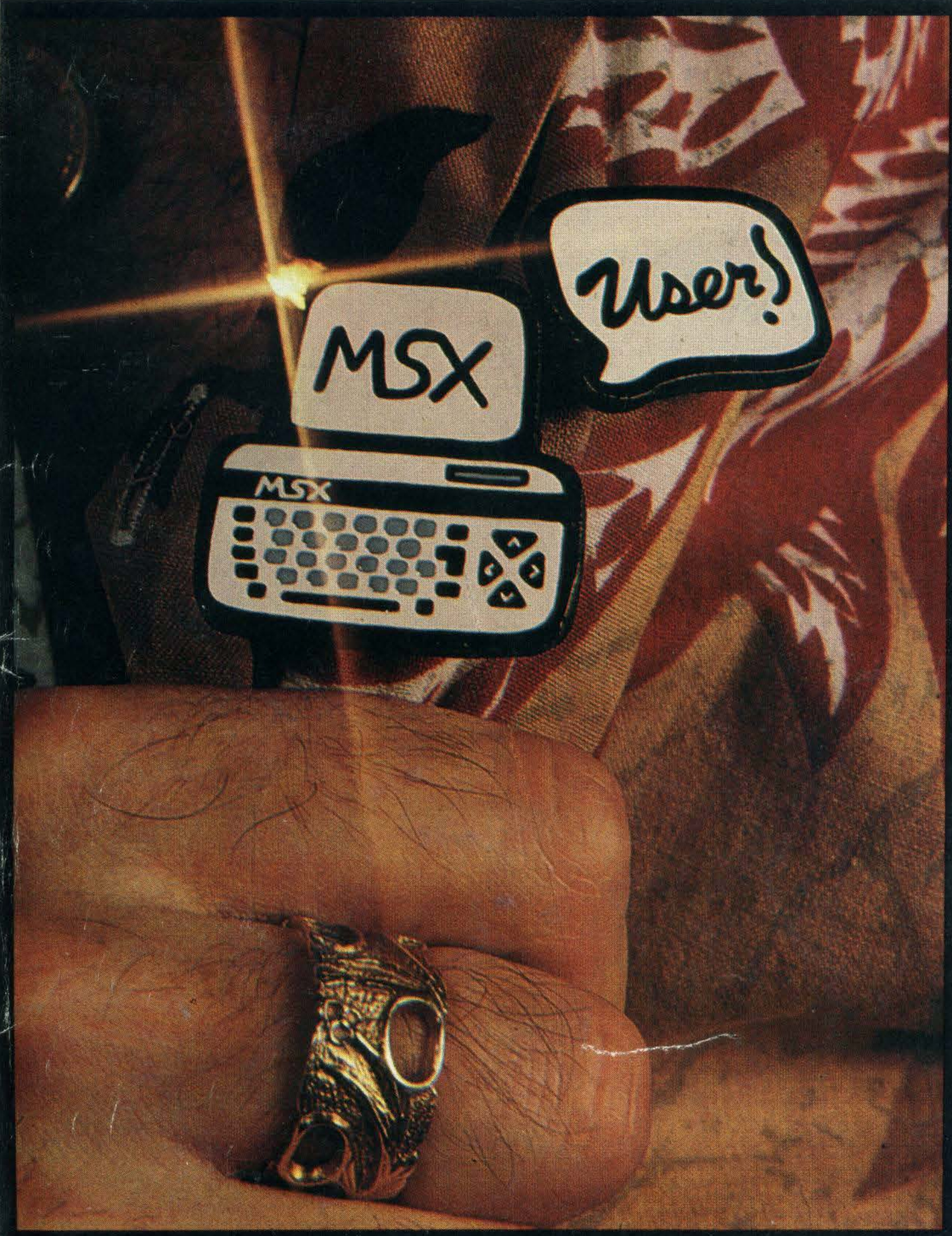


MSX

User

JANUARY 1985 95p



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"I'M A TOSHIBA HX10.
 I'VE GOT ALL THE
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 AND MORE. I HAVE A
 64K MEMORY, LIKE THE
 COMMODORE 64. A
 CASSETTE INTERFACE,
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 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
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 OTHER MSX COMPUTER."

"NOW, 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**

Hands up everyone who's got an MSX micro. Hm, not bad. Now... Hands up those who've seen more than one make of MSX machine. Well, I won't need more than the combined fingers and toes of the User editorial staff to count you lot. MSX isn't exactly being force fed to the world at the moment. Manufacturers! Where are you? Where's this multi-million pound, multi-media extravaganza that was promised? Half the prospective micro owners currently checking the scene haven't even heard of MSX let alone know what it is. Instant action, please, or Christmas'll all but pass you by.

OK. Now for the cringing. Sorry about the partially obliterated prog listings in the launch issue. We went a bit crazy with artwork under text and plan to rectify the situation by reprinting the ones most effected in Feb's ish. Thanks for the generally positive responses, despite that.

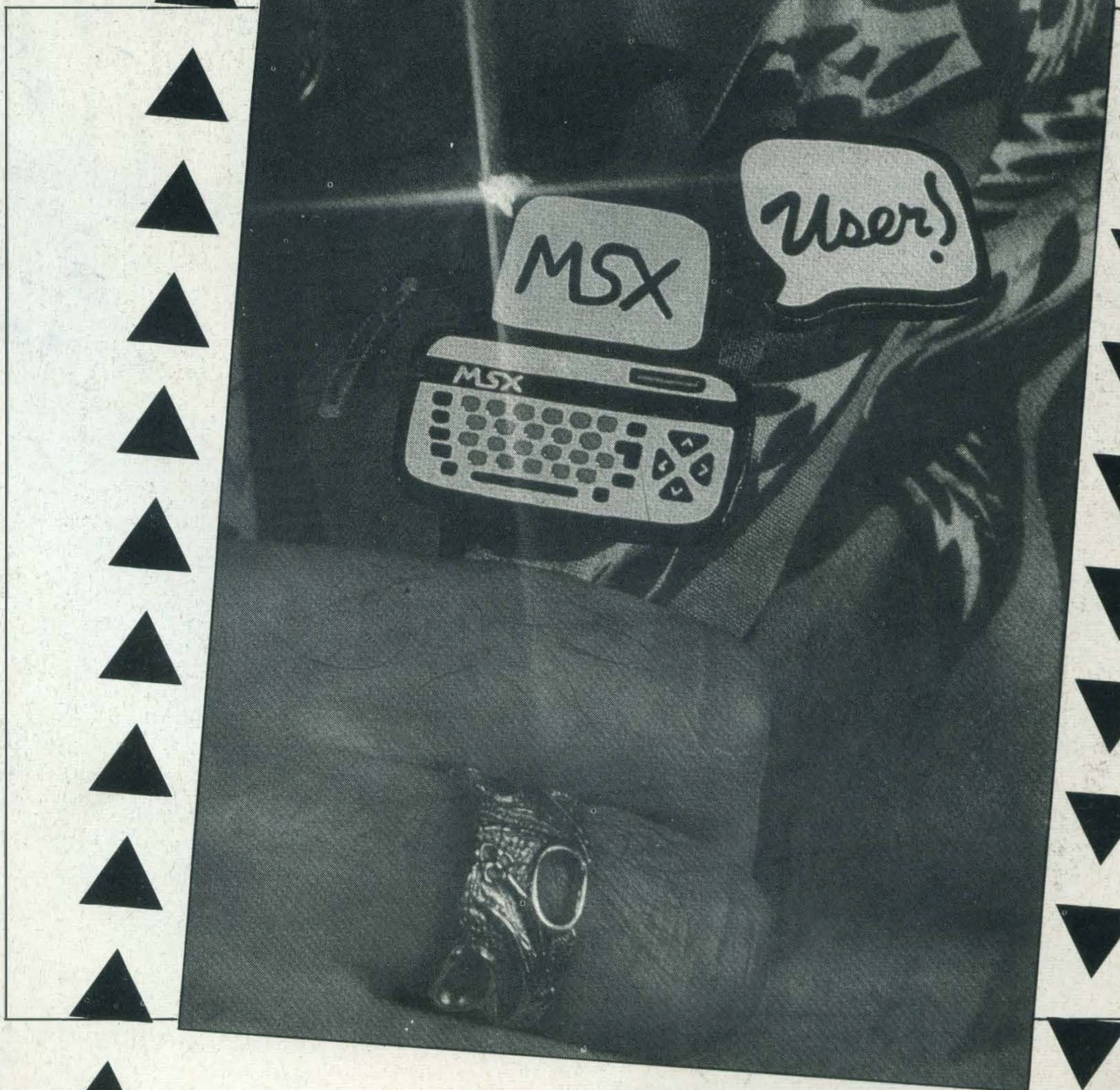
Back to moaning. Will somebody please tell me why MSX cartridges are just as expensive as the generally ignored Commodore variety and the ill-fated Atari types that had so much to do with that company's virtual collapse. Drop the price, guys - people don't want to pay £15+ when they can get something similar on tape for half.

Only the second mag and we say goodbye to Mike 'Scoop' Johnston. Aussie Mike will be sorely missed (at least by the Landlord of the local watering hole) but we just couldn't compete with the bright lights and fast living of Hull. So, welcome Sean... a well known pessimist who has no Hullward aspirations - yet.

The similarly named (but much better looking) Jennifer Johnson throws in with us from this month. It is she who designed, hand made and hand enamelled the MSX badge sets, as pictured below. Nice, eh? We've got 10 of these to give away every month for the most interesting, amusing and informative letters we receive - plus we'll occasionally hand one out to a deserving bod within the industry. After 200 have been distributed, Jennifer'll change the design to keep them exclusive. The talented JJ makes loads of different badges/brooches to a similar standard and sells them from Stall 23, The Apple Market, Covent Garden - don't look for MSX ones 'though; she only makes them for us.

Due to unforeseen (?) circumstances, the zodiac of MSX users will now appear next month.

Liz Coley ▲



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*No 1 Golden Square
London W1R 3AB
Tel: 01-437-0626
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*MSX User is a monthly magazine
appearing on the second Friday
of each month*

Distribution
*SM Distribution Ltd
16-18 Trinity Gardens
London SW9 8DX*

Printing
*Alabaster Passmore & Sons Ltd
Tovil, Maidstone, Kent.*

*UK Subscription rates £15.50
per annum. Worldwide on
application to MSX User
Subscriptions Department,
Infonet Ltd, Times House, 179
The Marlowes, Hemel Hempstead,
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WHAT & WHERE

NEXT MONTH

1 Programs!
Over 20 pages of listings.

2 Reviews!
Our team of experts give Spectravideo's SV-728, JVC's HC-7 and Daewoo's new baby the once and twice over. Overview and overkill.

3 Features!
A bit of this.
MSXplained, MSXercise, and Printers - the dos, don'ts, daisy's and dots.
Plus the cans and can'ts of Networking.

A bit of that.
The second gripping installment of our Adventure programming series, the further whats, whys and hows of MSX Sound and all the usual mixture of news, industry gossip and boring jokes you've all heard before.

And a bit of the other?
Into the future with MSX User!

At all newsagents, good or bad, January the 18th. Be there.

MSX

User

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The new Mitsubis

For those in the know

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

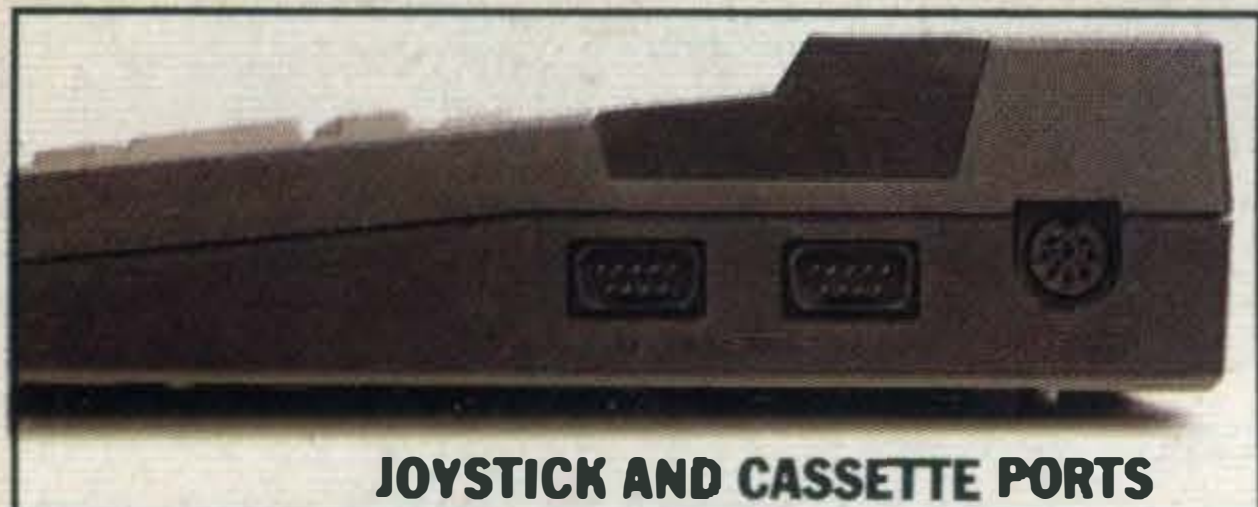
The sheer proliferation of computer and software systems flooding the market loudly underlined the need for a unified standard.

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

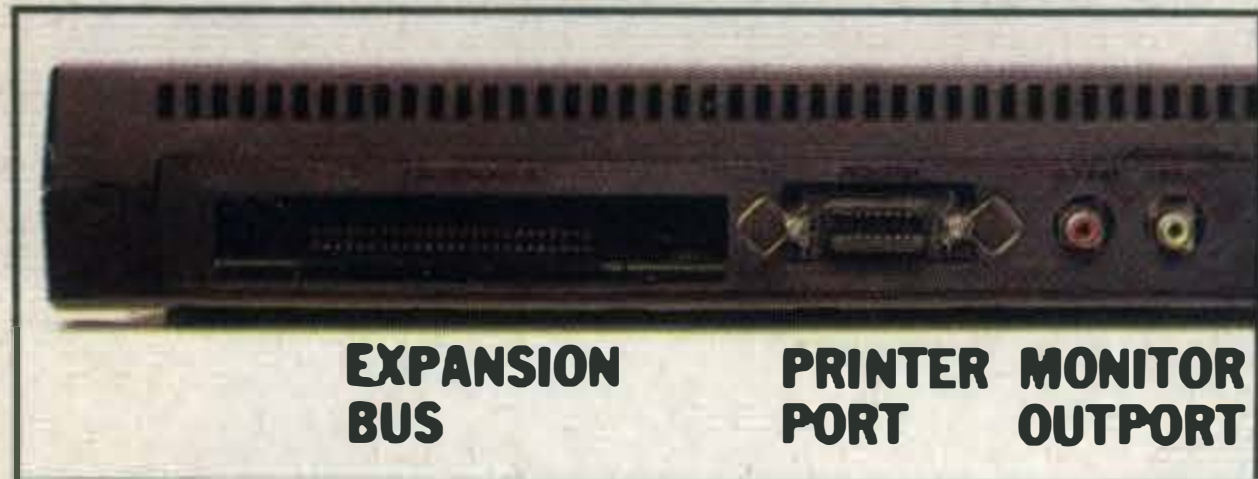
And those in the know will not be surprised that Mitsubishi are in the vanguard of the MSX movement. For, with the F-series, Mitsubishi offers everything that MSX is and more.

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.

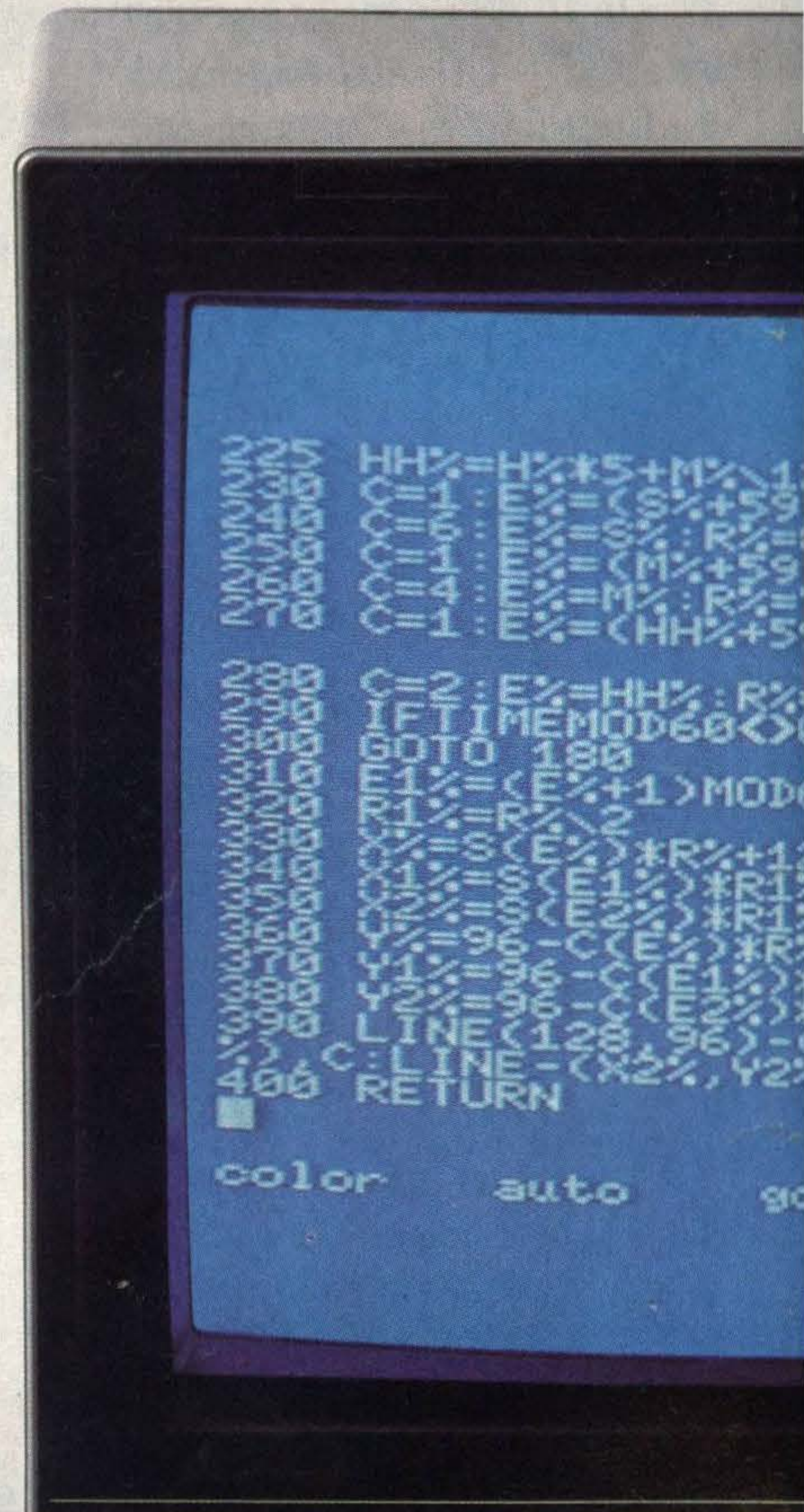
EXPANSION

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.

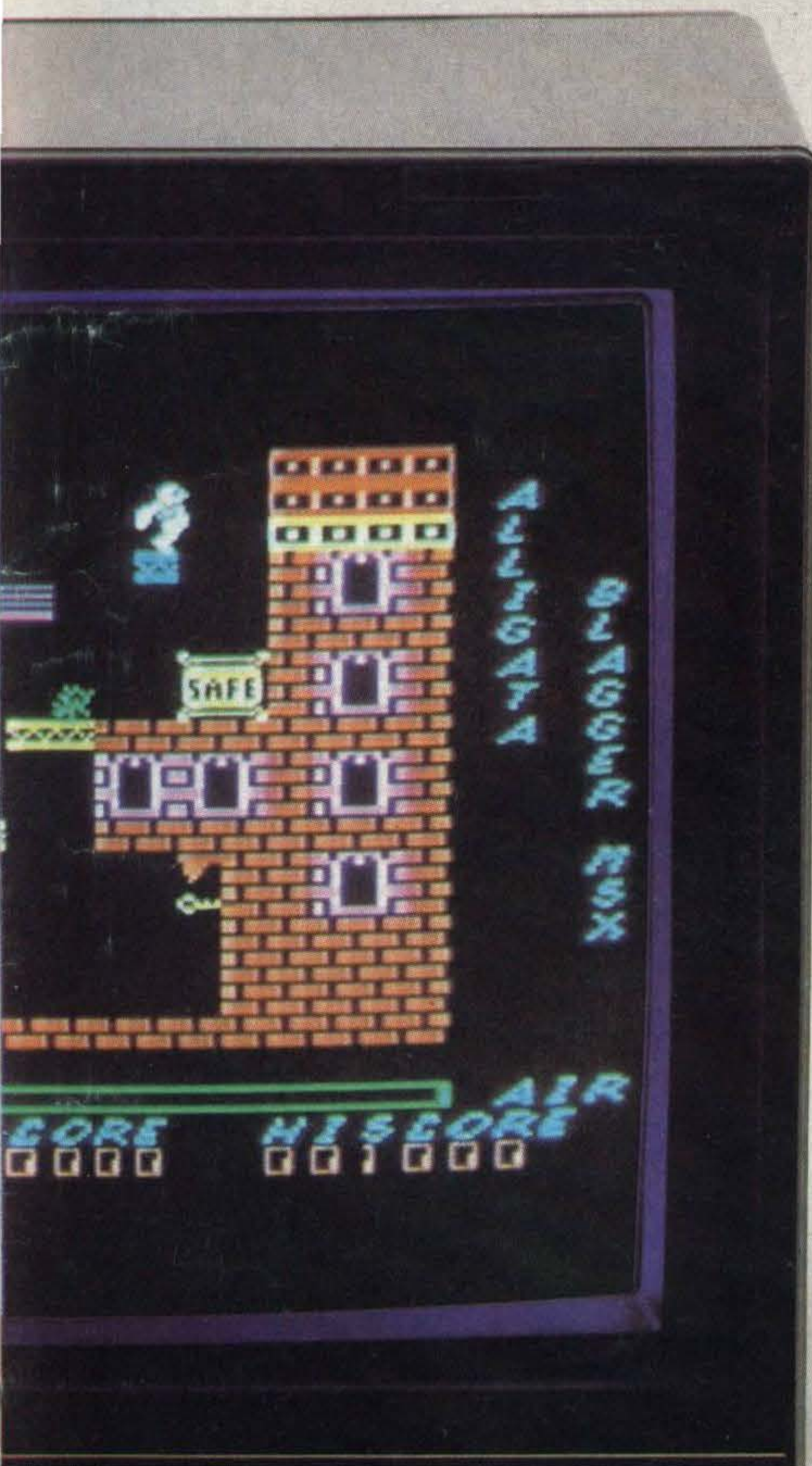


Mitsubishi Electric (UK) Ltd., Hertford Place, Denham Way, Rickmansworth, Herts WD3 2BJ. Tel: 0923 770000.

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
Keyboard: 73 moving-key keyboard 5 function keys Cursor control keys	Parallel Interface: Centronics connectors
	Joy-Stick: 2 x 9 pin connectors
	Rom-Cartridge: 2 x 50 pin connector

*Subject to Scan of Monitor



ML-F80



ML-F48



MSX

MSX

Address – Sony, Sony House, South St,
Staines, Middlesex
Price – £299 inc VAT



75

The luxury of Sony's MSX. Karl Dallas tastes the good life.

SONY HB

George Orwell was right about MSX, even though he'd never heard of it when he wrote *Animal Farm*. All MSX is equal, but some is more equal than others. Having had my sticky little fingers on most of the current models, I've got to say that the Sony Hit-Bit is the most equal of all.

It is, if you will, the Rolls Royce of MSX – or will be, unless someone comes up with something better.

Of course, I hear you cry, it ought to be with a price tag of nearly three hundred green ones.

But, I hear you add, what makes it worth all those extra smackers?

Well, it's got many more bells and whistles than the similarly priced Sanyo or Mitsubishi.

I could talk (and I will) about the built-in database. After all, much has been made of the rather similar facility in Commodore's Plus-4, and that's much less friendly than the Hit-Bit's.

I also intend to talk about the tough little, solid-feeling, professional-style 3½in disk drive you can get for it – right now!

In due course I'll go on about what an excellent, well-made, attractive looking machine it is, with sensible little touches ...like a red RESET button on the keyboard where it's easy to find, but recessed so you don't find it too easily ...like a SPART-style RGB Euroconnector for attaching it to a professional monitor, ...like the beautiful, big, arrow-shaped cursor control keys, ...like the two cartridge

ports, with a little Perspex guide you can fit on the rear one to make it easier to slide things into in. Great!

But first, let me mention the one thing I don't like: the silly name.

I think giving it a name rather than just a number was a good idea: it's easier to remember to call it a Hit-Bit than an HB-75B, but what the hell does the name mean? "Bit" suggests something to do with bits and bytes, and no doubt it's going to be the hit of the MSX scene, but really, Akio Morita, is this the best your English associates can come up with?

It was bad enough writing off half the human race when you changed the name of the Stowaway personal stereo to the Walkman, but at least that had some kind

SONY HB-75

of meaning, disregarding the implicit sexism.

But OK, it's the Hit-Bit, and we're stuck with it, but sometimes a man's got to stand up and be counted for the things he believes in, like names *meaning* something (Amen - Ed).

I went crazy about the pseudo-computer lettering of the logo as well, which is emblazoned across the top in inch-high red and green letters - but was relieved to find that this was just a sales sticker, coming off to reveal the matt black paintwork familiar to millions of satisfied users of Sony video and audio equipment. The painted logo that you can't remove is less than half the height, and is in more tasteful and restrained colours.

So much for grouching.

The best MSX?

Now let's start in on explaining why I think this is the best MSX machine so far available.

Well, the keyboard for a start. Most home computers get by with fairly tacky keyboards (just look at the Spectrum, but if you're allergic to the feel of half-sucked jelly-babies... be sure you don't touch!) and even well-trying semi-professional workhorses like Commodore's redoubtable 64 have a rather clacky feel alongside this Sony.

Two versions of the keyboard are available, one with graphics symbols, the other without, but none of those with the graphics on them seems to be around. Anyway, I prefer them without. If you're a graphics freak, decals are produced for you to stick on the front of the keys, to remind you which is which. The RETURN key is a nice sensible large size on this version, too.

