original by an equivalent, inverse amount so that our example will now be pitched an octave higher. Alternatively, by using Adjust Sampling Rate, the pitch can be kept the same but the sampling rate is reduced to half of the original. This would be extremely useful for converting samples from one machine to another because few of them use the same sample rates. Converting from an Akai S900 at 40kHz to a Roland S550 at 30kHz would entail a reduction factor of 0.75. A conversion in the opposite direction would involve using a factor of 4:3, unfortunately this gives an indeterminate decimal value (it goes on forever) so a small amount of re-tuning will be necessary.

If the sample has been taken from a stereo unit you can work with it as a stereo entity. The two parts are displayed one above the other and you can edit each side separately, erase either side or copy across from one side to the other. All other mono editing functions still apply.

There are many situations when dealing with a complete sample is not what the doctor ordered. For instance, there may be a vocal sample where you want to repeat a single syllable. Here you need to repeat a part of the sample – which, in Avalon parlance is referred to as a Block. In Block Mode, then, you can grab a section of a sample (in the same manner as zooming) and edit it in a variety of ways. There is a Copy Block facility which acts like a clipboard buffer and allows you to insert a block into it, overwrite it and add or subtract to/from it. The block can be duplicated and then re-inserted into the original sample and edited in much the same way as is possible for the complete sample – fade in/out, reverse, digital equalise and optimise. The final option is to Analyse Block which breaks it down into its component frequencies by running it through a fast fourier analyser and then automatically puts you into the Frequency Domain Editor.

FREQ DOMAIN EDITOR

THE FREQUENCY DOMAIN editor opens with a main window showing the waveform in three dimensions. If you imagine a tabletop then the frequencies plotted against time are lying on the table and the amplitude of these frequencies is rising above the table. The toolbox contains various options, the first of which re-positions the 3D display to whatever angle you prefer.

Displays generated from a fast fourier transform tend to be used to pick out dominant frequencies for boosting or cutting, and for general viewing of frequency components at any particular point. From these perspectives (sorry about the pun), Avalon's display leaves much to be desired as the resolution is simply not high enough.

However, by using the mouse you can position the cross-cursor in the display and pick out a moment in time with its respective frequencies and also a frequency with its respective envelope through time. This then gives you two different two-dimensional displays, the first with frequency against amplitude for that moment in time and the second with amplitude against time for the selected frequency. High level stuff.

Edits can only be made to the 2D displays: the first lets you change the comparative frequency levels at a given time while the second gives you the power to vary the envelope of a frequency with time. You can zoom in and out on both of these 2D graphs, using the Next and Previous icons (scrolling isn't possible) and view them so that the amplitude is given either as a percentage of the sample's maximum, or in dB's with 0dB referenced to maximum.

To edit these windows, a "rubberband" has to be set up in the display. Initially this is shown as a line with a small box at each end but you can grab any part of this line and move it up and down, at which point another box is drawn. The maximum increase available is by a factor of two. When completed, this envelope can be used to shape the amplitude accordingly.

The other type of editing possible is by using what are termed Macros. These are programmed functions which can be selected to achieve a specific job. The 3D Filter uses the two rubberbands that you have defined, the one for frequency letting you filter out the same frequencies throughout each time slice, and the one for time changing the envelope across the entire time of the sample. Alternatively, if you have defined both rubberbands, a rather complex process will take place with both envelopes and frequencies being altered. The Threshold function is used to eliminate frequencies with small amplitudes (such as noise at the start of a sample), and the Enhancer adds frequencies to create a more present, resonant sound – much in the same manner as a psychacoustic enhancer. Spectral Dynamic acts as a compressor and expander, while Spectral Animation acts on a selected frequency range and varies the intensity of it. Finally, Pitch Shift changes all frequencies by a selected pitch without changing the length of a sample. Using Akai's S950 and S1000 as references, my conclusion is that Avalon creates a more accurate shift than the S950, but falls well short of the S1000 in terms of accuracy.

I can't help but feel that Steinberg will come up with more Macros as the new versions of Avalon appear – word has it that the next update will include peak limiting, frequency mixing and time plexing functions.

Once editing is complete, the sample has to be Re-synthesized before you can go back to the Time Domain editor and, more to the point, before you can hear the edits.

VERDICT

THERE'S LITTLE DOUBT that Avalon offers an impressive array of editing functions – probably more than any other current generic sample editor for the Atari ST. However, the procedures which have to be followed in the course of editing are often time-consuming. Consequently this software is not for those wanting to make relatively simple edits like looping, fading and digital equalising. Instead it's the tool of the patient and the adventurous. If you are prepared to spend some time in order to get the samples you want, you'll find Avalon a powerful tool.■

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THE CUBIST

WITH ALL THE ATTENTION STEINBERG'S CUBASE SEQUENCING SOFTWARE HAS ATTRACTED IT SEEMS AN OPPORTUNE MOMENT TO PUT THE MAN BEHIND THE NAME ON THE SPOT. INTERVIEW BY NIGEL LORD.

IN THE FIELD of music technology, the pressure to absorb increasingly high levels of information is coming to be seen by a growing number of people as a law of diminishing returns. In recent years, I myself have adopted what can only be described as a "need-to-know" approach to accumulating knowledge – especially in areas such as MIDI. If, for example, I come up against a problem which an understanding of one of the more esoteric MIDI functions would help overcome, I pick up one of several excellent reference books on the subject and look it up. If it seems particularly useful and likely to crop up again in the future, the chances are I'll remember it, if not, then I probably won't.

The problem, working on a magazine like *Music Technology*, is that it's all too easy to convince yourself that you're surrounded on all sides by people for whom the complete and unabridged MIDI specification has become a second language and who have the instruction manuals for every major instrument released over the last five years neatly stored away in memory ready for instant recall.

And so it was, when confronted with the prospect of an interview with one Karl "Charlie" Steinberg (yes, *that* Steinberg), I felt a sudden and uncontrollable inferiority complex descend upon me which was to last until the moment I found myself in the bar of the Kensington Hilton with a glass of Clausthaler in my hand (to keep a clear head), face to face with the man himself. And then it lifted...

Charlie Steinberg is clearly a very clever man, but he wouldn't want to burden the world with the weight of evidence. Far from the manic, machine-code babbling Teuton of my imagination, here was a quiet unassuming indivIdual for whom the design of MIDI software obviously still holds a strong fascination, but who suffers in no degree from the rather oblique perspective of those who live and breathe technology. He is quite happy to point out where his areas of expertise lie, and, just as importantly, where they don't. Thus, on a number of occasions throughout the interview, he re-directs my questions to his partner – Werner Kracht – one of the principal designers of Cubase, the new flagship of the Steinberg range, and a name which users of a number of Steinberg products will possibly be familiar with.

STEINBERG: THE MAN

AS A LONG-time user of a couple of Steinberg packages (and having been severely impressed by Cubase), the quelling of any initial trepidation as to the sort of person Herr Steinberg would prove to be, left the field open to ask a lot of those questions which few users get the chance to ply software designers with. For example, how *do* bugs manage to find their way into programs which presumably go through rigorous testing before release; and why can't MIDI standard actually mean *standard*? But first, let's get the more predictable questions out of the way... Like, how did he come to be writing music software for a living?

"It started when I was working as an engineer in a studio, and I was into electronics and computers. My partner at the time was a studio keyboard player who was also working in a music shop, and he showed me the first MIDI spec. So I started writing a MIDI program for a Commodore 64 which we had – just as a hobby. But it turned out that people were really interested in it, so we built a small interface, and it just grew from there".

The program of which he speaks was, of course, Pro16 which emerged in 1986 to the acclaim of all those who used it; music software had come of age. But what prompted the move over to the Atari as a host computer?

"A lot of musicians in Germany were really interested in the Atari when it came out – just because of the MIDI sockets. At that time there was no real software for the machine, but they bought it because they thought it had potential. So we started to look at it. And we got a lot of support from Atari in Germany who were interested in what we were doing..."

On the subject of Atari, there has been much speculation over the years about just how MIDI sockets ever came to appear on the ST, especially since so little mention is made of it in the computer's manual. Did their contact with the company ever reveal the reasoning behind it? "Well, the story goes", offers Kracht, "that it was the son of Jack Tramiel (the head of Atari) who was a musician, and he pressed his father to put them on>...<"

Sounds plausible enough, I suppose – this is an American company we're talking about, after all. But how did Pro24 itself come about? Was it started from a clean sheet of paper, or did it prove possible to upgrade Pro16?

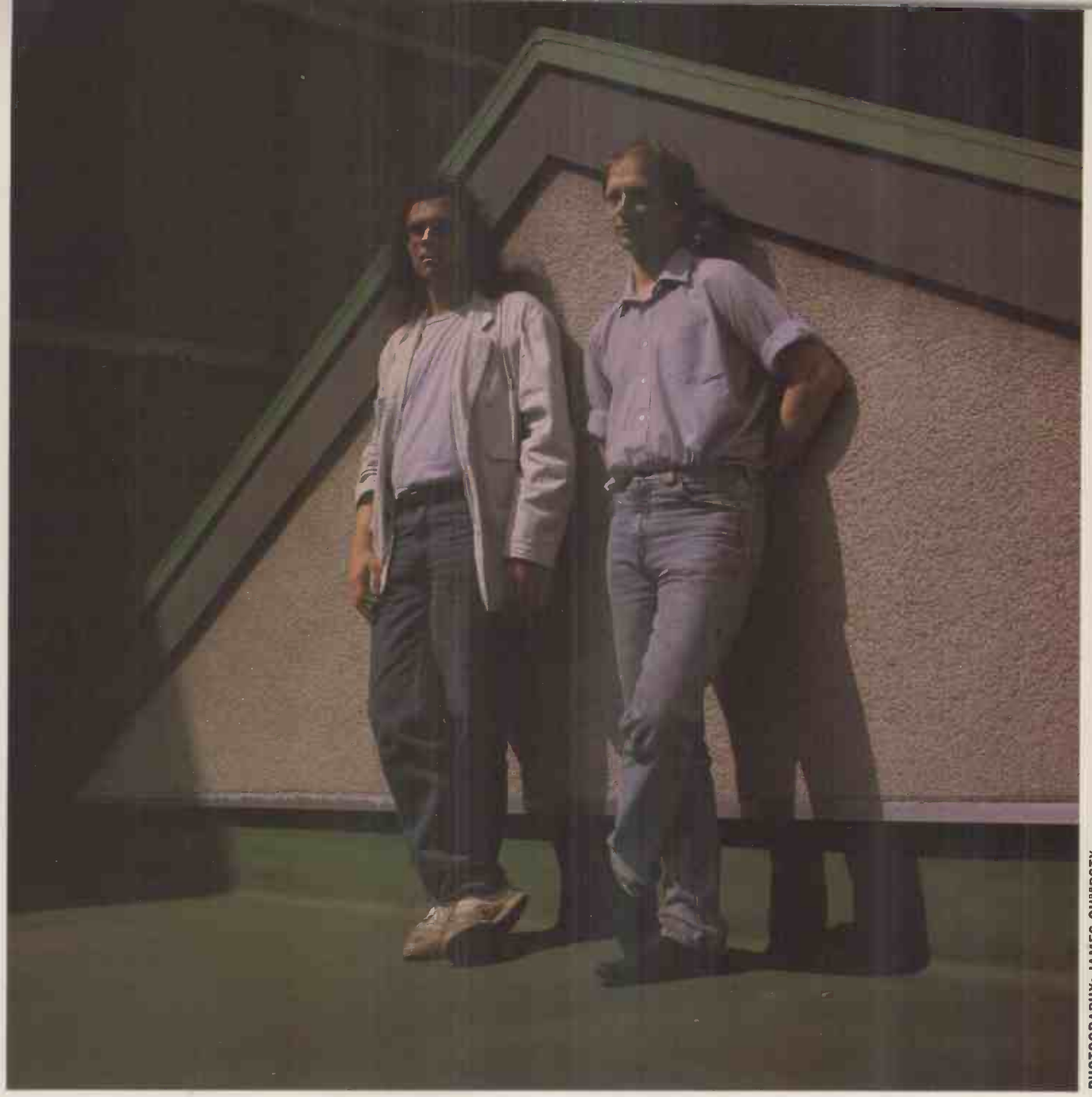
Kracht: "No. It was started from scratch. I had to learn a new assembly language; the two computers really can't be compared – the Atari is a much more complex machine. On the C64, for example, you could write a program in less than two months, but the ST takes much, much longer".

So it wasn't possible to upgrade between the two computers, but how about upgrades on the same machine? I've often wondered if each version of a program like Pro24 is considered to be the "last word" at the time it is written, or is it always assumed that another version will follow?

"It is a continuous process", explains Kracht. "We'll develop the new features for the latest version, then there's a break, a month's testing, and we start on the next version."

Was Cubase, perhaps, originally planned as Version 4.0 of Pro24, or was it always conceived as a separate program?

Steinberg: "It was always separate. We learned a lot from the Pro24 and we got a



PHOTOGRAPHY: JAMES CUMPSTY

Werner Kracht/Charlie Steinberg

lot of user input which has been put into Cubase as far as it is possible. But the programs were always different. The basic structure of Cubase allows for expansion: we put a lot of work into creating data structures which would make it expandable. And that wasn't the case with Pro24. We had upgrades, as all software should have, but we couldn't always foresee what would happen in that field. Now we have much more experience and have created a program which can be easily expanded."

