

MGSX

Maze

February 1985 95p

3D Maze Game Project

CHECK
Spectravideo Network
JVC

MORE
Beginners, Sound and Adventure Programming

PLUS
Over 20 pages of games listings



WIN
A Spectravideo 728

"I'M A TOSHIBA HX10. I'VE GOT ALL THE BEST BITS FROM EVERY OTHER HOME COMPUTER. AND MORE. I HAVE A 64K MEMORY, LIKE THE COMMODORE 64. A CASSETTE INTERFACE, LIKE THE BBC. TWO JOYSTICK PORTS, LIKE THE COMMODORE 64. A BUILT IN POWER SUPPLY, LIKE THE BBC. 16 USABLE COLOURS, LIKE THE ACORN ELECTRON. OVER 70 FULL STROKE KEYS, LIKE THE BBC. A CARTRIDGE SLOT, LIKE THE COMMODORE 64. A PRINTER INTERFACE, LIKE THE ORIC ATMOS. SOUND OUTPUT THROUGH THE T.V., LIKE THE COMMODORE 64. AN AUDIO/VIDEO OUTPUT CONNECTION, LIKE THE COMMODORE 64. RF BUILT IN LIKE THE BBC. AND: A SEPARATE 16K VIDEO MEMORY, UNLIKE MOST NON-MSX COMPUTERS. 32 SPRITES, MORE THAN MOST NON-MSX COMPUTERS. AND I USE MICROSOFT EXTENDED BASIC, LIKE EVERY OTHER MSX COMPUTER."

"WOW. WITH A SPECIFICATION LIST LIKE THAT. NO WONDER YOU'VE GOT A 64K MEMORY."

You'd expect one of the best-selling home computers in Japan to have a specification list as big as its memory. But the Toshiba HX10 doesn't just limit itself to that. It was developed along with other Japanese home computers to operate

on one language: MSX. You can swap programs, games, cassettes, even peripherals like disk drives, printers, and joysticks: they're all compatible with every other MSX computer.

All of which makes MSX the system of the future.

So if you want a computer that won't be obsolete in a few years, buy an MSX. If you want one of the best-selling MSX computers in Japan, buy a Toshiba HX10.

TOSHIBA **MSX**

FRONT

A and what did you get in your stocking for Christmas? I hope there was something MSXish lurking in the toe somewhere. Me? I'm happy with my genuine, hand-made, real balsa, oven baked, triple-blessed worry beads kindly given by a concerned friend. Executive toys? Who needs 'em. Things have certainly been hectic here. Bouts of editorial illness and Christmas panic combined to make the worry beads a necessity rather than the intended luxury. But, that's the way it is in the crazy, zany, go-ahead, action packed, blah, blah, etc, MSX User office.

Speaking of editorial policy (I was you know), we are concerned about the number of people within the industry who think that offering something (anything) for review guarantees the MSX User seal of approval and try to apply 'pressure' if it seems we don't like their product. No way, matey. You know who you are, you naughty people. Please note that we judge products on their merits only. If you disagree with us about something - write to us, as Yamaha have done on a number of occasions - great.

We're chuffed to be the first to have a dekko at the new Network MSX in this ish. The more the merrier as far as we're concerned. Talking of more MSX machines, it's good to see a number of British based companies trying the MSX hat on for size. I think we'll see at least three British MSXs before the end of the summer. Meanwhile, don't hold your breath waiting for the 16 bit MSX machines. Some publications are alluding to the possibility of an upgrade in the standard soon. Our sources say "No chance", at least not in this country. But, don't worry. Any news and you'll read it here first. Be an MSX User - don't let MSX use you.

Liz Coley

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REVIEWS

The New Panasonic CS-2700.

VIEWS

Sony UK's Mike Margolis in Profile.

NEWS

More on Oric and Tatung's plans for MSX.

Be Good. Be Seen. Be Clever.

MSX User. Substance with style.

At your local hypermarket and corner shop. February, Friday 8th, 1985.

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The new Mitsubishi

For those in the know

Anyone conversant with home computers will know precisely why MSX was worth waiting for.

The sheer proliferation of computer and software systems flooding the market loudly underlined the need for a unified standard.

So the major companies jointly developed a single computer and software system. The result – MSX – the format that will be standard for all time.

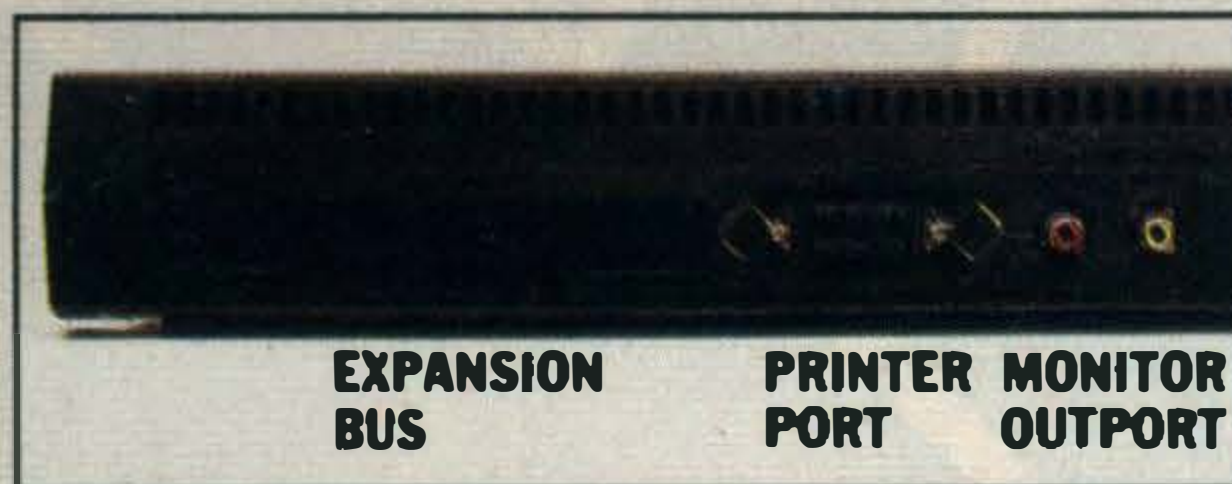
And those in the know will not be surprised that Mitsubishi are in the vanguard of the MSX movement. For, with the F-series, Mitsubishi offers everything that MSX is and more.

GRAPHICS

Maximum resolution of 256 x 192 pixels with all 16 colours available on the screen at the same time. 32 sprites in two sizes and two magnifications allowing easy creation of '3D' graphics. 255 pre-defined characters all of which can be used as straight text or easily mixed with graphics.



JOYSTICK AND CASSETTE PORTS



EXPANSION BUS

PRINTER PORT
MONITOR OUTPUT

SOUND

Three independent channels which can be output through the TV loudspeakers at any volume, individually or simultaneously, at any of the available 8 octaves. All three channels can use the 'noise' generator for stunning sound effects.

KEYBOARD

73 moving keys, ergonomically designed for many hours of fatigue free use. Large cursor control keys which are excellent for both programme editing and game playing. 5 function keys giving 10 pre-defined functions which can easily be redefined from 'BASIC' using the 'KEY' command.

BASIC

MSX BASIC is possibly the most comprehensive version of the original language. There is a complete set of commands for creating graphics and sounds, manipulating text and moving sprites. In addition to this there are 'built-in' interrupt routines for detecting sprite collisions, function key selections and joy-stick fire buttons.

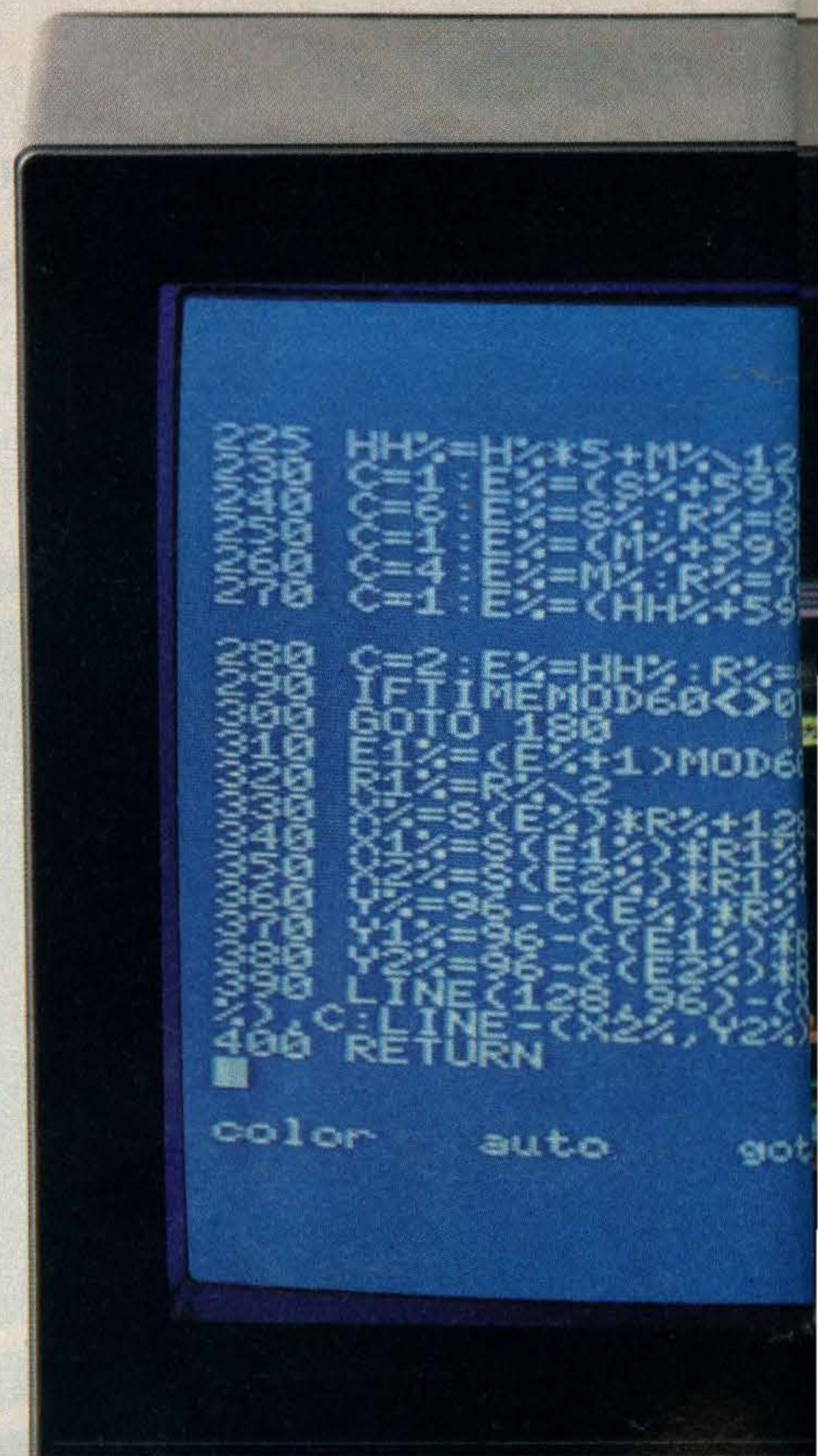
EXPANSION

The Mitsubishi 64k ML-F80 and 32k ML-F48 are both equipped with 2 cartridge ports, 2 joy-stick ports and a centronics compatible parallel interface. It is through these devices that the MSX system can be expanded for use with disc-drives, printers, serial interfaces, modems and other peripherals.

SOFTWARE ON CASSETTE

The MSX system can load and save data onto cassette at 1200 or 2400 baud and unlike certain other home computers, the Mitsubishi F-series can be used with a normal domestic tape recorder for this purpose.

When you put all of these features together, with the knowledge that Mitsubishi is the largest manufacturer of Mainframe computers in Japan, those in the know will immediately recognise the true potential of the Mitsubishi F-series.



Mitsubishi MSX Computers

For those who aren't

The Mitsubishi MSX family computer is everything you wanted to know about computers, but didn't know who to ask.

It's friendly, it's fun and so simple, a grown man can use it. Yet so versatile even his computer-versed children would be hard-stretched to over-tax it.

It operates with any colour TV set. Just plug it in, and the full power of the computer is instantly at your fingertips.

FOR FATHER

The Mitsubishi MSX can do many things, from keeping a simple check on the bank balance to running a complete business with customer account files, stock control programmes and word processing. It is just as much at home keeping control of your record or stamp collection or playing 'strategy' games such as chess, othello or contract bridge.

FOR MOTHER

There is the opportunity to store recipes and other household information or keeping record of the children's progress at school. Household accounts can also be recorded so that savings can be planned for holidays and other seasonal expenses.

FOR THE CHILDREN

There is education, particularly computer education. In a world where computer literacy is now of foremost importance, MSX offers a broad base of educational software. With simple programmes for the very young through to complex programmes for older students like language learning.

Also, the graphics system of the Mitsubishi computer ensures that the MSX versions of your favourite games are reproduced with incredible speed and accuracy.

Undoubtedly, MSX is the format for the future, and will become the byword for computer

education and entertainment.

And you can be secure in the knowledge that regardless of future developments, any investments made in MSX hardware, software and peripherals today will always be compatible with the Mitsubishi F-series.

So if you've waited until now to buy a computer, you couldn't have timed it more perfectly. Get to know one today.

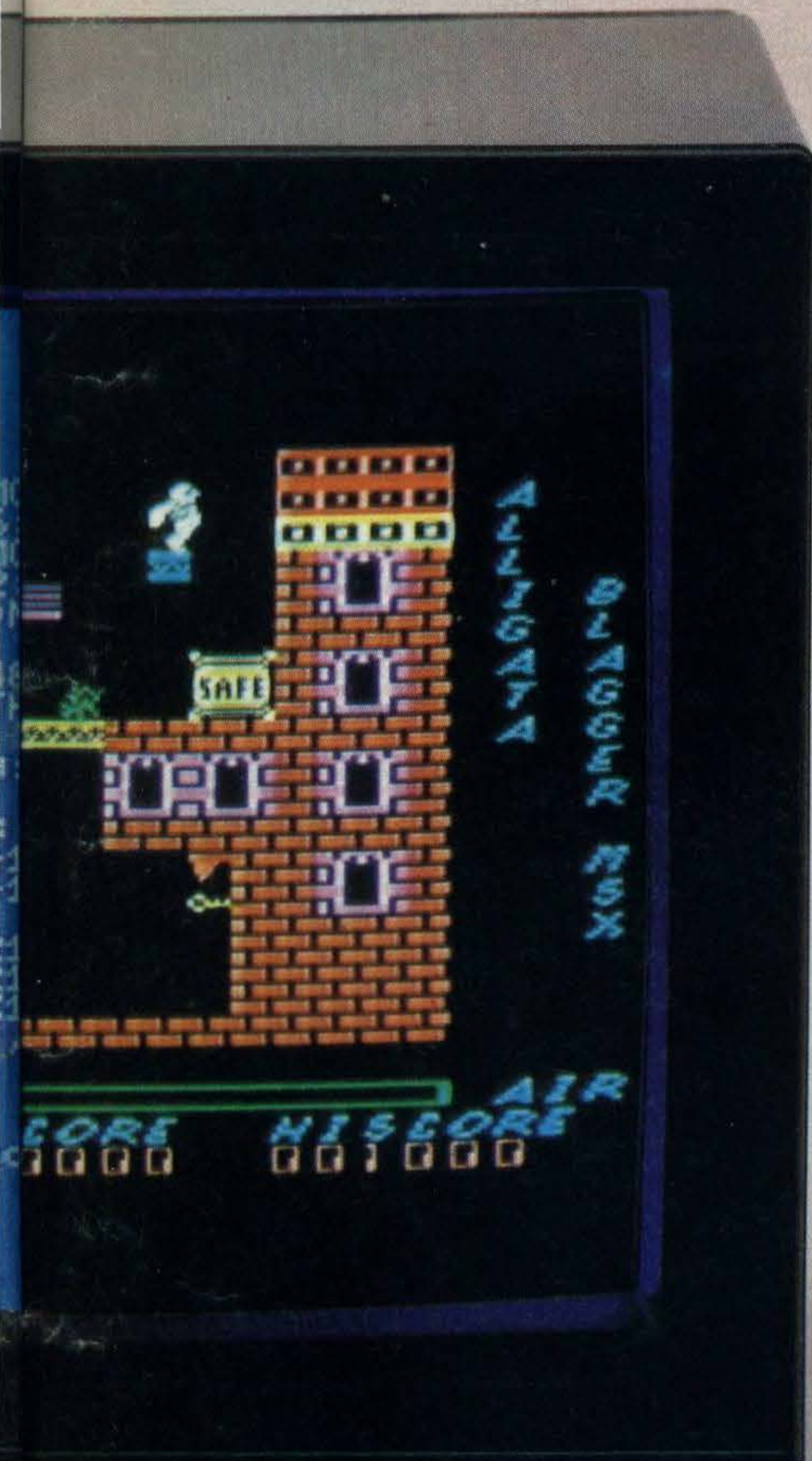


Mitsubishi Electric (UK) Ltd., Hertford Place, Denham Way, Rickmansworth, Herts WD3 2BJ. Tel: 0923 770000.

SPECIFICATIONS

CPU: Z80A (3.6 MHz)	Special keys for screen editing
Memory: ROM: 32 KB RAM: 64 KB (F80) RAM: 32 KB (F48) Video Ram: 16 KB	Sound: 8 octaves 3 channels for sound or 'noise' Output by TV sound or External Audio Amplifier
Screen Displays: *Text Mode: 40 columns x 24 lines *Graphics: 256 x 192 pixels Colours: 16 (15+ transparent) Sprites: 32 Output: RF, Composite Video	Cassette Interface: 1200-2400 baud Motor controlled by CPU Parallel Interface: Centronics Joy-Stick: 2 x 9 pin connectors Rom-Cartridge: 2 x 50 pin connector
Keyboard: 73 moving-key keyboard 5 function keys Cursor control keys	

*Subject to Scan of Monitor



ML-F80



ML-F48



MSX

MSX

INSPECTRAVIDEO



Karl Dallas goes all the way with Spectravideo's real MSX range.

Address: - Spectravideo (UK) Ltd., 165 Garth Road, Morden, Surrey SM4 4LH.
Prices: - SVI - 728 MSX Personal Computer £249.95
SVI - 707 5¼" Disk Drive £345.36
SVI - 72 80 Column Card £112.00
All prices include VAT.

It's nice to welcome an MSX machine at a reasonable price that also includes all sorts of nice little extras: like a numeric keypad with its own multiply, divide, add, subtract, ENTER and dot and comma keys, plus keys with intriguing legends on them like CUT, COPY and PASTE. The bad news is that the legends don't mean anything until the right software comes along, but it certainly shows promise!

To call this a budget machine can be somewhat misleading, as although it costs less than £250, there is no sense of anything being skimped. In fact, with its professionally-raked "proper" keyboard and solid feel, it should put to rest the Mickey Mouse image that some of the snootier people in the business are trying to land MSX with.



It came to me with three extra goodies, two of which should be on sale round about now: an 80-column card that really produces 80 columns of readable type on a decent monitor, and a disk drive, which includes CP/M, the most widely used professional operating system in the world, as well as MSX-DOS in ROM.

The third goodie, which is on its way but nobody can say exactly when and how much, was Wordstar which really proved that the 80-column card can be used for proper word processing. I'll own up here and now that I'm not crazy about either Wordstar or CP/M, and anyone who's got used to the sweet screen-editing facilities of MSX may share my antipathy, but on the other hand I've got to admit that those millions of users of both CP/M and Wordstar can't be entirely wrong.

What both software items proved, though, was that with this machine the distinction between professional and home users of MSX machines will disappear entirely, because this is a machine at a home user price with a proper professional capability. Of course, it will cost you the best part of a grand to get it with all its bells and whistles, but it'll be worth it.

SVI-728 personal computer

The basic machine comes in a businesslike IBM-colour cream with grey keys in a case measuring some 16in by 8½in deep and 3in high. It has one top-mounted cartridge port, placed right in the middle, with an expansion port at the back, along with the usual cassette, printer, RF and video and audio sockets. The two joystick sockets are on the left. On the right is a socket for the mains adaptor and the on-off switch.

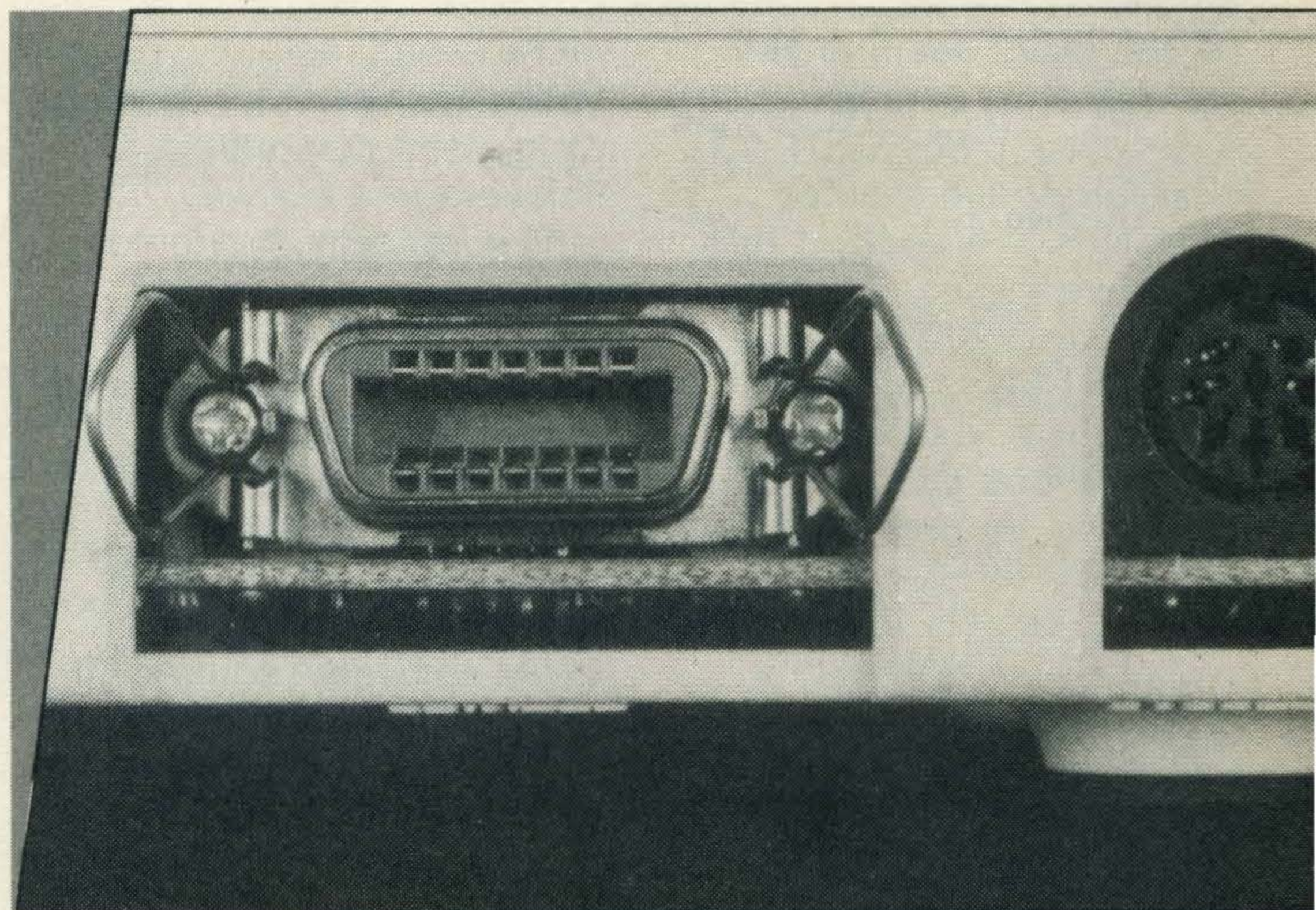
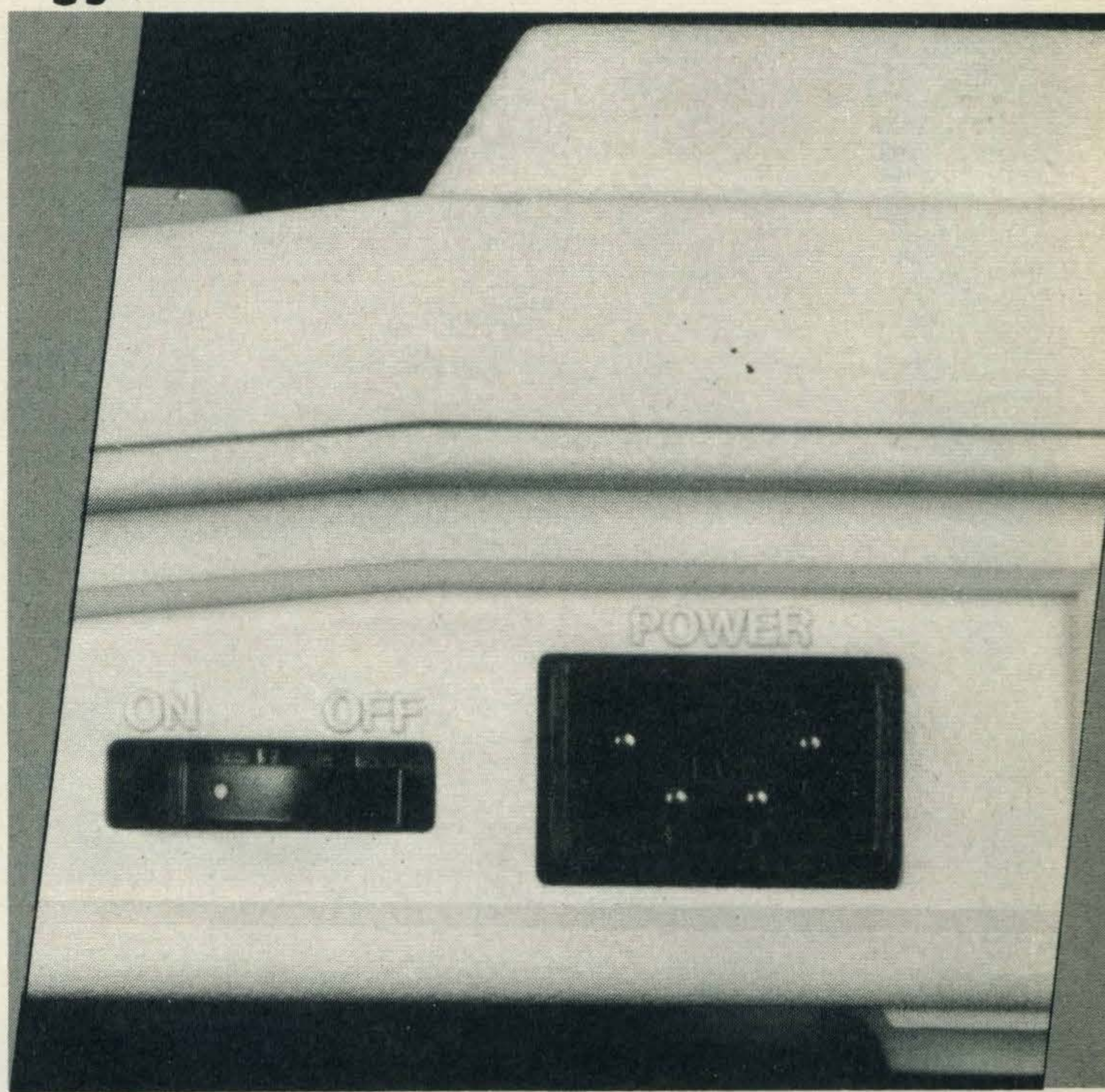
Here's the first bad news. It requires a hefty transformer to drop the mains power down to the voltage required, which adds to the tangle of cabling. What's more, the machine seemed to run rather hot despite having its power supply housed separately, and the power socket didn't seem to fit too well, coming adrift rather too easily for my taste.

Interestingly, the off/reset switch that was incorporated into the cart port in the first Japanese MSX machines I saw seems to have been retained here, so that you don't need to turn the machine off to insert a cartridge. If you push open the door the power is cut off automatically, providing a handy reset facility, since the machine doesn't have a proper reset button.

As this was an early pre-production model, I wondered if this might be changed by the time it gets on to the market, but I understand this is how it's being sold.

The right key

The keyboard has a nice professional feel to it, as I've said, though the keys did rattle a bit. There are 90 keys in all: 66 on the main keyboard, and 24 on the numeric keypad, which also incorporates the cursor keys and the CLS/HM, INS and SELECT keys. The function keys are double-sized and clearly labelled, being placed along the top left-hand edge of the keyboard.



The STOP key is quite wide, but with a normal-sized top, so it is effectively isolated from the function keys and the backslash and accent keys, which are also above the keyboard. The backslash key has been moved up to make room for an oversized backspace key (marked with a big leftward arrow). The GRAPH and CODE keys are on the left of the space-bar. The CAPS LOCK key is on the left of the left-hand SHIFT key.

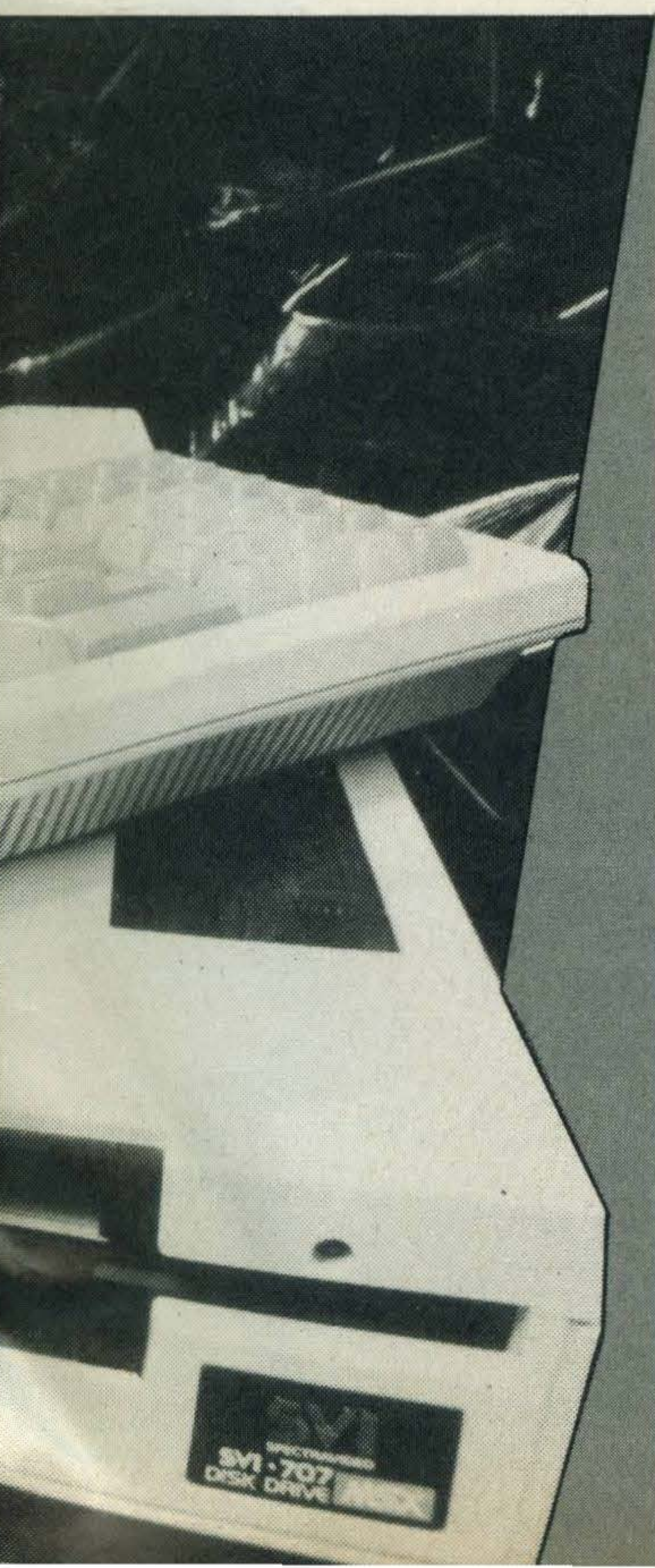
I should think professionally trained typists would prefer this keyboard to any other MSX machine's. Actually, I think it's nicer

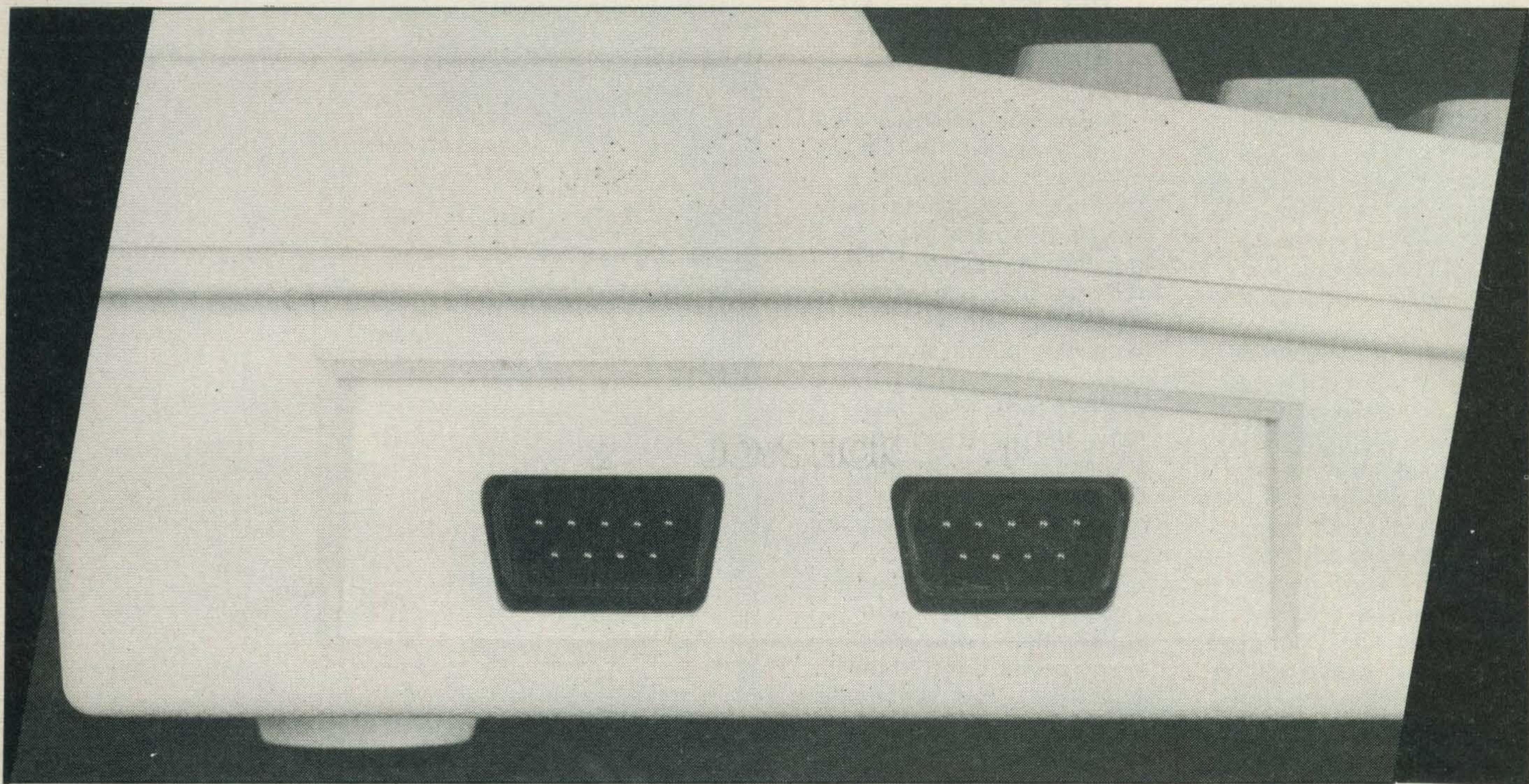
than IBM's (but then I don't think the IBM PC keyboard is a patch on the old Selectric of fond memory...)

SVI-707 disc drive

It may surprise those who have seen Sony's 3½in disk drive to discover that the Spectravideo uses a 5¼in drive, and in fact there is no MSX standard for disk drives, so 3in, 3½in, 5¼in and 8in drives are all likely to be available.

In addition to the main Wordstar program, plus two overlay program, there were five CP/M utilities on the disk: D1COPY for copying files on a single-drive system





(which didn't seem to like the use of an asterisk as a "wild card"); SYSGEN, for transferring the system programs to a back-up disk PIP; a very useful copying and computer-to-computer utility; STAT, for reporting on the status of a disk (amount of space free etc) and FORMAT, for preparing a blank disk for use, or erasing old data for re-use of a disk. There was also a program called MSXDEMO which didn't work.

Actually, the only copying program that seemed to work was D1COPY, which successfully transferred all the files to a new disk, with a certain amount of inserting and removing of source and destination disks, as is usual with single-drive copying. But it worked rather faster than most drives I've had to work with, on Commodores, IBMs and Apricots, FORMATting the 40 tracks of the new disk in less than as many seconds, and READING a file to be copied seemingly in nothing flat. The disk drive was a bit noisy, and again, it needed a separate transformer.

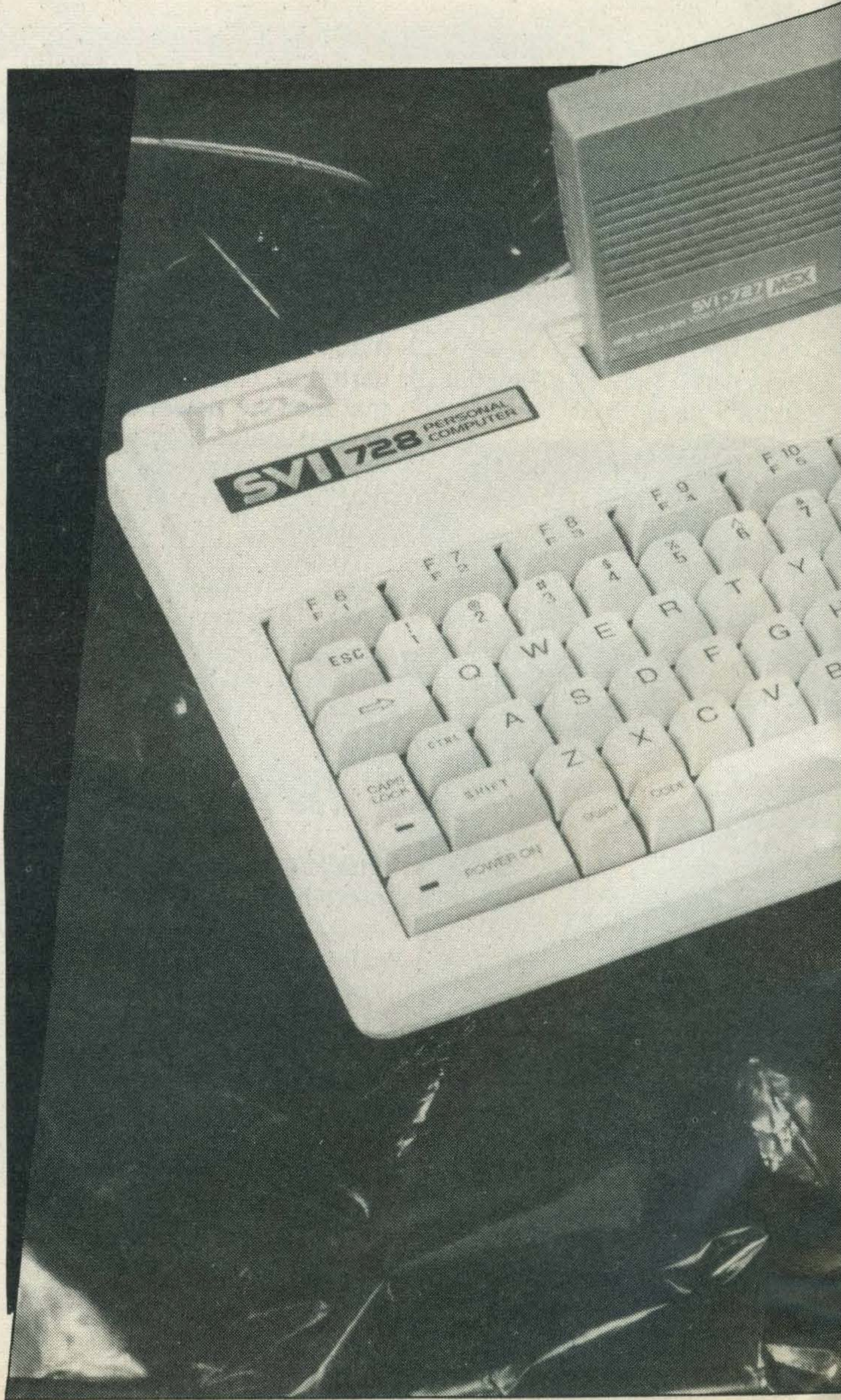
It was told it had MSX-DOS in ROM, but when I powered-up without a system disk in, I got MSX Disk BASIC, which is rather

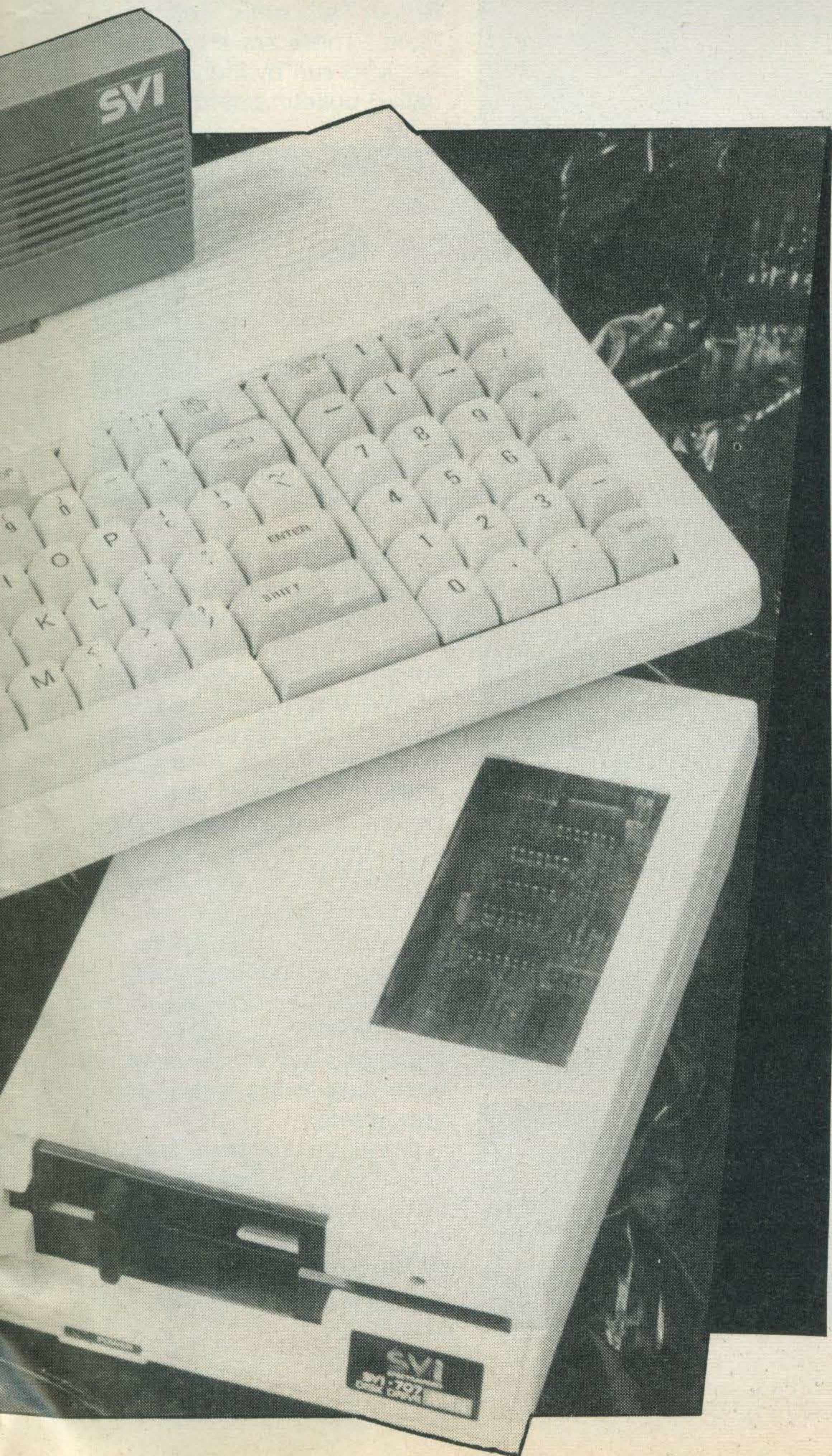
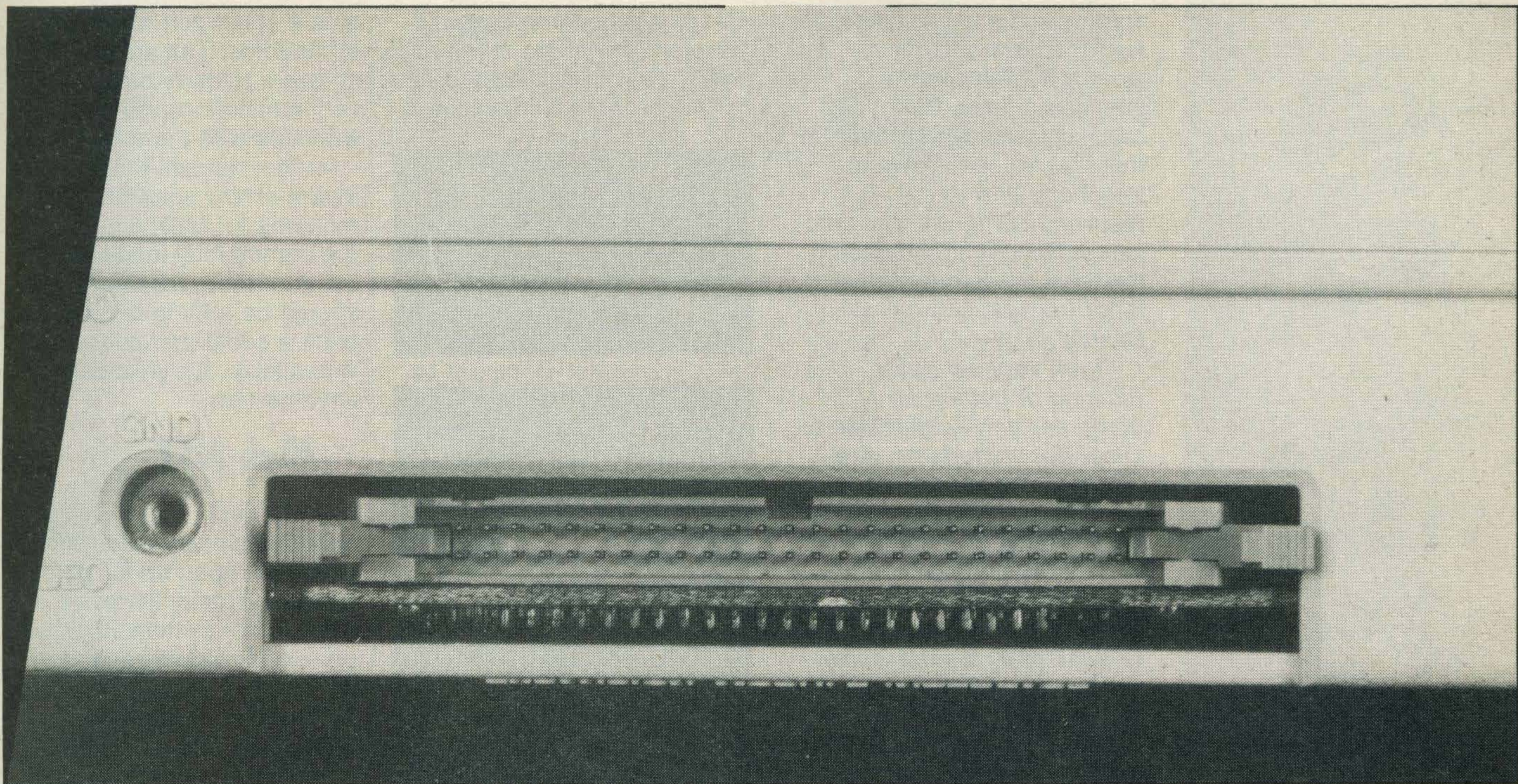
more useful, actually, unless you're going into producing disk-based commercial software in a big way.

Theoretically, it should be possible to LOAD CP/M without the 80-column card, but it wouldn't work. I gather this is a pre-production glitch, and will be cured by now – but anyway, 40-column CP/M is pretty useless, since virtually all CP/M software requires 80 columns, as the luckless purchasers of the CBM 64's CP/M cartridge have found to their cost.

There seems to be no way of daisychanging another disk drive on to the first, though I'm told to expect a two-socket adaptor for the expansion port before long, which may make this possible. This may also make it possible to port across your favourite software from another machine (but not from your friend's machine, of course, since this is illegal).

As this is a "smart" drive, it was nice that one didn't have to plug in a huge disk controller cartridge into the computer to it. Incidentally, the disk drive wouldn't work when I plugged it into another company's machine, which can't be right, surely?





SVI-727 80 column card

Theoretically, if you run an 80-column card into a colour monitor (as I did), the text should be virtually unreadable, since the resolution of a colour screen is not really up to it. What you need is a proper green or amber screen monochrome monitor.

However, I'm here to tell you that I did use a colour monitor, and it worked a treat after I juggled with the brilliance and contrast controls. If I didn't hate Wordstar so much, I'd be quite happy working several hours a day on it.

The display is monochrome grey with white letters, which is in many ways preferable to the green-on-black you'll get on most phosphor monitors.

The Wordstar version was a full implementation (though without MailMerge or Spellstar) and though it used a couple of disk overlays for things like help screens, because this disk is quite fast there was no particular hang-up.

Why do I hate it?

Well, for a start, why couldn't they make the

single-letter commands easier to remember? **X** to exit back to the system, **P** to print a file, **D** to open a document file and **H** to set the help level is reasonable. But **E** to rename a file? **O** to copy a file? **Y** to delete a file?

CTRL + J spells HELP!?

Help, indeed!

Still, it's a powerful program, and my experience is that once you've mastered any WP program you stop thinking about how awkward its commands are, and they become like second nature.

If the price for the bundled Wordstar-plus-DataStar-plus-CalcStar-plus-ReportStar-plus-MailMerge package that's promised is at all reasonable, it should be irresistible for the semi-professional user.

The verdict

I like this machine!

The disk drive and the 80-column card are both valuable accessories, and any serious user would find them hard to live without. I assume the compatibility problem I encountered with a non-Spectravideo machine was a pre-production bug. I hope so, anyway.

communicating machines. And that in a nutshell is what a modem does. It converts signals from your own computer into a form that can be sent down a telephone line to the receiving computer and vice-versa. Now all this talk of modems leads me onto a letter from M. Linham of Bristol:

"I am very seriously thinking of getting an MSX computer and I would like to know about modems. Are the modems readily available in this country, or am I likely to wait ages before speaking to some other intelligent forms of life with MSX computers? Come to think of it, are there any modems available at all for MSX computers?"

One more thing, I think that your magazine is great! Keep up the good work."

Well thanks for the compliment, we do try! Now to your questions.

able to connect modems. Adaptors are being made at present to connect into the cartridge port which would

give a serial port to connect to modems. The appropriate software to carry out the communications will also be available with the adaptors.

At the moment I'm not aware of any specific modems for MSX but any of the commercial modems used on other machines should be able to be used once a serial port connection is available, which should be anytime now.

Mode MSX

Once into telecommunications a whole world will open up for you. Besides Prestel there are many other systems both for private individuals and commercial companies. One of the more expensive systems which is predominately commercial is British Telecom's 'Telecom Gold'. There are also many systems run by individuals called bulletin boards which

This month's advice column concentrates on modems. Firstly, what is a modem and what does it do? Well, most of you will no doubt have seen or heard of Prestel. It's a telecommunications system which allows people from the comfort of their homes or offices to obtain information directly from another computer. But it's more than just a database or information. Users with home micros can send electronic mail to other users of the system and also obtain software. All this is done for the price of a phone call! And this is where a modem fits in. To link a micro into the computer network a device is needed to transmit and receive the electronic signals passed between the two

Unfortunately MSX computers can't be directly connected to a modem. This is because a serial output port is needed, which the MSX machines don't have built in as standard. Messages have to be sent in serial code rather than parallel, as the latter would cause the messages to get out of sync at the receiving end. But don't worry! This doesn't mean you won't be

are the equivalent of a computerised Citizens Band communications network.

These systems also sometimes run multi-user games where many people can play role-playing games at the same time. One such game, MUD (Multi-User Dungeons) is available from a university mainframe network. The cost of using these systems varies, as some require subscription, though the bulletin boards are usually free. Finally, there is the cost of the telephone call which varies according to the time when you phone.

Computer communication is just taking off and as an MSX user you will not be left out. Time will tell but the modem may yet be the most valuable peripheral you purchase.

Each month, MSX User's agony aunt, Jeremy Vine (seems like a nice boy), solves your problems and heartaches. This month, modems and MSX - the perfect marriage?

Peter Green is first to plug himself into the Network machine, a low-cost MSX micro.

It's getting to be quite dull, reviewing new computers now that the MSX standard has arrived. Time was when all the micro manufacturers wanted to make their own mark on the industry and every new machine had a new BASIC, new ideas about what peripherals should be incorporated - oh, the fun we had, figuring out what was going on and writing it up. Nowadays, say MSX and you've said it all. Z80 microprocessor, Microsoft Extended BASIC, Texas video chip with 16 colours and 32 sprites, Centronics printer interface, standard Atari-type joysticks - you know the roll-call by now.

Consequently, a review such as this has to concentrate on the differences between the machines, which means the construction, appearance

and value for money. At £259, the Network is aimed at the lower end of the MSX market, so how does it measure up?

Hands On

The DPC-200 is rather more restrained in appearance than its more colourful brethren; the Toshiba HX-10 for example. The case is in matt black plastic and has similar lines to others of this ilk: a wedge-shaped keyboard with a flat area behind. The keyboard has no colour-coded keys: the alphanumerics are ivory, the cursor pad is light blue, and all the rest (control and function keys and the space bar) are light grey. The key layout is similar to most other MSX machines, with single and double quotes on a key near Return and Shifted-2 being an @. Personally I'm not keen on this, but that's only because

I was brought up on typewriters with quotes on the 2-key.

The keyboard has a rather rattley feel to it and might not fare too well with touch typists as the action isn't always positive and the machine sometimes missed a key press. Of course it's streets ahead of the Spectrum (even in its '+' incarnation), but I thought MSX machines were supposed to be suitable for business as well as pleasure. The second most important thing in a business machine is the keyboard (the first is that it should never break down!).