In addition, the CODE keys are duplicated on either

side of the SPACE bar, which makes sense, since CODE is often used in conjunction with SHIFT... but then so is GRAPH, which isn't duplicated.

It's surprising that one of the things MSX hasn't standardised has been the keyboard layout, especially the top row of function keys and the bottom row of graphics/capitals selection keys. The order of the bottom row on the Hit-Bit is: CAP - CODE - SPACE - CODE - GRAPH - SELECT but on the JVC, Sanyo, and Toshiba it's:

CAPS - GRAPH - SPACE - CODE

and on the Canon, it's: CAPS LOCK - GRAPH - SPACE - SELECT - CODE while the Spectravideo has just:

GRAPH - CODE - SPACE with CAPS LOCK stuck away above the SHIFT.

Strange. Why not stick with one arrangement?

Keeping SELECT out of the way makes sense, since it's not needed in MSX BASIC programs, but the differing positioning of CODE and GRAPH keys could be confusing for people moving from one machine to another, not to mention poor dealers trying to demonstrate more than one machine.

One thing I don't like on the Hit-Bit is the way the HOME key, which also performs a clear screen if it's SHIFTed, carries no warning of the fact. The size and shape of the little rectangle might have made the usual CLR/HOM label too much for it to carry, but I can envisage some fairly irritated new users before they suss out why they're inexplicably losing all their screen displays.

I do really like that RESET key, though (we know, we know - Ed). It's red, for danger, and it's not tucked away among the I/O ports where you have to grope to find it, but it's sensibly recessed to prevent you hitting it by accident.

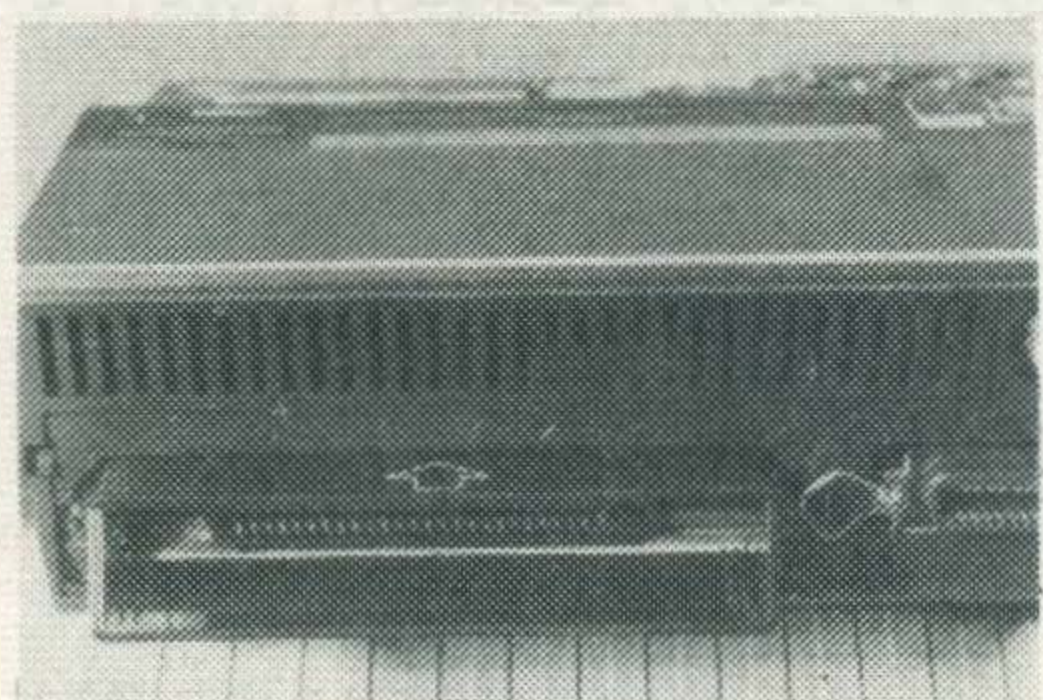
Would you believe some MSX machines don't have RESET keys? An essential, I would have thought. A pity it couldn't have given you a *warm* start (ie without losing



any programs in memory), which is useful when you're debugging a program which suddenly hangs (locks up and ignores you – Jargon Ed), but you can't have everything. Say after me – the programmers' first commandment:

ALWAYS SAVE BEFORE YOU RUN!

One of the nicer things about the Japanese MSX machines I've seen so far, is that you don't need to turn them off to fit a cartridge, because opening the cartridge port cover also performs a RESET, but this seems to have been abandoned on the British Hit-Bit, so pushing open the cart door doesn't do anything. I wonder why?



The Sony has two cart ports, but it needs to be emphasised that at this moment, at least, this is merely a duplication *not* an extra. Sony strongly advise against using both, though what'll happen when cartridges of extra memory need to be fitted in systems with disk drives, I hate to imagine. Indeed, at least one cartridge-based word processor has plans to SAVE to RAM data cartridge, so it must be possible.

The data cartridge

Oh yes! The data cartridge. This is a small pack, about the size of an audio cassette box, which fits into the cartridge port and can hold about 4K of program or data files in RAM. It has a built-in lithium battery with a

projected life-span of about five years, so it's effectively non-volatile memory for that time (ie you won't lose the contents when you switch off the computer). Plus, of course, it's the fastest LOAD and SAVE this side of Billy the Kid's trigger finger.



Faster than disk, even, and much, much faster than tape. But then it's only 4K, which is 4096 characters or just 16 program lines of 255 characters (program lines can't be longer than 255 characters, remember). This is sufficient to store about 40 to 50 entries in the built-in database, or databank as they call it, more correctly (since a database is a shared pool of data to computer purists – if any of them are reading this).

The Databank

This databank is activated after the usual MSX sign-on screen, every time you turn-on, with a friendly little display which shows what look like a couple of unhappy aliens but turn out, on closer examination, to be cassettes. There's a 4-option menu:

Address, Schedule, Memo and Transfer, plus BASIC.

If you've got a data cartridge inserted, the fourth menu option is **Copy** and there are two Basic options – **BASIC + Data Cartridge** or **BASIC**.

If you go to the **BASIC + Data Cartridge** option, it seems like you're in ordinary BASIC, but you can save any programs to cartridge with the `SAVE "CAT:filename"` or `BSAVE "CAT:filename"` commands and the OK prompt comes up quicker than you can blink, to indicate it's been done.

The data cart can also be used for SAVEing data, and when you're in the databank this is done without you even realising it.

Modules

Each of the three databank modules works in much the same way. A record consists of a "card" with a 25-character heading, for name and telephone number in the **address** file, for date (yes! still 25 characters) in **schedule**, and for subject in the memo file. Then there's room for nine lines of 26 characters, which can be address plus comments in the address file or whatever you like in the other two.

When you choose one of the first three options, you're given another four-choice menu: **Files, Search, New and Return to Menu** plus the prompt along the bottom of the screen: **Select with Cursor. Return.**

Like the man says, you move from one to the other with the left/right cursor control keys, but the movement is not continuous – ie left cursor when you're on **Files** (the leftmost option) doesn't take you round to the rightmost choice, **Menu**.

Files delivers an immediate list of all the entries, ten at a time, using the down cursor to move through them, and then on to the next screen at the end of each block of ten. Up cursor is used to move in the opposite direction, back to previous screens.

Actually, there's a five-record overlap on each screen, so you can still see five from the previous screen when you move on.

Pressing RETURN when you're on the line of the record you want brings the entire contents of the record on to the screen.

Search is very powerful. You can look for a record using its title, or a key word anywhere in the title, or the remaining 234 characters of comment, so it doesn't really matter that Bill Adams will be filed after Alan Bloggs, since everything is stored in the alphabetical order of the first letters.

There is also a **sort**

facility, offering the choice between normal alphabetical sorting, capital letter sorting (which places ABC before abc) and numerical sorting, which will put telephone numbers, for instance, in rising order.

This might be handy if you wanted to look at all the "061-" records to find your friends in Manchester, for instance, but it comes in more useful in the **schedule** (or diary) databank, where it can sort events into date order.

Records aren't sorted automatically, so if you want to look at them in alphabetical order (if you're just checking phone numbers, for instance) you must conduct regular sort commands.

Also, you've got to use exactly the same word format in the search as was used in the stored record, including capitalisation or lack of it. Searching for "data" as a keyword, when it was spelled "Data", won't get you anywhere. It doesn't offer you the nearest equivalent it can find, as some databases will.

Still, what do you expect for £70. Blood?

When you've found your record, you have four more options: **Print, Update, Delete, or Stop** (which returns you to the previous screen).

Not having an MSX printer cable with its dinky little non-standard D-plug ('though it's *allegedly* a Centronics Standard interface (it is, see First Aid – Technical Ed), I wasn't able to check out how the **Print** command works and the manual carries no info. I tried the option and the machine hung, so presumably there's no great choice of **Print** options, though I would have expected to be offered the chance to print one, some or all of the records. Presumably it's one at a time only.

Since the manual says you can store about 50 records (most databases are much larger than this) you have the option of SAVEing data from RAM to cassette, from data cartridge to cassette and, subsequently,

LOAD from cassette to memory or data cartridge. The manual says (page 7) that it's possible to copy from data cartridge to data cartridge but since there's no further explanation (to do this directly would entail *either* having two data cartridges fitted *or* taking out one and replacing it with another without turning off the machine – both definite no-no's, say Sony), I must assume you've got to transfer data from cartridge to tape, and then back from tape to another cartridge.

This data cartridge is obviously a very valuable medium, despite its limited memory and rather high price (about £30), which must make it the most expensive data storage medium on a cost-per-bit basis. At this moment, it can only be used with the Hit-Bit, because only Sony have included the necessary 16K of extra ROM to handle it.

I'm told that it's possible to write special software for other machines to manage the cartridges and Computermates say that this will be built into their word processor, but at the moment I've been unable to obtain any info on how it works.

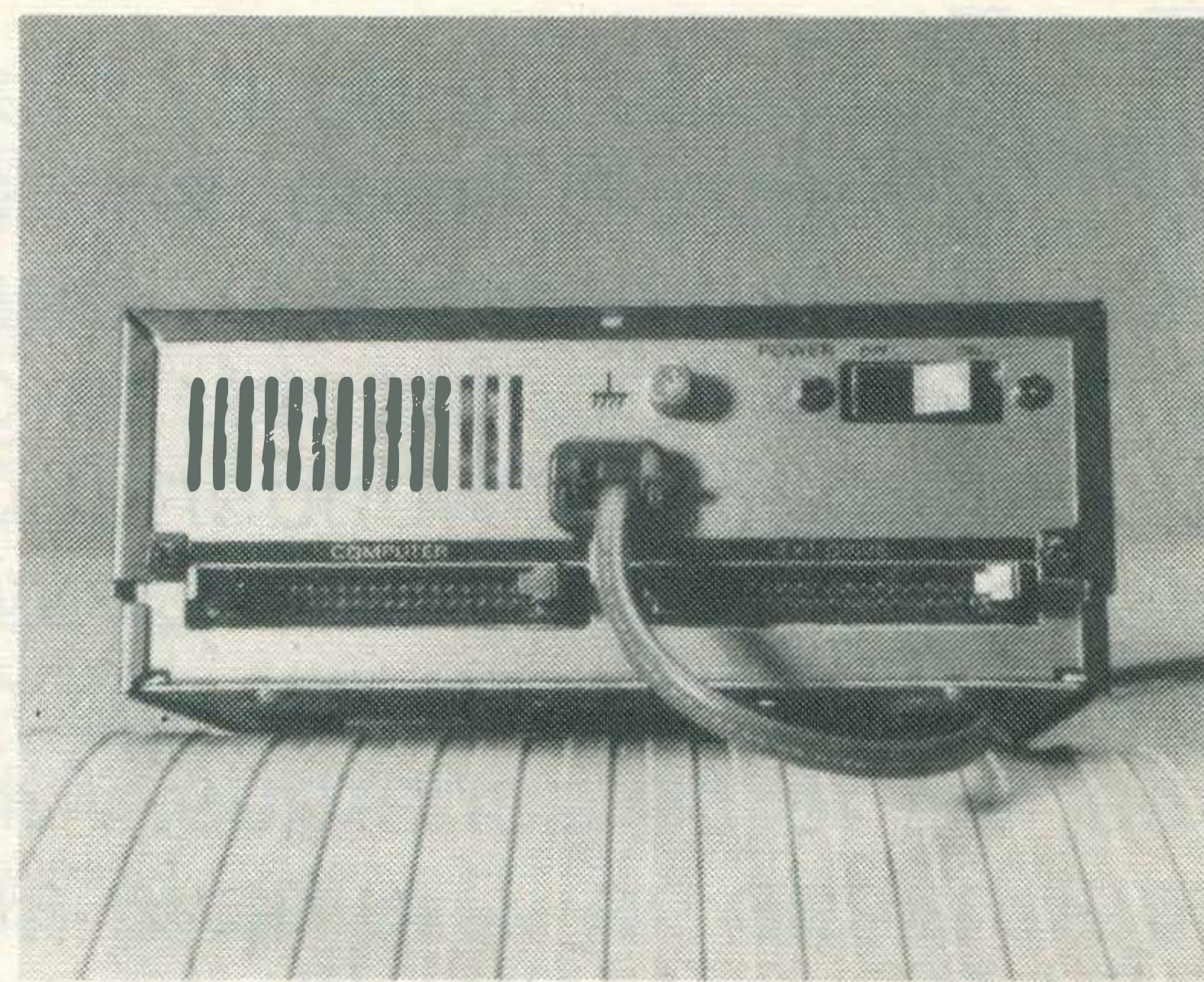
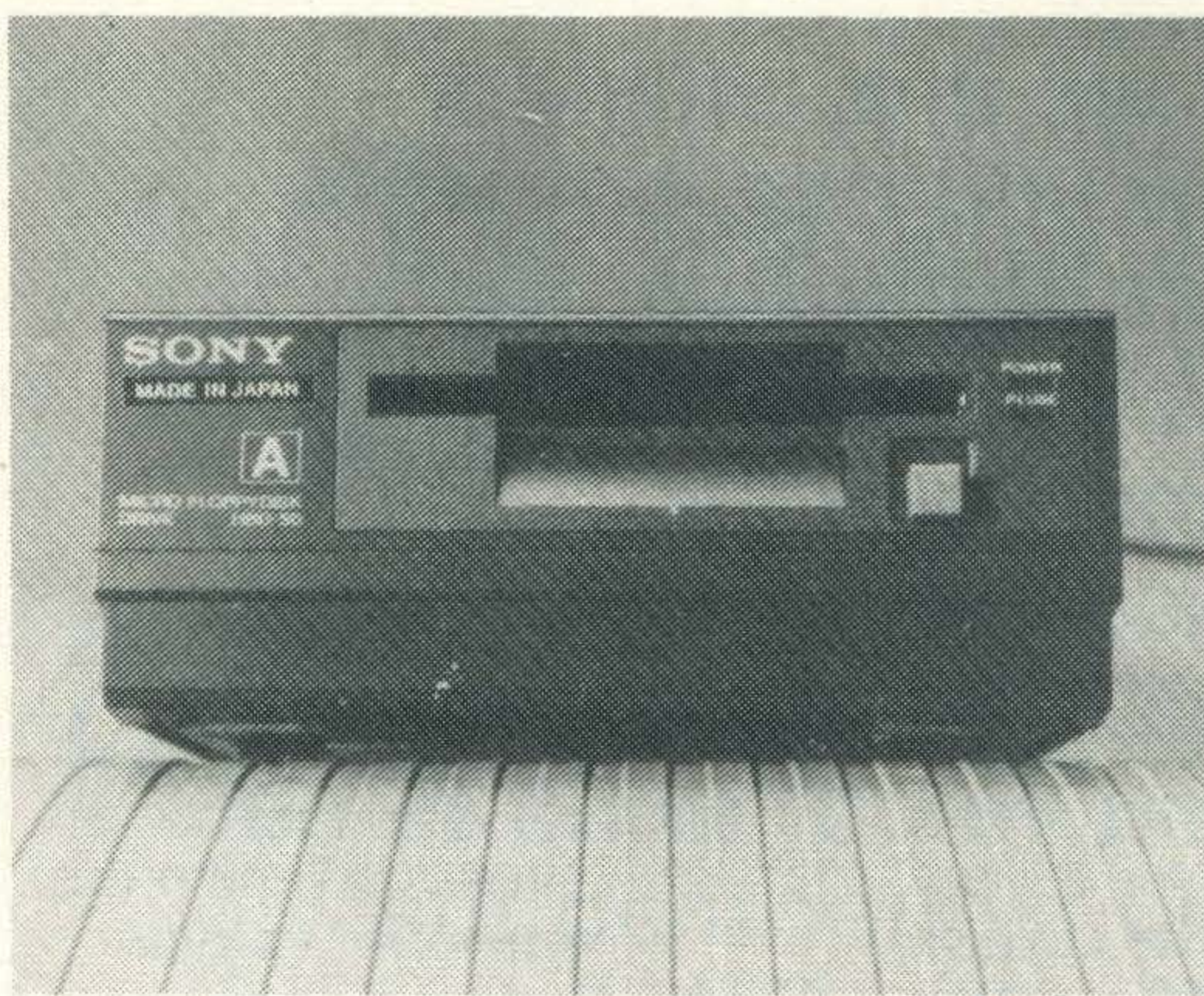
Dissappointingly, it's impossible to LIST the contents of a data cartridge, as far as I can see, though if you could get into the Hit-Bit monitor it might be possible.

Any supporting software not in ROM would, of course, use up memory – though, interestingly, there's no difference in the amount of memory available on the Hit-Bit in BASIC mode if you don't choose the **BASIC with Data Cartridge** option from the opening menu. It's still 28815 bytes in both cases, same as usual with a 64K MSX machine.

The Disk Drive

Full marks to Sony for having got their disk drive on the market from day one ... and for making it such a workmanlike affair.

I must confess I don't like having such a big interface poking out of the cartridge port but if you fit it on the



back it's not so bad. The plug on the other end that fits into the rear of the drive strikes me as rather weak though, but perhaps this was an early sample. Anyway, I don't imagine most users will be plugging this in and out as frequently as I had to.

There's also a socket at the back for daisy-chaining a second drive and I imagine more than two could be added. It comes complete with the very powerful MSX Disk BASIC, but not with MSX-DOS, which is Microsoft's version of MS-DOS as written for the IBM PC. This is in the pipeline, as is a version of CP/M from Digital Research.

There's nearly 360K of storage available on the 3½ in disk and in Disk BASIC mode, user memory goes down by about 5½K, from 28815 to 23430. Not bad, eh?

Documentation

The Hit-Bit and its peripherals are well documented, perhaps even excessively so. There's a small booklet for each piece of hardware, plus a course on using the databank. There's an excessively jokey introduction to MSX BASIC, which personalises the Hit-

Bit as a dog named Fido (don't ask me why – must be that inscrutable Oriental sense of humour) and a comprehensive reference

seems first class (see this and the Dec issue for a rundown on MSX-DOS and Disk BASIC – Promotions Ed).



guide to MSX BASIC.

The disk drive didn't come with any documentation on MSX Disk BASIC, but that will be the subject of a separate publication. I've seen the typescript, and it

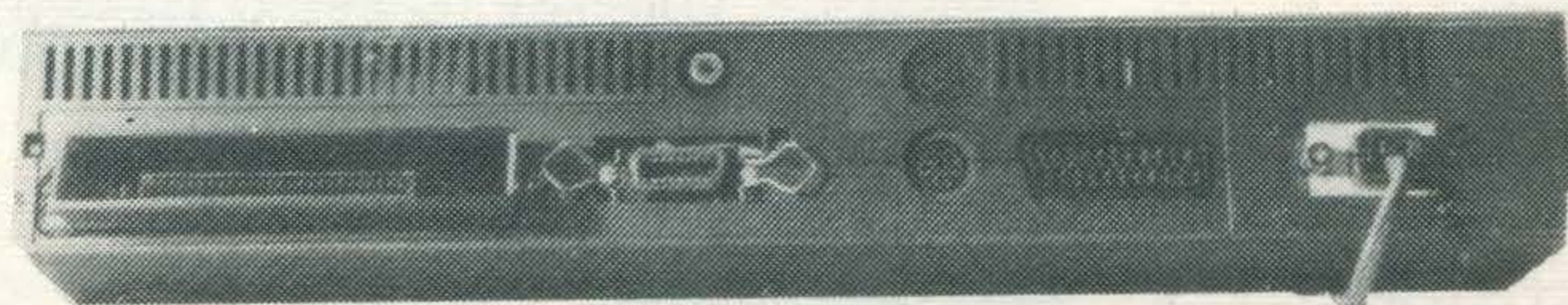
What is lacking is any information on how to use the data cartridges on other machines, but perhaps this'll come. Who's gonna be the first to break in and find out how they work?

Conclusions

I LIKED...
almost everything about this machine

I DIDN'T LIKE...
the name
the jokey introduction to BASIC

VERDICT
Pricey, but worth the extra money



How do we do it? Here we are, only our second issue, and now you can put your money back in your pocket – yep, we've got another MSX computer to give away. This time thanks to those wonderful Canon people (Hi, Nina), we've got a V-20 with joysticks, free to any good home. Cor, knock me down with a feather, blimey ... yes, we're so generous. All you've got to do to get your hands on it, is have an IQ higher than the editorial staff (shouldn't be difficult – Ed). As usual, we will ask ze questions.

Stored safely somewhere in the MSX User office is the Canon V-20. She-who-must-be-obeyed, as the editor likes to be called, knows where. When asked the whereabouts of the Canon (after a late lunch), she keeled over in a rather tired and emotional fashion and uttered:

HJAC CDX NQC ER BR CR

Someone said it sounded like double dutch but I reckon it was more like a backward Roman's Latin.

WIN a
CANON V-20 BALL

ASK
SOFTWARE
the way to learn

Number Painter

NOW AVAILABLE ON
THE MSX, AMSTRAD, BBC B
& ACORN ELECTRON



Fun for all the family with this fast moving arcade style game to improve mental arithmetic. Mr Painter can move around the screen at any speed you choose, picking up numbers to make a target number. Watch out for holes in the girders — and don't waste time or you'll get covered in paint!

Number Painter is widely available through High Street Stores, Independent Computer Retailers or direct from A.S.K.

For further information contact:
APPLIED SYSTEMS KNOWLEDGE LIMITED
London House, 68 Upper Richmond Road,
London SW15 2RP. Telephone 01-874 6046.

What do you think she said? Figure it out and you'll know where the Canon is. Send the exact message to us, together with the MSX User logo from this page, and you gets one entry in the Grand Draw.

We've also got five runner-up prizes of match tickets (for any Canon League soccer match, except, surprise, surprise, the Cup Final), so don't say we don't treat you right. Just one more thing. If you're reading this and you're an employee of ASP, Canon UK or Alabaster Passmore and Son Ltd., feel free to enter — we'll just throw away your letters! Closing date for the competition is first post January 14th 1985 and replies, abusive or otherwise, should be addressed to: **Canon V-20 Competition, MSX User, 1, Golden Square, London W1R 3AB**

MSX

CANON V-20

Karl Dallas flexes his muscles at the ergonomic Canon

Don't make the mistake of thinking that the differences between the various MSX machines are merely cosmetic.

Anyway, who says 'cosmetic' doesn't matter?

You're going to have to live with this thing, and you've paid over £200 for it, so it might as well be nice to have around, right?

Also, some of the things you might write off as "merely cosmetic" are quite important, like the size, shape, placing and action of the keys. They're actually what you might call ergonomic, meaning that they're nice to use.

The Canon is a very ergonomic machine.

Best known for their superb cameras, office copiers and computer printers, and most recently for their equally superb portable videos with video cameras, Canon are new to computers but their track record led me to expect something rather nice from their MSX machine.

I wasn't disappointed.

Hardware

In many ways, it's bog standard: two cartridge ports (the second on the side rather than the top or back), 64K memory leaving 28815 bytes for the user, the usual cassette, printer D-plug, video and audio and RF (aerial) sockets. There's no reset button (shame).

It's finished in a nice dark charcoal with light grey

alpha keys, and even lighter control keys (RETURN , SHIFT etc). The function keys are *huge*, big black 5cm x 15mm slabs, and the up and down cursor keys are even larger. The STOP , INS , DEL , HOME/CLS and the left and right cursor keys are only slightly smaller.

This makes the machine a joy to use, and should please touch typists who don't like hitting the wrong keys by accident when they're not looking. The rake of the keyboard isn't quite up to professional standard, though.

One of the things I didn't like was the intrusive key click through the monitor speaker. Presumably this can be turned off, but I searched the manual in vain for the command. Me, I pulled out the plug from the audio socket. If you were using the RF socket, you could turn the TV volume down (we've found the command now - it's SCREEN,,0).



Address - Canon, Canon House, Manor Road, Wallington, Surrey
Price - £280 inc VAT

I liked the simple phono plugs for audio and video output. I know single 6-pin DIN plugs are supposed to be better, but they're not on the market yet. Both of these sockets are supplied covered with grey rubber plugs, which RF-users will no doubt leave alone.

The side cart socket has a pull-off cover, better than the unscrewing cover on the second Sony port, but it could have had a spring-loaded door like the top one, surely?

The other useful thought is the front-placing of the two joystick ports. Why hasn't anyone ever thought of this before? It's a far more sensible place than round the side or (worse still) at the back.

Something that you'll only find out from constant use,

but far from unimportant is the fact that it runs very cool, a tribute to the efficiency of its internal power supply.

Apart from a £20 joystick (I've not used one yet, though I hear with some surprise that it doesn't match the computer's restrained livery, but is some kind of garish white and green) there are no other peripherals available. However, as all current Canon printers are Centronics standard they should run from the MSX printer port.

Documentation

The documentation is excellent: a clearly written, concise introduction to the machine and the concepts of programming, plus the best

BASIC reference guide yet produced for MSX. It's 355 pages long, with at least a page devoted to each command or function (four on the SOUND command and its parameters), usually with an example.

The appendices include two pages of derived functions, error messages, MSX-DOS and MSX Disk Basic commands, a two-page overview of the hardware, plus two pages on the sockets, a list of BIOS routines, over four pages of RAM variable addresses and their contents, reserved words, and a character code table.