Encouraging words for those who have already taken the plunge with Cubase, and certainly very much in line with the company's assiduous approach to updating which has always made their software such a worthwhile investment. When was the last time you heard of someone offering practically the full purchase price back on your old equipment when traded in on this year's model?

Those who have made the decision to upgrade will no doubt be aware that though there are considerable areas of overlap between the two programs, a fairly substantial conceptual leap has had to be made to arrive at the kind of advanced data manipulation possible with Cubase. Having said that, one of the most impressive aspects of Cubase is its inherent simplicity: though very sophisticated in music software terms, there is nevertheless a logic to its structure which makes it accessible even to those who prefer to leave the manual on the shelf. . .

"That was something we were very much aware of when we were designing the program", explains Kracht. "I know a lot of guys who can work with this program who have never used computer software before."

"We've also been very careful in the layout of the program", Steinberg continues, "by thinking about what were the most important things for a musician and making them as easy as possible to access. Really, it's all a question of appearance and making it possible for people to work with data in the way which suits them best".

But would he not agree that by providing so many different ways of achieving the same result, you effectively make the ➤

➤ program more complex than it needs to be – especially for those struggling to understand its operation for the first time?

"Yes and no. In some cases there's an obvious way of accessing something which we should decide when the software is being written. But in other ways this would limit your creativity because people have so many different approaches and different ways of working. I don't think a program should push you in a certain direction".

"FAR FROM THE MANIC, MACHINE-CODE BABBLING TEUTON OF MY IMAGINATION, HERE WAS AN UNASSUMING INDIVIDUAL FOR WHOM MIDI SOFTWARE STILL HOLDS A STRONG FASCINATION."

And it's always better to have too many choices than too few. It has often occurred to me, however, that by designing software which appeals to both studios and to individual users, you're in danger of having to compromise a little too much. Surely there's an argument for writing software specifically for the needs of studios and software more appropriate for home or individual use? Steinberg doesn't agree:

"I think one of the most important things about software packages is that the low-level user can buy a program that is also used by professionals – it gives him a very good feeling. Of course, with Cubase it's likely to be a bit more divided – it is really a high level product – but it's still available to anybody who wants to use it.

"Maybe for beginners there should be smaller programs to lead them into the field. But I think that when you start working with something like this you soon feel the need for something better to expand your creativity. And the thing about these programs is that you can sit at home and write a piece of music and then take the disk into the studio if you want to record it."

THE RAM'S THE LIMIT

WHETHER USED BY studios or individuals, the most tempting aspect of Cubase's design is almost certainly the multitasking facilities which it offers – a product of the M.ROS operating system under which the program runs. But was the adoption of a new operating system necessitated by decisions as to what the program was to be capable of, or was it, perhaps, an option taken at an early stage which only revealed its full potential as the program developed?

Steinberg: "No, we realised two years ago we'd need to have a system like that. The whole multitasking thing came from work we were doing with the SMP24 which as you probably know was designed to serve the Pro24. After the routines for handling different devices were written, we had a pool of routines which we could use for connecting devices for timing and suchlike, and we didn't have to put much more into it to make it multitasking. So that's where it started; and looking to the future, we knew we'd have to have a system like M.ROS."

One of the criticisms which has been most often levelled at Cubase is the sheer quantity of RAM required to run it in true mulititasking mode – that is to say, with two or more programs resident in memory at the same time. A few words of clarification from Steinberg and Kracht, however, and I have to confess I began to see things in a rather different light. Instead of looking at it as a program which was made so complex it had to have a Mega ST to run it, it becomes clear it was always intended for such a high level of onboard memory but thanks to the skill and ingenuity of the software writers it has been tailored down to enable it to run an a standard 1040 as well...

"Actually, many people aren't aware that you can run Cubase on a 1040 pretty well", Steinberg explains, "RAM is always a problem, but we put a lot of work into reducing the amount of RAM that the program needs just so that it can be used on the 1040. In Germany, musicians seem to be more aware when they buy a new machine that they're going to need more RAM these days. I could never work with less than four megabytes – not just when developing the software but also when making a serious piece of music."

And Kracht points out: "Most professional programs like Desktop publishing and graphics packages need a Mega ST to drive the laser print".

Clearly, awareness is growing that if you want enough processing power to indulge in multitasking, for example, there's no alternative to RAM – and large quantities of it. But to some extent, it's a reciprocal arrangement: as software increases in sophistication, the demand for bigger computers and hard disks will increase, and as people have more computing power at their disposal, so the programs will become more complex.

All of which begs the question, how far can you go with a machine like the ST, now into its fourth year of production? After all, no matter how much RAM you load into it it's still just an ST. Does it remain a good enough host computer to warrant that kind of expansion? Steinberg thinks it does.

"Even now there's plenty we can do with it. Memory is a problem, but it's affordable – at least for the semi-pro. Of course, there's more to come: Atari will bring out the TT soon, and though it's more expensive it will be the way to go if you need a faster machine and you want to push the limits even further".

On the subject of pushing things to the limit, the advent of such facilities as real-time MIDI sound processing on Cubase (as well as a number of other sequencing packages around at the moment) seems to make a mockery of the criticism levelled at MIDI when it first appeared: that it was inherently limited. Steinberg agrees: "From the technical point of view, it's true to say MIDI is pretty slow and not very accurate – but most people don't actually hear any of that. There's so much information reaching your ear that it's satisfying enough. It might be different for professional musicians who know just how important it is for timing and so on – they have a more refined ear and can hear if the snare is a bit behind, or whatever, because of MIDI delays.

"But these problems can usually be solved because the range of the delay always has to be related to how it is perceived by the ear – and as long as it sounds good it's OK. In fact, you can squeeze anything out of the Atari's MIDI ports and to most people it will sound OK. It's different for professionals: they tend to have more MIDI outputs – using SMP24s for example."

Presumably Steinberg doesn't feel the much-mooted MIDI version 2 is ever likely to see the light of day?

"I don't think so. I think there will have to be a faster interface for sampling – its pretty boring waiting for a half-minute sample to be transferred to the computer via MIDI – but that will depend on there being a proper sample standard. Also, in the future I think there will be networks which have MIDI links – in fact that's already happening. You have units connected in the normal way through MIDI, but the buss is driven with a very high-speed interface so that you can control many units with normal MIDI data."

For more information on one such system, see the *Media Link* feature last month. But as software designers, have they ever felt restricted in what they could ➤

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➤achieve by the limitations of the MIDI spec?

"I suppose I'd have to say yes", admits Steinberg, "but that's just a matter of quantity. MIDI is fast enough for sending, say, four or eight voices if these can be split up into several paths. And as I say, I think that will be the next step – having separate MIDI links. But you have to remember the computer itself has its limitations: MIDI is pretty fast compared to the calculating speed of the Atari..."

"ONE OF THE MOST IMPORTANT THINGS ABOUT SOFTWARE PACKAGES IS THAT THE LOW-LEVEL USER CAN BUY A PROGRAM THAT IS ALSO USED BY PROFESSIONALS."

Quite. And as if to prove just how groundless the claims were of those who doubted the viability of MIDI just a few years ago, my attention is directed toward the Mega ST which had been set up in the corner of the room ready to reveal the delights of Cubase version 1.5 (which is being prepared for release even as I write). Selecting the Options menu reveals a new addition to the arsenal of facilities already on offer in the form of a dynamic MIDI Manager, which provides real-time control of equipment parameters via MIDI, making it possible, for example, to edit reverb levels or synth parameters from Cubase itself.

You can create your own on-screen graphics for the controllers you wish to access, you can size them, determine their range and what kind of data they put out. Not only that, but all changes in controller data are recorded in real time along with the track, and "snapshots" of any setup may be taken and stored for future use. Obvious applications in MIDI controlled mixing systems suggest themselves, but given the open-endedness of the system, a potentially huge array of control parameters may be brought within reach of the operator without ever leaving the main program.

Looking at Version 1.5 of Cubase, there can be little doubt that this is the kind of music software which will take us through to the early 1990s – and therefore, to the tenth anniversary of MIDI itself. Which reminds me, weren't there a couple of questions about the more annoying aspects of MIDI software I was going to ask? Like, how do those bugs still manage to creep in? Charlie Steinberg has his answer ready.

"It's simply human error. You have to remember there are perhaps 50,000 lines of machine code, and the computer goes through one command after the other. If you have done something wrong, sometimes it will crash immediately but very often it's like... You do this, then you do that and if you then do this – it happens. And of course you cannot test for all the possible combinations. But on Cubase, for example, we had about 20 or 30 people testing the program over a long period and they wrote down all the bugs as they occurred and we were able to sort them out. It's not a perfect system but it's the best that we can do."

OK, then perhaps he can throw some light on why MIDI standard still doesn't actually seem to mean *standard*? But the look of resignation and the shrug of the shoulders tells me he can't. Clearly there are some aspects of high technology which mystify even Charlie Steinberg. ■

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DIGITAL DELAY...

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You probably won't believe this... but unfortunately it's true. The Allan Holdsworth tour has had to be postponed due to Allan **breaking a finger**.

HOWEVER, FIRST OF ALL he's okay – three weeks in plaster we hear, to mend a finger on the right hand. Secondly he *will* be honouring his commitment to all those fans who have helped to make his first UK tour for four years a sell-out.

We have re-scheduled the dates approximately a month later, in the same cities and more or less identical venues. In fact the new dates are almost upon us, and the full list is detailed below. The **good news** is that, due to the astonishing demand for tickets to the 'first' tour, some extra dates have been added including an additional day in **Manchester**.

Allan, his band and of course all at *Guitarist* apologise for the inconvenience that this has caused to a great number of people, but we sincerely hope you will all manage to make these new dates:-

Friday November 24th – Bristol St Georges

Saturday November 25th – Portsmouth New Theatre Royal

Sunday November 26th – Birmingham Cornbow Hall Halesowen

*** Monday November 27th – Manchester Royal College of Music**

Tuesday November 28th – Newcastle Guildhall

*** Wednesday November 29th – Manchester Royal College of Music**

Thursday November 30th – Nottingham The Old Vic Tavern

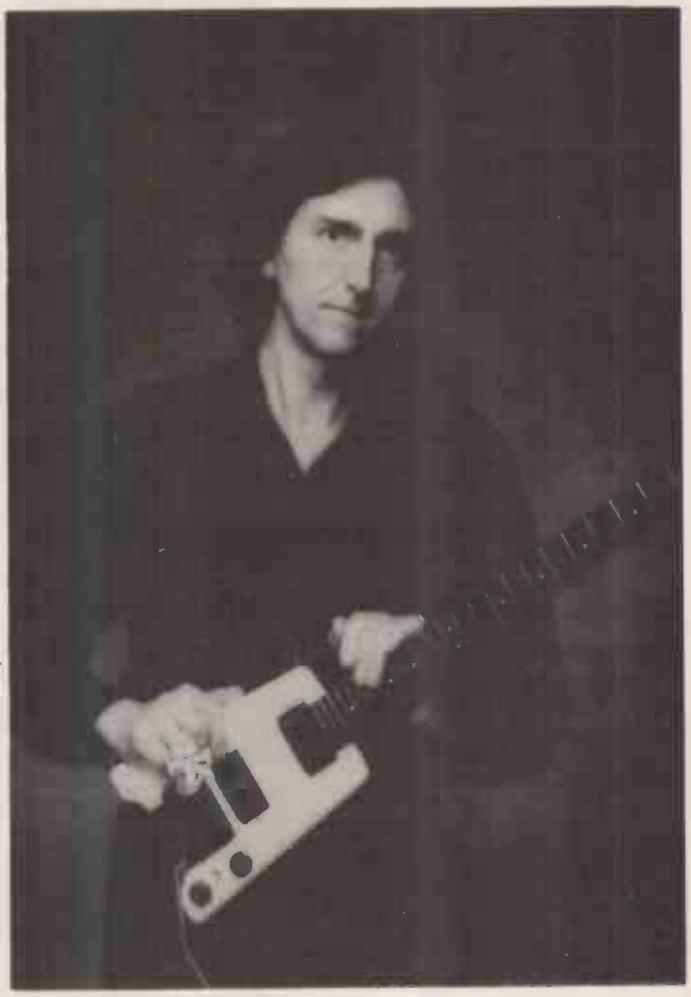
Friday December 1st – Bradford Wool Exchange

Saturday December 2nd – Huddersfield St Pauls Hall Polytechnic

**** Sunday December 3rd – London Bloomsbury Theatre**

All existing tickets will be accepted for the new dates at the respective venues. All enquires to **Music Maker Records,** Alexander House, Forehill, Ely, Cambs. Tel: 0353 666332, or the Theatre's Box Office.

* Any enquiries or bookings for Manchester dates, please contact the **Manchester Royal College of Music** direct who are dealing with all ticket sales and enquiries. Existing ticket holders for Manchester, please contact the box office to state which of the *new* dates you require – November 27th or 29th – to avoid any over-booking. The telephone number is 061 273 4504.



** London tickets for the cancelled performance are all valid for the new date. A few tickets remain. **All enquires to Bloomsbury Theatre**. Telephone 01 387 9629. Please hurry!

Once again, please accept our apologies for this obviously unforeseeable turn of events, but Allan promises a great tour. Don't miss it. Hope to see you there!

Guitar Institute Master Class

Of course The Guitar Institute's Master Class with Allan has also had to be re-scheduled. Although over 200 tickets had already been sold for the original date, these will of course be honoured for the new one.

Monday December 4th, Ealing Town Hall, 7.00pm!