My first impression of the keyboard was that it was very badly finished, even though this was a pre-production version. However, it wasn't until after a little fingernail investigation that I realised the legends were simple rubbed-down Letraset. I think I'll be charitable and assume that production models will have decently printed keytops.

The CAPS key has a small red LED embedded in it to indicate when it is toggled on: a larger rectangular LED above the ESC key indicates power-on. The cursor keys are large and of the 'hot-



Address: Network UK,
Sutherland House, 70-78
The Broadway, London
NW9.
Price: £259 inc VAT

cross-bun' variety, being four triangular keys clustered to form a large cursor pad. Some people like this arrangement: I can never play games with the keys anyway, preferring joysticks, so I'm not in a position to judge. Finally, the function keys and some of the control keys form a line along the top of the keyboard. They're rectangular with bevelled front and back edges, resembling flat-topped Monopoly houses, and the SHIFted functions, if any, are marked on the angled front below the normal one.

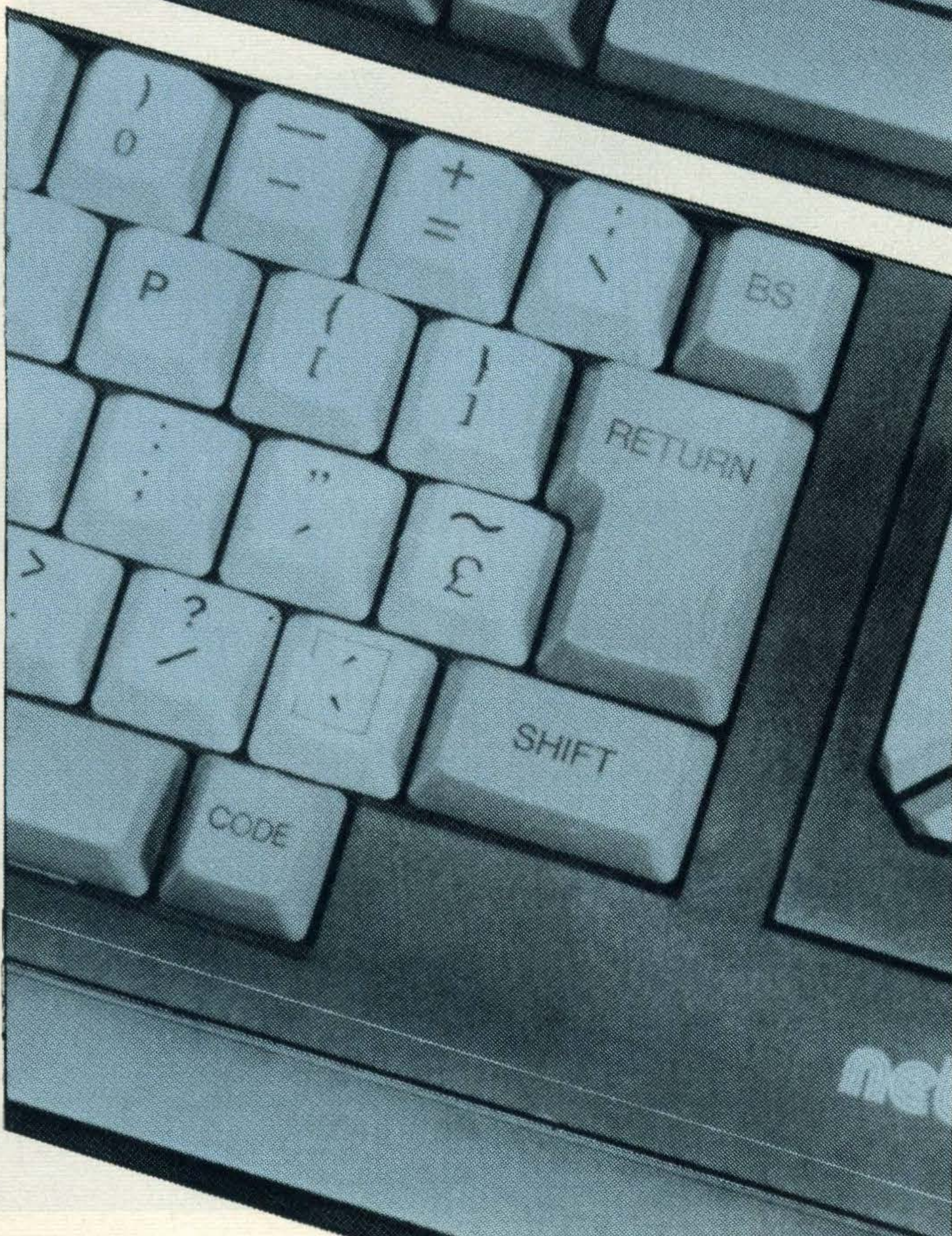
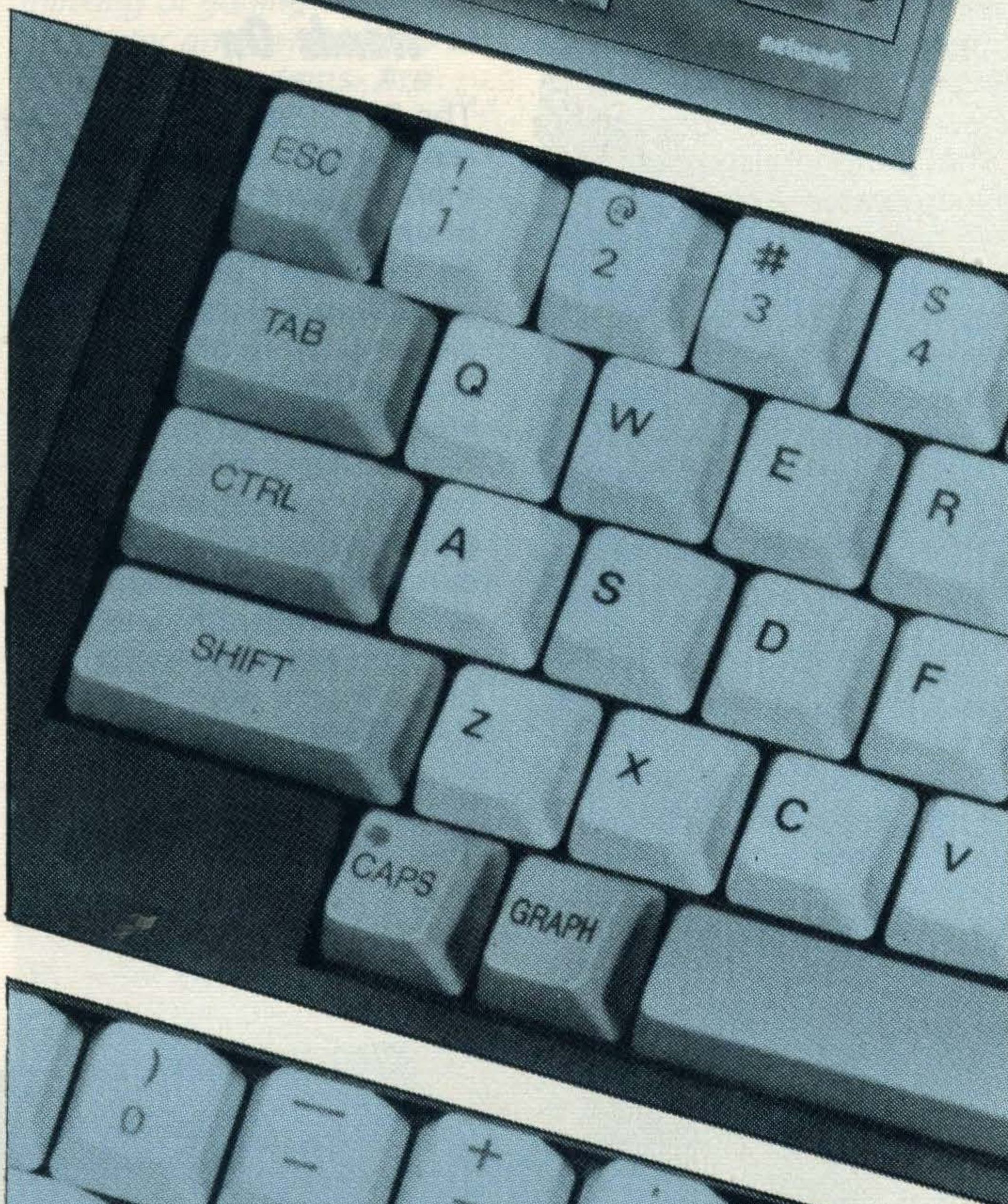
The MSX spec' has no standard position for the cartridge slot but, like most other manufacturers, Network have decided to put it at the top right-hand side of the computer, behind the keyboard. Normally it's covered by a spring-loaded plastic flap, and internally the cartridge cavity is totally enclosed so it would be difficult for anything dropped inside to foul up the electronics. For a quick RESET, you can poke your fingers in and flip the microswitch which normally cuts power to protect cartridges during insertion, rather than grope around on the left hand side of the case for the on-off switch.

The left side of the cartridge panel has the company logo and some cosmetic black ribbing designed to break up the lines and disguise the ventilation slots.

Side by Side

Apart from the on-off switch, the left side of the case is bare. On the right we have the two joystick ports (confusingly, port 1 is at the back behind port 2), plus the standard DIN connector for the cassette lead.

Moving along to the back panel I found that the pre-production machine had suffered a few 'adaptations' made with a Stanley knife and black insulation tape, but we'll stick with the bits that were left. Working from right to left in true Oriental fashion, we first find the mains cable to the power supply unit, which is built in. This is good. I hate separate



PSUs trailing cables everywhere. Further left we have the phono-type sockets for the sound and video output, and for the UHF TV output which, as usual, is modulated onto Channel 36.

Next we come to the 14-pin Amphenol connector which constitutes the Centronics printer port: one of those sockets with the nasty wire clips that stick out and are tricky to secure. Finally, we have the expansion bus, a large 50-pin shrouded type with the far more sensible plastic securing hooks which hinge home automatically as the plug is inserted. This is where you plug in all those lovely peripherals which are promised "any day now".

Inner Secrets

Wielding my trusty Philips screwdriver. I then delved into the innards of the beast. This was quite reassuring, with the PCBs exhibiting neat construction and no cut tracks, flying leads, after thought components or other bodes. The power supply seems well shielded and the video chip next to it has a large brass plate secured to it: though whether this is for additional shielding or a heatsink is difficult to say. All inter-board wiring uses plug-in connectors, so getting the thing apart in the event of a service should be no problem.

Conclusions

In use there is nothing to fault the Network on, nor is there anything to set it apart from other MSX machines. It meets the standard, with all that that implies. So as I pointed out earlier, judgment must rest on a comparison with similar priced machines. Unfortunately the Goldstar computer has rather better styling and a keyboard with a nicer feel to it, yet costs £10 less than the Network.

Perhaps I should feel guilty about putting down the Network, but it isn't really a British micro: simply a Korean one with a British badge on it. At £10 I suppose the difference is marginal: you pay your money . . .

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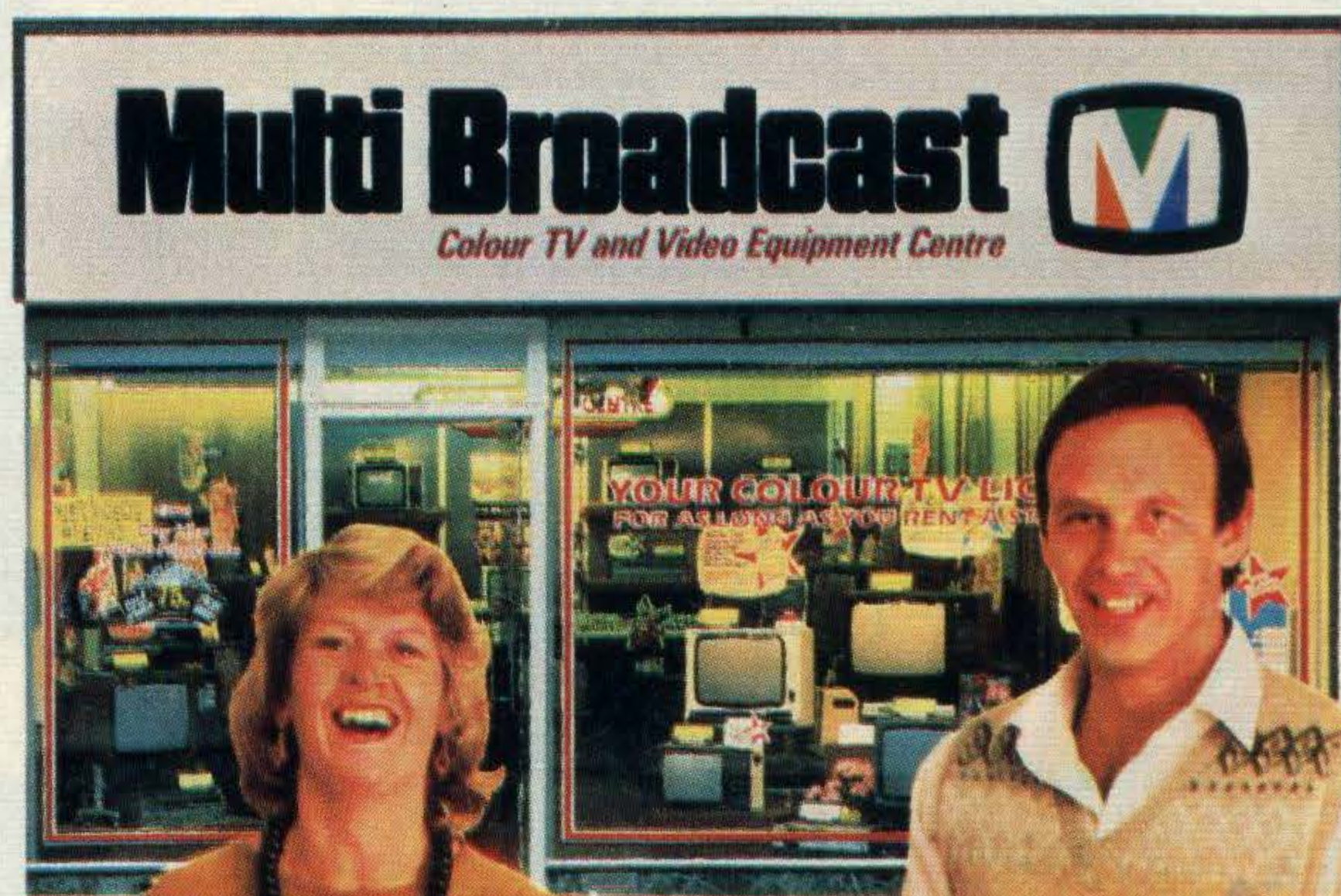
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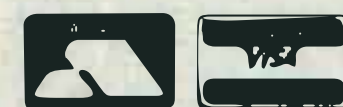
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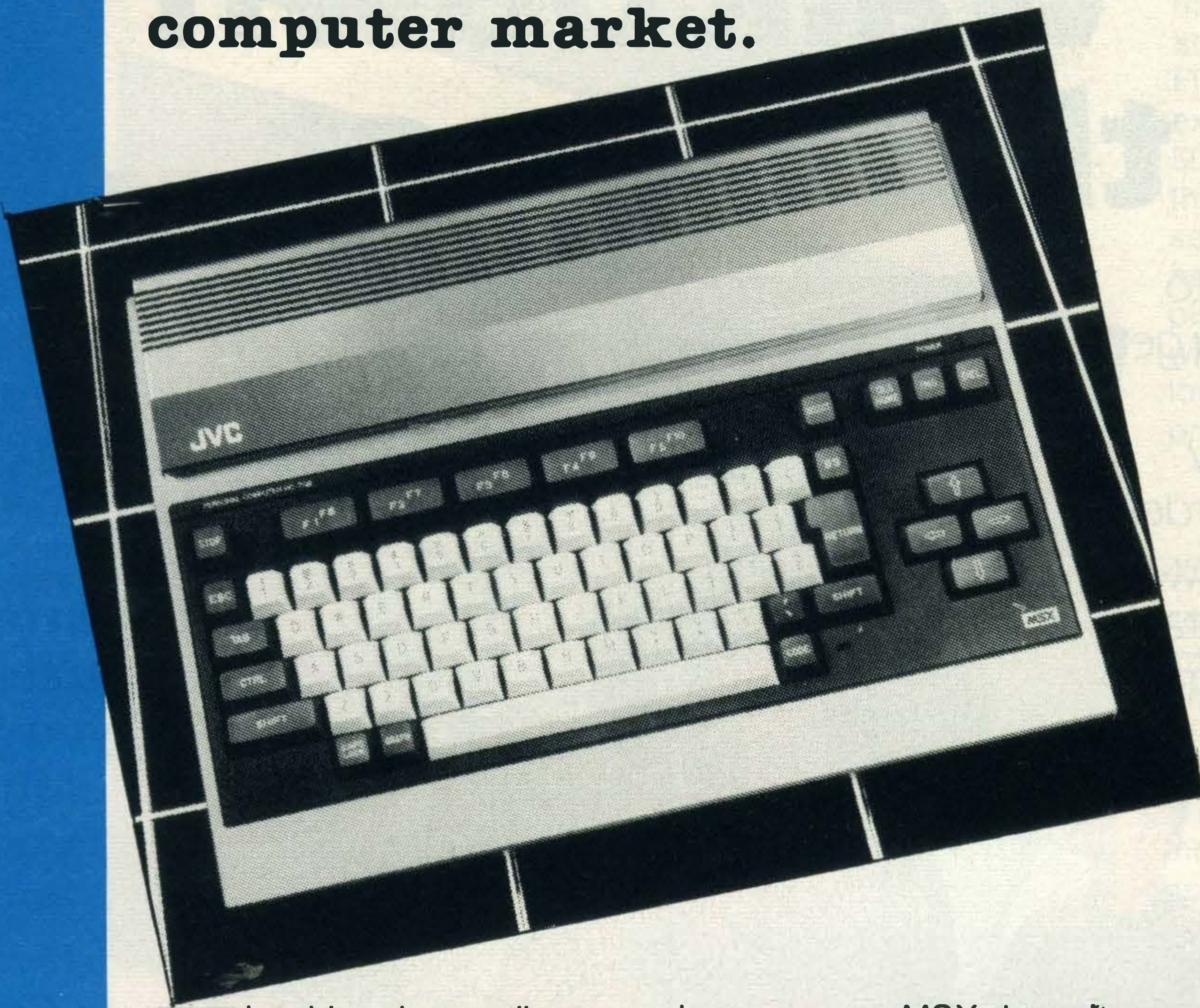
AS EASY AS

JVC

Address: JVC (UK) Ltd.,
JVC House, 12, Priestley
Way, Eldonwall Trading
Estate, Staples Corner,
London NW2 7BA.

Price: – HC-7GB Personal Computer £279
– HC-R10 Data Recorder £89.00
– HC-JC15 Joystick £12.95
All prices include VAT

Karl Dallas assesses's JVC's chances of taking over the computer market.



The thing that really excites me about the JVC range is the cassette recorder. But, I

hear you cry, MSX doesn't have anything to do with recorders. Any recorder will work with any machine, and

you don't need any special MSX recorder.

Yes, but ... In my experience, not every recorder *will* work, and it can be a pain in the proverbials, checking volume settings and record level settings and then finding it still gives you a hard time.

If only MSX included a dedicated data recorder in their spec!

Well, they didn't, but this JVC recorder is the next best thing. It's not cheap, of course, and most people who already have some kind of cheap recorder about the house will probably reckon that nearly a ton is too much to spend on it. After a few frustrating months of unsuccessful LOADs and SAVEs, they may change their minds. Or they may chuck the entire kit out of the nearest window in sheer desperation. Or they may decide it's a worthwhile investment, after all.

The Data Recorder

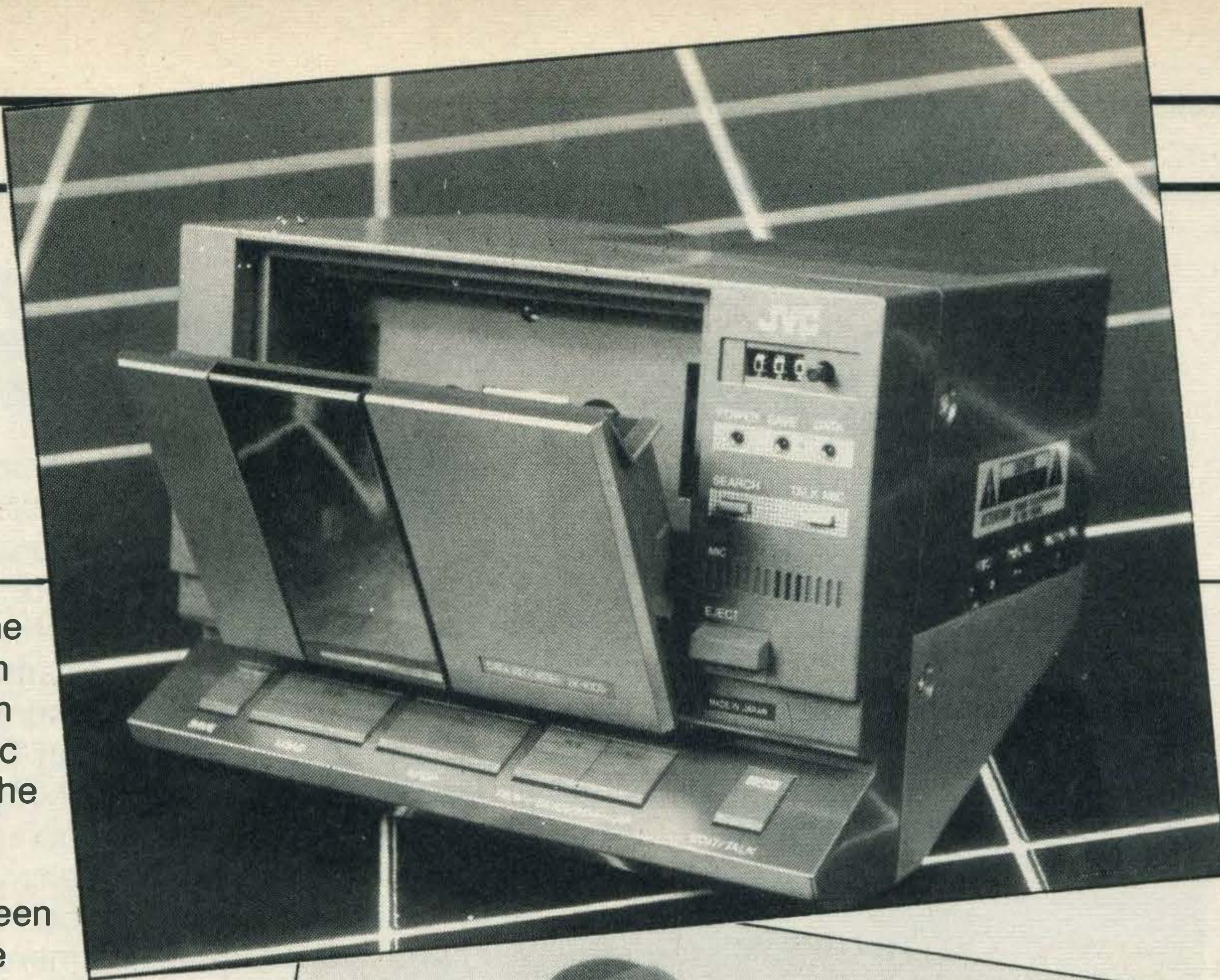
What makes it so special?

It's a nice solid piece of gear, with a footprint just over 7in square, standing about six inches high. It's not entirely intelligent, so it can't be used for random access like a slightly slow disk, but it's smarter than most.

You plug the usual three leads into its rear – red into mic, white into ear, black into remote, as usual – and you can treat it just like any common-or-garden recorder. But that would be a waste, because it's got a really neat "search" function.

You press the little green button marked "search" followed by the fast-forward or rewind and it'll look for the next program on the tape and then wait, until you input the LOAD "CAS:" command from the computer keyboard, to LOAD properly.





It does this in the same way as the auto program search facility you get on some of the pricier music centres, by listening to the tape as it whizzes by, waiting for a blank bit to indicate the space between the last program and the next. There's an "edit" button you can press (about four seconds is the best time) to make sure nothing is recorded in this all-important space, to allow the search to do its work. As an additional little wrinkle, there's also a built-in microphone, so you can give each program a little audio identifier, too.

There are two playback volume controls. One, called Monitor Vol Control, adjusts the audible squeal of the program on the tape, or your announcement. The other, called LOAD Vol Control, actually adjusts the level going into the computer. Setting 8 seems to work just about fine. There's also a phase switch for those awkward tapes that just won't LOAD - though I'm afraid I found they still didn't.

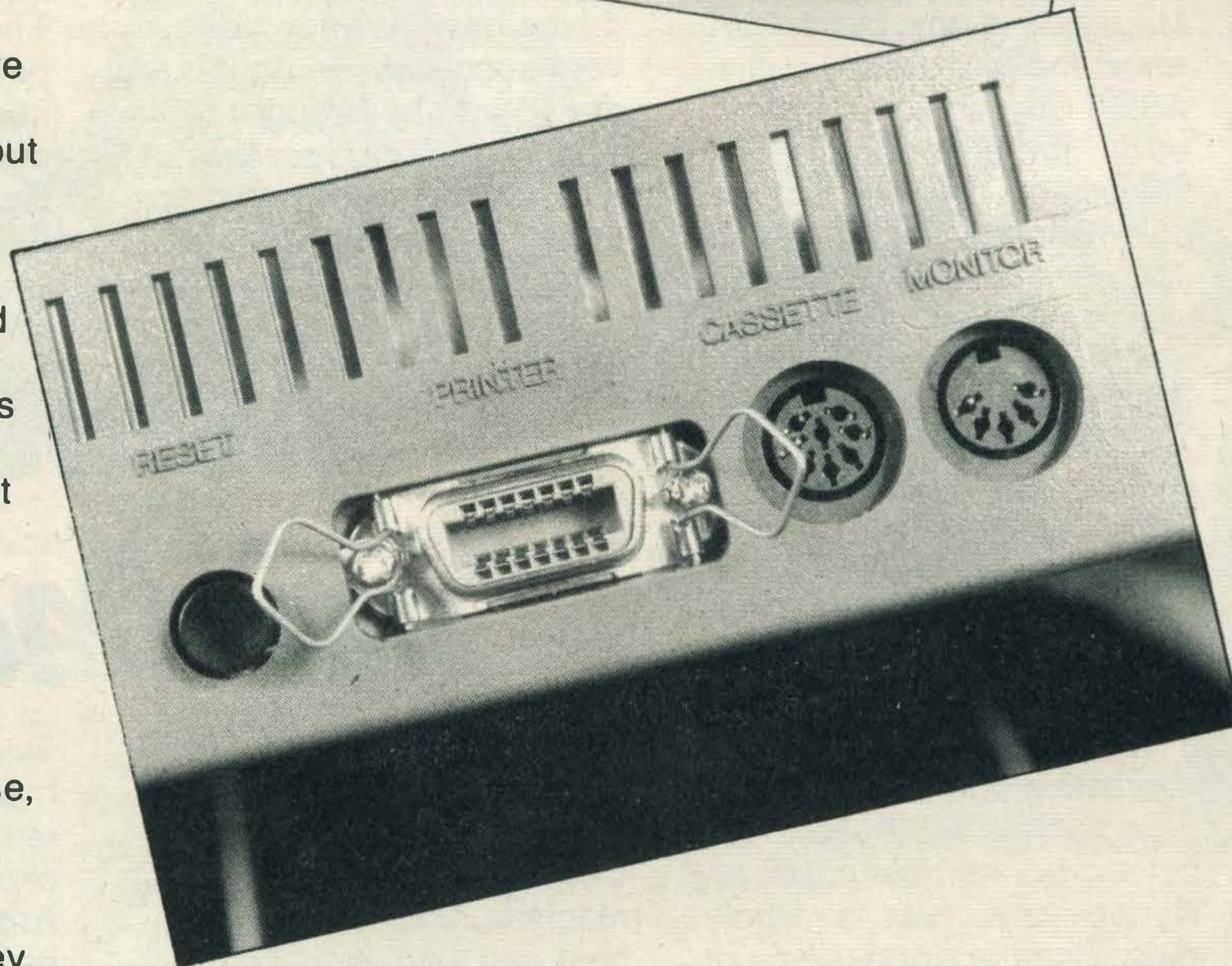
The transport controls are those nice, electronic kind which only need a gentle but firm pressure to set them working. There's a tape counter, different coloured LEDs for power, SAVE and DATA (ie LOAD), and an eject button which operates a smart hydraulic door.

Another nice thing is that you don't have to input a MOTOR Command or disconnect the remote to operate the fast forward or rewind functions, though LOAD is entirely under computer control. Of course, the recorder will also work equally well with non-MSX computers.

A real recommended key.

The Computer

Oh yes, the computer. Well, it's rather nice, too.



In many ways, it's bog standard, just strongly and efficiently put together, with two cartridge ports - one on

the right-hand side and one on the rear - the only really remarkable thing about it being the fact that it has an

RGB monitor output as well as the more usual composite video and RF vision sockets. The composite video is a 5-pin DIN socket, shared with audio out.

Both cartridge doors have micro switches that reset the computer when they are opened. The machine also has a reset switch at the back. Good stuff.

The livery is silver grey body, black keyboard panel and function and editing keys and light grey alphanumeric keys. The function keys are really large, and clearly labelled, the STOP key is set sensibly away from the rest, and the cursor control keys, though not huge, are a handy chunky size. The two joystick ports are on the left-hand side.

In short, this is a rather nice machine, with a friendly, business-like keyboard that's well worth the price.

I'm not sure how many people will use the RGB option. I found the composite video output level a little low, so if you have an RGB monitor, this (or the Sony, the only other one with RGB output that I have seen) should be for you.

But make sure your budget'll extend to the data recorder.

The Joystick

The joystick is nothing extra special. Indeed, it looks and feels identical to the Toshiba joystick. In general, I find I prefer non-MSX joysticks - apart from, of course, the super-luxury Sony job that looks as if its been nicked from a jet-fighter. But then, that costs you £20.

There's nothing about this one that makes it better value than the superb Quickshot at about £4 cheaper, and like most other MSX joysticks I've tried, its action was a bit stiff.

Stop Press.

Toshiba have started the first MSX price war. The HX-10 will now retail at £239, making it cheaper than the Gold Star, the previous best buy. Market reaction should be interesting. Meanwhile, well done Tosh.

Stop Press II

Micxrodealers have responded by reducing the retail price of the Gold Star to £199. Great stuff!!



MSX Magazine (who?)

Yep, we admit it. There is another MSX magazine besides *MSX User*. It might even be pretty good. Might, we say, because the magazine in question is in Japanese, a language with which neither of the editorial team are familiar. *MSX Magazine* is now in its 13th issue and is the work of the **ASCII Corporation**. The editor, the ravishing Junko Takashashi dropped into the editorial office to see how the Japanese invasion of Blighty was going. Despite having to communicate through an interpreter, the omnipresent Tom Sato, we managed to convey vivid scenes of the home computer industry being swept aside by overwhelmingly superior forces, which ain't necessarily so.

The magazine makes interesting comparison to your humble *MSX User*. All colour, but horrible paper and layout which gives the whole magazine the appearance of one continuous advertising supplement. Oh yeah, the cover's on the wrong end too. Now, if it was in Hebrew we could understand...

Soft Sell

The CDS range of language learning programs have now been converted to MSX. "French is Fun" is one of three programs included with the Toshiba HX-10 up to the twelfth of January. The program normally retails at £7.95, as do its counterparts, "Italian is Fun", "German is Fun" and "Spanish is Fun". We await "Japanese is Murder" with interest...

Meanwhile, back in the ASP soft cell, Kuma have released "Superchess", yet another addition to their burgeoning catalogue. Graphics are claimed to be excellent and there is a Recommended Move function. "Superchess" is out now and costs £8.95, but if you want to play it safe we'll be passing judgement next month.

Over at PSS, Mike

Simpson, the programmer responsible for 'Swords and Sorcery', has released further details of his forthcoming adventure game. It'll contain 86 monsters, 635 locations, and an 800+ dictionary, almost 2,000 objects... God, this is boring... and (it says here) in excess of 4,000,000 ways to be insulted which is even more than the editor knows - a real feat of programming. Initially available for the Spectrum only, an MSX version should be in the shops later this month. Retail will be £9.95.

Message to **Quicksilver**. If you're going to send us press releases for publication, try and make them interesting. Otherwise they'll go straight in the bin like the last one (Who got out on the wrong side of the bed this morning, then? - Ed).

Quick Decision

Quick Disks are coming to the UK after all. We had a lot of reader's enquiries following our story in *East* back in December. These drives have already been very successful in Japan and are now to be brought to Britain by **Zeta Services** of Alderley Edge. Negotiations are at an advanced stage

and the **Mitsumi** disks will come with the same fast operating system as the Japanese model and three extra pieces of software. There is also a strong possibility that Zeta will be importing a range of MSX compatible robots. Remember, you read it here first.

Network née Daewoo

Network is the official UK marketing operation for the Korean manufacturing giant **Daewoo's** new MSX machine. Who are they, we hear you say? We asked ourselves the same question and our inquiries have revealed that oop north, like, Network are big guns. Well, medium sized ones anyway.

Their Bradford factory manufactures everything from reasonably priced TV sets to cheapo tower hi-fi's a la **Amstrad**. Network aren't new to the game of badge engineering, 'though, as owners of their Far-Eastern sourced personal hi-fi's will know. SRP for Network's MSX will be £259.

One liners

Yashica, already known for their cameras, will be bringing their 64K YC-64 to the UK in March this year.

Toshiba's HX-P550 Dot Matrix Printer and HX-P570 Plotter/Printer mentioned elsewhere in Graham Knight's printer feature are now available in the UK.

If any one is having trouble loading their MSX, we've found it's possible to use a Walkman-type cassette player (an Aiwa HS-J02) on a volume setting of 8 - paradoxically, it was useless with a Spectrum.

Alan Sugar on MSX; 'The mighty Japanese companies

can afford to buy a market, but it won't affect Amstrad'. We shall see...

Interesting note: the YC-64 is held to be the ugliest MSX by the cogniscenti, but compensates by having a great keyboard.



Pin Prick

Spectravideo's UK Head of Sales, Keith Newman has asked us to pass on a customer's tale of woe. Apparently, this poor bloke was minding his own business, looking for a new cassette cable for his SVI-728. After buying one at a local independent store he found he'd been well and truly duped and sold a seven pin lead rather than the eight pin MSX standard. Cue loading problems. He tried another store who assured him that, yes sir, their's was the genuine article. Guess what! Yep, wrong again. Anyway, twice bitten, twice shy. MSX User says always follow the MSX code and look both ways before you leap.

Relatively MSX

Tatung, the Taiwanese-based electronics giant who took over the beleaguered Decca company in a controversial business deal a few years ago, are seriously thinking of moving into MSX. They already manufacture the Einstein PC which, of course, shares the same the same CPU and video chip (Z80A and TMS9918 respectively) with the MSX standard. One of our spies reports that Tatung's English arm have successfully run MSX software on the Einstein already (an exercise they call MSX emulation). This is a sign that along with every other Far Eastern manufacturer, Tatung are taking MSX very seriously. Kuma have already converted some of their MSX software to the Einstein which gives some idea of the similarities.

If Tatung do take the plunge (and don't hold your breath) our source says the machine won't be built in this country but will probably be badge-engineered. Having said that, some kind of MSX adaptor, perhaps via the expansion slot, would surely be a better idea as this would enable existing Einstein owners to run MSX software.

Philips Fillip

Oricle

Where are they now?

This month Bruce Everiss, former operations director of Imagine Software.

Despite their continuing troubles Oric are preparing to launch a number of new machines besides the IQ 164. Hearing that Bruce was their new managing director (of Tansoft, Oric's marketing arm), we gave him a quick 'phone call at ASP's expense to say 'Hello'. Would any of the new Oric's be MSX compatible? we asked in jest. Cue long silence at the other end of the 'phone. What can this mean, we wonder? And why did Bruce ask us not to say anything now but to come and have lunch with him later this month? An Oric MSX? Well, you've got to admit it makes sense. We'll tell you what transpires.

New readers start here. Top European electronics multi-national, Philips, is rumoured to be attending a meeting of the MSX Working Group, despite firm declarations that Philips UK will not be marketing the VG8000 here. However, the Eindhoven team fail to arrive after being fog-bound in the departure lounge somewhere in the Netherlands. Now read on...

After last month's item in Pulse a Philips UK representative rang to confirm that the VG8000 will 'definitely not' be coming to Britain in 1985 but that they are running a test-campaign in Italy to see whether MSX can take of in an under-developed computer market, never mind one as competitive as Britain's. Wags say that Philips are worried that the VG8000 will not be as popular as their compact

cassette and, even worse, only as successful as Video 2000.

The Philips VG8000 has only 32K which effectively killed off most of the interest we at MSX User had in it. However, there is a 64K RAM cartridge on the design board and Philips have a number of peripherals out already. These include 40 or 80 column dot matrix printers, a joystick of non-descript nature, a cassette recorder and a 12" B&W monitor. A 16K RAM cartridge is also available. No prices yet. Not exactly an inspiring range...

The VG8000 will cost about 7,000 Lire, which is about £280 Sterling. Even if Philips do bring it to the UK it would appear to be a non-starter at that price. Oh, and if anyone at Philips is reading this, a statement to clarify matters would be nice, chaps.

MSXercise

So far, we've looked at loops and decision-making and have avoided mentioning the dreaded topic of maths. Rather than spooning out a large dollop of computer arithmetic now, we'll take it a little at a time, as the need arises. In the last installment, the final program given was a random doodle program that used the high-resolution screen, SCREEN 2. In this month's section we'll extend the ideas shown in this program to create a doodle program that's under your control, from pressing keys on the keyboard, and write a simple game. In the very first issue we talked about an MSX BASIC command called **PSET**. This command plots a point on one of the high resolution screens (SCREENS 2 or 3). If we want to plot a point at coordinates (X,Y) then we simply write the command **PSET (X,Y)**. We can also tell the point plotted to be a certain colour by adding a third number (or parameter) to the **PSET** command. Remember that colour is set by selecting a colour number between 0 and 15. If we want to plot a point at (X,Y) in colour C then we should use the instruction **PSET (X,Y),C**.

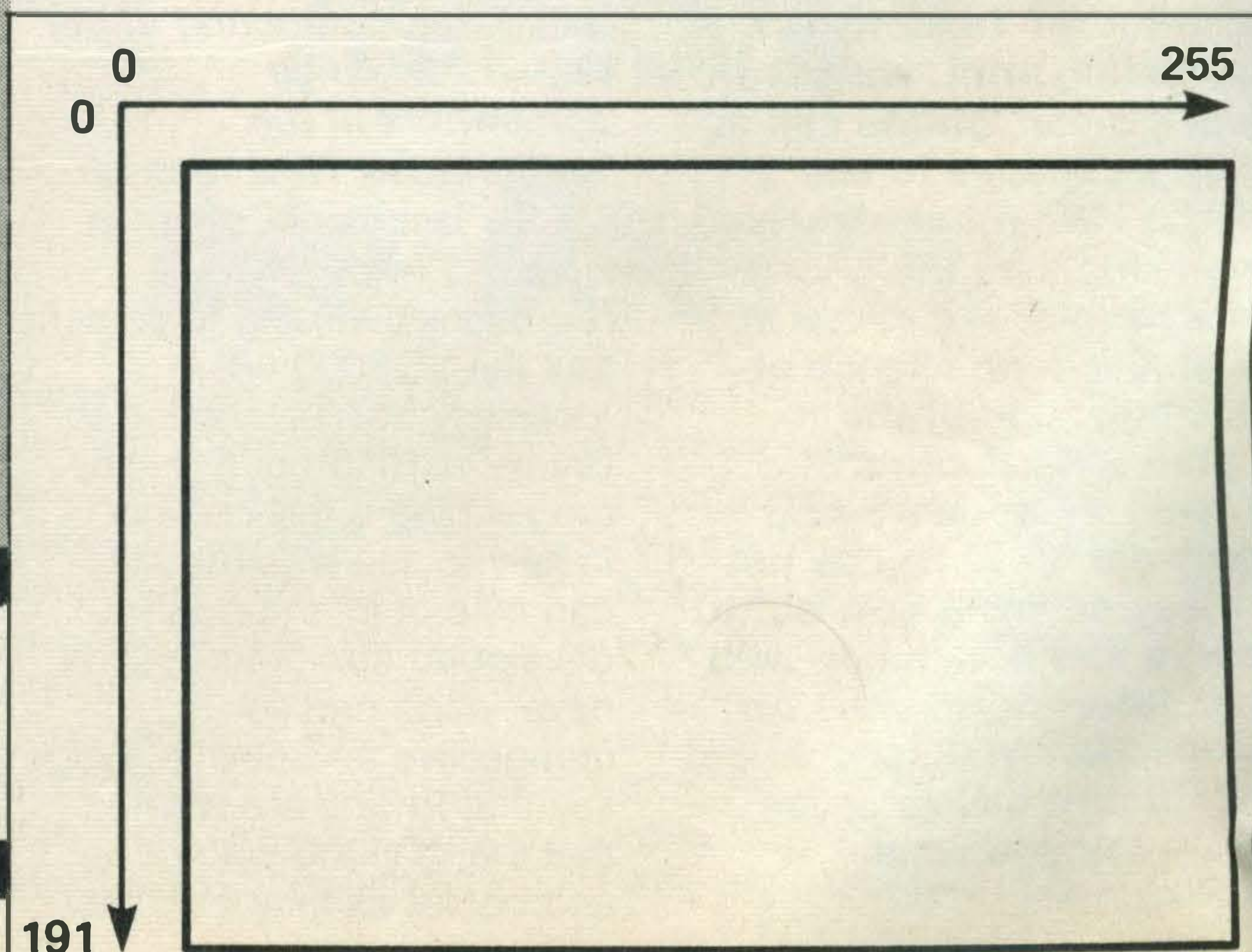
Let's say that we want to plot a point and then plot another point just to the right of the first. To do this we have to increase the X co-ordinate of the point we want to plot by 1. This is where the maths comes in: if you want to increase a variable by one then you need a little equation. (Don't panic, an equation in this case, is just a command with an equals sign!) The command we need to increase X by one is:

LET X = X + 1 or just:
X = X + 1

If you wrote down an equation like this one in a maths class in days of yore, your teacher would have delivered a swift clip around the ear, muttering something along the lines of, "Tell me what number X could possibly be so that it equaled itself plus one." The answer, of course, is that there isn't such a number, but then computers don't use 'equals' in quite the same way as mathematicians. The command **LET X = X + 1** does have a meaning if we think of X as being a box that holds a number. What this command is really saying to the computer is, "Take the number from the box called X, add one to it and put the new number back in the same box." Because computer commands like this don't work in quite the same way as normal mathematical equations we have a special name for

them. (Computerniks have a special name for everything!) We call them 'assignment' statements because a variable (the box) is being assigned a number. Clever stuff!

So, now we know how to plot a point to the right of another, let's think about how to plot a point just above another. Easy, take the value of Y and add one to it by using the command **LET Y = Y + 1**, right? Wrong! One of the annoying things about the MSX screen is that the Y co-ordinates get bigger as you move down. So to place one point *above* another we have to *reduce* the value of Y by one. No problem. We can just use the command **LET Y = Y - 1**. The high resolution screen has 192*256 points (pixels) on it that we can light up, using **PSET**, or turn off using **PRESET**. The layout of the screen is like this:



SCREEN 2 LAYOUT

Close Encounters of the Mathematical Kind with Steve Colwill

We can draw lines as a series of points plotted next to each other. All we need now is a way to tell the program which way we want the line to go.

Keyboard input

Normally, once a program is RUNning, pressing a key on the keyboard has no effect (with the exception of CTRL/STOP which breaks into the program). If we want to use the keyboard for some purpose inside a program we must use a special command to do so. In fact, we met one of these special commands last month in the 'guess my number' program. **INPUT** allowed us to type in a guess at the random number dreamed up by the computer and we could use the **INPUT** command here to, say, enter a number 1-4 to select up, down, left, or right. However, there are several painful things about using **INPUT** in this way. The first is that whenever a number was typed in to select a direction, the **RETURN** key also has to be pressed before the program will move on. This could make using the program a wee bit tedious. Secondly, **INPUT** always prints whatever you type in on the screen. Not a very good idea for a sketch pad! Fortunately, **MSC BASIC** is quite well endowed with keyboard input commands to suit different uses. The best one for our program is **INKEY\$** (the dollar sign '\$' is pronounced 'string' so **INKEY\$** is pronounced 'inkey-string'). We can use **INKEY\$** like this:

```
LET A$ = INKEY$
```

A\$ (pronounced **A-string**) is a variable just like **X** or **Y**, but is designed to stand for letters or words instead of numbers. This assignment means: 'Take the letter being pressed on the keyboard and put it in the box marked **A\$**.'

We can test **A\$** using an **IF...THEN** statement like this:

```
IF A$ = "T" THEN LET  
Y = Y-1
```

If the 'T' key on the keyboard is being pressed when this line comes around to be processed (carried out by the computer) then the current value of **Y** will be decreased by one.

Let's put all this into a program

```
10 REM MSX-A-SKETCH 1  
20 SCREEN 2  
30 X=127:Y=95:S=1  
40 A$=INKEY$  
50 IF A$="T" THEN Y=Y-S:REM UP  
60 IF A$="B" THEN Y=Y+S:REM DOWN  
70 IF A$="F" THEN X=X-S:REM LEFT  
80 IF A$="H" THEN X=X+S:REM RIGHT  
90 PSET (X,Y)  
100 GOTO 40
```

The four direction keys are **T** for up, **B** for down, **F** for left and **H** for right. At first glance this may seem an odd combination of keys to pick, but if you look at their positions on the keyboard you'll see that they form a nice cross shape. You may well be asking yourself why, after wittering on about $X = X + 1$, $X = X + 1$ etc that I've chosen to use $Y = Y + S$, $X = X + S$ instead. Well, one of the golden rules of programming is to make your

programs as flexible as possible. Try changing the value of **S** in line 30 to **S = 4** and running the program again. Spot the difference? **S** is the 'step length' between one point and the next. What happens if you make **S = 0.5**? Does anything happen? You probably found that the program appears to work in the same way as the original version when **S = 1**, but it now seems slower. This is because if **X** or **Y** are not whole numbers, for example 1.5 and 3.5, then **PSET** just ignores the decimal bit and plots the points (1,3). If we have a step length of 0.5, then effectively each point is

plotted twice. If say (1,1) changes to (1.5,1) by adding 0.5 to **X**, then **PSET** will still plot (1,1).

The program starts by setting initial values for **X** and **Y**, so that the first point plotted will be around the middle of the screen. The value of **X** and **Y** can be increased or decreased by pressing one of the four keys programmed for direction and the **PSET** command at line 80 plots a point with co-ordinates (X,Y). We can see how the program works by following the first few times around the loop in our heads. At the start **X** and **Y** take the values 127 and 95 respectively. If one of the direction keys is

being pressed as the program moves on to lines 40 to 80 then the value of **X** or **Y** will be altered. If, for example, the **T** key were being held down the value of **Y** would change from the initial 95 to $95 - S$, that is 94. The **PSET** command would therefore plot (127,94). On the next time through the loop, if the **T** key were still being held down, the value of **Y** would be reduced further to 93. **PSET** would plot the point (127,93), one place above the previous point. We can see that if the **T** key were held down continuously, a series of points would be plotted to create a vertical line upwards from the starting point. Of course, if another direction were held down then a line would be drawn in that particular direction. In this way the keys can be used to sketch figures from groups of horizontal and vertical lines.

Colour plus

We can add some colour to our display by changing the colour number whenever a certain direction is chosen.

```
72 IF X<0 THEN X=0  
74 IF X>255 THEN X=255  
76 IF Y<0 THEN Y=0  
78 IF Y>191 THEN Y=191
```


Sooner or later, when using this program to draw on the MSX high resolution screen, you're going to go off the end the screen. This isn't too disastrous as MSX BASIC will allow you to plot points in the range -32768 to +32767, although if the point has co-ordinates outside the screen range, then they won't be visible. Let's imagine reaching the right hand side of the screen and still, absent-mindedly, holding down the H key. The value of X will keep going up and up as long as the H key is being pressed. If we want to start going the other way then we have to keep the F key down until the value of X eventually comes back into the visible range. We can make an improvement to our program by making sure that X and Y are kept inside the visible range; 0-255 for X and 0-191 for Y.

And the following lines to the program:

These lines ensure that, if X or Y fall below the minimum value or go above the maximum value, then they are redefined to be equal to the limit they have exceeded. For example, if the value of X reaches 256 then line 74 will make X=255. On-RUN this new version of the program you may find that the drawing is a little slower than before. This is because, even though MSX BASIC is fast, it does take some time to carry out these four limit checks each time through the loop. If we think carefully about the problem we're trying to solve by putting in these extra range checking lines, we can see that we don't need to check for all four limit every time through the loop. For example, if X has been increased by pressing the H key there's little point in checking to see if it's dropped below zero. If we're moving right (*increasing X*)

Light Cycles

Now that we've learned how to control what appears on the screen from the keyboard, we can design our first game. Based on a familiar theme 'Light Cycles' this game allows two players to simultaneously draw ribbons of colour on the screen, each player attempting to block the progress of the other. You lose if you run over your opponent's trail or if you double back on your own trail. To plan the game's structure we need to think carefully about the main jobs that the program has to do. We need to set up two groups of four keys as above, one group for each player to control their light cycle. We need some way of detecting a collision between the two light cycles, and we must know which cycle ran over the other's tail. Finally, when a collision occurs we must reset the pro-

gram, display the score, clear the screen and reposition the cycles at their respective starting points.

For this game we'll use the other 'drawing' screen available on an MSX micro, SCREEN 3. This screen works in the same way as SCREEN 2; co-ordinates still range from 0-255 horizontally and 0-191 vertically, but each block on the screen is four times as big as those on SCREEN 2. This is ideal for our game as it gives us excitingly chunky lines for our light cycles, but plotting on this screen needs a little care. plotting the points (0,0), (0,1), or (0,3) will all light the same block when using SCREEN 3. To get two blocks next to each other, we need a difference of four units in any direction. A game where a new block in the light cycle ribbon is only turned on when the player pressed a key (as in MSX-A-Sketch) would be a mite tedious, so we shall use a different method so that the light cycle will keep going in one direction until a keypress turns it in a different direction. If we take the example of changing direction in the X direction then we might use a piece of program like this:

```
10 REM MSX-A-SKETCH 2
20 SCREEN 2
30 X=127:Y=95:S=1
40 A$=INKEY$
50 IF A$="T" THEN Y=Y-1:C=12:REM DARK GREEN
60 IF A$="B" THEN Y=Y+1:C=11:REM LIGHT YELLOW
70 IF A$="F" THEN X=X-1:C=1:REM BLACK
80 IF A$="H" THEN X=X+1:C=15:REM WHITE
90 PSET (X,Y),C
100 GOTO 40
```

we only need to check the upper limit on X, that is check whether it has exceeded 255. If we are moving left (*decreasing X*) then we only need to check to see if X has dropped below zero. By putting the right check with the right direction we can shave a little off the time taken to do a loop, speeding up the program, as in this version:

```
10 A$=INKEY$
20 IF A$="D" THEN DX=4:DY=0
30 .
40 .
50 .
60 X=X+DX:Y=Y+DY
70 PSET (X,Y)
```

```
10 REM MSX-A-SKETCH 3
20 SCREEN 2
30 X=0:Y=0:S=1
40 A$=INKEY$
50 IF A$="T" THEN Y=Y-1:C=12:IF Y<0 THEN Y=0
60 IF A$="B" THEN Y=Y+1:C=11:IF Y>191 THEN Y=191
70 IF A$="F" THEN X=X-1:C=1:IF X<0 THEN X=0
80 IF A$="H" THEN X=X+1:C=15:IF X>255 THEN X=255
90 PSET (X,Y),C
100 GOTO 40
```


To move in the opposite horizontal direction we should use **DX=4**. The vertical directions can be set by **DY**. The beauty of this way of increasing **X** or **Y** is that, if you imagine this piece of code within a loop, once **DX** and **DY** are set then **X** and **Y** will keep changing (in this case the **X** coordinate would increase by four each time) in the same way until another key is pressed.

We'll use the following keys for the two players:



Here then is the complete program:

```

10 REM **** MSX LIGHT CYCLES ****
20 :
30 REM ** START VALUES **
40 X=50:Y=100:M=205:N=100
50 S=4:C1=1:C2=10:R=4
60 DX=S:DY=0:DM=-S:DN=0
70 :
80 REM ** SCAN KEYBOARD PLAYER 1 **
85 A$=INKEY$
90 IF A$="W" THEN DY=-S:DX=0
100 IF A$="X" THEN DY=S:DX=0
110 IF A$="A" THEN DX=-S:DY=0
120 IF A$="D" THEN DX=S:DY=0
130 :
140 REM ** SCAN KEYBOARD PLAYER 2 **
150 IF A$="I" THEN DN=-S:DM=0
160 IF A$="M" THEN DN=S:DM=0
170 IF A$="J" THEN DM=-S:DN=0
180 IF A$="L" THEN DM=S:DN=0
190 :
200 REM ** ALTER COORDINATES **
210 X=X+DX:IF X<0 OR X>255 THEN F=2:GOTO 350
220 Y=Y+DY:IF Y<0 OR Y>191 THEN F=2:GOTO 350
230 M=M+DM:IF M<0 OR M>255 THEN F=1:GOTO 350
240 N=N+DN:IF N<0 OR N>191 THEN F=1:GOTO 350
250 :
260 REM ** TEST FOR COLLISIONS **
270 IF POINT (X,Y)<>B THEN F=2:GOTO 350
280 IF POINT (M,N)<>B THEN F=1:GOTO 350
290 :
300 REM ** PLOT NEW POINTS **
310 PSET (X,Y),C1
320 PSET (M,N),C2
330 GOTO 80:REM SCAN KEYS
340 :
350 REM ** RESET ROUTINE **
360 SCREEN 1
370 IF F=1 THEN S1=S1+1
380 IF F=2 THEN S2=S2+1
390 PRINT"PLAYER ONE :";S1
400 PRINT"PLAYER TWO :";S2
410 PRINT
420 PRINT"PRESS A KEY TO RESTART **
430 K$=INKEY$:IF K$="" THEN 430 ELSE GOTO 10

```

Program Breakdown

Lines 30-60

The initial co-ordinate value of the two cycles (**X,Y**) and (**M,N**) are set. At line 50 the colours of the two cycles are set to black and yellow.

B is assigned the background colour number. The initial values of **DX, DY, DM** and **DN** are set in line 60 so that the two light cycles both move horizontally towards the middle of the screen when the game starts.

Lines 85-180

The keys used by player 1 and player 2 are scanned and the values of **DX, DY, DM** and **DN** altered as appropriate.