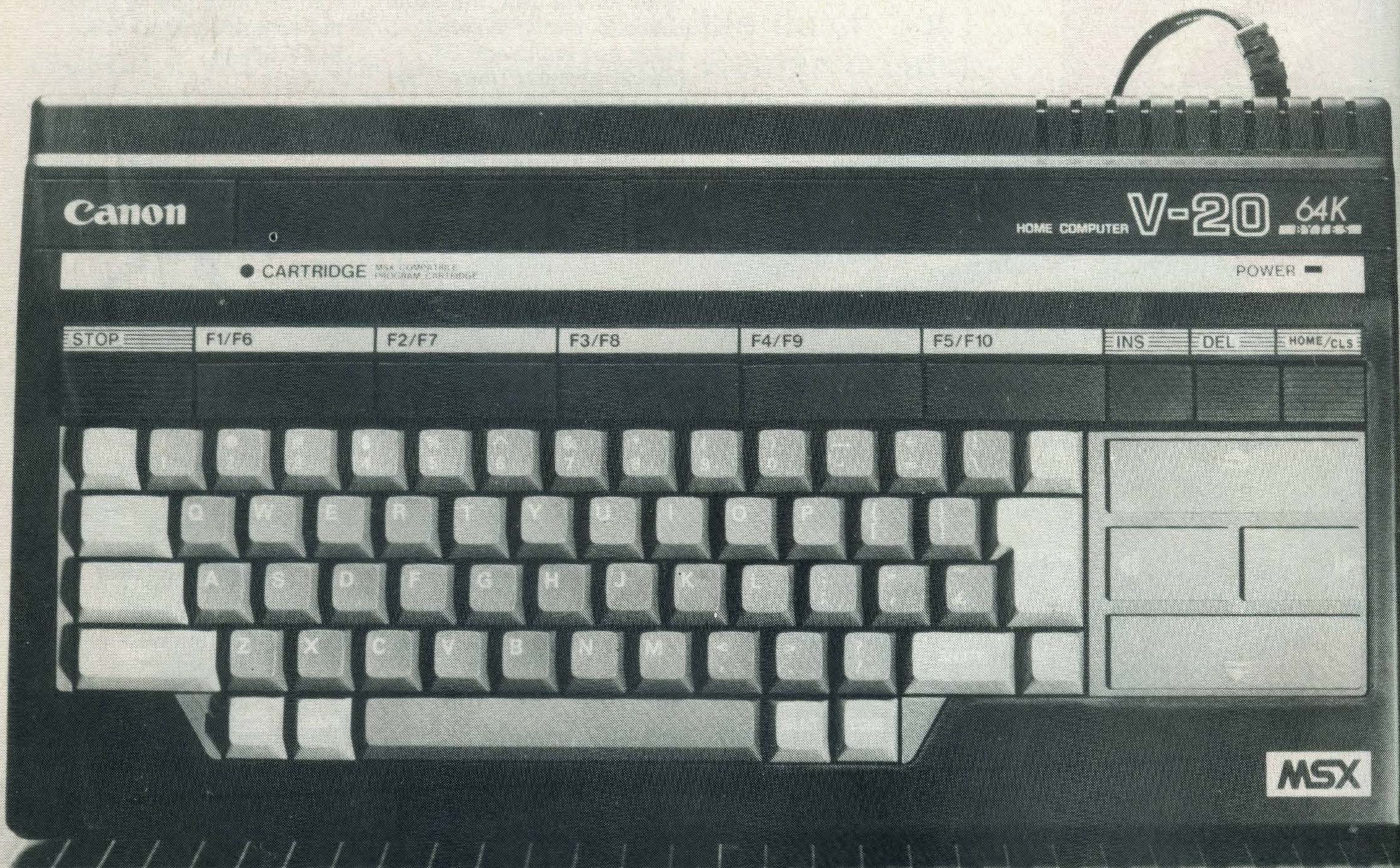
There was one mistake, which presumably indicates

a last-minute change of mind. Appendix F says that audio and video comes out via a 5-pin DIN socket, and gives the pin-outs. But the V-20 uses a phono socket for audio and another for video, as I've said.

Conclusions

On the whole, I like this machine.

When you consider that at £280 it's dearer than the GoldStar or the Spectravideo (though cheaper than most of the competition) and there's no free software supplied ... it's no bargain, but if you're prepared to pay for quality, then this should be well up on your buying list.



The price tag. It's something rather special. When you take a look at the new Goldstar MSX you'll find an asking price of around £240. Quite a bit less than most of the others. And since you're choosing a micro that's designed and built to one standard, that'll leave you a whole lot more for the super new MSX games or business software.

What is standard, of course, is the superb MSX specification.

There's one thing about this MSX that isn't quite standard.



State-of-the-art features like 64K of 'user' RAM and 32K of ROM and 16K Video RAM place the Goldstar right at the top of the MSX league.

Sixteen vivid colours and eight octaves of sound make it a great games player's micro.

And there's a powerful Z-80A processor to take on a world of home office tasks.

Goldstar MSX. The brightest new star among micros that's unbeatable value for money.

You'll find it at above standard computer dealers now.



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we've decided to take over
the computer market.**

We're proud to announce the launch of our first computer.

JVC **MSX**

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Starting with the MSX

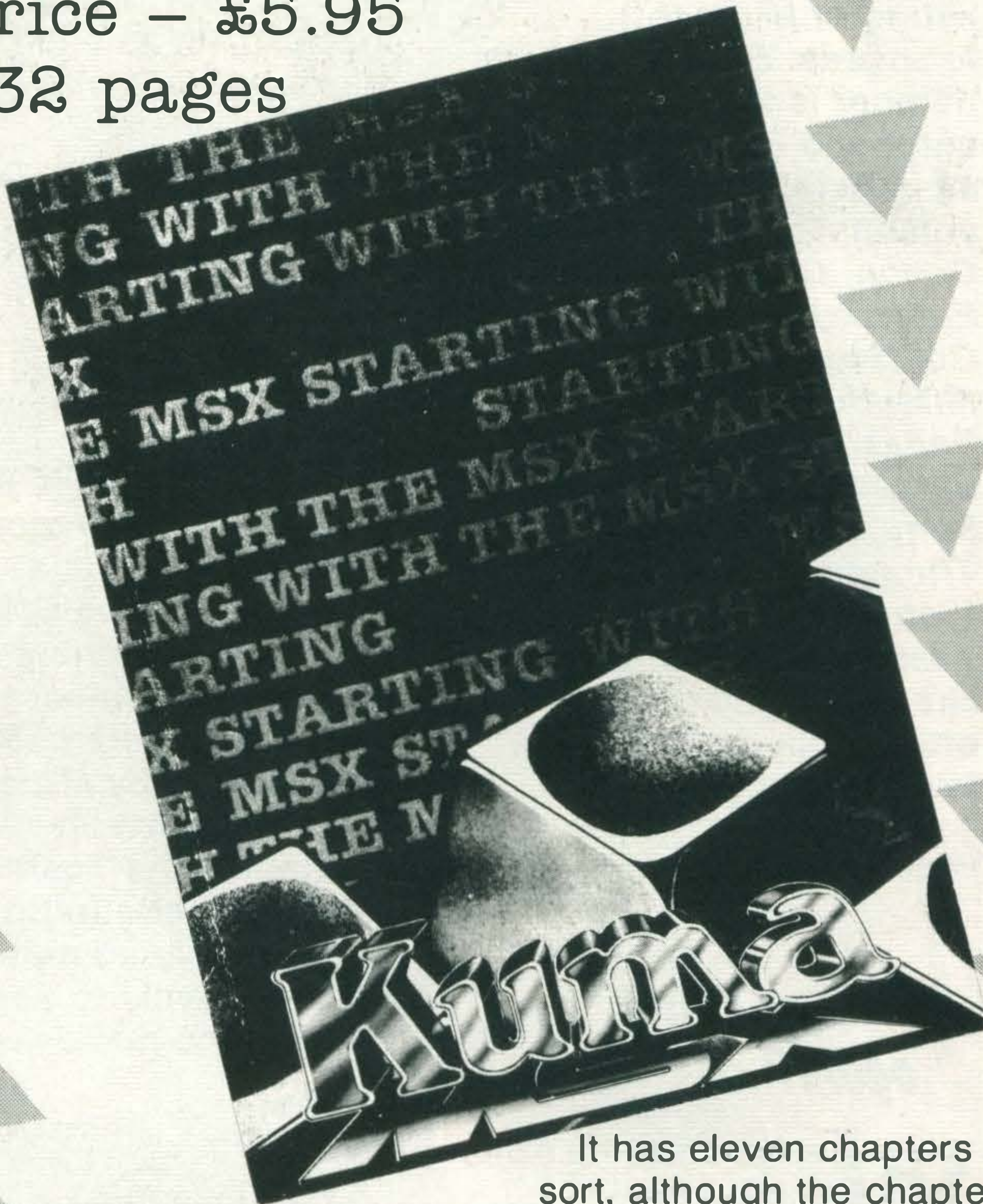
published by Kuma
Computers Ltd

ISBN 07457-004-7

Author - Tony Marriot

Price - £5.95

132 pages



If all MSX computers have a common standard, is the same true for books about them? Let's hope not, because unless they're a good deal better than this one, they'll be a pretty poor bunch.

Tony Marriott's 'Starting with the MSX' is very much a do-it-yourself production. It was written on a microcomputer running a word processing program and is typeset direct from the output of a daisy-wheel printer. There's nothing in the least wrong with this, but the photo-reduction of the printer output makes the letters in the book uncomfortably small and difficult to read and the appearance of 'words' such as 'REUprinty' (on page 23) betray the books origins. The careless use of a word processor 'search and replace' operation and poor proof reading are obviously to blame. Even these shortcomings could be forgiven if the book were cheap, but at £5.95 - it isn't.

It has eleven chapters of a sort, although the chapter headings aren't uniform in style and the heading for the final chapter was left out altogether! The author doesn't seem to want his readers to look at all of them, though, as his final sentence in chapter 4 is an unconditional GOTO command, sending the reader back to chapter 3!

Assuming that this 'suggestion' is ignored, the reader can get to much the best part of the book. This is the coverage of graphics given in two chapters towards the end. Here a good run down of the MSX commands for line graphics and sprites is given with example programs to demonstrate the creation of shapes, mobile graphics and animation. The programs themselves are repeated far more than is necessary. Pages 106 to 109, for example, contain no less than four separate, complete programs all of which are for designing a simple sprite and placing it on the screen.

The material here, as elsewhere in the book, cries

out for some illustrations to accompany it. Just a simple diagram would have made it so much easier to grasp the way that a sprite is designed, or the way that an animation procedure works. Alas, there are no illustrations at all.

Despite these shortcomings, the example programs do introduce MSX graphics and show off its capabilities pretty well. After delving quite deeply into graphics, it's disappointing to find that the MSX sound and music capabilities are dismissed in only four pages... right at the end of the book. In fact, we are told little more than how to convert very simple music notation so that it can be played by the computer.

It's best to say as little as possible about the chapters that precede the graphics. They contain little that hasn't been said already, and better, in many introductory books. The bits that specifically relate to MSX computers are really just what must appear in a manual. Manual replacements we may need ('though the Canon offering is pretty good), manual action replays we don't.

A catalogue of MSX error messages comes very early on. To start with a list of almost everything that could ever go wrong shows very little understanding of the psychology of introducing programming to beginners. The longest chapter in the book is again a catalogue, this time of the keywords of MSX BASIC. Most of them are included and a short program is presented to illustrate the use of each. Again the manufacturers manuals do this, and more. In any case, such a half-hearted approach doesn't provide a satisfactory introduction to programming at all.

So... a very disappointing book, saved from complete disaster only by the graphics section. If you really want a new idea for what to do with your computer, you could turn to page 81, where the running title reads 'Tarting with the MSX'. The mind boggles.

Rollcall

We've had so many requests for a complete listing of the number of Microsoft licences (how many? - Ed) ...oh, okay, we've had one request for a complete listing of Microsoft licences. So far, the total number is 22. Yes, it surprised us too. In alphabetical order, the companies are as follows; Canon, Casio, Dragon, Fujitsu, General-Paxon, GoldStar, Hitachi, Daewoo, Mitsubishi, Philips, Panasonic, Pioneer, Samsung, Sanyo, Sharp, Sony, Spectravideo, Thompson, Toshiba, Victor-JVC, Yamaha and Yashica-Kyocera. Looks like we're going to be pretty busy over the next few months...

Philips think again?

We have just received a plain brown envelope from our informer at the British section of the MSX Working Group. Exactly *why* were electronics giants Philips and Daewoo attending a meeting? We don't know but we think you should be told...

STOP PRESS

They didn't go... and they made no excuses!

MSXcess

If the number of books that have been published (or those scheduled to appear) is anything to go by, MSX is assured of success. First up, Kuma have just announced Starting Machine Code On The MSX (£7.95) which joins their previous two titles, Starting With The MSX (see review in this issue) and The MSX Red Book. Pheonix have The MSX Program Book which should be hot off the press

A load of Tosh

Toshiba are trying to make up for their hilariously misguided ad campaign (see West - Ed) which even company insiders have described as 'pathetic'. In an effort to maximise Christmas sales they are offering an extended three year parts and labour guarantee on all

HC-10's and a free software pack (in selected stores) consisting of the topically named 'Manic Miner', 'Hunchback' and the presumably over-18's-only, 'French Is Fun'. The HC-10 is now in the major high street chains and Toshiba reckon they'll shift 15,000 by the New Year.

Exit the Dragon?

Episode five in the ongoing Dragon collapse saga. They began work on a 64K MSX PC at the beginning of 1984 and a number of prototypes were definitely in existence by March. The Dragon reportedly resembles the Toshiba HX10 in configuration but has been styled quite conservatively to appeal more to the business user

than the games fanatic.

Dragon Data is, of course, now owned by the Spanish computer manufacturer Euro Hard and whilst the 'Dragon' MSX could conceivably form the basis of the next Dragon range, Euro are a notoriously cautious company and the fate of the design is now uncertain. Next month, episode six?



More Bitching

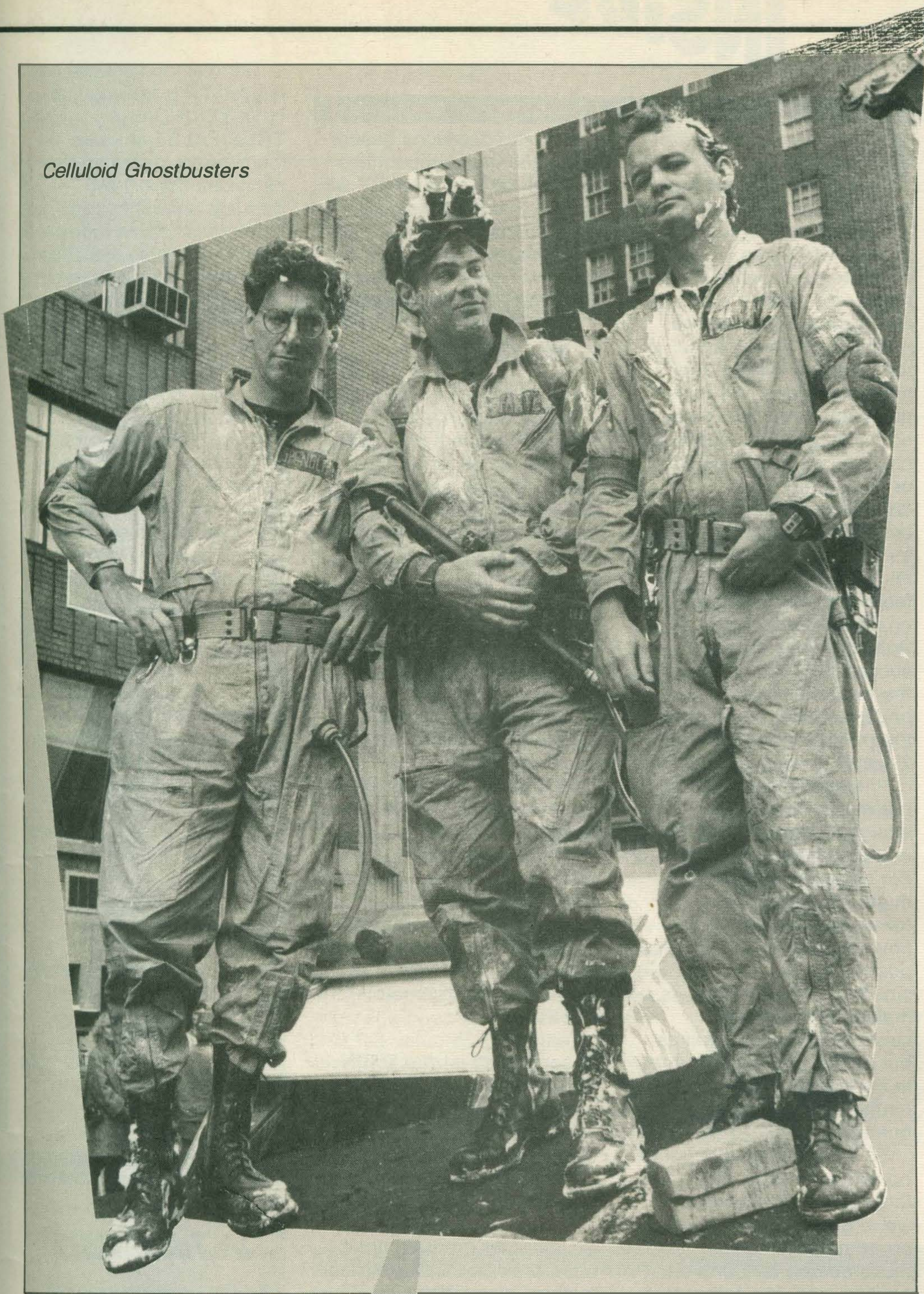
Commodore have been slugging MSX off again. "We don't consider it a significant threat", they say. Sad really - like lambs to the slaughter and all that. But just which spokesman for a major Japanese company said "Anyone who buys a Commodore needs their head examined"? Don't worry, Chris, we won't tell. For a nominal fee, of course.

as you read this. The author, Vince Apps, claims that one of the programs included, Pilot, is worth the cover price alone. We shall see. Meanwhile, two new books have also been released by Richmond based Melbourne House. These are The MSX Games Book (£5.95) by Andrew Lacy and The Complete MSX Programmers Guide, compiled by Toshiyuki Sato, Paul Mepstone and Isabella Muriel, which will retail at a cool £14.95. Well, they did say complete...

Commercial Break

Just a quick reminder that the second issue of our sister magazine MSX Tape Computing is now out with the usual mixture of reviews, news, programs and features. MSX Tape Computing is available at all good newsagents price £3.99 (where's the cheque, Martin? - Sycophantic Ed).

Celluloid Ghostbusters



Who's afraid of Ghosts?

Every software house in the world not called Activision. Scoop of the year must be the acquisition of the rights to develop and market Ghostbusters – the game, by Activision. The enormous success of

Ghostbusters – the movie already assured (we've seen it and it's great...the first movie to get the audience shouting and cheering since Raiders, and the special effects are brain twisting!), Activision's David Crane

(of Pitfall and Decathlon fame) has excelled himself in producing an animated adventurish game that closely follows the plot of the movie for around a tenner and, though we haven't personally manned the keyboard, it looks set to cream the opposition for Christmas. Nice touches include the Ray Parker Jr penned Ghostbusters theme tune – with displayed lyrics. Great! We look forward to grappling with a review copy for the next issue.

Three days

Computeraid Services, the independent maintenance organisation set up within Thorn EMI Information Technology, has announced an ambitious new gimmick promising to repair "any microcomputer" within three days of it arriving at any depot.

The service, according to general manager Maurice O'Brien, is a must for users who have their micros up and running all day, every day.

Based in Farnborough, CS specialises in third party maintenance of installed micro and minicomputer systems and peripherals. CS has workshops in London, Bristol, Belfast, Edinburgh, Harrogate, Newcastle, Milton Keynes, Manchester and Birmingham. For further details telephone (0252) 548888.

Back Up

Micro Dealer is backing up the November launch of its 64K MSX GoldStar micro in Britain with a new range of peripherals.

To be distributed under the brand name SHADO, the range will consist of the usual blank cassette tapes, cassette recorders, printers, floppy disks, joysticks and interfaces. Machines for which the peripherals are designed varies, but they will cover most popular home micros including, of course, MSX.

A little bird

Yes, your friend and ours, the little bird, told us that the Quick Disk (see EAST) low cost fast access data storage system is about to be launched in Britain. It's only a whisper, mind, but the same anonymous importer/distributor will also be handling the majority of Japanese MSX robot gear. Watch this space – No, *this* one.

MSXercise

In the first part of MSXercise we looked at some simple loops and graphics commands to draw pretty patterns on the screen. Of course, your MSX computer is capable of being much more than a glorified Spirograph. Perhaps one definition of 'intelligence' is the power to reason and make decisions. We make many decisions every day of our lives, such as 'shall I put on clean underwear today?' or 'shall I have rice crunchies or shreddibix for breakfast?'. Decisions such as these are often based on intuition or personal feelings/preferences and not on undisputable fact. Someone may argue successfully for, or against, the wearing of clean underwear but not against the proposition that... 2 and 2 are 4. Decisions based on mathematical propositions are much more straightforward and don't rely on personal emotions. For example, a decision might be made on the following proposition: 'If I have more than £1.75 in my pocket then I'll go to the cinema.' The decision-making process isn't controlled here by feelings but by the amount of money in the pocket - a mathematically testable quantity.

So what has all this got to do with your MSX micro? In this section of MSXercise we're going to be looking at programming the MSX to make decisions. Don't tell anyone else, but computers work by moving numbers around their innards - even the letters that you see on the screen are put there and remembered by number codes, so, your MSX can

only make decisions based on mathematical quantities (it's unlikely that an MSX will decide to colour the screen green because it's just had an unhappy love affair!). All MSX decisions are taken by comparing numeric values.

IF...THEN

In English we usually state a decision to be taken by saying **IF** something **THEN** something. Because MSX BASIC tries to get fairly close to English in its construction, the instruction format is the same. Type in the following program:

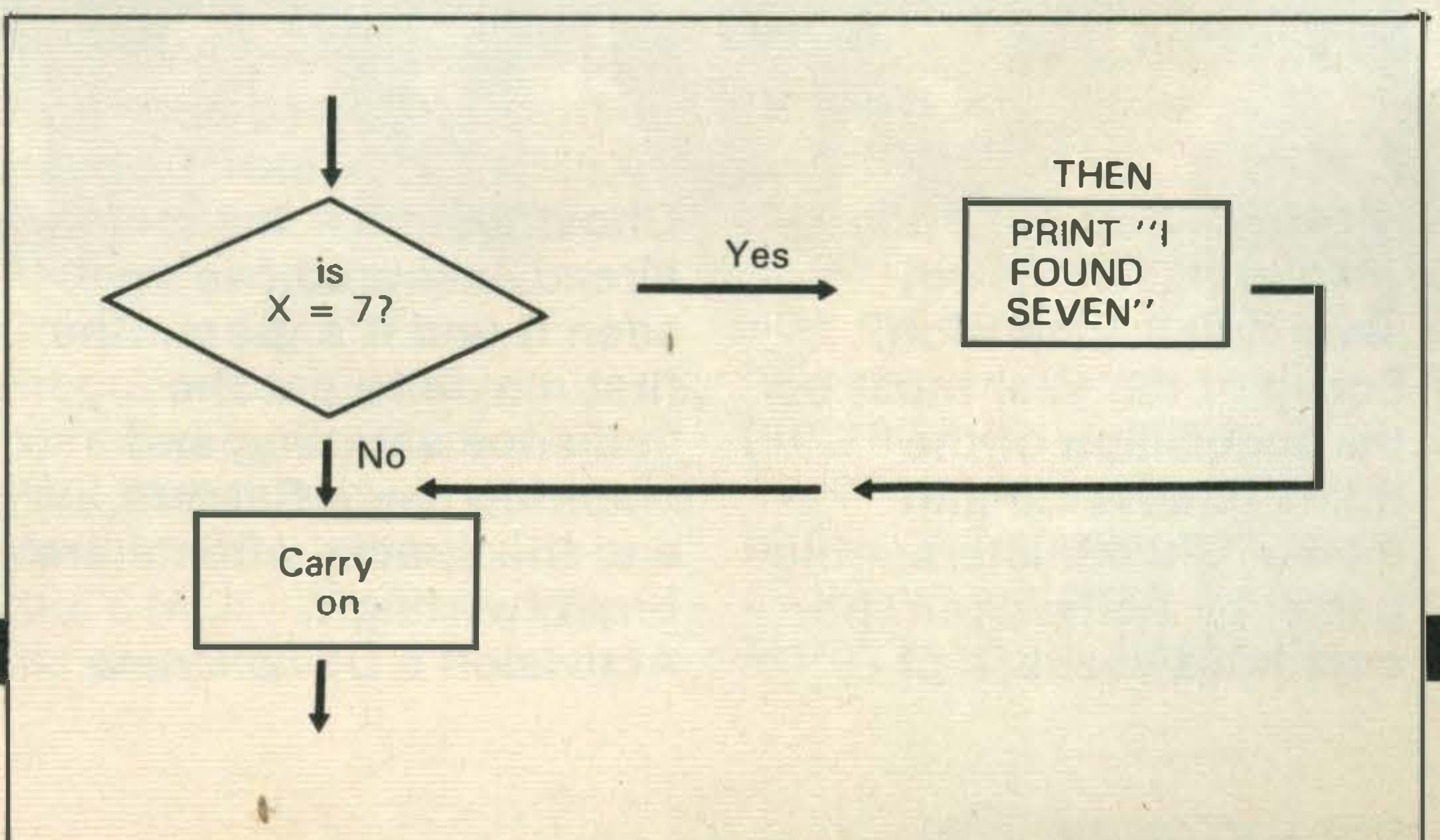
```
10 FOR X = 1 TO 20
20 IF X = 7 THEN PRINT "I FOUND SEVEN"
30 NEXT X
```

This program uses a simple **FOR...NEXT** loop to count up from 1 to 20. Each time through the loop, the value of the counter is tested to see if it's equal to 7. **IF** it is **THEN** the program **PRINTs** the words 'I FOUND SEVEN', before passing on to line 30. It's important to realise at this stage that the logic of an **IF...THEN** statement goes something like this:

IF something is *true* **THEN** do something before carrying on to the next line.

Otherwise, if the something is *false*, then just carry on to the next line.

Computer programmer's often draw out little diagrams to show how a decision works. The decision structure used in this program, 'IF X = 7 THEN PRINT a message, otherwise forget it' can be shown by this simple diagram:



The diamond shaped box is used for questions that have **YES/NO** or **TRUE/FALSE** answers (sometimes known as binary decisions as only two possible answers exist). The rectangular boxes represent actions or 'doing something'. You don't have to draw out these diagrams when you program but they can be useful sometimes if your program has to make a number of complex decisions.