For more information talk to *The Guitar Institute on 01 740 1031*

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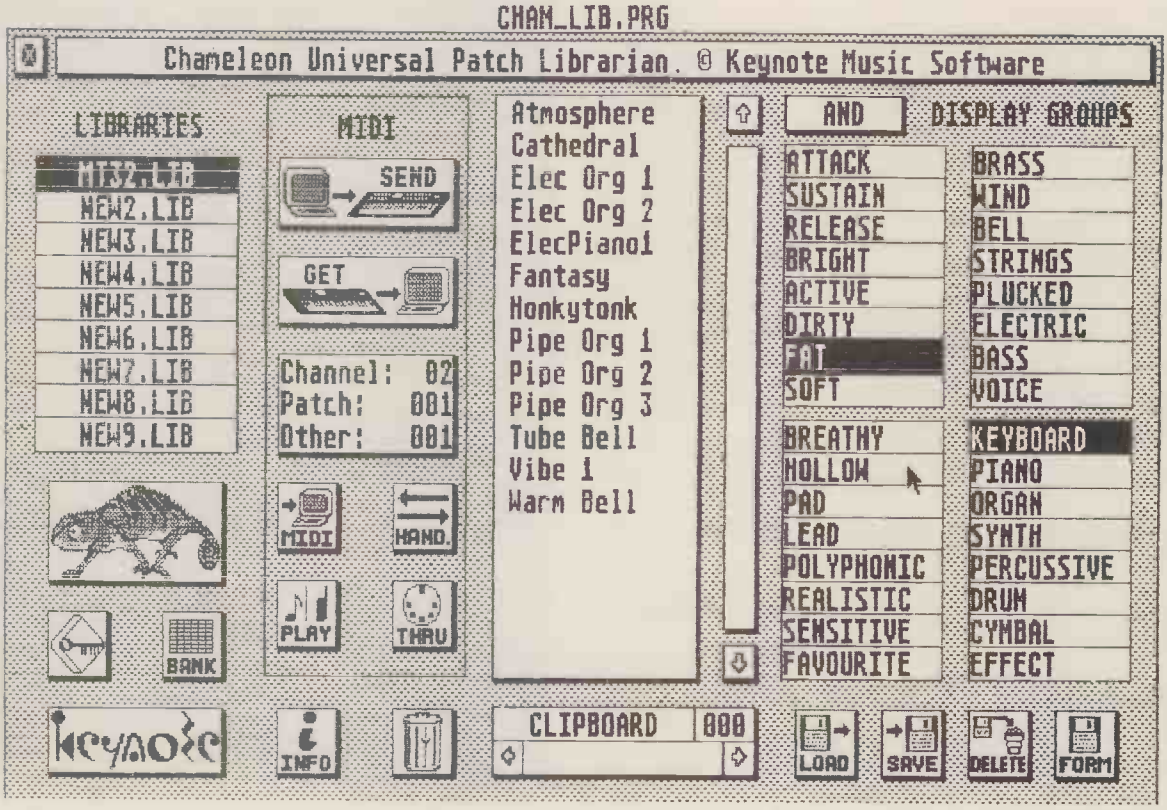

Main Screen

There's no escaping it – if you're a patch editor or librarian, you've got to be able to work with any MIDI synth. Chameleon is reasonably priced, British and universal... Review by Ian Waugh.

WOW! THIS IS the fifth new Universal something-or-other I've come across in as many months. But then, you know it makes sense – if you've two, three or more synthesisers, the last thing you want to do is fork out for an editor or librarian for each one. And let's face it, how many musicians actually program their own sounds? (And is that wrong? Answers please to Communiqué.) Most probably buy a voice editor in order to use the librarian facilities.

With that premise in mind, new British software house Keynote Music Software developed Chameleon which, as you've probably gathered, is a universal patch librarian. The program is written in machine code – about 50K's worth – and will operate as a stand-alone program or as a desk accessory. Keynote reckon it's 100 percent compatible with *all* GEM-based sequencing software – even Steinberg's Pro24 which is rumoured to become unstable when used with some desk accessories.

CALMER CHAMELEON

CHAMELEON WILL RUN on any ST with a mono or colour monitor and it uses a clever system of copy-protection. The program can be copied to other disks and booted from them but it will not save files. However, if you then insert the master disk and click ➤

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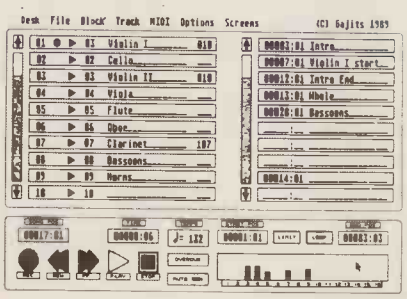
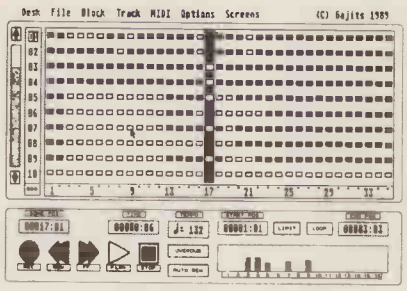
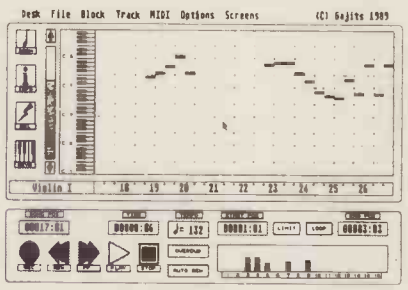


Track Screen



Bar Edit Screen



Step Edit Screen

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➤ on Save, it reads the protection, realises you're a legitimate user and reinstates the save facility. This enables you to run the accessory version along with other accessories. It's a tad fiddly, but it helps keep the pirates at bay and the point is, you probably won't want to save files once you've set up your libraries.

Now that Chameleon is resident in your ST, let's run through a typical setting-up session. One of the first things you'll want to do is to load the patches in your synths into the program. To do this, first you must load a library file. This contains the instructions necessary to communicate with your instruments (more about this in a moment). Files for around 30 instruments are supplied and more are being developed. These will be supplied to Chameleon owners for the cost of a disk plus p&p, probably about £3. Up to nine libraries can be resident in the program at once.

CLICK AND DRAGON

THE NEXT STEP is to drag a library to the Get icon. The patches from the instrument will be transferred to the program and appear in the central display window.

Most instruments allow you to name patches, but if the one you're working with doesn't have a naming facility, Chameleon ask for a name for each patch. It sorts the patches into alphabetical order as it loads them, which is interesting to watch (I'm easily amused). If it comes across a patch with the same name as an existing one, it warns you and gives you the opportunity to enter a new name. It also tells you if the data for the two patches is identical – very useful. If you don't change the patch name, the new patch will replace the old one.

You can load one patch after another into the library, up to the limit of available memory, so you can create one large library containing all the patches for one instrument. This is similar to the library facilities in programs such as X-OR and Explorer 32, and once you've discovered the benefits of having all your patches in one library you'll wonder how you ever managed before. It also provides a useful check on duplicate voices in different files (which voice programmer copied from which?).

"You can load patches into the library up to the limit of available memory to create a library containing all your patches for one instrument."

To the right of the screen is the Display Groups area. This is used to create and select characteristics of the patches to help you sort through them at a later date. You can define up to 32 characteristics. Typical definitions might be Attack, Sustain, Clean, Dirty, Soft, Brass, Wind, Voice, Breathy, Lead and so on.

Next you drag the library to the Info icon. This works through the patches in the library and allows you to assign suitable characteristics to each one. This is probably the most difficult task – mentally, not physically. If you're thinking strings, for example, you may overlook the patch's potential as a soft brass sound. One day a patch may seem "Polyphonic", another day it may seem "Pad". But you need to strive for some sort of uniformity as the success of the search procedure depends upon the characteristics you assign.

PLAY IT AGAIN CHAM

DURING ASSIGNMENT, THE patch is sent to the synth and you can play it by pointing to a shaded area of the screen and pressing the mouse buttons. Clicking on the play icon makes the whole screen available for playback. The left button plays a note and the right plays a major chord. Left is low, right is high, up is loud, down is soft.

When you're finished, you save the new library to disk and repeat the process with all the sounds for all your synths. It may seem tedious but you only have to do it once. And it's actually a good exercise and it makes you think about your sounds and how you use them.

My major niggle here is having to enter new sets of Display Group characteristics for each file. More often than not you want to apply the same criteria to sounds from several instruments – if not all of them – and the ability to copy a Display Group set from one library to another would save a lot of time.

MATCH-MAKING

TO USE CHAMELEON, load the libraries for the instruments you need for the session. You can send a patch to a synth by clicking on it with the right button or by highlighting it and clicking on the Send icon.

To find out what patches have a particular combination of characteristics, highlight the characteristics in the Display Groups area and the central window will show the matching patches.

There are actually four types of match which you can use, selected from the filter box at the top of the Display Groups area. And displays patches which have been assigned *all* the highlighted characteristics (and possibly others), Or displays those which have at least one, Not displays those patches which do not have any of the selected characteristics and Equ displays those which have *only* the selected characteristics.

These can be useful for double-checking patches, in case you missed out a characteristic from its assignment and for looking for "opposite" or contrasting or complementary sounds.

BANK ON IT

AS WELL AS being able to store libraries of patches, Chameleon can handle banks of libraries. In this case it is the library name which is shown in the central area. Click on the Bank icon to see the patches it contains; this displays another window which lists the names of the patches, and here you can copy and swap patches from one position to another.

The Clipboard at the bottom of the main screen also appears in the library bank window. Its main use is to allow the interchange of patches between a library and a bank. Patches, individually or In a group, can be dragged between the Clipboard and a bank or library. In order to do this, however, the individual patches and the patches loaded *en masse* in bank form must share the same format. ➤

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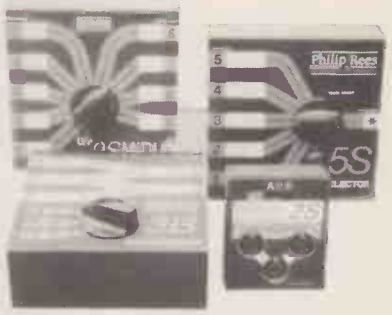

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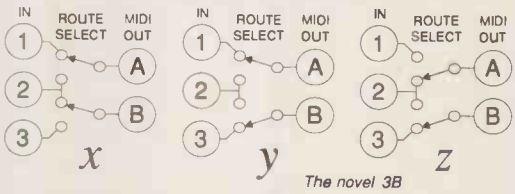
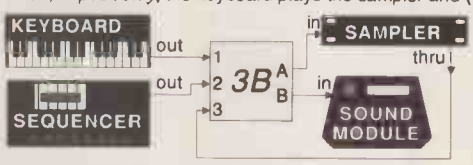
The diagram below shows one of many applications of the versatile ***3B*** unit.



The novel 3B

With the switch on the ***3B*** in position *x*, the keyboard plays the sampler, and the sequencer drives the sound module. Then, in position *y*, the keyboard plays the sampler and (via the thru socket of the sampler) the sound module. When position *z* is selected, both of the voicing units are controlled by the sequencer.



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➤ Surely a patch is the same whether it is loaded individually or as part of a bank? No, not always. The TX81Z, for example, compresses bank data slightly and the program will not allow transfer between a TX81Z bank and individual TX81Z voices. You can get around this – if you're clever – by altering the voice transfer instructions to load the voice individually instead of as a bank.

The Loading, Saving, Getting and Sending of individual patches and complete libraries is versatile. Patches can be Sent and Got in ones or in bulk. Patches and libraries can generally be dragged around the screen in order to accomplish functions such as loading, saving, sending, receiving and deletion. Individual patches can be saved in MIDI file format for loading into other software.

"The ability to store all the patches for a synth in one library and access all your libraries from one program is absolutely marvellous."

You can load a patch into a library direct from disk (a voice dump from an editor, for example) instead of from a synth, although this only works with certain types of files, mainly those which save the patch as raw MIDI data. You can't load Chameleon patch files this way, nor MIDI files, which seems a shame.

There are many operational short-cuts. For example, clicking on a library position with the right button will call up the file handler with a view to loading a library at that position. Clicking on a patch with the right button will send it to the synth, but beware, this may overwrite the existing patch. The transfer instructions (coming up) may switch off the synth's memory protection and activate the store function. Perhaps it would be an idea to have two send commands, one to store in the synth and one to send to the buffer. But again, these are determined for each instrument by the transfer instruction.

Most options have keyboard equivalents and you can set up five remote keys to allow you to control movement around the central display window from a MIDI keyboard.

Clicking on the logo icon – a key – shows the remaining number of bytes of memory and the number of patches in the current list (this would have been more useful on the main screen).

A MIDI Thru function sends MIDI data arriving at the ST's In socket back through its Out, and a channelise function sends the data out on the current library's channel.

PATCHING IT UP

AND SO WE come to the tricky bit – creating patch transfer instructions. This is accomplished using Keynote's MIDI Programming Language (MPL). Call up the Transfer Editor by clicking on the Chameleon icon and you get a simple text editor with a list of commands to the right. These include Send, Receive, Transfer, Wait, Loop, If and Elseif commands and so on, which are used to construct the instructions. Each library has two sets of transfer instructions, one for GETting and one for SENDing.