Lines 210-240

The new co-ordinates for the two cycle fronts are calculated and screen boundary checks are made. If either cycle goes off the edge of the visible screen then program control is transferred to the reset routine. **F** is used to signal whether player 1 or player 2's score is to be increased by the reset routine.

Lines 270-280

These two lines test for an impending collision between the light cycles. Remember that at this stage, although

the new front co-ordinates of each cycle have been calculated, they have not yet been plotted. We can therefore look ahead in to the square that each cycle will move into. The **POINT** command returns the colour number of the square specified. Lines 270 and 280 will cause the program to jump to the reset routine if the colour of the square about to be moved into is not the background colour **B** (**<>** means 'not equal to'). Thus if one cycle tries to cross the path of the other or double back over its own path, then the reset routine will be called.

Lines 310-320

Assuming that the cycles have not collided or run off the screen, the new front of each cycle is not plotted in its own colour.

Line 330

The program loops back to look for the next keypress.

Lines 360-410

This reset routine returns the display to one of the text screens, **SCREEN 1**, increases the score of player 1 or player two depending on the value of **F**. The scores are then **PRINT**ed on the text screen.

Lines 420-440

If no key is being pressed then **INKEY\$** returns no letter. This is known as a 'null string'. Line 430 keeps checking for a key to be pressed within a loop. When a key is pressed the program restarts from line 10.

WISH UPON A STAR

At last! The Goldstar competition results. Did you win?

Well, were we surprised. Hundreds of entries for our first competition. We really weren't prepared for them, but after a mammoth reading sesh we sorted out the 25 runners-up and picked the one offered by Bernard Hatch as the winner... for originality and in fear of the consequences. You'll be pleased to know that Bernard had no intention of carrying out this foolhardy threat but we gave him the prize anyway, plus of course the four title software pack from PSS and an MSX User badge set (didn't he do well?)

Also due said software packs are the following. Sorry we haven't got enough space to print all your letters.

**Kenneth Crawford,
Glasgow.**

**A. Nathan, London.
Jo Bogaert, Belgium.
Patricia Koo, London.
Trevor Howell, Runcorn.
Flora Glendon-Hill, Charing.
Martin MacDonald, Isle of Skye.
Janet Cooke, Hythe.
W R Stamp, Ledbury.
John Brown, Sutton Coldfield.
John H. Morris, Filton.
Chris Billington, Truro.
Rev. Derek G. Corner, Greenock.
William Sinclair, Orkney.
Paul Rochester, London.
David E. Pyrah, Bradford.
P D Hutchins, Wisbech.
Michelle White, London.
Francis James, Bedford.
R D Barnes, Rugby.
Steven Chell, Stoke-on-Trent.
Terence Lee, London.
Andrew Corbett, Gosport.
G T Cousins, London.
Karen Beadman, Hereford.**

```

10  RAM***BLACKMAIL***
20  REM***C 1984***
30  REM BY BERNARD HATCH
40  REM 26 MONMOUTH ROAD
50  REM BLACKBURN
60  REM BB1 3LB
70  CLS
80  PRINT "PLEASE ENTER THE NAME OF
    THE GOLDSTAR MSX COMP. WINNER"
90  PRINT "(UPPER CASE LETTERS ONLY)";
100 INPUT W$
110 IF W$ = "BERNARD HATCH" THEN
    M$ = "MSX USER"
    ELSE M$ = "WHAT MSX?"
120 PRINT "I WISH TO ORDER A YEAR'S
    SUBSCRIPTION TO"; M$
130 GOTO 120
Bernard Hatch
Blackburn

```

A number of heartrending letters were received from ill, handicapped and deprived readers. These have been passed on to various manufacturers in the hope that they can be aided.

Dear Liz,
Why I want an MSX Micro

The trouble with door-stops, as a collection, is that you rapidly run out of doors for them. They are also expensive, unless purpose made... which mine were not.

The earliest was Uncle Clive's first (No, not the ZX 80, laddie, the Mk 14 - before your time). It taught me Z80 CPU architecture, for which I should be grateful I suppose.

Then came the ZX 80; shortest lived of all, after which I foreswore for ever Uncle Clive's instant obsolescences (and mock keyboards) and bought a Newbrain (pause for sardonic laughter) (ho, yawn, ho - Ed).

Yes it was a nice machine, far head of its time, capable of expansion, and had a bright future, if only the BBC... but they didn't and it hadn't, and is now the prettiest door-stop of the collection.

Manufacturers, if they are survivalists, insist on second sourcing of their suppliers to give some chance of stability and continuity (politicians, please copy) and I don't see why us suckers (Consumers) shouldn't adopt the same attitude.

Ye Gods! All I want is a decent Z80 based machine (I was weaned on one) which will be around long enough, with all the extra bells and whistles I shall eventually fall for, for me to find *my* way around it - and that cuts out the 'shan't tell you how it works' brigade.

It needn't be innovative, ie eccentric, but it must be

available, and stay available, with its adds-on, and have lots of lovely (cheap) software and a proper keyboard and keep the kids amused in its spare time and... need I say more?

There is such a beast? – an MSX? Lead me to the shop that has one and I'll buy it like a shot for Christmas...

Nice try, Kevin, perhaps I'll have to win one instead.

**W R Stamp
Ledbury**

Erudite letter of the month. Have some software, WR, and a badge for being so clever.

Dear Sir,

I think that I should be given your MSX for one extra special reason. Don't tell anyone but I'm an almost proud owner of a 16K ZX Spectrum. You just don't know how bad it is. It's terrible. When you press a key it feels as if the computer is trying to eat you. You have to hold down about 20 keys before you can get the right command. When I first got the computer it took me days to work out how to turn it off.

Of course, since then, things have gone from bad to worse. I've got so desperate I'm even thinking of upgrading it to a 48K Spectrum. Yes, as a last resort I took to drugs (we're not allowed to mention them in this mag. – Ed. Ass.), it was the only hope left. But then it happened – Sinclair brought out the Spectrum +. That was when I had my nervous breakdown.

You see, this is why you must give me an MSX just the thought of having an on/off switch, a proper space bar and cursor keys keeps that little glimmer of hope in my eyes.

**Francis James
Bedfont**

PS. Everything you have just read is lies. (But you can still give me an MSX).

Can we? – Ed. Ass.

No – Hardhearted Ed.

Dear MSX User,

Sending me the Goldstar MSX computer would be a disastrous event. Normally a healthy, active type (come up and see me sometime – Ed), the acquisition of such a computer with full size moving keyboard and 64K of RAM would be the first step in my eventual downfall.

I can see it now in horrible detail, the reverence and anticipation as I set up the computer followed by a manic gleam in my eyes as I experiment with the keyboard.

The first to notice would be my family, the drawn curtains at the weekend, the lights burning at all times of night and the clandestine purchases of cassette head cleaning fluid. This state of affairs would last a month or so until, weak with lack of sleep and light-headed with excitement I chance again on your esteemed magazine. In this perilous state my mind becomes dazed and overwhelmed by the range of manufacturers offering compatible accessories and it is now my bank manager who becomes suspicious of the large number of cheques bearing oriental names that get returned to his bank.

Now living in a bare house furnished only by computer peripherals even casual friends and pub acquaintances have become disturbed by my abhorrent behaviour after I accuse an opponent of removing the fire button from my pool cue.

Eventually, as I enter the terminal stage, I begin to, as they say, 'mainline'. With my computer connected to the Telecom Viewdata network I become the typical case, sitting blankly in front of the screen sifting endlessly through masses of information.

And to cap it all off, I write a program which earns me thousands.

Eh, who said that?

Now, there's a thought.

Yours avariciously

**Martin MacDonald
Isle of Skye**

Prognosis good. No micro, but software to hug. Is there really electricity up there?

Dear Liz,

Why I want an MSX Micro

Since the introduction of MSX into this country, my twelve year old son and I have been quite fascinated by the whole MSX concept.

We have read all material currently available and after much saving – eventually purchased a Sony HB75 to share between us.

However, the sharing soon became that of 99% useage by my son and hardly a chance for me!! His addiction and fascination with the MSX machine has left me utterly frustrated!!

Each evening after work – I long for the opportunity to use the Sony, only to be 'beaten to it' again – as my son is hard at work on the MSX before I even get home!

To have my very own MSX would be the 'dream' I've waited for... my own, my very own MSX... all MINE!!

Should this happen through your competition two MSX enthusiasts could really share the MSX concept – and like the fairy tales of old – we would all live happily ever after!!

**Yours sincerely
John Brown
Sutton Coldfield**

*A common complaint,
John. Never mind, have
some software.*

Dear Sir,

Just a line panegyriming your graphiology (we've got a dictionary as well, you know – Ed). On reading the first issue of MSX User I'm sure it is here to stay (what, the first issue? – Ed. Ass.).

Unfortunately all the exciting therapy of Steve Lucas is incompatible with my centre MSX (Took me 30 minutes to build). Having read page 26 of MSX User I find you have a Goldstar FC200 to give away, well, having contributed towards your present high standard of living I think I can give you a better deal than to give it away. I'll swap my only computer, the Centre MSX, for your Goldstar FC200.

Finally, I must order next

month's mag to see if the job of making handmade MSX User badges has gone to Mike.

**David E. Pyrah
Bradford**

Two things, Dave. Firstly we'll have to decline your offer of the limited edition MSX User Centrefold. Secondly, you were half right – the job of making the wundurbar MSX User badges hasn't gone to Mike, but Mike has gone (what are you blithering about, Rothman? – Ed).

Dear Sir/Madam/Gender Bender...

I want a Goldstar MSX computer because I'll then be able to justify buying "MSX User" which looks as if its to be better than a long heat job on a cold winter's morning. Owning a Goldstar will give me the confidence I need to go out to the Congo and preach Z80A machine code to all the head hunters.

If I don't win it, I will kill myself by sticking my head into a North Sea gas converted cooker for an hour and then having a fag. If I win it, I promise to use the 64 rams very carefully. I will separate them into groups and alternately rub lipstick into their stapled black eye lids and feed each one on four pints of "33 Splash-on" an hour.

Then I will inject 250 Marathon bars with (pleasant smelling) ram urine and sneak them onto confectioner's shelves with a note saying, "Buy MSX User... or you won't have the chance of having a lung punctured by someone saying 'congratulations' as they pin a Goldstar on you."

I want a Goldstar MSX because it'll enable me to do sharper graphics.

I want a Goldstar MSX because it'll enable me to do word processing.

I want a Goldstar MSX because my girlfriend is sick and tired of hearing me say "I wouldn't mind getting a 64K MSX... the Goldstar looks good value for money..."

If I don't win, I will kill a

member of staff at 'MSX User'— slowly, of course, by peeling each layer of skin off, one by one, with a blunt hammer (ooooh... SM Ed).

Paul Rochester
London SE9.

This letter has been passed onto the local CID for investigation.

Dear MSX User

I would like to win an MSX computer because I have been drooling over my cardboard 'centre' one for nearly a month now and it has become a completely unusable soggy mess!!!

Your user friendly,

Chris Billington
Truro

Sorry. See if it'll RUN The enclosed software.

Dear MSX User,

Please send me the GOLDSTAR prize in your December magazine competition.

Two days after expiry of its guarantee, my computer exploded with a blue flash and the house lights extinguished.

This so terrified my pet cat Peter, that he immediately soiled the carpet and proceeded in an anti-clockwise direction around the room and up the walls.

In the resulting confusion, in total darkness, in a vain bid to restore order. I trod on Peter's mess, slipped, and crashed into my wife's china display cabinet. This collision upset an ornamental vase which fell upside down and lodged itself firmly on my head, where it still sits even as I write.

Stunned by the blow of the falling vase, I stumbled against the budgie's cage and knocked open the cage door. With a "tweet, tweet" Billy the budgie disappeared through the open window and has never been seen since.

As I rebounded off the budgie cage I raked my shins on the edge of the coffee table and now walk

with difficulty due to a limp in both legs.

My cat Peter, as a result of his exertions is now seriously ill in the Coronary Intensive Care Unit of the local Veterinary Surgery.

The fees for this feline hospital are almost as crippling as my bruised shins, and the visiting hours do not fit in with my work as a rodent catcher with the local council.

Please send me a new computer to cheer me up as my world has really crashed since I lost my computer.

Yours hopefully

William Sinclair
Orkney

Disturbed biorhythms?

Dear Sir,

Computers should enhance life in all its aspect including education, experimentation, entertainment, time saving information storage and retrieval and so on. I have a requirement in Small Business Administration and Analysis as well as education. My children require education and entertainment.

I have always advocated computers in the home only to be repeatedly ridiculed by the total incompatibility between my Oric, my Atom, my pocket TRS 80 and my Sord, ZX81/Spectrum and own friend's Commodores, TI's etc. We still cannot achieve an original objective but MSX changes all this. MSX *had* to evolve. It is a pity that suppliers refused to acknowledge the fact that *they* as well as the consumers (who care about consumers anyway? – other than MSX it seems) lose out at present.

I wish to consolidate the full range of everyday domestic/family life and growth through intelligent use of the computer. Already my children are eager to see and try an MSX before going out to buy one... their friends think likewise... a big future awaits MSX, the sensible computer without industry hang-ups (you should be an advertising copy writer – Ed).

Your report shows the Goldstar MSX is well made, reasonably attractive in appearance, a sensible size and with its enlarged basic and compatible concept will provide the ideal basic building block to expand into a worthwhile *useable* (sic) system. I have spent six months looking for a disc drive and so far have rejected four, but once I have my Goldstar I need hold back no longer. I can also buy a better printer... MSX (who they? – Ed) are going to make a lot of money out of me and I shall have the satisfaction of knowing that I am not buying expensive problems; so I shall be back (hope not – Ed. Ass. Shut up – Ed).

With my compact, versatile, Goldstar computer I should be able to achieve my original objective and probably win quite a few coverts to MSX as a bonus for manufacturers. Please convey my congratulations to the originators and various manufacturers who have got together to work together for the mutual benefit of all.

P. D. Hutchins (F.IOIAG.E., MISTC, F.Inst.D)
Wisbech

Like, kinda sickophantic.
How many computers have you got?

Dear MSX User,

I was, for the brief period of eight hours, the proud owner of a TOSHIBA HX-10 MSX computer.

Why only eight hours? Well, after that time, I stupidly left it on my desk and my two children found it. In a bloodless coup, they assumed total control and I was, yet again, left to 'play' on the Spectrum. A highly unsatisfactory state of affairs since the Spectrum was the children's.

Not that that was all, when I got the copy of MSX User and noticed the Battleship program, my wife, to whom the word COMPUTER acts like a purgative, offered to type it in and to my horror – nay dismay, she scorned my offers of help!!!

Now, when the telly advert asked: "Hello Tosh – gotta TOSHIBA?" I mutter darkly – "NO, THEY'VE GOT IT!"

So you see, my reasons for wanting to win the GOLDSTAR FC-200 are simply... I could give it to my children and they could learn to programme computers on a respectable machine and I could use my TOSHIBA for the purpose I bought it – accounts and filing etc.

I am, yours hopefully.

John H Morris
Filton, Nr Bristol

Well, tough luck Buster. Give 'em these programs instead, eh?

Dear Sirs

Here is my entry for the 'Goldstar Competition'. A peculiar thing is a micro in its metallic-plastic box. A toy for Dad and an education for the kids! That's the trouble, each one is peculiar, with its own computer-speak, its own plugs and sockets, and its own likes and dislikes for all the add-on bits. That is why I want an MSX computer machine!

I want an MSX micro to learn, to work and to play. And with an MSX micro I can do all this without having a peculiar machine like everyone around me. I will not have to stick with any one manufacturer, I will shop around and get the hardware and software that suits my needs – and for the best product for the best price, just right for my needs.

An MSX micro for the family. Games to help the children learn. Work tapes to help father look after records for 350 of a congregation, and to prepare his reports. Record tapes and budget tapes to help mum keep her recipes under control and to watch the housekeeping. All these and more from one machine, with the choice of manufacturers – and the friendliness of countless others. But an MSX micro is a friend in itself! (And so economical when you've won it, too!)

Yours sincerely,
Rev Derek G Corner
Greenock

WIN A SPECTRAVIDEO



Apologies to Mr Lear.

Right, how many of you got an MSX for Christmas? You didn't? Well, here's a second chance. Thanks to Spectravideo UK, we're offering the winner of this month's competition a brand, spanking (ooooh - SM Ed) new SVI-728. our master plan is fiendishly simple - to destroy civilisation as we know it (What? - ed). No, we digress.

Remember limericks? Of course you do. We want five ribald, rhyming MSX lines - tasteful but not TOO tasteful. To help you on your way, we've done the first line for you.

There was a young man called Kay Nishi...

Remember him? He more-or-less invented MSX. Think about it, and when you've got something uproariously funny, write it on a postcard and send it to us at the usual address: **Spectravideo Competition, The Editor, MSX User, Argus Specialist Publications, No. 1, Golden Square, London W1R 3AB.**

Usual rules apply. That is, if you're an employee of ASP, Spectravideo UK, Alabaster Passmore and Son Ltd., or E.J.Thribb (17 or otherwise) don't bother writing. We know who you are...

In the January issue of MSX User we gave you a program which re-defined all the letters of the alphabet and made them 'chunkier'. This month we'll use that same data to re-define all the sprites. The great advantage of having sprites looking like letters is that they're more colourful and easier to move around the screen than ordinary letters.

Program 17 sets up the first 26 sprite patterns to look like the letters of the alphabet and displays them on the screen. Note that the data is the same as for **program 16** (published last month) so if you have it saved to tape, you've a lot less typing to do! Remember we said that only four sprites can be displayed horizontally so in our program the 26 sprite letters are displayed diagonally.

Next, we have to do something with the sprites. **Program 18** is a general purpose routine which displays the message in **A\$** on the screen, letter by letter, and then scroll to the right. Type this in program while **program 17** is still in memory. In **line 410**, you can substitute any text you like as long as it is no longer than 21 characters and only

This month Graham Knight and Stuart Pirie and the MSX User Guide to Sprites

contains capital letters A-Z or spaces. This program is useful for title pages or other headings.

Program 19 displays the contents of **A\$** vertically. Then it shows all the letters moving on top of each other and returning to their original places. This demonstrates the priority that sprites have over each other - they move behind and in front of each other. The sprite with the lowest sprite plans number has the highest priority and so appears at the front. **Program 19** starts at **line 400**. Enter it in the same way as you did **program 18**, make sure you have only **program 17** in memory

when you start typing. Again the text in **line 410** can be changed to your own message.

Interrupt driven routines

MSX BASIC has a very special feature which allows you to specify when you want a program to be interrupted and branch to another section of the program. After these interrupts are set up, the program carries on normally as far as the user is concerned but is actually constantly scanning to see

● Program 17 - alphabet sprites

```

100 SCREEN 1,2:COLOR 15,1,6:WIDTH 29
110 LOCATE6,3:PRINT"THIS PROGRAM CREATES 26"
120 LOCATE9,5:PRINT"SPRITES IN THE SHAPE"
130 LOCATE11,7:PRINT"OF THE LETTERS A-Z"
140 RESTORE 190:FOR F%=1 TO 26
150 S$="":FOR X%=0 TO 7:READ A$:S$=S#+CHR$(VAL("&H"+A$)):NEXT X%
160 SPRITE$(F%)=S$:PUTSPRITEF%,(10+F%*8,F%*6),13:NEXT F%
190 DATA 7C,C6,C6,FE,C6,C6,C6,0,FC,C6,C6,FC,C6,FC,0
200 DATA 7C,C6,C0,C0,C0,C6,7C,0,FC,C6,C6,C6,C6,FC,0
210 DATA FE,C0,C0,F8,C0,C0,FE,0,FE,C0,C0,F8,C0,C0,C0,0
220 DATA 7C,C6,C0,CE,C6,C6,7C,0,C6,C6,C6,FE,C6,C6,C6,0
230 DATA 3C,18,18,18,18,18,3C,0,3C,18,18,18,08,08,70,0
240 DATA C6,C6,CC,F8,CC,C6,C6,0,C0,C0,C0,C0,C0,FE,0
250 DATA EE,D6,D6,C6,C6,C6,C6,0,C6,E6,E6,D6,CE,CE,C6,0
260 DATA 7C,C6,C6,C6,C6,C6,7C,0,FC,C6,C6,FC,D8,CC,C6,0
270 DATA 7C,C6,C6,C6,D6,CE,7C,0,FC,C6,C6,FC,D8,CC,C6,0
280 DATA 7C,C6,C0,7C,06,C6,7C,0,7E,18,18,18,18,18,18,0
290 DATA C6,C6,C6,C6,C6,C6,7C,0,C6,C6,C6,C6,6C,38,0
300 DATA C6,C6,C6,C6,D6,D6,EE,0,C6,C6,6C,7C,6C,C6,C6,0
310 DATA 66,66,66,3C,18,18,18,0,FE,6,C,18,30,60,FE,0

```


whether an interrupt is required. There are six types of interrupt:

- 1) ON INTERVAL GOSUB - branches after specified time intervals
- 2) ON KEY GOSUB - branches when a function key is pressed
- 3) ON SPRITE GOSUB - branches when two sprites collide
- 4) ON STOP GOSUB - branches when CTRL & STOP are pressed
- 5) ON STRIG GOSUB - branches when the space key or fire on the joystick are pressed
- 6) ON ERROR GOTO

They are all set up in a similar manner apart from ON ERROR GOTO which will be detailed later. Taking ON INTERVAL as an example, to set up the interrupt the command looks like this:

```
ON INTERVAL = 100 GOSUB
1000: INTERVAL ON
```

This would cause the computer to GOSUB 1000 every two seconds (the number after the equals specifies the number of fiftieths of a second you want between each interrupt).

There are two other command associated with this, **INTERVAL OFF** and **INTERVAL STOP**. **INTERVAL OFF** will turn off the interrupts altogether. **INTERVAL STOP** will turn off the interrupts but remembers if any would have occurred and when an **INTERVAL ON** is executed, any interrupts which would have occurred are then executed. The three commands ON, OFF and STOP are available for all the different types of interrupts.

● Program 18 - sprite display

```
170 GOTO 400
400 CLS:FOR F%=0 TO 30:PUT SPRITE F%,(0,192):NEXT F%
410 A$="MSX SETS THE STANDARD"
420 GOSUB 500
430 GOTO 420
500 RESTORE 510:FOR F%=0 TO 4:READ X%:C%(F%)=X%:NEXT F%
510 DATA 2,5,8,13,15
520 XS%=(255-(LEN(A$)*10))/2:YS%=(190-(LEN(A$)*9))/2
530 FOR F%=1 TO LEN(A$):IF MID$(A$,F%,1)=" " THEN 570
540 FOR Y%=-30 TO 9*(F%-1)+YS% STEP 3
550 PUT SPRITE F%,((F%-1)*10+XS%,Y%),C%(F%MOD5),ASC(MID$(A$,F%,1))-64
560 NEXT Y%
570 NEXT F%
580 FOR F%=1 TO LEN(A$):IF MID$(A$,F%,1)=" " THEN 620
590 FOR X%=((F%-1)*10+XS%) TO 120 STEP (SGN(120-((F%-1)*10+XS%)))
600 PUT SPRITE F%,(X%,9*(F%-1)+YS%),C%(F%MOD5),ASC(MID$(A$,F%,1))-64
610 NEXT X%
620 NEXT F%
630 FOR X%=120 TO 235 STEP 2:FOR F%=1 TO LEN(A$)
640 IF MID$(A$,F%,1)=" " THEN 660
650 PUT SPRITE F%,(X%,9*(F%-1)+YS%),C%(F%MOD5),ASC(MID$(A$,F%,1))-64
660 NEXT F%,X%
670 RETURN
```

1 - ON INTERVAL

Program 20 demonstrates the use of the ON INTERVAL command to keep track of the time. When you run the program, type in the current time as hours, minutes and seconds, press RETURN after entering each value. The screen will then change to white on red and a message will start scrolling across the top of the screen. The time will be displayed at the centre of the screen and is updated every second.

The program puts the current time into the H, M and S integer variables and then sets up the message that's going to be scrolled. The interrupt is set in line 200 but doesn't start operating until line 220. Lines 230 and 240 make the message scroll across the top of the screen. Note that the program is looping

around these two lines - it's the interrupt which makes it go to the routine at line 1000. Lines 1000 onwards update the H, M and S variables using simple logic. The ON INTERVAL facility makes programs like this very easy to write.

2 - ON KEY

Program 21 demonstrates the use of the ON KEY command. This will call the specified subroutine whenever a function key is pressed. It is also possible to specify different subroutines for the 10 different function keys.

So this program displays a sprite moving back and forth across the screen - the programming techniques used were described in the January issue of MSX User. The ON KEY GOSUB command is used here to change the shape and

● Program 19 – sprite priorities

```

170 GOTO 400
400 CLS:FOR F%=0 TO 30:PUT SPRITE F%,(0,192):NEXT F%
410 A$="MSX SETS THE STANDARD"
420 GOSUB 500
430 GOTO 420
500 RESTORE 500:FOR F%=0 TO 4:READ X%:C%(F%)=X%:NEXT F%
510 DATA 2,5,8,13,15
520 FOR F%=1 TO LEN(A$):IF MID$(A$,F%,1)=" " THEN 540
530 PUT SPRITE F%,(120,9*(F%-1)),C%(F%MOD5),ASC(MID$(A$,F%,1))-64
540 NEXT F%
550 FOR F%=1 TO LEN(A$):IF MID$(A$,F%,1)=" " THEN 580
560 FOR Y%=(F%-1)*9+X5% TO 0 STEP -1
570 PUT SPRITE F%,(120,Y%),C%(F%MOD5),ASC(MID$(A$,F%,1))-64:NEXT Y%
580 NEXT F%
590 FOR F%=1 TO LEN(A$):IF MID$(A$,F%,1)=" " THEN 630
600 FOR Y%=0 TO (F%-1)*9+X5%
610 PUT SPRITE F%,(120,Y%),C%(F%MOD5),ASC(MID$(A$,F%,1))-64
620 NEXT Y%
630 NEXT F%
640 RETURN

```

colour of the sprite. At the start of the program, the sprite mode is set – mode 3 which is 8 x 8 magnified. The colour is also set to a black background so that all the sprite colours show up well. Then the data for the sprites is read in.

There are four different shapes so the outer loop goes from 1 to 4. The inner loop goes from 1 to 8 as each sprite string has 8 characters in it. **Line 160** sets up the KEY interrupt lines. Because only the first four function keys are used in this program, only four line numbers are supplied. **Lines 170 and 180** turn the four function key on individually. **Lines 200 and 210** set up the initial position, direction, shape and colour of the sprite respectively.

Lines 1000-1030 display

● Program 20 – ON INTERVAL

```

100 CLEAR 300:COLOR 15,13,13:SCREEN 0
110 PRINT "ENTER CURRENT TIME:"
120 PRINT
130 INPUT "HOURS (0-23) ";HZ
140 IF HZ<0 OR HZ>23 THEN 130
150 INPUT "MINUTES (0-59) ";M%
160 IF M%<0 OR M%>59 THEN 150
170 INPUT "SECONDS (0-59) ";S%
180 IF S%<0 OR S%>59 THEN 170
190 COLOR 15,6,6:CLS
200 ON INTERVAL=50 GOSUB 1000
210 Z$="MSX USER FOR MSXPLAINED - TEACHES YOU HOW TO UTILISE YOU MSX MICRO "
220 INTERVAL ON
230 LOCATE 0,0:PRINT LEFT$(Z$,39)
240 Z$=RIGHT$(Z$,LEN(Z$)-1)+LEFT$(Z$,1):GOTO 230
990 /
991 /
1000 S%=S%+1:IF S%=60 THEN M%=M%+1:S%=0:IF M%=60 THEN H%=H%+1:M%=0:IF H%=24 THEN H%=0
1010 LOCATE 14,10:PRINT USING"###";H%,M%,S%
1020 LOCATE 0,0:RETURN

```


MSXplained

the sprite and change its direction. Note especially that these four lines are completely self-contained, there is no call to any other lines. **Lines 1100-1400** are called when any one of the function keys F1 to F4 are pressed. **Lines 5000-5030** hold the data for the sprites in hexadecimal form, as explained in the January issue of MSX USER.

3 - ON SPRITE

The ON SPRITE command detects whenever any two sprites collide on the screen and will then call a subroutine. **Program 22** uses this command to detect whenever the two moving sprites collide. When they do, a sound is made and they finish.

Line 100 puts the computer into hi-res mode with a black background.

Line 110 opens a file to the screen. **Lines 120 and 130** print a short description of the program on the screen. **Line 140** closes the file. **Line 150** draws a box around the area in which the sprites are going to move - this box is not necessary for the collision detection. **Line 160** plays a short tune which will act as a delay before the sprites start moving.

Line 170 sets up the shape of the sprites to be used. Since there's only one shape to be defined, a FOR...NEXT loop with a DATA statement isn't necessary. **Line 180** sets the initial shape, position and direction of the sprites. **Line 190** sets up the interrupt so that whenever the sprites collide, the computer calls the subroutine at **line 280**.

Line 200 is the start of the main routine the computer

• Program 21 - ON KEY

```
100 SCREEN 1,2:COLOR 15,1,1
110 FOR S%=1 TO 4:S$=""
120 FOR F%=1 TO 8
130 READ A$:S$=S$+CHR$(VAL("&H"+A$))
140 NEXT F%:H$(S%)=S$
150 NEXT S%
160 ON KEY GOSUB 1100,1200,1300,1400
170 KEY(1)ON:KEY(2)ON
180 KEY(3)ON:KEY(4)ON
200 X%=0:XS%=2
210 C%=2:SPRITE$(0)=H$(1)
1000 PUT SPRITE 0,(X%,90),C%
1010 X%=X%+XS%
1020 IF X%=250 OR X%=0 THEN XS%=-XS%
1030 GOTO 1000
1100 SPRITE$(0)=H$(1):C%=2:RETURN
1200 SPRITE$(0)=H$(2):C%=5:RETURN
1300 SPRITE$(0)=H$(3):C%=6:RETURN
1400 SPRITE$(0)=H$(4):C%=13:RETURN
5000 DATA 7E,BD,BD,E7,BD,C3,7E,FF
5010 DATA C3,7E,99,FF,66,7E,42,C3
5020 DATA 3C,76,FF,E0,E0,FF,7E,3C
5030 DATA 3C,3C,18,FF,18,3C,66,C3
```

• Program 22 - ON SPRITE

```
100 COLOR 15,1,1:SCREEN 2,3
110 OPEN "GRP:"AS#1
120 PRESET(10,30):PRINT#1,"THE COMPUTER CAN CHECK"
130 PRESET(10,40):PRINT#1,"FOR COLLISIONS:"
140 CLOSE #1
150 LINE(10,60)-(210,180),6,BF:LINE(20,70)-(200,170),1,BF:BEEP
160 PLAY "V15T25503L6S9M2000CDCEFD", "V15T25505L6S9M2000CDCEFD"
170 S$="<~"+CHR$(153)+CHR$(153)+CHR$(255)+CHR$(219)+"f<"
180 SPRITE$(0)=S$:X1%=30:Y1%=90:Y2%=140:PX%=5:PY%=3:QY%=6
190 ON SPRITE GOSUB 280:SPRITE ON
200 PUT SPRITE 0,(X1%,Y1%),13,0
210 PUT SPRITE 1,(100,Y2%),2,0
220 X1%=X1%+PX%:Y1%=Y1%+PY%:Y2%=Y2%+QY%
230 IF PLAY(2) THEN 230
240 IF X1%<21 OR X1%>183 THEN PX%=-PX%
250 IF Y1%<71 OR Y1%>153 THEN PY%=-PY%
260 IF Y2%<71 OR Y2%>153 THEN QY%=-QY%
270 SOUND 8,0:GOTO 200
280 PUT SPRITE 0,,15
290 PUT SPRITE 1,,5
300 SOUND 7,&B11111110:SOUND 8,15:SOUND 0,2
310 RETURN
```

loops round for the rest of the program. **Lines 200 and 210** display the two sprites at their current position. **Line 220** updates the positions of the sprites. **Line 220** pauses the program until any music playing has finished. **Lines 240-260** change the direction of the sprites if they are out of the box that's drawn on the screen. Note that this checking is done conventionally - there's no command to check for sprites colliding with things drawn on the hi-res screen. **Line 270** turns off any sound playing and loops back to **line 200**. **Lines 280-310** make a sound and flash the sprites. This is the routine that's called by the interrupt command.

EASTERN PROMISE FROM GRAHAM KNIGHT

Swing to RGB

Some MSX manufacturers have released improved versions of their MSX computers. The most noticeable change has been that many have upgraded to 64K RAM and some have added RGB output to a European style, 21 pin SCART connector.

Yamaha is one of the manufacturers which have released an accessory which changes a composite video output to RGB which is suitable for professional monitors.

Extensions to MSX BASIC

The strength of the MSX market in Japan can be judged by the fact that there are now over 50 MSX books. Some are for beginners but many are very detailed handbooks which teach the complexities of Machine Code and Assembler language programming. Many of the books appeal to special interest groups like music and computer art. It is interesting to see that many of these books make use of the extensions to MSX BASIC provided with accessories like the Sanyo light pen or the Yamaha music cartridges.

The light pen adds SPAIN, SPSET, BLINE, and LLINE. These are Super Paint which allows the "framing lines" to be a different colour from the filled colour. Super PSET stops those overlaps of colour on adjacent dots. BLINE draws a bold (3 x 3 dot) line between specified points. LLINE draws a light line and takes special care with the colour overlap when lines intersect.

The Yamaha cartridge adds 40 new BASIC commands including those to select track, start, rhythm, tempo, transpose, phrase,

Sexy MSX

The Japanese have a healthy attitude to sex - Tokyo isn't the biggest city in the World for nothing! Some of the late night sex education programs on TV would give Mrs. Whitehouse a heart attack before she reached the switch. It was therefore no surprise to see MSX games called *Sex Shooter*, *Sex Party*, and *Don Juan*. Another would be of interest to the Clive James TV show - *Sex Endurance*.

These programs would best be described as adventure games. One shows a multi-storied Japanese hotel with a man walking up to a girl and handing over money. Just in case they ever get released over here I won't describe the subsequent screens except to say the graphics are animated and revealing.

A tape marked *Birth Control* caught my eye in a Kyoto shop. The salesman laughed as he ran the

program. After a lot of confusion I found it was being sold as a birth control aid. Various dates are entered and the screen then displays the following 30 days with the dates in either blue, orange or red. The salesman said "Blue equals good, orange equals maybe not good". When asked to explain the red he and his staff of four went into fits of laughter before someone eventually said "These days are dangerous..."

Tape Level Meter

One of the surprising things about MSX is that there is no standard recording level for saving and loading tapes. This can mean that users have to adjust the volume controls on their recorders to different settings for different tapes. A new MSX accessory - the tape level meter - takes care of this by being placed between the cassette unit and the MSX computer.

EAST

standby, sync, etc. These are all for use in BASIC programs which play music. The extensions mean that less user RAM is available but this is not a problem with even the most complex music program.

Pioneer and JVC also have extensions to the standard MSX BASIC to enable the interactive use of laser disks. Now that Philips, the inventors of Laser Vision, have started making MSX micros we may see Laser games in Europe yet. They're certainly popular in Japan.

Compass – the music shop

One of the best computer shops in Japan is Compass of Osaka. They have just moved to new premises and they have enlarged their computer music section. A complete floor is devoted to computers and music and it is usually crammed with people who are called "MIDI-freaks".

The Compass shop is overflowing with all sorts of Roland and Yamaha equipment connected to MSX computers via MIDI. Many of the staff speak good English and most are electronic whizz kids. The latest craze is to carry small portable keyboards linked by a radio transmitter to the computer's MIDI. This gives the musician freedom of movement when he is performing. A group of three punk style musicians in the shop were singing a song called appropriately "Me Am A MIDlot".

Sanyo Video Enhancer

Sanyo have a number of MSX models on sale in Japan which have not been released in the UK. The MCP 5 has 32K RAM and a double cartridge slot and another model has a built in cassette recorder.

The Sanyo MCP11 is one of the most expensive models at 99,000 yen. It features a completely

detachable keyboard and has all the usual MSX features plus RGB output. When used with Sanyo's Video Enhancer the resolution is more than doubled with over 100,000 available pixels.

One unique feature of this combination is its ability to freeze a frame from the standard TV display and to store the picture digitally in the MSX memory. The colours and graphics can then be altered with the Sanyo light pen and resaved to cassette tape. Like its fellow MSX models from JVC and Pioneer the Sanyo MCP11 can superimpose computer graphics onto standard TV or video graphics. The MCP11 is proving to be a popular item in the special shops which cater for the enthusiastic video buff who already has his own video editing suite and wants to add computer graphics.

RS-232 and modems

Sanyo, Toshiba and JVC have all been demonstrating new RS-232 interface cards which fit into the MSX cartridge slot. Toshiba have been getting valuable publicity by linking their MSX micro, via satellite, to the American network known as 'The Source'. As most young Japanese are fascinated by the west, this has received a lot of attention.

Pioneer laser software

Pioneer are having a great deal of success with Laser Discs in Japan. Once they were the sole supplier, but now Sony have started to manufacture laser discs for the home market. Pioneer's MSX computer, which operates interactively with software on Laser Disc, is not yet on sale in Europe but has enjoyed very good sales in Japan.

Sales have been so good that Pioneer have announced that they'll produce one new Laser Disc program for their MSX every

month. The latest titles include two mystery stories where the user has to play detective by watching the murder scenario and then identifying the killers. These discs have some spine chilling sounds accompanying truly horrific graphics.

Strike Misson and Astron Belt are two more laser games. Astron Belt is by far the best. The player can use the keys or a joystick to manoeuvre a space craft through space and then fly through high mountain ranges and pass through a narrow gorge.

MSX on TV

Europeans tend to think of Japanese TV programs as all being like the "endurance quiz". This is not the case. A lot of Japanese TV programmes are educational and some of the stations are running hour long 'Teach yourself BASIC' courses using MSX computers. This gives all the manufacturers a great chance to advertise their products during the program *and* in advertising breaks. Independent software houses like *Hal*, Konami and Hudson also take TV spots to advertise their programs.

MSX Printers

The success of MSX computers has meant a whole new market for Japan's printer manufacturers. Seiko have introduced the GP-50MX version of their popular GP-50 printer. It sells for 29,800 yen (about £99) and is very popular as it can print graphics.

The giant Brother corporation have also introduced MSX versions of their popular HR-5 with the proper MSX character generator – this model is designated HR-5X and sells for 39,800 yen (about £133). Brother also have the larger tractor fed model M-1009X which sells for 49,800 yen (about £166).

Yew is a printer manufacturer who specialises in printer-plotters at the higher priced end of

the market. They've just introduced their PI500 model which plots in four colours with four pens on full size single sheet or roll paper. This model sells for 84,800 yen (about £280).

Citizen, a company known in the UK for their watches and calculators have an interesting two colour dot matrix printer which uses 4 inch wide paper. It's called the Citizen MSX Boy and costs 29,800 yen (about £99). Yamaha also have a printer suitable for word processing *and* printing the complex Japanese characters – it costs 89,800 yen (about £299).

MSX Pascal Compiler

ASCII Microsoft have just released a pascal compiler language which is suitable for use on all MSX computers. The language has all the usual pascal features like PROCEDURE, BEGIN, WRITE, etc. Plus, it's been cleverly written to handle scaling and sprites. It's a true compiler so programs written in pascal are compiled to machine code for extremely fast execution. This is the first of the new languages for MSX ASCII Microsoft themselves. Work is progressing on a BASIC compiler which should speed up programs by a factor of ten. A number of independent software houses in Japan have produced Assembler and Machine Code aids for MSX and these sell for the equivalent of about £25 per tape.

Extra MSX slots

Last issue, I mentioned the new four cartridge slot expansion unit from Toshiba. The same company has now introduced a double expansion slot which connects onto their 50 bus at the back of the HX-10 computer. This two way expanded costs about £30 and allows you to have three MSX slots in use simultaneously. The price for the four slot expander is now fixed at £125.

Jeremy Vine with the second instalment of his series for the tone deaf.

Sound is more complicated than just the pitch, duration and volume parameters that we looked at last month. The PLAY command which I concentrated on is a very powerful statement that controls much of the output of the sound generator. However, to get the most out of the sound chip the programmer needs direct access to it. This area is usually restricted to the domain of the 'knowledgable or advanced programmer' as many manuals describe it. But this need not be the case with the MSX sound chip.

True, controlling the shape of a sound wave is more difficult to understand, but with a little effort anyone can create new and novel sounds and with thought a library of sound effects can be built to aid your musical or sound endeavours. Now, you might be thinking that a knowledge of machine code or some such other language would be needed but the sound chip can be directly controlled from MSX BASIC. The command to do this is the SOUND command and it allows you to control the output of the PSG (Programmable Sound Generator). What do I mean by control? Type in the following example program.

Program 1

```
10 SOUND 0,0: SOUND 6,250: SOUND 7,82
20 SOUND 2,130: SOUND 8,16: SOUND 13,0
```

The sound generated is approximate to a cannon firing or an explosion, and the sound gradually dies away. Unlike the PLAY command, I have created with **program 1** a noise effect which could be used in a game. You can see from the way the command is written that the SOUND statement has two

parameters. But don't be fooled. This disguises the complexities of the SOUND command. To understand what is happening in **program 1** we need a thorough knowledge of what the SOUND command is doing.

Firstly I should point out that I'm going to make assumptions about your understanding of the way computers work. Don't worry if the terms are meaningless phrases of jargon as you can proceed to create sounds without an in-depth comprehension, though the more you understand, the wider your range of effects will be.

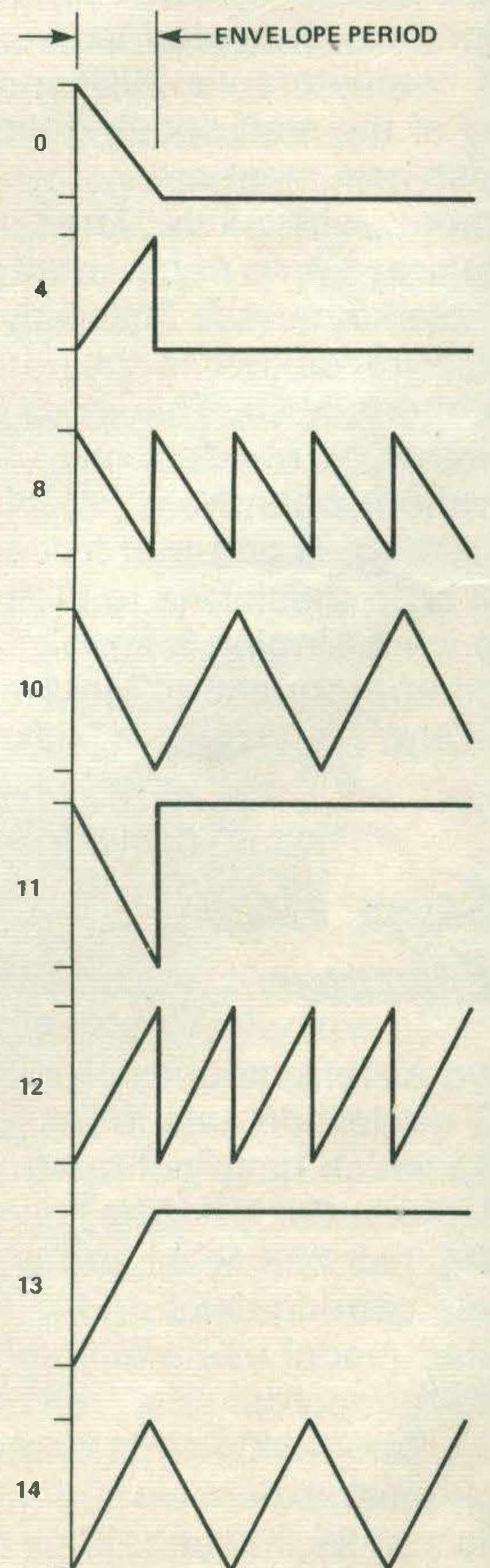
The AY-2-8910 PSG has fourteen 8-bit registers, in the range 0 to 13. These registers can be written to

with a range between 0 to 255. The registers control all aspects of the sound output of the machine and by writing directly to these registers, the sound produced can be directly manipulated by the user.

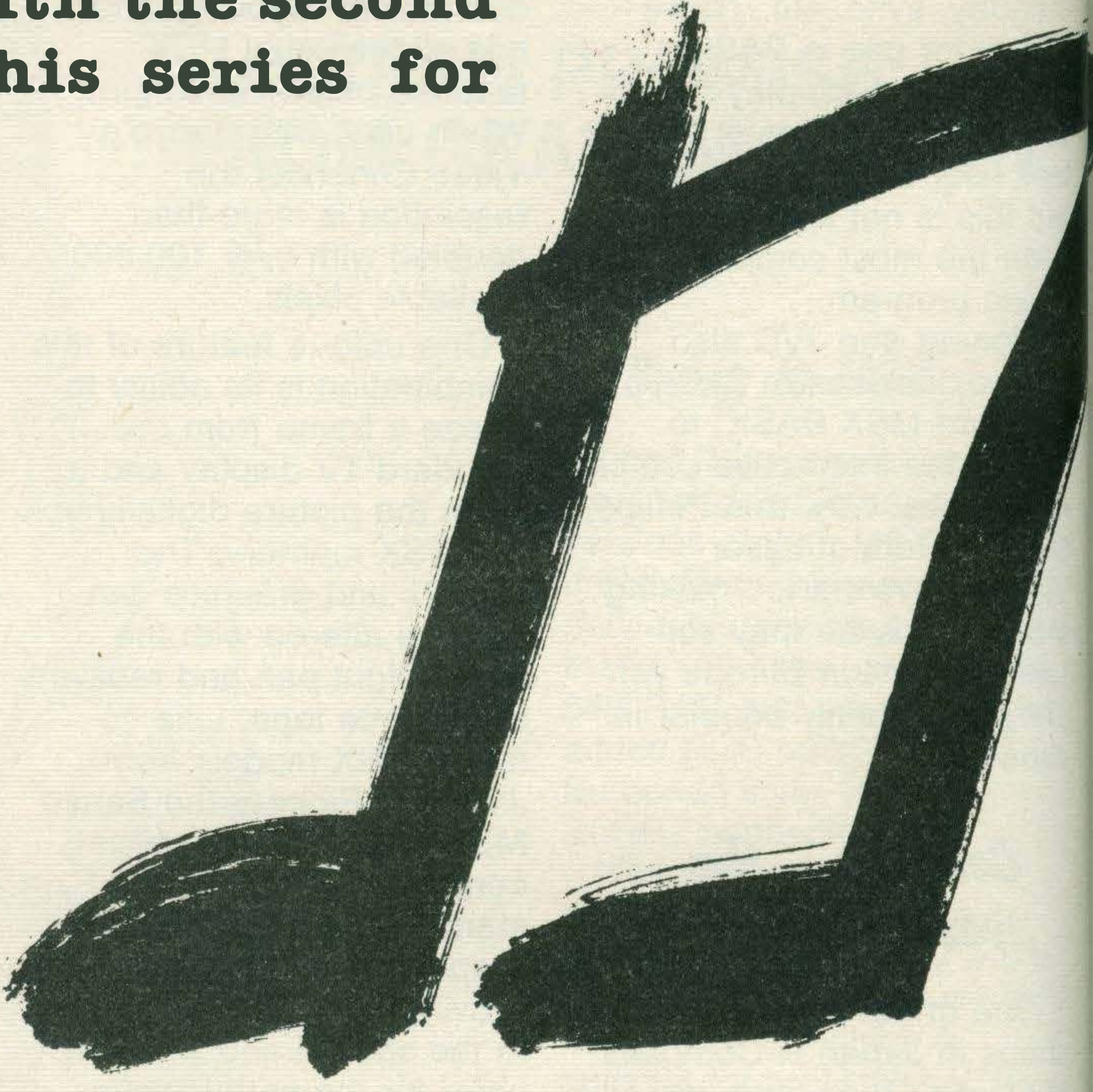
The first six registers (0 to 5) are concerned with the 3 voice channels. Register 0 controls the lower 8 bits of

the frequency of voice channel A whilst register 1 controls the upper 4 bits of voice A. The same applies to voice B, which is set from registers 2 and 3, and registers 4 and 5 control channel C.

Figure 1



SOUND ADVICE



Before looking at the remaining 8 registers let's consider the waveforms that the PSG can generate. As I explained briefly last month, the reasons we hear differences in sounds is because the shape of the sound wave changes. To a certain extent we can alter the shape of a sound wave and within MSX machines it is possible to use 8 different waveforms. **Figure 1** shows you these waveforms.

To see their effect we will use the PLAY command. Last month I left 2 parameters of the PLAY command unexplained, these being M and S. These allow sound effects to be produced which are normally outside the range of sounds in the PLAY command. To see what I mean type in the following line:

```
10 PLAY "m805s8a"
```

This plays the note 'A' but using the 'M' and 'S' sub-commands. 'M' sets the envelope period used by the PSG. The range for this command is 1 to 65535. The shape of the waveform is altered by the 'S' parameter and this number can be in the range 1 to 15. However, take note that there are only eight waveforms, those being the shapes shown in **Figure 1**. The other numbers merely repeat

another waveform.

One important thing to point out at this stage is that you shouldn't use the 'V' (Volume) sub-command (as described last month) in your PLAY statement if using 'S'. This is because 'V' resets the 'S' and 'M' commands to their default values of 1 and 255 respectively.

To get a feel for what these commands do and how they effect the sound generated, use the above example but replace the number after 'S' with each of the 8 waveforms numbers. Try altering the 'M' value as well. You should be able to see how altering the 'M' command affects the 'S' statement. To help you on your way also try the following line using 50,255,600,900,1500,1800,5000 and 8000 for 'M', and also varying the 'S' variable as appropriate.

```
10 PLAY "m200s14o4cdefgabo5c"
For a piano-like sound try 'M' at 5000 and 'S' at 11.
```

Instruments

To create your own instrument sounds you will need to think very carefully about the shape of the sound. It is possible to a limited degree to produce a

Program 2

```
10 DIM REG(255)
20 FOR X=0 TO 13:SOUND X,0:NEXT
30 CLS
40 PRINT"The following allows you to input"
50 PRINT"the values for each of the sound"
60 PRINT"registers"
70 PRINT
80 FOR X=0 TO 13
90 PRINT"Enter value for register ";X
100 INPUT REG(X)
110 NEXT
120 FOR X=0 TO 13
130 SOUND X,REG(X)
140 NEXT
150 PRINT"Do you want another sound (Y/N)?"
160 A$=INKEY$:IF A$="" THEN 160
170 IF A$="Y" OR A$="y" THEN 30
```

sound not unlike a particular musical instrument. However, it is very much an approximation. Firstly because we are dealing with an electronic sound chip that produces square sine waves, the sounds will always have that 'electric' feel to them. Secondly, you may have noticed that one person's clarinet is someone else's violin! For this reason I shan't give you a pre-defined instrument list as you would probably disagree with my choice and anyway that is part of the fun of playing around with the sound chip.

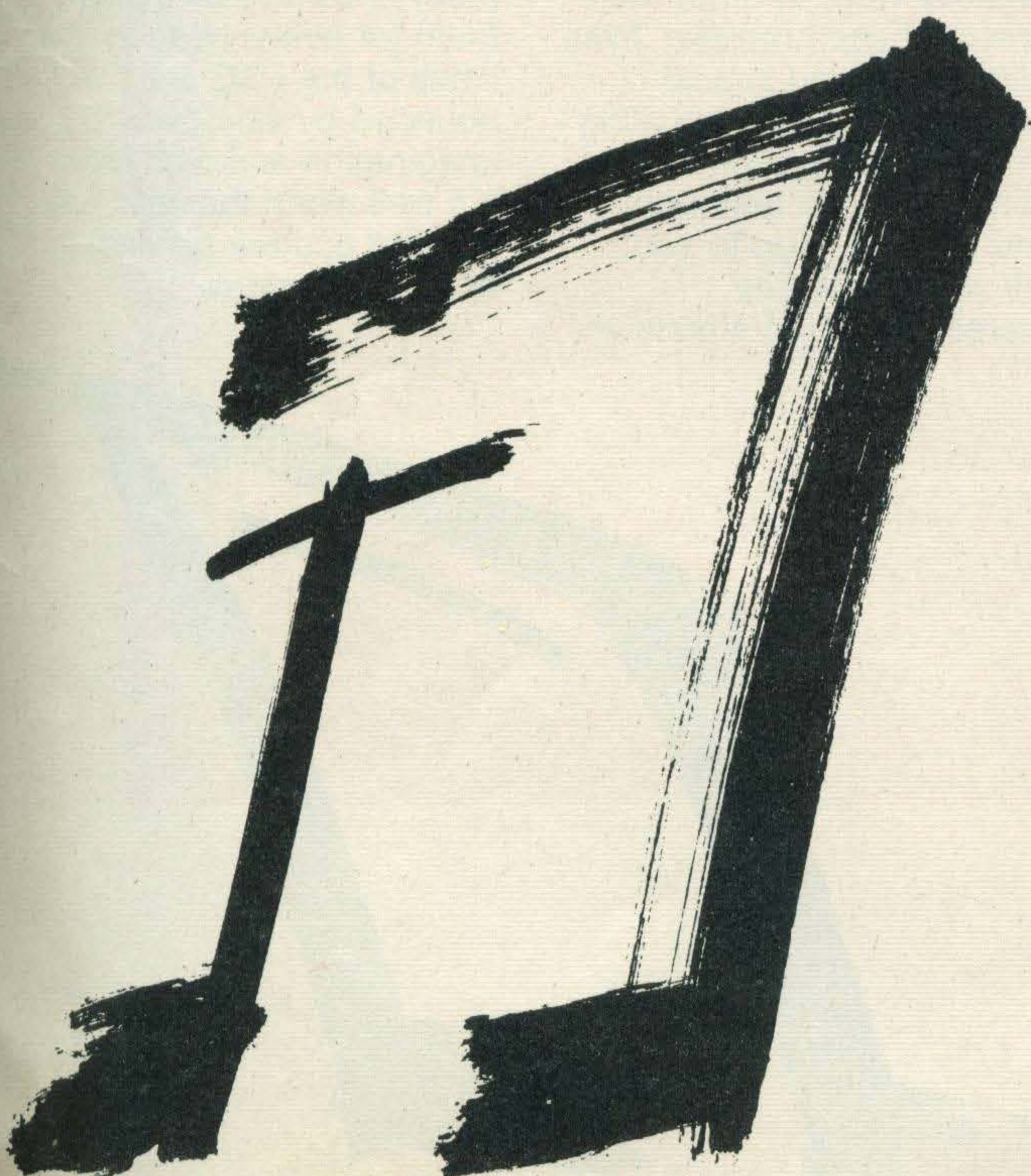
However, I can't leave you totally in the dark, so in **Figure 2** I've given you a few pointers as to how some instrument envelope shapes look. It's by no means the definitive list but should help you on your way. At the end of the day you will decide

which sounds you like best.

Back now to the SOUND command. This is where things become difficult! The remaining eight registers (remember there are 14) determine the amplitude control, noise and manipulation of the envelope. Let's take the easiest first.