Almost any instruction can be put after the **THEN** part of line 20. Here we have compared the value of X and the number 7 to see if they are mathematically equal to each other, but we could just

as easily use other comparisons than something being equal to something else. We could use:

Not Equal	<>
Less Than	<
Greater Than	>
Less Than or Equal	<=
Greater Than or Equal	>=

So, for example, we could replace line 20 in the first program by:

```
20 IF X<7 THEN PRINT "THE NUMBER IS LESS THAN SEVEN"
```

IF...THEN...ELSE

In the program example given, we always want to do the instruction on line 30 no matter what the value of X is, but there are times when you want to do one thing if a test is *true*, and something

Continuing our introduction to BASIC, Steve Colwill loops and flows

else if the test is *false*. Unlike some BASICs I could mention, MSX BASIC allows

you to do this very easily. Look at the following program:

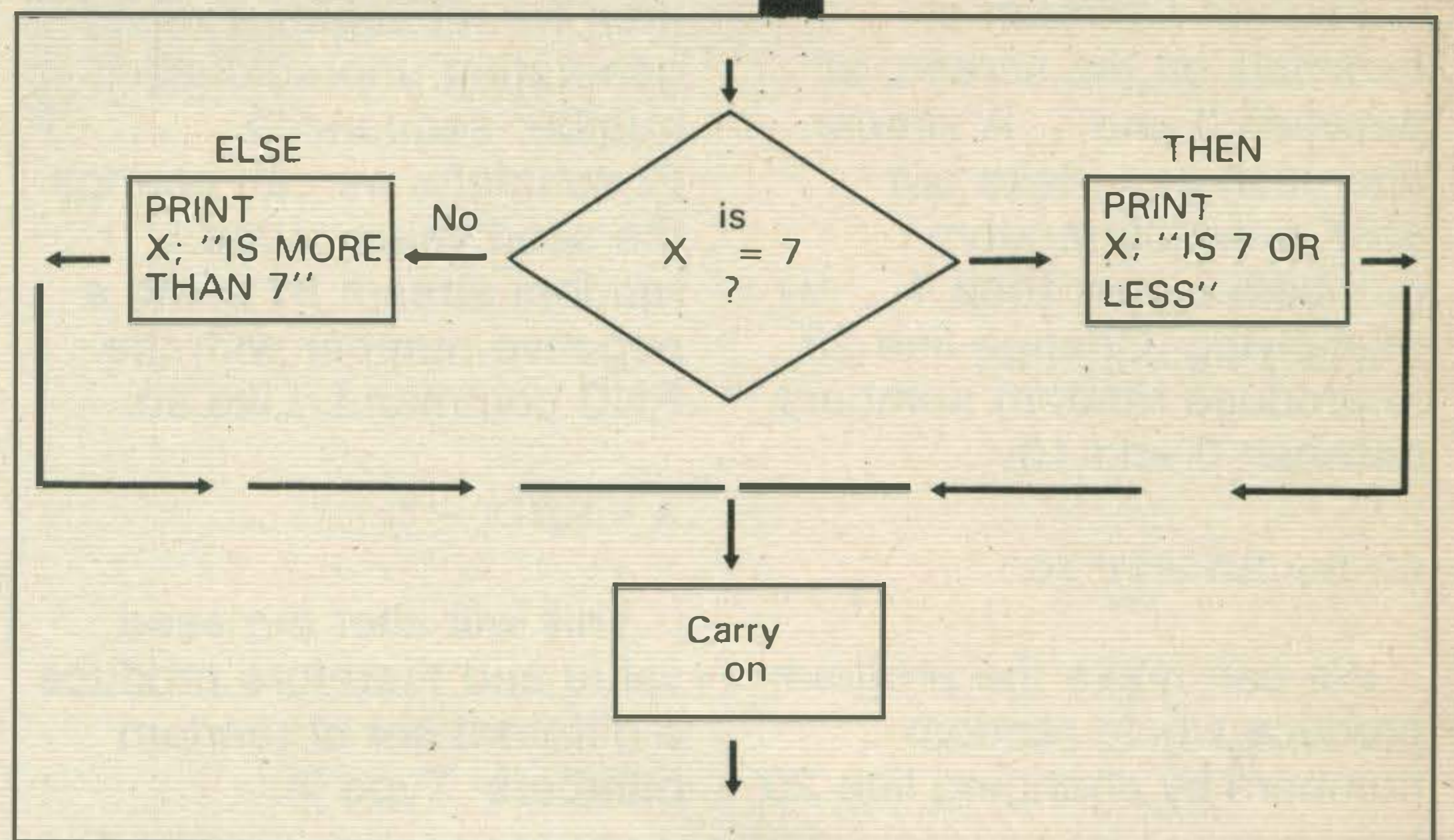
```
10 FOR X = 1 TO 20
20 IF X <= 7 THEN PRINT X; "IS 7 OR LESS"
   ELSE PRINT X; "IS MORE THAN 7"
30 NEXT X
```

Several things are different from the first program here. The test has changed from 'equal to' to 'less than or equal to' and we have added an ELSE part to our IF... THEN command. The instruction following the ELSE will only be done if X is *not* less than or equal to 7. Also, the last time we used the PRINT command, we used it to display a message in quotes ("). This time we still have a message in quotes but there is also a part that's not in quotes:

```
PRINT X; "IS 7 OR LESS"
```

This firstly PRINTs the *value* of X and then follows up with a worded message. If the X had been in quotes then the computer would have just PRINTed 'X' rather than its value. The semi-colon (;), separating X from the message in quotes, means that the value of X and the message will be PRINTed next to each other.

If we draw a diagram to show the decision structure here we can see the difference between IF...THEN and IF...THEN...ELSE



Getting the computer to work out which numbers are less than, equal to, or greater than 7 isn't staggeringly interesting so let's look at a different use of decision programming that uses the CIRCLE command we met last month. Just to remind you of how this command works:

```
CIRCLE (x,y),r,c
```

draws a circle *x,y*, of radius *r* and in a colour *c*. The colour codes were also given in last month's issue. We can design a simple program to draw a series of small green circles across the screen, switching to larger red circles when the *x* coordinate of the centre exceeds 100.

```
10 REM CIRCULAR DECISION MAKING
20 SCREEN 2
30 FOR X = 60 TO 140 STEP 5
40 IF X <= 100 THEN CIRCLE (X,100),50,3
   ELSE CIRCLE (X,100),75,8
50 NEXT X
60 GOTO 60
```

Guess My Number

Now that we've learned a little about decision-making, we can design a simple little BASIC game where the player tries to guess the number that the computer's thinking of. In addition to being able to make decisions, the computer must be able to choose

numbers at random and accept an input from the player via the keyboard. Let's look firstly at generating random numbers.

Random numbers are generated by the RND command. RND(1) will generate random numbers between 0 and 1. Try RUNning this simple program:

```
10 REM PRINT RANDOM NUMBERS
20 R = RND(1)
30 PRINT R
40 GOTO 20
```


You get a stream of decimals on the screen, all between 0 and 1. A simple alteration can make our MSX produce random numbers bigger than 1 ... by multiplying. Change line 20 to produce random numbers between 0 and 10:

```
20 R = RND(1)*10
```

We can make the program produce whole random numbers by changing line 20 to:

```
20 R = INT(RND(1)*10)
```

Run the program with this line in and a stream of whole numbers will appear. However, these numbers will only be from 0 to 9, but never 10. This is because of the way RND and INT work. RND(1) produces a random number between 0 and 1, but not including 1, so the largest number it could produce would be 0.99999... If we multiply this by 10 then the largest number would be 9.9999... The INT command converts decimal numbers to whole numbers, but it doesn't round up to the nearest whole number, it just quietly forgets about the decimal part, so INT(9.99999...) is 9, not 10. If we wanted whole numbers between 1 and 10 we could use this command:

```
20 R = INT(RND)*10) + 1
```

Try running the whole number version of the program several times, making a note of the first ten numbers that appear. (You can stop the program by pressing CTRL and STOP together.) You should notice that although the numbers are randomly selected, they are the same numbers each time the program is run. They are not true random numbers and so are called 'pseudo-random' numbers. The stream of numbers is randomly generated from the first number in the stream. This first number is known as the 'seed'. Unfortunately, each time the program is RUN, the same seed number is used. If we want to devise a game where the player has no idea what the number to be guessed is,

then we must find a way of generating unpredictable number sequences.

Fortunately, we can change the seed value of the random stream by using a negative number with the RND command. Like so:

```
A = RND(-7)
```

This will alter the seed value and therefore produce a different set of random numbers. Type in:

```
15 A = RND(-7)
```

After running the program several times you'll see that even though a different set of random numbers has been generated, it's still the same each time the program is RUN. We've only half solved the problem of producing really unpredictable numbers. What we need is a way of selecting a random seed that will be different each time the program is RUN. The best way to do this is to use a special variable called TIME, which starts counting when your MSX is switched on. It is almost certain that TIME will have a different value each time the program

is RUN. Try changing line 15 to:

```
15 A = RND(-TIME)
```

RUN this new program a few times to convince yourself that your MSX does, in fact, produce a different set of random numbers each time.

Communicating

It's very easy to input values to a program. We use the INPUT command (clever stuff, BASIC!) like so:

```
INPUT A
```

This waits for you to type in a number and press RETURN before continuing with the rest of the program. The variable A takes on the value of whatever number you typed in. We can also include a little message to tell the user what sort of thing he/she/it is supposed to type in. For example:

```
INPUT"ENTER A NUMBER BETWEEN 0 AND 9";A
```

Dead easy isn't it? So, let's get on with a 'guess my number' program.

```
10 REM GUESS MY NUMBER
20 CLS
30 A = RND(-TIME)
40 R = INT(RND(1)*10)
50 INPUT"ENTER YOUR GUESS 0-9";G
60 IF R<>G THEN PRINT"WRONG":GOTO50
70 :
80 CLS
90 PRINTR;"IS CORRECT, TRY ANOTHER"
100 GOTO 40
```

Line 20 CLS clears the screen

Line 30 randomly selects the seed value

Line 40 chooses a random number

Line 50 asks for the player to enter a number between 0 and 9

Line 60 tests to see if the guess is correct or not. If R is not equal to G then the message "WRONG" is printed and the program goes to line 50, where the player is asked to make another guess at the same number. Notice that two separate instructions follow the THEN. This is allowed as long as they are separated by a colon (:).

Line 90 If the program didn't go back to line 50 earlier, then the guess must have been correct so an appropriate message is printed.

Line 100 the program is sent back to line 40 where a new random number will be

MSXercise

selected for the player to guess.

This simple program has several 'bad' things about it. Firstly, the only way of getting out of the program is to break out of it using CTRL/STOP. Secondly, the program doesn't check to see if the INPUT made at line 60 is sensible or not. These two faults can be rectified by checking the INPUT. We can make the rule that the program will END if the number input is negative. Add these two lines to your program:

```
52 IFG<0 THEN END
54 IFG>9 THEN 50
```

Keeping Count

To make the program more interesting we could keep a count of the total number of guesses and the number of correct guesses. Keeping a count is fairly straightforward. The instruction:

```
C=C+1
```

adds one to the value of C each time the instruction is met. Whenever you RUN an MSX program all variables are assumed to be zero until they are set, so a counter variable such as C is automatically set to zero at the beginning, when the program is RUN. By using NG for the number of guesses and NC for the number of correct guesses we can keep count of these two quantities. Type in this modified version of GUESS MY NUMBER:

```
10 REM GUESS MY NUMBER MARK 2
20 CLS
30 A=RND(-TIME)
40 R=INT(RND(1)*10)
50 INPUT"ENTER NUMBER 0-9 OR NEG TO END";G
60 IF G<0 THEN 200
70 IF G>9 THEN 50
80 NG=NG+1: REM GUESSES COUNT
90 IF R<>G THEN PRINT"WRONG":GOTO50
100 :
110 CLS
120 PRINT"CORRECT, TRY ANOTHER"
130 NC=NC+1: REM CORRECT GUESSES COUNT
140 GOTO 40
150:
200 REM END REPORT
210 CLS
220 PRINT"NUMBER OF GUESSES";NG
230 PRINT"NUMBER CORRECT";NC
240 PRINT"YOUR RATING:"
250 RA=NG/NC: REM CALCULTE GUESSES RATIO
260 IF RA<5 THEN PRINT"EXPERT":END
270 IF RA<7 THEN PRINT"OK":END
280 IF RA<10 THEN PRINT"MORE PRACTICE NEEDED":END
290 PRINT"WALLY GRADE 7":END
```

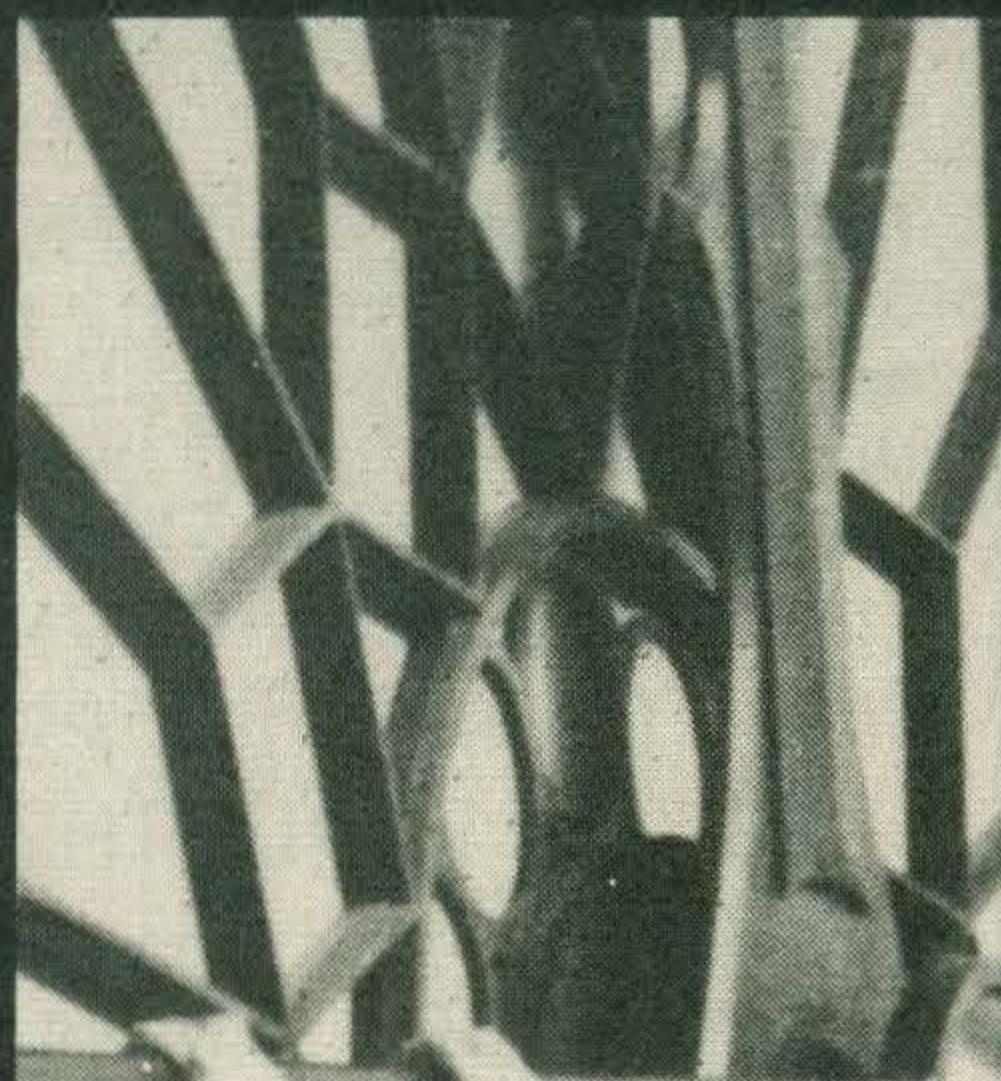
```
10 REM DOODLE BUG
20 SCREEN 2
30 A=RND(-TIME)
40 OX=100
50 OY=100
60 DX=INT(RND(1)*10)
70 DY=INT(RND(1)*10)
80 CL=INT(RND(1)*10)
90 DR=INT(RND(1)*2)
100 IF DR=0 THEN NX=OX+DX ELSE NX=OX-DX
110 DR=INT(RND(1)*2)
120 IF DR=0 THEN NY=OY+DY ELSE NY=OY-DY
130 LINE(OX,OY)-(NX,NY),CL
140 OX=NX
150 OY=NY
160 GOTO 60
```

Doodle Bug

To round off this month's MSXercise, here is a short doodle program that uses some of the commands and techniques we've covered so far. Random lines are drawn in random colours on the high resolution screen (screen 2). See if you can figure out how it works. When you think you've cracked it, why not try a random circle pattern program?

Martin Edwards being busy with MSX Tape Computing, Jeremy Vine takes over the hot seat.

The first question I received in this first month's mailbag concerned the TIME command. P. Evans of Southgate wondered whether this means MSX machines have a real-time clock, and if so, how he can write a program to tell the time. Unfortunately, the answer is ... not really, although it can be used as a rough timing device. The reason for this is that most I/O events, and also the operation of BASIC, will effect the accuracy of the internal counter as the processor concentrates on more important operations. To write your own clock/watch program you'll need to know that the



internal 16-bit counter updates itself 50 times a second. Therefore 50 units equals one second. The system clock is reset when the machine is turned on or by typing the command:

```
TIME = 0
```

The counter will return to 0 when it reaches the maximum value of 65535, which is approximately 21.8 minutes.

Printers

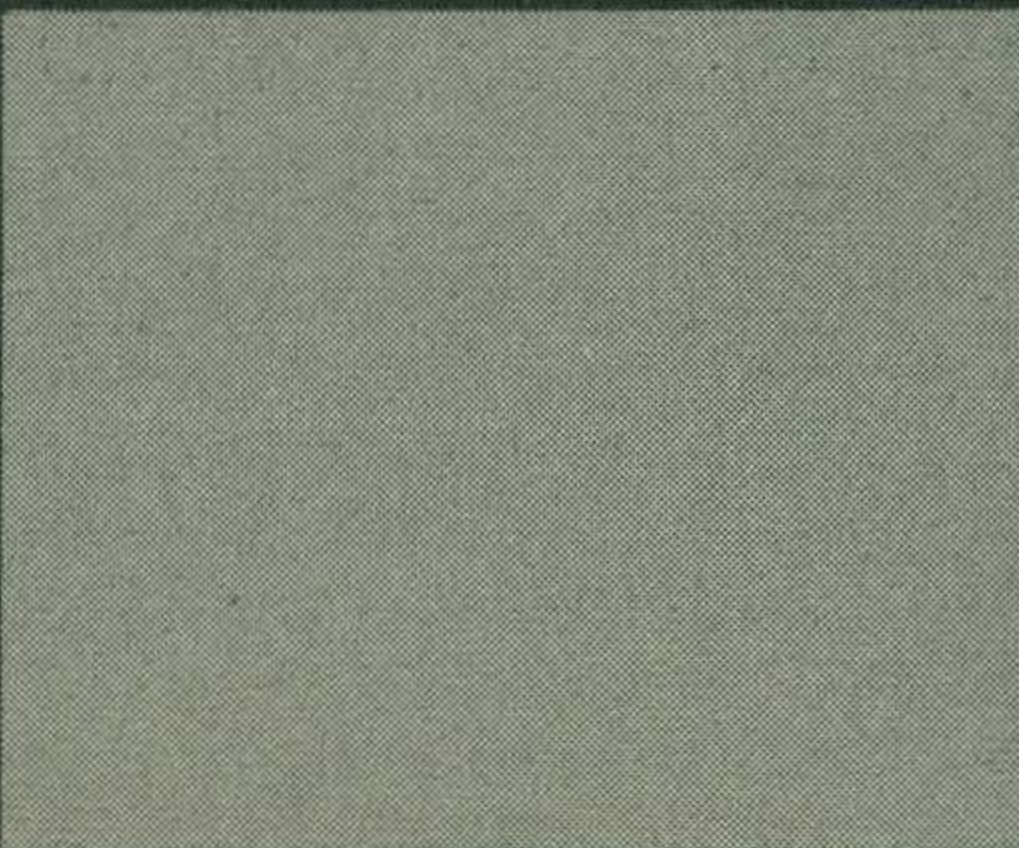
And now for something completely different! Having purchased your MSX micro you'll probably consider at

some point the purchase of extra add-ons or peripherals. The most likely first investment will be a printer. Once more the range of options open to you is vast and to start you off I'm going to explain briefly the aspects which have some of you baffled. Printers vary considerably in price and quality. In particular you will hear four main phrases when talking about printers: Dot matrix, Daisywheel, Plotters and Thermal printers.

The dot matrix printers create their printed characters by striking the shape of a letter or number through a set of pins (in a matrix) onto an inked ribbon and then the paper. The

quality of these images depends on the size of the matrix head. Generally where the matrix head is larger ie 12 x 9 the quality is far better. Now this is fine for listings and graphic dumps but if you intend to use your micro in business and require letter quality print then you will need to consider the purchase of a daisywheel printer. The reason the quality is better is that the characters are fixed, like those on the typing heads of a typewriter, and these are fixed onto a spinning wheel.

Thermal printers need special paper as the



characters are imprinted by means of heat. The quality is often poor but the price can be tempting. One thing to bear in mind is that the cost of the paper may work against you in the long run. Finally for those who require diagrams and charts to be drawn with a pen, a plotter will be needed. These can be very expensive and would most likely be used by those with such professional requirements.

Finally when weighing up the advantages of one printer against another, besides the price, consider the use you intend to make of your printer. Is speed or quality the most important. If it's the first you will probably go for a dot-matrix – the latter – a daisywheel.

Connecting a printer

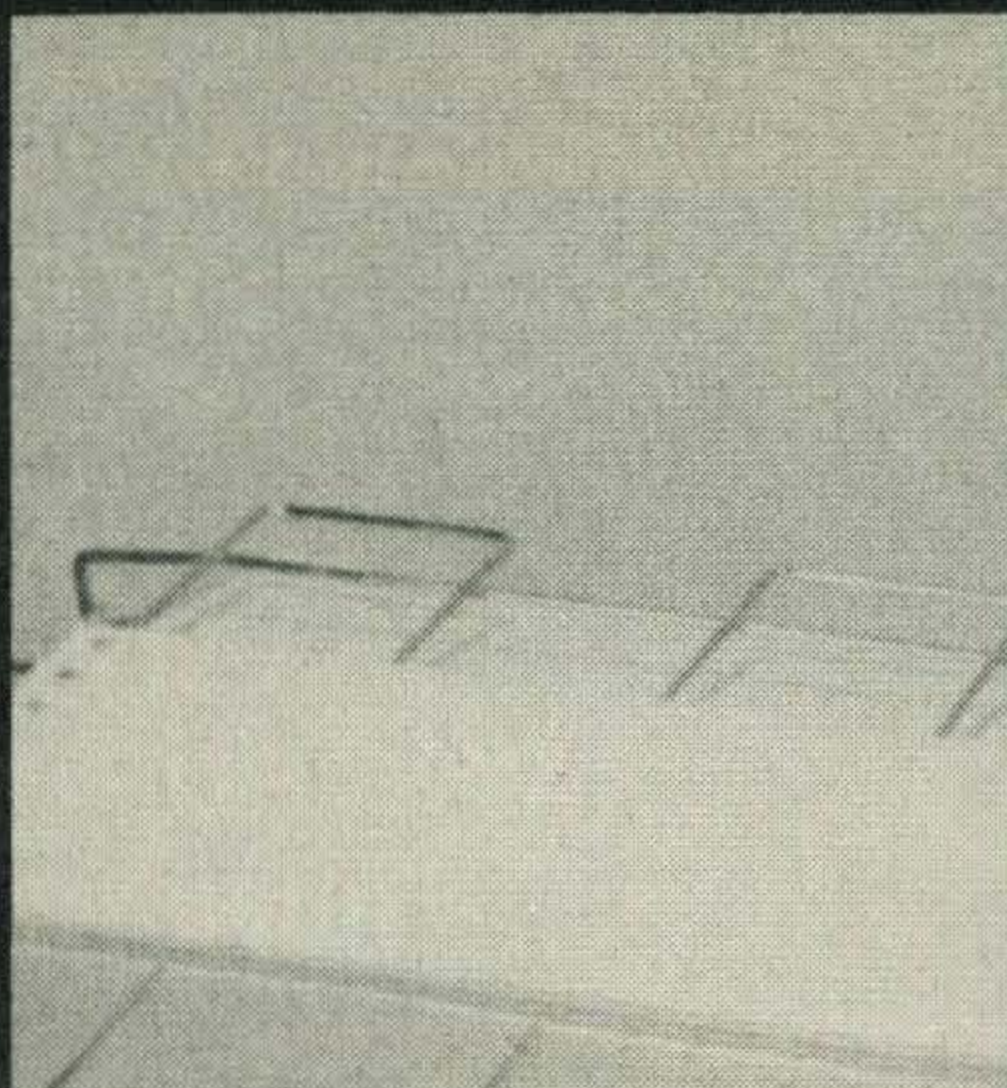
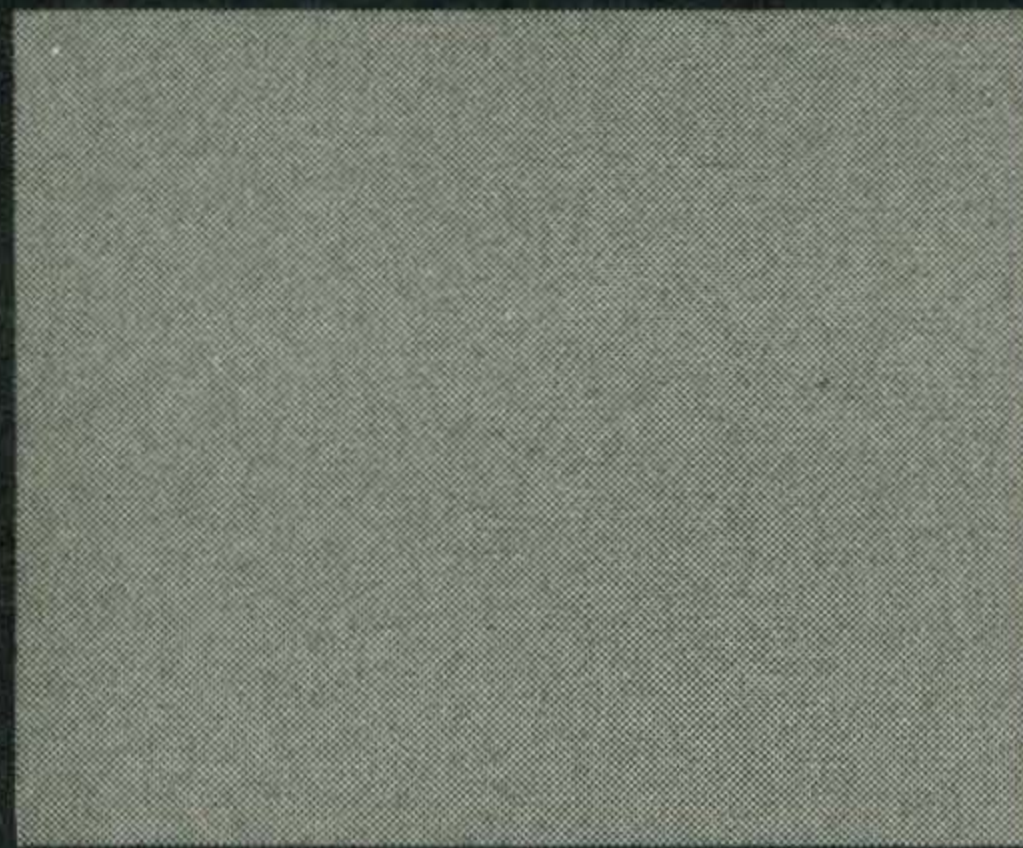
Many letters have been received requesting details of how to make up connecting leads between

pin 16 on the 36 way printer plug. If your dealer tells you he can't get the 14 pin connectors tell him he can order them from Farnell's of Leeds. Remember an MSX micro has 256 characters and only MSX printers will

print all of them. Other printers will be fine for text and figures.