There's no doubt that dabbling with System Exclusive messages is only slightly preferable to a bit part in Eastenders. The manual explains the functions of the MPL commands and includes little examples, but it's not really a tutorial. As Keynote intend to supply files for all popular synths, you probably won't have to lower yourself to this level. I suspect most sensible musicians will steer well clear of it, although those of a computeristic bent will enjoy getting their digits dirty. If you do delve, then more options become open to you, allowing you to create custom commands to handle any type of MIDI data.

There's a MIDI Monitor to display incoming MIDI data. Its main use within the program is to check incoming data when debugging transfer programs, although it can also be used to read the contents of a disk file. An active sensing filter would be useful.

FILING SYSTEM

THE FILE ICONS include Load, Save, Delete and Format – always handy in case you run out of formatted disks.

The file selector is an "enhanced" version of the GEM selector you will be familiar with. It pops up when you click on a library with the right-hand mouse button and shows the length of each file, the amount of unused disk space – very useful – and it has three file extensions which can be selected by clicking on them. It also has provision for 16 disk drives! You can load a file quickly by clicking on it with the right button. Useful, too, but I suspect most people would prefer to be able to double-click on it with the left.

THE KEY NOTE

BEHIND THE KEYNOTE icon lies some interesting stuff. You can arrange nine libraries to auto load on start-up. You can specify the amount of memory you want to reserve for the program if you're using the accessory version. Selecting Accessory Screen Buffer reserves another 32K of RAM to provide instant screen drawing. You can alter the size of the MIDI buffer used by the MIDI monitor, you can invert the display (white on black), adjust the mouse speed and let it wrap around the sides of the screen. These are only active, alas, while within Chameleon.

The manual is well laid out and contains lots of diagrams. I hate to be picky but it could be organised just a little bit better and it could be a shade more informative in places, especially early on. There's a tendency to give you bits of information about certain functions as you go through the manual rather than presenting everything in one place. For example, information about bank editing is spread over three parts of the manual. And there's no index. Is this now *de facto* standard for music manuals or what?

Once you know how the program works, you probably won't need to refer to the manual very often except, perhaps, for the MPL commands – although there is quite a lot to remember about which button to click and where to drag which icon.

Keynote are placing a demo version of Chameleon ➤

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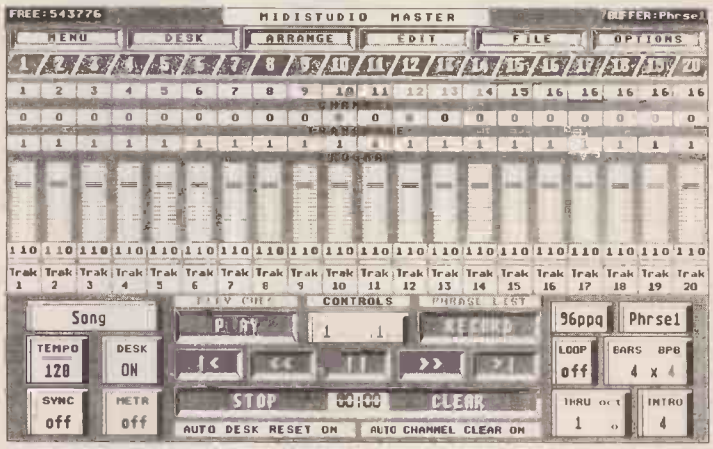

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➤ in the public domain and it should soon be available from most PD sources or direct from Keynote themselves for £3. Voice distributors are being licensed to supply their patches using the demo.

At the moment, Chameleon requires a GEM environment in which to work but Keynote are planning a Hot Key version which should work with non-GEM programs, which should be available sometime in the new year. And surprise, surprise, they are also developing a Chameleon Programmable Patch Editor which should also be available next year.

VERDICT

IF YOU ACCESS Chameleon from within a sequencer while it's playing, it stops the music. You can't, therefore, play and change voices on the fly, which many would regard as the ideal situation. To accomplish this would require a knowledge of how the sequencer was handling and transmitting MIDI data and it is clearly unrealistic to expect Chameleon to do this. Although with the advent of programs such as Steinberg's M.ROS and C-Lab's Soft Link (let's not argue about which does what, lads) the reality may not be far away. As it is, the music stops when you enter Chameleon but starts again from where it left off when you leave it which is arguably almost as convenient.

This apart, Chameleon is incredibly useful for sorting and selecting sounds. The ability to store all the patches for a synth in one library and access all your libraries from one program – and all without leaving the sequencer you are using – is absolutely marvellous. It will require a new way of working but one I'm sure most musicians will welcome. I would now hate to have to go back to the old way of selecting sounds by ploughing through individual banks in different voice editors and loading them into instruments before booting the sequencer. (This is not to decry the usefulness of individual voice editors.)

What is also incredibly useful is the ability to save patches from Chameleon as MIDI files and import them into a sequencer, thereby keeping sounds and music together. This sort of integration will become increasingly desirable as we move into successive generations of MIDI software. At the time of writing, however, I'm not aware of any programs which support system exclusive data in MIDI file format. But they will come...

Chameleon's final trump card is its price. It may not have all the facilities of some of the more expensive editors/librarians but it is programmable, it will run as a desk accessory and it is intrinsically very easy to use. It does what it sets out to do very well indeed. If you can't quite bring yourself to write a cheque for 90 quid then write one for £3 and send for a demo disk. It may convince you it's worth writing that cheque...■

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out takes

VINYL TAKES

Seigen Ono
Comme des Garçons
(Vol 1)
Venture CD

When MT interviewed Seigen Ono way back in January '87, he casually dropped such impressive names as David Sylvian, Bill Laswell and Anton Fier. Well here, on a collection of tracks originally comissioned to accompany a *Comme des Garçons* clothing collection along the catwalk, you can add names like Bill Frisell and Arto Lindsay to that list.

So what do you get on an album by an accomplished artist that can only be classified as 'new age" by virtue (or lack of it) of there being no alternative category? Well, difficult though it is to imagine, you get elements of all those styles carefully married together to make an album of intriguing music and impressive playing. The images conjured up range from Ono's native orient through the heavy rhythms of Africa to experimental New York. The music all works in the new age vein yet there's another, more healthy, element too. It's diffcult to define but it clicks when you remember the purpose of the music: it's not dance, but – with the exception of the harp, cello and (Italian) vocal of 'Pessoa Quase Certa' – there's always something to step to. Maybe *Comme des Garçons* has inadvertently revealed the real shortcoming of new age music – no *raison d'être*. ***Tg***

Nightingale & Thompson
Earthscapes
Lumina CD

More definitely new age is an album of collaborations between Trevor Nightingale and Will Thompson. No less than 17 views of "nature in its myriad forms" make up over 60 minutes of mute (as in instrumental) musical moods. And if you've come to terms with the dodgy musical concept, you'll find *Earthscapes* a satisfying collage of sounds and ideas.

The equipment listing is extensive (although it's not included in the album sleeve notes) and includes a Yamaha DX5 and DX7, Roland D50 and Super JX, Ensoniq Mirage and Moog Minimoog all under the control of an Atari running Notator/Unitor. So the wide variety of coherent sound textures will come as little or no surprise. All the textures are what I'd call "modern", though. There's no hint of the rich filter sweeps of analogue technology that many musicians believe to be its greatest strength. Instead we're given delicate strings and haunting oriental pipes.

I would, however, take issue with the concept of *Earthscapes* over the inclusion of the shorter tracks such as 'Rhythm Dance', 'Lonely Pipe' and 'Safari Park'. There's a fundamental contradiction in including such short pieces in a collection intended to create a mood – for no sooner have they established one mood, it must be discarded by the listener for another.

But if you're looking for the new age you can rest assured that it's in the hands of capable musicians here. ***Tg***

Rhythim is Rhythim
Strings of Life '89
Kool Kat/Big Life
UK 12"

The original 'Strings of Life' is a classic techno track which has been massive in the underground clubs for the past couple of years. I wasn't convinced in principle of the need for an '89 update, and hearing the track has done nothing to change my mind. Part of the original's charm lies in its loose feel, and remodelling elements of the track (the chordal piano sequence and staccato strings line) to fit a rigidly sequenced feel robs the '89 version of that charm.

In fact, much of the track is given over to completely new material whose light, airy feel and intricate rhythmic and sonic patterning works extremely well in its own right; I'm left with the feeling that the 'Strings' bits have been grafted on to what should have been an altogether new track – how about a remix which drops 'Strings' altogether? As it is, the track is still a must for Derrick May fans, and demonstrates that no-one else can match the polyrhythmic sophistication of what he's doing.

Flip to the B-side and you'll find the Original mix of 'Strings', so you can make up your own mind. Also included is an early RIR classic, the original 'Nude Photo' from 1987, which I've never come across other than on its original Transmat release. Listen to this track, with its rhythmically intricate contrapuntal lines, and you'll understand why Detroit techno is still around and becoming increasingly influential while acid music flared and then died. ***St***

Blakk Society featuring David Hollister
Just Another Lonely Day
Alleviated Music US 12"

This record is another gem from Larry Heard, and a perfect follow-up to Gallifre's 'Don't Walk Out On Love', which he was also largely responsible for. Its mellow, hypnotic dance groove, based around floating electric-piano chording over restrained bass and drum parts, hits you immediately on an emotional level and doesn't let go.

Heard's music works well with or without vocals, and as with the Gallifre track I found myself listening more to the instrumental and dub versions on the B-side than to the vocal versions. Sometimes vocals just get in the way of a good instrumental track.

Like Derrick May, Heard understands how to make technology work on an emotive level and has a highly refined sense of musical arrangement – not to mention solid musical ideas. The music these guys produce is made to last – and that's more than you can say for a lot of today's dance music. ***St***

D E M O T A K E S

"Hi, this is **Violets**, Violets are a Gay Culture band". Like a warning shot fired over the heads of all who might listen and enjoy rather than feel and *understand*, comes this opening salvo from Stephanie Marsland, vocalist and principal Violet. Suppressing a level of irritation I haven't felt since the last time I was confronted with, "Hi, we're a Christian band, our name is...", I drop the cassette in the slot and wait for the onslaught. It doesn't arrive.

This is extraordinarily good. Stephanie has a superbly controlled, understated vocal style which

betrays her experience as a session singer and helps lift this tape far above usual demo standards. The instrumentation too, shows an impressive maturity and self-confidence which is all the more remarkable for being conceived, written and performed by only two people – the other being Italian-born fashion designer and nightclub singer Adrian Feirero.

In addition to vocals, Stephanie plays keyboards, guitars and samplers, whilst credit for the drum programming is shared between the two of them. They met, apparently, at a MIDI workshop run by Islington Council (... in my day, it was brass band competitions) during November of last year, and are currently looking to expand their line-up and secure a management deal.

Musically, we're perhaps close to Eurythmics territory here, though I think it's true to say this is more how the Eurythmics might have sounded had they not got so enmeshed in the kind of ludicrous rock and roll posturing which has characterised their performances in recent years. Of the four tracks included, only the last, 'Where He Lives', fails to deliver – and that has more to do with Adrian taking over principal vocals, than anything to do with the song itself. I don't want to appear unkind, but after being lulled into submission by Stephanie's wonderfully fluid voice, I have to say I found Adrian rather unconvincing, vocally.

But this should take nothing away from the quality of the demo, which would warrant serious consideration by any ear-to-ground A&R person. I can only hope that Violets decide to drop that entirely superfluous opening gambit before again addressing themselves to the outside world.

Despite the modesty of his claim that the music contained on this four track demo was conceived for the sole purpose of providing him with enjoyment, **Paul Woodward** goes on to say that he would appreciate a professional opinion. Well, I get paid for writing this, so I suppose that makes me professional, and I do have an opinion about the music, so it seems I fit the bill. And the music? Well, amid the distortion, the appalling recording quality, the out-of-time drum tracks and the ill-synchronised echo repeats, we find four badly-played pieces of music showing no regard for any of the subtleties of musical arrangement and suffering from an absence of any coherent direction.

What we also find, however, is a handful of genuinely good ideas. Don't ask me how they got there – all the way through this tape my hand was poised over the stop button, but something kept me from hitting it. With his Kawai K1, Korg DS8 & Poly 800II and Seiko two-track sequencer, Paul has somehow managed to pull a minor victory from the jaws of a crashing defeat. He has something. God knows how he's going to develop it or present it to the rest of the world, but the ideas are there.

The problem is, of course, an awful lot of other people have ideas too. I have made dozens of tapes just like this (a tad better recorded, perhaps), but until I get round to taking the basic ideas from them and welding them together into coherent pieces of music, they will remain just what they are – ideas. In fact to my way of thinking, about ninety percent of the effort involved in the production of any piece of music is taken up with developing your ideas, bringing them together, recording them and appraising the result over a sustained period of time. What we have here is only the first ten percent.

A couple of years ago the two members of a band called CPU changed their name to **State of the Art** and in doing so came very close to not having their demo tape reviewed in MT. Seriously, whilst nobody is more aware of the problems of deciding on the right name than I, opting for a handle like State of the Art after previously being known as CPU is about the best way I could imagine of jumping out of the frying pan... and into total obscurity. And on the strength of the two tracks included on this cassette, that would have been a shame.

Between them, Marcus King and Paul Huggett have a lot of good ideas – far more, in fact, than your average DemoTakes clientele. Not all of them are their own (and just whose are any more?), but each is well thought out and has that all-important thumbprint which marks it as being part of the band's own sound. And a very eclectic sound it is too. On the opening track, 'Flashes of Light', we find overtones of the synth duos from the early '80s, the apocalyptic imagery of new romanticism (yes, it was once taken seriously), the throbbing bassline of the Frankie singles and a little late '80s sampling jiggery pokery. It's rather like an Argos catalogue of pop for the 1980s.