Register 13 controls the envelope shape, in other words the waveforms previously discussed and shown in **Figure 1**.

Registers 8 to 10 are similar except they refer to channels A to C respectively, so I'll just explain **register 8**. This determines the control of amplitude for the voice channels. The setting in this register will fix whether the amplitude is fixed or variable and therefore under envelope selection.



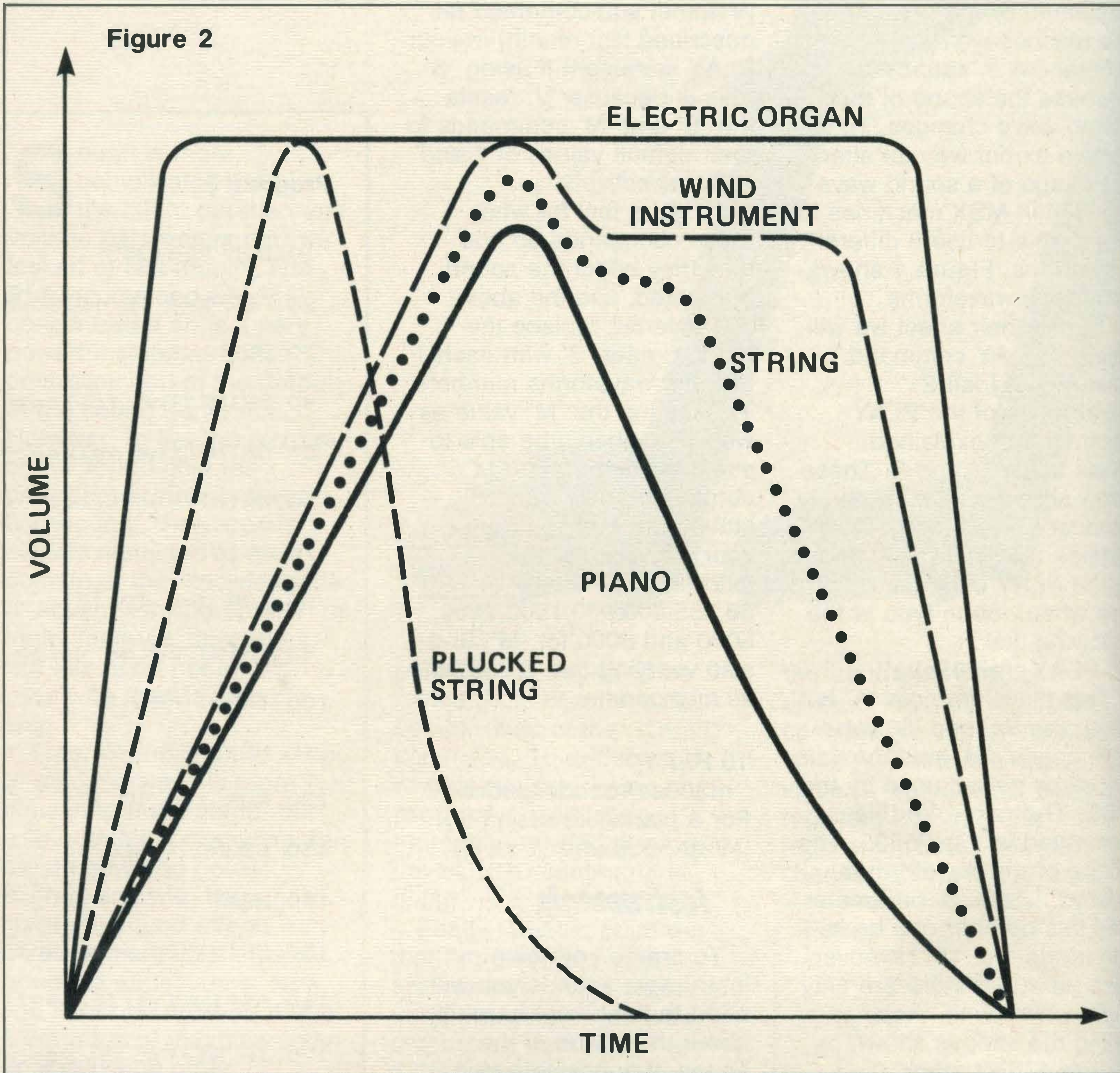
Register 6 is the noise generator and register 7 is the mixed control register. This allows the mixing of tone and noise and is controlled by the bottom 3 bits which enable tone control and the middle 3 bits enabling noise control. These are arranged in reverse order where channel C comes first, B second and A last (ie least significant). 0 enables mixing and 1 disables the voice.

Finally registers 11 and 12 control the envelope period, where 11 is the lower 8 bits and 12 the upper 8-bits.

Now all this must seem very confusing! Well, don't panic! To aid you in discovering what all the above means, type in program 2. This short program will allow you to set all 13 registers and play about as much as you like.

Line 20 clears all the registers so that you start with no previous information. The rest of the program should be self explanatory. I suggest typing in the following numbers to start with and then trying column 2 and 3. See Figure 3.

Column 2 should give you a sound like an engine car running. By changing to the values in column 3 you will then hear an engine growing louder in volume. This is merely an example of how altering a few values can change the effects heard. To attain the most from



program 2, write your own values and concentrate on changing one register at a time to see how that register affects the sound produced.

That concludes our first look at the SOUND command. It has many facets and may seem difficult to get to grips with

but the only answer is to carefully work through the effects of each register. With a little work you should become adept at controlling envelope generation and using the noise generator. And the rest is up to you!

If you create any interesting sound effects or

instrument shapes, send them to us and we'll print them for everyone to try. The limits of the PSG are bounded by your own imagination and hard work. It's well worth the effort and will add another dimension to your programs.

Figure 3

Register:	1	2	3
0	5	5	5
1	6	6	6
2	87	87	87
3	45	45	45
4	243	243	243
5	12	12	12
6	66	245	245
7	90	19	19
8	16	160	160
9	1	121	121
10	82	8	82
11	1	1	1
12	18	180	180
13	4	4	4



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BILL'S SENTENCES

This is an educational game written for children of 5-8 years of age, although it can be adapted to suit older children by changing the DATA lines. When the program is run, a series of sentences will be shown on the screen. Each sentence will have a word missing and you must help Bill to decide which word is missing. To help you, four words will be displayed on the screen and you must move Bill until he is next to the missing word and then press the space bar to make your selection. If you get the question wrong, you'll be shown the correct answer.

Keys Used

Cursor left and cursor right keys to move Bill
Space bar to make your selection

NOTE

Each question is chosen at random from the DATA lines. I have included only 22 questions and you will probably want to add extra questions. This is done by adding extra DATA lines. Each line consists of a sentence with the missing word followed by the four alternative words and finally the number of the correct alternative. If you do add extra questions, you will need to change the number 22 in line 640 to the number of questions in the DATA lines.

Program Breakdown

10	turns off messages
20	select colours
30	choose hires screen with 16x16 sprites
40-130	sprite definition
140-370	titles and instructions
380-630	questions
640	select random question
650-690	READ DATA for question
700-710	print sentence
720-760	draw boxes for words
770-780	detect space bar
790-820	print words
830	test cursor key
840-880	move sprite
890-960	check if answer correct
970-1040	correct answer
1050-1130	wrong answer

Variables used

AS	correct answer
AS(x)	four words
B\$	sentence
B	number of your word
A	number of correct answer
T	test cursor keys
X,Y	coordinates of sprite
P	random number for question
S\$	sprite definition


```

10 KEY OFF
20 COLOR 4,15,1
30 SCREEN 2,2,0
40 RESTORE 100
50 FOR X=1 TO 32:READ D
60 S$=S$+CHR$(D)
70 NEXT X
80 SPRITE$(1)=S$
90 PUT SPRITE 1,(100,100),7,1
100 DATA 7,13,30,13,5,1,15,17
110 DATA 17,17,57,1,7,7,0,0
120 DATA 224,176,120,176,160,128,240,72
130 DATA 72,72,92,64,112,112,0,0
140 A$="Bill's Word Game"
150 OPEN"grp:" FOR OUTPUT AS #1
160 FOR X=1 TO 255
170 PUT SPRITE 1,(X,50),1,1
180 Y=0:IF X/15=INT(X/15) THEN Y=X/15
190 IF Y>0 THEN B$=MID$(A$,Y,1):PRESET(X,80):PRINT#1,B$
200 NEXT X
210 A$="<C> Steve W. Lucas 1984"
220 FOR X=1 TO 255
230 PUT SPRITE 1,(X,120),1,1
240 Y=0:IF X/10=INT(X/10) THEN Y=X/10
250 IF Y>0 THEN B$=MID$(A$,Y,1):PRESET(X,170):PRINT#1,B$
260 NEXT X
270 FOR X=1 TO 1000:NEXT X
280 CLS
290 PRESET (10,4)
300 PRINT#1,"In this game you will be shown a sentence with a word
missing."
310 PRINT#1,"Four words will be displayed in boxes underneath and yo
u must move Bill until he is next to the missing word."
320 PRINT#1,"When you have done this, press the <SPACE BAR> to make
your selection."
330 COLOR 1:PRESET (10,170)
340 PRINT#1,"Press the <SPACE BAR> to start."
350 A$=INKEY$
360 P=RND(1)
370 IF A$<>" " THEN 350
380 RESTORE 390
390 DATA The dog lives in a ---,hut,sty,kennel,nest,3
400 DATA I stayed at the --- of the road,side,tide,hide,bide,1
410 DATA We went to the ---,lark,park,bark,mark,2
420 DATA Mum put the rubbish in the ---,tin,pin,bin,din,3
430 DATA The boy read a ---,book,chalk,look,rook,1
440 DATA Dad likes to wear a ---,tap,rap,lap,cap,4
450 DATA I like to ride in a ---,tar,far,car,bar,3
460 DATA I wrote a letter with my ---,ten,men,pen,den,3
470 DATA Mary was very ---,dad,fad,lad,sad,4
480 DATA I like --- on my toast,jam,dam,ram,cam,1
490 DATA I saw a lion at the ---,too,few,zoo,boo,3
500 DATA The fire was very ---,cot,hot,rot,dot,2
510 DATA I opened the ---,hate,gate,late,rate,2
520 DATA We played in the ---,sand,and,land,hand,1
530 DATA The sea was very ---,gold,sold,cold,hold,3
540 DATA We put the baby in a ---,dam,ham,sam,pram,4
550 DATA The weather was very ---,sunny,funny,money,runny,1

```



```

560 DATA The car was very ---,last,past,mast,fast,4
570 DATA The barber --- my hair,hut,cut,rut,nut,2
580 DATA There were two peas in the ---,rod,pod,tod,dod,2
590 DATA I bought a cake in the ---,hop,top,shop,mop,3
600 DATA The plane was a ---,pet,met,let,jet,4
610 DATA Mary put the food in a ---,fish,dish,wish,wash,2
620 DATA The dog chases a ---,mat,bat,fat,cat,4
630 REM *** add extra lines here to suit yourself ***
640 P=INT(RND(1)*22+1)
650 FOR Y=1 TO P: READ B$
660 FOR X=1 TO 4:READ A$(X):NEXT X
670 READ A:NEXT Y
680 READ B$:FOR X=1 TO 4:READ A$(X):NEXT X:READ A
690 IF B$="x" THEN RESTORE 390:GOTO 680
700 CLS
710 COLOR 1:PRESET (10,10):PRINT#1,B$
720 LINE(10,100)-(68,120),3,BF
730 LINE(69,100)-(127,120),7,BF
740 LINE(128,100)-(185,120),14,BF
750 LINE(186,100)-(245,120),8,BF
760 COLOR 1
770 STRIG(0) ON
780 ON STRIG GOSUB 890
790 PSET(16,105),3:PRINT#1,A$(1)
800 PSET(73,105),7:PRINT#1,A$(2)
810 PSET(131,105),14:PRINT#1,A$(3)
820 PSET(192,105),8:PRINT#1,A$(4)
830 T=STICK(0)
840 IF T=3 THEN X=X+1:IF X>245 THEN X=245
850 IF T=7 THEN X=X-1:IF X<0 THEN X=0
860 PUT SPRITE 1,(X,130),7,1
870 GOTO 830
880 GOTO 880
890 STRIG(0) OFF
900 IF X<68 THEN Y=1
910 IF X>67 AND X<127 THEN Y=2
920 IF X>126 AND X<185 THEN Y=3
930 IF X>184 THEN Y=4
940 IF Y=A THEN GOSUB 970 ELSE GOSUB 1050
950 RESTORE 390
960 GOTO 640
970 CLS
980 STRIG(0) OFF
990 PRESET(3,10)
1000 PRINT#1,"Well Done. You got it right!"
1010 PRESET(4,22)
1020 PRINT#1,"Do you want to continue?"
1030 A$=INKEY$:IF A$="Y" OR A$="y" THEN RETURN
1040 GOTO 1030
1050 STRIG(0) OFF
1060 PRESET(10,50)
1070 PRINT#1,"Sorry it was :--"
1080 PRESET(180,50)
1090 PRINT#1,A$(A)
1100 PRESET(4,22)
1110 PRINT#1,"Do you want to continue?"
1120 A$=INKEY$:IF A$="Y" OR A$="y" THEN RETURN
1130 GOTO 1030

```


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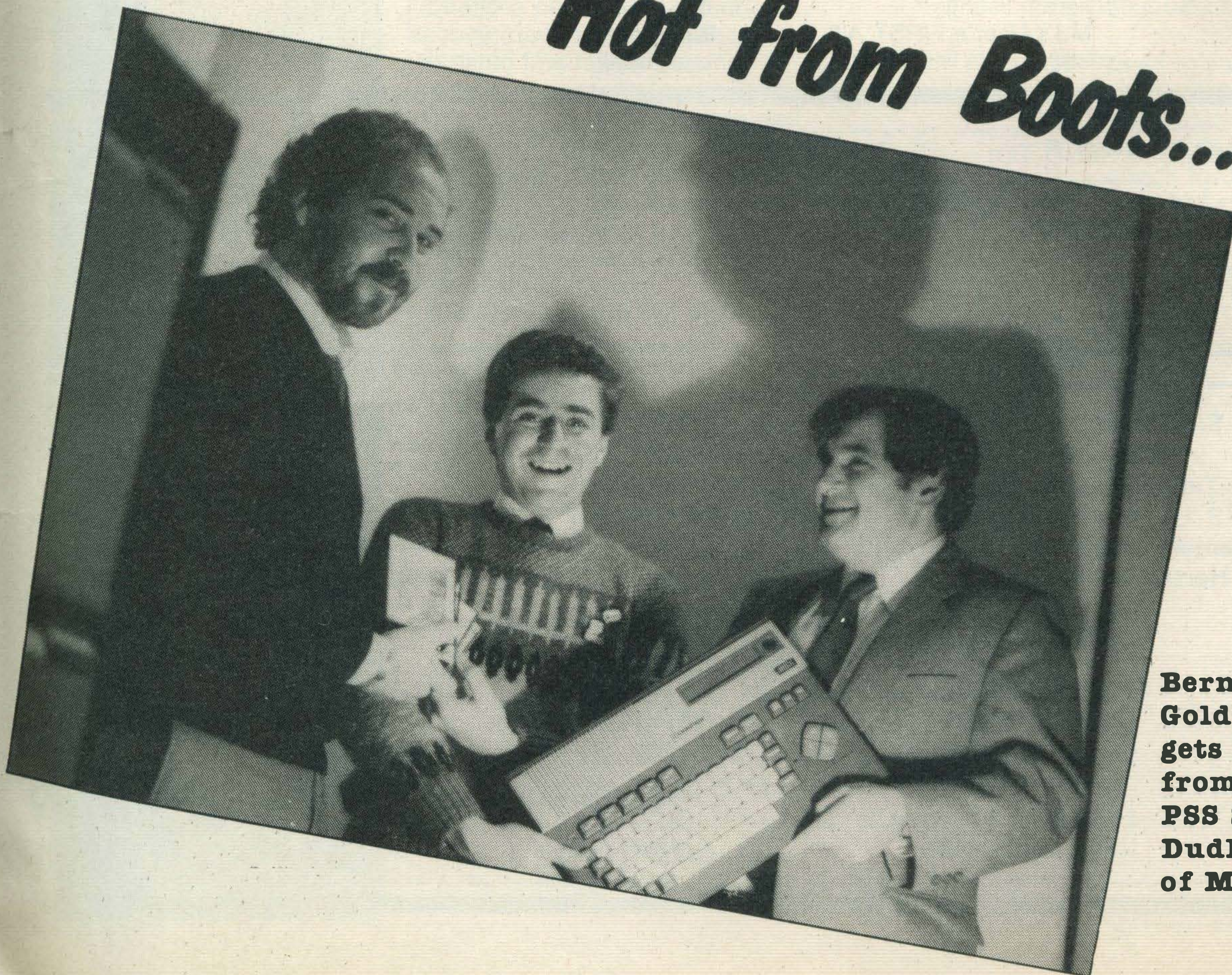
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Hot from Boots...



Bernard Hatch, Goldstar winner, gets his just deserts from Gary Mays of PSS Software and Dudley Langmead of Microdealer.

You are the commander of a lunar module and your task is to touch down safely on the landing pad which is shown (in red) on the screen. If you crash into the mountains or land at too high a speed, you will destroy the craft and kill yourself (a blunt man, Steve - Ed. Ass). Although lunar gravity is only one sixth of that on earth, you will need to use your engines to slow down the descent, but this will use up your valuable fuel, as of course, will using the engines to manouver left or right.

Controls:

cursor left and cursor right: fire side thrust
 cursor up: fires engines to slow descent

Program Breakdown

10	initialise messages
20	select colours
30	turn off messages
40	screen mode
50	allows text on hires screen
60-70	print fuel
80-180	sprite definition
190-340	draw landscape
350-360	draw sun
370	initialise variables
380	draw landing pad
390	place sprites for lunar lander
400	poll cursor keys
410-570	test location and move coordinates
580-590	land too fast
600-650	safe landing
660-690	crash
700-730	run out of fuel

Variables used

S\$	used in sprite definitions
D	read data
X,Y	coordinates of sprites
R	rate of descent
D	check for firing of engines
X\$	messages
A\$	keyboard input
V	drift velocity
P	check colour of screen location
T	scan joystick keys

```

10 X$=""
20 COLOR 11,4,1
30 KEY OFF
40 SCREEN 2
50 OPEN"grp:" FOR OUTPUT AS #1
60 PSET (10,11)
70 PRINT#1,"Fuel"
80 DATA 1,3,3,3,15,25,56,58
90 DATA 192,224,224,224,248,204,14,174
100 DATA 0,128,143,241,255,127,3,2
110 DATA 0,0,0,8,232,252,8,8
120 FOR X=1 TO 4:S$=""
130 FOR Y=1 TO 8
140 READ D
150 S$=S$+CHR$(D)
  
```

LUNAR LANDER


```

160 NEXT Y
170 SPRITE$(X)=S$
180 NEXT X
190 LINE (0,140)-(25,190),3
200 LINE (25,190)-(40,170),3
210 LINE (40,170)-(50,181),3
220 LINE (50,181)-(85,155),3
230 LINE (85,155)-(95,155),3
240 LINE (95,155)-(100,175),3
250 LINE (100,175)-(120,125),3
260 LINE (120,125)-(125,105),3
270 LINE (125,105)-(140,180),3
280 LINE (140,180)-(155,95),3
290 LINE (155,95)-(171,133),3
300 LINE (171,133)-(195,179),3
310 LINE (195,179)-(209,125),3
320 LINE (209,125)-(221,135),3
330 LINE (221,135)-(255,100),3
340 PAINT (100,191),3
350 CIRCLE (30,40),20,11
360 PAINT (30,40),11
370 X=200:Y=0:Z=1:Q=0
380 LINE (82,147)-(98,155),6,BF
390 PUT SPRITE 1,(X,Y+R),7,1:PUT SPRITE 2,(X+8,Y+R),7,2
400 T=STICK(0)
410 IF ZZ>255 THEN GOSUB 700
420 D=0
430 IF T=1 THEN D=1: IF POINT (X+4,Y+9)=3 THEN GOSUB 660
440 IF T=3 THEN V=Z:Y=Y+R: IF POINT (X+17,Y+4)=3 THEN GOSUB 660
450 IF T=0 THEN Y=Y+R: IF POINT (X+8,Y+9)=3 THEN GOSUB 660
460 IF T=7 THEN V=-Z:Y=Y+R: IF POINT (X-1,Y+4)=3 THEN GOSUB 660
470 IF D=0 THEN R=R+.1 ELSE R=-.2
480 IF T>0 THEN LINE (0,0)-(ZZ,8),8,BF:ZZ=ZZ+1:SOUND 7,5:SOUND 8,7:1
F D=1 THEN ZZ=ZZ+1
490 P=POINT(X+4,Y+9)
500 IF P=6 THEN GOSUB 580
510 IF X>255 THEN X=255
520 IF X<0 THEN X=0
530 IF Y<10 THEN Y=10
540 IF Y>191 THEN Y=191
550 IF T=5 THEN Y=Y+1
560 X=X+V
570 GOTO 390
580 SCREEN 0
590 IF R>2 THEN X$="Too fast":GOTO 660
600 BEEP
610 LOCATE 5,5:PRINT"Well done. A safe landing !"
620 LOCATE 1,15:PRINT"Do you want another game <Y>es/<N>o?"
630 A$=INKEY$: IF A$="y" OR A$="Y" THEN RUN
640 IF A$="n" OR A$="N" THEN PRINT"Goodbye . Thank you for playing."
:END
650 GOTO 630
660 SCREEN 0:LOCATE 1,1:?X$
670 LOCATE 5,5:PRINT"C R A S H !"
680 BEEP
690 GOTO 620
700 SCREEN 0
710 CLS:SOUND 8,0:SOUND 9,0
720 LOCATE 5,5:PRINT"You ran out of fuel!"
730 GOTO 620

```



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NEW!

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If you're looking for a personal computer to make music, look no further! Yamaha's amazing CX5 offers the same incredible FM sound synthesizer quality as its famous DX synthesizer series! Plus all the features of the innovated MSX computer system!

CX5M Music Computer

The CX5M is an extremely versatile computer specifically designed for a wide range of music generation, programming and editing tasks, and for interfacing with other Yamaha digital instruments and components. The CX5M is a MIDI compatible computer, allowing it to serve as a control centre for playback and automatic sequencing of the Yamaha DX series synthesizers, RX drum machines and other MIDI compatible equipment.

The CX5M also has a Yamaha digital FM voice generator built-in — the same type of voice generator that has put our DX series Digital Programmable Algorithm Synthesizers at the forefront of the digital keyboard field. That means it is capable of producing rich, realistic sounds that are almost indistinguishable from acoustic instruments. In fact, 46 fine voices are provided pre-programmed. But you can also program your own to create virtually any voice you like. And you can save your original voices on a standard cassette tape.

A wide range of applications programs, interface units and accessories expand its music making potential enormously. **Sophisticated Music software YRM101 FM Music Composer**

This optional program cartridge is a must for all composers and arrangers. It is simply the most sophisticated, versatile, easy-to-use music composition and arrangement package in its class. You get an on-screen music staff onto which you 'write' notes by inputting them either from the computer keyboard or directly from the music keyboard. The ability to input notes from a piano-type keyboard is a real bonus for musicians. Up to eight parts can be entered, and each part can be assigned a different 'instrument'. You can use the superb pre-programmed FM voices in the CX5M, or voices you have programmed yourself. You also have full control over time signature, key signature, tempo, dynamics and phrasing. What's more, any parameter can be changed at any time during the piece. Of course, your compositions can be saved on a standard cassette recorder and reloaded whenever needed.

Furthermore, compositions written on the FM Music Composer can be used to 'sequence' MIDI synthesizers, drum machines, etc via the CX5M's MIDI interface. The possibilities of this software package are virtually endless.

YRM102 FM Voicing Program

This program gives you precise control over the CX5M digital

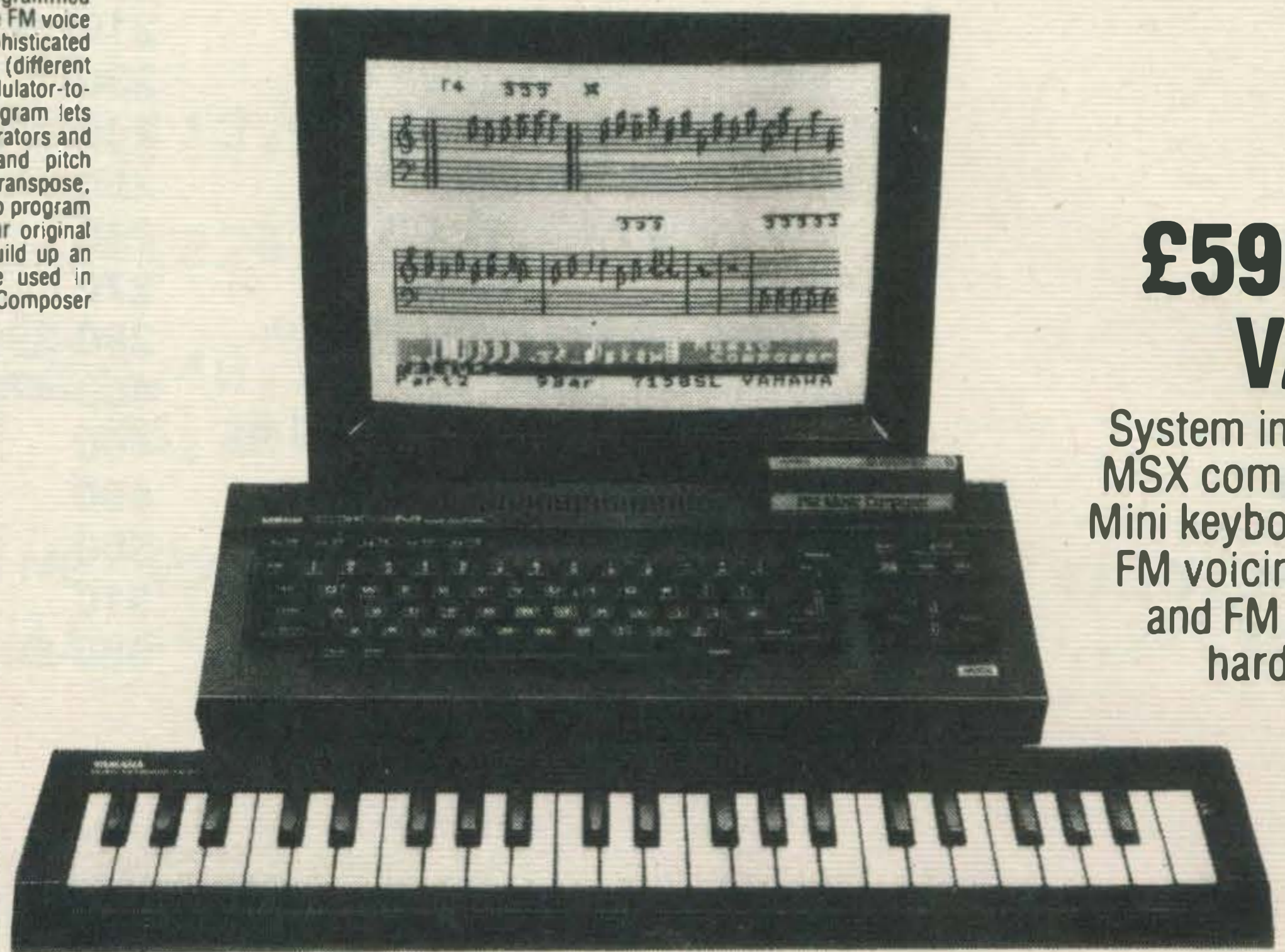
FM voice generator to edit and alter the pre-programmed voices or create totally new voices of your own. The FM voice generator employs 4 operators, each with a sophisticated envelope generator, and a choice of 8 algorithms (different configurations of operators with different modulator-to-carrier relationships). The YRM102 FM Voice Program lets you precisely set all parameters relating to the operators and algorithms, as well as extras like amplitude and pitch modulation, LFO waveform, keyboard scaling, transpose, etc. With a little practice you should be easily able to program just about any voice you can imagine. Save your original voices on any standard cassette recorder, and build up an original voice library. Voices you create can be used in arrangements created with the FM Music Composer program.

YRM103 DX7 Voicing Program

DX7 owner's, here is the key to easy DX7 voice programming. This program displays all DX7 voice parameters right on the video monitor, and lets you program from the CX5M computer keyboard. The data is transferred to the DX7 via the built-in MIDI interface. Voice parameters are displayed in easy-to-understand graph form. For example, when programming envelope generator parameters you can actually see what the programmed envelope curve looks like, rather than having to think entirely in terms of numbers. The DX7 voicing program makes programming the DX7 so easy, that even if you're not interested in the CX5M's other capabilities, it's worth having one just to program your DX7.

YRM104 Music Macro

The Music Macro is for people who want to incorporate top-quality musical voices into their BASIC computer programs. The Music Macro adds a special set of commands to the CX5M MSX BASIC language, permitting control of the digital FM voice generator from within BASIC programs. This makes it possible to program games or audio/visual type programs incorporating music or sound effects using FM voices for real quality and impact.



£599 inc VAT

System includes CX5 MSX computer, YK01 Mini keyboard, YRM12 FM voicing software and FM cartridge hardware!

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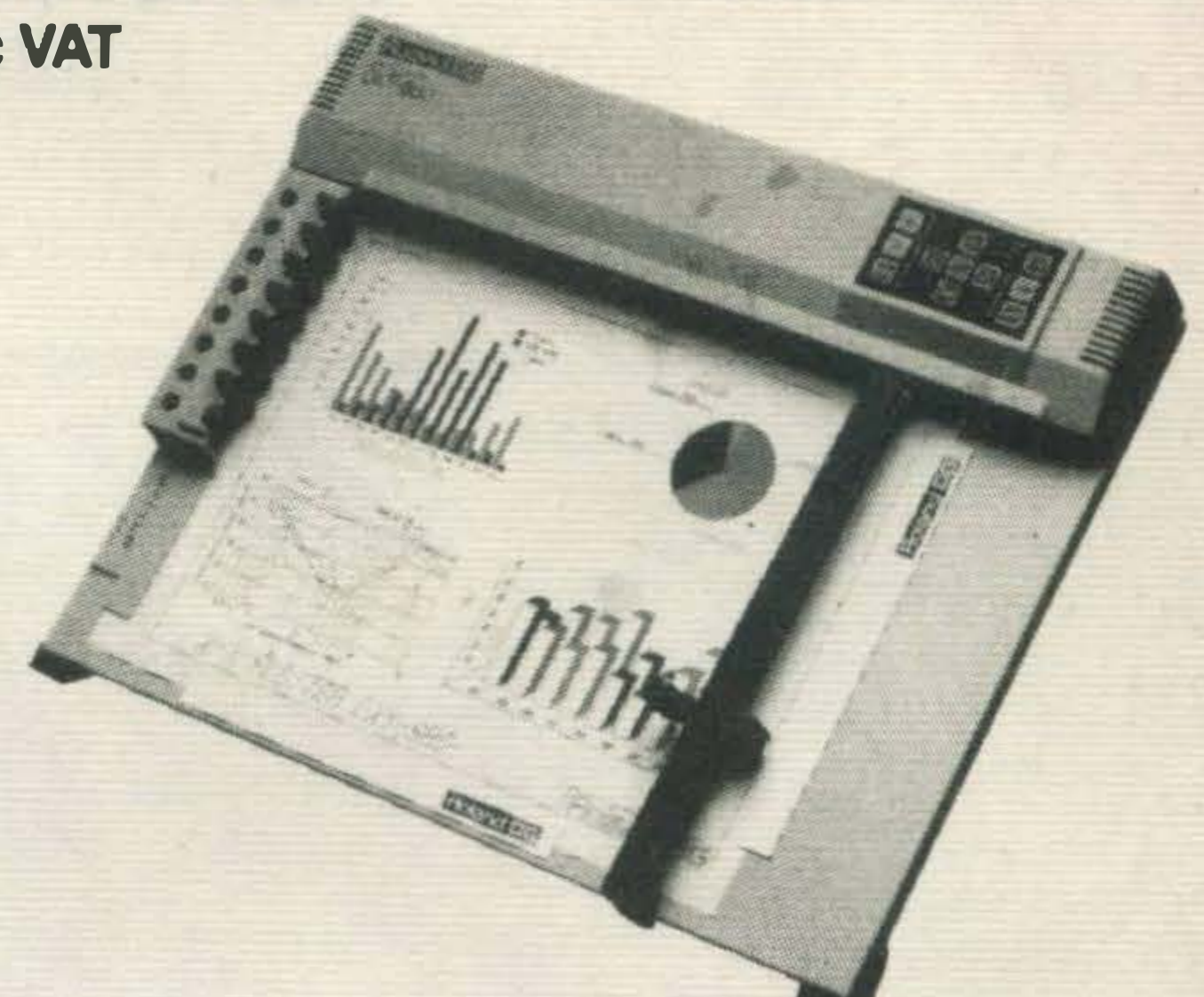
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And Much More. Roland DG also supplies a variety of options, including an overhead transparency kit, several kinds of pens, and connection cables. Use the Roland DG's optional accessories to create beautiful graphics.

DXY-880 SPECIFICATIONS. Plotting area: X-axis 380mm, Y-axis 270mm. Plotting speed: 200m/sec in all directions. Recording paper size: 420x297mm (ISO A3), 17x11in (ANSI B). Recording paper setting: Paper holder and magnet strip. Resolution: 0.05mm/step. Distance accuracy: ±0.5% or less of travelling distance. Repeatability: ±0.3mm or less. Switches: Pen up/down, Home, Pause, P1, P2, Enter, Position (<, >,), Fast, Power. DIP switches: SW-1, SW-2. LEDs: Power/Error, Pen up. Data buffer: 3K bytes (expandable to 10K bytes). International character font sets: English, German/French, Scandinavian, Spanish/Latin, Japanese, Special Symbols. Number of pens: 8 (black, red, blue, green, purple, brown, orange, pink). Power supply: AC adapter (DC 9V, 28V). Power consumption: 35W. Operation temperature: 0°C to 40°C (32°F to 104°F). Operation relative humidity: 20% to 80% (no dew forming). Dimensions: 533(W) x 90(H) x 430(D) mm (21.0" x 3.12" x 16.9" inches). Weight: 4.3kg (9.5lb) without AC adapter. Accessories: XY-4SPB-WN pen set x 1, XY-4SPC-WN pen set x 1, Magnet strip for holding paper x 2, Positioning seal x 1, XY-4PH pen holder set x 1, AC adapter x 1, Vinyl cover x 1. **DXY-880 INTERFACE SPECIFICATIONS.** Centronics Parallel interface. Input signal: STROBE (1 bit), DATA (8 bits). Output signal: BUSY (1 bit), ACK (1 bit). I/O signal level: TTL level. Transfer system: Asynchronous. RS-232C Serial interface. Transfer system: Asynchronous. Half-duplex data communication. Baud rate: 50, 70, 110, 134.5, 200, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200 or 9600 baud. Stop bit: 1 or 2 bits. Parity check: Odd, Even, None. Data bits: 7 or 8 bits. Connector: DB-25S



REAR PANEL

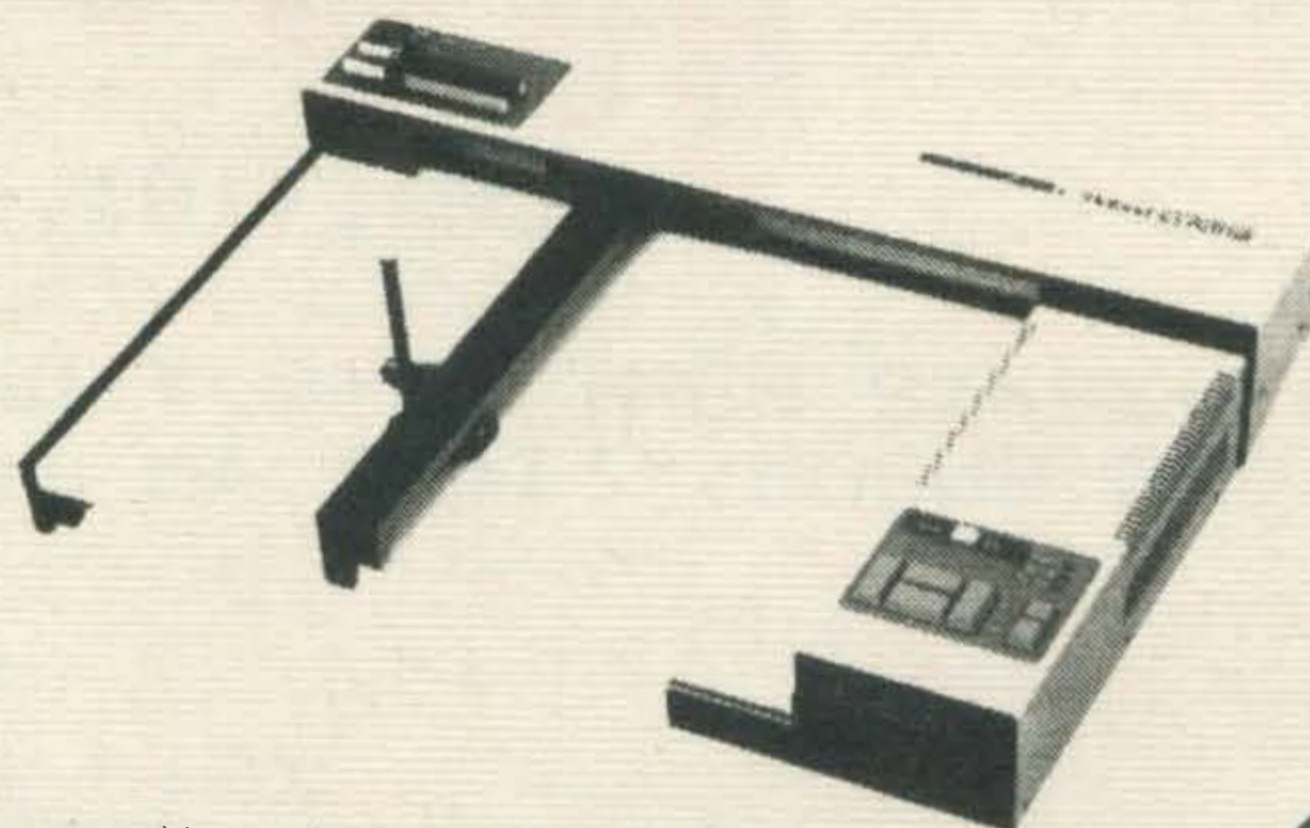


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● **Optional ROM for expanded intelligent functions**
The DXY-100R has an added intelligent function for graphing, including circular arcs, curves, hatchings, etc. with the optional ROM #1 (XY-OR1). This allows simple programming to generate more sophisticated tabulating. Moreover, with the DXY-100R, it is possible to tabulate original characters such as trade marks and symbols simply by writing them into the PROM (2716).

● **Compatible with virtually any personal computer**
The DXY-100R can be connected to any computer with Centronics specification printer compatibility. Since computer output connectors differ, the DXY-100R is not supplied with connecting cords. Use appropriate connecting cords available separately.

MSX/LU 2/85

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ROLAND DXY880 DXY-100R

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Program Breakdown

In this game, the evil witch 'Grezel' is trying to land her broomstick in your village. It's a bright moonlit night and you must move the sights of your weapon using the cursor keys and press the space bar to fire your laser. The light isn't very good and you only score with a direct hit!

Each hit will allow you to refuel your laser, but unfortunately, 'Grezel' will fly faster than before. If your laser runs out of fuel or you allow her to land, you'll lose the game - GOOD LUCK!

40	select colours
50	turns key messages off and sets variables
60	choose hiresolution mode
70	draw fuel line
80-160	define sprites
170-200	draw landscape
210-220	detect space bar
230	print text on hires screen 2
240	poll joysticks
250	change coordinates of witch
260	check if witch landed
270	check for hit
280-390	change coordinates of sprites
400-470	move sprites
480	draw fuel line
490	sound effect... could be changed to suit
500	check for hit
510	run out of fuel
530-580	lose game



WITCH HUNT


```

10 REM ** Witch Hunt **
20 REM ** an arcade style game for MSX machines **
30 REM ** <C> Steve W. Lucas November 1984 **
40 COLOR 1,15,6:S%=0
50 KEY OFF:X=100:Y=170:Z=4:P=240:Q=10:R=●:N=16:T%=0
60 SCREEN 2:COLOR 1,15,6
70 LINE (0,191)-(255,181),7,BF
80 RESTORE:FOR X=1 TO 7:S$="":FOR Y=1 TO 8:READ D:S$=S$+CHR$(D):NEXT
T Y:SPRITE$(X)=S$:NEXT X
90 DATA 32,32,32,252,32,32,32,0
100 OPEN "grp:" FOR OUTPUT AS #1
110 DATA 0,0,0,1,1,3,1,7
120 DATA 64,224,224,240,240,248,112,240
130 DATA 4,1,0,1,3,7,12,24
140 DATA 240,224,192,192,224,224,224,243
150 DATA 255,3,7,7,15,3,0,0
160 DATA 252,243,248,248,252,240,48,16
170 CIRCLE (25,25),25,5:PAINT (25,25),5
180 LINE (0,171)-(255,171),2
190 LINE (0,171)-(50,43),2:LINE (50,43)-(123,56),2:LINE (123,56)-(16
9,169),2:LINE (169,169)-(184,101),2:LINE (184,101)-(207,23),2:LINE (20
7,23)-(255,156),2
200 PAINT (100,100),2
210 STRIG(●) ON
220 ON STRIG GOSUB 480
230 PSET(100,171):PRINT #1,"Fuel"
240 S=STICK(●)
250 P=P-Z:IF P<● THEN P=255:Q=Q+N
260 IF Q>150 THEN X$="The Witch landed !":GOSUB 530
270 IF T%>● THEN Q=10:P=240:R=●:N=N+4:Z=Z+1:T%=●:PLAY"cdc":GOTO 230
280 IF S=1 THEN Y=Y-Z
290 IF S=2 THEN Y=Y-Z:X=X+Z
300 IF S=3 THEN X=X+Z
310 IF S=4 THEN X=X+Z:Y=Y+Z
320 IF S=5 THEN Y=Y+Z
330 IF S=6 THEN Y=Y+Z:X=X-Z
340 IF S=7 THEN X=X-Z
350 IF S=8 THEN X=X-Z:Y=Y-Z
360 IF X<1 THEN X=1
370 IF Y<1 THEN Y=1
380 IF X>238 THEN X=238
390 IF Y>18● THEN Y=180
400 PUT SPRITE 2,(P,Q),7,2
410 PUT SPRITE 3,(P+8,Q),7,3
420 PUT SPRITE 4,(P,Q+8),7,4
430 PUT SPRITE 5,(P+8,Q+8),7,5
440 PUT SPRITE 6,(P,Q+16),7,6
450 PUT SPRITE 7,(P+8,Q+16),7,7
460 PUT SPRITE 1,(X,Y),1,1
470 GOTO 240
480 R=R+10:LINE (255-R,191)-(255,181),15,BF
490 PLAY "f-"
500 IF X>P AND X<P+10 AND Y>Q AND Y<Q+16 THEN S%=S%+1:T%=1:RETURN
510 IF R>250 THEN X$="You ran out of fuel!":GOSUB 530
520 RETURN
530 SCREEN ●:LOCATE 5,5:PRINT X$
540 LOCATE 5,10:PRINT"You scored ";S%
550 PRINT"Do you want to play again <Y/N> ?"
560 F$=INKEY$:IF F$="y" OR F$="Y" THEN RUN
570 IF F$="n" OR F$="N" THEN PRINT:PRINT:PRINT"Goodbye. Thank you fo
r playing !":END
580 GOTO 560

```

Variables used

S%	score
X,Y	coordinates of your sights
P,Q	coordinates of witch
T%	check for hit
Z	speed of movement
S	check cursor keys
S\$	used for sprite definitions
D	read data for sprites
F\$	run again!
X\$	message when you lose the game
N	jump down screen for witch



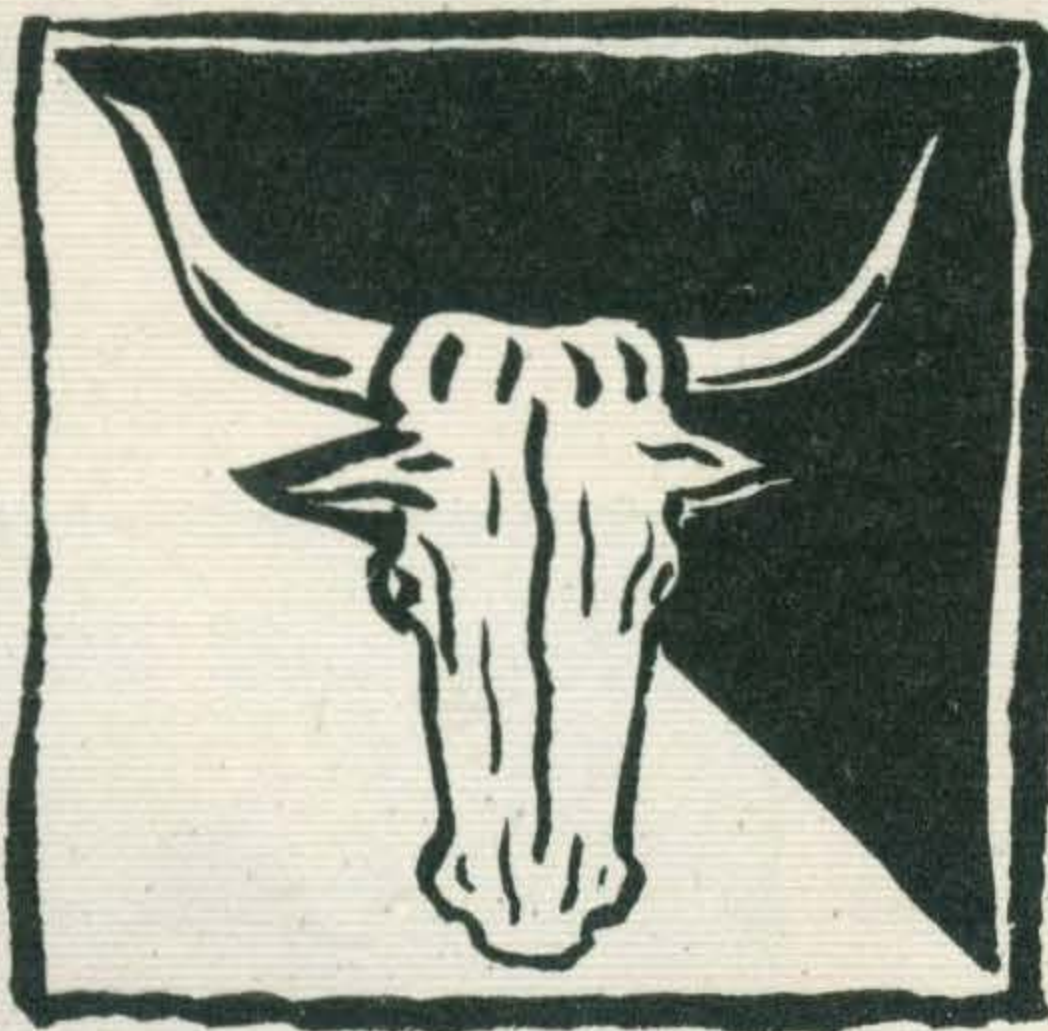
AQUARIUS (Jan. 20 - Feb. 18): A real martyr. Born to reform. Trouble is, you're so busy trying to change the rest of the world you forget about your own life which inevitably is in a mess. You're also easily led and, although well-meaning, tend to be wimps. Never mind, get lost in one of your complex and imaginative day dreams. Highly creative if you get round to doing something.



PISCES (Feb. 19 - March 20): All in all, not a bad lot. In fact, there's talk that a well-known bloke whose birthday is celebrated on December 25 was a Pisces. Not a bad reference. Trouble is, you can never make up your mind – not even about whether you're a good person or not, as many fish have dreadful complexes. The fishes are also apt to believe in anything and are no strangers to hysterical fits. What's more, some experts say Pisceans have fleshy lips and plump hands (not so – Piscean Ed. Ass.). What a combination!



ARIES (March 21 - April 20): Your sign may show the horns of the ram but some might consider you more of a goat. You're determined and ambitious – or is that pig-headed, greedy and power-hungry – and your optimism is nothing less than a pain in the neck to those of us who know that there isn't a silver-lining, just a big, black rain cloud. The foot can usually be found placed firmly in the mouth because you always act too hastily. It's removed only for moments of rudeness, inconsideration and vindictiveness (you're certainly courageous). So there!



TAURUS (April 21 - May 20): You're just a simple soul, but oh what a stubborn streak! You'll probably refuse to visit a friend's house because you know their micro isn't as good as your MSX – unless of course they offer to lay on dinner, 'cause you're a glutton too. Forget love and world peace: money and possessions come first – and you're too bull-headed to be convinced otherwise. You're a plodder. You'll get that program finished if it takes months of sheer concentrated effort and you can't stand these whiz kids who succeed with ease.



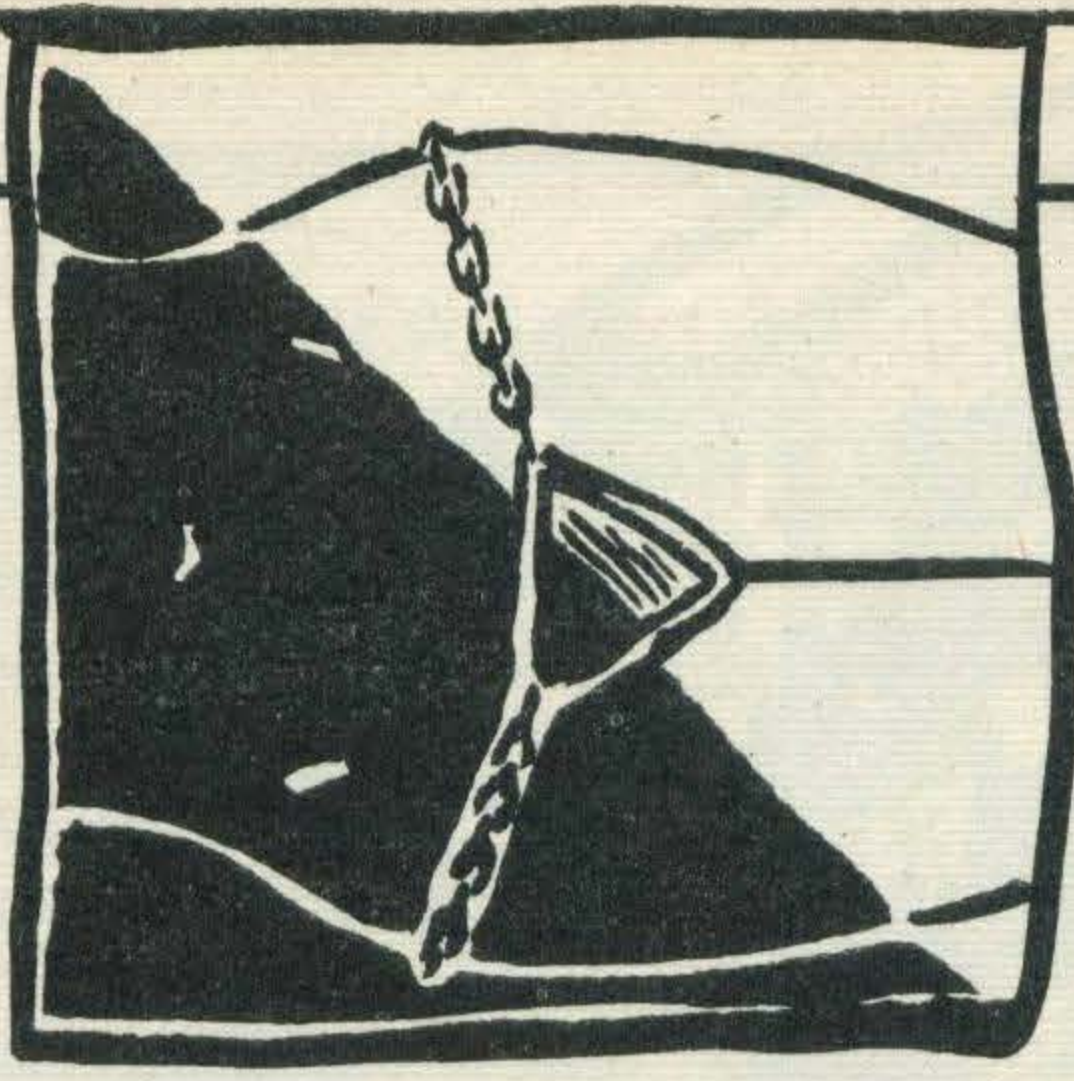
GEMINI (May 21 - June 20): As some *MSX User* editorial staff fall under this sign we can safely agree with the experts that Gemini's are schizoid. (At least one of us is... sometimes). We must also agree that the Twins make excellent journalists, are witty, reasonable, versatile and, of course, modest (Scoop Johnston wrote this – Ed. Ass.) They can't stay at any job long enough to make a success of it, though (Well, we can't argue with that! – Ed) and they tend to be dishonest because they're smart enough to get away with it. They'll argue black and blue about something and change their mind the next day. Of course you'll never prove them wrong because the Twin's rarely commit their airy opinions to paper.



CANCER (June 20 - July 20): Apart from the fact that you walk sideways, you Crabs aren't such a bad lot. Sentimental to the degree of sopiness and probably still living with your Mum because you're attached to home, family and country... and you can't stand change. You're a real sucker and flattery makes you weak at the knees. There's every chance you'll be found spending most of your time in a pub – behind the bar, that is, because you excel in all businesses where liquids are concerned.



LEO (July 21 - Aug. 21): What a big pussycat you are! Frank, kind, optimistic and confident. It's almost too much to bear! But, sometimes your boldness and courage can degenerate into arrogance, ruthlessness and vanity. You always want the best in everything and you just hate taking second place - which is probably why you make great top Civil Servants (fat cats?).