And that concludes this month's First Aid. In future issues this page will be used as a forum not only for your questions, but your own

hints and tips on any aspect of MSX machines, from software to hardware. So don't be bashful. Write in with your programming hints, discoveries, questions or whatever you want to say. This is your page!



an MSX micro and printers with the appropriate Centronics type interfaces.

Figure 1 shows the 14 pin socket which is fitted to all MSX micros. This output is a standard 8 bit parallel format and handshaking is via the BUSY and STROBE signals. Most printers, like the Epson, have a 36 way connector (figure 2) and it is fairly easy to make up a connecting lead which will allow your MSX to operate with a standard Centronics type printer. The interconnections are shown in figure 3. Most are simply one for one but note that the connection from pin 14 at the MSX micro end goes to

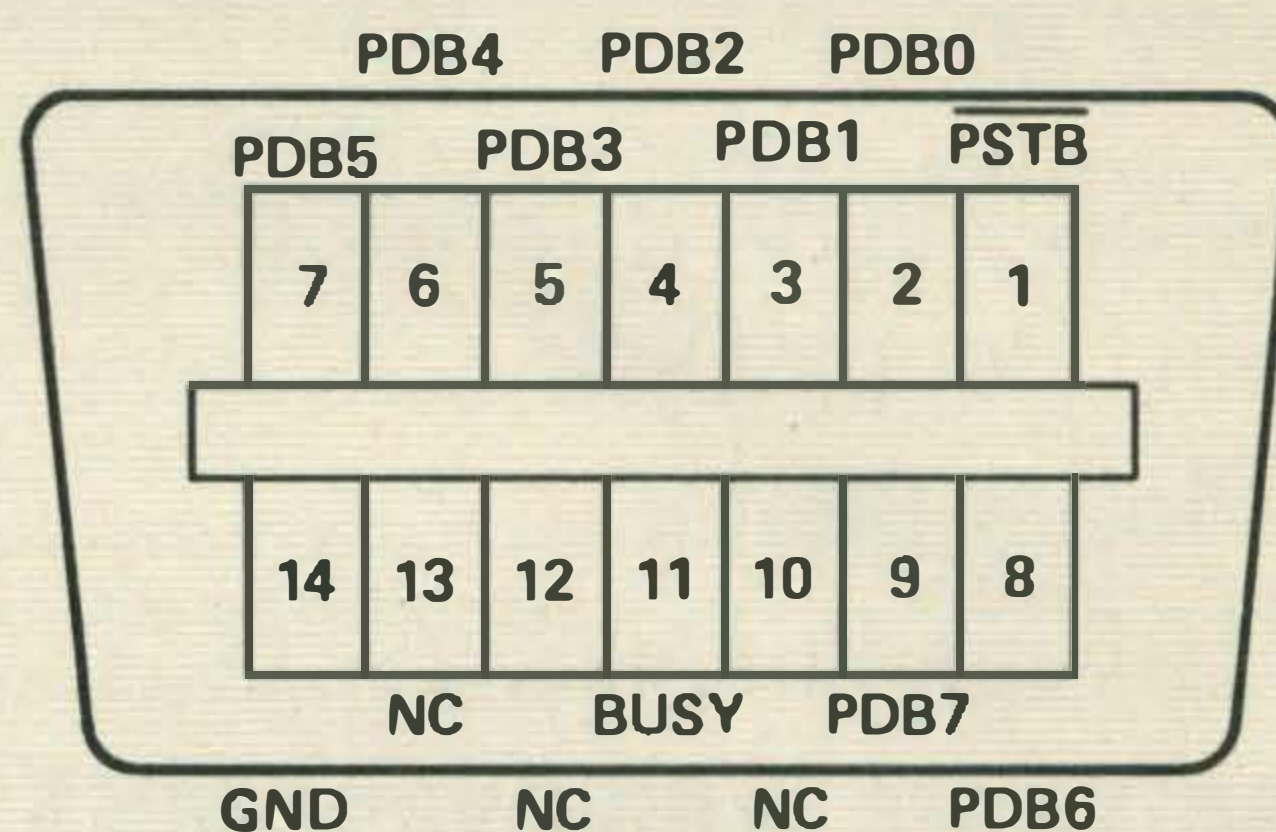


Figure 1 – MSX Micro

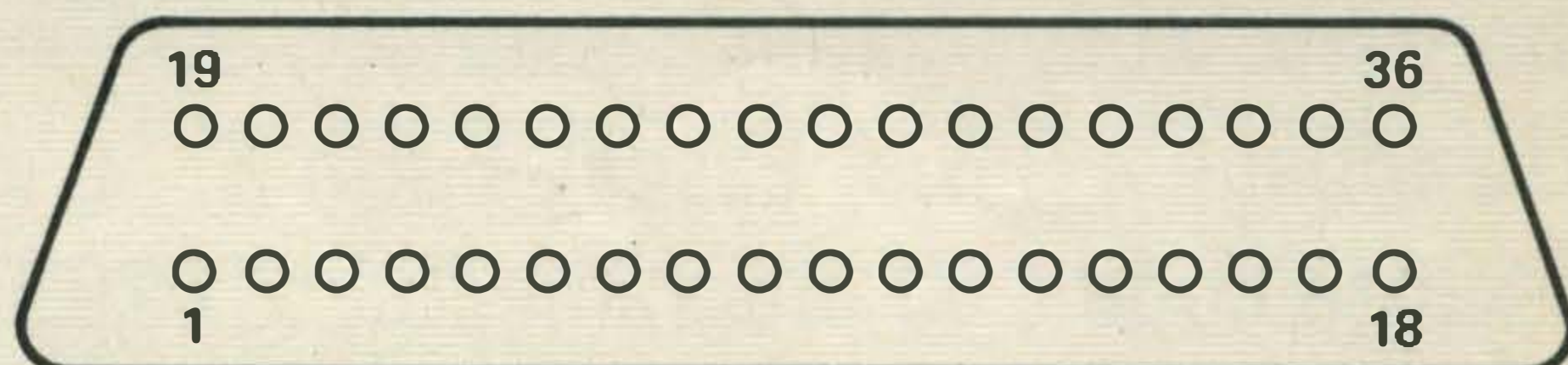


Figure 2 – Printer with Centronics 36-way connector

PRINTER CABLE FOR MSX TO CENTRONICS (EPSON etc)

Figure 3

MSX 14 PIN AMPHENOL

PIN 1 PSTB.....
 PIN 2 PDB 0
 PIN 3 PDB 1
 PIN 4 PDB 2
 PIN 5 PDB 3
 PIN 6 PDB 4
 PIN 7 PDB 5
 PIN 8 PDB 6
 PIN 9 PDB 7
 PIN 10 Not connected
 PIN 11 BUSY.....
 PIN 12 Not connected
 PIN 13 Not connected
 PIN 14 GND.....

EPSON 36 WAY (CENTRONICS, PAR)

PIN 1 DATA STROBE
 PIN 2 DATA 1
 PIN 3 DATA 2
 PIN 4 DATA 3
 PIN 5 DATA 4
 PIN 6 DATA 5
 PIN 7 DATA 6
 PIN 8 DATA 7
 PIN 9 DATA 8
 PIN 11 BUSY
 PIN 16 GND

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DISCOVERING MSX-DOS

Last month we looked at MSX Disk BASIC, which is the level at which most users will get into disk handling, but eventually you'll be able to get hold of MSX-DOS, which is a much more powerful, much more professional operating system – very similar to MS-DOS, as implemented on the IBM PC and similar monsters of the business computer world.

It's not available yet awhile, and I can't get any prediction of when it will be, nor even of any price – but I've been able to get hold of a preproduction disk to check out the way it differs from its big brother.

Commands

The first thing I noticed was that the commands available aren't so comprehensive. For a start, the following commands:

BASIC	– which boots Disk BASIC from within MSX-DOS (the reverse command is CALL SYSTEM, to get out of BASIC and back to MSX-DOS)
COPY	– to copy individual files (if you're using just one disk drive, the copy will have to have a different name from the original)
DATE	– to display or change the date
DEL	– to delete files (equivalent of Disk Basic KILL command)
DIR	– to display disk directory (equivalent of Disk BASIC FILES command)
FORMAT	– to format a new disk or re-format a used disk, erasing all stored files
MODE	– to set screen width
REN	– to rename a disk file
TIME	– to display or change the time
TYPE	– to display the contents of a file
PAUSE	– to pause execution of a batch file, with or without comments
REM	– to display comments during execution of a batch file

There are some ways in which these commands differ from those familiar to users of MS-DOS.

COPY can't be used on one drive unless, as I say, it

is copied with a different name. Under MS-DOS, the command:

```
COPY A: = A:*.*
```

will prompt you to change disks back and forth – a laborious process, but it does make single-drive **COPY**ing of a system disk easier.

FORMAT carries no parameters, so it's impossible to put the system on to a newly-formatted disk with the **FORMAT/S** command.

MODE is the MSX-DOS equivalent of MSX Basic's **WIDTH**, which allows the screen to be configured to any width between 1 and 40 columns wide. Yes, you heard me: it's possible to configure the screen so that it is only one column wide, and each character is printed to the screen one under another!

MS-DOS and MSX-DOS can both make use of what are known as **batch files**, which are actually a series of instructions to **LOAD** or **COPY** files, display the date or time, and generally make the tea and get you up in the morning, one after the other – with one disk tied behind its back!

The most usual use of a batch file – recognisable by its three-letter descriptor **“.BAT”** after the filename – is in the format **AUTOEXEC.BAT**, which is a file that executes as soon as the disk system is booted.

An **AUTOEXEC** file can display your own specific logo, perform certain housekeeping tasks, and **LOAD** the program you're most likely to be using all day. For instance, you might have a word processor or a database on a disk along with the MSX-DOS system and instead of having to type stuff like **LOAD** and **RUN**, if you turn the system on with that particular disk in the drive, it'll be up and running before you've had time to stir the sugar in your Coffeemate.

Unfortunately, the MSX-DOS system disk I borrowed didn't have any way of copying files on the single drive and, more seriously, didn't have any kind of editor, like **EDLIN**, for producing an **AUTOEXEC.BAT** bootable file.

I think this is probably a temporary hitch, since the Xerox'd documentation I was loaned with the system disk refers to **AUTOEXEC.BAT**, which they'd hardly do if there wasn't going to be any way of writing the thing in the first place – now would they?

You can produce batch files with most word processors running under MS-DOS, and I suppose the same will be true of MSX-DOS WP programs, but there aren't any that are disk-based, as yet, though I have high hopes of Computermates' Word Processor cartridge, which produces WordStar-

All normal command functions seem to work with this Mode, which performs a screen-clear when it's activated.

Batch files

PAUSE and **REM** work exactly the way they do in MS-DOS (and the second is different from its use in BASIC) so it's worth emphasising them.

Part two – a sneak peek at the innards of MSX-DOS with the omnipresent Karl Dallas.

compatible files. And you can write batch files with WordStar.

Back to **PAUSE** and **REM**. There may be times in the execution of a batch file when you want to tell the user what's going on. There's nothing more frustrating, I find, than turning on a computer and nothing appears on the screen while various mysterious whirrings and clicks come from inside the drive/s. So does everyone else, apparently, which is why **REMs** were born.

A batch file could therefore say something like:

```
REM Please check that you have put a system disk in Drive A
REM and that the word processing disk is in Drive B
REM If all OK, press any key except CTRL + C
PAUSE
B: WORD PROCESSOR
```

This would display the words after the **REMs**, and would wait after the **PAUSE** for a key to be pressed. (In this, it's similar to the

```
GET A$:IF A$ = "" GOTO same linenumber
```

routine, or the **INKEY\$** function.

PAUSE can also have a prompt, making a previous **REM** unnecessary, thus:

```
PAUSE Press any key if system and WP disks are in drives
```

DIR and TYPE

TYPE is another interesting command. It allows you to look at *any* file whatsoever, including the system file. If you type in:

```
TYPE COMMAND.COM
```

you'll be able to see the instructions which the machine executes when it boots MSX-DOS – but much good may it do you, since it's incomprehensible garbage as far as we're concerned.

TYPE doesn't allow you to

modify what you see. You'd need **EDLIN** (again) for that.

DIR performs a directory call on the disk in the drive. Since this may be rather a lot of stuff that goes skidding off the top of the screen, the command **DIR/P** will pause it after each screenful, with a prompt to press any key. It tells you at the end how many files there are.

You can be selective in the **DIR** command, with the use of the familiar "*" and "?" wildcards.

DIR *.COM gives you a directory of all the command files on the disk, likewise **DIR *.BAS**, which will list those in BASIC. Often, you

may have a series of files that work together, for instance **WDPRO.COM** might be a word-processing program and **WDPRO.TXT** could hold the text data. Then the query **DIR WDPRO.*** will list them both.

DIR /W displays only file names, ignoring how many blocks there are and other fascinating but possibly unnecessary stuff.

The Upshot

Frankly, when disk software begins to come on

to the market, I expect a lot of it will carry MSX-DOS system software to enable it to run – but in a manner that's completely transparent to the user... if you'll pardon the expression.

Most people won't need to buy MSX-DOS on its own, though it will come on to the market eventually, at a price that's yet to be announced. (Don't try ringing Microsoft, because they're not going to sell it themselves. They're leaving it to OEM manufacturers.)

Also, I don't expect Digital Research will leave things entirely to Microsoft. There's not a great deal of professional love lost between Digital (who market CP/M) and Microsoft (whose MS-DOS and MSX-DOS are direct competitors with CP/M). If MSX-DOS is as successful in penetrating the market as I anticipate, you can expect MSX CP/M to be a certainty soon after. Then we'll have a whole lot of other commands, **PIP**, **SUBMIT** and so on, to learn (What! – Censorship Ed). But we'll talk about them in more detail when the launch is imminent.

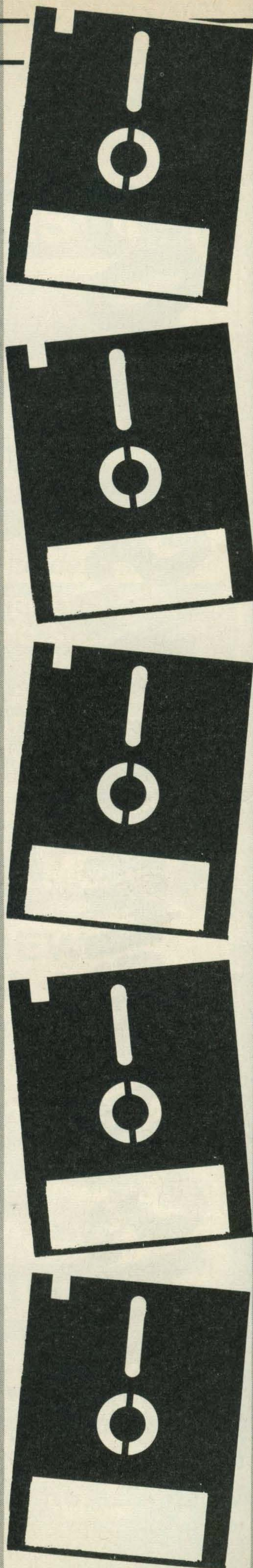
Incidentally, I discovered one further gap in the famed compatibility of MSX. You can run a Hitachi 3in disk drive on any MSX machine, including Sony's Hit-Bit. And you can run Sony's 3½in disk drive on any MSX machine, including Hitachi's.

What you don't appear to be able to do is to "daisychain" a Hitachi 3in drive on to a Sony 3½in drive and run them in tandem.

I know, 'cos I tried it. The system wouldn't boot MSX-DOS from the Sony, and it couldn't do anything to the Hitachi disks under Disk BASIC, though it made the drive whir.

Strange.

**Many thanks to Mike Margolis of Sony for lending me an MSX-DOS system disk and for helpful advice in preparing this article.*



INSIDE

MSX music is simple. Jeremy Vine warbles and hums his way through the commands.

SOUND ADVICE

Our beloved editor has been known to whistle the odd tune, much to the detriment of my eardrums. With this in mind I felt compelled to find an alternative form of office 'entertainment' and the MSX micro provided the solution. One of the outstanding features of the MSX range is its sound generation facilities and in this, the first of a series of articles on the subject, I'll be introducing you to the BASIC commands responsible. Next month I'll look at the sound chip in more detail and how to access the hardware of the sound generator - the General Instrument AY-3-8910.

First of all, what is sound? Now, this may seem a very simple question but sound has many complex properties, some of which I'll leave, till the next article. For the moment, I'll consider the simplest aspects which form the building blocks of sound production. Imagine a sound. It doesn't matter what it is, it can be a loud bang or a soft beep. This sound will be made up of three main elements: **pitch**, **amplitude** and **duration**. OK, so what does all that mean?

The pitch of a note is very simply whether a sound is high or low. To put it another way, pitch refers to the frequency of a sound (the number of times a waveform vibrates per second). As human beings we can only hear a certain range of sounds, this range being limited to a set of frequencies roughly between 20 to 20,000 Hertz (Hertz-

cycles per second). A well know illustration of this limitation is the dog whistle. Because dogs can hear at a higher frequency than humans, they're able to detect the whistle even though we can't hear it ourselves. So just because we can't hear a sound doesn't mean it's non-existent.

In the context of this article, **pitch** will be referring to frequency in terms of musical scales, like those of the high and low notes of a piano keyboard. These are frequencies at fixed regular intervals.

Amplitude is the volume of a noise or sound. The level of sound can be adjusted by you, from a software command, telling the micro whether you want sound loud or soft. Now this may seem to you to be the end of the story. But things are never that simple. Different amplitudes can be hidden away within sounds and may not be immediately obvious to the listener. These amplitude changes are generally termed - **Attack, Decay, Sustain and Release (ADSR)**, but more of these next month.

Finally, I mentioned the **duration** of a sound. No prizes for guessing that this refers to the length of time a note is played. Time is crucial in the production of music - without it we wouldn't enjoy the variety of rhythms that exist.

Now the introductions are over we can get down to the serious business of creating music. With your MSX micro it's a sheer delight. Whereas other machines make you

type in a host of unfriendly numbers to generate a note, MSX BASIC allows us to refer to the note by name. I will assume that you are acquainted with the convention of naming musical notes, if not I suggest a quick look at the first few pages of a rudimentary music theory book (it's really not that difficult. Honest!). Just to start you off, the range of available notes is:

C C# /Db D D# /Eb E F
F# /Gb G G# /Ab A A# /Bb B

In western music there exists a range of 12 notes, each being separated by a **semitone**. In general, the gap between whole notes (A, B etc) is a tone. The indication of whether a note goes up a semitone or down is usually shown by either a **sharp (#)** or a **flat (b)** respectively. The exceptions (there are *always* exceptions) are the intervals between B & C and E & F which are **semitones**. The notes above show the 12 semitones where, for example, C# and Db are the same note. A **scale** is made up of 8 notes in the order of: **Tone, Tone, SemiTone, Tone, Tone, Tone, SemiTone**. All **major** scales follow this series of notes. The classic scale example is the white notes on a piano which, when played in sequence, give the scale of 'C':

T T ST T T T ST
C D E F G A B C

INSIDE

This is the root octave (8 notes – obvious innit?). Now you see why B/C and E/F have semitone intervals between them. All other major scales follow the same pattern, so, an octave in the key of F would be:

T T ST T T T ST
F G A B \flat C D E F

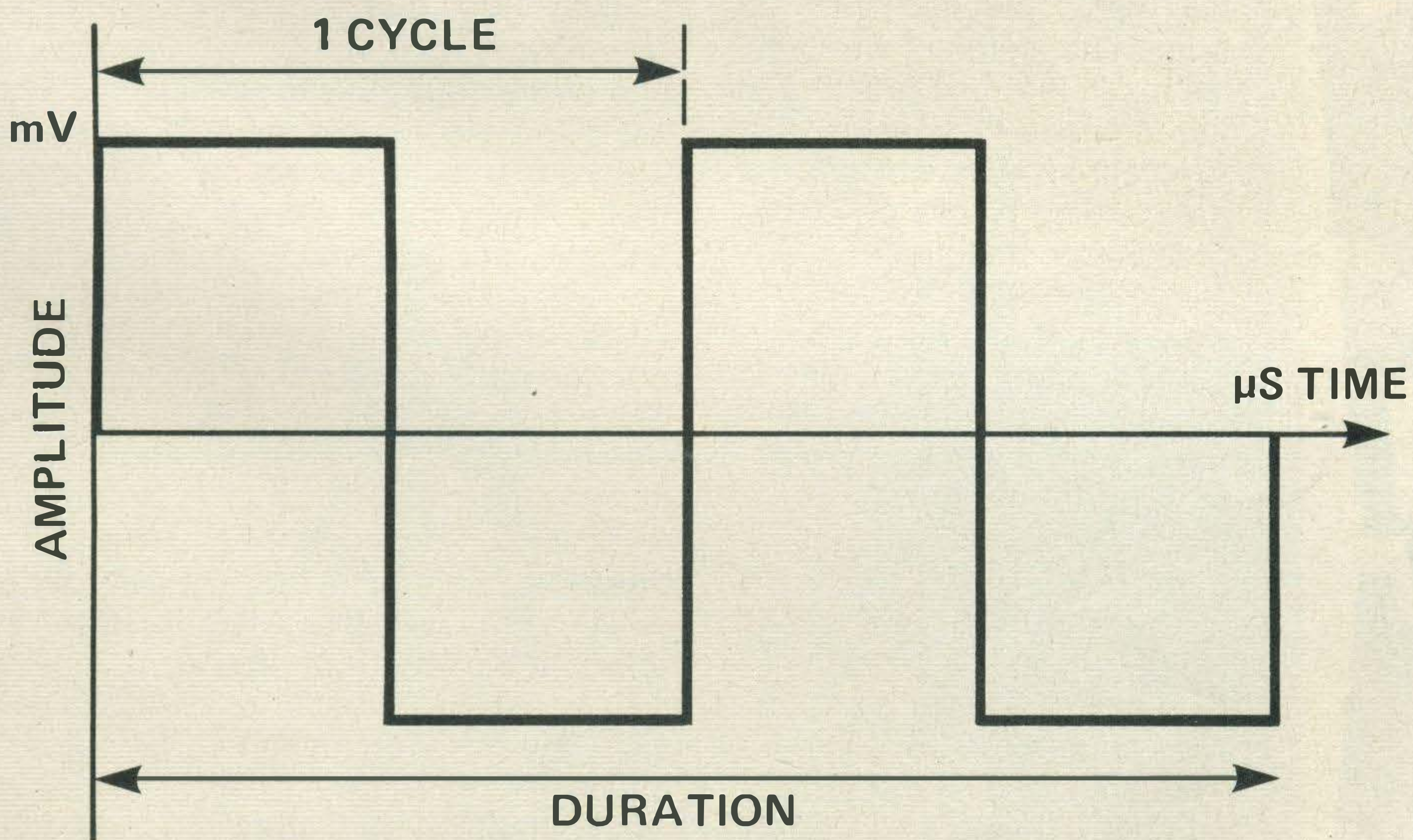
Notice that an octave starts and finishes on the same note value. The final note also begins the next higher octave, and so on. There's no particular reasoning behind these notation conventions other



NOTES

C MAJOR

F MAJOR



FREQUENCY IS MEASURED IN HERTZ (Hz) = CYCLES PER SECOND

than it proved to be the most popular when western notation was standardised hundreds of years ago. Brief music lesson over, lets get down to business.

To sound a note, we'll use the **PLAY** command. The **SOUND** command will be left for the moment as this is concerned with the more subtle intricacies of the hardware. On first sight the **PLAY** command may seem complicated as a typical line shows:

```
PLAY "V15L2CDEFGAB05C"
```

This in fact plays the scale of **C Major**. To understand the full range of capabilities for this command, let's look at the different sub-commands associated with the **PLAY** statement. Firstly we need to know what facilities the sound chip can offer us when creating basic musical sounds. The **MSX** hardware allows us to input a range of notes over an eight octave range and three separate sound (voice) channels can be used. This can be used to full effect at a later stage to create chords and assign different sounds to each voice, in other words the beginnings of your own band!