For the most part, however, it works. The two of them obviously have mastery over their Mirages, DX7s, Casios and Korgs, and interestingly, have turned the somewhat restricted dynamic range of the recording very much to their own advantage. This is particularly true of the rhythm tracks, which though simple, are some way from the standard beat box offerings which mar many otherwise promising demos. Having said that, I do think the kind of discipline a producer might have introduced could have been beneficial. Though I wholeheartedly applaud any band with sufficient acumen to produce their own music, there comes a point when a less partisan voice needs to be heard, and I think SOTA have definitely reached it.

I would have also liked to have heard a third track to help make my mind up about the band. The altogether moodier second track, 'Into Dreams', though useful in highlighting a another facet to the band's persona, still left me on the fence, I'm afraid. But I've no real complaints. This is a competent, well-conceived demo with some very interesting high spots. Now if we could just do something about that name... ***NI***

SGE

PHOTOGRAPHY: ADAM JONES

In an all-digital age, ART's new multi-effects processor opts for a combination of digital and analogue effects. The best of both worlds – or worlds apart? Review by Simon Trask.

THE CONCEPT OF combining multiple effects to create a single sonic end-result isn't a recent phenomenon. Guitarists have been mixing 'n' matching effects footpedals for years to get their own special sound(s), while the ability to patch in a large number of rack-mounting effects units has long been one factor distinguishing professional recording studios from their amateur brethren.

The advent some three to four years ago of the digital multi-effects processor, in the shape of Yamaha's SPX90, signalled the birth of a new integrated approach to effects processing. While you couldn't use any of its 12 effect types in combination, the SPX90 did provide the impetus for other companies in this direction, and so it was that a few months later Roland's DEP5 took the first, tentative steps by allowing two of its effects to be used together. Subsequent multi-effects processors have upped that number to three or four. So can the multi-effects processor now replace several single-effect processors? Well, it has to be said that limitations in digital processing power typically mean limitations on the configuration, number, flexibility and quality of the effects in multi-effects processors, to the extent that the designation "multi-effects" often signals compromise (or, looked at another way, compromises signals).

Which brings us to US company Applied Research and Technology's new, modestly-labelled SGE Digital SuperEffector/Pitch Transposer With Performance MIDI, which takes the slice of jam sponge with its ability to patch together up to nine effects at once. ART have achieved this by using a combination of digital and digitally-controlled analogue effects, the discrete analogue components taking a not inconsiderable processing load off of the digital processor.

But I suspect this isn't the only reason why the company have opted for a digital/analogue combination. Another consideration is that analogue processing still has the edge over digital for certain effects. Distortion is a case in point, and so it's no surprise to find that distortion and overdrive effects on the SGE come courtesy of analogue processing.

And so we arrive at a leading question: what exactly does SGE stand for? You won't find the answer on

the unit, but a picture of a presumably early SGE in an American brochure included with MT's review model reveals the inscription Studio Guitar Effector beneath the previously mystifying initials. Obviously ART subsequently thought better of giving the impression that the SGE was for guitarists only – so maybe they should've renamed it SME for Studio Multi Effector, or even, given their obvious modesty, SSE for Studio Super Effector.

On the other hand, is the SGE really a guitarist's effects unit masquerading as a general-purpose multi-effector (in which case, why is it being reviewed in MT)? String along for a while and you'll find out.

OVERVIEW

YES, THE SGE is a 1U-high, 19" rack-mounting unit, and ART have done a good job in squeezing so much processing power into such a compact frame. How they've done it I'm not sure, but it should come as no surprise that by today's standards the SGE is quite heavy for its size. Although a heat sink on the unit's rear panel successfully takes the "over" out of "overheating", if you want to warm your hands on a cold winter's evening then laying them on the left-hand end of its top panel is a good bet.

A 2x16-character backlit LCD window on the SGE's front panel takes care of most of the display requirements, while a three-digit red LED window tells you the number of the current Preset together with what mode you're in (by means of a red dot flashing next to the different digits). To the right of these windows are the aforementioned Preset Up/Down buttons, an effect Bypass on/off button and a button for switching between Keypad and Edit modes. The remaining ten buttons double as a numeric keypad for Preset selection and Edit function buttons. In their latter capacity they become Select Left/Right (for stepping through effect parameters), Value Up/Down, Store, Recall/Enter, Add Effect, Delete Effect, Title Edit and MIDI/Utility.

Two front-panel sliders govern audio input and output signal levels, with input level indicated visually on an LED ladder, while a third, Mix slider balances dry and effected levels when only digital effects are being used and digital and analogue effect levels when both types are being used. The rear panel, meanwhile, contains MIDI In and Out sockets (with a switchable software MIDI merge function allowing incoming MIDI data to be passed on via the MIDI Out together with internally-generated MIDI data), a Remote footswitch jack (which can be used to switch effects Bypass on/off or advance through onboard memories) and stereo audio input and output jacks – though the majority of the effects processing is mono. For your information, the SGE claims a 20kHz bandwidth and has 16-bit DACs and 20-bit internal processing, while the software version of the review model was v1.03.

On a practical note, the SGE has no power on/off switch and its power cable is fitted with a two-pin plug which can only be connected to and removed from the average power socket with some difficulty – neither of which facts endear it to me greatly.

An SGE effect can be stored in any one of 200 RAM program memories which ART confusingly refer to as Presets – a word which generally has overtones of non-programmability. The processor does come with 100 factory-preset effect programs which occupy the first 100 Presets (with number 100 a "silent" effect), but these memories can be edited and written into; the preset Presets are also stored in ROM and can be recalled individually into their equivalent RAM Preset memories. Presets can be selected by a variety of means: scrolled through using the Preset Up/Down buttons on the front panel, stepped through using a footswitch connected to the rear panel's Remote socket or selected directly using the front-panel numeric buttons or MIDI patch changes.

Effects can be added to and deleted from a Preset by repeatedly pressing the Add and Delete buttons till you reach the required effect (displayed in the LCD window) and then pressing Recall/Enter. The SGE allows you to choose from a total of 24 effects. The first five are analogue: Harmonic Exciter, Equaliser, Compressor, Distortion and Expander/Gate. A quick spot of arithmetic will tell you that five analogue effects means there are 19 digital effects; these are as follows: Low-pass filter, Flanger, Chorus, Pitch Transposer, Panner, Mono DDL Short, Mono DDL Long, Reverbs 1, 2 and 3, Gated Reverbs 1, 2 and 3, Tapped DDL Short, Tapped DDL Long, Regenerated DDL Short, Regenerated DDL Long, Stereo DDL Short and Stereo DDL Long.

> "Unlike many other multi-effects processors, the SGE allows you to define your own configurations within the maximum of nine effects per Preset."

Unlike many other multi-effects processors, the SGE allows you to define your own configurations within the maximum of nine effects per Preset. Providing you're using no more than four digital effects, then, you can use all five analogue effects together if you want.

The digital effects are a different box of tricks, however. Most notably, if you select pitch-shifting (an effect which is notorious for its heavy-duty requirements on processing power) then the only other digital effects made available to you are Low-Pass Filter, Mono DDL Short and Mono DDL Long – reverb, for instance, goes straight out of the (LCD) window. If you select Reverb or Gated Reverb 3 then only the Low-Pass Filter and Mono DDL Short digital effects can be used as well. Selecting one of the reverb or DDL effects in each case cancels out the other effects of the same type, while selecting flanging, for instance, leaves you with a choice of Low-Pass Filter, Mono and Stereo DDLs (Long and Short), and Reverb and Gated Reverb 1 and 2 – and from these you could select Low-Pass Filter, one reverb and one DDL.

If you haven't already realised, I should also point out that we're talking serial rather than parallel effects processing on the SGE – you can't put one instrument through one effect and another through a completely different effect at the same time. Furthermore, with a few exceptions the order of the effects is determined by the SGE, not by you. One consequence of the SGE's mix of analogue and digital effects is that the two types can't be mixed up – the analogue effects come first, because their output has to be digitised by the digital processor for ➤

➤ effects processing in the digital domain. However, you can, for instance, position the Harmonic Exciter and the Equaliser before the Compressor or after the Distortion, while the Flanger can run in parallel with Reverb or Delay effects or be placed at the end of the effect chain (running an overdriven guitar through a long reverb decay which is being flanged is great for atmospheric droning sounds – I just wish the SGE would've allowed me to use auto-panning as well!).

EFFECTS

THE JEWEL IN the SGE's crown is undoubtedly its analogue Distortion processing, which breathes in a way that digitally-created distortion just doesn't, and avoids that typically digital harshness. You can choose one of 12 distortion types, with three types each of overdrive, distortion, turbo overdrive and turbo distortion. On top of this you can program drive (which sets the amount of distortion), bite on/off (bite, as the name suggests, provides a more cutting attack) and level. The range as well as the quality of the SGE's disortion effects is impressive, from a sweetly singing sustain to a full-frontal distortion attack. It's been a while since I played guitar, but once I'd plugged into the SGE I didn't want to stop; it made me want to play, guv'nor, which I guess is the sign of a good effect.

"The quality of the delayed signal preserves the clarity of the original signal right through to the final delay, even with heavy regeneration."

The Harmonic Exciter, Compressor and Expander/Gate are all useful inclusions on the SGE which perform their allotted functions well. The EQ section is basic, with three bands centred at 100Hz, 1kHz and 10kHz, all with 12dB cut and boost. It's useful as far as it goes (particularly when it's placed after the distortion, where it can add further warmth or harshness as required), but certainly not thorough-going enough to cater for every requirement.

The strategically-positioned digital Low-Pass Filter, which operates on the output from the analogue effects, is the simplest effect on the SGE: you merely select a cutoff point anywhere from 665Hz to 15kHz. The Flanger and Chorus effects, which have a slightly metallic edge as opposed to warmth and richness, have width, speed and regeneration and width, speed and delay (up to 66 milliseconds) parameters respectively.

The Pitch Transposer functions reasonably well, with coarse tuning (a maximum of +/- one octave in semitone steps) and fine tuning (up to +/- one semitone in a mixture of six- and seven-cent steps) allowing for harmonisation and "thickening" effects. You can choose between three response rates for the shifted signal: smooth, normal or quick. What you lose in pitch exactitude (particularly with chords) you make up for in quick response time, and vice versa. In addition to setting the level of the shifted signal you can set a regeneration amount which governs how many times the shifted signal will carry on shifting at the specified interval, the delay amount being governed by the response rate setting. If you patch Mono DDL Short or Mono DDL Long in before the Pitch Transposer you can create more complex rising or falling cascade effects. For further weirdness, defining a "root" MIDI note number results in the specified pitch-shift interval changing with each different note you play on your MIDI instrument.

Panning turns out to be purely of the auto variety, and provides the absolute minimum you could want from a panner: modulation amount (0-100%) and speed (0-15).

In contrast, the prize for most thoroughly implemented effect must go to DDL, which ranges from a single Mono delay (0-100 and 0-240 milliseconds for Short and Long options) through Tapped and Regen options to Stereo (separate delay times for Left and Right channels plus regeneration, high-frequency dampIng and level settings – with delay times ranging from 0-360 and 0-500 milliseconds for Short and Long options respectively). Longer delay times wouldn't have gone amiss, but there's no arguing with the quality of the delayed signal, which preserves the clarity of the original signal right through to the final delay, even with heavy regeneration. I'm sure the DDL aspect of the SGE will see much use.

Last but not least, there's the reverb, or Reverbs 1-3 and Gated Reverbs 1-3. Reverb 1 allows you to select Hall, Room, Plate or Vocal, Reverb 2 adds a second set of these four types, and Reverb 3 adds a third set (allowing you to choose one of 12 reverb types). All three Reverbs allow you to program a decay time of from 0-25 seconds, a high-frequency damping value, level (dry/reverb balance) and a position within the location (from front to rear in 17% steps), while Reverb 3 adds a Diffusion parameter. Gated Reverbs 1-3 allow you to select one of Slope, Flat, Reverse A and Reverse B reverb types (with each Gated Reverb having its own variations), together with diffusion, level and decay time (0.05-0.25 seconds for Gated Reverb 1, 0.05-0.40 seconds for Gated Reverbs 2 and 3).

I found the overall reverb quality a bit disappointing: on the thin side, with a slight ring to it (even when the damping is brought into play) and a tendency to "warble". Adequate, particularly when used in conjunction with several other effects, and not lacking in presence, but it wouldn't be my ideal choice of reverb. ➤

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MIDI

MIDI ON THE SGE has several uses. Firstly it can be used to call up onboard Presets from a sequencer or keyboard via MIDI patch changes. You can set the SGE to respond in Omni mode (on all MIDI channels) or on an individual channel (1-16). A MIDI Program Table can be created in which each MIDI patch number can be set to call up any one SGE Preset, a useful feature which originated on MIDI'd effects processors – and a necessary one in the SGE's case, as it has more Presets than there are MIDI patch numbers. Individual Preset, all Preset and MIDI Program Table data can be transmitted via MIDI SysEx, which means you can store it to generic patch librarian software as a file or to a MIDI sequencer as part of a song for which the effects are intended.