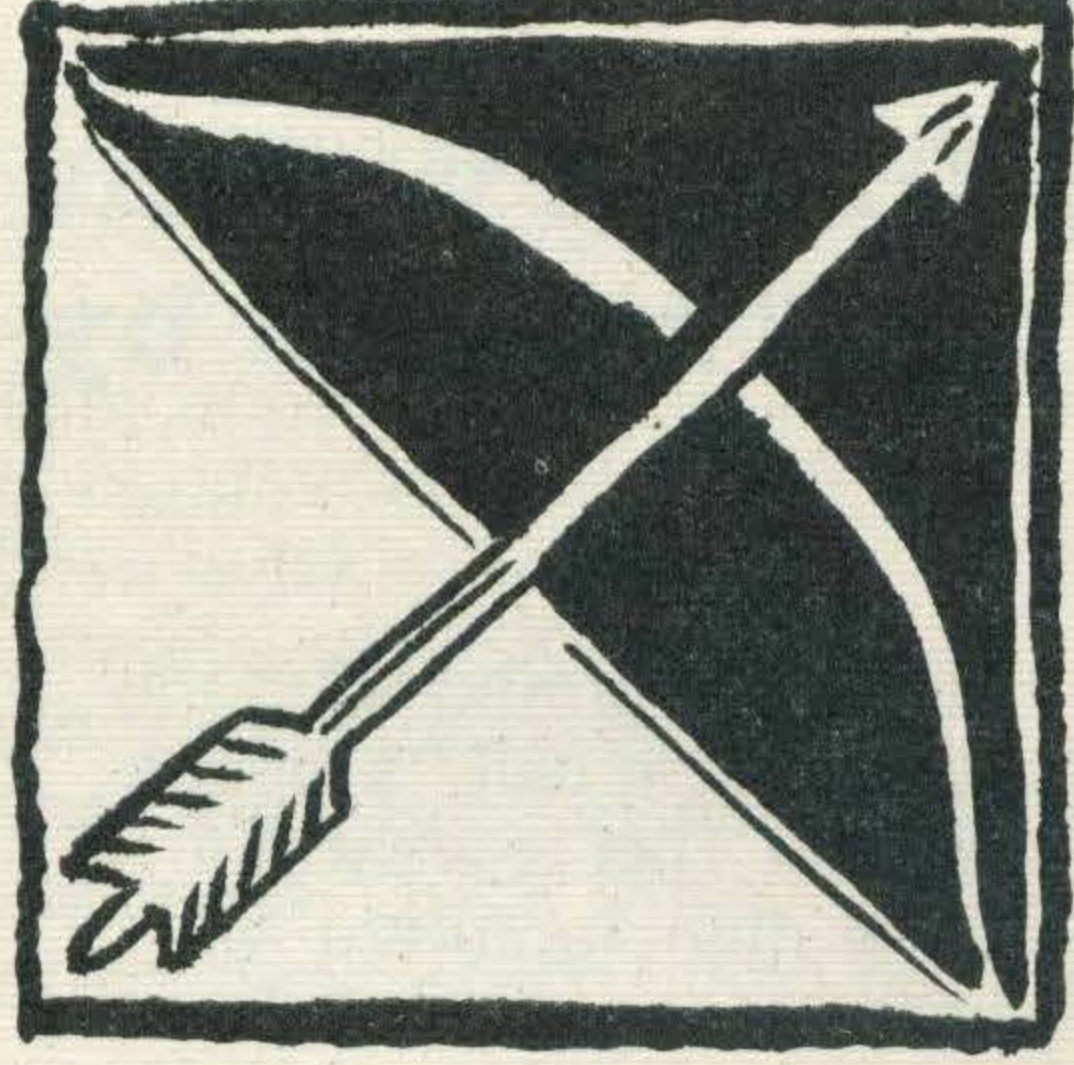
VIRGO (Aug. 22 - Sept. 22): What a know all. Born intellectuals and no doubt crashing bores. Despite being smart you're narrow-minded, stingy and your love of learning is likely to make you pedantic. We daren't say any more because it'll only aggravate that chip on your shoulder. We know, being paranoid doesn't mean everybody *isn't* against you.



LIBRA (Sept. 23 - Oct. 22): Pity anyone who tries to have a decent argument with you because you're one of those infuriatingly well-balanced people who see both sides of everything and go to almost any lengths to avoid friction. And you're far too honest for your own good as well! That badly-dressed albeit good-looker leaning against the disco/club wall - looking smooth (and at themselves in the mirrored-wall) - was probably a Libran. Chances are they're also an art college drop-out because despite having artistic gifts they're lazy bods when it comes to studying.



SCORPIO (Oct. 23 - Nov. 22): Although you share a sign with some of history's cruellest and most fanatical men, like Goebbels (and we all know what he didn't have), you can be a real charmer. Honest and logical but on the other hand you're sometimes just a big bully who delights in picking quarrels just for the hell of it. So, heaven help anyone who admires your MSX 'cause you'll probably suspect them of wanting to steal it and give them a proper browbeating about touching your belongings. Of course, revenge is always sweet, and Scorpios often bring about their own downfall.



SAGITTARIUS (Nov. 23 - Dec. 20): If you smell something offensive in the room it's probably a Sagittarius - whose brought something in from the stables or the paddock on the bottom of their shoe. That's the trouble with your nature and animal lovers. The Archer would probably laugh it off before wiping it off ... on the new white rug, and then tell you what an awful rug it was anyhow. Not a scrap of tact. You're great to go shopping with because you're not only a spendthrift but you can be talked into buying almost anything. Stand aside if there's love in the air. There's nothing worse than a show-off and the Archer is always trying to impress.



CAPRICORN (Dec. 21 - Jan. 19): There's a good chance the Capricorn will open the door when you go visiting - they're utterly reliable servants. They probably make great criminals too because they're at home in institutions where routine is regular. Thoroughly depressing lot who worry far too much and look on the dark side of life. What's more you're among the ugliest of the signs. Saving grace - a happy Capricorn is an inspiring sight.

HORRORSCOPE

At last! The crystal ball has cleared and we can bring you the lowdown on your birthsign. Tell your friends it's a great way to lose them.



Jim (Sgt Rock) Gregory dons his battle gear and stands by for action.

Into military studies or Nature study or even World History? If you are then the chances are you'll be familiar with something that's to be seen in each.

I'm talking about the 'lull before the storm' or the 'phoney war' or even the way animals do a slow ritual dance before leaping into a fight to the death. In fact, the war aspect of MSX is worth looking at further. No, I don't mean you can use the Sony for Sonar or there's a nuclear Cannon. What I'm getting at is the fact that MSX represents a major threat to the status quo in the computer biz.

By the time you read this, Christmas '84 will represent the first fight between the systems. There's no way that MSX will have won... yet. It's clear now that other manufacturers such as Commodore, Sinclair and Amstrad will make the most kills. The important point to note, however, will be that

MSX has formed what the military folk call "a Beach Head"! This is what the other manufacturers will come to regard as the proverbial 'Thin end of the wedge' (There's a job going at the Sun, Jim - Ed).

During 1985 that wedge will be driven hard by blows from some of the strongest companies. The next step after forming a beach head is to ensure that supply lines are established to push the battle deeper into enemy territory (Cue cicadas and rustling leaves - Ed).

The war hasn't really begun yet and existing manufacturers believe that it'll never start. They even believe that if the real war does break out, they'll win. This is because what today's top selling Micro's have on their side is ammunition, tons of it. Now to you and me this ammunition looks like software but it's the reason people buy a particular machine and

represents silver bullets to the manufacturer.

The problem is that, in the war of the systems no-one can count on the people that make the bullets. In other words the software houses are just like the real worlds arms manufacturers, they do it for the money. As soon as they see the way the war is going then they'll switch sides fast. Even now the trade reports about how well MSX software is going for those who already supply it, is encouraging others to start production. The fact that sales of software are particularly good overseas, points to another military comparison.

The MSX war is a global one. The battle is being fought on several fronts at once and that means even bigger problems for the Non MSX machines. You see there are very few manufacturers who can fight the battle on a World basis. Most companies depend upon 'Agents' to fight for them in foreign markets. For agents read 'mercenaries' and you'll see the problem. As soon as a mercenary accepts more money to fight on the other side then the war will turn.

But what of you, the people, in this enormous world wide struggle for domination. Will you welcome the winner? Will you resist as yesterday's favourite home computers are trampled under foot?

I don't think so, in fact it will be just the opposite for *you* are the deciding factor. It is you that will decide who will win this technology war. You will be swayed by the big brand names, the wide choice of good looking machines. The software, the books and the magazines. Most of all you will make MSX the winner because of it's new 'secret' weapons. You see no world war is complete, without the deployment of devastating new devices.

The high technology developments that have so far been waiting for the right environment, come into their own when unleashed by MSX. Let's look at some of these MSXtras a little closer.

Communication

First of all there is 'Communication' by which I mean the ability of computers to link into mainframes. You know already about databases like Prestel. This particular service has recently been in the news because it has become the Hackers friend. 'Hackers' are merry micro folk who know the weak spots in security and bash away until they break in.

Recently they have had the alternative name of 'Code Busters'. Your MSX machine and a modem such as the one available from Kuma are all you need to play hacking. Indeed the MSX net exists just for you. Security of these systems will always be suspect as long as they allow any modem to gain access.

Security

At first it may seem like great fun to be able to break a systems security. In the long run, however a weak system discourages involvement by the information providers. A weak system also means that nice things like good software won't be available to download. How secure the sold software is and how well the billing system works are the key factors that encourage the availability of goodies. At present there is only one personal computer system that has such a modem and network. It is called **Compunet** and for the time being is only available for the CBM 64.

Those of you who read Guy Kewney in *Practical Computing* may have been left with the impression that you have to be on line to use any competent software; this is not so, but you do need the modem plugged in. Thus the people that sell the software know that the risk of piracy is very small.

So why am I mentioning Compunet, if it's not MSX? Well let's leave it that it would be a nice idea if Compunet had an MSX link and the terms of reference for Compunet ensure that it will eventually be available for leading systems ... and MSX will be THE leading system. To continue with the war scenario, we are looking at MSX already having strong communication ability and the ability to attract the very best of any new systems. In war, communication is vital to success.

More Quick Disk

The fact that MSX is becoming a magnet for new add-ons was confirmed by Jim McCormack of Zeta. They specialise in the supply of peripherals and have been quick to realise the potential of MSX (to make them some more money). They are having discussions about the 'Quick Drive' which they reckon could be

put on the market over here for around £150.00. They have also just secured the rights to a new tape wafer system which they will be hitting the market with at around £80.00 or £79.95 for those of you who are more tempted by discounts.

The 'Doshisha Micro Wafer Drive' as they say it will be called should be available in February and the wafers that it needs to be fed on will eat about £3.00 for a 65K capacity one.

The Wizard

Another MSX device that should help make the system attractive to all you robotic fans. **The Wizard** by Elyhobby Movit, will be distributed by **Commotion**. The Wizard is a wandering noise maker with flashing lights! The fun comes from programming the Wizard to do his tricks. This is done by placing a cartridge in your MSX machine, entering the required 'song and dance' and then transferring the cartridge to the Wizard. Future models will have speech and be able to pick things up as well as knock things down. There are even versions planned that will draw all over Mum's clean floor which should make her very happy.

Whether an army of these

little beasts will become the soldiers of MSX, remains to be seen.

Laser Discs

The best new weapon in the MSX armour is the Laser link. This allows an MSX micro to control the fantastic Laser disc players. If you read the blurb on these devices then you'll find they can be "a visual encyclopedia" or "a new dimension in education". Forget all that and stand by for some really great games that will encourage everyone to buy them. Just think all of this is for MSX, the system that some misinformed people doubted as technologically backward – they ain't seen nothin' yet.

Finally my condolences to **Boots** who were very embarrassed to find that they had announced a massive Toshiba price reduction. Yes there it was in the *Daily Telegraph* of November 30th, not £279.00, not £250.00, but in half inch high letters, the HX10 was offered at only £179.00! "WOW! what a saving", the population of Britain cried – well at least a few people did 'cos when I rang our local Boots they were not happy. "Oh no, not another one!" a male voice said in desperation, "Look it's a mistake – a printing error – they are £279.00, please believe me – no one is selling it at that price!"

Well, perhaps – but one enterprising chap I know did go along to another store chain with the advert "Now about this promise you have to beat any advertised price..."



Once upon a time in a land far far away there lived a young boy named Aladdin and when his parents died, he was left without a penny. A poor widow called 'Twanky' took him in and looked after him as if he was her own. He lived in a tiny cottage not far from the royal palace, where the Sultan lived with his beautiful daughter.

For many years, it had been Aladdin's dream that one day he would marry the princess, live in his own castle and repay the widow for her kindness.

One day a knock came on the door and when he

answered it, an old man stood on the doorstep who claimed to be his long lost uncle. "Help me Aladdin", he said, "please go into the caves and find for me an old lamp that I left there many years ago. I am too old now for such adventures." Now Aladdin was a shrewd boy and quickly realised that this man was not his father's brother but the evil magician that Widow Twanky had told him about. He quickly slammed the door shut and was determined to visit the caves for himself.

In this game, the computer will be your eyes and ears and you must give it instructions in the form of one or two word sentences.

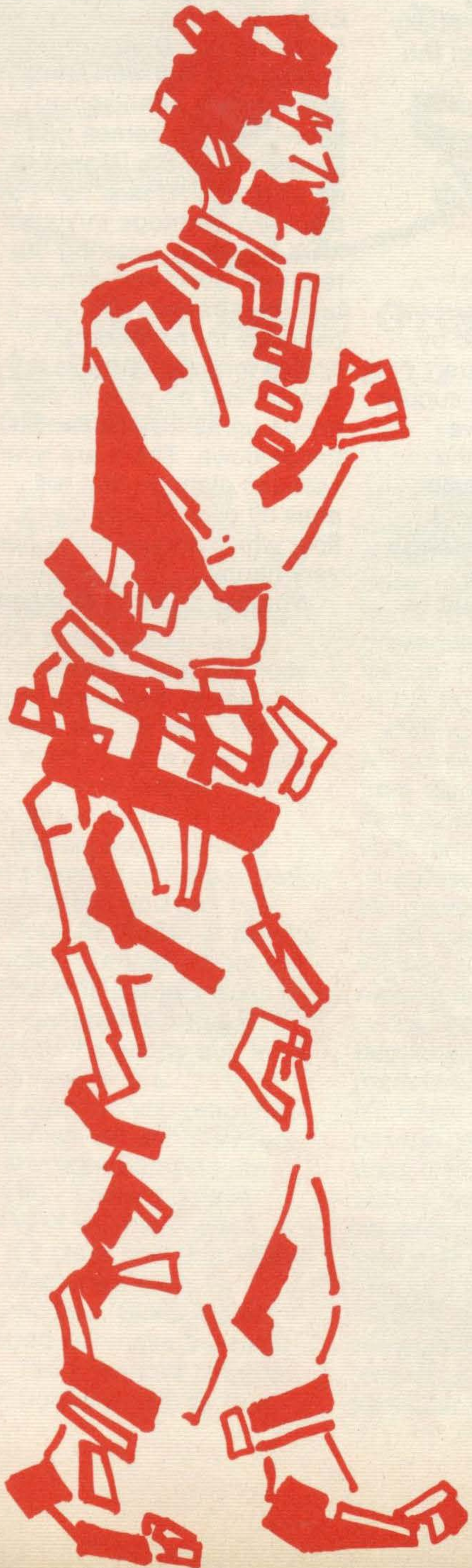
The plot follows the fairy tale very closely and if you get stuck, you could always read the book.

Here is a list of some of the words understood.

look, rub, score, throw, take, get, grab, drop, leave, put, inventory, s, e, w, n, go, north, south, east, up, down, in, out, eat, pray, kiss, pull, row, sail, ask, say, talk, attack, kill, destroy, read, swim, give, lend, board, off, on, search, examine, help, wait, disembark, untie, poison, hide, press, open, jump, crawl, fill, wear, remove

NOTE

All instructions must be given in lower case.



ALADDIN



HINTS

Read these only if you're really stuck, as the fun in playing an adventure comes from solving it yourself.

1. If you get lost in the caves, rubbing the ring and asking for help should get you out.
2. You can get the toad in the caves if you kill it (You'll need a knife from the kitchen first!)
3. Wolves often attack on sight but if you find the right food you can get past.
4. If you can't cross the chasm in the caves, go into the maze and find the lever... it operates the drawbridge.
5. The only place where you can swim with safety is in the underground cavern.
6. If stuck ask the widow 'Twanky' to help you.
7. Don't try to take the widow's pot... she won't like it!
8. Make sure that you have everything you need before you rub the lamp... and make sure you know the password.

9. When you reach your new palace, go in and give the servant the lamp to look after.

10. If you go inside, the magician will tempt the servant with a new lamp for your old lamp and you'll be thrown out into the forest.

11. Beware of the pit... you can jump across it

12. Watch out for the forester. He's very short sighted and often attacks visitors who don't fill his bucket for him, mistaking them for his son! Take the bucket back to him and drop it.

13. In the forest find some poisonous mushrooms but beware of the wolf... make sure you have some food for him.

14. If you reach the mill, go in and find the miller's outfit so that you might disguise yourself by wearing it. The guards'll let you into the palace then.

15. If you are stuck at the side of a canal, find a barge and board it. You'll need to untie the rope and wait.

Variable Used

AA-AZ	flags to test if action has taken place
P%	current location
S%	score
E%,F%	flags to test for objects
B%(x,y)	pointer to location of objects
Z\$	input sentence
B\$,C\$,D\$	first few letters of input word
L\$	second word input
QS(x)	description of locations
S%(x,y)	holds the map
GS(x)	description of objects
N%(x)	pointer to word
NS(x)	words understood

Program Breakdown

10-80	initialise an titles
90-610	READ DATA into the arrays
630-1360	main control loop
630-700	test location
710	describe location
720-780	describe directions
790-830	describe any objects
840	Input action
850	analyse input
860-1360	call appropriate subroutine
1370	wln game
1380-2859	subroutines for various actions

Don't be too nosey... it won't pay off!

16. If you come across a wire stretched across the path, you should be able to crawl under it... don't walk straight into it!

17. Beware of the dark!... light switches usually help!

18. Wear the outfit before attempting to enter the palace.

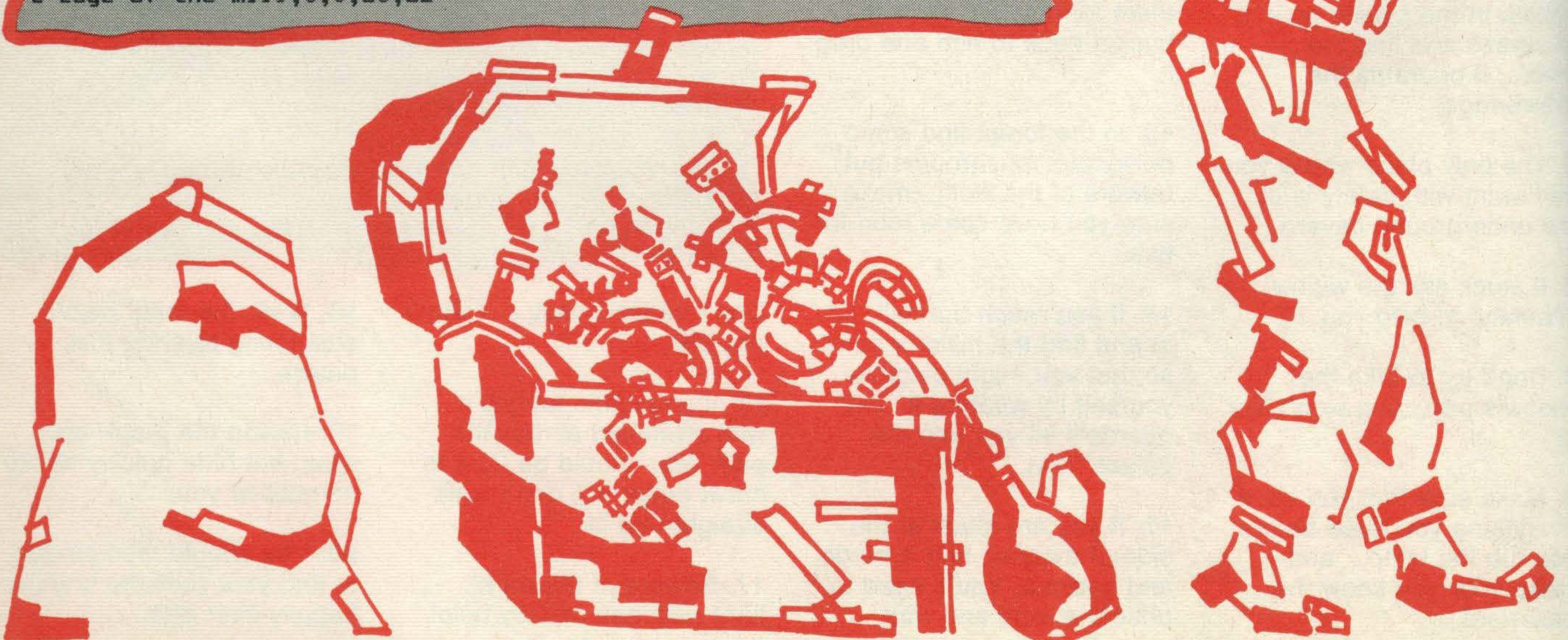
19. Poison the magician's wine, but hide quickly before he notices you.

20. You should then be able to find your princess and live happily ever after.


```

10 REM ** Aladdin... an adventure game for MSX machines **
20 REM ** <C> Steve Lucas November 1984 **
30 COLOR 4,7,1
40 SCREEN0
50 KEY OFF
60 LOCATE 12,5:PRINT"A l a d d i n"
70 LOCATE 1,15:PRINT"<C> Steve W. Lucas      for MSX User"
80 P%=24
90 DIM Q$(84),S$(84,4),G$(30),B$(30,1),N$(30),NZ(30),X$(50),V$(4)
100 FOR X=1 TO 84:READ Q$(X)
110 FOR Y=1 TO 4:READ S$(X,Y)
120 NEXT Y,X
130 DATA in a small dark cavern. Water drips from above,0,0,3,0,in
side a dark cavern. The entrance is closed,3,0,0,0
140 DATA in a small chamber. A beam of light shines in from a slit
high overhead,4,2,11,1,in a dimly lit passage,5,3,0,0
150 DATA in a maze of dark gloomy passages,6,4,10,5,in a maze of da
rk gloomy passages,7,5,9,6
160 DATA in a maze of dark gloomy passages,7,6,7,7,in a cavern full
of exotic carvings,0,9,0,0,in a maze of dark gloomy passages,8,10,13,6
170 DATA in a maze of dark gloomy passages,9,10,14,5,by a deep dark
pit. There is a gold drawbridge on the far side
180 DATA 0,0,0,3,in a maze of dark gloomy passages,12,13,12,12,in a
maze of dark gloomy passages,12,14,13,9
190 DATA in a maze of dark gloomy passages,13,14,14,10,on a solid go
ld drawbridge,0,16,0,11,by a dark underground lake,15,0,0,0
200 DATA in an enormous chamber full of casks of jewels. There is an
enormous lake,0,0,0,0
210 DATA on a footpath winding its way across rugged mountain terrai
n,19,0,20,0,at the entrance to a large gloomy cavern,0,18,0,0
220 DATA on the gentle foothills of a high mountain,0,0,21,18,by
a weather beaten signpost,0,23,22,20
230 DATA stuck in quicksand!,22,22,22,22,by a garden gate,21,0,24,0,
outside a small cottage,0,0,0,23
240 DATA inside a poorly furnished cottage. The widow TWANKY stand
s here with a brush in her hand,0,26,0,0
250 DATA in a large kitchen. There is a pan on the fire and an old fa
shioned mangle in one corner,25,27,0,0,by the kitchen sink. It's full
of dirty pots,26,0,0,0
260 DATA on a high plateau. There's no way down from here,0,0,29,0
,on a footpath leading into a golden palace,0,0,30,28
270 DATA at the entrance to a beautiful golden palace,0,0,31,29,at th
e edge of the plateau. We seem to be way above the clouds here,0,0,0,
30
280 DATA at the western end of the golden hall,0,0,33,0,in a vast ha
ll full of statues made of solid gold,30,0,34,32
290 DATA in a wide corridor. The walls are lined with red velvet,
0,35,0,33,in a narrow corridor,34,0,36,0,in a winding passage with a g
lass roof,0,37,0,35
300 DATA at the bottom of a marble staircase,36,0,0,0,at the top of
one flight of stairs. A second flight leads up from here,41,0,0,0
310 DATA at the top of a flight of stairs,0,0,40,43,in the Princess'
boudoir,0,0,0,39,on a balcony overlooking a courtyard,0,38,0,0
320 DATA in a small room full of wedding gifts,0,43,0,0,in a vast ch
amber full of flowers,42,44,39,0,in a store cupboard full of lamps,43,
0,0,0
330 DATA in a dark forest,45,47,48,46,by a woodcutter's hut. It's lo
cked!,45,47,48,0,by a well,46,0,0,0,on the banks of a canal. There is
an old barge here,0,0,49,46,on the canal bank,0,0,49,48
340 DATA on an old barge,0,51,0,0,on an old barge. It is moored to t
he bank by a stout rope,50,0,0,0,sailing on a barge,0,0,0,0,on a barge
which has come to rest at the side of an old mill,0,0,0,0
350 DATA on a canal bank. There's an old barge moored here,0,55,0,0,
outside an old mill,54,0,56,0,in a field of corn,0,0,63,55
360 DATA in the miller's living room,0,0,58,0,in the doorway of an o
ld mill,0,59,0,57,at the bottom of a spiral staircase,58,0,0,0
370 DATA on a narrow plank leading round the edge of the mill. A sp
iral staircase leads down,0,0,62,61,on a narrow plank leading round th
e edge of the mill,0,0,60,62

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380 DATA on a plank leading round the edge of the mill. I can reach over to the sails here,0,0,61,60,in a field of corn. There is a styal to the east,0,0,64,56

390 DATA by a dry stone wall. A styal leads over the wall,0,69,0,63,in a field of cows. There is a styal to the west,0,0,0,64,in a clearing deep in the heart of a gloomy forest,0,67,0,0

400 DATA in a gloomy forest,66,72,67,68,in a gloomy forest,68,71,67,69,in a gloomy forest,64,70,68,69,in a gloomy forest,69,74,71,70

410 DATA in a gloomy forest,68,71,72,70,in a gloomy forest,67,72,72,71,in a gloomy forest,73,75,73,74,in a gloomy forest,70,74,73,74,at the edge of a forest. The spires of a castle can be seen in the distance

420 DATA 73,0,76,0,by the palace gates,0,0,0,75,inside the palace gates,76,0,0,78,in a hall full of gold statues,0,79,77,0

430 DATA in a small corridor. The magician is here but he hasn't seen me. There is a glass of wine on a table,78,0,80,0,in a chamber full of glasses,0,0,0,79

440 DATA in a small corridor. There is a dead magician here,79,0,82,83,in the princess's boudoir,0,0,0,81

450 DATA in an arcade with a beautiful glass dome at the centre,0,84,0,0,in a golden room. The princess is here!,83,0,0,0

460 FOR X=1 TO 24:READ G\$(X),B\$(X,1):NEXT

470 DATA a large lever,8,a small toad,4,a casket full of jewels,8,a rusty ring,1,an old lamp,17,a tree,22,an old pot,26,a kitchen knife,26,a servant,30,a gold bar,42

480 DATA some new lanterns,44,a switch,36,a rope,51,a bucket,46,a button,52,a miller's outfit,62,the palace guards,76,the evil magician,79

490 DATA the beautiful princess,84,a glass of wine,79,a wild wolf,67,some poisonous mushrooms,66,an old sack,52,a pile of leaves,46

500 FOR X=1 TO 27:READ N\$(X),NZ(X):NEXT

510 DATA lever,1,toad,2,casket,3,jewels,3,ring,4,lamp,5,tree,6,pot,7,knife,8,servant,9,gold,10,lanterns,11,switch,12,rope,13

520 DATA bucket,14,button,15,miller,16,outfit,16,guards,17,magician,18,princess,19,glass,20,wine,20,wolf,21,mushrooms,22,sack,23,leaves,24

530 FOR X=1 TO 50:READ X\$(X):NEXT

540 DATA O.K.,not likely,you must be joking!,how am I supposed to do that?,don't be an idiot,something happened!

550 DATA nothing happened,I see something,I can't see anything special,there's nothing here to read,it says 'DANGER QUICKSAND'

560 DATA the Genie appears,Wow,I'm sorry I don't understand you,It's stuck,I hear a distant rumbling!,The cave entrance snaps shut behind me

570 DATA 'What is your command O'Master?',I climb up,I climb down,I go in,I go out,It could do with a polish,the barge drifts

580 DATA It looks dirty,I think this will be useful,They won't let me in!,I can't get past,They need a bribe,She's beautiful,He's evil!,I wear the outfit. It's a good disguise

590 DATA That's not the right approach!,How dare you speak to me like that?,What do you have to say for yourself?,It's too heavy,It's locked,I need the key

600 DATA someone sneaks up behind me,I am dead,Would you like another game?,What do I do now,I can see,I can go,It's too dark to see

610 DATA That's a stupid idea,The path's blocked,He dies,He attacks me,not yet!

620 CLS

630 IF P%=51 THEN S%=50

640 K=1

650 IF P%=22 THEN AQ=AQ+1:PRINT"Help!. I am sinking fast!":IF AQ>10 THEN X\$="I sink below the surface!":GOSUB 2030

660 IF P%=52 THEN S%=55

670 IF P%=37 AND AX<1 THEN X%=X\$(45)+" I trip and break my neck!":GOSUB 2030

680 IF P%=66 THEN S%=80 ELSE IF P%=79 THEN S%=90 ELSE IF P%>80 THEN S%=95

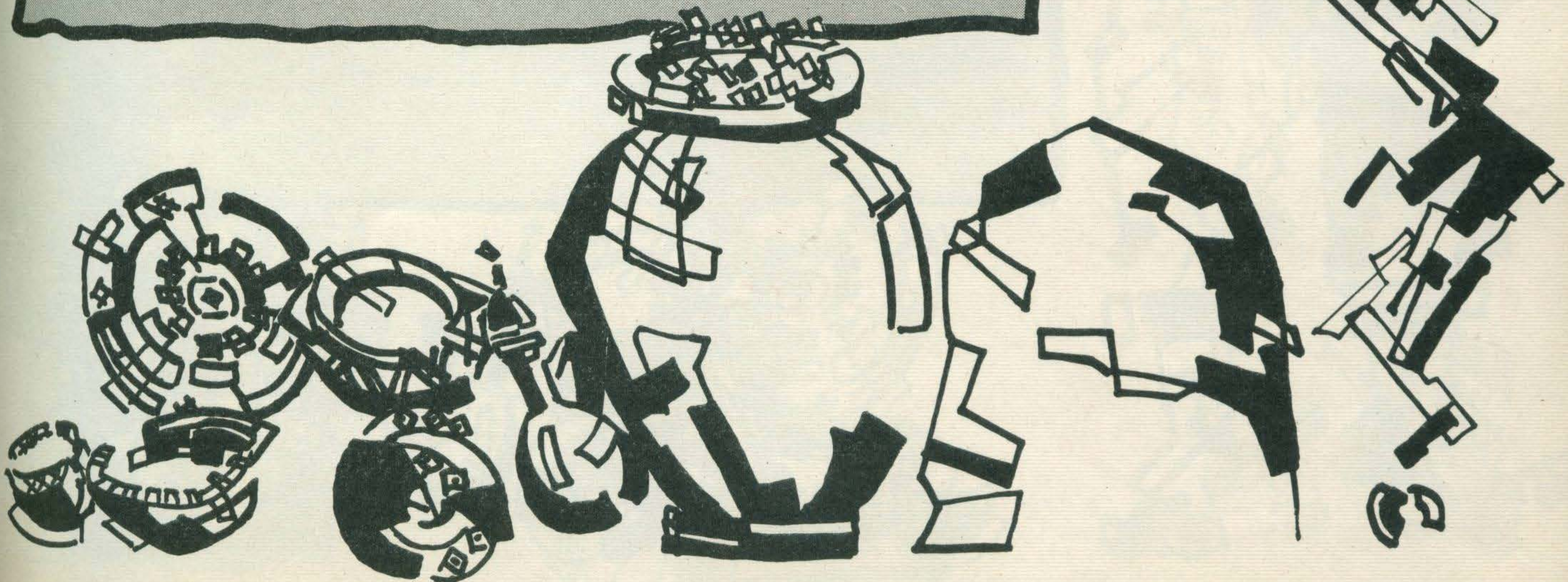
690 IF P%=73 THEN PRINT"There is a deep pit to the South!"

700 IF P%=64 THEN PRINT"A thin wire stretches across the path to the south"

710 PRINT:PRINT"I am :-":PRINTQ\$(P%)

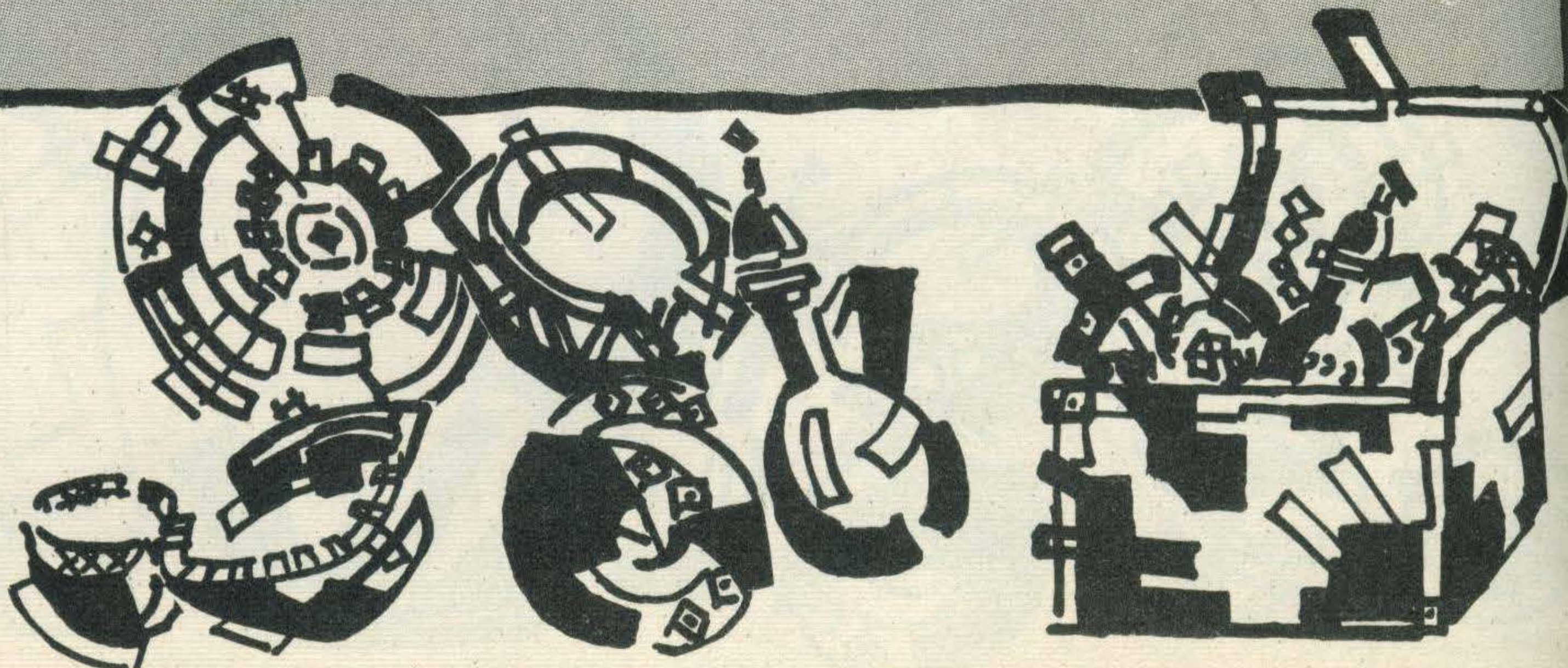
720 A\$="":IF S%(P%,1)>0 THEN A\$="North"

730 IF S%(P%,2)>0 AND LEN(A\$)>0 THEN A%=A\$+",South" ELSE IF S%(P%,2)>0 THEN A\$="South"





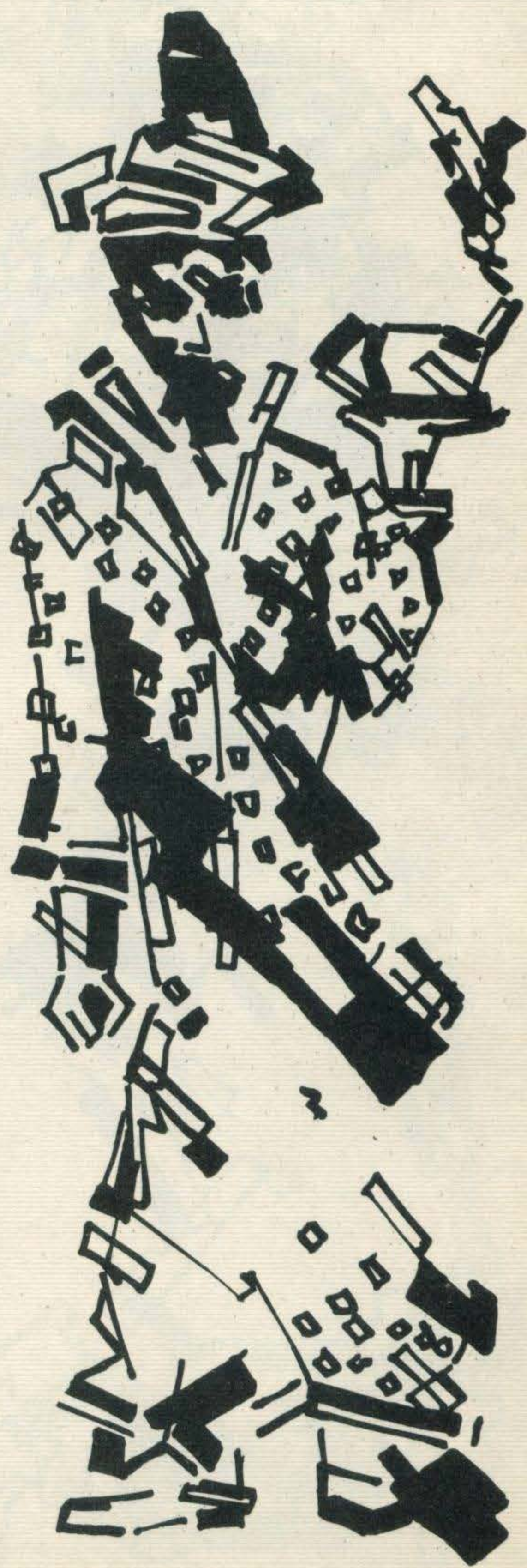
```
740 IF SZ(P%,3)>0 AND LEN(A$)>0 THEN A$=A$+",East" ELSE IF SZ(P%,3)>
0 THEN A$="East"
750 IF SZ(P%,4)>0 AND LEN(A$)>0 THEN A$=A$+",West" ELSE IF SZ(P%,4)>
0 THEN A$="West"
760 IF P%=25 THEN A$=A$+", Out"
770 IF A$="" THEN A$="There must be somewhere!"
780 PRINT:PRINTX$(44);" :- ";A$:PRINT:PRINT
790 E=0:FOR T=1 TO 24: PP%=0:IF B%(T,1)=P% THEN PP%=1
800 IF PP%=1 THEN B20
810 NEXT:GOTO 840
820 IF E=0 THEN PRINTX$(43);" :- "
830 PRINTG$(T):E=E+1:GOTO 810
840 PRINT:PRINTX$(42);:INPUT Z$
850 B$=LEFT$(Z$,2):C$=LEFT$(Z$,3):D$=LEFT$(Z$,4)
860 IF AW>0 THEN AW=AW+1
870 CLS:BEEP
880 IF P%=67 AND AS<1 THEN PRINT"The wolf attacks me!":GOSUB 2030
890 IF P%=44 AND AV=1 THEN PRINT"I hear the shout of 'OLD LAMPS FOR
NEW!' and one of the servants rushes out with the lamp and gives it t
o the evil magician. Suddenly I find myself transported to a strange
place":P%=45
900 IF C$="loo" THEN K=1:PRINT"I see nothing special!"
910 IF C$="rub" THEN K=1:GOSUB 1950
920 IF C$="sco" THEN PRINT"You have scored :-";S%;" %":K=1
930 IF B$="pi" OR B$="fu" THEN PRINTX$(34):K=1
940 IF C$="thr" THEN K=1:GOSUB 2820
950 IF C$="get" OR C$="tak" OR C$="gra" THEN K=1:GOSUB 1380
960 IF C$="dro" OR C$="lea" OR C$="put" THEN K=1:GOSUB 1620
970 IF C$="inv" THEN K=1:GOSUB 1760
980 IF (B$="s" OR D$="go s") AND P%=73 THEN X$="I fell into the pit!
":GOSUB 2030
990 IF (B$="s" OR D$="go s") AND P%=64 THEN X$="I walk straight in
to a trip wire and cut my throat.":GOSUB 2030
1000 IF (B$="e" OR D$="go e") AND P%=46 AND AY<2 THEN X$="The woodcut
ter rushes over and hits me saying 'I've told you before about being
lazy and not bringing the water':GOSUB 2030
1010 IF (B$="n" OR D$="go n") AND SZ(P%,1)>0 THEN P%=SZ(P%,1):K=1
1020 IF (B$="s" OR D$="go s") AND SZ(P%,2)>0 THEN P%=SZ(P%,2):K=1
1030 IF (B$="e" OR D$="go e") AND SZ(P%,3)>0 THEN P%=SZ(P%,3):K=1
1040 IF (B$="w" OR D$="go w") AND SZ(P%,4)>0 THEN P%=SZ(P%,4):K=1
1050 IF C$="eat" THEN PRINT"I see nothing to eat!":K=1
1060 IF C$="pra" THEN K=1:PRINTX$(1):PRINTX$(7)
1070 IF C$="kis" THEN K=1:PRINTX$(5)
1080 IF B$="u" OR B$="up" OR D$="go u" OR C$="cli" THEN K=1:GOSUB 1800
1090 IF C$="dow" OR D$="go d" OR B$="d" THEN GOSUB 1850
1100 IF C$="pul" THEN K=1:GOSUB 1870
1110 IF C$="row" OR C$="sai" THEN PRINT"There isn't a boat here!":K=
1
1120 IF C$="swi" THEN K=1:GOSUB 1910
1130 IF C$="rea" THEN K=1:GOSUB 2010
1140 IF C$="in" OR D$="go i" THEN K=1:GOSUB 2080
1150 IF C$="out" OR D$="go o" THEN K=1:GOSUB 2140
1160 IF C$="hel" THEN K=1:GOSUB 2220
1170 IF C$="att" OR C$="kil" OR C$="des" OR C$="hit" THEN K=1:GOSUB 2
280
1180 IF C$="ask" OR C$="say" OR C$="tal" THEN K=1:GOSUB 2310
1190 IF C$="giv" OR C$="len" THEN K=1:GOSUB 2410
1200 IF C$="sea" THEN K=1:GOSUB 2750
1210 IF C$="exa" THEN K=1:GOSUB 2770
1220 IF C$="boa" OR D$="go b" OR C$="on" THEN GOSUB 2450
1230 IF C$="off" OR D$="dise" THEN K=1:GOSUB 2480
1240 IF C$="unt" THEN K=1:GOSUB 2520
1250 IF C$="wai" THEN K=1:GOSUB 2540
1260 IF C$="poi" THEN K=1:GOSUB 2600
1270 IF C$="hid" THEN K=1:GOSUB 2640
1280 IF C$="pre" THEN K=1:GOSUB 2680
1290 IF C$="ope" THEN K=1:GOSUB 2710
1300 IF C$="jum" THEN K=1:GOSUB 2840
1310 IF C$="cra" THEN K=1:GOSUB 2890
1320 IF C$="fil" THEN K=1:GOSUB 2910
1330 IF K=0 AND LEN(Z$)>0 THEN PRINTX$(14)
1340 IF P%=79 AND AW=2 THEN X$="He turns round and sees me poisoning
his drink!":GOSUB 2030
1350 IF C$="wea" THEN GOSUB 2570 ELSE IF C$="rem" THEN GOSUB 2590
1360 IF P%>84 THEN 630
1370 CLS:PRINT"Well done. You have killed the evil magician and foun
d the beautiful princess. You live happily ever after in your new c
astle.":END
```

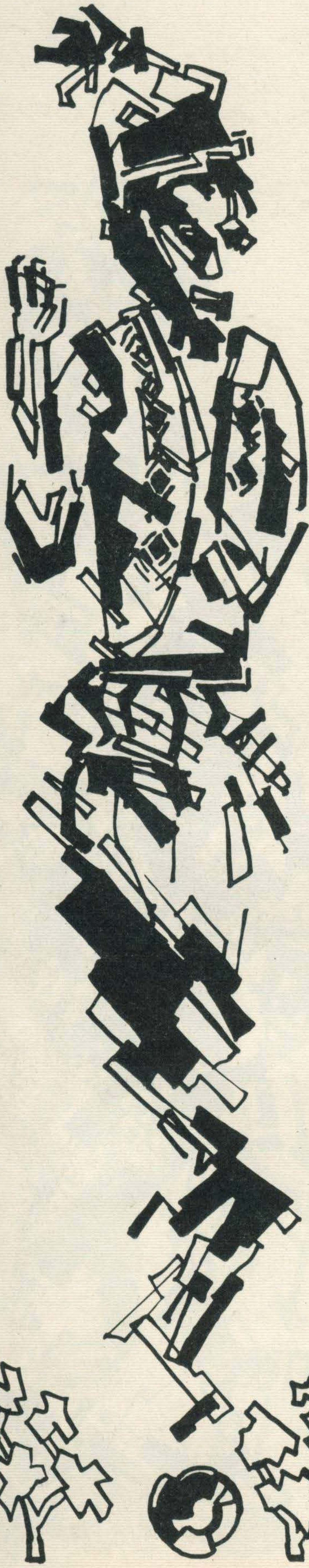



```

1380 GOSUB 1570:IF LX<>1 THEN RETURN
1390 EZ=0:FOR H=1 TO 24:IF B%(H,1)=P% AND B%(NZ(R),1)=P% THEN EZ=1
1400 NEXT
1410 IF EZ=0 THEN PRINT"I don't see it here!":RETURN
1420 IF R=1 THEN PRINTX$(15):RETURN ELSE IF R=2 AND AT<>1 THEN PRINT"
It jumps out of the way!":RETURN
1430 IF R=2 THEN AS=2
1440 IF R=7 THEN PRINTX$(4):RETURN ELSE IF R=10 THEN PRINTX$(3):RETUR
N ELSE IF R=13 THEN PRINT"It's fastened to the wall!":RETURN
1450 IF R=19 THEN PRINTX$(5):RETURN ELSE IF R=20 THEN PRINTX$(3):RETU
RN ELSE IF R=21 THEN PRINT"I can't do that till I've married her":RETU
RN
1460 IF R=24 THEN PRINTX$(4):RETURN
1470 IF R=3 OR R=4 THEN AA=1 ELSE IF R=5 THEN AB=1 ELSE IF R=6 THEN A
C=1
1480 IF R=8 THEN X$="How dare you steal my best pot ?" says the w
idow Twanky!":GOSUB 2030
1490 IF R=9 THEN AE=1 ELSE IF R=11 THEN AF=1
1500 IF R=12 THEN AG=1 ELSE IF R=14 THEN AH=1 ELSE IF R=15 THEN AI=1
ELSE IF R=16 THEN X$="There is a loud explosion!":GOSUB 2030
1510 IF R=25 THEN AM=1 ELSE IF R=26 THEN AN=1 ELSE IF R=27 THEN AO=1
1520 IF R=22 OR R=23 THEN X$="He turns round and strikes me down dea
d!":GOSUB 2030
1530 IF R=17 OR R=18 THEN AK=1
1540 EX=0:FOR D=1 TO 4:IF V$(D)="" THEN V$(D)=G$(NZ(R)):EX=1:D=6
1550 NEXT:IF EX=0 THEN PRINT"I'm sorry my hands are full!":RETURN
1560 B%(NZ(R),1)=0:RETURN
1570 L$="":XX=INSTR(Z$," ")
1580 L$=RIGHT$(Z$,(LEN(Z$)-XX))
1590 R=0:LZ=0:IF LEN(L$)<2 THEN RETURN
1600 FOR H=1 TO 27:IF LEFT$(N$(H),LEN(L$))=L$ THEN LZ=1:R=H
1610 NEXT:RETURN
1620 GOSUB 1570
1630 IF LZ<>1 THEN PRINT"I can't see a ";L$:RETURN
1640 EX=0:FOR D=1 TO 4
1650 IF V$(D)=G$(NZ(R)) THEN V$(D)="":EZ=1
1660 NEXT
1670 IF EZ=0 THEN PRINT"I haven't got it!":RETURN
1680 B%(NZ(R),1)=P%
1690 IF AY=1 AND P%=46 AND R=15 THEN AY=2:PRINT"The woodcutter rushes
over and says 'Whoops....wrong identity! I thought it was my son.'"
1700 IF R=3 OR R=4 THEN AA=0 ELSE IF R=5 THEN AB=0 ELSE IF R=6 THEN A
C=0 ELSE IF R=8 THEN AD=0 ELSE IF R=9 THEN AE=0
1710 IF R=11 THEN AF=0 ELSE IF R=12 THEN AG=0 ELSE IF R=14 THEN AH=0
ELSE IF R=15 THEN AI=0 ELSE IF R=16 THEN AJ=0
1720 IF R=17 OR R=18 THEN AK=0:AR=0
1730 IF R=22 OR R=23 THEN AL=0 ELSE IF R=25 THEN AM=0 ELSE IF R=26 TH
EN AN=0 ELSE IF R=27 THEN AO=0
1740 IF R=2 AND P%=67 THEN PRINT"The wolf rushes over, grabs it and
runs away!":AS=1:G$(21)="":G$(2)="":RETURN ELSE IF R=2 THEN AS=0
1750 RETURN
1760 PRINT"I am carrying :-":FX=0
1770 FOR H=1 TO 4:IF V$(H)<>"" THEN PRINTV$(H):FX=1
1780 NEXT:IF FX=0 THEN PRINT"Nothing at all !"
1790 PRINT:RETURN
1800 IF P%=22 THEN PRINT"I'm sinking fast and can't do that!":RETURN
1810 IF P%=37 THEN P%=38:PRINTX$(1):RETURN ELSE IF P%=38 THEN P%=39:P
RINTX$(1):RETURN
1820 IF P%=64 THEN P%=65:PRINTX$(1):RETURN ELSE IF P%=65 THEN P%=65:P
RINTX$(1):RETURN
1830 IF P%=59 THEN P%=60:PRINT"What a trudge!":RETURN
1840 PRINTX$(4):RETURN
1850 K=1:IF P%=60 THEN P%=59:PRINTX$(1):RETURN ELSE IF P%=39 THEN P%=
38:PRINTX$(1):RETURN ELSE IF P%=38 THEN P%=37:PRINTX$(1):RETURN
1860 PRINTX$(4):RETURN
1870 AU=1:IF P%<>8 THEN PRINTX$(3):RETURN

```





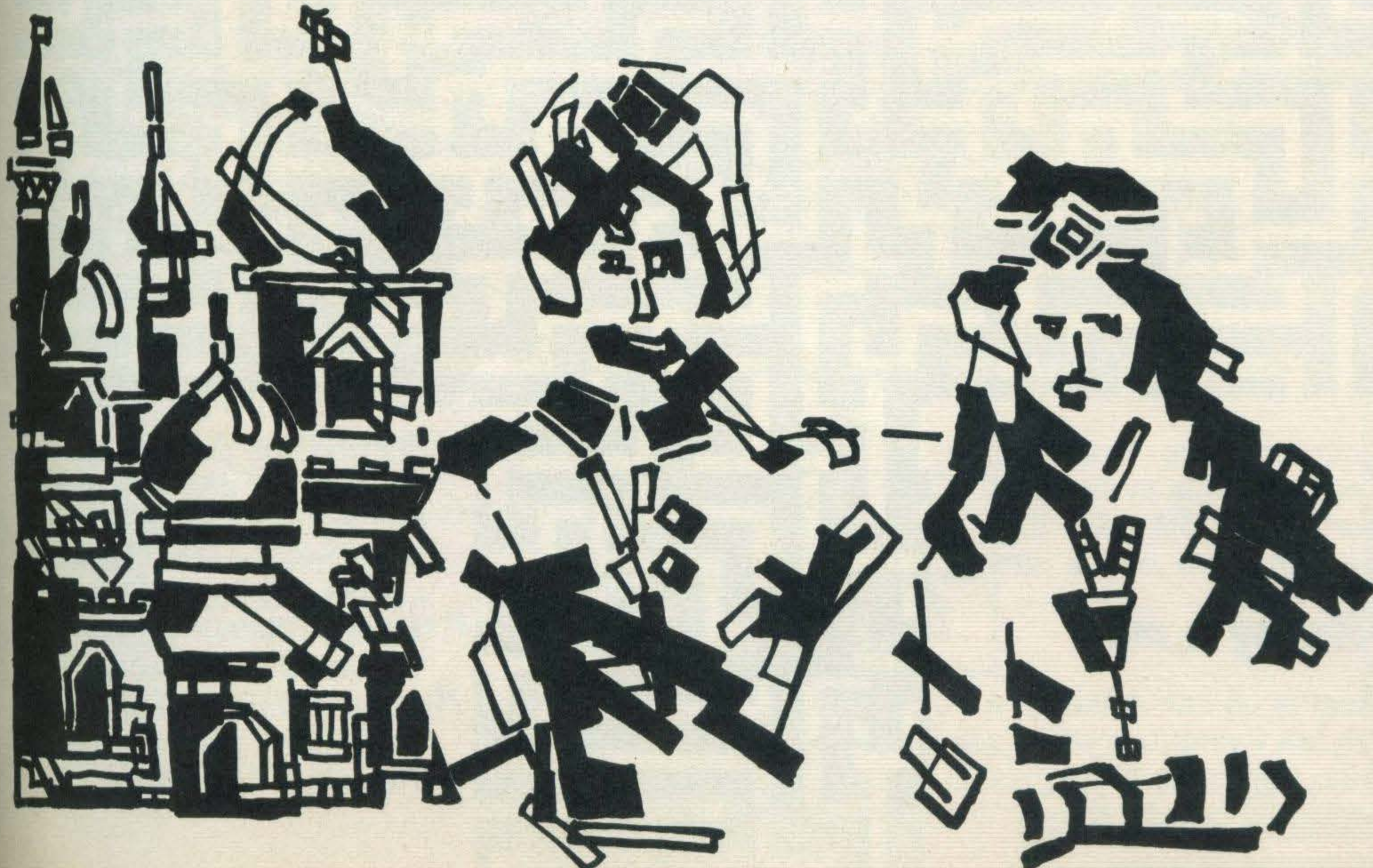
```
1880 PRINTX$(16):SZ=10:IF AP=0 THEN AP=1:SZ(11,3)=15:Q$(11)="by a deep
p pit. A drawbridge crosses it.":RETURN
1890 IF AP=1 THEN AP=0:SZ(11,3)=0:Q$(11)="by a deep dark pit":RETURN
1900 RETURN
1910 IF PZ<16 OR PZ>17 THEN PRINTX$(5):RETURN
1920 PRINTX$(1):PRINT"Brrrr it's cold!"
1930 IF PZ=16 THEN PZ=17 ELSE IF PZ=17 THEN PZ=16
1940 RETURN
1950 K=1:IF AB=1 OR AC=1 THEN GOSUB 1970 ELSE PRINTX$(46)
1960 RETURN
1970 K=1:IF PZ<17 THEN GOSUB 2190:C$="":RETURN
1980 IF AC<1 THEN PRINT"The ring's power has almost gone!":RETURN
1990 IF PZ>17 AND PZ<28 THEN GOSUB 2340:RETURN
2000 PRINTX$(7):RETURN
2010 IF PZ<>21 THEN PRINTX$(4):RETURN
2020 PRINT"It reads 'DANGER QUICKSAND'":RETURN
2030 CLS:PRINT:PRINTX$:PRINT:PRINT:PRINT"Oh dear. You seem to have go
t me killed!"
2040 PRINT:PRINT"Do you want another game <Y>es/<N>o?"
2050 F$=INKEY$:IF F$="Y" OR F$="y" THEN RUN
2060 IF F$="n" OR F$="N" THEN CLS:PRINT"GOODBYE. THANK YOU FOR PLAYI
NG!":END
2070 GOTO 2050
2080 IF PZ=24 THEN PZ=25:PRINTX$(21):RETURN ELSE IF PZ=19 THEN PRINTX
$(21):PRINTX$(17):PZ=2:RETURN
2090 IF PZ=55 THEN PRINTX$(21):PZ=58:RETURN
2100 IF PZ=30 THEN PRINT"Welcome to your new castle master", says th
e servant, "Let me have your lamp to clean!":PZ=33:RETURN
2110 IF PZ<>76 THEN PRINTX$(5):RETURN
2120 IF AR<1 THEN PRINTX$(27):RETURN
2130 PZ=77:PRINTX$(1):PRINT"Welcome dear Miller", says one of the gu
ards":RETURN
2140 IF PZ=77 THEN PRINTX$(1):PZ=76:RETURN
2150 IF PZ=58 THEN PZ=55:PRINTX$(22):RETURN
2160 IF PZ=25 THEN PZ=24:PRINTX$(22):RETURN
2170 IF PZ=2 THEN PRINTX$(4):PRINT"The entrance has closed":RETURN
2180 PRINTX$(5):RETURN
2190 PRINTX$(1):PRINT"WOW !!!!!":PRINTX$(12):PRINTX$(18):;:INPUT Z$:C$=
LEFT$(Z$,3)
2200 CLS:IF C$="hel" THEN PRINTX$(1):PRINT:PRINT"I shall get you out
of here O Master Now go and find the WIDOW TWANKY!":PZ=19:RETURN
2210 PRINT"I'm sorry I can't do that at the moment!":RETURN
2220 IF PZ<17 THEN PRINT"I have heard tell of a famous genie who liv
es in a lamp!":RETURN
2230 IF PZ=11 THEN PRINT"There must be a way of getting the drawbri
dge down.":RETURN
2240 IF PZ=51 THEN PRINT"We are still tied to the banks!":RETURN
2250 IF PZ=52 THEN PRINT"I think I'd just wait around for somethi
ng to happen!":RETURN
2260 IF PZ<28 AND PZ>22 THEN PRINT"The widow Twanky knows more than y
ou might think!":RETURN
2270 PRINT"I'm sorry I haven't a clue!":RETURN
2280 IF AE<>1 THEN PRINT"I have no weapon!":RETURN
2290 IF PZ=4 THEN G$(2)="a DEAD toad":AT=1:PRINTX$(1):PRINT"When I lo
ok at it carefully, I noticethat it's the sort that wolves like to ea
t.":RETURN
2300 PRINT"Don't be absurd!":RETURN
2310 IF PZ=25 AND AU=0 THEN PRINT"The widow twanky says 'Go and find
the famed caves and get the magic lamp':RETURN
2320 IF PZ=25 THEN PRINT"she says :-":PRINT"Make sure that you take a
ll you need before you rub the lamp! The magic word is zoblins":RETU
RN
2330 PRINT"I talk but nobody listens!":RETURN
2340 CLS:PRINT"WOW !!!!!":PRINTX$(12):PRINT:PRINTX$(18):;:INPUT Z$
2350 IF LEFT$(Z$,4)<>"zobl" THEN X$="The Genie is not amused by your
demands!":GOSUB 2030
2360 PRINT"O'Master Your knowledge of the secret password has given y
ou a golden opportunity."
2370 PRINT"I shall give you great fortune and take you to a magnifi
cent palace BUT BEWARE of the magician for he would take all!"
2380 PZ=28:LOCATE 1,20:PRINT"Press the <Space Bar> to continue."
2390 AA$=INKEY$:IF AA$<>" " THEN 2390
2400 CLS:SZ=30:RETURN
2410 IF PZ=30 OR PZ=33 THEN 2420 ELSE RETURN
```