The **PLAY** command allows you to play up to three channels of music at the same time but for the moment lets just concentrate on one voice. **PLAY** interprets a series of sub-commands which are held within a string. In the first example these commands could just as easily be assigned to a string variable such as:

```
10 A$ = "GAB05CDEF + G"  
20 PLAY A$
```

All the musical notes can be entered into the string by their respective letter names. So to play the first eight notes of 'Freres Jacques' we would write the notes in the order they would be played in, as follows:

```
PLAY "CDECCDEC"
```

The letters simply refer to the musical notes. All notes are available and ascend in order from C to C (C D E F G A B C). To flatten or sharpen a note the signs '-' or '+' are added, respectively. Therefore **F sharp** would be written as:

```
PLAY "F + "
```

The notes played will always be in the octave from middle C to B above middle C unless you specify a certain octave (I know that's not a full octave but this is a convention of **BASIC**). To do this you use the letter 'O' followed by a number (1 to 8), where 1 is the lowest octave and 8 the highest. So



to play two octaves of the scale C Major from middle C; we might write the program like this:

```
10 A$ = "04CDEFGAB05
   CDEFGAB06C"
20 PLAY A$
```

or use the same data and just insert the new octave number, like this:

```
10 C$ = "CDEFGAB"
20 PLAY "04"
30 PLAY C$
40 PLAY "05"
50 PLAY C$
60 PLAY "06C"
```

Remember that the default octave is 4 (middle C onwards) but once a new octave is specified, all the notes following the command will be played in the new octave range unless re-specified.

You may feel that this is all too easy (? - Ed) so to add a little excitement you can write the notes in their numeric form rather than by the letter. In this format the octave and letter name are combined in one number. These range from **N1** to **N96** where **N1** is the lowest note and **N96** the highest. This is useful where large quantities of data are being used. A couple of points worth mentioning is that every note is represented by a number, therefore each increment in value is a semitone up (ie D to D sharp) and that the length of the note can be altered by placing a semicolon (;) after the number and then the duration number.

Going back to the first method of writing notes (by letter name), the length of a note can be altered in two ways. Firstly, any individual note can have its **duration** changed by placing a number, in the range 1 to 64, after the letter name, ie `PLAY "C24"`. This will only affect the duration of that note and all subsequent notes will revert to the default value, which is 4. However, this default length can be changed by invoking the 'L' command which has the same range of values. When an 'L' command has been specified all subsequent notes will have

that duration until changed. The following is an example of these two approaches:

```
10 PLAY "C3ODEL15FGA"
```

Now this is all well and good but when playing a piece of music there are pauses between some notes, known as **rests**. Rests can be inserted by use of ... Yes, you guessed it, the 'R' command. When you use this command you will hear no sound as 'R' causes a silent period. The length of the rest can be altered by placing a number after it ie `R10`.

The **tempo** of a piece of music can also be specified. This mustn't be confused with the length of the notes. The tempo 'T' refers to the overall speed the music is played at, ie how fast or slow the music is. Its values are between 32 and 255. Try playing a scale at two different speeds to see what I mean, like this:

```
PLAY "T255CDEFGAB05C"
PLAY "T32CDEFGAB05C"
```

I mentioned earlier that the **volume** level can also be set and this is done by 'V' in the range 0 to 15, where 15 is the loudest. Three final sub-commands exist, M, S and X (it's a coincidence!) but these I'll cover next month as they refer to more complicated programming structures.

Having provided you with an outline of the commands, you're now in a position to convert a musical score to `PLAY` on your MSX micro. Be careful to work out the tempo of the piece and ensure that each musical note has its timing value accurately translated. Later on in the series I'll look at playing certain beats and

rhythms and various forms of music. As a guide, the following table will assist you in applying the correct timing value of a note (remember the correct syntax is the letter name followed by a time value ie G + 8).

Name	Value
SEMIBREVE	1
MINIM	2
CROTCHET	4
QUAVER	8
SEMIQUAVER	16
THIRTY SECOND	32
SIXTY FOURTH	64

The best way of understanding is to play around with the commands, and I'll leave you with that task. Try converting some music and see how far you get.

Finally, it would be useful for you if you could play music direct from the keyboard. Now, typewriter keyboards may not seem the ideal tool but with very little effort we can create the keys of a piano keyboard on your MSX micro. You may think that this would complicate the program but we can easily achieve this in only ten lines.

Think of the keys on a piano keyboard. Nothing like your QWERTY typewriter layout. But they do share common features in that every key can be depressed (Does that mean they're sad? - Ed) and each key can be pressed independently of the others. But where they are distinctly different is that a piano keyboard has its keys laid out in a continuous line covering a range of octaves. To get round this I have assigned the top row of alphabetic keys (QWERTY etc) to be the 'white' keys and the row above (the numeric keys) to be the

'black' keys. Type in the next program:

The keys of the piano are set out in **line 30** where the 13 semitones (2 octaves) from C to C are assigned to their respective positions on the keyboards. **Line 30** is the string variable that contains the information necessary to define the keys to be used. **Line 50** reads the data into an array 'X\$'. The core of the program are **lines 80 and 90**. **Line 80** checks to see if a valid key has been pressed. If it's valid, the number returned by the **INSTR** command relates to the position of a note, ie C = 1, C Sharp = 2 and so on. **Line 90** will therefore `PLAY` the appropriate note. The program then loops back to **line 70** to wait for the next key to be pressed.

When **RUNNING** the program, remember to have the **CAPS LOCK** button *on* as 'SS' uses upper cases characters. The **volume** and **duration** of the notes can be altered in **line 20**. It should be stressed that this is a very simple keyboard and in future articles we'll build on this to create a synthesizer.

One suggestion for improvement would be to include a wider range of octaves on the keyboard. This can be done by using more of the keys (see **line 30**) or by allowing you to enter an octave from a function key.

Use the keyboard program to create you own tunes and think about the improvements you would make. To get you thinking along the right lines remember what I said about playing different voices. This is possible by combining the voices in one statement by separating the string of commands by a comma like this:

```
PLAY "CDECECE",
"EFGE GEG", "GABGBGB"
```

Be aware, though, that it's possible for these channels to get out of sync with each other. These problems and others will be covered later in the series.

```
10 DIMX$(14)
20 PLAY "V15T255"
30 S$ = "Q2W3ER5T6Y7UI"
40 FOR Y = 1 TO 13
50 READ X$(Y)
60 NEXT Y
70 X$ = INKEY$: IF X$ = "" THEN 70 ELSE 80
80 FIND = INSTR (S$,X$)
90 PLAY X$ (FIND): GOTO 70
100 DATA C,C + ,D,D + ,E,F,F + ,G,G + ,A,A + ,B,05C04
```




Pearls of Japanese wisdom harboured by Graham Knight

For example, the mini screen shows a train as the voice says "TRAIN". The Konami kid, of Athletic Land fame, walks on screen and has to climb the tree to grab the letters in the order which make up the word. As each letter is chosen the voice says it and whether it is right or wrong. As the game progresses the Konami Kid has to climb to the higher branches and avoid all the obstacles placed in the way of the correct letter.

The game has a large vocabulary and the mini screen shows the appropriate colours when words like yellow, green, and red are chosen. When the computer says flower, box, car, face, etc the mini screen shows appropriate pictures. Full marks to the Konami programmers for their ingenuity - it beats the old speak n' spell hands down and shows how MSX computers can be made to speak without all those clumsy extra boards that are hung on to other computers.

MSX Quick Disk

In the last issue of *MSX User* I mentioned the new Quick Disk system which is catching on fast with MSX users in Japan. The units are really like very fast tapes. Each disk is 2.8 inches in diameter and stores up to 64K of data. As the disks can be turned over, the total storage on both sides is 128K.

A standard MSX disk unit like the Sony or Toshiba give 360K of storage and this data is spread over 80 tracks which the user can access randomly. The Quick Disk has just one track and the record/playback head moves in a spiral accessing the disk sequentially. Due to the fast rotation speed of 423rpm, the data transfer rate is high - a 64K program can be read or

Sanyo speech cartridge

Sanyo have had a huge success in Japan with their light pen unit and they've now followed up with the release of a speech cartridge. It's slightly larger than an ordinary games cartridge but still plugs into the slot of any MSX computer.

All the special speech chip circuits are built into the cartridge. The sound comes through your TV speaker or, better still, through a hi-fi system connected to the MSX audio output. It's very easy to use as it simply lets you type standard text and outputs instant speech. Model number of this new Sanyo Speech Synthesiser

is MVC-01 and the cost in Japan is approx. £30.

Konami's talking game

Konami have built a tremendous reputation in Japan for the quality of their MSX games which match the standards set by Konami for their larger arcade versions. Konami have had a very successful educational game called *Spelling Tree* and they've now shown a new version which talks in English with a strong, loud voice.

The first screen shows a tree with all the letters of the alphabet hanging like fruit from the branches of the tree. At the top of the tree a mini screen shows a picture which illustrates the word to be spelled out.

written in just 8 seconds.

The DIR command gives a directory of the programs and files on the disk. Due to the sequential nature of the drive the Quick Disk isn't suitable for business-type programs which need constant updating of random files. This sequential access means that if three programs, each of 20K, are saved to disk there is 4K free. If, however, the second 20K program is deleted there is still only 4K free!

The Quick Disk operating system gets around this problem by having a LOAD ALL command which loads everything on one side of a disk into RAM memory and then uses SAVE ALL to write them onto a newly formatted disk. This method SAVES the remaining programs sequentially on the new disk and leaves it with 24K free. The old disk can then be reformatted as a blank 64K disk. The Quick Disks themselves, manufactured by Sharp and Maxell, sell for 400 yen - about £1.25 each.

Many Japanese software companies like Hudson and DB Soft are now making their games available in the Quick Disk format. LOADING is very fast and it gives the producers a chance to test new ways of packaging software - DB are selling disks in futuristically designed cube boxes which show six screens from the game.

Quick Disk is an invention of the Mitsumi company, it's already built-in to the new Sharp MZ-1500 computer and will soon be available generally for MSX. Three companies - Sanyo, Toshiba and Mitsubishi all showed MSX computers connected to their versions of the Quick Disk at the recent computer exhibition at Osaka.

Four-Way Toshiba

On a visit to the new palatial Toshiba headquarters buildings I met Mr Terada, the man in

charge of all their MSX projects. He showed me production models of two printers, one a dot matrix type and the other a plotter/printer. These have both been available in Japan for some time but the models shown to me by Mr Terada had been fitted with the European character generator ROMs. Japanese MSX micros and printers have to be able to print their special katakana characters.

We don't need the Japanese characters so we get extra graphics instead - can you think of any other home computer with a character set which includes all the language, mathematical and scientific symbols? The dot matrix model takes tractor and friction fed paper, prints at 105 characters per second and it can even print out the high resolution screens dot by dot.

The smaller plotter/printer can plot in four colours and Mr Terada says he will make sure that a copy of *T-Graph*, Toshiba's complex data processing program, is packed with each plotter being despatched to the UK. *T-Graph* works well and produces excellent pie and bar charts using the red, blue, green and black pens.

Mr Terada also showed me a four way MSX expander. This unit has its own power supply and allows the user to have four extra MSX cartridge slots. As the MSX slot can be both an input and output device, the Toshiba 4 way expander can be used for several applications. It could be used to plug in four 64K memory cards giving an additional 256K of RAM.

In fact there are so many things coming out in Japan which plug into MSX that those slot expanders from Toshiba will become very popular

Yamaha Musical MSX

If Yamaha launch their FM music board in the UK

as a separate unit, the four slots in the Toshiba expander could also accommodate four Yamaha interfaces like the Music Card Reader, the FM Sound Synthesiser unit, the FM BASIC Voice Program, and the FM Music Composer. The card reader reads Yamaha's play card music into the memory of the computer. The FM Sound Synthesiser gives Yamaha CX5M music capabilities and connects keyboards, via MIDI, to any MSX micro. The BASIC Voice program cartridge adds extra commands to MSX BASIC to program tempo, instrument, track, and sound shape. The FM Music Composer draws the stave on-screen and allows the user to create music by placing the notation on the music. Each of the Yamaha cartridges cost about £30 each, the card reader is £45.

Top Ten Japanese games

Each Japanese computer shop shows a board with their top ten best selling MSX games. These are the current hits:

- 1 HYPER SPORTS TWO from KONAMI
- 2 ANTARTIC ADVENTURE from KONAMI
- 3 FLAPPY from D.J. SOFTWARE
- 4 FRUIT PANIC from PONYCA
- 5 THREE DIMENSIONAL GOLF from T & E
- 6 MR. CHIN from HAL LABORATORY
- 6 GALAXIAN from NAMCO
- 7 EXERION from DEMPA
- 8 ATHLETIC LAND from KONAMI
- 9 TRICK BOY from T & E
- 10 MONKEY CRUSHER from MIA SOFT

Mitsubishi's MSX factory

Mr Taniguchi and Mr Ohtaki are the management team behind the Mitsubishi MSX project. When I visited the factory at Gunma, which is 80 miles north of Tokyo, I was surprised to see that they'd already done a lot of research into the UK market. They had all the Sinclair computers, a BBC,

a Commodore and even knew about Thomson computers from France.

The MSX production line uses their own robots to automatically insert the components into the computer circuit boards. Assembly takes place in a "clean atmosphere area" and visitors can only see the production process through glass panels.

Every fourth person at the factory works for the quality control department and checks each assembly meticulously. A completed MSX computer is run continuously for 72 hours as a final test before it is packed into its box. It was most interesting to see that this final test is controlled automatically by another MSX computer.

The Gunma factory also makes all Mitsubishi's home appliances and it was no surprise to learn that they have plans to integrate their home systems with MSX. Mitsubishi have already developed a language called *ROBOTY* which is used to control the hi-fi, cassette, TV, video and robots connected to MSX. The *ROBOTY* language is akin to machine code and

assembler but has special "labels" for control applications.

Sexy MSX

A new trend in computer games has reared its head in Japan. Gone are the days when computer users played adventure games involving dragons and dungeons - the latest Japanese adventures involve sex. See next months revealing issue!

HEY! YOU WITH THE MSX HEY! YOU WITH THE MSX HEY!
HEY! YOU WITH THE MSX HEY! YOU WITH THE MSX HEY!
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Fancy writing for MSX User? You have the technology, if you think you have the skill and flair to pen (or preferably typewrite) MSX articles for us, or even if you just have a good idea, send us a letter (makes us feel wanted!) and we'll send you details of how to go about it. Who knows, you could end up as a fully fledged computer journalist (name in print, world at your feet, head in the clouds, pen behind ear, etc. etc.) If you fancy a go, write to Liz at the address below and we'll be back in touch as soon as you can say vhdflscweoisdgikdfvjxlag!

Liz Coley
MSX User
Argus Specialist Publications
No 1 Golden Square
London W1R 3AB

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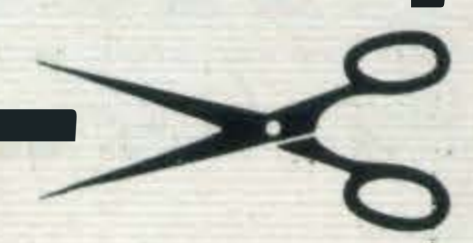
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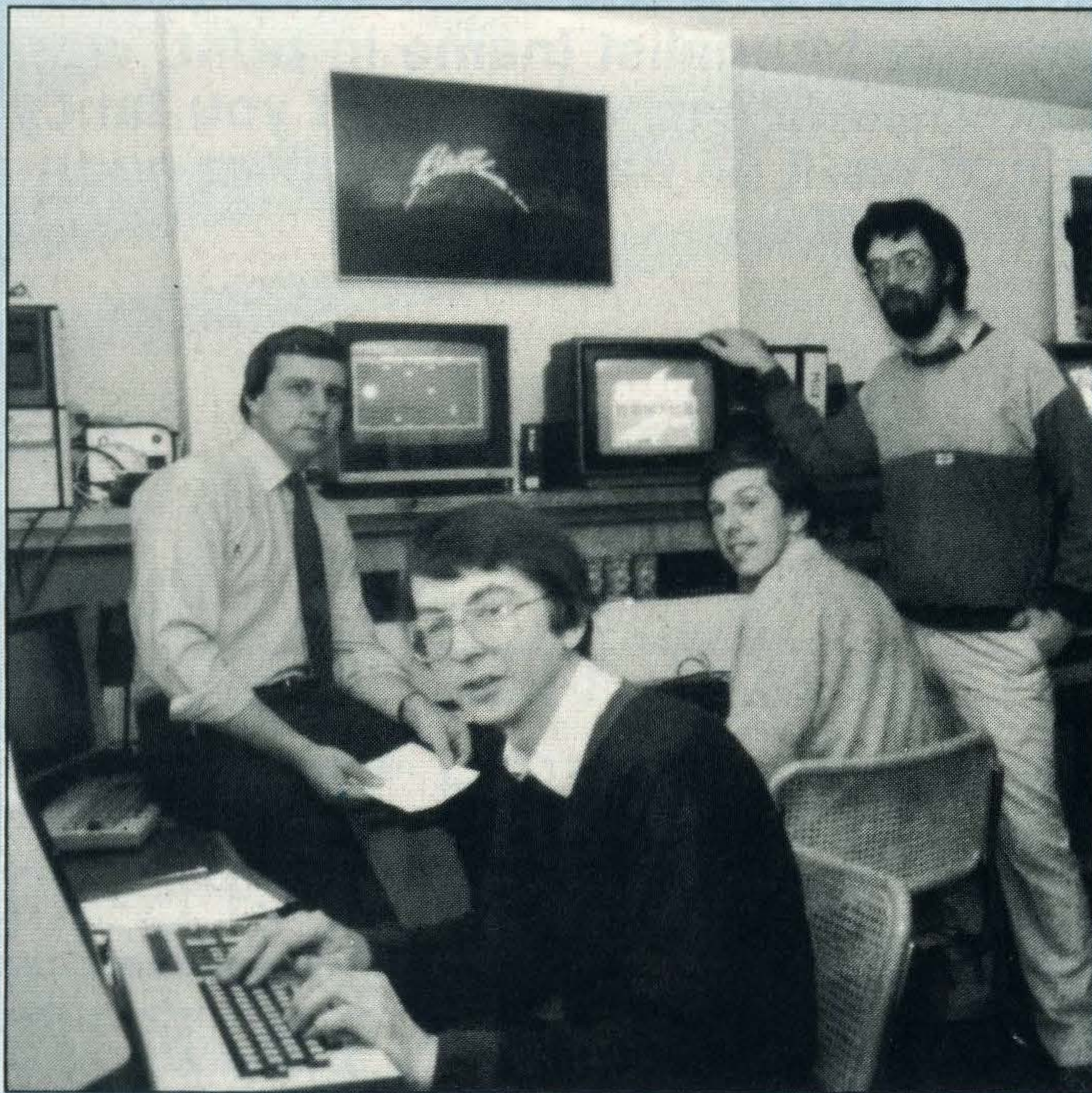
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MSX

PROFILE

Electric's Mick Rouse sparks off a wired Sam Hearnton



The E-team. Mick Rouse, far right.

Computer freaks are a strange bunch. Take Electric Software's Mick Rouse. Late 20's, bearded, bespectacled – grey suit for a grey day. He looks like a typically upwardly mobile young executive... yet this man has fathered a number of innovative computer games, surely an activity at odds with his appearance. Perhaps the way he dresses is but a disguise, a sop to the Moral Majority, for even in this supposedly enlightened day and age, respectable men Do Not Have Fun With Computers. But wait – who is Mick Rouse? And why Electric Software?

Mick Rouse, Technical Manager, Electric Software Limited. Married, two children, mortgage (semi-detached), Y reg Vauxhall Astra. Hons. Degree Electronic Engineering.

"Let's face it, I'm not a teenager"

Mick Rouse
October 1984.

Born September 11th 1984. To GTS Computer Systems, a son, Electric Software Ltd. Management 3, Programmers 4. Currently residing in Willingham, Cambridge.

"The future is Electric..."
Electric Software
handout, September 1984.

Fast forward (Very NME – Ed). Tea and biscuits in the boardroom.

You employ a lot of programmers, Mick.

Yes, we're not one of those companies that really act as middlemen, you know, where you've got a pool of 14 year olds sitting in their bedrooms writing software. We're a professional company.

This business is about producing a good quality

product and you can't do that from a bedroom or even as an individual. People who are successful individuals don't remain successful individuals – they become successful heads of companies.

So there you have the philosophy behind Electric Software. Now for the background.

Why MSX? Mick Rouse again.

Two reasons. First of all, it's a standard and we're talking about a worldwide standard and immediately that means a larger market. A market where we can run on anything and where we're assured good sales. You could say that MSX is the CP/M of home computing.

Secondly, the hardware is quite nice. From a games point of view there's quite a lot you can do with a 9918 video chip and a decent sound chip.

So, if MSX hadn't happened, would Electric Software exist?

I think so, but I don't think we would have been another company climbing onto the Spectrum or Commodore bandwagon. We would have been writing for the QL or Enterprise. We want to follow the trends of tomorrow, not today.

Very odd... why follow trends when you can set them? Do Electric Software play to win or play safe?

It's interesting that you mentioned the QL – I don't think you would dispute the superiority of a 32-bit (So Uncle Clive says – Ed) machine over the MSX's 8-bit Z80A but I wonder how you feel about Clive Sinclair's recent claim that the Spectrum is five times more powerful than any MSX machine?

ELECTRIC DREAMS

I certainly find that an odd comment... I don't know what justification Sinclair had to say that. The Spectrum and MSX both have a Z80 and anyway what makes a machine powerful? Is it the width of the processor? Is it the execution speed, the strength of the BASIC, the expansion capabilities or what?

We were at the ZX Microfair sometime ago and we were a little bit naughty. We put a MSX machine on the stand alongside a Spectrum playing practically the same game. It was no contest. I don't want to knock the Spectrum too much - it's a good machine, but I haven't heard anyone quoting 28 day delivery on MSX machines yet!

Mmmm. I love it when grown men bitch.

There's been some speculation recently that MSX hasn't been quite the success in Japan that it was hoped it would be. Do you know anything about that?

Well, we don't have an operation in Japan yet (although it's a market that we're about to look into) but I've heard that 350,000 machines have been shifted.

Sounds impressive but I wouldn't be surprised if that represented the number of machines manufactured for the launch, not the numbers sold. Do you think it's going to be a hit in the UK? I think most of the MSX machines seem overpriced - £300 for a 64K machine seems a bit steep when the CPU is the same as a Spectrum which is more than £100 cheaper.

The Z80 might only have 64K of direct addressing memory space but the MSX standard allows you to bank that in four slots, so straight away you've got a possible 256K. You can then expand each slot with four sub-slots and then you've got a 1 Megabyte total! Now, that's not something the engineers are going to have to go home and work on the kitchen table with, that's built into the standard. So, you can buy

a slot expander from Toshiba, plug into a Sanyo machine, run Konami software on it and print the results on a National printer.

Strange for Mick, after all his hardsell, to be promoting another software manufacturer rather than Electric...

Programming takes place in a darkened room up the stairs from Mick's office. Four Toshiba HX-10's (It's not that we think the Toshiba's better than the others, it's just the one we managed to get hold of first) are currently being used to test Electric's up and coming software.

Besides these there is a Spectrum, a CBM 64 and an unloved Atari 600 which occupy a bench next to the Philips Unix MultiUser Development System. Very impressive.

As I've already said, we're not bedroom programmers. We've got, I guess, getting on for £50,000's worth of development gear. We run MultiUser Systems running Unix with Winchester disks that allow 30 Megabyte main storage. It's a five user system with real time in-circuit emulation, so it's a professional approach to come up with a professional product.

Mick, you're repeating yourself again. Tell me how you construct a typical program instead.

We write in Z80 Assembler on the development machine. That permits us to link in standard things. Like, all our games have the Electric Software logo and theme tune. Things like that are written as separate standard modules and linked in. It's the only way to get the most out of things 'cause you're not tying up any memory space on the target system. You've got an enormous amount of processing power behind that system and that means at the end of the day you're using more of the MSX's facilities because you're not tying up any of the target machine to develop it.

D'you still enjoy programming, Mick?

I enjoy all aspects of producing a game, from thinking about the original concept to writing out the specification, to working out how we're going to get impossible numbers of objects on the screen and how we're going to make it look as though it's a photograph instead of a load of pixels flying around. I even enjoy planning out the cassette inlay!

“It was a wonderful day when I discovered that I could get paid for writing and playing video games”

We have a corporate identity, a style. The black cassette inlay... we carry that right across the range. All Electric Software games have a title screen, so we take the inlay illustration and convert that into a screen illustration. At the moment, game screens are largely designed by programmers. What we intend to do is involve graphic designers in screen design. Already, we're beginning to do that by transferring the inlay artwork onto the game title page. The next stage is to actually have the screen game designed by a professional artist rather than a programmer. Obviously, we'll have to work closely so that what he produces is suitable for putting into a computer. We're already using a Sanyo light pen. What we want to come up with is a system where the artist can sketch directly onto the screen from scratch. We can then take that image, process it in some way to reduce memory size and put it straight into our

games. That way we'll get a better quality product, faster.

Electric Software have five games in their catalogue at the moment. The first two releases were Buzz Off and Shark Hunter. Buzz Off is yet another variation on the 'eat before you're eaten' theme: the object being to pilot (?) Bertie the Bee and scoff as much fruit as possible without tangling with the incredible expanding web or it's occupant, a peculiarly luminescent purple Spider. It needs skill but sustain your interest it will not. Yawn.

Far better, and correspondingly more expensive, is Shark Hunter. The concept - an Eskimo engaged in combat with Jaws and his blood relatives, II and 3D - is not especially exciting. No, what makes this game stand out is it's superb graphics, quite the best I've seen on an MSX machine.

The other three games are The Wreck, Norseman and Le Mans, The latter is the work of a certain Mr Rouse and should be v.impressive (the program was not complete when I saw it) but £10.95 (the projected price tag) seems well out of order. For a company who're so convinced that MSX is going to be a massive success, all of Electric Software's games seem overpriced, quality not withstanding. Mick Rouse cites 'development costs' as the main reason but frankly, that's bull. Electric Software will soon recover their costs but when they do, don't hold your breath waiting for their prices to come crashing down. Still, with Konami charging around £15.00 for their (admittedly, cartridge based) software, Electric aren't the only guilty party. Let's hope that Program Express is widely adopted - until then, buy between friends.

As I departed, Mick announced with all the sincerity of a born again Christian, It was a wonderful day when I discovered that I could get paid for writing and playing video games. Amen to that, brother.

Jeremy Vine checks a little ray of sunshine

Address: Sanyo, Sanyo House, Otterspool Way, Watford, Herts

Price: £89.95 inc VAT

On inserting the lightpen cartridge in the MSX cartridge port, the user can choose between going to the BASIC program area to write programs or an inbuilt Computer Aided Design (CAD) package. The Rembrandt in me took over and I chose the CAD package. As a piece of software which is included with the lightpen it is a passable package. Unfortunately without the documentation I didn't discover what all the symbols meant, which indicates that not all the screen prompts are immediately obvious. However, I managed, in a very short time, to use about 90% of the package which in my book, without documentation, makes it user-friendly. The menu of drawing options is presented as a vertical rectangle on one side of the screen. Touching the 'flip' option (this being shown graphically) on the screen with the lightpen moves the menu to the opposite side. The lightpen responded well

with a firm push being needed to elicit a response. Only problem was that the cross-hair on the screen showing where your pen was didn't come anywhere near the point of the lightpen! Without the documentation I could see no way of adjusting this and can only hope that it is possible. There really ought to be a law against receiving incomplete packages!