But perhaps the most interesting use for MIDI on the SGE is that of real-time control of effect parameters. ART have logically enough called this "Performance MIDI", and they've come up with a fairly extensive implementation. You can define up to eight incoming MIDI controllers for each Preset, and assign each of these controllers to one of the parameters of that Preset's selected effects. The MIDI controllers can be any one of MIDI controller codes 0-120, note-on key number, note-on velocity, note-off key number, note-off velocity, pitchbend wheel, polyphonic aftertouch or channel aftertouch – a pretty comprehensive choice.

In addition, you can program the polarity of the SGE's response to each controller (whether maximum incoming MIDI value will generate the maximum effect parameter value or vice versa) together with the value range over which each parameter will respond (so that a MIDI controller can generate a modest or an extreme response as required – particularly useful in the case of footswitch controllers). The best means of defining the value range would be to set minimum and maximum values, but unfortunately the SGE doesn't make life that easy: you have to set a central value together with a scale number which defines in no readily apparent way how much the response can vary each side of this value.

> "Perhaps the most interesting use for MIDI on the SGE is that of real-time control of effect parameters – ART have called this Performance MIDI"

However, there's no denying that the extent and the flexibility of MIDI control on the SGE is impressive. Any examples can only scrape the surface of what Performance MIDI can do, but here goes: MIDI velocity controls high-frequency damping on the reverb, with higher velocities reducing the damping for a brighter reverb sound (this would require reverse polarity response); the same response can be generated from MIDI note numbers so that low notes use maximum damping and high notes minimum damping; MIDI notes defined for two of the eight possible controllers control the low and high EQ bands simultaneously, so that low notes have a bass boost and high notes a treble boost; the sustain pedal controls reverb decay time (which could switch from off to maximum); another MIDI footpedal controller switches distortion bite in and out; the pitchbend wheel controls DDL regeneration, with higher bend values creating longer regeneration...

Well, you no doubt get the idea by now. Of course the flexibility of Performance MIDI is rather like the sonic potential of synths: theoretically you may be able to create an infinite number of sounds on a synth, but how many of them are musically useful to you?

What you make of Performance MIDI is really down to your own imagination, which isn't to say that Performance MIDI will allow you to achieve everything you can imagine. One thing I often found was that I wanted what the SGE can't manage: several different values for a parameter going at the same time, so that for instance you could have different pan rates or different DDL rates for different concurrent notes. Another point worth making is that, because you have access to so many different parameters you may find that some of the digital effects parameters don't respond well to rapid and extreme changes in value (sometimes there are faint clicks, presumably as the processor tries to keep up with the real-time adjustments).

VERDICT

THE SGE ISN'T only suitable for guitarists, but because of its excellent distortion processing I'd particularly recommend guitarists to check it out – and that means commercial recording studios should, too. Digitally-created distortion, which all too often sounds harsh and grating, just doesn't – to these ears, anyway – match up to the warmth, depth and variety of the SGE's analogue-generated distortion.

Overall the SGE's sound quality is an appealing mixture of clarity, brightness and warmth, though the balance does depend on what combination of effects you're using. The DDL effects are impressive, while the reverb is adequate but wouldn't make the SGE my first choice of reverb unit.

Programming the effects is a straightforward business, both functionally and conceptually, even if all the button-pushing as you step through the effects list and the parameter displays can get a little tedious. For those of you interested in real-time MIDI control of effects parameters, the SGE offers all the control sophistication you could wish for – again, made available in a readily understandable way.

The multi-effects processor market is pretty crowded at the moment, and each processor seems to have its own effects priorities and its own way of going about things. The SGE (which price-wise sits somewhere around the middle of the market) is distinguished by the number of effects it provides, the number which you can use together, its combination of analogue and digital effects which lends it an attractive and individual sonic character, its distortion processing and its sophisticated Performance MIDI implementation. All of which means it deserves some serious consideration. ■

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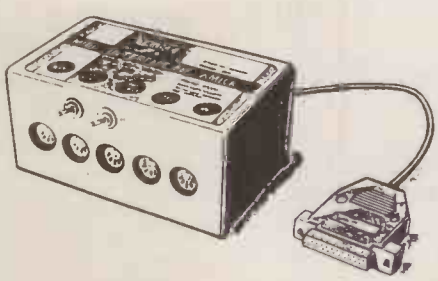

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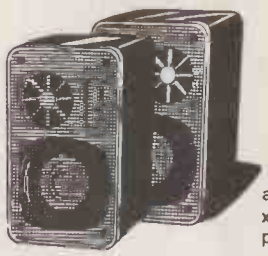

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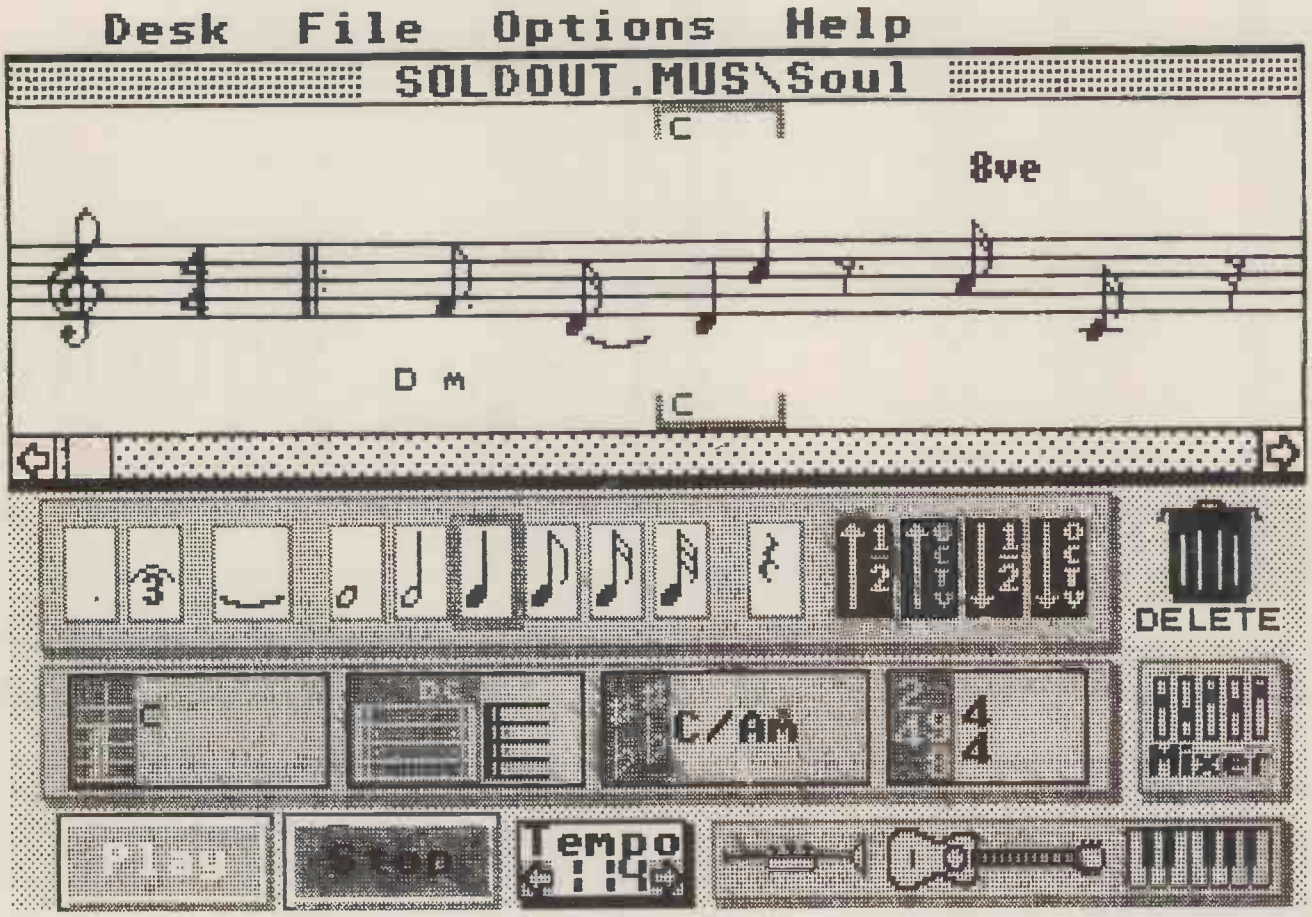
FM MELODY MAKER



Main (Composer) Screen

Looking for a cheap 'n' cheerful way of getting music out of your Atari? This complete software music system allows you to create whole scores with the minimum of fuss. Review by Ian Waugh.

FM MELODY MAKER is a sort of Big Band out of EZ-Score but it was developed by an independent company, Richard Watts Associates, which was responsible for the Music Sales Sound Expander for the Commodore 64. The astute reader with a good memory will find several points of similarity, although this is a totally new package.

The idea is really quite neat – a self-contained music system, complete with composition software. I seem to recall a machine called the Failrite... Fairlife... or something, which is based on a similar idea, and there is also the powerful and fully-integrated Hybrid Music System from Hybrid Technology (no relation to Hybrid Arts) which runs on the BBC micro and is the affordable face of computer-based music systems.

FM Melody Maker, however, is not quite as ambitious as either and its aim is to make life as simple as possible for the user. Basically, you enter a monophonic melody line and some chords and Melody Maker will produce an auto accompaniment for it, complete with bassline, backing chords and drum track.

The sounds are produced by an FM chip housed in a cartridge which plugs into the ST's cartridge port. It has two phono sockets to produce a stereo output which must be plugged into an external amplifier or hi-fi system.

The program will run in hi-res or lo-res. It has one main screen showing a treble clef stave in the upper half with a collection of note and music icons below. You can toggle between notes and rests and select dotted, triplet and tie symbols.

PUT THE MUSIC IN

OPERATION IS VERY simple indeed. Select a note or rest, move the mouse into the stave area and click it into place between the square brackets – the Edit Box. When the cursor is in the Edit Box it becomes a note (lo-res) or a cross (hi-res – but why not a note here, too?) and the note name appears in the box. The stave automatically scrolls on ready for the next note.

Bar lines are inserted automatically in accordance with the time signature, although if you add a note which is longer than the time remaining in the bar, the program draws three bar lines to inform you of the fact, rather than splitting the note over two bars.

The next block down has selectors for chords, repeats, key and time signatures. Clicking on the shaded area calls up the selection screen and clicking on the unshaded area places your selection on the stave where the Edit Box is.

The program supports 13 chord types including sus4, m7-5, 11 and m11. The repeat options include first to ninth time bars, DC, DS, Coda and Fine symbols. There are 13 key signatures including the enharmonic F sharp and G flat and eight time signatures including 2/4, 3/4, 4/4, 5/4, 6/8, 7/4, 9/8 and 12/8.

Editing is basically limited to deletion and insertion, although you can transpose notes by semitone and octave. To delete a symbol you scroll it into the Edit Box and click on the trash can. Chord symbols must be attached to a note or a rest and they are deleted before the note. It's best, therefore, to edit notes by transposition if you want to retain the chord, although if you want to replace the note with others of different durations the chord will have to go, too.

There are 16 accompaniment patterns and it's worth listing them as they are at the heart of the system: Pop, Disco, Soul, Rock, Slow Rock, Reggae, Rock 'n' Roll, Ballad, Latin, Swing, March, Big Band, Bluegrass, Afro and R 'n' B. Although there are a variety of time signatures, they only affect the music on the stave, not the accompaniments. For example, patterns such as Pop and Rock always play in 4/4 and the Waltz always plays in 3/4 no matter what the time signature. The odd time signatures, therefore, play across the beat. The accompaniments are similar in style and variety to those you might find in low-priced portable keyboards.

IT COMES OUT HERE

HAVING PUT SOME music in, let's see what we can do with it.

First there's the Voice Selector. This calls up six selector bars in the bottom half of the screen, one each for the melody, the four accompaniment parts and the bass. You scroll through the selectors to choose the sounds you want. There are 78 different sounds for the melody part and 15 for the others. If the music is playing you will hear the changes come into effect immediately. The 16 accompaniments each have their own preset range of instruments but you can retain your own set when changing backing.

It would have been more helpful, I feel, if the sounds had been listed in a window so you could see several at once. Until you learn which order they are in (especially the melody voices) you may find yourself scrolling back and forth looking for a particular sound.

The sounds themselves, again, are typical of those you might find in a portable keyboard. The chip itself is a two-operator FM chip with 15 preset sounds and one programmable one. Although it only has two operators, each can be a sine wave or a distorted sine wave, which explains how the program is able to produce 78 different sounds. Bearing this in mind, they really are very good. The accent is on traditional and acoustic instrument sounds but there are a few synth tones and sound effects. The sounds used in the drum section, however, which is preset, are particularly weak.

Running the output through a reverb or echo unit beefs up the sounds considerably – of course – and with the right combination of instruments the result can be greater than the individual parts would lead you to believe. Six excellent demos on the disk testify to this (although I didn't like the Heart tune at all).

MIX IT ALL ABOUT

NEXT STOP IS the Mixer which, again, produces a half screen display, this time of seven faders for the melody, four accompaniment parts, bass and drums. You can do a mix here in real time although the result isn't recorded into the music.

Although the cartridge produces a stereo output (actually pseudo-stereo), you can't alter the pan positions of the sounds.

You can channel the voices to an external MIDI synthesiser or expander. Clicking on Composer MIDI in the Options menu lets you set channel number and velocity for the melody, four accompaniment parts, and bass channels. Drum MIDI lets you set channel number, MIDI note number and velocity for the five drums – Bass, Snare, Hi-hat, Cymbal and Tom Tom – and also six other drum sounds which will only play via MIDI and which you can program from the drum grid editor (coming up).