```

2420 AV=1:PRINT"The servant says thank you. I will clean the lamp a
nd guard it with my life."
2430 SZ=40:FOR X=1 TO 4:IF V$(X)=G$(5) THEN V$(X)=""
2440 NEXT:RETURN
2450 K=1:IF P%=48 THEN PRINTX$(1):P%=50:RETURN
2460 IF P%=54 THEN P%=53:PRINTX$(1):RETURN
2470 PRINTX$(46):RETURN
2480 IF P%=50 THEN P%=48:PRINTX$(1):RETURN
2490 IF P%=53 THENP%=54:PRINTX$(1):RETURN
2500 IF P%=51 OR P%=52 THEN X$="I fall into the water and drown!":GOS
UB 2030
2510 PRINT"Don't be silly!":RETURN
2520 IF P%>51 THEN PRINTX$(4):RETURN
2530 PRINTX$(1):PRINT"The barge drifts into the middle of the canal!
":P%=52:RETURN
2540 PRINTX$(1):FOR T=1 TO 1000:NEXT T
2550 IF P%>52 THEN RETURN
2560 P%=53:PRINT"The barge drifts into the canal banks":RETURN
2570 K=1:IF AK<>1 THEN PRINT"I have nothing to wear!":RETURN
2580 PRINTX$(32):AR=1:RETURN
2590 K=1:IF AR=1 THEN PRINTX$(1):AR=0 ELSE PRINTX$(4):RETURN
2600 IF P%<79 THEN PRINTX$(46):RETURN
2610 IF AM<>1 THEN X$="The magician sees me and waves his evil wand
at me. AAAGGGHHHH!":GOSUB 2030
2620 PRINTX$(1):PRINT"I put some mushrooms into his glass!":AW=1
2630 RETURN
2640 IF P%>79 THEN PRINTX$(5):RETURN
2650 P%=80
2660 IF AW>0 THEN AW=0:PRINT"I hear the magician drink his wine. The
re is a thud and a wail of agony.":G$(18)="a dead magician":SZ(79,2)=8
1:Q$(79)="in a corridor"
2670 PRINTX$(1):RETURN
2680 IF P%=36 THEN PRINT"The light comes on!":AX=1:RETURN
2690 IF P%=53 THEN X$="There is a loud explosion!":GOSUB 2030
2700 PRINTX$(46):RETURN
2710 GOSUB 1570
2720 IF R=26 AND AN<>1 THEN PRINT"I don't have it!":RETURN
2730 IF R=26 THEN X$="a poisonous spider crawls out and bites me!":
GOSUB 2030
2740 PRINTX$(50):RETURN
2750 IF P%=52 THEN X$="a poisonous spider crawls out of the sack!":GO
SUB 2030
2760 PRINTX$(9):RETURN
2770 GOSUB 1570
2780 IF R=3 OR R=4 THEN PRINT"It looks valuable!":RETURN
2790 IF R=5 THEN PRINTX$(23):RETURN
2800 IF R=24 THENX$=X$(39):GOSUB 2030
2810 PRINTX$(9):RETURN
2820 IF AH<1 THEN PRINTX$(50):RETURN
2830 PRINTX$(1):PRINTX$(7):RETURN
2840 IF P%=73 THEN P%=75:PRINTX$(1):RETURN
2850 IF P%=28 OR P%=31 THEN X$="I fall and break my neck!":GOSUB 2030
2860 IF P%>50 AND P%<52 THEN X$=I fall into the water and drown!":GOS
UB 2030
2870 IF P%=64 THEN X$="I trip and break my neck!":GOSUB 2030
2880 PRINTX$(46):RETURN
2890 IF P%=64 THEN PRINT"Made it safely under the trip wire!":P%=69:R
ETURN
2900 PRINTX$(1):PRINT"Wasn't that fun!!!":RETURN
2910 IF P%>47 THEN PRINTX$(4):RETURN
2920 IF AI<>1 THEN PRINT"I have no bucket!":RETURN
2930 PRINTX$(1):G$(14)="a bucket full of water"
2940 FOR X=1 TO 4:IF V$(X)="a bucket" THEN V$(X)=G$(14):AY=1
2950 NEXT:RETURN

```



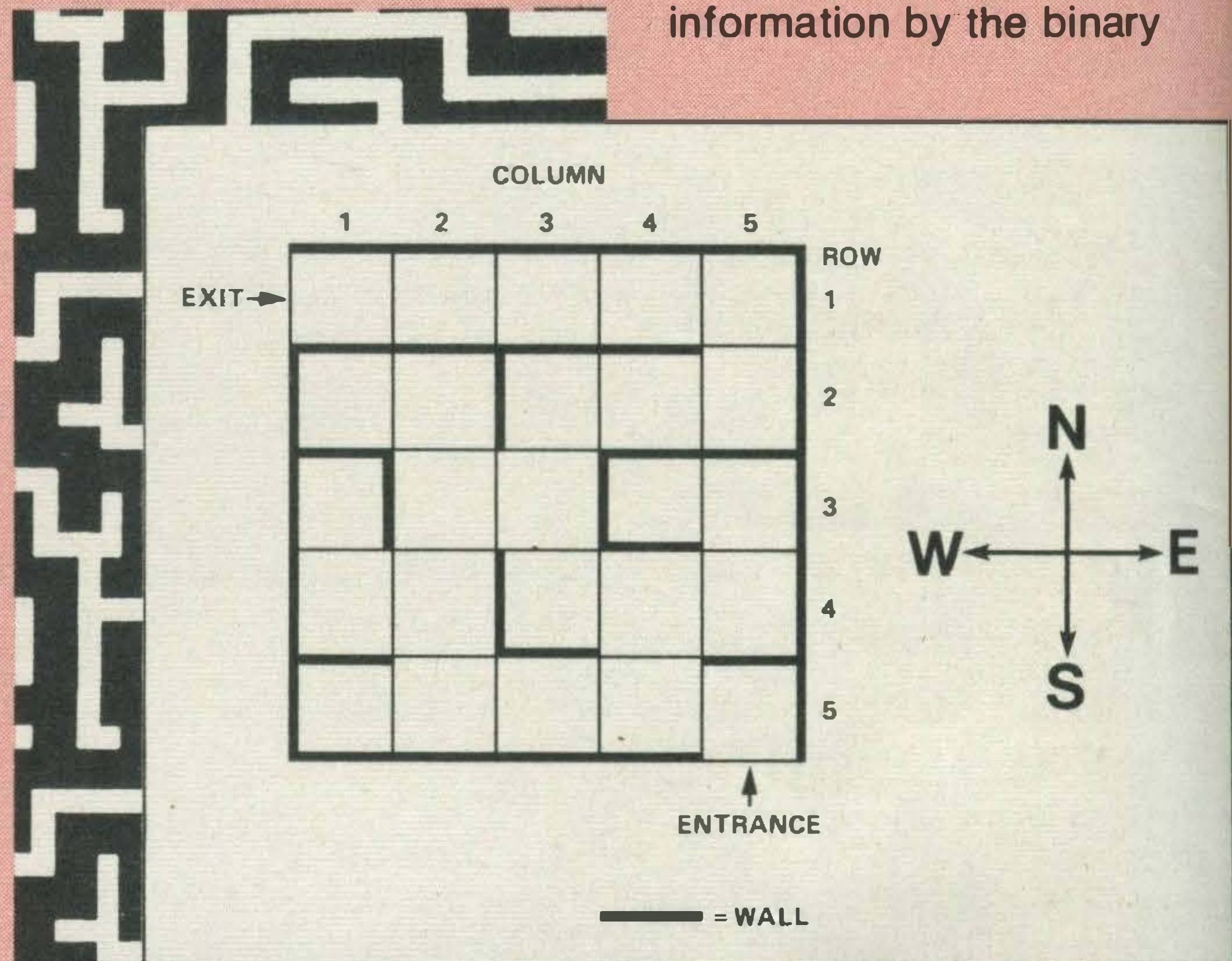
Jeremy Vine with the first of a series showing you how to create your own maze adventure game.

When the Editor enquired one day whether I liked mazes, my suspicions were immediately aroused. I imagined myself being sent to some dim and distant place in which my colleagues hoped I'd get lost and never return. No, I was wrong (as usual! - Ed). The task she had in mind was to write a maze adventure game. So with a pocketful of trolls and a sword in one hand I set off with my MSX machine to discover everything I could about maze games.

This is the first of a series of major articles that will show you how to write maze games, both graphic and text based. Over the next few months I'll be looking at the different techniques employed in writing maze-based games and building up an *MSX User* maze-adventure game. In it we'll learn how to create and move around mazes, draw 3D perspective graphics and incorporate an small element of adventure gaming. The aim will be to create a 3D maze with marker objects strewn randomly about to help you find your way

difficult. The first problem to face is how to store information about the construction. The best way of tackling this is to work out the maze, in two dimensions, on paper and

divide it into units or cells. Take a look at Figure 1. You can see a 5 by 5 maze which is quite simple in design. It begins at row 5, column 5 and ends at row 1, column 1. One way of storing this information would be to have a two-dimensional array such as MAZE\$(Row, Column). Then, each cell could relate to a set of statistics about its characteristics. For example, in Figure 1, cell (5,5) has a wall to the North and the East. We can represent this information by the binary



information 1010, where the four digits represent the directions North, West, East and South. The digit 0 could show that there's no wall and 1 the presence of a wall. But, not many people like using binary so let's stick to

around the maze. The ultimate quest is to find the editor's brain (difficult - Ed. Ass.). But more of that later.

Making a maze

Most of us can make up a maze but trying to create one on a micro is more

the good ol' decimal system we all know and love. We can express a binary digit as a decimal and the method to be described could be written in either system.

If you think about the way a cell can be built, there are 16 possible permutations. These are as follows: no

- 0 = No walls
- 1 = East
- 2 = North
- 3 = North, East
- 4 = West
- 5 = East, West
- 6 = North, West
- 7 = East, North, West
- 8 = South
- 9 = South, East
- 10 = North, South
- 11 = North, East, South
- 12 = South, West
- 13 = West, South, East
- 14 = North, West, South
- 15 = North, South, East, West

but the data is now incorrect. This is because to our senses (and the way we conventionally play these games) we are still looking straight ahead which we take to be North. Now, if we

is solved by rotating the number to suit the view. Even so we don't want to hold every possible number in memory and luckily we don't have to. We can solve it by using the following rules: If the view is rotated right (90 degree turn to the right), then the data for the cell is multiplied by two. If the result is greater than 15, then 15 is subtracted from the total. To turn left, divide the number by two if it's even or, if it's odd, add fifteen and *then* divide by two.

Try it

Now this may all sound very complicated but it's easier than you think. Try it. Look at cell 1. At this stage you are facing North. The data for that cell is 11, as there are walls to the North, East and South. Now turn left towards cell 2. Rotate the diagram so that the only gap in cell 1 (originally West) is now straight ahead (ie North). You are still in cell 1. Using the above formula, change the cells' data. It should look as follows:

$$(11 + 15) / 2 = 13$$

The data concerning cell 1 is now the number 13. This is correct because looking ahead of you *now*, there is a gap to the North and walls to the West, South and East. By reference to **Figure 2**, work out the cell characteristics for turning left and right on each side of the cell.

Hard cell

Now let's look at the program in some detail. It's not a complete maze program but the first part of our maze software. The program allows you to move around the cell and only

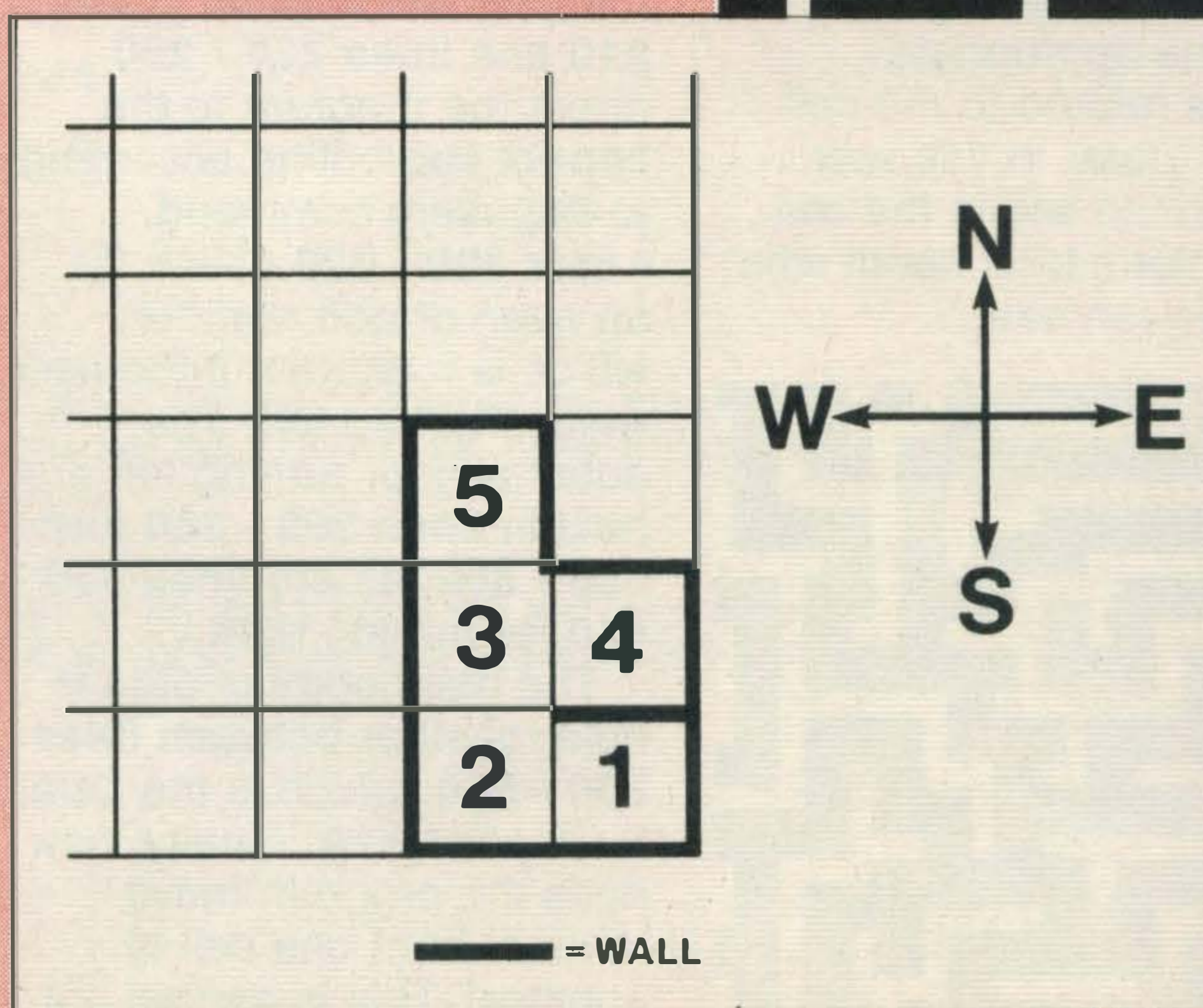
walls, walls on opposite sides, walls on all sides, two adjacent walls, three adjacent walls and a single wall. I've summarised all these possibilities in **Figure 2** which we will use later as a reference chart for data.

Straight forward

Great! We can now store the data for a cell. Take a look at **Figure 3**. In it there are five cells. Looking at cell 1 we can see that there are walls to the North, East and South. Using our table in **Figure 2**, cell 1 can be represented by the decimal number 11. As long as we move facing North the whole time, we can use the stored data about each cell. If you look at the program listing at **line 570** you'll see the data for each of the five cells. Check it off against **Figure 3** and you'll see it's correct. But there's a problem. What happens if we turn left (West)? We're still in cell 1

say that everything in front of us is North and behind South and so on, when we turn left the data is still incorrect because as we look at it, there are now walls to the West, South and East, which contradicts the information held about cell 1 in **line 570**. So what can we do?

Don't panic! The problem



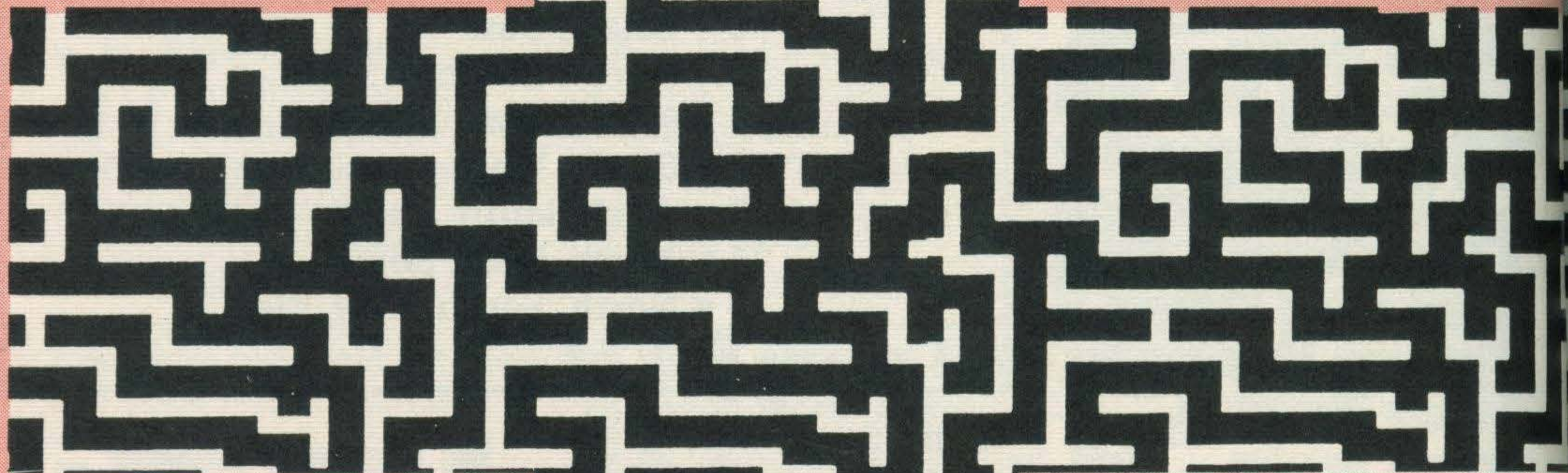
A direction indicates the presence of a wall.

allows you to proceed to the next cell if there is a gap in the wall. You can move left, right and ahead. It's based on **Figure 3** and is only a demonstration. Later on we'll see how to set up accurate movement data that records your position in the maze. At the moment the counter within the program will tell you that you're in room number 3 if you go back to room number 1! But more of that later.

Lines 50 - 90 redefine the function keys, one to five. You need only press the function key and a predefined command is carried out. The function key operations are, as usual, displayed on the bottom line of your screen. To ensure that only one press is necessary, a line-return is added to the command, thus the +CR\$(13) tagged on at the end of each key definition.

Line 100 sets up the array for 'CELL'. This holds the data for the starting position as we saw earlier in **line 570**. Each item of data in line 570 represents the starting position in each of

the five cells. **Line 110** sets up an array for the maze-data MAZEDAT\$. These are the 16 possible ways a cell can be set up. The next line restores the data at **line 500**, which is the MAZEDAT\$ data and line



130 begins a loop to read in the data. This is done by **line 140** where (y,0) equals the data number and (y,1) equals the actual characteristics as described in an alphanumeric string.

Room 101

The next few lines read in the data for 'CELL'. At this point the program is directed to a subroutine at **line 470** where the user is informed which room (cell) number he

between **lines 590 - 610**. **590** searches for the phrase "North". If it is found in **line 600** the user is informed that they 'can't go in that direction'. If, however, they can move, **line 610** increments the cell number

by 1 and the program moves to the next cell.

The above is of course incorrect when it comes to cell 3. See if you can work out how to move from cell to cell and keep track of where you are.

Amazing

The listed program is intended as an aid to understanding the methods discussed and is incomplete. Run the program and move around each cell and try and follow all the methods discussed. The reason for emphasising the 'rotating' numbering system is that it is the basis of the elements of a cell, and the cell in turn is the core of the maze.

And that is where I stop for this month. But don't let that deter you from building on the listing presented here. See if you can develop your own maze program. If you do come up with any bright ideas, let me know and perhaps we can incorporate them into our programs as we proceed. There are many paths we can take (groan - Ed) and next month I'll take the story further.

By the way, if you have any ideas to contribute to the list of items to be included in the maze, send them quickly to me and I'll try to include them in the final program. My list of goods is as follows: a knife; bunch of keys; a torch; a banana; a wallet; a bone; a spade and the editor's brain. Yuk!

or she is in and prints out where the walls are, by using the appropriate phrases related to the cell number data. In this way, any position within the cell gives information about what the user can see.

The moves to be made by the user are entered in **line 210** and **lines 220 - 260** direct the program to the correct subroutine according to the users command. **Lines 300 - 320** check for an even or odd number, which is important if the user wishes to turn left. The equations for turning left are held in **lines 350 - 360** and **380 - 390**, as are **lines 430 - 440** for turning right.

The main body of data is held together between **lines 500 - 560**, which is the data for MAZEDAT\$. Finally, how does the program move 'ahead' from one cell to another? This is carried out


```
10 REM ** MAZE - Part One **
```

```
20 REM **      Jeremy Vine, 1984 **
```

```
30 CNUM=1:FINISH=5
```

```
40 CLS
```

```
50 KEY 1,"left"+CHR$(13)
```

```
60 KEY 2,"right"+CHR$(13)
```

```
70 KEY 3,"ahead"+CHR$(13)
```

```
80 KEY 4,"help"+CHR$(13)
```

```
90 KEY 5,"stop"+CHR$(13)
```

```
100 DIM CELL(5,1)
```

```
110 DIM MAZEDAT$(16,1)
```

```
120 RESTORE 500
```

```
130 FOR Y=0 TO 15
```

```
140 READ MAZEDAT$(Y,0):READ MAZEDAT$(Y,1):NEXT Y
```

```
150 RESTORE 570
```

```
160 FOR X=1 TO 5
```

```
170 READ CELL(X,0)
```

```
180 NEXT X
```

```
190 FOR X=1 TO 5:CELL(X,1)=0:NEXT
```

```
200 GOSUB 470
```

```
210 INPUT"MOVE";MOVE$
```

```
220 IF MOVE$ ="left" THEN GOSUB 290
```

```
230 IF MOVE$="right" THEN GOSUB 420
```

```
240 IF MOVE$="ahead" THEN GOSUB 580
```

```
250 IF MOVE$="help" THEN GOTO 190
```

```
260 IF MOVE$="stop" THEN GOTO 640
```

```
270 GOTO 190
```

```
280 END
```

```
290 FOR X = 1 TO 5
```

```
300 IF CELL(X,0)=0 OR CELL(X,0)=2 OR CELL(X,0)=4 OR CELL(X,0)=6 OR CELL(X,0)=8  
OR CELL(X,0)=10 OR CELL(X,0)=12 OR CELL(X,0)=14 THEN GOSUB 350
```

```
310 IF CELL(X,1)=1 THEN GOTO 330
```

```
320 IF CELL(X,0)=1 OR CELL(X,0)=3 OR CELL(X,0)=5 OR CELL(X,0)=7 OR CELL(X,0)=9 O  
R CELL(X,0)=11 OR CELL(X,0)=13 OR CELL(X,0)=15 THEN GOSUB 380
```

```
330 NEXT
```

```
340 RETURN
```

```
350 CELL(X,0)=CELL(X,0)/2
```

```
360 CELL(X,1)=1
```

```
370 RETURN
```

```
380 CELL(X,0)=CELL(X,0)+15
```

```
390 CELL(X,0)=CELL(X,0)/2
```

```
400 CELL(X,1)=1
```

```
410 RETURN
```

```
420 FOR X = 1 TO 5
```

```
430 CELL(X,0)=CELL(X,0)*2
```

```
440 IF CELL(X,0)> 15 THEN CELL(X,0)=CELL(X,0)-15
```

```
450 NEXT
```

```
460 RETURN
```

```
470 PRINT"You're in room number ";CNUM
```

```
480 PRINT"There is a wall to the ";MAZEDAT$(CELL(CNUM,0),1)
```

```
490 RETURN
```

```
500 DATA 0,no walls,1,East,2,North,3,North and East
```

```
510 DATA 4,West,5,East and West,6,North and West
```

```
520 DATA 7,East North and West,8,South
```

```
530 DATA 9,South and East,10,North and South
```

```
540 DATA 11,North East and South,12,South and West
```

```
550 DATA 13,West South and East,14,North West and South
```

```
560 DATA 15,North South East and West
```

```
570 DATA 11,12,4,11,7
```

```
580 LOOK$="North"
```

```
590 FIND=INSTR(MAZEDAT$(CELL(CNUM,0),1),LOOK$)
```

```
600 IF FIND >0 THEN PRINT"Can't go in that direction"
```

```
610 IF FIND =0 THEN GOTO 620 ELSE 630
```

```
620 CNUM=CNUM+1:PRINT CELL(CNUM,0)
```

```
630 RETURN
```

```
640 CLS:END
```


PHILATELIST

Stamp collecting is supposed to be 'Britain's favourite indoor hobby', but I'm sure that computing must have overtaken it by now! Anyhow, there must be a large number of hobbyists who also collect stamps. This program was written as an aid to storing information about your collection and should be easy to modify if you prefer collecting records, books or coins. The information is then stored on tape for easy updating and modifying details of your collection, which could be useful for insurance purposes.

The data lines included in the program contain details of all the special issue stamps issued in this country up to and including the 'Greenwich Mean Time' issue of 1984. Each issue has a DATA line containing the following information.

1. Issue title
2. Year of issue
3. Watermark (if any)
4. The number of stamps in the set

As new stamps are issued, you should add extra DATA lines from line 2670, making sure that the final item of data is the line $x,1,x,1$. You can RENUMber the program to leave extra space for more stamps. The program's arrays have been DIMensioned to hold information on 400 stamp issues. If you want to modify the program for stamp issues of countries which have been more prolific in their stamp issuing, you should increase the DIMension in line 470 and change the value of X in the SAVE and LOAD data file routines (Lines 550 and 2940).

Storing information about the stamps in DATA lines is very inefficient in its use of RAM. Therefore the program will create and update a cassette file containing the following information about your collection.

1. catalogue numbers stored in A\$(X,0)
2. catalogue value stored in A\$(X,1)
3. price paid stored in A\$(X,3)
4. perforation stored in A\$(X,4)
5. any other information stored in A\$(X,5)

You will probably have noticed that the two dimensional array (A\$(X,Y)) holds the information about the 400 possible stamp issues and if you've studied the listing carefully, you'll see that when $X=1$, we are referring to the 1924 Exhibition issue etc. I have'nt used the subscript A\$(X,2), as this can be used to hold any information which is of personal use.

When first RUN, the program gives you the option of LOADING in a previously created data file. Obviously, you will need to press **N** or the program will wait for a data file to be loaded, which you haven't of course, created. The next option you'll be given will allow you to create a data file for your collection and you can enter catalogue values etc. You'll then be asked if you want to list all the information held on the file and again this is only of use if you have LOADED a file in from tape. If you haven't made any selection so far, you'll go straight into the option to modify the date.

This program should provide you with a starting point for experimentation. It might be a good idea to include a sorting routine and/or a search routine and I look forward to hearing about any modifications. Write to us!

Program Breakdown

40	select text screen, turn off key definitions and choose colours
50	titles and initialise
60-70	create new file?
80-120	list information in the file?
130-390	modify the contents of the array
400-410	back to main program choice
430-440	titles
450-470	initialise
480-590	load in data file
600-2680	data for British stamp issues
2690-2870	enter information
2900-2980	save data to tape
2990-3110	print information onto screen

Variables used

A\$(x,y)	holds information which is stored on tape
AAS	description of stamp issues
AB\$	watermark
B	year of issue
C	number of stamps in set
A\$,H\$	keyboard response
X	number of the issue (1924 set = issue 1)
Y	number of field in the data file


```

10 REM ** The Philatelist **
20 REM ** a utility program for stamp collectors **
30 REM ** <C> Steve W. Lucas for MSX USER **
40 SCREEN 0: KEY OFF: COLOR 15,4
50 GOSUB 430: GOSUB 450
60 GOSUB 430: PRINT: PRINT "Do you want to create a new data
<y/n>?"
70 A$=INKEY$: IF A$="y" OR A$="Y" THEN 2690
80 IF A$="n" OR A$="N" THEN 90 ELSE 70
90 RESTORE
100 GOSUB 430: PRINT: PRINT "Do you want to list all the
information held on file <y/n>?"
110 A$=INKEY$: IF A$="y" OR A$="Y" THEN 2990
120 IF A$="n" OR A$="N" THEN 130 ELSE 110
130 RESTORE: X%=0
140 GOSUB 430
150 X%=X%+1: READ AA$,B,AB$,C
160 PRINT: PRINT "ISSUE :-": PRINT AA$
170 PRINT: PRINT "CATALOGUE NUMBER :-"; A$(X%,0)
180 PRINT "Is this correct <y/n> ?"
190 H$=INKEY$: IF H$="y" OR H$="Y" OR H$="n" OR H$="N" THEN 200 ELSE
190
200 IF H$="n" OR H$="N" THEN INPUT "Enter new value "; A$(X%,0)
210 PRINT: PRINT "Current catalogue value in pounds "; A$(X%,1)
220 PRINT "Is this correct <y/n> ?"
230 H$=INKEY$: IF H$="y" OR H$="Y" OR H$="n" OR H$="N" THEN 240 ELSE
230
240 IF H$="n" OR H$="N" THEN INPUT "Enter new value :-"; A$(X%,1)
250 PRINT: PRINT "Price paid in pounds :-"; A$(X%,3)
260 PRINT "Is this correct <y/n> ?"
270 H$=INKEY$: IF H$="y" OR H$="Y" OR H$="n" OR H$="N" THEN 280 ELSE
270
280 IF H$="n" OR H$="N" THEN INPUT "Enter new value :-"; A$(X%,3)
290 PRINT: PRINT "Perforation :-"; A$(X%,4)
300 PRINT "Is this correct <y/n> ?"
310 H$=INKEY$: IF H$="y" OR H$="Y" OR H$="n" OR H$="N" THEN 320 ELSE
310
320 IF H$="n" OR H$="N" THEN INPUT "Enter new value :-"; A$(X%,4)
330 PRINT: PRINT "Other information :-"; A$(X%,5)
340 PRINT "Is this correct <y/n> ?"
350 H$=INKEY$: IF H$="y" OR H$="Y" OR H$="n" OR H$="N" THEN 360 ELSE
350
360 IF H$="n" OR H$="N" THEN INPUT "Enter new value :-"; A$(X%,5)
370 PRINT: PRINT "Press the <Space Bar> to continue"
380 H$=INKEY$: IF H$<>" " THEN 380
390 IF AA$<>"x" THEN GOTO 140
400 GOSUB 2900
410 GOTO 60
420 END
430 CLS: LOCATE 10,0 : PRINT "The Philatelist";
440 RETURN
450 PRINT: PRINT: PRINT "A utility program for collectors of British
Stamps."
460 PRINT: PRINT "<C> Steve W. Lucas November 1984"
470 DIM A$(400,5): REM ** array is dimensioned for 400 stamp issues *

```



```

480 PRINT:PRINT:PRINT"Do you want to load a previously      saved data
file <y>es / <n>o ?"
490 A$=INKEY$:IF A$="n" OR A$="N" THEN RETURN
500 IF A$="y" OR A$="Y" THEN 520
510 GOTO 490
520 CLS:GOSUB 430:PRINT:PRINT:PRINT"Insert Tape and press play now"
530 OPEN"cas:stamps" FOR INPUT AS #1
540 REM ** read 400 stamp issues... change to suit your own needs !"
550 FOR X=1 TO 400:FOR Y=1 TO 5
560 INPUT #1,A$(X,Y)
570 NEXT Y:NEXT X
580 CLOSE
590 RETURN
600 REM ** data for special issues... add extra lines as new issues
are released **
610 DATA BRITISH EMPIRE EXHIBITION,1924,multiple crown,2
620 DATA BRITISH EMPIRE EXHIBITION,1925,multiple crown,2
630 DATA POSTAL UNION CONGRESS (Low values),1929,multiple crown,4
640 DATA POSTAL UNION CONGRESS (High value),1929,multiple crown,1
650 DATA SILVER JUBILEE,1935,multiple crown,4
660 DATA CORONATION,1937,multiple crown,1
670 DATA STAMP CENTENARY,1940,multiple crown,6
680 DATA VICTORY,1946,multiple crown,2
690 DATA SILVER WEDDING (low value),1948,multiple crown,1
700 DATA SILVER WEDDING (high value),1948,multiple crown,1
710 DATA LIBERATION OF THE CHANNEL ISLANDS,1948,multiple crown,2
720 DATA OLYMPIC GAMES,1948,multiple crown,4
730 DATA ANNIVERSARY OF UNIVERSAL POSTAL UNION,1949,multiple crown,4
740 DATA FESTIVAL OF BRITAIN,1951,multiple crown,2
750 DATA CORONATION,1953,tudor crown,4
760 DATA WORLD SCOUT JUBILEE JAMBOREE,1957,St Edwards crown,4
770 DATA INTER PARLIAMENTARY UNION CONFERENCE,1957,St Edwards crown,
1
780 DATA BRITISH EMPIRE GAMES,1958,St Edwards crown,3
790 DATA ANNIVERSARY OF GENERAL LETTER OFFICE,1960,multiple crown,4
800 DATA EUROPA,1960,multiple crown,2
810 DATA POST OFFICE SAVINGS BANK CENTENARY,1961,multiple crown,3
820 DATA CEPT conference,1961,multiple crown,3
830 DATA COMMONWEALTH PARLIAMENTARY CONFERENCE,1961,multiple crown,3

840 DATA NATIONAL PRODUCTIVITY YEAR (ORDINARY),1962,multiple crown,3
850 DATA NATIONAL PRODUCTIVITY YEAR (PHOSPHOR),1962,multiple crown,3
860 DATA FREEDOM FROM HUNGER (ORDINARY),1963,multiple crown,2
870 DATA FREEDOM FROM HUNGER (PHOSPHOR),1963,multiple crown,2
880 DATA PARIS POSTAL CONFERENCE (ORDINARY),1963,multiple crown,1
890 DATA PARIS POSTAL CONFERENCE (PHOSPHOR),1963,multiple crown,1
900 DATA NATIONAL NATURE WEEK (ORDINARY),1963,multiple crown,2
910 DATA NATIONAL NATURE WEEK (PHOSPHOR),1963,multiple crown,2
920 DATA INTERNATIONAL LIFEBOAT CONFERENCE (ORDINARY),1963,multi
ple crown,3
930 DATA INTERNATIONAL LIFEBOAT CONFERENCE (PHOSPHOR),1963,multi
ple crown,3
940 DATA RED CROSS CENTENARY (ORDINARY),1963,multiple crown,3
950 DATA RED CROSS CENTENARY (PHOSPHOR),1963,multiple crown,3
960 DATA COMPAC CABLE (ORDINARY),1963,multiple crown,1
970 DATA COMPAC CABLE (PHOSPHOR),1963,multiple crown,1

```


PHILATELIST

- 980 DATA SHAKESPEARE FESTIVAL (ORDINARY), 1964, multiple crown, 5
990 DATA SHAKESPEARE FESTIVAL (PHOSPHOR), 1964, multiple crown, 4
1000 DATA INTERNATIONAL GEOGRAPHICAL CONGRESS (ORDINARY), 1964, multiple crown, 4
1010 DATA INTERNATIONAL GEOGRAPHICAL CONGRESS (PHOSPHOR), 1964, multiple crown, 4
1020 DATA INTERNATIONAL BOTANICAL CONGRESS (ORDINARY), 1964, multiple crown, 4
1030 DATA INTERNATIONAL BOTANICAL CONGRESS (PHOSPHOR), 1964, multiple crown, 4
1040 DATA FORTH ROAD BRIDGE (ORDINARY), 1964, multiple crown, 2
1050 DATA FORTH ROAD BRIDGE (PHOSPHOR), 1964, multiple crown, 2
1060 DATA WINSTON CHURCHILL (ORDINARY), 1965, multiple crown, 2
1070 DATA WINSTON CHURCHILL (PHOSPHOR), 1965, multiple crown, 2
1080 DATA SIMON DE MONTFORT'S PARLIAMENT (ORDINARY), 1965, multiple crown, 2
1090 DATA SIMON DE MONTFORT'S PARLIAMENT (PHOSPHOR), 1965, multiple crown, 1
1100 DATA SALVATION ARMY (ORDINARY), 1965, multiple crown, 2
1110 DATA SALVATION ARMY (PHOSPHOR), 1965, multiple crown, 2
1120 DATA JOSEPH LISTER (ORDINARY), 1965, multiple crown, 2
1130 DATA JOSEPH LISTER (PHOSPHOR), 1965, multiple crown, 2
1140 DATA COMMONWEALTH ARTS FESTIVAL (ORDINARY), 1965, multiple crown, 2
1150 DATA COMMONWEALTH ARTS FESTIVAL (PHOSPHOR), 1965, multiple crown, 2
1160 DATA BATTLE OF BRITAIN (ORDINARY), 1965, multiple crown, 8
1170 DATA BATTLE OF BRITAIN (PHOSPHOR), 1965, multiple crown, 8
1180 DATA POST OFFICE TOWER (ORDINARY), 1965, multiple crown, 2
1190 DATA POST OFFICE TOWER (PHOSPHOR), 1965, multiple crown, 2
1200 DATA UNITED NATIONS ICY (ORDINARY), 1965, multiple crown, 2
1210 DATA UNITED NATIONS ICY (PHOSPHOR), 1965, multiple crown, 2
1220 DATA ITU CENTENARY (ORDINARY), 1965, multiple crown, 2
1230 DATA ITU CENTENARY (PHOSPHOR), 1965, multiple crown, 2
1240 DATA ROBERT BURNS (ORDINARY), 1965, multiple crown, 2
1250 DATA ROBERT BURNS (PHOSPHOR), 1965, multiple crown, 2
1260 DATA WESTMINSTER ABBEY (ORDINARY), 1966, multiple crown, 2
1270 DATA WESTMINSTER ABBEY (PHOSPHOR), 1966, multiple crown, 1
1280 DATA LANDSCAPES (ORDINARY), 1966, multiple crown, 4
1290 DATA LANDSCAPES (PHOSPHOR), 1966, multiple crown, 4
1300 DATA WORLD CUP (ORDINARY), 1966, multiple crown, 3
1310 DATA WORLD CUP (PHOSPHOR), 1966, multiple crown, 3
1320 DATA BRITISH BIRDS (ORDINARY), 1966, multiple crown, 4
1330 DATA BRITISH BIRDS (PHOSPHOR), 1966, multiple crown, 4
1340 DATA WORLD CUP VICTORY (ORDINARY), 1966, multiple crown, 1
1350 DATA TECHNOLOGY (ORDINARY), 1966, multiple crown, 4
1360 DATA TECHNOLOGY (PHOSPHOR), 1966, multiple crown, 4
1370 DATA BATTLE OF HASTINGS (ORDINARY), 1966, multiple crown, 8
1380 DATA BATTLE OF HASTINGS (PHOSPHOR), 1966, multiple crown, 8
1390 DATA CHRISTMAS (ORDINARY), 1966, multiple crown, 2
1400 DATA CHRISTMAS (PHOSPHOR), 1966, multiple crown, 2
1410 DATA EFTA (ORDINARY), 1967, multiple crown, 2
1420 DATA EFTA (PHOSPHOR), 1967, multiple crown, 2
1430 DATA BRITISH FLOWERS (ORDINARY), 1967, multiple crown, 6
1440 DATA BRITISH FLOWERS (PHOSPHOR), 1967, multiple crown, 6
1450 DATA BRITISH PAINTINGS, 1967, multiple crown, 3
1460 DATA FRANCIS CHICHESTER, 1967, multiple crown, 1
1470 DATA BRITISH DISCOVERIES, 1967, multiple crown, 4
1480 DATA CHRISTMAS, 1967, none, 3

1490 DATA BRIDGES, 1968, none, 4
 1500 DATA ANNIVERSARIES, 1968, none, 4
 1510 DATA PAINTERS, 1968, none, 4
 1520 DATA CHRISTMAS, 1968, none, 3
 1530 DATA BRITISH SHIPS, 1969, none, 6
 1540 DATA CONCORDE, 1969, none, 3
 1550 DATA ANNIVERSARIES, 1969, none, 5
 1560 DATA CATHEDRALS, 1969, none, 6
 1570 DATA INVESTITURE OF PRINCE OF WALES, 1969, none, 5
 1580 DATA GANDHI, 1969, none, 1
 1590 DATA POST OFFICE TECHNOLOGY, 1969, none, 4
 1600 DATA CHRISTMAS, 1969, none, 4
 1610 DATA ANNIVERSARIES, 1970, none, 5
 1620 DATA LITERARY ANNIVERSARIES, 1970, none, 5
 1630 DATA COMMONWEALTH GAMES, 1970, none, 3
 1640 DATA PHILYMPIA, 1970, none, 3
 1650 DATA CHRISTMAS, 1970, none, 3
 1660 DATA ULSTER PAINTINGS, 1971, none, 3
 1670 DATA LITERARY ANNIVERSARIES, 1971, none, 3
 1680 DATA ANNIVERSARIES, 1971, none, 3
 1690 DATA UNIVERSITIES, 1971, none, 4
 1700 DATA CHRISTMAS, 1971, none, 3
 1710 DATA POLAR EXPLORERS, 1972, none, 4
 1720 DATA ANNIVERSARIES, 1972, none, 3
 1730 DATA CHURCHES, 1972, none, 5
 1740 DATA BBC ANNIVERSARY, 1972, none, 4
 1750 DATA CHRISTMAS, 1972, none, 3
 1760 DATA SILVER WEDDING, 1972, none, 2
 1770 DATA EUROPEAN COMMUNITY, 1973, none, 3
 1780 DATA BRITISH TREES, 1973, none, 1
 1790 DATA BRITISH EXPLORERS, 1973, none, 5
 1800 DATA COUNTY CRICKET, 1973, none, 3
 1810 DATA BRITISH PAINTERS, 1973, none, 4
 1820 DATA INIGO JONES, 1973, none, 4
 1830 DATA PARLIAMENTARY CONFERENCE, 1973, none, 2
 1840 DATA ROYAL WEDDING, 1973, none, 2
 1850 DATA CHRISTMAS, 1973, none, 6
 1860 DATA BRITISH TREES, 1974, none, 1
 1870 DATA FIRE ENGINES, 1974, none, 4
 1880 DATA CENTENARY OF UPU, 1974, none, 4
 1890 DATA FAMOUS BRITONS, 1974, none, 4
 1900 DATA WINSTON CHURCHILL, 1974, none, 4
 1910 DATA CHRISTMAS, 1974, none, 4
 1920 DATA CHARITY, 1975, none, 1
 1930 DATA ROBERT TURNER, 1975, none, 4
 1940 DATA HERITAGE YEAR, 1975, none, 5
 1950 DATA SAILING, 1975, none, 4
 1960 DATA RAILWAYS, 1975, none, 4
 1970 DATA INTER PARLIAMENTARY UNION, 1975, none, 1
 1980 DATA JANE AUSTEN, 1975, none, 4
 1990 DATA CHRISTMAS, 1975, none, 4
 2000 DATA TELEPHONE CENTENARY, 1976, none, 4
 2010 DATA SOCIAL REFORMERS, 1976, none, 4
 2020 DATA AMERICAN BICENTENNIAL, 1976, none, 1
 2030 DATA ROSES, 1976, none, 4
 2040 DATA CULTURAL TRADITIONS, 1976, none, 4
 2050 DATA WILLIAM CAXTON, 1976, none, 4
 2060 DATA CHRISTMAS, 1976, none, 4

- 2070 DATA RACKET SPORTS, 1977, none, 4
2080 DATA CHEMISTRY, 1977, none, 4
2090 DATA SILVER JUBILEE, 1977, none, 5
2100 DATA HEAD OF GOVERNMENTS, 1977, none, 1
2110 DATA WILDLIFE, 1977, none, 5
2120 DATA CHRISTMAS, 1977, none, 6
2130 DATA HISTORIC BUILDINGS (set), 1978, none, 4
2140 DATA HISTORIC BUILDINGS (MINATURE SHEET), 1978, none, 4
2150 DATA CORONATION ANNIVERSARY, 1978, none, 4
2160 DATA HORSES, 1978, none, 4
2170 DATA CYCLING, 1978, none, 4
2180 DATA CHRISTMAS, 1978, none, 4
2190 DATA DOGS, 1979, none, 4
2200 DATA SPRING FLOWERS, 1979, none, 4
2210 DATA EUROPEAN ELECTIONS, 1979, none, 4
2220 DATA HORSE RACING, 1979, none, 4
2230 DATA YEAR OF THE CHILD, 1979, none, 4
2240 DATA SIR ROWLAND HILL (SET), 1979, none, 4
2250 DATA SIR ROWLAND HILL (MINATURE SHEET), 1979, none, 4
2260 DATA METROPOLITAN POLICE, 1979, none, 4
2270 DATA CHRISTMAS, 1979, none, 4
2280 DATA WATER BIRDS, 1980, none, 4
2290 DATA RAILWAY, 1980, none, 5
2300 DATA STAMP EXHIBITION (STAMP), 1980, none, 1
2310 DATA STAMP EXHIBITION (MINATURE SHEET), 1980, none, 1
2320 DATA LONDON LANDMARKS, 1980, none, 5
2330 DATA FAMOUS WRITERS, 1980, none, 4
2340 DATA QUEEN MOTHER, 1980, none, 1
2350 DATA CONDUCTORS, 1980, none, 4
2360 DATA SPORT, 1980, none, 4
2370 DATA CHRISTMAS, 1980, none, 5
2380 DATA FOLKLORE, 1981, none, 4
2390 DATA DISABLED PEOPLE, 1981, none, 4
2400 DATA BRITISH BUTTERFLIES, 1981, none, 4
2410 DATA ROYAL WEDDING, 1981, none, 2
2420 DATA NATIONAL TRUST, 1981, none, 5
2430 DATA FISHING, 1981, none, 4
2440 DATA DUKE OF EDINBURGH AWARDS, 1981, none, 4
2450 DATA CHRISTMAS, 1981, none, 5
2460 DATA CHARLES DARWIN, 1982, none, 4
2470 DATA YOUTH ORGANISATIONS, 1982, none, 4
2480 DATA THEATRE, 1982, none, 4
2490 DATA MARITIME HERITAGE, 1982, none, 5
2500 DATA TEXTILES, 1982, none, 4
2510 DATA INFORMATION TECHNOLOGY, 1982, none, 2
2520 DATA BRITISH CARS, 1982, none, 4
2530 DATA CHRISTMAS, 1982, none, 5
2540 DATA RIVER FISH, 1983, none, 4
2550 DATA COMMONWEALTH DAY, 1983, none, 4
2560 DATA ENGINEERING ACHIEVEMENTS, 1983, none, 3
2570 DATA MILITARY UNIFORMS, 1983, none, 5
2580 DATA BRITISH GARDENS, 1983, none, 4
2590 DATA BRITISH FAIRS, 1983, none, 4
2600 DATA CHRISTMAS, 1983, none, 4
2610 DATA COLLEGE OF ARMS, 1984, none, 4
2620 DATA CATTLE, 1984, none, 4
2630 DATA URBAN RENEWAL, 1984, none, 4


```

2640 DATA EUROPA,1984,none,4
2650 DATA ECONOMIC SUMMIT,1984,none,1
2660 DATA GREENWICH MEAN TIME,1984,none,4
2670 REM ** ADD EXTRA DATA ITEMS HERE AS NEW STAMPS ARE ISSUED **