There's the expected painting palette of 16 colours and options exist to change the nib and brush size. Regular shapes such as squares and circles are easily created by touching the shape to be created and then marking on the screen the two extreme points of the shape. The colour fill is not very fast and on an empty screen is tediously slow. So what was it that impressed me about the package? Its major selling point to me was the ability to see a program listing in BASIC of the drawing created at any stage during development. This could also be **SAVEd** at any point.

This makes the CAD program useful in two ways. Firstly, users can alter or add to the BASIC listing for their own effects. Secondly, and of more importance, the ability to see a BASIC listing gives the program an educational quality allowing users to see the relationship between a program instruction and what they are drawing.

But! Yes, there had to be a drawback and it's in the price. As a lightpen the unit is far more expensive than other lightpens on comparable home micros and the inclusion of the CAD program, which is good but by no means professional, justifies in no way the prohibitive price.

Perhaps there is more to the package than I received but it would have to be substantial to justify the money. It's a pity that Sanyo have produced this add-on in a price bracket so much above the market as it would otherwise make the entire package look very much more attractive.

LIGHT PEN
MLP-001
SANYO

10 more programs from Steve Lucas

There I was, motoring through Transylvania. My old car hasn't been very reliable and when it gave up the ghost, I was very grateful when an old farmer gave me a lift in the back of his haycart. Night was falling as we drove through a desolate mountain pass and suddenly a howling wolf jumped out in front of us. The horses were so frightened that they bolted, throwing me out of the cart. Now I'm at the side of the road with nothing in my pockets on an eerie moonlit night. Help me find ten items of treasures, find my car and drive to safety.

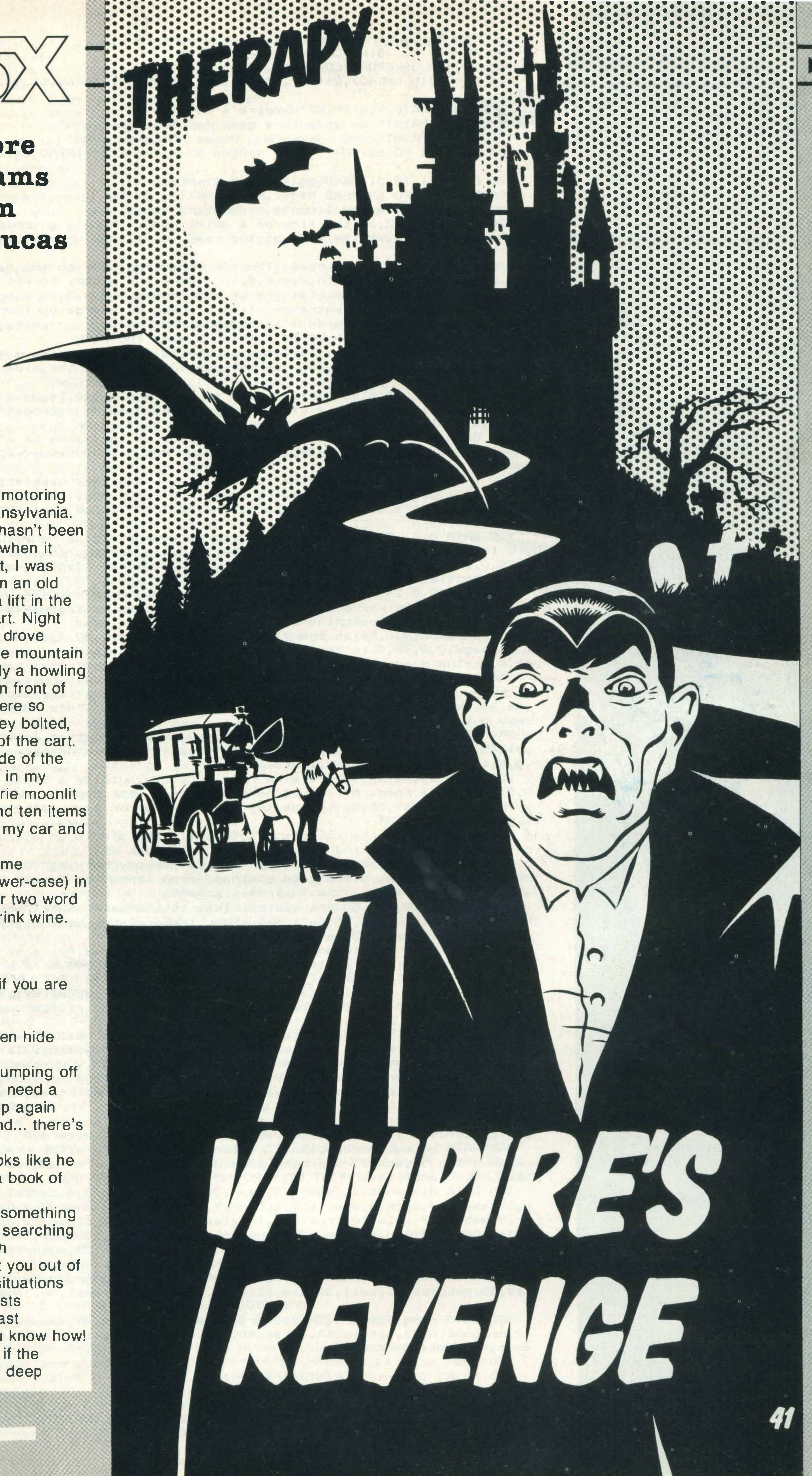
You must give me instructions (in lower-case) in the form of one or two word sentences like: drink wine.

Hints

Read these only if you are really stuck.

1. Oak panels often hide secret panels
2. You could try jumping off cliffs, but you'll need a rope to climb up again
3. Avoid quicksand... there's no way out!
4. The Wizard looks like he could do with a book of spells
5. There is often something to be found by searching through rubbish
6. Prayer can get you out of some difficult situations
7. Use salt on pests
8. You can get past vampires if you know how!
9. You can swim if the water's not too deep

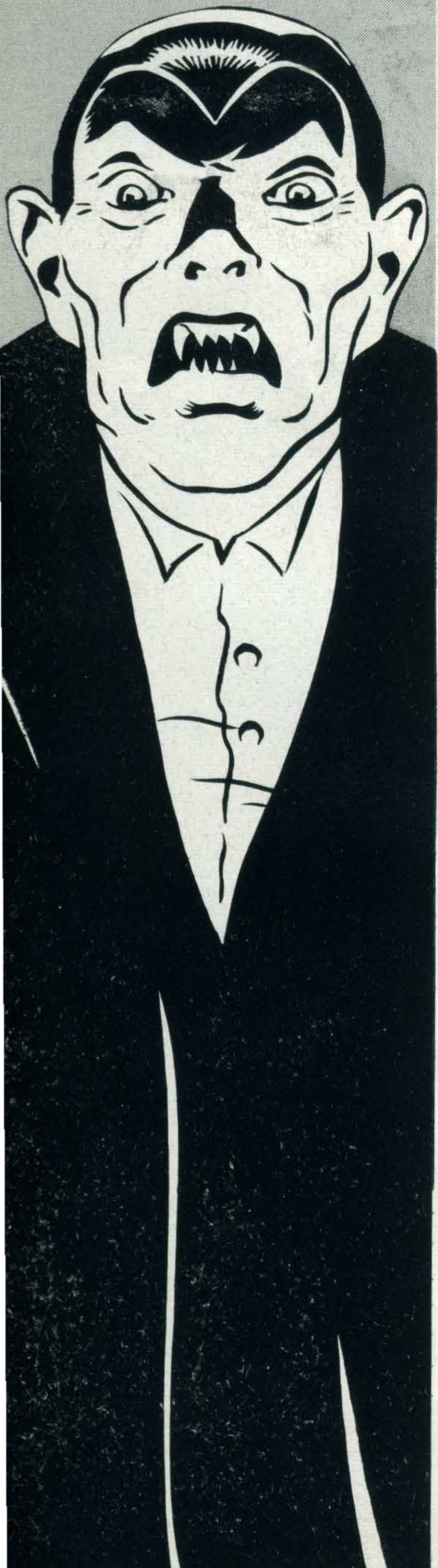
THERAPY



VAMPIRE'S REVENGE

THERAPY

```
10 REM ** Vampire's revenge... an adventure
20 REM ** S.W. Lucas Oct. 1984 **
30 SCREEN 0:KEYOFF:COLOR 13,15
40 P%=2:DIM G$(60),Q$(90),X$(30),N$(70),NZ(70),B$(60,1),V$(4),S$(70
,4)
50 CLS:LOCATE 9,2:PRINT"Vampire's Revenge"
60 PRINT:PRINT" An adventure game for MSX Computers"
70 PRINT:PRINT" <C> Steve W. Lucas October 1984"
80 FOR X=1 TO 62:FOR Y=1 TO 4:READ S%(X,Y):NEXT Y:READ Q$(X): NEXT
X
90 FOR X=1 TO 51:READ G$(X):B%(X,1):NEXT
100 FOR X=1 TO 69:READ N$(X),NZ(X):NEXT
110 X$(1)="I'm sorry I can't understand you!"
120 DATA 4,0,3,2,at the side of a quiet road. There's a footpath to t
he North,0,0,1,0,at the side of the road. A fallen tree blocks the
way west
130 DATA 0,0,0,1,on a road. There's a howling wolf to the east,10,1,
5,9,at a fork in the path,0,6,0,4,in a dark and gloomy forest
140 DATA 5,0,0,0,in a clearing in the forest,0,8,0,5,in a spooky for
est,7,0,0,0,by a cave entrance. It's blocked by a large boulder
150 DATA 0,0,4,0,outside a locked and shuttered cottage,23,4,0
,0,on a narrow footpath,22,0,12,10,on a wide footpath
160 DATA 21,0,0,11,at a disused marina,18,15,0,0,outside a hut,0,0,0
,0,inside the hut. It's full of cobwebs,13,0,61,0,at the side of a col
d lake
170 DATA 0,0,17,0,at the far side of the lake,0,0,0,16,by an old mot
or launch,0,13,19,20,on a narrow towpath,0,0,0,18,on a towpath. The wa
y east is blocked by a pile of boulders
180 DATA 0,0,18,21,on a towpath,0,12,20,0,on the banks of a deep and
foul smelling canal,24,11,0,0,on a steep hillside,0,10,0,0,in a c
learing full of nettles
190 DATA 34,22,25,33,at the top of a hill. A gloomy castle lies to th
e north,0,0,0,24,at the top of a steep cliff,0,0,27,0,on a soft sandy
beach. There's a steep cliff here,43,30,28,26,on a beach. There's
a notice here
200 DATA 0,31,29,27,at the entrance to some changing rooms,0,32,0,28
,in the showers. I'm getting very wet,0,0,0,0,sinking in some quicksan
d,28,0,32,0,inside the changing room,29,0,0,31,by a vending machine fu
ll of bottles of blood
210 DATA 0,0,24,59,at the entrance to an old mansion,0,24,0,35,in an
oak panelled entrance room,0,0,34,0,in a narrow passageway,0,35,37,0,
in a large hall stretching out of sight to the east
220 DATA 38,0,0,36,at the far end of a vast hall,40,37,0,39,in a wid
e passage,0,0,38,0,in the kitchens,0,38,0,41,in a gloomy corridor,0,0,
40,0,in the dungeons. The smell is terrible!
230 DATA 0,0,0,0,in a small secret chamber,44,27,0,0,on a path leadi
ng through some sand dunes,0,43,45,51,in a small village square,49,50
,46,44,outside a temple,48,47,0,0,inside a temple. There seems to be n
o way out!
240 DATA 46,0,0,0,by a shrine,0,46,0,0,by some shelves full of vases
,54,45,0,0,outside an old inn. Some men are sat here drinking ale,45,0
,0,0,in an overgrown graveyard
250 DATA 53,52,44,0,on a wide road,51,0,0,0,outside a small cottage,
0,51,0,0,on a road. My car is here. The boot is open for me to drop m
y treasures,0,49,55,56,inside the inn. The barman peers at me over hi
s glasses,0,0,0,54
260 DATA inside the toilets,0,0,54,57,in the middle of a crowd of pe
ople who are drinking
270 DATA 0,0,55,58,at the bar. There's no-body serving!,0,62,57,0,be
hind the bar. Some steps lead south down into the cellar,0,60,33,0
,inside the mansion. It's full of cobwebs
280 DATA 59,0,0,0,by the stairs. They look unsafe and I wouldn't li
ke to go south,0,0,0,15,on a quayside. There's a broken boat here,58,0
,0,0,in the cellar. It's full of barrels of ale
290 DATA some ** diamonds **,41, some ** jewels **,42, a ** beer tan
kard **,62,a ** food parcel **,56,a pile of rubbish,48,a ** book of sp
ells **,47,a ** silver bullet **,8
300 DATA a ** starting handle **,61,a ** can of petrol **,17,a ** go
ld crucifix **,60,a glass of wine,57,a clove of garlic,6,a cup of coff
ee,32
310 DATA an old sponge,29,a dirty sock,32,a dusty mat,59,a dead body
,25,a rusty knife,39,a bottle of spirits,58,an old woman,52,a bar of so
ap,55,some geese,15,some mushrooms,23,a vampire,35,a werewolf,8
320 DATA a giant lizard,27,a candle,36,a knife,14,a rope,53,some loc
k gates,20,some pebbles,16,a wolf,32,an axe,33,a tall tree,5,a giant c
rab,26
330 DATA a piece of toast,36,a pot of jam,39,an enormous slug,10,a s
alt cellar,9,a large lever,42,some frog spawn,16,a wizard,5
340 DATA an evil hobgoblin,23,a large nettle,23,a slime trail,4,a pi
ckled onion,57,an old tin bath,38,a dwarf,50,a bowl of soup,39,a meat
hook,60,a large ham,39
350 DATA diamonds,1,jewels,2,beer,3,tankard,3,food,4,parcel,4,antiqu
e,5,casket,5,book,6,spells,6,silver,7,crucifix,7,starting,8,handle,8,c
an,9,petrol,9,gold,10,crucifix,10,glass,11,wine,11,clove,12,garlic,12
360 DATA coffee,13,cup,13,sponge,14,sock,15,mat,16,body,17,knife,18,
spirits,19,bottle,19,woman,20,soap,21,bar,21,geese,22,mushrooms,23,vam
pire,24
370 DATA werewolf,25,lizard,26,candle,27,knife,28,rope,29,lock,30,ga
tes,30,pebbles,31,wolf,32,axe,33,tree,34,crab,35,toast,36,jam,37,pot,3
7
380 DATA slug,38,salt,39,cellar,39,lever,40,frog,41,spawn,41,wizard,
42,hobgoblin,43,nettle,44,slime,45,trail,45,onion,46,bath,47,dwarf,48,
soup,49,hook,50,ham,51
390 CLS
400 PRINT"I am :-":PRINTQ$(P%):PRINT
410 A$="":IF S%(P%,1)>0 THEN A$="North"
420 GOSUB 1770
430 IF S%(P%,2)>0 AND LEN(A$)>0 THEN A$=A$+",South" ELSE IF S%(P%,2)
>0 THEN A$="South"
```



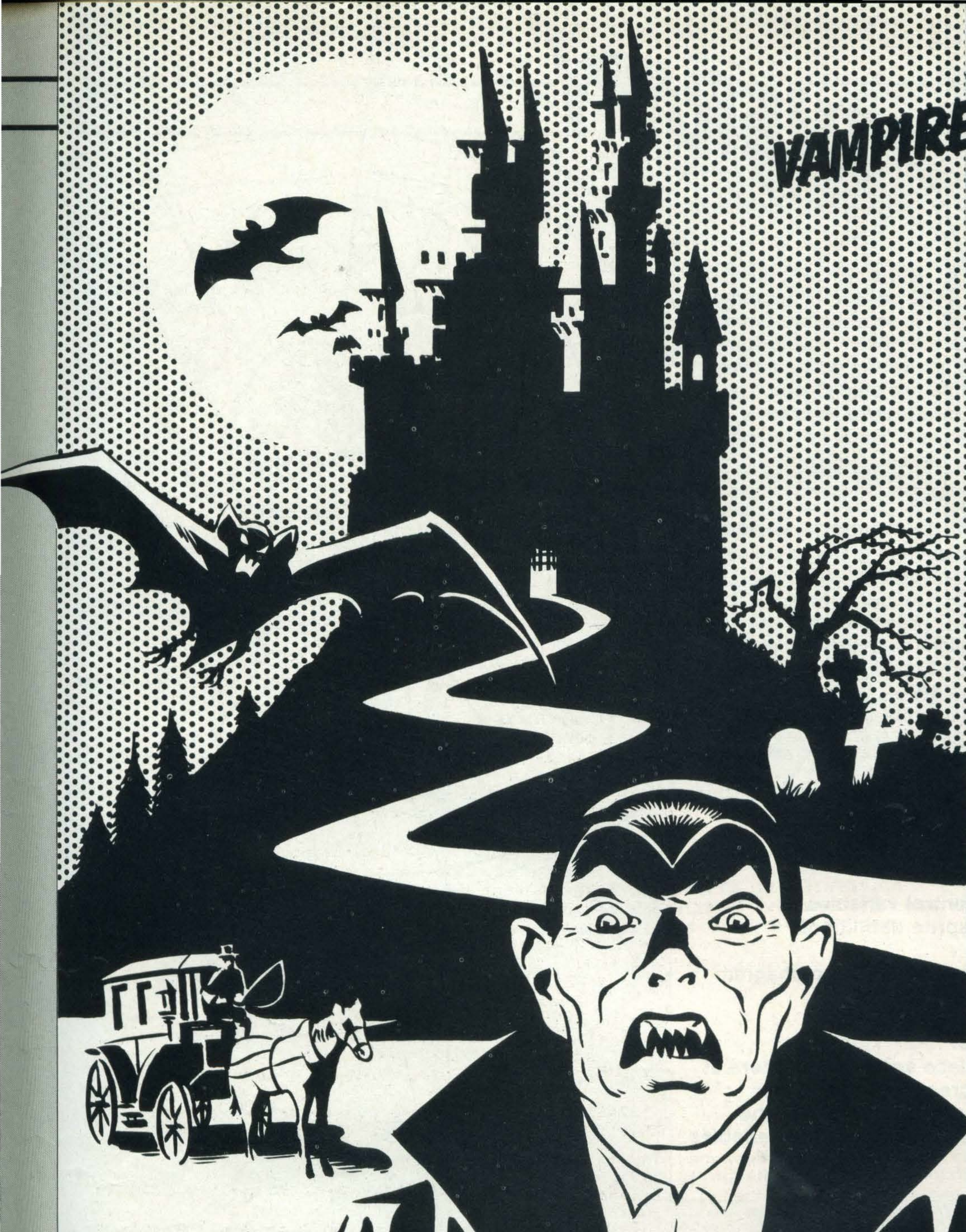
VAMPIRE'S REVENGE

```
440 IF S%(P%,3)>0 AND LEN(A$)>0 THEN A$=A$+",East" ELSE IF S%(P%,3)>
0 THEN A$="East"
450 IF S%(P%,4)>0 AND LEN(A$)>0 THEN A$=A$+",West" ELSE IF S%(P%,4)>
0 THEN A$="West"
460 IF A$="" THEN A$="nowhere obvious"
470 IF A%=10 THEN 1880
480 PRINT:PRINT"I can go :=":PRINTA$
490 E=0:FOR T=1 TO 51:PP%=0:IF B%(T,1)=P% THEN PP%=1
500 IF PP%=1 THEN 520
510 NEXT:GOTO 540
520 IF E=0 AND G$(T)<>" THEN PRINT"I can see :-"
530 PRINTG$(T):E=E+1:GOTO 510
540 PRINT:INPUT "What shall I do now ";Z$:CLS:B$=LEFT$(Z$,2):C$=LEFT
$(Z$,3):D$=LEFT$(Z$,4)
550 IF (B$="n" OR D$="go n") AND S%(P%,1)>0 THEN P%=S%(P%,1):GOTO 40
0
560 IF (B$="s" OR D$="go s") AND S%(P%,2)>0 THEN P%=S%(P%,2):GOTO 40
0
570 IF (B$="e" OR D$="go e") AND S%(P%,3)>0 THEN P%=S%(P%,3):GOTO 40
0
580 IF (B$="w" OR D$="go w") AND S%(P%,4)>0 THEN P%=S%(P%,4):GOTO 40
0
590 IF B$="sc" THEN PRINT"You have scored ";A%;" out of 10":GOTO 400
600 IF B$="re" THEN PRINT"I forgot to bring my glasses!":GOTO 400 EL
SE IF C$="lig" THEN PRINT"What with?":GOTO 400
610 IF C$="buy" THEN PRINT"I have no money!":GOTO 400 ELSE IF C$="ge
t" OR C$="tak" OR C$="gra" THEN 830
620 IF C$="dro" OR C$="put" OR C$="lea" THEN 990 ELSE IF C$="inv" TH
EN 1340
630 IF C$="thr" OR C$="chu" THEN PRINT"I'm not throwing anything her
e!":GOTO 400 ELSE IF C$="pra" THEN 1060
640 IF C$="giv" THEN 1090
650 IF C$="wai" THEN PRINT"O.K.":FOR X=1 TO 1000:NEXT:GOTO 400
660 IF C$="swi" THEN 1130 ELSE IF C$="row" OR C$="sai" THEN 1170
670 IF C$="jum" THEN 1200 ELSE IF C$="cli" THEN 1220
680 IF C$="up" OR D$="go u" THEN 1250
690 IF D$="go d" OR C$="dow" THEN 1270
700 IF C$="out" OR D$="go o" THEN 1290
710 IF C$="in" OR D$="go i" THEN 1310 ELSE IF B$="go" THEN PRINT"Jus
t use a direction":GOTO 400
720 IF C$="eat" THEN PRINT"I'm not hungry!":GOTO 400 ELSE IF C$="dri
" THEN 1370
730 IF C$="sho" OR C$="kil" OR C$="att" OR C$="hit" THEN 1430
740 IF C$="cho" THEN 1520
750 IF C$="hel" THEN PRINT"I'm sorry I haven't a clue!":GOTO 400
760 IF C$="exa" THEN PRINT"I can't see anything special":GOTO 400
770 IF C$="sea" THEN 1550 ELSE IF C$="pul" THEN 1580 ELSE IF C$="pus
" THEN 1600
780 IF C$="fee" THEN PRINT"Don't be daft!":GOTO 400
790 IF C$="use" THEN 1620 ELSE IF C$="ins" THEN 1670
800 IF B$="fu" OR B$="pi" THEN PRINT"watch it!!!!":GOTO 400
810 IF B$="n" OR B$="s" OR B$="e" OR B$="w" THEN PRINT"not here":GOT
0 400
820 PRINTX$(1):GOTO 400
830 GOSUB 1680
840 IF L%=1 THEN 850 ELSE 400
850 E%=0:FOR H=1 TO 51:IF B%(H,1)=P% AND B%(N%(R),1)=P% THEN E%=1
860 NEXT:IF E%=0 THEN 400
870 IF R=42 THEN AA=1 ELSE IF R=29 THEN AB=1 ELSE IF R=41 THEN AB=1
880 IF R=26 THEN PRINT"Not likely. It smells terrible!":GOTO 400 ELS
E IF R=28 THEN PRINT"I'm not a vampire!":GOTO 400
890 IF R=32 THEN PRINT"Don't be ridiculous!":GOTO 400 ELSE IF R=59 O
R R=60 THEN PRINT"Don't be daft!":GOTO 400
900 IF P%=10 AND R=53 THEN PRINT"Aaagghhhh it covers me in slime!":G
OTO 1730
910 IF R=38 OR R=37 THEN PRINT"It doesn't like that!":GOTO 1730
920 IF R=47 THEN AC=1 ELSE IF R=48 AND AD<>1 THEN PRINT"I can't carr
y a tree!":GOTO 400
930 IF R=56 THEN PRINT"I can't move it!":GOTO 400 ELSE IF R=54 OR R=
940 IF R=62 OR R=63 THEN PRINT"Don't be stupid!":GOTO 400
950 IF (R=19 OR R=20) THEN AB=1 ELSE IF (R=18 OR R=17) THEN AI=1 ELS
E IF (R=9 OR R=10) THEN AK=1
960 E%=0:FOR D=1 TO 3:IF V$(D)="" THEN V$(D)=G$(N%(R)):E%=1:D=6
970 NEXT:IF E%=0 THENPRINT"Sorry my hands are full!":GOTO 400
980 PRINT"O.K.":B%(N%(R),1)=0:GOTO 400
990 GOSUB 1680:IF L%<>1 THEN PRINT"I'm sorry. I don't have a ";L$:GO
TO 400
1000 E%=0:FOR D=1 TO 3:IF V$(D)=B$(N%(R)) THEN V$(D)="":E%=1
1010 NEXT:IF E%<>1 THEN PRINT"I'm sorry I don't have it!":GOTO 400
1020 B%(N%(R),1)=P%:IF R=42 THEN AA=0 ELSE IF R=29 OR R=41 THEN AB=0
1030 IF R=47 THEN AC=0 ELSE IF R=54 OR R=55 THEN AE=0 ELSE IF R=19 OR
R=20 THEN AG=0
1040 IF R=9 OR R=10 THEN AK=0
1050 GOTO 400
1060 IF P%<>46 THEN PRINT"O.K. nothing happens":GOTO 400
1070 PRINT"WOW ! I've never seen anything so spectacular!":PRINT"
A bolt of lightening has just smashed a way out"
1080 S%(46,4)=45:Q$(46)="inside a temple with a largehole in the wal
l":GOTO 400
1090 IF P%<>5 THEN PRINT"Not here":GOTO 400
1100 GOSUB 1680:IF (R=9 OR R=10) AND AK<>1 THEN PRINT"I don't have it"
:GOTO 400
1110 IF R=9 OR R=10 THEN PRINT"The Wizard thanks me, says a spell f
rom the book and gives the book back":PRINT:PRINT"A passage opens to t
he east":S%(5,3)=7
1120 GOTO 400
1130 IF P%=21 OR P%=18 OR P%=22 THEN PRINT"It's too dangerous here!":
GOTO 400
1140 IF P%=15 THEN P%=16:PRINT"That was fun!":GOTO 400
```