If you send your composition out via MIDI, the relative volumes must be set with the velocity parameter; the Mixer has no control over MIDI volume – shame.

FM Melody Maker has three additional operations which are not directly related to the composition section. Selecting MIDI Recorder from the Options menu turns it into a one-track sequencer. There's a metronome, you can select from two to 12(?) beats in the bar and get a one to four bar count-in. There's a MIDI Thru function, too.

It works, what more can you say? Useful for jotting down ideas, perhaps, although it would be nice to be able to transfer a recording into the melody section of the program. You can load and save recordings.

The second feature turns Melody Maker into a nine-voice expander playable from an external MIDI keyboard. (The chip can be configured to produce either nine FM voices or six FM voices and five drum channels.) The nine voices are listed on the screen and you can allocate each to a different MIDI channel, detune them and apply an offset of +/-24 semitones.

"The accent of the internal sounds is on traditional and acoustic instrument sounds – but there are a few synth tones and sound effects."

➤ MIDI Thru can be switched on or off and the voices can respond to velocity information. If you go over the nine-voice polyphony you can decide whether the first or last note played has priority. The drum sounds can be played from an external keyboard, too.

The third feature is a drum grid editor. With it you can create up to 20 drum patterns and string up to 20 of them together to form a song. It's quite versatile as far as it goes. A grid can have from one to 16 steps and the timing resolution can be varied from 1/8 notes to 1/32 triplets. Little notes at the top of the grid show where the main beats lie. As well as using the five built-in drums you can use the other six set up with the Drum MIDI option which plays via MIDI only.

Having created some patterns and a song, however, you can't use them in the composition part of the program. The 20-pattern chain is rather limiting, too.

VERDICT

SO THERE YOU have it. OK, it's not state-of-the-art and there are lots of ways in which the program could be improved, but it has been designed for ease of use and to a level of simplicity. There are even help screen (and a choice of three languages).

Aspects I found particularly frustrating include not being able to play back from the middle of a piece, not being able to program a change of sound into the middle of a piece and lack of editing facilities such as copy, move, cut and paste. It would have been nice, too, to be able to apply the patterns constructed in the drum grid to your tunes.

In a supreme attempt at helpfulness, the Save Music As... option refuses to allow you to overwrite a file (OK, so perhaps the Save Music option is for that sort of thing but a choice would be nice). Anomalies include the ability to tie rests!

But all in all, the program and sounds have been cleverly designed around the chip to maximise its potential – and hence the unintegrated extra bits.

Hybrid Arts are hoping to encourage software writers to include Melody Maker music in their games programs. As this would not require anywhere near as much memory or processor time as using samples, this could lead to very long musical soundtracks – could be very interesting. Whether this will become a reality only time will tell, but I wish them luck.

FM Melody Maker is not aimed at the pro or even the semi-pro market but I must confess I had great fun with it. There's nothing like a little auto accompaniment for instant gratification. It's a sort of computer-based portable keyboard. If the idea of an easy-to-use program which adds instant accompaniments to your melodies appeals to you and you can live with the limitations then give it a spin. ■

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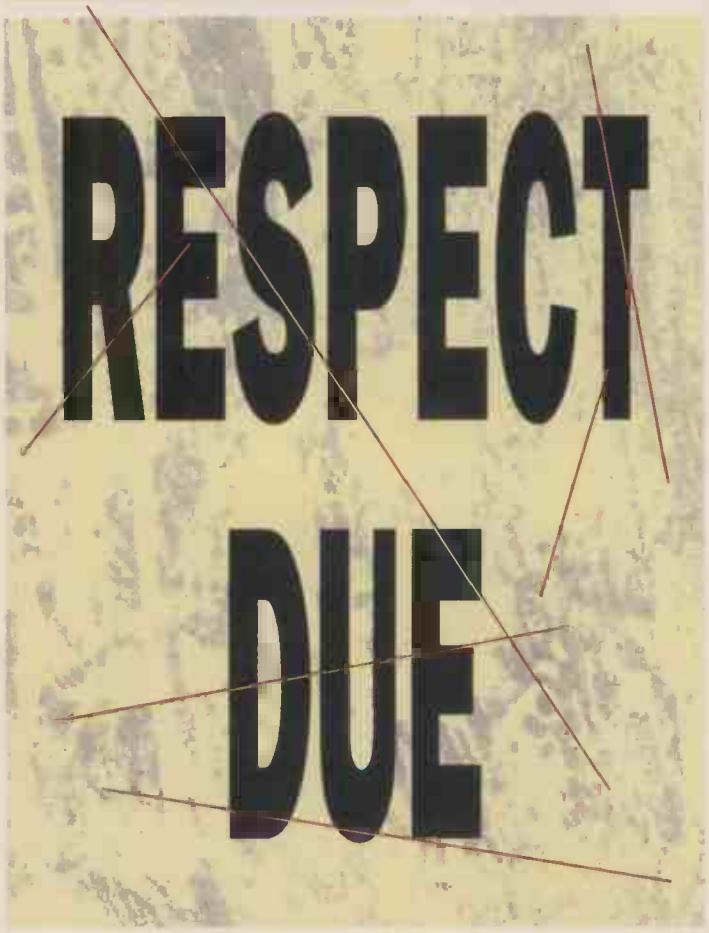

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YAMAHA DX5 synth, £950; Jupiter 6, £600. Both boxed and in excellent cond. Gary, Tel: (0306) 885254, days or (0306) 881409, eves.

YAMAHA DX7, hard case, stand, ROMs, mint cond, £575. Tel: (0733) 370408 or 061-794 0180.

YAMAHA DX7IIFD, excellent cond, inc disks, books, cover and soft case, £1200. Chris, Tel: 01-361 0920.

YAMAHA DX7S, ROM and RAM cartridges, amplifier, flightcase, sustain pedal, stand, 1 yr old. Offers. Tel: (04463) 3521, after 6pm.

YAMAHA DX9, £225; Korg DDM110 and DDM220, £100. All boxed, manuals. Bob, Tel: Wolverhampton (0902) 337256.

YAMAHA DX9, excellent cond, as new, not gigged, £295. Tel: (0480) 457820.

YAMAHA DX27, £275; CZ3000, £300. Both with ST editors and extra voices. Steve, Tel: (0652) 52854.

YAMAHA DX27, good cond, manuals, flightcase, extra sounds, £275. Tel: 01-985 4546.

YAMAHA FB01, Atari voicing software, flightcase, manuals, as new, £175. Tel: 01-367 7833.

YAMAHA PSR32, immac, boxed, custom drums, acc, manuals, excellent beginners keyboard, £280. Simon, Tel: Basingstoke (0256) 474750.

YAMAHA PSR47, 3 months use, guaranteed, vgc, £330. Tel: 01-577 1248, eves. Swaps?

YAMAHA PSS780, one month old, boxed, £160. Private sale. Tel: 061-980 6140.

YAMAHA TX81Z FM synth module, multitimbral, boxed, manual, mint, for sale again due to time-waster, £225 ono. Tel: (03543) 5239, eves/ weekends.

YAMAHA TX81Z, manual, boxed, vgc, £260 ono. Mahendra, Tel: Rugby (0788) 75737.

YAMAHA V50, two wks old, £900; Yamaha TQ5, brilliant machine, £350. Chris, Tel: (05806) 3262.

SAMPLING

AKAI S900 with ASK90 trigger option, excellent library, private use only, £850. Graham, Tel: 01-318 2429.

AKAI X7000, immac, discs, memory expansion. Offers. Write: Oliver, 101 Boundary Road, Upton Park, London E13 9PT.

AKAI X7000 sampling keyboard, six individual outputs, 20 disks, full library access, £470. Tel: (0773) 602601.

AKAI X7000, 40 disks, multi outs, as new, £420. Tel: 01-450 5394.

AKAI X7000 sampling keyboard, mint cond, boxed, home use only, £500. Tel: Rossendale (0706) 218938.

AKAI X7000 sampling keyboard, as new, boxed, samples, plus Atari sample editors, first £580. Steve, Tel: 051-526 0235, after 7pm.

CASIO, swap my FZ1 plus cash for your FZ10M. Chris, Tel: Bristol (0272) 775747.

CASIO FZ1, 2Meg expansion, as new, many disks, boxed, instructions, £850. Tel: (0992) 447345.

CASIO FZ1 sampler, 2Meg, uses DD/HD disks, £795; Kawai K1R synth, £320. Tel: Surrey (0737) 351794.

DIGIDESIGN Universal Sound Designer, new, unused, boxed, supports most samplers, fully featured. Offers. Mike, Tel: (0337) 31172.

ENSONIQ EPS, mint cond, boxed, manuals, factory disks etc, £800 ono. Tel: 01-660 6602.

ENSONIQ MIRAGE, disks, flightcase, hardly used, £499. Tel: (0737) 556921, after 7pm.

ENSONIQ MIRAGE sampler, flightcase, MASOS, sustain, disks, £400; Korg P3 piano module, excellent sound. Tel: 051-220 2016.

ENSONIQ MIRAGE sampling filter, allows up to 50kHz sampling rates, 22kHz bandwidth! £60 ono. Mike, Tel: (0337) 31172.

KORG DSS1, boxed, discs, stand, home use only, £700 ono. Jeff, Tel: 01-534 8316.

ROLAND S10 sampler, 3 disk sets: drums, guitars and bass, £450. Tel: (0427) 615865.

ROLAND S50, mint cond, sound disks, still boxed, £850. Tel: (0883) 717657.

ROLAND S220 sampler, 16-voice, 4 individual outputs, D50 samples, bargain, £350. Tel: 01-228 6028.

SWAP Hohner HS1 sampler, (FZ1 clone) for Yamaha V50 or sell for £700. John, Tel: (0322) 21545.

SEQUENCERS

AKAI ASQ10, home use only, £550. Tel: (04862) 4746.

ALESIS MMT8 MIDI sequencer, boxed, as new, guaranteed, £180. Tel: (0925) 813185.

ALESIS MMT8, six months old, vgc, boxed, guaranteed, bargain at £189.95. Brian, Tel: (09544) 532.

KORG SQD1, manuals, MIDI leads, disks, home use only, great cond. Darren, Tel: 01-595 3552, after 7pm.

KORG SQD1, only 1 hrs home use, boxed, disk, manuals, owner bought Pro24. Sensible offers. Tel: (0449) 615377.

ROLAND MC500, boxed, manual, disks, mint cond, £400; Roland Pad 8, £250. Neil, Tel: (0773) 540234, after 5.30pm.

YAMAHA QX21 sequencer, immac, £120. Will swap for Fairlight (Series Three preferably). Jon, Tel: (0225) 762983, after 6pm.

DRUMS

E-MU SP1200, £1025; Yamaha PF1500, £975; Yamaha SPX1000, £845; Yamaha C3 grand piano, £5500. Tel: 01-462 6261.

KAWAI R50, expansion board,

switchable drum chips, Jan Hammers favourite, £200. Mike, Tel: Southend (0702) 337817. Can deliver if neccesary.

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KORG DDM110 and DDM220, £100; Yamaha DX9, £225. All boxed, manuals. Bob, Tel: Wolverhampton (0902) 337256.

KORG DDM220, Latin percussion, digital sounds, stereo. Bargain price at only £70. Simon, Tel: (0484) 640712, eves.

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ROLAND TR505, excellent cond, quick sale, £120. Matt or Julian, Tel: 01-553 3552, after 6pm.

ROLAND TR505, £120; Boss DR rhythm graphic, £50. Both immac, boxed, manuals. Danny, Tel: (0634) 404050.

ROLAND TR626, boxed, manual, inc power supply, home use, £165. Tel: 061-881 1362, eves.

ROLAND TR909, mint cond, manuals, £250. Tel: 091-284 3368.

ROLAND TR909, boxed, manual, classic sounds, £300 ono. Tel: 01-670 9707, after 12pm.

SEQUENTIAL TOM, great sounds, two expansion cartridges, inc orchestral blasts etc, wonderful, £240 ono. Simon, Tel: (0484) 640712.

SIMMONS MTX9 brain, 3 pads, immac, boxed, £210. Tel: (0568) 81540, after 5pm.

SIMMONS SDS1000, MIDI, 5 pads, rack, cymbal booms, console, perfect cond, £450 ono. Tel: (0883) 44364.

YAMAHA DD5 MIDI drum pads, as new, £59. Andrew, Tel: Cambridge (0223) 290799.

YAMAHA RX11, good cond, flightcase, manual, £150. Or swap for Roland SH101 or Casio CZ101. Tel: (0924) 452286.

YAMAHA RX5 with three cartridges, mint cond, boxed, £425. Michael, Tel: (06333) 2267.

YAMAHA RX17, good cond, £165; JVC KB600 keyboard, Yamaha CS5 monosynth. Offers. Tel: (0704) 892824.

YAMAHA RX17 drum machine, power adaptor, hardly used, £100. Tel: (0903) 41437.

YAMAHA RX21L Latin machine. This one grooves! Superb as expander, salsa down at £100. Simon, Tel: (0484) 640712.

COMPUTING

ATARI 520STFM, 1 megabyte memory expansion, £250; Philips CM8852 RGB monitor, £200. Both as new. Tel: (0405) 861169.

ATARI 520STFM, £185; Commodore 64, disk drive plus MIDI interface, £155; Yamaha RX21, £80. Tel: 021-430 8980.