2680 DATA x,1,x,1:REM ** MAKE SURE THAT THE DATA IS TERMINATED WITH T
HIS LINE **
2690 RESTORE:X%=0
2700 X%=X%+1:GOSUB 430
2710 READ AA$,B,AB$,C
2720 PRINT:PRINT:PRINT"ISSUE :-"
2730 PRINTAA$:PRINT
2740 PRINT"YEAR OF ISSUE :-";B:PRINT
2750 PRINT"WATERMARK :-";AB$:PRINT
2760 PRINT"NUMBER OF STAMPS IN SET :-";C:PRINT
2770 PRINT"Enter catalogue numbers :-";:INPUT A$(X%,0)
2780 PRINT"Enter catalogue value in pounds :-";:INPUT A$(X%,1)
2790 PRINT"Enter price paid in pounds :-";:INPUT A$(X%,3)
2800 PRINT"Enter perforation :-";:INPUT A$(X%,4)
2810 PRINT"Enter any other information :-";:INPUT A$(X%,5)
2820 PRINT:PRINT"Is this information correct <y/n> ?"
2830 H$=INKEY$:IF H$="n" OR H$="N" OR H$="y" OR H$="Y" THEN 2840 ELSE
2830
2840 IF H$="N" OR H$="n" THEN GOSUB 430:PRINT:PRINT:GOTO 2770
2850 GOSUB 430:PRINT:PRINT"Do you want to save your file yet      <y/n>
?"
2860 INPUT H$:H$=LEFT$(H$,1):IF H$="y" OR H$="Y" THEN GOSUB 2900:GOTO
60
2870 IF AA$<>"x" THEN 2700
2880 GOSUB 2900
2890 GOTO 60
2900 GOSUB 430:PRINT:PRINT:PRINT"Place your tape ready to record and
press <RETURN> when ready."
2910 INPUT J
2920 OPEN"cas:stamps" FOR OUTPUT AS #1
2930 REM ** write 400 stamp issues to tape...change to suit your own
needs !"
2940 FOR X=1 TO 400:FOR Y=1 TO 5
2950 PRINT #1,A$(X,Y)
2960 NEXT Y:NEXT X
2970 CLOSE
2980 RETURN
2990 RESTORE:GOSUB 430:PRINT:PRINT:X%=0
3000 X%=X%+1
3010 READ AA$,B,AB$,C
3020 IF AA$="x" THEN 60
3030 PRINT"ISSUE :-":PRINTAA$
3040 PRINT"Year of issue :-";B:PRINT"Watermark :-";AB$
3050 PRINT"Number of stamps in set :-";C:PRINT"Catalogue numbers :-";
A$(X%,0)
3060 PRINT"Current catalogue value :-";A$(X%,1):PRINT"Price paid :-";
A$(X%,3)
3070 PRINT"Perforation details :-";A$(X%,4):PRINT"Other information :
-";A$(X%,5)
3080 PRINT:PRINT:PRINT"Press the <Space Bar> to continue."
3090 H$=INKEY$:IF H$<>" " THEN 3090
3100 GOSUB 430:PRINT:PRINT
3110 GOTO 3000

```


This is an educational game for players of 7 years old upwards. In it you will be shown a series of questions chosen at random from the 61 questions held in the DATA statements. Four words are shown in boxes on the screen and a dictionary definition of the word is shown at the bottom of the screen. A boat moves from one box to another and you should try to press the space

bar when the boat is next to the correct spelling. Incorrect answers cause the computer to display the correct spelling.

Changing the questions is simply a matter of changing and/or adding to the DATA lines (line100-). Each line should hold the four alternative spellings followed by the number of the correct spelling and finally the dictionary definition.

Program Breakdown

40	select screen 2 and colours
60	50-90 titles allows text to be printed on screen 2
100-700	data for questions
710-780	READ DATA into the arrays
790-840	instructions
850-890	define sprites for boat
900-940	draw boxes for words
950	select colour
960	choose random question
970-1000	print words on screen
1010	print dictionary definition
1020-1030	space bar detection
1040	set initial position of boat
1050	move sprites
1060	time delay
1070	change boat's coordinates and play note
1080	check if next question
1090	jump to move sprite
1100-1140	check if right answer
1150-1170	response for a 'win'
1180-1270	response for a 'lose'

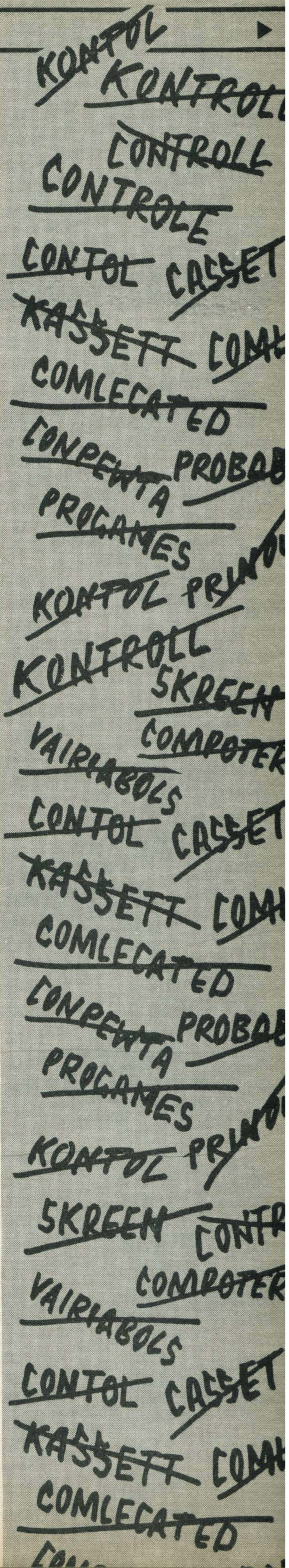
Variables Used

AS(x,y)	holds the words
A%(x)	holds the correct answer
BS(x)	holds the definitions
AS,D	used in sprite definition
X,Y	coordinates of boat sprites
J	number of box that boat is next to
KL	used to check if going on to next question
F\$,S\$	wait for key press
P	number of the question

Modifications

Changing this game to make it suitable for children of different ages and abilities is simply a matter of altering the DATA lines to suit. If you want to add extra lines, the size of the arrays will need

to be increased by changing the DIM statements in line 710 and the size of X and Y in lines 730-740 to the number of words used. You will also need to change the size of the random number (P) in line 960 to select from all the words entered.



► THERAPY

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```

10 REM ** Spelling...an educational game for MSX Computers **
20 REM ** <C> Steve W. Lucas  October 1984 **
30 REM ** for MSX User **
40 SCREEN 2,0,0:KEYOFF:COLOR 13,15,0
50 LINE (0,0)-(255,20),9,BF
60 OPEN"grp:" FOR OUTPUT AS #1
70 PRESET (85,6),0:COLOR 1:PRINT#1,"Spelling Quiz"
80 LINE (0,90)-(255,110),6,BF
90 PSET (10,100),6:COLOR 15:PRINT#1,"<C> Steve W. Lucas for MSX Use
r"
100 DATA contol,kontroll,controll,control,4,power of directing and r
estraining
110 DATA cassette,cassette,casete,cassete,2,type of tape
120 DATA complicated,complhicated,complecated,complacated,1,involved
130 DATA probablle,probably,probably,probably,3,most likely
140 DATA altaring,altering,alturing,haltering,2,changing
150 DATA vibrasion,vibration,vibrasian,vibratian,2,move continuously
160 DATA concider,consider,considure,concidur,2,contemplate
170 DATA figure,fighure,phigure,phigre,1,shape
180 DATA whasteful,wastfull,wastefull,wasteful,4,not economical
190 DATA ampliffier ,amplifier ,ammplyfier ,amplyfier,2,makes louder
200 DATA flasching,flashzing,flachsing,flashing,4,a lamp turning on
and off
210 DATA manual ,manuel ,manuarl ,manurl,1,done by hand
220 DATA encoutar ,encountur ,encountter ,encounter,4,close contact
230 DATA expreshun ,exresion ,expression ,hexpression,3,wording or phra
se
240 DATA content ,contant ,contente ,kontent,1,satisfied
250 DATA acumulate ,accumulate ,acumalate ,accumerlate,2,heap up
260 DATA assemberl ,assemble ,assembl ,asembel,2,bring together
270 DATA situation ,sithuation ,situashjion ,situachion,1,position you
are in
280 DATA computer ,computur ,computer ,computur,1,an electronic machin
e
290 DATA endles ,hendless ,endlless ,endless,4,without end
300 DATA envelope ,henvelope ,enveloppe ,enveloppe,1,used for sending l
etters
310 DATA extraction ,extraktion ,extraxion ,extracsion,1,take out
320 DATA forcable ,forcible ,forsable ,forsible,2,done using force
330 DATA halucination ,hallucination ,hallucinatian ,halucination,2,ill
usion
340 DATA idolise ,idolize ,idlise ,idlize,2,to love
350 DATA imposibal ,impossible ,imposible ,impossable,2,not allowed
360 DATA mechanical ,mecanical ,mecanicle ,manicol,1,works by machinery
370 DATA necessary ,neccessary ,necessary ,neccesary,3,needed
380 DATA navigation ,navigashion ,navigatian ,navigatiun,1,sail a ship
on course
390 DATA orchid ,orkid ,orchyd ,orcid,1,flowering plant
400 DATA oxigen ,oxegen ,oxejun ,oxygen,4,a gas
410 DATA spatious ,spachious ,spashious ,spacious,4,plenty of room
420 DATA alocation ,aloccation ,allocation ,allocatiun,3,to assign
430 DATA compulsory ,compulsary ,compulsery ,compullsory,1,something yo
u have to do
440 DATA controler ,controllor ,controller ,controlor,3,person in charg
e
450 DATA calendar ,calender ,callendar ,callender,1,table of the year's
dates
460 DATA appreciate ,apreciate ,apreciete ,appresiate,1,set a high valu
e on
470 DATA styal ,stile ,stial ,style,1,design
480 DATA sterilise ,steralise ,steralize ,sterilize,4,to get rid of mic
robes
490 DATA syndicate ,syndicate ,syndecate ,sindecate,2,group of people
500 DATA tempreture ,temperature ,tempreture ,temprature,2,degree of he
at
510 DATA hidrogen ,hydrgen ,hydrogen ,hydrogan,3,a chemical element
520 DATA bugerigar ,bugarigar ,budgerigar ,budgeregar,3,a type of bird
530 DATA administer ,adminster ,adminester ,adminestar,1,look after aff
airs
540 DATA pharmecy ,pharmarcy ,pharmercy ,pharmacy,4,chemists shop
550 DATA possession ,posesion ,possession ,posession,1,own
560 DATA retaleate ,retaliate ,retalyate ,retalate,2,get your own back
570 DATA stomach ,stumuch ,stomache ,stomake,1,part of the body
580 DATA rhithm ,rithm ,rhythem ,rhythm,4,part of music
590 DATA sucessful ,succesful ,successful ,suceseul,3,do it correctly
600 DATA substansial ,substanshul ,substantial ,substantiel,3,inconside
rable
610 DATA capital ,kapitol ,capitol ,kapital,1,of chief importance

```


SPELLING QUIZ

```
620 DATA dissappointing,disappointing,disapointing,dissapointing,2,n
ot up to expectation
630 DATA whipet,whippet,wippet,whippit,2,a type of dog
640 DATA transperent,transparant,transperant,transparent,4,can be se
en through
650 DATA nececity,necesity,necessity,necessety,3,something which is
needed
660 DATA asasination,assassination,assasination,asasination,2,murder
670 DATA bronkitis,bronchitis,bronchitus,bronicitis,2,an illness
680 DATA centenary,centenery,centanery,sentenery,1,hundredeth anniver
sary
690 DATA sentrafugal,centrafugal,centrifugul,centrifugal,4,force of
a spinning object
700 DATA conventional,convensional,conventionul,konvensional,1,the n
ormal response
710 DIM A$(61,4),A%(61),B$(61),N$(61)
720 RESTORE
730 FOR X=1 TO 60
740 FOR Y=1 TO 4
750 READ A$(X,Y)
760 NEXT Y
770 READ A%(X),B$(X)
780 NEXT X
790 CLS:COLOR 0:PRESET (0,0):COLOR 6:PRINT#1,"In this game you will
be shown a series of questions."
800 COLOR 1:PRINT#1,"Each question will consist of four alternativ
e spellings of the same word and you must try to select the corre
ct one."
810 COLOR 8:PRINT#1,"To make your choice, you should press the space
bar when the pointer is next to the word you want to select."
820 PRINT#1,"":PRINT#1,"":PRINT#1,""
830 COLOR 13:PRINT#1,"Do you want to continue ?"
840 S$=INKEY$:P=RND(1):IF S$<>"y" THEN 840
850 RESTORE 860
860 DATA 1,1,1,1,255,127,63,31,128,224,0,0,255,254,252,248,0,128,143
,241,255,127,3,2,0,0,0,8,232,252,8,8
870 FOR X=1 TO 4:A$="":FOR Y=1 TO 8
880 READ D:A$=A$+CHR$(D):NEXT:SPRITE$(X)=A$:NEXT
890 CLS
900 CLS:KL=0
910 LINE (10,10)-(140,50),12,BF
920 LINE (10,51)-(140,90),4,BF
930 LINE (10,91)-(140,130),8,BF
940 LINE (10,131)-(140,170),10,BF
950 COLOR 15
960 P=INT(RND(1)*61)+1
970 PSET (20,30),12:COLOR 1:PRINT#1,A$(P,1)
980 PSET (20,70),4:COLOR 8:PRINT#1,A$(P,2)
990 PSET (20,110),8:COLOR 10:PRINT#1,A$(P,3)
1000 PSET (20,150),10:COLOR 4:PRINT#1,A$(P,4)
1010 COLOR 0:PSET(20,175),7:COLOR 12:PRINT#1,B$(P)
1020 STRIG(0) ON
1030 ON STRIG GOSUB 1100
1040 X=150:Y=30
1050 PUT SPRITE 2,(X,Y),6,1:PUT SPRITE 3,(X+8,Y),6,2
1060 FOR T=1 TO 500:NEXT T
1070 Y=Y+40:PLAY"c":IF Y>150 THEN Y=30
1080 IF KL<1 THEN GOTO 1050
1090 GOTO 900
1100 STRIG(0) OFF
1110 IF Y=30 THEN J=1 ELSE IF Y=70 THEN J=2 ELSE IF Y=110 THEN J=3 EL
SE J=4
1120 IF J=A%(P) THEN GOSUB 1150 ELSE GOSUB 1200
1130 KL=1
1140 RETURN
1150 CLS:PRESET(20,20):PRINT#1,"You win!"
1160 PRESET(20,160):COLOR 1:PRINT #1,"Do you want to continue <Y/N>?"
1170 F$=INKEY$:IF F$="y" OR F$="Y" THEN RETURN
1180 IF F$="n" OR F$="N" THEN END
1190 GOTO 1170
1200 CLS:COLOR 0:PRESET(20,100):COLOR 5:PRINT#1,"It was :-"
1210 COLOR 0:PRESET (100,10):COLOR 6:PRINT #1,Wrong"
1220 COLOR 0
1230 PRESET(100,100):COLOR 12:PRINT#1,A$(P,A%(P))
1240 COLOR 0:PRESET(20,160):COLOR 1:PRINT#1,"Do you want to continue
<Y/N>?"
1250 F$=INKEY$:IF F$="y" OR F$="Y" THEN RETURN
1260 IF F$="n" OR F$="N" THEN END
1270 GOTO 1250
```

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~~KASSETT COM~~

~~COMLECATED~~

~~CONPENTA PROBA~~

~~PROGAMES~~

~~KONTOL PRIN~~

~~KONTROLL~~

~~SKREEN~~

~~VAIRIABOLS~~

~~CONTROL CASSE~~

~~KASSETT COM~~

~~COMLECATED~~

~~CONPENTA PROBA~~

~~PROGAMES~~

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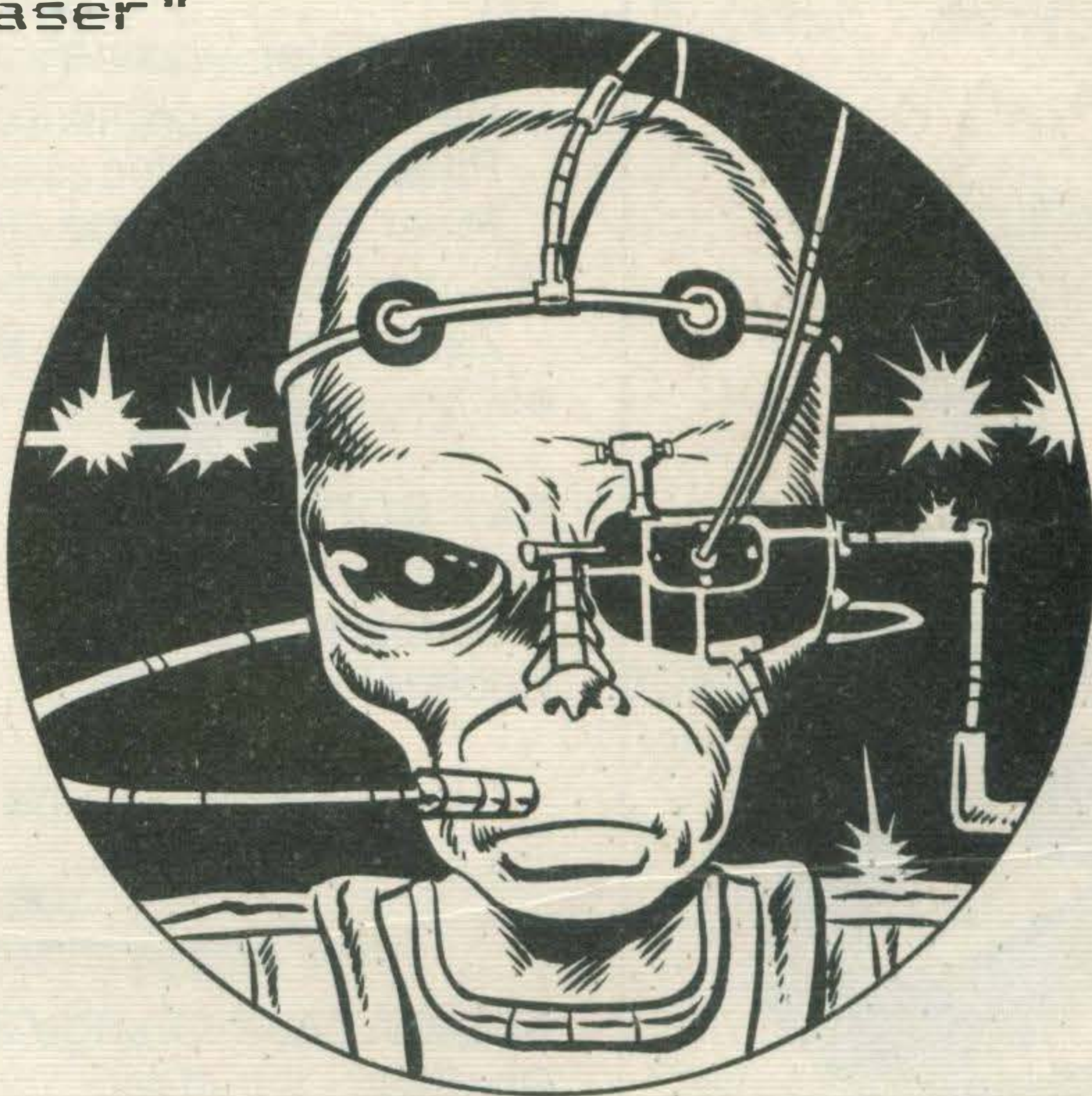

```

10 REM ** Simple Simon **
20 REM ** for MSX computers **
30 REM ** <C> Steve W. Lucas September 1984 **
40 CLEAR 3000
50 TIME=0
60 DIM A$(6),M$(6):FOR X=1 TO 6:READ M$(X):NEXT
70 DATA "Watch","Now Repeat","Correct","Wrong !","The Correct Sequence was :-","Too Slow !"
80 KEYOFF
90 SCREEN 0:WIDTH 40
100 GOSUB 740
110 HH$=STRING$(6,CHR$(200)):H$=""
120 FOR X=1 TO 6:H$=H$+CHR$(10)+STRING$(6,CHR$(8))+HH$:NEXT:HH$=H$
130 COLOR 12,15
140 LOCATE 5,10:PRINT"Press      1 = Easy   2 = Hard"
150 Z$=INKEY$:IF Z$="" THEN 150
160 IF Z$="1" THEN X%=40 ELSE IF Z$="2" THEN X%=20 ELSE 150
170 SC=0:AC=0:B$="":REM b$ holds sequence
180 GOSUB 300:REM ** add letter to sequence **
190 GOSUB 360 :REM ** subroutine to display sequence **
200 GOSUB 460:REM ** try to repeat sequence **
210 IF TI>=X%*4 THEN CLS:LOCATE 5,10:COLOR 12,15:PRINTM$(6):AC=1:GOTO 250
220 IF AA$<>MID$(B$,ZX,1) THEN CLS:COLOR 11,4:LOCATE 5,10:PRINTM$(4):AC=1:GOTO 250
230 SC=SC+1
240 IF AC=0 THEN 180
250 LOCATE 2,15:PRINT"You scored :-";SC:LOCATE 1,21:PRINT"Press the <Space Bar> for a new game."
260 AA$=INKEY$:IF AA$<>" " THEN 260
270 RUN
280 END
290 REM ** subroutine to select a random letter and add it to b$ **
300 A=INT(RND(1)*4)+1
310 IF A=1 THEN A$="r" ELSE IF A=2 THEN A$="y" ELSE IF A=3 THEN A$="c" ELSE IF A=4 THEN A$="b"
320 IF A=0 THEN PRINT"Program has crashed !":END
330 LET B$=B$+A$:F=FRE("")
340 RETURN
350 REM ** display the sequence **
360 CLS:LOCATE 7,10:PRINTM$(1)
370 FOR X=1 TO 1000:NEXT X:REM ** time delay may be adjusted to suit **
380 CLS
390 XY=LEN(B$):XX=0
400 C$=MID$(B$,XX+1,1)
410 IF C$="r" THEN S=1 ELSE IF C$="y" THEN S=2 ELSE IF C$="c" THEN S=3 ELSE S=4
420 IF S=1 THEN GOSUB 580 ELSE IF S=2 THEN GOSUB 620 ELSE IF S=3 THEN GOSUB 660 ELSE GOSUB 700
430 XX=XX+1
440 IF XX<XY THEN 400
450 RETURN
460 CLS:COLOR 12,15:LOCATE 5,10:PRINTM$(2)
470 FOR X=1 TO 300:NEXT X:REM adjust time delay to suit yourself
480 TI=0:CLS:ZX=0:COLOR 11,1
490 TI=TI+1
500 AA$=INKEY$
510 IF AA$<>"r" AND AA$<>"y" AND AA$<>"c" AND AA$<>"b" THEN 550
520 ZX=ZX+1
530 IF AA$="r" THEN GOSUB 580 ELSE IF AA$="y" THEN GOSUB 620 ELSE IF AA$="c" THEN GOSUB 660 ELSE IF AA$="b" THEN GOSUB 700
540 IF MID$(B$,ZX,1)<>AA$ THEN 560
550 IF ZX<>LEN(B$) AND TI<X%*4 THEN 490
560 RETURN
570 REM ** draw graphics blocks **
580 CLS: COLOR 12,1 : REM ** green on black **
590 LOCATE 10,2:PRINTHH$
600 PLAY"L303C04":FOR C=1 TO X%*10:NEXT C
610 RETURN
620 CLS: COLOR 4,1 : REM ** blue on black **
630 LOCATE 32,2:PRINTHH$
640 PLAY"L304C04":FOR C=1 TO X%*10:NEXT C
650 RETURN
660 CLS: COLOR 6,1 : REM ** red on black **
670 LOCATE 10,15:PRINTHH$
680 PLAY"L305C04":FOR C=1 TO X%*10:NEXT C
690 RETURN
700 CLS: COLOR 10,1 : REM ** yellow on black **
710 LOCATE 32,15:PRINTHH$
720 PLAY"L306C04":FOR C=1 TO X%*10:NEXT C
730 RETURN
740 SCREEN 0:COLOR 10,4:LOCATE 9,2:PRINT"SIMPLE SIMON"
750 PRINT:PRINT:PRINT"  A game of memory for MSX computers"
760 PRINT:PRINT" <C> Steve w. Lucas  September 1984"
770 PRINT:PRINT"Watch the screen while coloured squares flash in a random sequence."
780 PRINT:PRINT"You must try to repeat the sequence      using the following keys :-"
790 PRINT:PRINT"      r  y"
800 PRINT:PRINT"      c  b"
810 PRINT:PRINT:PRINT:PRINT:PRINT"Press the <Space Bar> to start the game"
820 AA$=INKEY$:IF AA$<>" " THEN 820
830 REM ** start random number generator at random position **
840 FOR X=1 TO TIME STEP 10 :P%=RND(1):NEXT
850 CLS:RETURN

```


Here are the reprints of Alien Chaser
and Simple Simon from the December
issue, as promised last month. Have fun!

```
10 REM ** Alien Chaser **
20 REM ** a game for MSX computers by S.W. Lucas **
30 REM ** <C> Argus Publications September 1984 **
40 ER$=STRING$(4,CHR$(219))
50 SC%=0
60 KEYOFF:SCREEN 2,2
70 COLOR 15,4
80 FOR C=1 TO 32:READ S$:T#=T#+CHR$(VAL("&b"+S$)):NEXT C
90 SPRITE$(0)=T$
100 DATA 11110000,11110000,11000000,01000010,01000111,01001010
110 DATA 01111111,01101011,01101010,01111111,01001010,01000111,01000
000,11000000,11110000,11110000,00001111,00001111
120 DATA 00000011,10000010,11100010,01010010,11111110,01010110,01010
110,11111110,01010010
130 DATA 11100010,10000010,00000011,00001111,00001111
140 U%=INT(RND(1)*175)+5:V%=INT(RND(1)*50)+5
150 PUT SPRITE 1,(U%,V%),11,0
160 X=125:Y=99
170 LINE (0,0)-(255,192),6,B
180 LINE (1,0)-(1,192),6:LINE (254,0)-(254,292),6
190 LINE (0,170)-(255,192),5,B
200 OPEN "GRF:" FOR OUTPUT AS #1
210 PRESET(40,175):PRINT #1,"Alien Chaser"
220 PRESET(170,175):PRINT #1,"Score"
230 PRESET(220,175):PRINT #1,SC%
240 A=STICK(0)
250 F=0
260 XX=X:YY=Y
270 IF A=1 THEN Y=Y-1
280 IF A=2 THEN Y=Y-1:X=X+1
290 IF A=3 THEN X=X+1
300 IF A=4 THEN Y=Y+1:X=X+1
310 IF A=5 THEN Y=Y+1
320 IF A=6 THEN Y=Y+1:X=X-1
330 IF A=7 THEN X=X-1
340 IF A=8 THEN Y=Y-1:X=X-1
350 P=POINT(X,Y)
360 IF XX<>X OR YY<>Y THEN F=1
370 IF P=6 THEN GOSUB 450
380 IF P=15 AND F=1 THEN GOSUB 450
390 IF X>U%-5 AND X<U%+5 AND Y>V%-5 AND Y<V%+5 THEN GOSUB 500
400 PSET (X,Y),15
410 F%=INT(RND(1)*4)+1:IF F%=1 THEN U%=U%+5 ELSE IF F%=2 THEN U%=U%-
5 ELSE IF F%=3 THEN V%=V%+5 ELSE V%=V%-5
420 IF V%>191 THEN V%=185 ELSE IF V%<0 THEN V%=5
430 PUT SPRITE 1,(U%,V%),11,0
440 GOTO 240
450 SCREEN 0:LOCATE 5,10:PRINT"Crash!"
460 LOCATE 10,15:PRINT"You scored :-":SC%
470 LOCATE 1,20:PRINT"Press the <Space Bar> to play again"
480 AA#=INKEY#:IF AA#<>" " THEN 480
490 RUN
500 SC%=SC%+1
510 COLOR 0:PRESET(220,175):PRINT #1,ER$
520 PLAY"c"
530 COLOR 15:PRESET(220,175):PRINT #1,SC%
540 U%=INT(RND(1)*175)+5:V%=INT(RND(1)*70)+5
550 RETURN
560 IF X%>U%-10 AND X%>U%+10 AND V%<V%-5 AND Y%>V%+5 THEN BEEP:GOSUB
500:RETURN
570 RETURN
```



Looking for the latest software? So are we. We want software houses to tell us about their latest titles to add to our current list below.

*** denotes available from launch.**

A

ACTIVISION,, 15 Harley House, Marylebone Rd, London, NW1:

Beamrider - game
Decathlon - game
Pitfall 11 - game
River Raid - game
Space Shuttle - game
Zenji - game - £11.99 each

A&F SOFTWARE, 8 Camalside Ind. Estate, Woodbine St East, Rochdale:

Chuckie Egg - game - £7.90*

ALLIGATA, 1 Orange St, Sheffield, S1 4DW:

Blogger - game - 7.95*
Contract Bridge - game - £9.95*
Disc Warrior - game - £7.95*

AMPALSOFT, Ampal Computer Services, Woodbridge Rd, Derby Green, Surrey:

Fun Words - educational (four progs) - £9.95

ANIROG, 8 The High St, Horley, Surrey, RH6 7AY:

Flightpath 737 - game - £7.95*

ARTIC, Brandesburton, Driffield, North Humberside, YO25 8RL:

Mr Wongs Loopy Laundry - game - £6.95

A.S.K., London House, 68 Upper Richmond Rd, London, SW15 2RP:

Number Painter - educational, 5-14 years.

B

BUBBLE BUS, 87 High St, Tonbridge, Kent, TN9 1RX:

Hustler - game - £6.99*

C

CDS MICROSYSTEMS, Silver House, Silver St, Doncaster, Sth Yorkshire:

French Is Fun - educational
German Is Fun - educational
Italian Is Fun - educational
Spanish Is Fun - educational - £7.95 ea.

COMPUTER MATES, PO Box 2, Stockbridge, Hampshire:

Word Processor - business - £49*
Cards System - business - £49*
Cash Accounts System - business - £99*
Double Entry Accounts - business - £99*
Word Processing & Cards System combined - business - £75*

CRL, CRL House, 9 Kings Yard, London, E15 2HD:

Glug Glug - gme - £7.95
War Of The Worlds - game - £7.95

D

D.K. TRONICS, Saffon Walden, Essex, CB11 3AQ:

Minder - game
Popeye - game
Hagar The Horrible - game - £5.95 ea.

G

G.S.T./ELECTRIC SOFTWARE, 8 Green St, Willingham:

Buzz Off - game - £8.95*
Shark Hunter - game - £9.95*

Le Mans - game - £9.95
Norseman - game - £8.95
Backgammon - game - £9.95

H

HEWSON, 56B Milton Trading Estate, Milton, Abingdon, Essex, OX1 4RX:

Bazam – game*

HI-SOFT, 180 High St Nth, Dunstable, Beds, LU6 1AT:

Devpac – utility – £19.95
Pascal Compiler – utility – £29.95

K

KEMP, 43 Muswill Hill, London, N1D 3PN:

Stock Control – business – £34.95

KONAMI, Television House, 269 Fieldend Rd, Eastcote, Middlesex:

Super Cobra – game*
Athletic Land – game*
Circus Charlie – game*
Antarctic Adventure – game*
Cosmic Bakery – game*
Monkey Academy – game*
Time Pilot – game*
Hyper Olympic 1 – game*
Hyper Olympic 2 – game*
Hyper Sports 1 – game – £14.99 ea.*

KUMA, 12 Horseshoe Park, Pangbourne, RG7 7JW:

Binary Land – game – £8.95*
Eric & The Floaters – game – £8.95*
Hyper Vipers – game – £7.95*
Spooks & Ladders – game – £6.95*
Holdfast – game – £5.95*
Home Budget – business – £14.95
WDPRO-Wordprocessor – business – £29.95
Database – business – £19.95
Starting With The MSX – utility – £5.95*
The MSX Red Book – utility – £8.95*

Star Avenger – game – £8.95
Super Chess – game – £8.95
Stop The Express – game – £6.95
Ninja – game – £6.95
Mean Streets – game – £6.95
Colour Fantasia – game – £9.95
Logs Turtle Graphics – £19.95
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Supply - Cassette of prog

List of variables used

Brief explanation of program flow

Printer listing of prog (if possible)

Explanation of how prog works/instructions

Check out the THERAPY feature in this issue for guidance.

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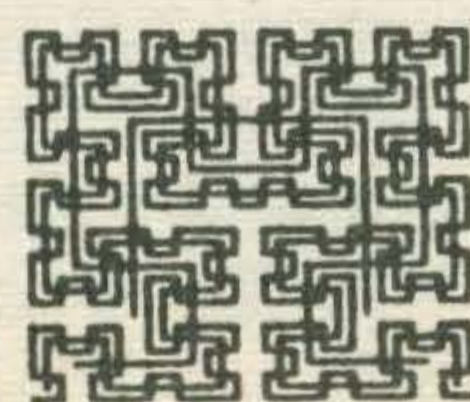
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Write your own adventures II. Steve Lucas directs

Before moving on to the interesting task of coding the problems faced by the intrepid armchair adventurer, we must translate the rough flowchart, given in the last issue, into the main control section of the program. If you intend to write just one or two games, it doesn't really matter what names you give the variables, but if you intend to write more it makes sense to stick to the same names. Table one shows the main variable names I intend to use throughout and table two shows the order in which we need to lay out the program.

Suppose you're going to write a game with 25 locations, 16 objects to be found and you are going to make the adventurer start in location 3. **Listing one** shows one way of starting the game. The next stage is a little more difficult. If you haven't planned it very carefully, you'll find yourself breaking that most sacred rule of computing - jumping out of a FOR-NEXT loop. To a programming purist this is akin to murder, but to everyone else it's to be avoided because it's likely to throw up NEXT without FOR errors just when you least expect them. **Listing two**

illustrates the structure I like to keep to when writing an adventure. You'll notice it consists of a loop which is repeated until the score reaches 10. Each time the loop is executed, the program describes the location, the directions it's possible to move in and gives a description of any objects found there. The computer will then call the appropriate subroutine and return to line 200 if the score is less than 10.

If you study **listing two** carefully, you'll see that **line 200** describes the current location. **Lines 210 - 260** describe the directions you can go in and **lines 270 - 320** describe any objects which are to be found. **Lines 210 to 250** look at the elements of the array **S%(x,y)** to see if the number held is greater than zero. If it is, then you can go in that direction and hence **A\$** is changed to include that direction.

After the player has been asked to input their actions in **line 330**, the program looks at the first three letters of the input sentence. Most adventure games work in this way, with the computer checking the first few letters of the words. I've not included the calls to the subroutines in the loop just yet, because different games will be required to understand different words. There will, however, be many words which all games must recognise, including the directions N,S,E,W and useful words such as get, take, drop, score etc.

Listing three illustrates how to write the routine which allows you to move around. It works by checking the elements of the array **S%** to see if the number held is greater than 1. If it is, it will change the value of **P%** to the number held in the array. To help you to understand how it works, table three lists the meanings of the four options available. In **Listings four, five, six, seven and eight** you'll find routines which enable the player to get and drop objects, together with an inventory.

TABLE ONE

Variable names

P%	current location
S%(x,y)	holds the map
Q\$(X)	holds the descriptions of the locations
N\$(x)	holds the words recognised as objects
G\$(x)	holds the description of objects N%(X) pointer to words
B%(x)	holds the pointers where the objects are to be found
S%	holds the score
AA-AZ	tests whether the player has solved a problem or not
V\$(x)	holds the items being carried (for inventory)

TABLE TWO

Program Layout

1. set up screen mode and select colours
2. Titles
3. Instructions
4. Initialise variables
5. READ DATA into the arrays
6. main control loop
7. subroutines
8. DATA for game

LISTING ONE

Initialising the game

```

10 SCREEN 0: WIDTH 40: COLOR 15,0
20 CLS: PRINT TAB(5); "The Adventure in Death Valley"
30 PRINT: PRINT "By .. Fred Bloggs"
40 PRINT "Version 1.. written during Sept. 1984"
50 REM ** Replace the following lines by your instructions **

60
70
80
90 DIM
   Q$(25),V$(3),S%(25,4)N$(16),N%(16),B%(16),G$(16)
100 REM ** initialise variables **
110 LET P% = 3: LET S% = 0: REM ** Start in location 3 with a score of zero **
120 REM ** now fill the arrays **
130 FOR X = 1 TO 25: READ Q$(X)
140 FOR Y = 1 TO 4: READ S%(X,Y)
150 NEXT Y,X
160 FOR X = 1 TO 16: READ
   G$(X),B%(X),N$(X):N%(R) = X: NEXT X

```

LISTING TWO

The main control loop

```

200 CLS:PRINT "I am:-": PRINT Q$(P%)
210 A$ = " "
220 IF S%(P%,1) 0 THEN LET A$ = "North"
230 IF S%(P%,2) 0 AND LEN (A$) 0 THEN
   A$ = A$ + ", East" ELSE IF S%(P%,2) 0 THEN
   A$ = "South"
240 IF S%(P%,3) 0 AND LEN (A$) 0 THEN
   A$ = A$ + ", East" ELSE IF S%(P%,3) 0 THEN
   A$ = "East"
250 IF S%(P%,4) 0 AND LEN (A$) 0 THEN
   A$ = A$ + ", West" ELSE IF S%(P%,4) 0 THEN
   A$ = "West"
260 PRINT "I can go:-"; A$
270 E = 0: FOR LX = 1 TO 16
280 P% = 0: IF B%(X) = P% THEN PP% = 1
290 IF PP% = 1 THEN 310
300 NEXT X: GOTO 330
310 IF E = 0 THEN PRINT "I can see:-"
320 PRINT G$:E = 1: GOTO 300
330 PRINT: PRINT "What shall I do now": INPUT Z$
640 LEFT$(Z$,3)
350 REM ** the following lines will call an appropriate subroutine **

360
370
900 IF S% 10 THEN GOTO 200

```

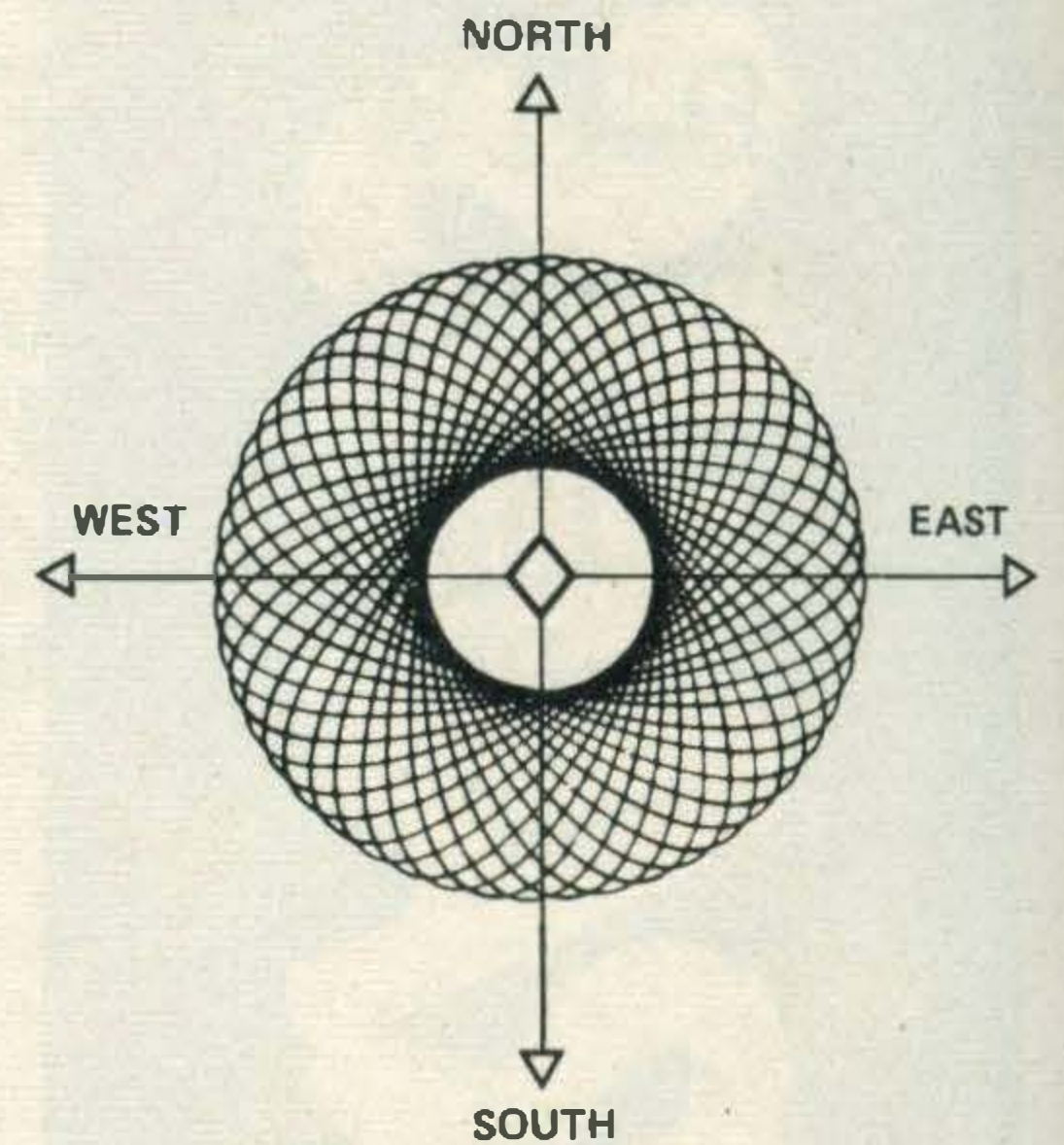
Table three

The array S%

This array holds the pointer to the locations you arrive at if you go North, South, East or West.

S%(X,1) = north
 S%(X,2) = south
 S%(X,3) = east
 S%(X,4) = west

Thus if you are in location 21 and S%(21,3) holds the number 7, it means that going east will take you to location 7.



Listing three

movement

```

360 IF C$ = "n" AND S%(P%,1) 0 THEN P% = S%(P%,1)
370 IF C$ = "s" AND S%(P%,2) 0 THEN P% = S%(P%,2)
380 IF C$ = "e" AND S%(P%,3) 0 THEN P% = S%(P%,3)
390 IF C$ = "w" AND S%(P%,4) 0 THEN P% = S%(P%,4)

```

Listing four

calling subroutines

```

400 IF C$ = "get" OR C$ = "tak" THEN GOSUB 1000
410 IF C$ = "dro" OR C$ = "lea" THEN GOSUB 1500
420 IF C$ = "inv" THEN GOSUB 2000

```

Listing five

getting objects

```

1000 GOSUB 1400 : REM ** split input sentence into two words **
1010 IF L% 1 THEN RETURN
1020 E% = 0
1030 FOR X = 1 TO 1 : IF B%(X) = P% AND B%(N%(R)) = P% THEN E% = 1
1040 NEXT
1050 IF E% = 0 THEN PRINT "I can't see it here!": RETURN
1060 REM ** add lines here to which test if you are allowed to get the object

●
●
●
1200 E% = 0: FOR D = 1 TO 3
1210 IF V$(D) = " " THEN V$(D) = G$(N%(R)):E% = 1:D = 4
1220 NEXT D
1230 IF E% = 0 THEN PRINT "My hands are full!": RETURN
1240 B% (N%(R)) = 0: RETURN

```


Listing six

This section splits the input string **Z\$** into two words and checks for recognition of the second word. It then returns the second word in the variable **L\$** and the variable **R** holds the number of the

item (if any) mentioned as the second word. If, for instance, you type in 'get lamp' and the lamp is object number 15, then **R** will hold the number 15, but if your game doesn't have a lamp in it, then **R** will return the value 0.

So far we've dealt with the routine aspects of writing an adventure. You'll be able to move around the landscape and carry up to three items at any one time. If you want to be able to carry more than 3 items, the FOR NEXT loops in the get, drop and inventory routines will need to be increased in size and the array **V\$(x)** must be given a larger dimension at the start of the program.

```
1400 L$ = " "
1410 FOR H = 1 TO LEN/Z$: IF MID$(Z$,H,1) = " " THEN
    L$ = RIGHT$(Z$ - H):H = 90
1420 NEXT
1430 R = 0
1440 L% = 0: IF LEN/L$) 2 THEN RETURN
1450 FOR H = 1 TO 16
1460 IF LEFT$(N$(H), LEN(L$)) = L$ THEN L% = 1: R = H
1470 NEXT
1480 RETURN
```

It's only when this stage has been reached that you can begin to get your teeth into the problem of setting your adventurer some stiff tasks. There are so many different ways of setting these problems that it would be impossible to do more than scratch the surface here. The most important thing to remember, though, is that you're trying to follow an underlying plot and it would be stupid to set tasks which aren't related to the theme of the program.

Listing seven

Dropping objects

```
1500 GOSUB 1400: REM ** check object **
1510 IF L% 1 THEN PRINT "I don't see a ";L$: RETURN
1520 E% = 0
1530 FOR D = 1 TO 3
1540 IF V$(D) = G$(N%(R)) THEN V$(D) = " ":E% = 1
1550 NEXT
1560 IF E% = 0 THEN PRINT "I haven't got a ";L$:
    RETURN
1570 B%(N%(R)) = P%
1580 REM ** insert lines here if you want something to
    happen when an object is dropped **
```

The following examples illustrate some of the methods possible, but the only way you'll really become an expert is by practice.

```
1900 RETURN
```

Example one

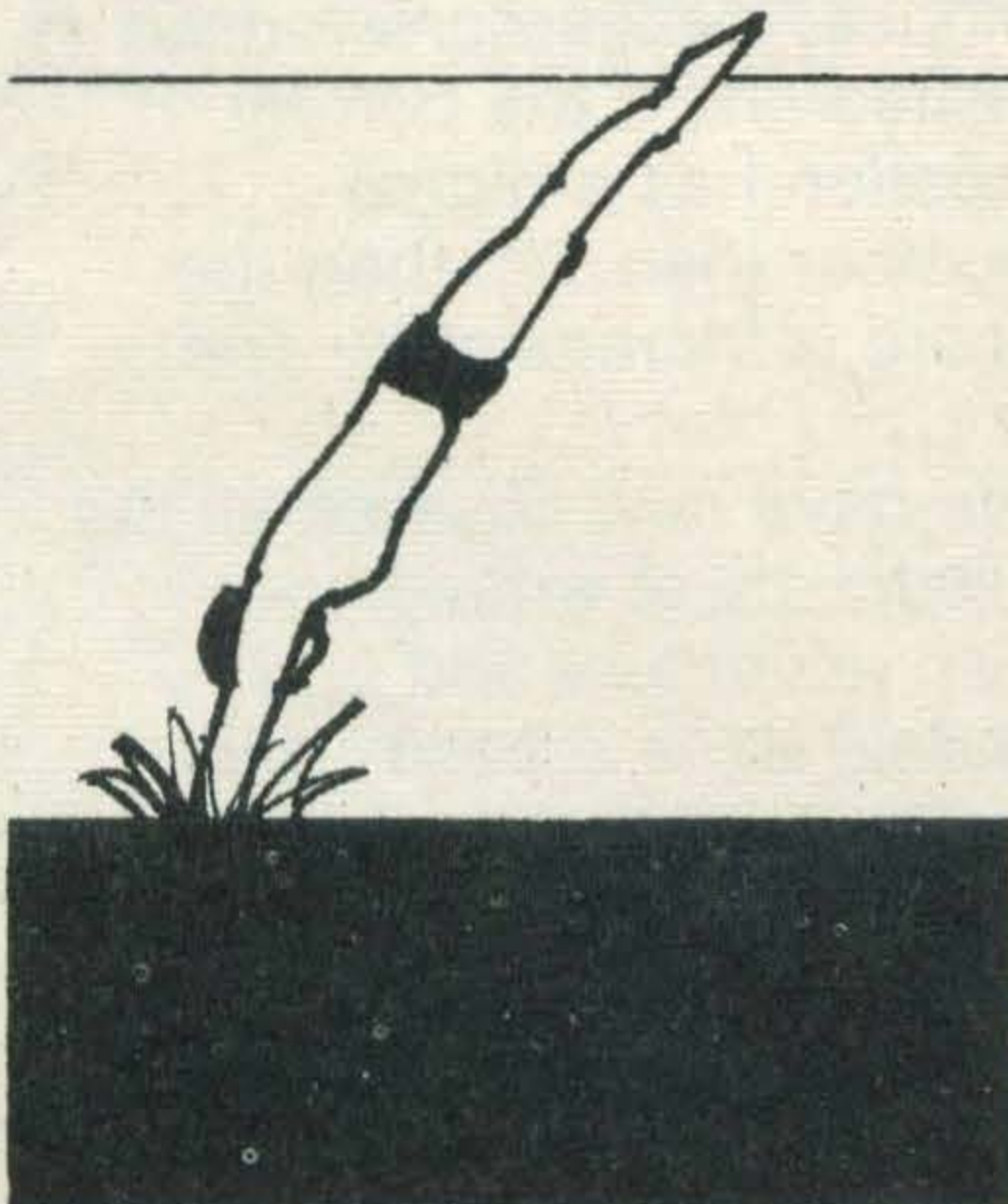
Listing eight

inventory routine

```
2000 PRINT "I am carrying:-"
2010 F% + 0
2020 FOR X = 1 TO 3
2030 IF V$(X) = " " THEN PRINT V$(X):F% = 1
2040 NEXT X
2050 IF F% = 0 THEN PRINT "Not a sausage!"
2060 RETURN
```

Suppose that location 17 is at the side of a lake and you can swim across to location 19, an island, but if you try to swim back you get into a whirlpool and drown. A line will need to be placed into the main control loop to choose the swim subroutine.

(Line 2100 is the line which prevents you swimming back to location



```
430 IF C$ = "swi" THEN GOSUB 2100
```

```
2100 IF P% = 17 THEN PRINT "I swim across the lake and
    reach a tiny island. I'm exhausted!": P$ = 19:
    RETURN
2110 IF P% = 19 THEN PRINT "I swim into a whirlpool and
    drown!!!!": GOSUB 2200
2120 PRINT "How am I supposed to swim here?": RETURN
```


17. It calls the death subroutine (2200), which we haven't written yet!

Example 2

If there's an evil witch guarding the path North in location 21 and the solution to this is to drop a golden chalice in location 21, which she is to grab and run away, we'll need to insert some extra lines in the drop routine.



```
1580 IF R = 15 AND P% 21 THEN PRINT "The evil witch
      grabs the chalice and runs away leaving the path
      clear for me to pass north": S%(21,1) = 22:G$(15) = " "
```

The above line checks whether item 15 is dropped in location 21 and if it is then the appropriate message is given, the path north is changed to allow you to get to location 22 and the description of object 15 is deleted (because it's been taken away by the witch).

This technique of setting the contents of the array G\$ to " " is very useful, because the get routine will no longer work on it and this prevents the player from doing the same thing twice!

Example 3

In many adventures, you'll come across the 'Pearl' technique, where doing something in one room causes something to happen in another room. An example of this might be pressing a switch in room 4 causing a secret passage to open in room 5.

We need to include a call to the subroutine in the main loop again.

```
440 IF C$ = "pre" THEN GOSUB 2300
●
●
●
2300 IF P% 4 THEN PRINT "I can't see anything to press
      here!": RETURN
2310 IF AA = 0 THEN AA = 1: PRINT "I hear a distant
      rumbling!":Q$(5) = Q$(5) + "a panel in the wall has
      slid to one side revealing a secret
      passage!":S%(5,4) = 6: RETURN
2320 IF AA 0 THEN PRINT "I feel a surge of electrical
      power run through my body!": GOSUB 2200
```

You'll have noticed that **line 2300** prevents anything being pressed unless you are in room 4. **Line 2310** first checks that you haven't pressed the switch before (**AA = 0**) and then PRINTs the message, changes the description of location 5 and finally allows you to go west to location 6 (the secret passage). If you have pressed the switch before (**AA = 1**), then you get an electric shock and die. The use of this technique too often will make the game extremely illogical and difficult to solve.

So far I haven't mentioned scoring. This is because there are a number of options open to you. Early games gave you a score for each item of treasure recovered and placed at the start location, whereas it is much more common now to get a score for each problem solved or a score based on the number of rooms visited. Obviously your method of scoring will depend to a large extent on the theme of your game. The first method

involves calling a subroutine to check the number of ****TREASURES**** recovered and placed in a given location. eg: if all treasures have to be returned to the Pawn Broker's (location 11).

```
450 IF C$ = "sco" THEN GOSUB
●
●
●
      2400
2400 S$ = 0
2410 IF B%(5) = 11 THEN S% = S% + 1
2420 IF B%(7) = 11 THEN S% = S% + 1
2430 REM ** add extra items of treasure here
●
●
●
2500 PRINT "You have scored": S%
2510 RETURN
```

As the listing above stands, it checks whether items 5 and 7 are in location 11 and increases the score for each object present. Adding extra treasures is therefore very easy.

The second method is even easier. For each problem solved, you should increase S% by one. (eg. in line 2310, you should add S% = S% + 1).

```
2310 IF AA = 0 THEN AA = 1: S% = S% + 1:....
```

The third method can only be adopted if your game is linear. That is if your task involves moving from one location to another to search for something or somebody.

```
425 GOSUB 2500
●
●
●
2500 IF P% T% THEN T% = P%: S% = S% + 1
2510 PRINT "You have scored"; S%
2520 RETURN
```

The variable T% is set to the highest location previously visited and if the current location has a higher number than T% than the score is increased by one.

We have now covered all the essentials of writing your own adventure and you should be in a position to make a start. Next time I'll be looking at how to smarten up your game by adding SAVE game routines and graphics. Go to it!

ADD

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PROGNOSIS

All Test Games and PG titles

- Less than 2/10 – Dead
- 4/10 – So So
- 7/10 – Healthy
- 8/10 – In the pink
- 9/10 – Effervescent
- 10/10 – Immortal!

NUMBER PAINTER

By ASK Software
Price £8.95
MSX
Cassette

Number Painter is a rather nice piece of educational software aimed at teaching mental arithmetic to children

aged 5 to 14. The game is based on the 'ladders and walkways' idea, only without the monsters. It's played against the clock, represented by a bucket of paint winched up at the side of the screen: if it reaches the top before you've

finished, the screen floods with paint and your painter drowns. The object is to produce the Target Number from the initial Total Number by painting over the various blocks scattered about the walkways. Each block has a number and a mathematical operator (plus, minus, multiply and divide), and painting a block causes the operation to be performed on the total and the block to reappear elsewhere on the screen. You may need to re-use a block as not all numbers are represented, so this is not just a test of mental arithmetic but also of careful planning to make the most efficient use of the available jumps for joy, stuns himself if he falls, waves in victory and is ferried between difficulty levels in a paint bucket – he'll appeal to children. A nice, well-thought out piece of software.

9/10

PG

NORSEMAN

By Electric Software
Price £8.95
MSX
Cassette

When I first loaded **Norseman** I expected great things of it. The Electric Software logo is very impressively done, and is followed by an equally nice title screen with a perspective view of a chessboard-like plain and sporting an excellent dragon and a Norse warrior. Unfortunately, the game itself is a bit of a let-down after such delights. Unusually it's played on hexagonal cells rather than squares, so you're restricted to six directions of movement from the normal eight. The game involves hand-to-hand combat of a simple nature; if you jump on the monsters you win, if they jump on you they win, and the game is over. They move in one direction only, so the trick is come up behind them. You also have to make sure they don't tread on any of your helmets which are scattered about the grid, although this is



made easier by moving them next to the bodies of dead monsters, which block cells. The music is very unnorselike and the game got rather tedious quite quickly.

6/10

PG

BUZZ OFF!

By Electric Software
Price £7.95
MSX
Cassette

Buzz off! is another game from Electric Software where the title screens are better than the game. Bertie the Bee, who for some unaccountable reason is coloured blue, flies around the screen under your control eating fruit. Every time he eats a piece it is replaced with a strand or two of spider's web and if Bertie flies into these or the sides of the screen, he loses a life (in fact a rather nicely designed spider sprite lowers itself down the screen to catch him). You're offered a choice of keyboard or joystick control, but the program refused to recognise the existence of my joystick even though I tried it in both ports. Not really a stunner, but I suppose it might keep the younger kids amused over Christmas.

5/10

PG

NUG-IT

By Microcom
Price £6.95
MSX
Cassette

In this Microcom Software product you play the role of a miner greedy for gold and as luck would have it you find yourself in a gold mine where gold is laying about in piles for the taking. So no problem you think, no such luck. And no luck if you're looking for a professional piece of software – the first two sentences are part of the on-screen instructions, complete with spelling and grammatical errors, to give you the flavour of the thing. How about "increces" and

"increaced", both in the same sentence? A good one to keep impressionable children away from, they'll pick up terrible English habits. Basically, this is a maze game set underground, with your character running through tunnels and up and down ladders picking up gold nuggets. Little yellow miners whose touch means death (see, it's racist too!) chase you around. The game is written in machine code, and to prove how clever he is the programmer has made it fast; too fast, in fact. Even at the wimp skill level I didn't last more than 30 seconds per life, and at level 5 ("Skargill") I lost all three lives in 1½ seconds of blinding yellow blurs before I'd even moved. It's just unplayable – even the company selling it admit they can't clear the first sheet. As much fun as banging your head against a wall, but more expensive.

3/10

PG

SWAMP

By Microcom
Price £3.95
MSX

Swamp isn't actually much to do with a swamp, it actually involves picking fruit off a tree (which has straight branches at 45 degree angles and looks as if it were drawn by a five-year-old). Under the tree, running across the screen, is a rickety bridge and under that is the crocodile-infested swamp. Your character is "a blue thing in a nappy" (apparently an attempt at humour), and you bounce up and down on the bridge picking the fruit. Every time you land on the bridge that part falls away, so you have to clear the screen before you fall to a toothy death. Then you go to the same tree but with different fruit and an added hazard (a snake to avoid). On the third level the croc eats the bridge parts too, making it just about impossible to complete this sheet. When you die a cartoon-strip style speech bubble appears from

the crocodile's mouth with the message "Me crocky you tasty" (Good grief!). This bubble is drawn in outline and then filled, and once the paint leaked through a hole and filled the whole screen by mistake. Also, the programmer has used sprites for the character and all the fruit, most of which is on a single row. Unfortunately, it's a limitation of the Texas video chip in MSX machines that only four sprites can be displayed on a line, so as you jump up and down, the fruit flickers on and off. Rubbish.

2/10

PG

PUNCHY

By Mr. Micro
Price £6.90
MSX
Cassette

Hello Boys and Girls, **Mr Punchy** has locked Judy in the Punch and Judy booth and only you can rescue her by guiding the brave bobby through the various screens while avoiding the hazards. **Mr Punchy** is in fact reminiscent of **Hunchback** where you must jump chasms, duck under and over various airborne hazards and travel on numerous moving objects. Each screen is preceded by the voice of **Mr Punchy** who says "mind the baby" and if you're unfortunate enough to fall as I often did you are confronted with a manic laugh and returned to the beginning of the screen. Every so often Judy sends a sausage of all things (sounds Freudian – Ed) which if Bobby catches can be used to transport him out of the current screen and on to the next. There are sixteen screens in all with a bonus life being awarded every 30,000 points plus bonus points for collecting sausages and helmets. The graphics are large and well detailed with colour being used to best effect. Scrolling is smooth, the sound is good and control is via joystick or keyboard **Mr Punchy** is a

well produced game that is both challenging, addictive and is likely to be a hit with the younger gamester.

7/10

AH

HUMPHREY

By Mr Micro
Price £6.90
MSX
Cassette

Humphrey is a multi-screen arcade game based on the popular **Q-Bert** game from the arcades. The object of the game is negotiate a pyramid of blocks in an effort to change the colour of the cubes. When all the cubes have changed colour you move onto subsequent and more challenging screens. Sounds easy doesn't it! It would be if it weren't for the numerous and intelligent meanings that patrol the pyramid hell bent on your destruction. The graphics are not the best I've seen nor is the choice of colour. The game is, however, very addictive and at times extremely frustrating with generally smooth movement throughout. Control is via keyboards or joystick and **Humphrey** is likely to appeal to the younger user rather than the hardened shoot-em-up brigade.

6/10

AH

CRAZY GOLF

By Mr Micro
Price £6.90
MSX
Cassette

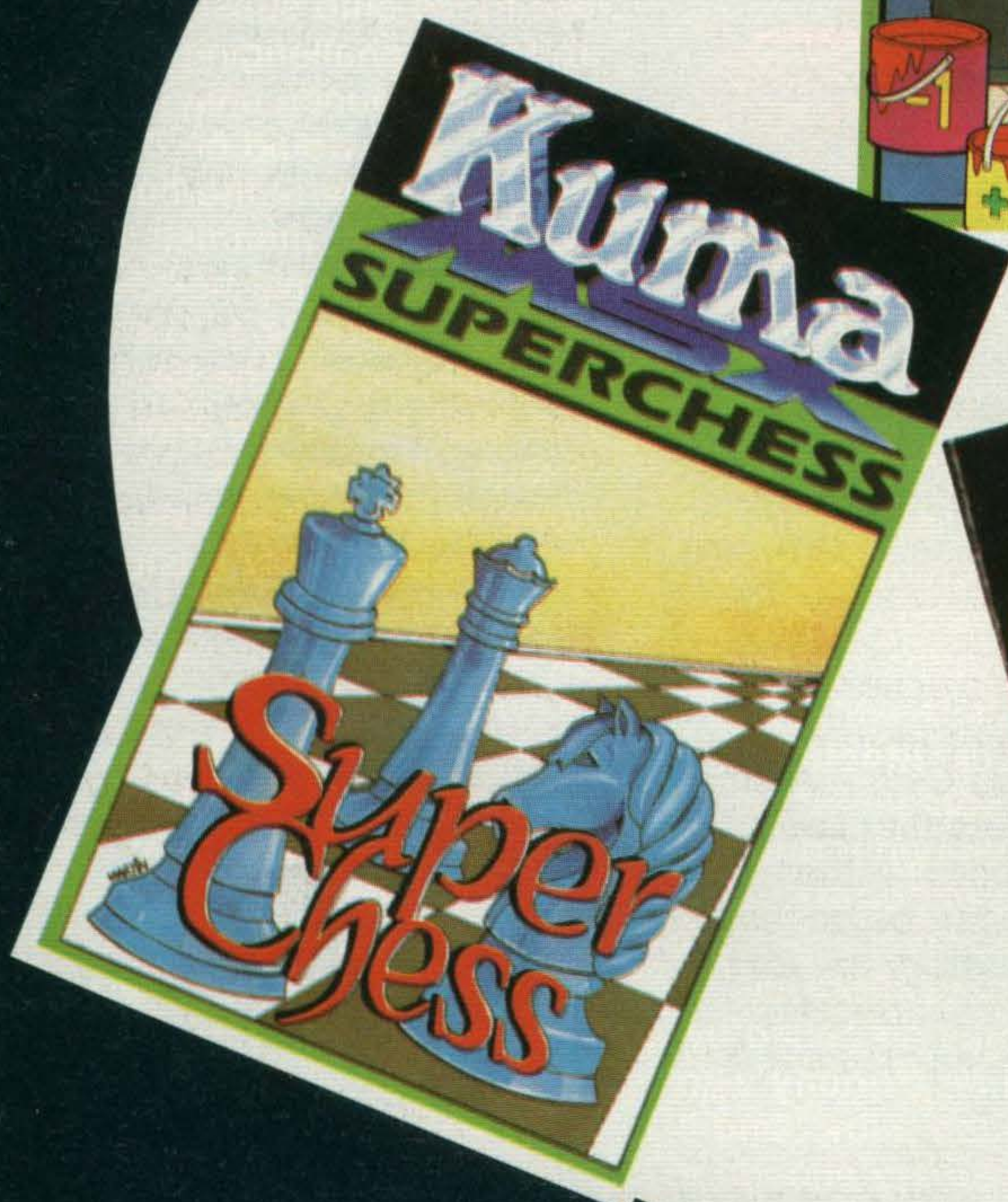
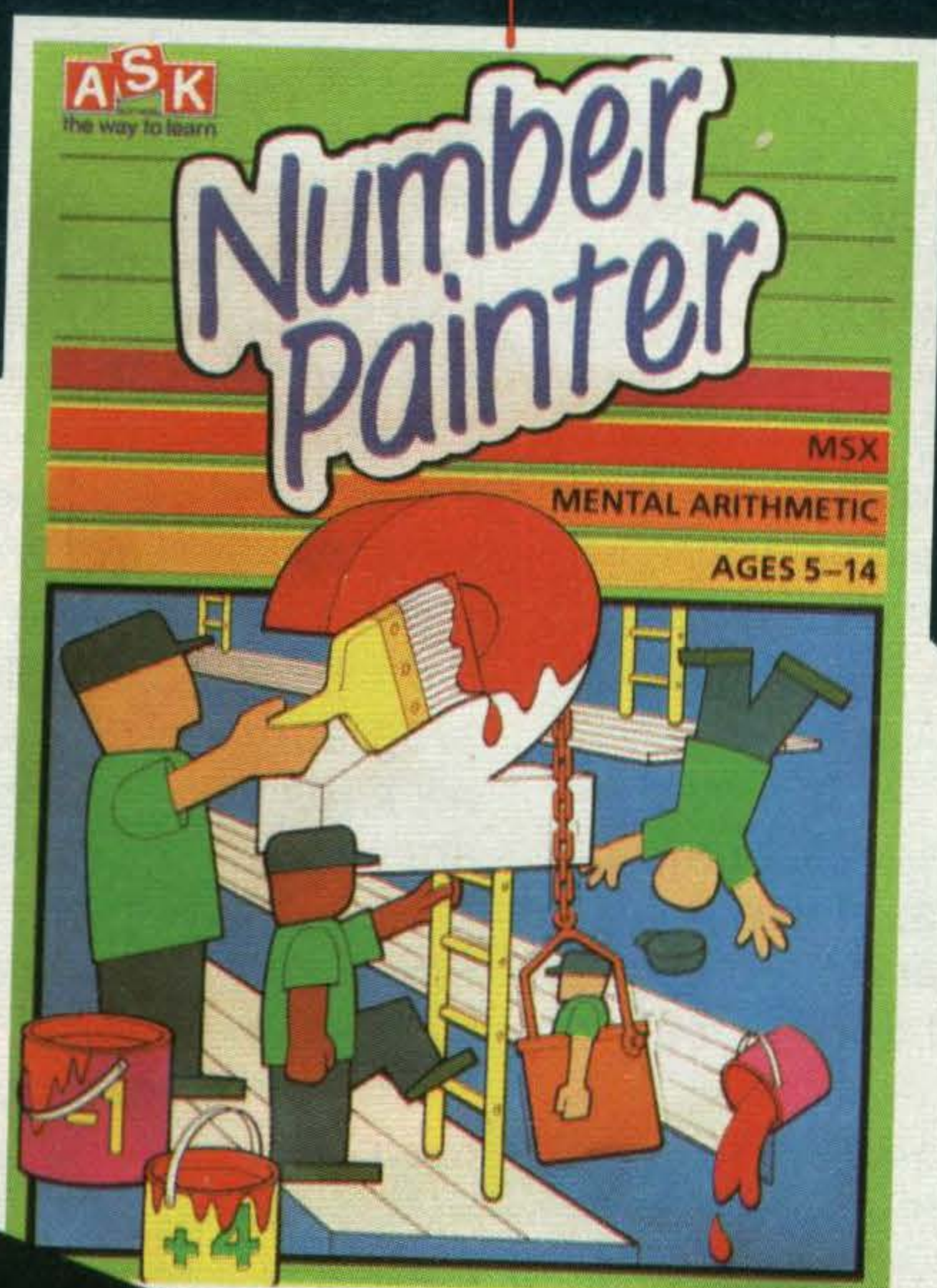
Crazy Golf is as the title suggests and presents the player with a birds eye view of the course. Having said that, it looks like no Golf course that I've come across. The object of the game is to pot the ball in as few strokes as possible. This is achieved by a combination of direction and strength keys. The idea is to point the ball in the direction you want it to go, apply the correct amount of power and

whamo! Unfortunately it's not as easy as that since there are numerous obstacles which rebound the ball in unforeseen directions. There are several screens to overcome each with progressively difficult obstacles to negotiate. The graphics and use of colour are again fairly simple but the game is enjoyable with a tendency to become addictive. If you're expecting some form of Golf simulation, crazy or not, then

for the damn floaters that drift around generally making progress very difficult indeed. Needless to say contact with the deadly floaters proves fatal and

and use of colour although simple, are effective and the game tends to become addictive fairly quickly. Movement is smooth and control is via keyboard or

levels of difficulty from zero to six. Level zero is the easiest with a response time of three seconds and level six takes twelve hours to make a move. Level three is the tournament level with an average response time of three minutes per move. Upon loading the cassette, you are confronted with the options to play a game, analyse a game or ask for help which offers a list of suggested moves. The analyse mode allows the user to change sides, change the level of play and change the position of the pieces. The player may also, while in the analyse mode, ask for help, clear the board, change the colour of the board and pieces and ask for technical information – the computers method of playing Chess. Upon pressing P to play a game, you are presented with a fairly large representation of the board and pieces – about one third the screen size – with each piece clearly depicted. The squares of the board are displayed in the usual algebraic manner with the files a-h and the ranks 1-8 being shown along side the board for ease of use. Moves are entered in the normal algebraic format by first typing the origin square on which your piece is currently situated, followed by the destination square – the square you wish to move your piece to. For example, to move the white king pawn forward two squares from its original position, type E2E4. To capture a knight on D5 by a pawn on E4, type E4D5. You may if you wish ask the computer to recommend a move by pressing R. The computer keeps a check of all the moves made by you and itself and displays them at the top left of the screen for ease of reference. All in all **Superchess** appears to be a very competent Chess program with a variety of options that should appeal to a wide range of chess players.



forget it. If however you want a simple and challenging arcade puzzler.

6/10

AH

ERIC AND THE FLOATERS

By Kuma
Price £8.95
MSX
Cassette

Eric And The Floaters is a maze arcade game in which you take on the role of Eric the archaeologist. The object of the game is to find your way to a concealed treasury. Easy enough I hear you quip. It would be if it weren't

Eric's only means of defence is to plant bombs in their path and leggit swiftly. If he hangs around after planting the bomb he's likely to be wiped out as well and wilts to the floor gasping a plaintive speech bubble. Once all the floaters have been destroyed Eric moves on to subsequent and more difficult screens with more intelligent adversaries to contend with. The graphics

joystick. **Eric And The Floaters** is an addictive and enjoyable game that is likely to appeal to the younger games player.

7/10

AH

SUPERCHESS

By Kuma
Price £8.95
MSX
Cassette

Superchess is a multi-level Chess program with seven

8/10

AH

N

Network – A system for intercommunication between *digital* equipments either by direct connection or via the telephone system.

Noise – Variations in an electronic circuit that can corrupt signals. Noise is also deliberately generated to provide sound effects for games.

Number system – An arrangement of the 0 - 9 number keys, in a similar manner to a calculator, separate from the main *keyboard*. This makes it easier to input a lot of numeric *data* to the computer.

OCR – Optical Character Recognition. A means by which a computer can 'read' written *characters*. An optical scanning device codes the characters for computer *input*.

Operating system – The controlling *program*, usually contained in *ROM*, that organises and facilitates the manipulation of *data* within a computer.

Output – *Data* sent from the computer. This can be external to the system, as with sending data along a telephone line via a *modem*, or internal to the system, as with display of *data* on the *screen* or storage on *disk* or tape.

Overwrite – As it says, to *write* new *data* over old data stored in RAM.

P

Paddle – A potentiometer based games controller allowing control over one plane of movement, vertical or horizontal – see *joystick*.

Parallel interface – A device that allows the transmission of *data* in batches, usually of one *byte*, where each *bit* of the byte has a separate transmission line – see *serial interface*.

Pascal – A popular *high level language* that uses a *structured* approach to programming. Separate *routines* within a *program* are 'called' by name as they are required.

PEEK – A *BASIC* command that enables you to look at the contents of a specified *memory location*. See *POKE*.

Peripheral – A device that can be connected to the standard system that increases its capabilities, such as a *disk drive* or *printer*.

Piracy – Unauthorised copying and use of *software* and *hardware*. Sometimes known as 'hacking', especially in relation to piracy using *networks*.

Pixel (Picture Cell) – A small pattern of dots that is the smallest section of the *screen* that can be accessed for *graphics programming*. Also used to express the *resolution* of a screen in X*Y Pixels.

Plotter – A device that uses fine pens to draw pictures or *characters* on paper under computer control.

POKE – A *BASIC* command that places a specified value in a specified memory location.

Port – The physical connector for an *interface*.

Portability – As you might expect, the degree to which you can carry your micro around. Commonly used in conjunction with special, usually battery powered, portable computers. Also refers to the property of *software* that allows it to be run on different micros – as with *MSX software*.

Printed Circuit Board (PCB) – A plastic sheet covered with a conductive material

that can be etched away leaving fine strips of conductive lines. These are then used to connect electronic components together.

Printer – A typewriter-like device that uses either a *matrix* of pins (dot-matrix) or embossed *characters* on the spokes of a plastic wheel (daisywheel) to print characters on paper under the control of the computer.

Program – A series of *instructions* in a *computer language* that tell the computer to perform a specific task.

Program development – The definition and analysis of a task for the computer and the resulting *program* construction and *de-bugging*.

PROM – Programmable Read-Only Memory. A chip that can be written to once, via a special machine, and is then to ail intents and purposes a *ROM*.

Prompt – An audio or visual indication from a *program* that it requires a response. For example: a question mark and flashing cursor as a result of a programmed *INPUT* command.

PSU – Power Supply Unit. Components that convert the standard household electricity supply to the low-level dc values required by the computer. In MSX these are built-in.

Q

QWERTY – Refers to the top alpha line on a typewriter and is used as a descriptor for this type of *keyboard*, as fitted to *MSX* machines.

R

RAM – Random Access Memory. A type of *memory* where the contents can be

changed on *instruction* from a *program* or direct by the user. The contents can be examined and *overwritten*. A temporary store. The amount of RAM free for use determines how much memory is available for the storage of *data*. When the computer is switched off, the contents of RAM are lost, unless the RAM is separately powered as in RAM Data Cartridges.

Random Number – A number generated whose value cannot be predicted. In this case, the computer cannot generate a truly random number so they are known as pseudo random numbers. Useful for *simulations*, games and *routines* that require an element of chance in their operation.

Raster – The arrangement of *pixels* horizontally on a *screen*.

Read – Copy *data* from storage.

Real-time – Literally, as it happens. A control application where the computer reacts in a timing that corresponds to that of human beings, for instance, in a flight *simulation program*.

Recursion – A series of repeated *routines* within a *program* in which the result of each repetition depends upon the result of the previous one.

Refresh – To update a *screen* as new *information* is received.

Register – A temporary storage *location* within the *microprocessor*.

REMark – A means for *instructing* the computer to ignore sections of a *program*. This is used to provide explanations within a program listing that don't effect the execution of the program.

Reserved word – A word that forms all or part of a *command* in a computer language and so is reserved for that function only and can't, for example, be used as a name for a *variable*.

Resolution – The degree of detail possible on a computer display. High resolution gives a lot of detail while low resolution gives little.

RF Modulator – Components that convert the

video output from a computer to a signal that can be *input* to the aerial socket of a TV for display.

ROM – Read Only Memory – Memory whose contents can only be *read* and not changed. Usually, *software* that is essential to the normal operation of the computer is contained in ROM, such as the *operating system* and *MSX BASIC*.

Routine – A sequence of *commands* that carry out a well defined, often encountered task.

RS232 – A standard *serial interface*. Often used to connect to *networks*.

S

Screen – The means by which the computer communicates *information* visually. Usually a TV, sometimes a *monitor*.

Screen editor – The *routines* held internally that allow the editing of displayed *data*, *text*, etc, to be changed by use of the *cursor keys* plus *INSert* and *DELeTe*.

Scrolling – The automatic upward movement of *data* lines displayed on a *screen* allowing new data to be displayed at the bottom. It is possible to scroll the screen sideways to the left or right for *spreadsheet* and games applications.

Serial interface – A device that transmits *information* one *bit* at a time. The received *data* is reformatted into *8-bit bytes* on receipt.

Simulation – The representation of a predictable control system or sequence of events by the computer. Example – flight simulation.

Soft key or function key – A key whose purpose can be defined by the user to perform a specific function or replace an often used sequence of *instructions*.

Software – The *programs* or sequences of *instructions*

held in, *RUN* by or associated with computers.

Software engineering – The process of writing *software*.

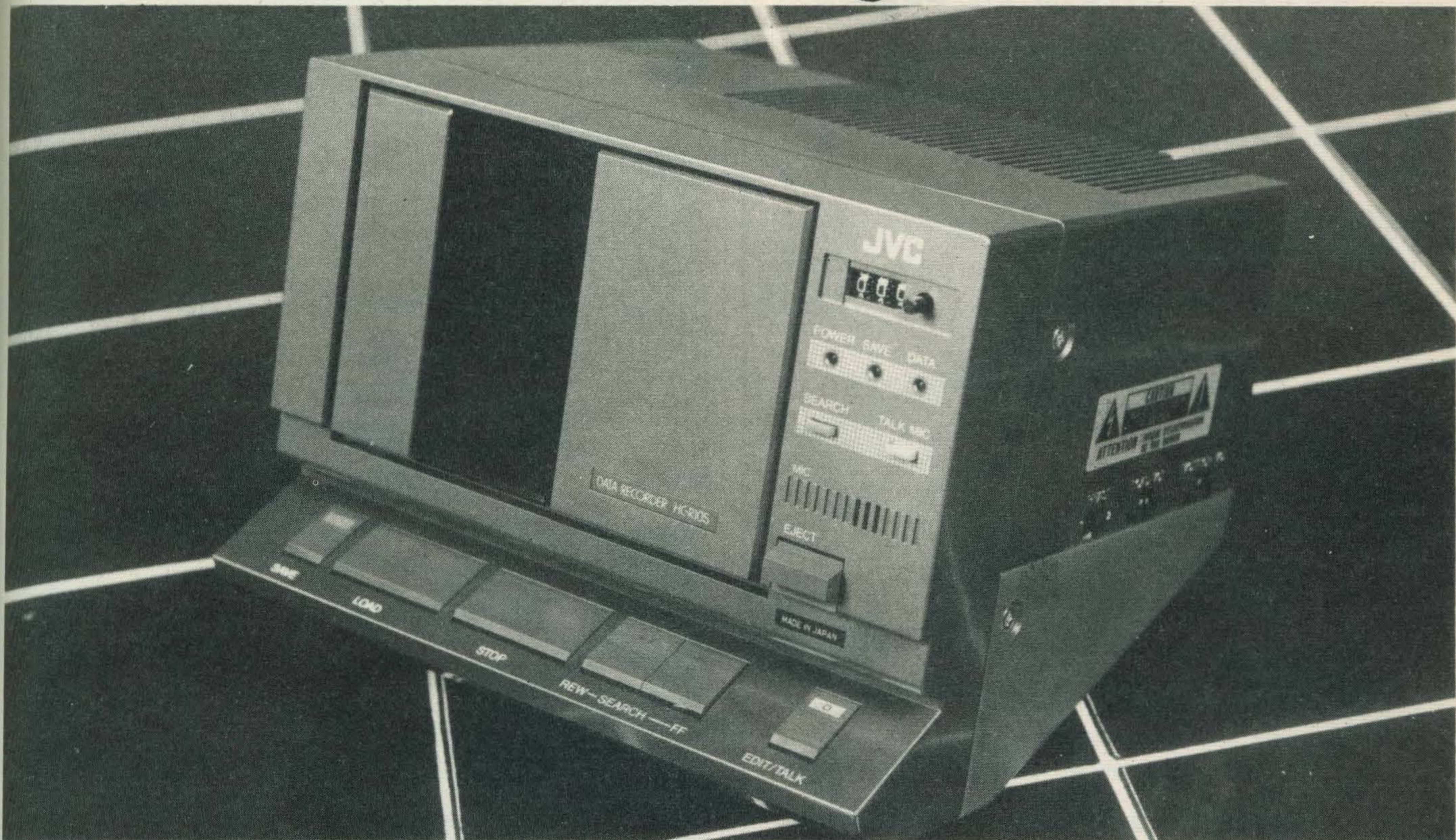
Sound generator – The means to create defined, pitched sounds. In the case of *MSX*, sound generation is *programmable*.

Speech recognition – Simply, the recognition of spoken words, *input* via a microphone, by special *software* in the computer.

Spreadsheet – A *program* that aids forecasting and planning. An electronic representation of a large table of interrelated numbers is held in *RAM* in a *matrix* where each number can be accessed via its X and Y coordinate. Calculations can then be applied between different, related numbers to provide a 'what if...' facility. The matrix of numbers can be viewed by *scrolling* the *screen* as a 'window', up, down, left and right, over the matrix.



GLOSSARY



Sprite – a character or group of characters that can be directly *addressed* and *instructed* for movement around the *screen*. A boon for *animation* effects.

Stack – A portion of *memory* allied to the *microprocessor* that stores *data* on a 'last in, first out' basis.

Statement – An *instruction* or series of instructions within a *program*.

String – A series of *characters* that can be stored and manipulated as a single item. For example: a word or group of words.

String handling – The manipulation of *strings*.

Structured programming – A method of *programming* where program flow follows easily understood and modified paths.

Subroutine – A separate, self contained portion of a *program* that can be called by other parts of a program to perform frequently required tasks. In *BASIC* these are called by the *command* GOSUB line number.

Syntax error – The most familiar error message to any programmer. An error that occurs when a *program instruction* has been incorrectly entered.

T

Terminal – An *I/O* device for communication, via *keyboard/screen*, with a central computer. Usually applied to your computer when it is connected to a *network*.

Text – Letters, numbers and words.

Truth table – An arrangement of *binary numbers* that represents the operation of a *gate* for all possible combinations of *input*.

U

Utility – A complete *program* constructed for a specific, common function, such as a *data* sorting program for instance.

V

Variable – A symbol that can be included within a *program*, and is identified by name, whose value can be changed through the course of the program. For example: ALY could be a *variable* representing the Y coordinate for an alien in a *video* game. As the alien moves about the *screen* the value of ALY changes.

VDU – Visual Display Unit. The equipment that provides a means of displaying the *screen*. Either a special *monitor* or a television.

Video – The signals representing visual images for display. Can be either RGB – Red, Green, Blue, where sound is supplied separately, or Composite, where everything is transmitted together. The latter is more common.

W

Winchester – A type of hard *disk*, hermetically sealed in a box, that can store very large amounts of *data*, typically 5 to 20 Mbytes (Mega bytes – 10^{20} bytes – 1,048,576 bytes!)

Word – In the case of *MSX*, the same as a *byte* but can be any collection of *bits* that can be stored as a single unit.

Word Processor – A *program* for a computer that allows you to write, modify, merge and generally manipulate *text* before committing it to paper. Used in conjunction with a *printer*.

Write – store *data*.

Z80A – The *MSX* *microprocessor*.

Z

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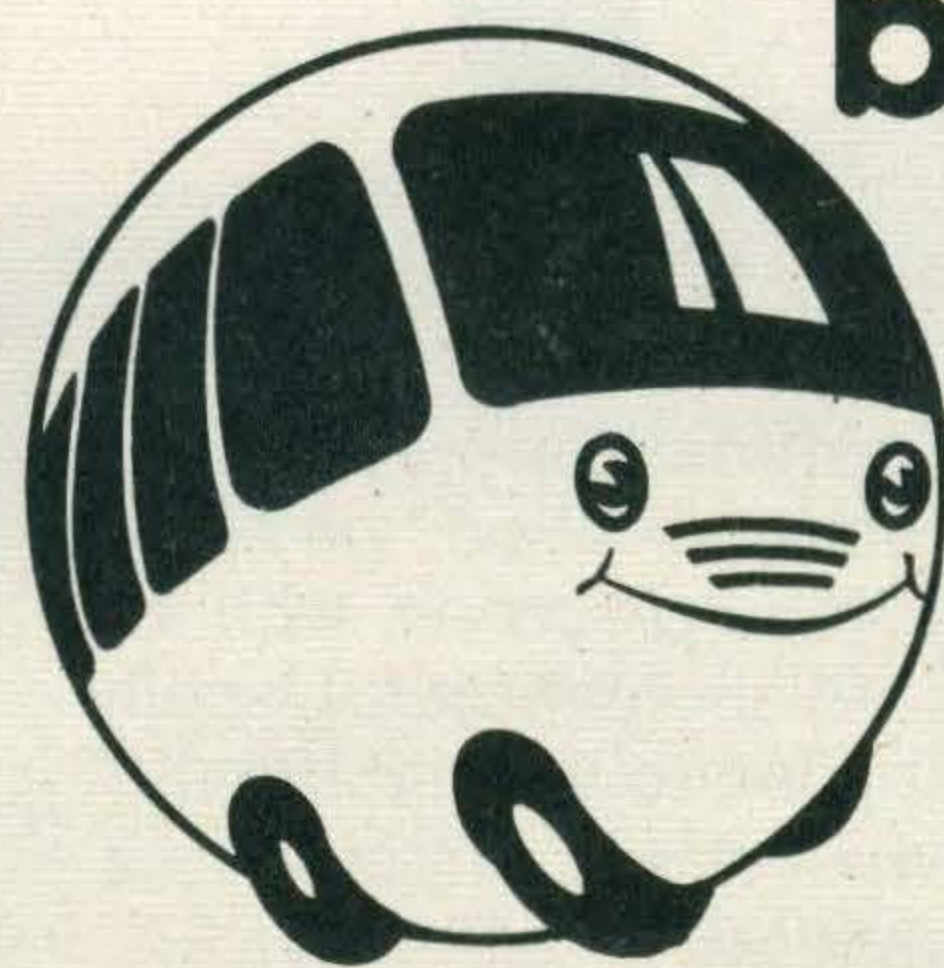
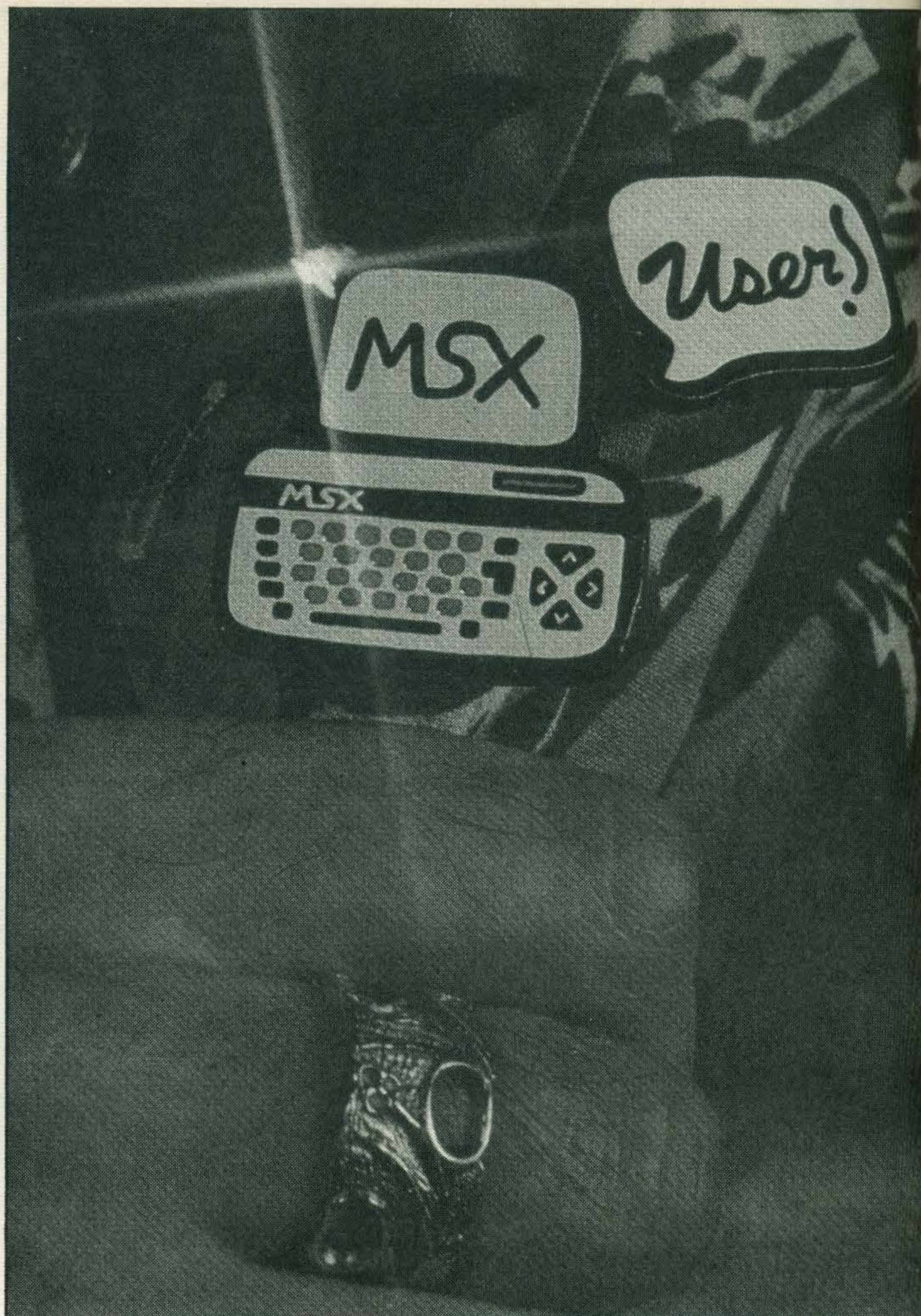
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Karl Dallas reads between the lines

The most exclusive club in the world has got to be MSX-Net. The last time I counted, there were just 18 members, including me.

That's hardly surprising, because the necessary hardware is thin on the ground, to say the least.

You need:

An MSX computer (gotcha).
A plug-in telephone line (yep).

A modem or an acoustic coupler (no problem).

An MSX RS232 interface (...er...).

Interfaces are just coming on to the market, but they're kinda hard to come by.

There's one from Kuma and another, even rarer, from JVC (we'll be receiving them both soon to see how they compare-Ed.). There's also talk of one from Toshiba.

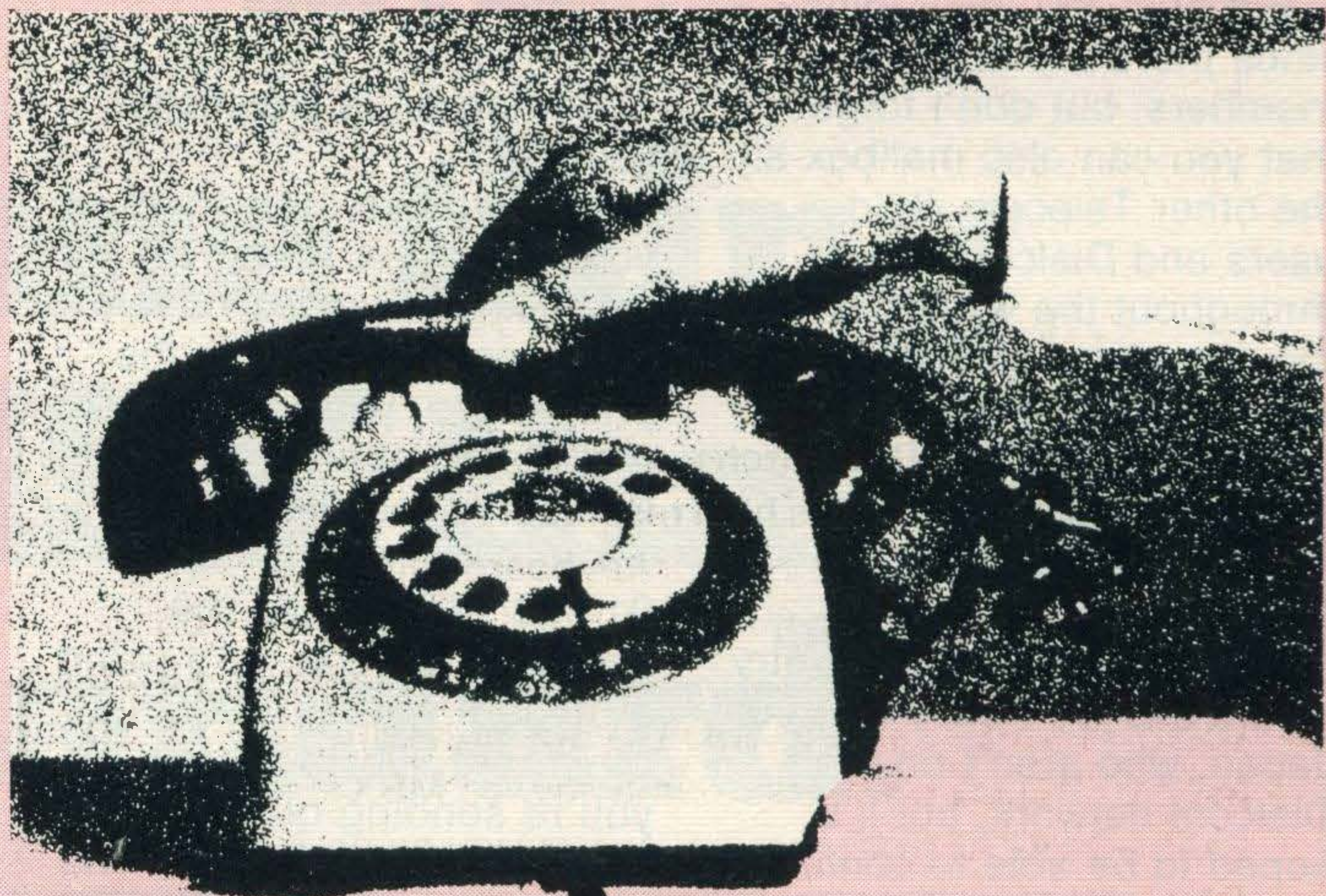
In fact, don't tell a soul, but most of the people (and there aren't many, yet) on MSX-Net are using other computers and hardware.

So what is this exclusive club? Hang on a minute, while I tell you.

MSX-Net is the future, that's what. It's one of the things that's going to make MSX a winner, in my humble opinion.

What it is, is an electronic network through the telephone system that allows all of us happy MSX owners to chat together, send each other electronic mail, swap programs, etc etc etc. And not only in the UK. I've already started conversing computertalk with an MSX User in the USA.

In fact, it's what's known as a Closed User Group within BT's Telecom Gold, set up by a far-sighted colleague called Basil Lane, a crazy workaholic with a wild scientist hairdo who has jumped more wholeheartedly into computers, professionally speaking, than anyone else I know, including Len Deighton and Arthur C. Clarke (who both swear by them).



What you can do with it

Basil has a printer hooked up to his system, but it's stuck away somewhere in a cupboard, gathering dust. Because every time he writes an article, he sends it down the phone lines to his editors instead of printing it out on nasty, old-fashioned messy old paper.

I said editors, in the plural, because he sells stuff all over the world.

Every day he puts out a bulletin of stuff he's got on offer and his clients can electronically tick off the bits they want; then he shoots it through the cables and satellite links to 'em, pronto.

He can do this wherever he happens to be, thanks to a portable computer and a modem, which allows him to get into the Telecom Gold computer from almost anywhere, upload his stories, and either store 'em or send them on to his clients.

He ought to be rich, but he just looks like he's having fun.

Anyway, MSX-Net was Basil's way of allowing all of us ordinary mortals to get in on this new way of talking to each other, and the rest of the world.

You pay £10 a year to join – or rather, you will, after the first year. But every RS232

adaptor that's being sold in the UK right now carries in it a free subscription card that allows you to join for a year free.

Of course, you have to pay for using the phone lines and for Telecom Gold's computer time. This works out at between 8½p and 10½p per minute during peak times (8am to 7pm, weekdays), and 3½p the rest of the time. If you're talking overseas, costs vary between 30p a minute to Europe and £1 a minute to New Zealand.

Very nice dear, but what does it do?

Well, there's electronic

mail.

Every MSX-Networker has his or her own mailbox on the system and people can send you messages for instant retrieval. And you can return the compliment.

Big deal, you may think, since there are only 18 members, but don't forget that you can also mailbox all the other Telecom Gold users and Dialcom users throughout the world. If they're not on MSX-Net, you'll need to get their user numbers direct from them first, since no general directory of numbers is published.

Strangely, the only country where this isn't easy to do is Japan, who aren't on the Dialcom network, but it's hoped to be able to contact them via USA pretty soon. If your Nipponese correspondent has access to Packet Switchstream, he can always contact you, of course.

You can play games, which are not restricted by your own paltry memory, since they are on a mainframe. There are utilities, like a Z80 assembler. There also seem to be a tremendous number of aids for statisticians, if that happens to be your particular bag.

There's a noticeboard, on which you can display your messages to the world - well, the rest of the UK, anyway. And by keying in the ONLINE command, you can see who else is using their computers, and chat with them (using the CHAT

command, naturally) if they want to chat to you. (You can't sneak up on them, because the computer screen tells them who you are before they answer you).

How it works

Getting on is simplicity itself.

After you've connected up your computer to its RS232 adaptor and via its modem or acoustic coupler to the phonelines, you type in or dial the number of the computer you're using, which will probably be 01-583 1255 if, like me, you're in London, and using a modem with a 1200/75 baud rate, which means you're sending quite slowly, but receiving quite fast. The system can also handle the American 300 baud system, and 1200 both ways.

The screen then reads: Telecom Gold Network: For assistance type HELP LOGON' at the prompt "PAD "

Instead, you type CALL 83, and that puts you into MSX-Net, with a request to sign on with your ID and password. Everyone can know your ID (mine's MSX018), but your password is all that stands between you and bankruptcy, because if anyone else finds

it out, they can pretend to be you, and run up enormous bills by mailboxing Washington DC for hours on end.

It then tells you when you last used the system (a good way of discovering if the kids have discovered your password, so you can change it - easily), and you can start.

A good way to begin is by reading up all the info about the system, which can be obtained by typing the INFO command, with whatever you want to know.

You start with INFO INFO (what else?), which tells you what kinds of INFO there's INFO about, then you can try such things as INFO MAIL, INFO GAMES, and so on.

The version of Colossal Adventure on the system is really something. If you can find out their Packet Switchstream number, you'll even be able to join the hardline adventure freaks in a game of Multi-User Dungeon (MUD for short), which is a complex role-playing game devised by some freaks at Essex University. Each player decides what sort of persona they're going to adopt, so

what happens in the game is the sum of all these various decisions, and it's getting more complex and addictive all the time.

People have been logging up literally thousands of pounds' worth of phone and computer time playing it.

One problem is that a lot of the non-MSX-Net stuff has been designed for reading on 80-column screens, so it can look a bit odd as it flashes by. But you can tell the central computer how your screen is configured, and ask for a pause every 24 lines, so that every time you log on, the displays will be adjusted, where possible, to your particular configuration.

Then, after you suddenly realise it's past midnight, and you've been tying up the computer for hours, you type OFF, and the computer tells you the time you finished, how long you were on, and how many seconds you were on to the computer.

Actually, it's not so dear. To call long distance from London to the provinces can cost as much as £2.53 at peak time. Via MSX-Net, you can communicate for the same amount of time for just 60p.

The wired society is almost here, and it looks like being a bargain.



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Garry Marshall reviews the latest MSX books from Kuma and Melbourne House.

M SX is in danger of getting itself a bad reputation. We already have MSX software that is adapted from programs written for computers such as the Sinclair Spectrum and Commodore 64. This doesn't make the software bad in itself. After all, a good game is still a good game whatever computer it is run on, and the history of a game doesn't matter in the least to the person playing it. But if programs for MSX computers don't take advantage of the strong points and capabilities of MSX, then they aren't as good as they should be, and the owner of the computer isn't getting full value from it. Now that books about MSX are beginning to appear, it is interesting to see if they are tending to follow the same route as the software.

With a brand new technology there has to be a learning period. For the writer of books, and of software, the short time that is available to get products into the market place ahead of the competition is often not enough. But the point with MSX is that it is not brand new technology. It is familiar, and writers should already be a good way along the learning curve. Of course, the combination of commercial pressures and a lack of time make it difficult for an publisher's output to be as good as it could be, let alone perfect. But the authors of books should have less trouble in handling the situation than software writers, because to achieve the necessary accuracy in a book is a much easier task than it is with a program.

So, let's see what this month's books are like, bearing in mind that they are among the first to appear on MSX and this means the authors have been pretty quick on the draw.

The MSX Games Book
Melbourne House, £5.95

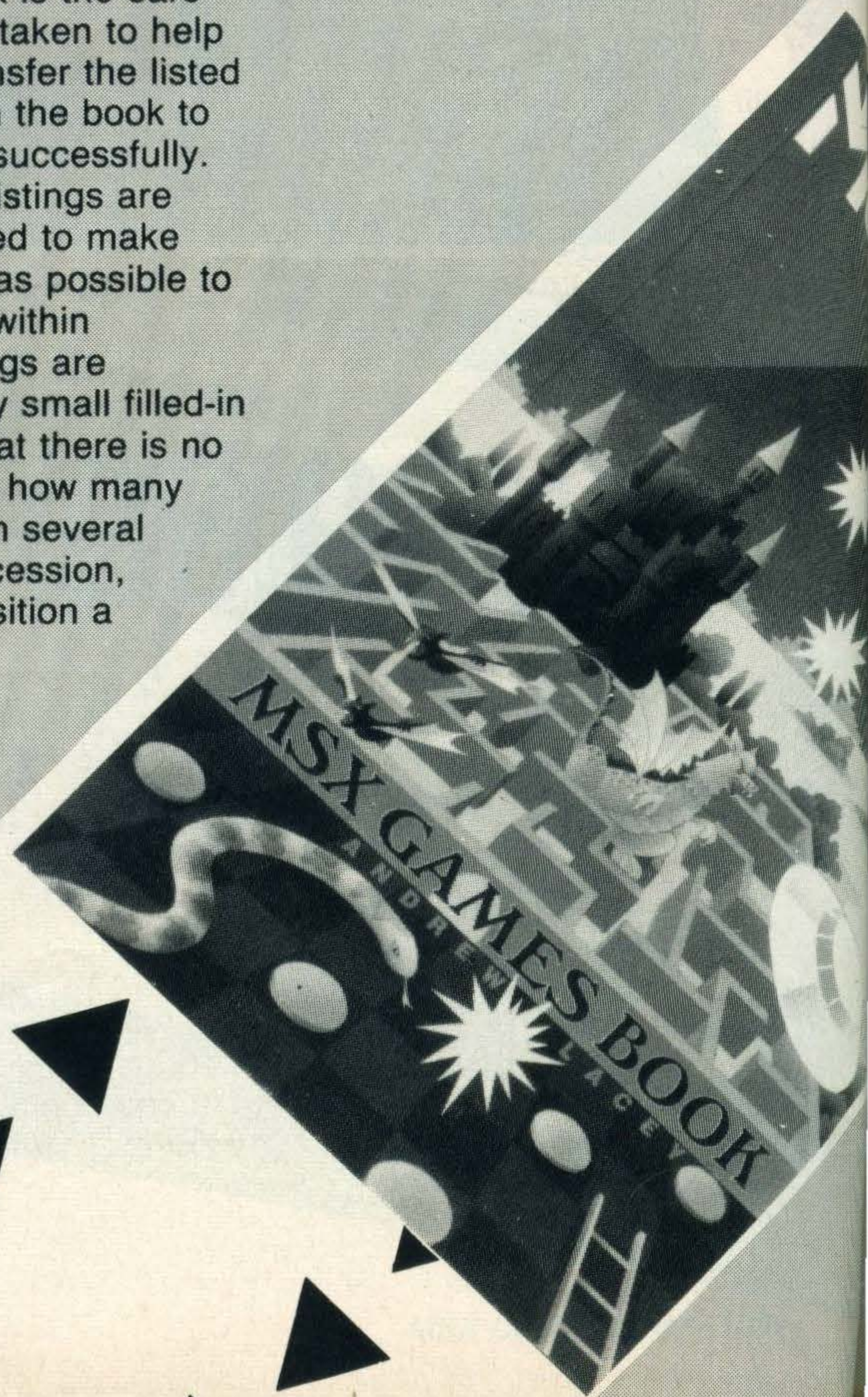
MSX games book by Andrew Lacey belongs to a well established type that has been written for some time and for many kinds of computer. The temptation to produce a rip-off must have been high but, as far as I can see, it has been resisted. The ideas for the games in the book are not new. But then you wouldn't expect them to be, would you? If you had a red hot idea for a new game, I expect you would be rushing off to a software publisher rather than giving it away by putting it in a book. It is refreshing to find that the games programs make good use of a wide variety of MSX facilities. They are full of graphics created with DRAW and PAINT, of sounds produced with PLY, and sprites are to be found all over the place.

One impressive point about the book is the care that has been taken to help the reader transfer the listed programs from the book to the computer successfully. The program listings are neatly formatted to make them as easy as possible to read. Spaces within character strings are represented by small filled-in triangles so that there is no need to guess how many there are when several appear in succession, perhaps to position a

message on the screen. And a program that can be appended to each games program is presented to help in checking that the latter is entered correctly. It computes a unique number from the code in each line of BASIC, and the numbers obtained for the lines of a program can be compared with those given in the book to help detect any errors of transcription. The author of this book has moved along the learning curve to produce a book with a definite advantage over others of the same kind.

With each game there is a screen shot taken when the program is running. Although the pictures are rather muddy, they are probably adequate to give confidence that a program is running as it should when it has been typed in.

Sufficient description of the way that each program works is given to justify the hope that typing in these programs and making sure that they are correctly entered will, by osmosis as it were, give the person doing it the idea of how to write MSX programs. Further encouragement in this direction is given by the inclusion of suggestions for extending the programs.



The Complete MSX Programmer's Guide

Melbourne House, £14.95

But if you really want to know all about MSX programming, you need **The complete MSX programmer's guide** by Toshiyuki Sato, Paul Mapstone and Isabella Muriel. This is a complete reference guide that will be of value to the most experienced programmer. At the same time, it is just what the newcomer of MSX (who is probably trying to learn all about it by typing in the programs in the 'MSX

and sprites. It provides all the background information that is needed to throw light on any aspect of an MSX program.

The book has four sections. They provide a tutorial introduction to BASIC; an advanced

programming guide that delves deeply into many topics including sound, graphics and machine code programming; a reference section giving a complete coverage of the features of MSX BASIC; and a description of the operating system, with memory maps, the entry points for the machine code routines in the ROM, and information to the hooks. I couldn't think of any aspect of MSX programming that wasn't covered by the 'Programmer's Guide'. It's coverage is not only comprehensive, but is also clear. I would say (as Andre

Games Book') needs. It will explain all the BASIC instructions found there, and the machine code bits and pieces. It deals comprehensively with sound

says) that it is almost indispensable for any MSX user, from the complete beginner to the oldest hand.

Starting Machine Code on the MSX

Kuma Computers, £7.95

Starting Machine Code on the MSX by G P Ridley claims by its title, and in its introduction, to be an introduction to writing machine code programs for MSX. But what is the newcomer to machine code programming to make of a book that, with no prior explanation, hits him on page one with a reference to '0000 hex', on page two with a list of assembly code instructions, and on page three with '...Assembly language is made up of several registers which we load with addresses and values'? I know what I make of it (deleted - this is a family magazine - Ed), and was strongly tempted to read no further.

I did persevere but, on balance, I wish I hadn't. The author is continually explaining things, if at all, long after he has made use of them. He is never clear about whether he is using machine code or assembly code. The explanations that he does give are often poor, and better ones can be found in a great number of existing books.

The book starts with a comparison on BASIC and machine code that is primarily intended to show that programs written with the latter are much faster. Then it deals with the architecture and instruction set of the Z80 microprocessor, before introducing the ZEN assembler. This is an assembler that is available from Kuma Computers, the publishers of the book. A chapter on the machine code routines in the MSX ROM follows, and a fairly substantial program is developed in the final chapter. Not a bad framework for a book, but ... Oh dear!

So how did our books fare on the 'rip-off scale'? Quite well, in fact. The games book is well matched to MSX requirements and has benefited from learning in other areas, too. **The programmer's guide** is a considerable production by any standards. As for **Starting machine code**, it would have been better if it had been a rip-off!

YOU WRITE,

*Badly
leave!*

Human error

Dear Liz,
Many thanks to you and your staff for a very good MSX User magazine. I hope you will grow as more MSX machines arrive.

One set of errors I noticed - on page 36 - line 30. The test on A\$ = "xxx" JUMP 'round the point statement. Thus 'xxx' is not placed on the disc. However, line 130 assumes that it has been so placed. Delete 30 and write 30 as 45. Then all should be

well - almost - if EDF(1) is to be used it should be placed at 115 not 5.

**Gerald Coating
Amersham**

Well, Karl Dallas agrees, but only if the two proglets are used as one program. In fact, page 37 explains that MSX Disk BASIC supports an End of File (EOF) function, thus making line 130 unnecessary. Congratulations, you're our first badge set winner.

Luddite's corner

Dear Sir,

I do not want one (an MSX). I feel it is another CON. I think the people who make these computers should ask themselves why should the masses have them, after all what will they do with them ('play games'). To lay out £300 for a games console is lunacy in a big way, I've had them all, V20, Comador (sic) 64/Spec 48/Amstrad with them all, they only gave a intreducshion (sic) to show

how to work these toys. Would the MSX be any difference (sic). Go into Smith the news and book shop, there you will see lots of people crouding (sic) around the computers books and mags. What for, can they not program, the answer is they cannot because there is not the jen (sic) in the manuals to show how to work these computers. Lets face it there is only about 200 key words to remember. For £300 I would want to do something better than play games. I

think you wil agree with me. What I would like is a manual or a book, tell costomers (sic, yawn) on how to put there (sick) ideas into basic (sic), YES a book on how to turn your ideas into basic, (I think we've got the idea - ed). Lets face it all machines are useless by themselves they all need people, people do not need computers. See please, let there be a lot more honesty, I dare you print this.

**T.R. Blake
Mowbray.**
No comment.

Yamaha again!

Dear Sir,

Recent articles on the Yamaha CX5M Computer may have contained inaccuracies which seem to have caused some confusion amongst the buying public. Perhaps you would kindly publish the following information.

The CX5M has a MIDI Interface built in, there is no need for anything other than a MIDI cable (i.e. 5 Pin DIN plug to 5 Pin DIN plug) to enable the CX5M to control MIDI Instruments. Using the YRM101 FM Music Composer Programme, it is

possible to send all the information contained on any of the eight tracks via any of the 16 MIDI channels to the receiving machine(s). Information sent includes pitch, duration, velocity, sensitivity and voice changes.

Synchronisation to drum machines etc. is also via MIDI. Performance on the YK01 or YK10 Keyboard is possible during playback as long as the command "MK ON" is used, and it is possible to play the YK keyboards polyphonically as long as polyphony has been set to that given part. Each part can be printed out on any MSX compatible printer and this would obviate the

need to see all the parts at once on the TV/Monitor (oh yeah? - Ed).

It is possible to play part of a track from the current cursor position using the command "Play = T", but all previous commands in that part are ignored.

If your readers require further information about the machine, or wish to know where he or she might see a demonstration, they might contact me at Yamaha-Kemble on 0908 71771.

**Martin J. Tennant
Product Manager
Yamaha-Kemble**

*Positively the last word from
Yamaha - Ed*

An unreadable magazine

Dear Madam,

Thanks for an interesting magazine which I bought on recently. Like you say, it is highly unlikely that MSX will cease and again I agree with you that MSX products are of the whole expensive. The only two moans I have is that firstly having paid 95p for your magazine the printing is very poor, it smudges something chronic and on quite a few of your test programs vital information is either missing or very poorly printed making it unreadable. Eg. page 53, 54, 55, 61, 62, 63, 71, 72, 73, 74, 75, 76 and 79.

Sorry, but anyway thanks for a good and interesting read.

**Mr. V. Power
Surrey**

*Many apologies. Reprints
this issue.*

The great mystery

Dear MSX User,
I was very impressed with the first edition of MSX User. The layout out of the magazine was very impressive and I enjoyed the style of the production very much. The reviews of the new MSX computers were very informative and were instrumental in pointing me towards buying an MSX computer.

There was one small fault with the magazine. The cover depicting a futuristic city by Peter Knifton also appears on Page 90 of "U.F.Os, The Greatest Mystery" by Hilary Evans. I would have thought that a new photograph or drawing could have been found for the first edition of a new magazine.

But even with this small slip-up the magazine is still marvellous. I would like to thank you for an excellent product.

**Thomas Wallace
Fife
Scotland**

*Hmm. Bring me a new
designer, this one's split.
Meanwhile, have a badge
set.*

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