ATARI 1040ST, SH125 monitor, some music software, as new, £425. Tel: (08083) 353.

ATARI 1040ST, £395; Yamaha RX21 and RX21L, £140; Yamaha QX21, £130. Stewart, Tel: (0474) 567946.

ATARI MEGA 2, mono monitor, 30-meg, HD editors, sequencer, DTP, games, £1100. Tel: 01-690 7106.

BRAND NEW: Steinberg Pro12, £40; MidiDrummer, £10. Alan, Tel: (0375) 676817. Now!

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C-LAB NOTATOR, latest version, V2.1 plus export, 4 MIDI outs, £400. Piers, Tel: Hatfield (0707) 271641.

DIGIDESIGN "softsynth", digital synthesis software for Atari ST and samplers, £130. Tel: (0773) 602601.

DR T's D110 editor, 400 sounds, 40 aphex Type C Exciter, £140; Alesis Microverb, £80; Micro comp, £70. Tel: 051-339 1167.

DR T's KCS 1.5, £100. Not pirated. Mark, Tel: (0566) 85645, after 5pm.

DR T's KCS 1.6, Atari 1040/520, 48-track sequencer, £99!! Or swap for interesting analogue synth. Tel: 01-478 7645.

DR T's keyboard controlled sequencer (VI6); Atari, 48-track, Pro24 level facilities, £95. Tel: Darlington (0325) 481154.

EZ-SCORE PLUS, latest version, superb printouts, only £100. Brian, Tel: (0453) 758722.

PASSPORT Mastertracks Junior, 64-track sequencer for Atari ST, manual, pristine, bargain at £55 ono. Tel: Letchworth (0462) 679915.

PROGRAM SHOP MPU401 compatible PC MIDI interface card, inc sequencer software, cables, manual, £80 ono. Kevin, Tel: (0276) 61731.

RAM music machine, Specdrum and three kits, Cheetah Spectrum sequencer, £90 the lot. Garry, Tel: (0695) 624668.

SFG05, £55; DMS, 16-track sequencer, £50; Arp Axxe, £60. Or swap all for QX7/21. Jason, Tel: (0525) 717557, after 5pm.

STEINBERG PRO16, edit-kit, MIDI interface with tape-sync; Yamaha RX11, £180; Yamaha RX21L, £80. Tel: (0773) 602601.

STEINBERG PRO24 VIII, totally legit with manual, not a pirate. Huge bills, wife and two children force sale at bargain price of £150. Tel: (0706) 815912.

ST SOFTWARE, Super Conductor, 16-track sequencer, Pro-Sound designer, cartridge, PSU, pro-MIDI, £70 the lot. Tel: (0305) 770013, after 6pm.

YAMAHA CX5 MkII, FM, auto arranger, MIDI recorder, Music Macro II, YK20, music pad MMP01, £285 ono. Tel: 01-923 3707.

RECORDING

AKG C451E/CK1 condenser, case, £80; Shure Unidyne III, dynamic and lead, boxed, £15. Tel: 01-842 2755.

ALESIS MIDIVERB II, £210 ono; MidiVerb I, £165 ono; 2-tier tubular keyboard stand, £35 ono; Soundcraftmen 20-12A, dual 10-band graphic, £50 ono. Tel: (0255) 434217.

BOSS MICRO RACK, Series flanger, £50; pitch shifter/digital delay, £110. All boxed. Paul, Tel: Leeds (0532) 865197.

C-DUCER Saxman wind instrument, £30; Double 8", balanced, £60. Both in cases. Mike, Tel: 01-842 2755.

DRAWMER DL221 compressor, £180; DS201 gate, £190; Deltalab ADM64, 64ms, 15k delay, £30. All boxed. Tel: 01-842 2755.

FOSTEX 160, double speed, 4-track, £280; Yamaha TX81Z, £190. Mike, Tel: Castleford (0977) 550718.

FOSTEX B16, excellent cond, 16-channel, +4/-10db tape machine, interface +16ft, remote, £2150. Also GBS, £35. Tel: (09277) 66664.

FOSTEX B16, 5 yrs old but in good working order, £2750. Paul, Tel: 01-857 0799.

FOSTEX M80, £875; MTR 12:8:2, £400; Revox A700, £500; Korg DDD5, £300. Alison, Tel: 061-881 8538, eves.

FOSTEX M80, mint cond, boxed, with qu-play remote, auto record memory, approx 20hrs use, £850 ono. Tel: (0932) 62117.

RAM 10, 10:4:2 mixer, works well, but minor maintenance required, £200. Tel: 01-546 8158.

REVOX G36 stereo tape recorder, recently had new heads, suitcase version, engineer owned, £250. Mark, Tel: (0274) 601423.

STUDIOMASTER Series 2, 16:16:2 mixer with MIDI muting, little used, boxed, £2900. Tel: Halifax (0422) 351141.

TASCAM 38 recorder, excellent cond, boxed, £1000; Akai S612, excellent disks, editing software, £300. Andrew, Tel: 01-675 2848.

TASCAM 38, remote, punch-in, DX4D dbx, demagnetiser, Studiomaster 16:8:2 mixer. Manuals, boxed, all excellent cond, £1900. Tel: 01-842 2755.

TASCAM 38, vgc, spare motor, £1050; TR707, vgc, £195. Matt, Tel: (0455) 615466, days or (0455) 613048, eves.

TASCAM 44, 4-track reel to reel, DX44 noise reduction, remote, £350; AKG C451E/CK1 condensor mic, £80. Tel: 01-842 2755.

TASCAM MS16 1", Seck 18:16:2, never used, boxed, £5500. Quick sale. Tel: 061-273 8581.

TASCAM PORTA ONE, PSU, perfect cond, £235 ono; Roland TR707 drums, boxed, immac cond, £215 ono. Paul, Tel: Leeds (0532) 865197.

TASCAM PORTA TWO, boxed, manuals, £400 ono; Korg EX800, £120 ono; Steinberg Twelve, £75 ono. Tel: (0527) 403165.

VESTA FIRE RV1 reverb unit, rack mount, £50. Dave, Tel: Bradford (0274) 390618, eves.

VESTA MR30, 4-track portastudio, vgc, unboxed, £130 ono. Marcus, Tel: 01-852 6662.

YAMAHA PSS680, as new, boxed, £150 ono; Teac 144 portastudio, excellent cond, £225. Tel: (0923) 721550.

YAMAHA REU7 reverb, £400; Korg DRV2000 MIDI reverb, £250. Both superb, boxed. GBS, £25. Tel: 01-842 2755.

AMPS

AMCRON DC300A rackmount, power amplifier, flightcase, recent full service, £350. Tel: 01-675 0651.

ROLAND keyboard, Cube 60, £175;

Carlsbro Stingray, 150W amp, chorus and reverb on footswitch, 6 inputs etc, £150. Tel: 01-237 3653.

PERSONNEL

CHRISTIAN guitarist seeks to form or join local Christian group. Derek, Tel: Bagshot (0276) 76495.

CREATIVE MUSICIANS require competent vocalist/lyricist. Dedication essential. Tel: 021-422 7220.

GREENGATE DS3 USERS!!! The user group doorway is open to all. Free membership. Chas, Tel: 01-584 6733, days or 01-360 1348, eves.

HOUSE MUSIC band need female vocalist, good soul voice and look essential. Tel: Durham (0388) 819913.

MUSICIANS required to start avant-garde/concrete music "band". Write (enclosing SAE): Lucian, 56 Thurlestone Road, London SE27 0PD.

SYNTHESIST wanted to form electronic band with style, flair, individuality and ambition. Tel: Southport (0704) 64355 or 29896.

YOUNG MALE seeks studio work in London. Experienced in 16-track recording and MIDI. David, Tel: (04024) 74565.

MISC

AMPEX 456, 1", used once, 2 reels for £35 ono. Bulk erased for that 'as new' blank hiss. Tel: (0255) 434217.

CASIO PG380 MIDI guitar synth, over 200 sounds, as new, never gigged, black, £800 ono. Tel: P'boro (0733) 233543.

CASIO RA100, 4 RAM cards, £20 each; Roland D10/D110, 2 ROM cards, £35 each; Roland PG10 programmer for D10/D110, £90. Tel: 01-237 3653.

FENDER MUSTANG, 6-string, November 1964, serious offers only. Alan, Tel: (037976) 670.

GIBSON SG solid bass copy, CW, hardcase, Sharp stereo tapedeck. Offers, swap Boss rack-FX. Tel: (0203) 31808.

GIBSON SG guitar and case, ten months old, perfect cond, £350. Tel: (0621) 854659.

JHS BASS BOX, effects unit, headphone amp, boxed, PSU, £95. Tel: Sussex (0273) 493659.

MAGS Over 100 magazines, 1987 onwards. Music Technology, H&SR, SOS, Keyboard. Offers. Tel: (0384) 895958.

PHILIP REES 5x5 MIDI switch, £50; 640 TX81Z sounds, £15. Wanted: K1R! Tel: (06333) 65758, eves.

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YAMAHA CX5, SFG05 module, DX7 FM editor, music composer, large keyboard, Bit-2, goodies, £150; Yamaha EMT10 expander, nearly new, £180 or £300 together. Martin, Tel: (0353) 666756 days, (0223) 833436 eves.

YAMAHA REX50 effects box, boxed, manual, hardly used, £200. James, Tel: 01-734 4664, 9am-5pm.

YRM501, £10; YRM502, £10. Swap K1M and PC100, MIDI/Cont for S700. Jason, Tel: (0525) 717557, 5-7pm.

WANTED

AKAI S700, SL203 chorus and ensemble set needed. Tel: 041-558 8831.

ATARI 520ST, must interface with ordinary television, price around the £150 mark, London area preferable. Michael Morgan, Tel: 01-238 3152, days.

CARDS for Yamaha YS100, House, Acid, Techno drum sounds only. Tel: (0625) 829462, after 6pm.

CASIO RZ1 and manuals! For Korg DDM110 drum machine, Sony TC337 reel to reel, Phonic SM1000 4-channel mixer, 2 Sharp 10W speakers. Urgent!!! Peter, Tel: (0621) 772 923.

CHEAPISH bass foot pedals, buy or swap. Also delay, sustain pedals. Tel: (0803) 353.

C-LAB CREATOR, cash waiting, no pirates. Dave, Tel: (0639) 843372.

IS THERE a Roland D10/20/110 user group out there? Anyone interested? Tim, Tel: (0621) 892682.

KAWAI K1, K5 Cash waiting. Mike, Tel: (0337) 31172.

KORG M1 keyboard wanted, doesn't need to be boxed. Phil, Tel: 051-546 0314, after 6pm.

KORG M1 workstation, must be excellent cond, cash waiting. Jon, Tel: (0332) 840910.

KORG PSS50 super section, also bass foot pedals, preferably MIDI. Tel: (08083) 353.

S700/X7000 owners to swap samples. Write: Nigel Craig, 66 Windmill Road, Bangor, Co Down, BT20 5QT. Northern Ireland.

SEQUENCER: Kawai Q80, Korg SQD8 or similar. Also MIDI merger. Jonathan, Tel: 051-427 2629 or (0329) 663048.

WANTED: remote keyboard. Declan, Tel: (0706) 341370.

WANTED: TX7, K1R, TR727, MS6 and voices, also Amdek (Roland) kits. Steve, Tel: (0652) 52854.

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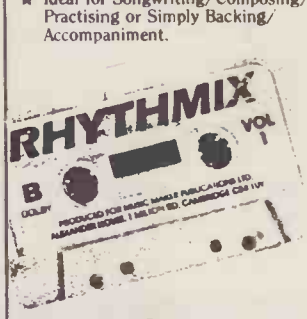

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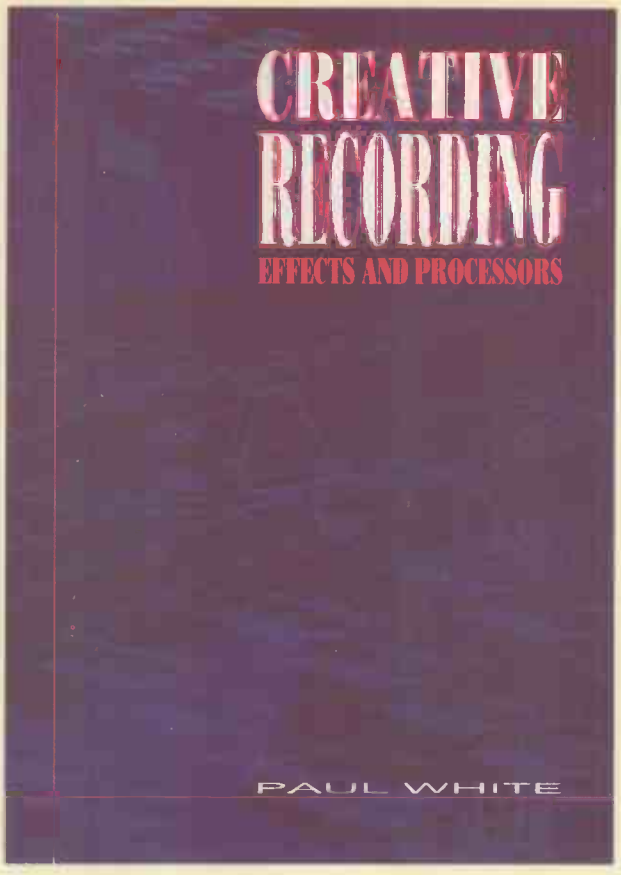

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