THERAPY

```
1150 IF P%=16 THEN P%=15:PRINT"O.K.":GOTO 400
1160 PRINT"I can't swim here dummy!":GOTO 400
1170 IF AH=1 AND (P%=15 OR P%=14) THEN PRINT"The boat's got a hole in
it!":GOTO 400
1180 IF P%=14 OR P%=15 THEN PRINT"I've not got a boat!":GOTO 400
1190 PRINT"I can't do that here!":GOTO 400
1200 IF P%<>25 THEN PRINT"O.K. That was exciting but I didn't get an
ywhere":GOTO 400
1210 PRINT"I made it! I'm sure glad the sand was soft!":P%=26:GOTO 40
0
1220 IF P%<>26 THEN PRINT"Don't be silly!":GOTO 400
1230 IF AAK>1 THEN PRINT"I don't have a rope!":GOTO 400
1240 PRINT"O.K. I throw the rope, it catches on something and I climb
up!":P%=25:GOTO 400
1250 IF P%<>26 THEN PRINT"Don't be silly!":GOTO 400
1260 PRINT"I suppose I could climb up if I had a rope":GOTO 400
1270 IF P%<>25 THEN PRINT"Don't be absurd!":GOTO 400
1280 PRINT"I slip and break my neck!":GOTO 1730
1290 IF P%<>14 THEN PRINT"Just how am I supposed to do that here?":GO
TO 400
1300 P%=13:PRINT"O.K.":GOTO 400
1310 IF P%=33 THEN PRINT"The way in is west!":GOTO 400
1320 IF P%<>13 THEN PRINT"Don't be silly!":GOTO 400
1330 PRINT"O.K.":P%=14:GOTO 400
1340 PRINT"I am carrying :-":PRINT:F%=0:FOR H=1 TO 3:IF V$(H)<>"" THE
N PRINTV$(H):F%=1
1350 NEXT:IF F%=0 THEN PRINT"Nothing at all"
1360 PRINT:GOTO 400
1370 GOSUB 1680:IF AB<>1 AND (R=19 OR R=20) THEN PRINT"I haven't got
it!":GOTO 400
1380 IF R=19 OR R=20 THEN PRINT"I am very drunk!":G$(11)="an empty gl
ass":GOTO 400
1390 IF R=23 OR R=24 THEN PRINT"I can't stand coffee":GOTO 400
1400 IF R=30 OR R=31 THEN PRINT"not likely! I'd be plastered!":GOTO
400
1410 IF R=67 THEN PRINT"I don't like soup!":GOTO 400
1420 PRINT"What am I supposed to drink?":GOTO 400
1430 GOSUB 1680:IF P%=35 AND R=37 THEN PRINT"He sinks his fangs into
my neck":GOTO 1730
1440 IF P%=8 AND R=38 THEN PRINT"Aaaagggghh. It killed me!":GOTO 1730
1450 IF P%=52 AND R=32 THEN PRINT"A policeman arrests me for attempte
d murder!":GOTO 1730
1460 IF P%=27 AND R=39 THEN PRINT"O.K.":G$(26)="a dead lizard":GOTO 4
00
1470 IF P%=10 AND R=38 THEN PRINT"I am covered with slime":GOTO 1730
1480 IF P%=23 AND R=60 AND AB=1 THEN PRINT"O.K.":G$(43)="a dead gobli
n":GOTO 400
1490 IF P%=23 AND R=60 THEN PRINT"I have nothing to kill it with and
he kills me first!":GOTO 1730
1500 IF R=59 OR R=66 THEN PRINT"That would only bring me bad luck!":G
OTO 400
1510 PRINT"What would you like me to attack?":GOTO 400
1520 IF AC<>1 THEN PRINT"I need an axe":GOTO 400
1530 IF P%<>5 THEN PRINT"Not here!":GOTO 400
1540 PRINT"O.K.":G$(34)="a pile of firewood":N$(48)="wood":AD=1:GOTO
400
1550 IF P%<>48 THEN PRINT"I haven't found anything!":GOTO 400
1560 IF AF=0 THEN PRINT"I've found something!":G$(5)="an ** antique
casket **":AF=1
1570 GOTO 400
1580 IF P%<>42 THEN PRINT"I can't see anything here to pull!":GOTO 40
0
1590 PRINT"O.K.":PRINT"The panel swings aside and I go out!":P%=34:GO
TO 400
1600 IF P%<>34 THEN PRINT"nothing happened!":GOTO 400
1610 PRINT"The panel swings aside and drags me with it!":P%=42:GOTO 4
00
1620 GOSUB 1680:IF P%=10 AND (R=54 OR R=55) AND AE=1 THEN PRINT"That'
s done the trick!":S$(10,3)=11:G$(38)="a shrivelled slug":GOTO 400
1630 IF (R=54 OR R=55) AND AE=0 THEN PRINT"I have no salt!":GOTO 400
1640 IF P%=35 AND R=18 AND AI=1 THEN PRINT"That's done the trick!":S$
(35,1)=36:G$(24)="a cloak":GOTO 400
1650 IF P%=35 AND R=18 THEN PRINT"I haven't got a crucifix":GOTO 400
1660 PRINT"I can't use a ";L$;" at the moment!":GOTO 400
1670 PRINT"not just yet!":GOTO 400
1680 L$="":FOR H=1 TO LEN(Z$):IF MID$(Z$,H,1)=" " THEN L$=RIGHT$(Z$,
(LEN(Z$)-H)):H=900
1690 NEXT
1700 R=0:L%=0:IF LEN(L$)<2 THEN RETURN
1710 FOR X=1 TO 69:IF LEFT$(N$(X),LEN(L$))=L$ THEN L%=1:R=X
1720 NEXT:RETURN
1730 PRINT:PRINT:PRINT"I am dead. Do you want to play again?"
1740 A$=INKEY$:IF A$="y" OR A$="Y" THEN RUN
1750 IF A$="n" OR A$="N" THEN END
1760 GOTO 1740
1770 A%=0:IF B%(1,1)=53 THEN A%=A%+1
1780 IF B%(2,1)=53 THEN A%=A%+1
1790 IF B%(3,1)=53 THEN A%=A%+1
1800 IF B%(4,1)=53 THEN A%=A%+1
1810 IF B%(5,1)=53 THEN A%=A%+1
1820 IF B%(6,1)=53 THEN A%=A%+1
1830 IF B%(7,1)=53 THEN A%=A%+1
1840 IF B%(8,1)=53 THEN A%=A%+1
1850 IF B%(9,1)=53 THEN A%=A%+1
1860 IF B%(10,1)=53 THEN A%=A%+1
1870 RETURN
1880 CLS:LOCATE 10,5:PRINT"W e l l   D o n e"
1890 PRINT:PRINT"You have found all the treasures and filled yo
ur car with petrol. As you drive out of the land of terror, you heave
a sigh of relief!"
```

Program Breakdown

10-70	titles
80-390	READ DATA
400-820	main control loop
400	describe location
410-480	describe directions
490-520	describe objects
540	input action
550-810	call routine or action
830-	routines for get etc

Variables used

AA-AZ	flags for actions
P%	current position
Q\$(x)	description of locations
G\$(x)	description of objects
N\$(x)	words understood
N%(x)	pointer to location where word recognised
B%(x,y)	pointer to location of object
S%(x,y)	map
A%	score
X,Y	general variables
H,T	general variables
E%,F%	flags
Z\$,B\$,C\$,D\$,L\$	words input

MSX

THERAPY

BORIS THE SPIDER

Here, you are given a series of anagrams to solve before Boris the Spider disembowels you! Each wrong guess moves him one step closer! You're only allowed to make a limited number of wrong guesses.

NOTE

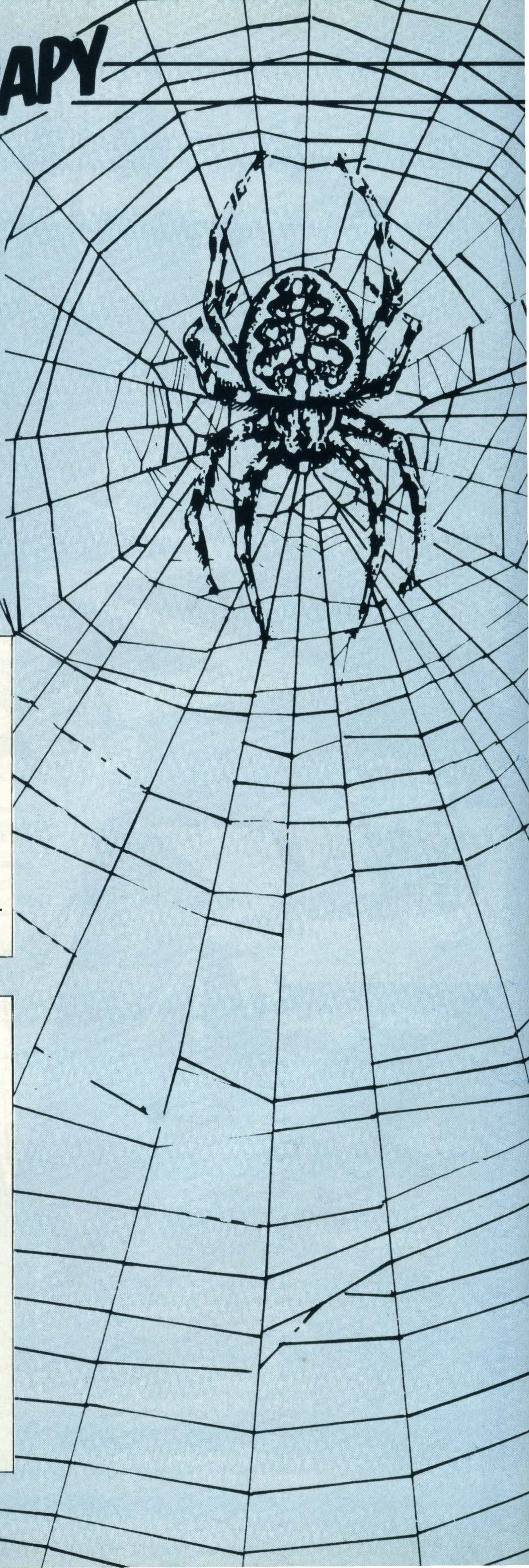
1. To change the questions, just change the data lines to include the words you'd like.
2. The printer used to list the program prints the hash sign (- SHIFT 3) as £.
3. The program is written in SCREEN 2 so that Boris and yourself can be defined as SPRITES.

Variables used

X,Y,Z	general control variables
SS,T\$	used for sprite definitions
SC%	score
A\$	word before turning into anagram
B\$	anagram
C\$	solution
D\$	input letter
S%,KL%,V%	used to place sprites and letters at correct screen location. Other variables are used to check the position of letters in string variables.

Program Breakdown

40	instructions
50	select mode
60	allows printing on HIRES screen
70-100	sprite definition
110-120	draw boxes on screen
130-140	random start
150-160	READ question
170	set A% to position word at centre of screen
180-210	create anagram
220-270	main control loop
280-350	check letter input and print at bottom of screen
360-390	win game
400-460	lose game
470-490	place sprites
500-530	data for sprite definition
540-630	words for anagrams
640	data for end of words
650-730	titles and instructions




```

10 REM ** Boris's Anagrams **
20 REM ** an educational game for MSX computers **
30 REM ** Steve W. Lucas October 1984 **
40 GOSUB 650
50 SCREEN 2,2,0:S$="":KEYOFF:COLOR 1,4
60 OPEN"grp:" FOR OUTPUT AS #1
70 FOR X=1 TO 32:READ Y:S$=S$+CHR$(Y):NEXT
80 SPRITE$(1)=S$
90 T$="":FOR X=1 TO 8:READ Y:T$=$+CHR$(Y):NEXT
100 SPRITE$(2)=T$
110 LINE (0,0)-(255,10),7,BF:LINE (0,151)-(255,161),7,BF
120 LINE (0,0)-(10,161),7,BF:LINE (245,0)-(255,161),7,BF
130 RESTORE 540
140 SCZ=0:FOR Y=1 TO XZ:READ A$:NEXT
150 B$="":READ A$: C$=A$
160 IF A$="xxxx" THEN RESTORE 540:READ A$:C$=A$
170 AZ=(32-LEN(A$))/2
180 FOR X=1 TO LEN(A$)
190 Z=INT(RND(1)*LEN(A$))+1
200 IF MID$(A$,Z,1)<>" " THEN B$=B$+MID$(A$,Z,1): A$=LEFT$(A$,Z-1)+"
"+RIGHT$(A$,LEN(A$)-Z) ELSE 190
210 NEXT X
220 PRESET (75,30):COLOR 13:PRINT#1,"The word is :-"
230 COLOR 11:PRESET (AZ*8,50):PRINT#1,B$
240 COLOR 12:PRESET (AZ*8,58):PRINT#1,STRING$(LEN(B$)," -")
250 COLOR 15:PRESET (75,80):PRINT#1,"Your Attempt :-"
260 GOSUB 280
270 GOTO 150
280 KL%=24:SZ=0:GOSUB 470:T%=0:UZ=LEN(B$)/2+2:VZ=1:WZ=0
290 D$=INKEY$:IF D$=" " THEN 290
300 COLOR 15:PRESET (KL%,185):PRINT#1,D$
310 KL%=KL%+8:IF MID$(C$,VZ,1)=D$ THEN PRESET (AZ*8+VZ*8-8,100):PRINT
#1,D$:VZ=VZ+1 ELSE SZ=SZ+1:GOSUB 470
320 IF VZ=LEN(C$)+1 THEN TZ=1
330 IF SZ=UZ OR TZ=1 THEN 340 ELSE 290
340 IF TZ=1 THEN GOSUB 360 ELSE GOSUB 410
350 RETURN
360 CLS:SCZ=SCZ+1:PRESET (75,25):COLOR 1:PRINT#1,"Well Done. You Win!"
370 PRESET (0,180):COLOR 15:PRINT#1,"Press Space Bar for another game"
380 A$=INKEY$:IF A$<>" " THEN 380
390 RUN
400 GOTO 400
410 CLS:GOSUB 470:COLOR 1:PRESET (75,25):PRINT#1,"You Lose...."
420 PRESET (15,50):COLOR 4:PRINT#1,"It was :-"
430 PRESET (75,75):COLOR 11:PRINT#1,C$
440 PRESET (0,170):COLOR 7:PRINT#1,"Press Space Bar for another game"
450 D$=INKEY$:IF D$<>" " THEN 450
460 RUN
470 PUT SPRITE 1,(SZ*16+20,125),1,1
480 PUT SPRITE 2,(200,125),7,2
490 RETURN
500 DATA 8,4,3,67,129,65,63,15,27,35,198,10,18,34,66,66,16,32,192,19
2,135,137,240,224,216,198,193,160,144,136,132,132
510 DATA 28,28,8,127,8,20,34,65,8,28,62,127,8,8,8,8,8,62,42,8,127,73
,8,8,32,124,254,255,106,126,122,122
520 DATA 20,20,40,20,66,24,87,22,156,34,179,29,22,45,87,45,121,56,16
4,64,29,70,45,62,78,78,111,64,156,59,177,71,201,65
530 DATA 24,101,45,99,69,111,131,125,167,116,189,104,207,107,227,94
540 DATA computer,anagram,philately,physical,burocracy,numismatics,a
rchaeology,industrial,advanced,cabaret,photography,ascent,explanation
550 DATA christian,greenhouse,ordinary,magazine,death,ionosphere,mic
roscope,gardening,happiness,philosophy,revealed,theocratic,sociable,la
yer,blistar,disintegrate,irrational,peccable,sentimental
560 DATA sensational,tangerine,wraith,gerontology,wombat,trinity,sus
picion,sequester,repellent,assortment,adenoids,chocolate,conciliation,
enwind,hostile,parliament,reason,plague,penumbra,orchid
570 DATA numeral,navigation,meridian,,ligament,magnetism,leash,jasmi
ne,insect,impassioned,humour,general,distracton,composition,discordan
ce,penitence,overt,tuneful
580 DATA navigate,damsel,brocade,attorney,stomach,renewal,mechanism,
lingual,jumper,litmus,prescription,airport,fumigate,infestation,forebo
ding,feudal,duodenum,contrast
590 DATA seedling,submerge,violation,temperature,eprom,supercilious,
retrospective,purulent,democracy,denomination,sincerity,turkey,shoulde
r,graduate,literature,textile
600 DATA testimonial,secondary,curriculum,development,relation,rehab
ilitation,pentagon,incense,contrite,admiral,united,blazonry,canal,clea
ver,honey,outside,thumb,suitable,pendulum
610 DATA research,grammar,envelope,inflation,index,langour,impetus,e
xpress,devaloper,enlarger,vacuum,velocity,seasonal,musical,guitar,plat
inum,future
620 DATA vehicie,petroleum,vapour,inhale,initiate,progress,historica
l,dissonant,distracton,councillor,clarify,calyx,assortment,eclipse,pr
ayer,adept,liberty,sectional,twitter
630 DATA umbrella,ample,welter,vaseline,understanding,transparency,t
oxicology,testimonial,succinct,ruffian,reverend,proportional,pantograp
h,aperetta,dissonance
640 DATA xxxx
650 SCREEN 0:KEYOFF:COLOR 1,15:LOCATE 10,2
660 PRINT"Boris's Anagrams"
670 PRINT:PRINT:PRINT:PRINT"<C> Steve W. Lucas October 1984"
680 PRINT:PRINT:PRINT"In this game, you will be shown a series of
anagrams. You must try to solve the anagram before Boris the spide
r catches you.."
690 LOCATE 0,24:PRINT"Press the <SPACE BAR> to start game."
700 A$=INKEY$:XZ=INT(RND(1)*100)+1
710 IF A$<>" " THEN 700
720 RESTORE:COLOR 1,4
730 RETURN

```


THERAPY

This game is played on a 5 x 4 board labelled 1-5 across and A to D down. Hidden on the board are 10 matching pairs of objects. Your task is to find them all. To make life difficult, you have only 20 moves.

You're allowed to view the objects hiding in any two squares by entering the coordinates in the form of number-letter (eg: 4D NOT D4).

REMEMBER: the computer will only accept upper case letters (D NOT d) and you should make sure that the CAPS lock light is

on before running the program.

If the contents of the two squares are identical, they will remain on the screen and your score will be

increased by one, otherwise they will disappear before your next turn. After each turn, you will be asked to press the space bar to continue. Good luck!

Variables used

A (x)	holds the codes for the objects (these are VPOKED to the text screen)
Y,X	coordinates of square
ZZ,ZF,ZG	number of square from 1-20
E%	number of turns left
SC	score
Y	random number

Program Breakdown

50	select text screen and width
60	turn off function key display
70-150	instructions
160	seed random number generator so that you get a different board (depends on how long you take to press space bar)
170-240	draw board
250-320	initialise variables and hide objects in array A (X)
330-350	label axes
360-370	print messages
380-470	input square 1 & check validity
480	print object
490-600	input square 2 & check it
610	print object
620-710	check for next turn
720	continue next turn
730-780	lose game
790-860	check if objects are the same and adjust score
870-930	plot objects on text screen
940	win game
950	vpoke positions for POKING to VIDEO RAM

```

>
10 REM ** THE HUNT **
20 REM ** A Game of skill for MSX Computers **
30 REM ** <C> Steve W. Lucas September 1984 **
40 REM ** For Argus Specialist Publications **
50 SCREEN 0:WIDTH 40
60 KEYOFF:TIME=0
70 CLS:LOCATE 15,0:PRINT"The Hunt"
80 LOCATE 2,2:PRINT"<C> Steve W. Lucas September 1984 "
90 LOCATE 0,4:PRINT"This game is played on a 5 x 4 board  labelle
d 1 - 5 across and A to D down."
100 PRINT"Hidden in each square is an object. There are 10 diffe
rent types of objects hidden on the board and you have to try to find
the ten matching pairs."
110 PRINT"The computer will ask you to enter the coordinates of the
square you wish to view and you will only be allowed to look at
two squares at any one time."
120 PRINT"If the two objects are identical, they will remain visibl

```

THE HUNT


```

e and you will score one point."
130 PRINT "You must enter the coordinates of the square you wish to
view in the form of number letter (eg. 4E and not E4).";
140 PRINT:PRINT:PRINT "Press the <Space Bar> to start the game.";
150 A$=INKEY$:IF A$<>" " THEN 150
160 FOR X=1 TO TIME STEP 20:P=RND(1):NEXT
170 CLS
180 FOR Y=0 TO 22:FOR X=1 TO 6
190 LOCATE X*5-5,Y
200 PRINTCHR$(198);
210 NEXT X,Y
220 FOR X=0 TO 26:FOR Y=1 TO 22 STEP 5
230 LOCATE X,Y:PRINTCHR$(95);
240 NEXT Y,X
250 E%=21:SC=0:DIM A(20)
260 FOR X=1 TO 20
270 Y=INT(RND(1)*20)+1
280 IF A(Y)<>0 THEN 270
290 A(Y)=X
300 NEXT
310 FOR X=1 TO 20:IF A(X)>10 THEN A(X)=A(X)-10
320 NEXT
330 FOR X=1 TO 5:LOCATE X*5-3,0:PRINT X;:LOCATE X*5-3,22:PRINT X;:NE
XT
340 FOR X=1 TO 4:LOCATE 26,X*5-1:PRINTCHR$(64+X);:NEXT
350 FOR Y=23 TO 2 STEP -1:LOCATE 29,Y:PRINT CHR$(198);:NEXT
360 LOCATE 32,0:PRINT "The Hunt";
370 E%=E%-1:LOCATE 30,3:PRINT "Turns left":F=FRE("")
380 LOCATE 32,5:PRINT E%:LOCATE 30,8:PRINT "Square 1"
390 AA$=INKEY$:IF AA$="" THEN 390
400 AA=VAL(AA$):IF AA<1 OR AA>5 THEN 390
410 LOCATE 32,10:PRINTAA;
420 AB$=INKEY$:IF AB$="" THEN 420
430 IF AB$="A" OR AB$="B" OR AB$="C" OR AB$="D" THEN 440 ELSE 420
440 LOCATE 34,10:PRINTAB$;:KK=0:AB=ASC(AB$)-64
450 ZZ=(AB-1)*5+AA:REM ** POSITION OF CHARACTER IN ARRAY **
460 ZF=ZZ
470 IF A(ZZ)=0 THEN LOCATE 30,1:PRINT "Silly!":KK=1:ZG=0:GOSUB 800:GO
TO 620
480 GOSUB 880:REM ** plot objects **
490 LOCATE 30,13:PRINT "Square 2";
500 AC$=INKEY$:IF AC$="" THEN 500
510 AC=VAL(AC$)
520 IF AC<1 OR AC>5 THEN 500
530 LOCATE 32,15:PRINTAC$;
540 AD$=INKEY$:IF AD$="" THEN 540
550 IF AD$="A" OR AD$="B" OR AD$="C" OR AD$="D" THEN 560 ELSE 540
560 AD=ASC(AD$)-64
570 LOCATE 34,15:PRINTAD$;
580 ZZ=(AD-1)*5+AC:ZG=ZZ:REM LOCATION IN ARRAY
590 IF ZF=ZG THEN LOCATE 30,1:PRINT "Silly!":GOSUB 800:GOTO 620
600 IF A(ZZ)=0 THEN LOCATE 30,1:PRINT "Silly!":GOTO 620
610 GOSUB 880:REM ** plot graphics **
620 LOCATE 29,20:PRINT "<Space Bar>";
630 FA$=INKEY$:IF FA$<>" " THEN 630
640 LOCATE 30,13:PRINT " ";
650 LOCATE 30,8:PRINT " ";
660 LOCATE 32,15:PRINT " ";
670 LOCATE 32,10:PRINT " ";
680 LOCATE 29,1:PRINT " ";
690 LOCATE 29,20:PRINT " ";
700 IF KK<>1 THEN GOSUB 800:REM Erase graphics **
710 IF SC=10 THEN 940 ELSE IF E%=1 THEN 730
720 GOTO 370
730 CLS:LOCATE 13,2:PRINT "YOU LOST !!!!!"
740 LOCATE 12,10:PRINT "You scored ";SC
750 LOCATE 0,20:PRINT "Would you like to play again <Y/N> ?"
760 A$=INKEY$:IF A$="Y" OR A$="y" THEN RUN
770 IF A$="n" OR A$="N" THEN LOCATE 1,22:PRINT "Goodbye. Thank you fo
r playing.":END
780 GOTO 760
790 REM ** CHECK IF OBJECTS ARE SAME,ADJUST SCORE ETC.**
800 DD=A(ZF):DE=A(ZG)
810 IF ZF=ZG THEN 830
820 IF DD=DE THEN SC=SC+1:A(ZF)=0:A(ZG)=0:RETURN
830 RESTORE
840 FOR V=1 TO ZF:READ H%:NEXT:VPOKEH%,32
850 RESTORE :FOR V=1 TO ZG:READ H%:NEXT:VPOKE H%,32
860 RETURN
870 REM ** routine for plotting the objects **
880 RESTORE
890 L=A(ZZ)
900 RESTORE:FOR V=1 TO ZZ:REM ** read vpoke position for square **
910 READ H%
920 NEXT:VFOKE H%,L
930 RETURN
940 CLS:LOCATE 0,2:PRINT "Well Done. You found all the objects !":GOT
O 740
950 DATA 122,127,132,137,142,322,327,332,337,342,522,527,532,537,542
,722,727,732,737,742,922,927,932,937,942

```


BOMBER PATROL



You are flying your plane on a dangerous mission into enemy country and are just about to run out of fuel. Below you is the deserted ruins of an enemy city but you must land your plane safely or die. "Korks!", you say. To do this you must bomb the buildings so there's a clear landing strip. The only control you need to use is the SPACE bar, which drops a bomb.

NOTE

1. The printer used to list this program prints the hash sign (Shift 3) as a pound (£).
2. The program is very short and shows just how sophisticated MSX BASIC is to allow us to write it using so few lines.
3. Each landing you make successfully will slow down your bombing ability, making the next landing much more difficult.
4. Suggested improvements: you could try to add the following features. a) more sound effects; b) a better display of the bomb being dropped (Sprite 3 is the bomb, whilst sprites 1 and 2 make up the plane).

Variables used

X%,Y%
Q%
A%
A\$

placing of plane sprites
difficulty level
check if bomb is being dropped
used in sprite definitions

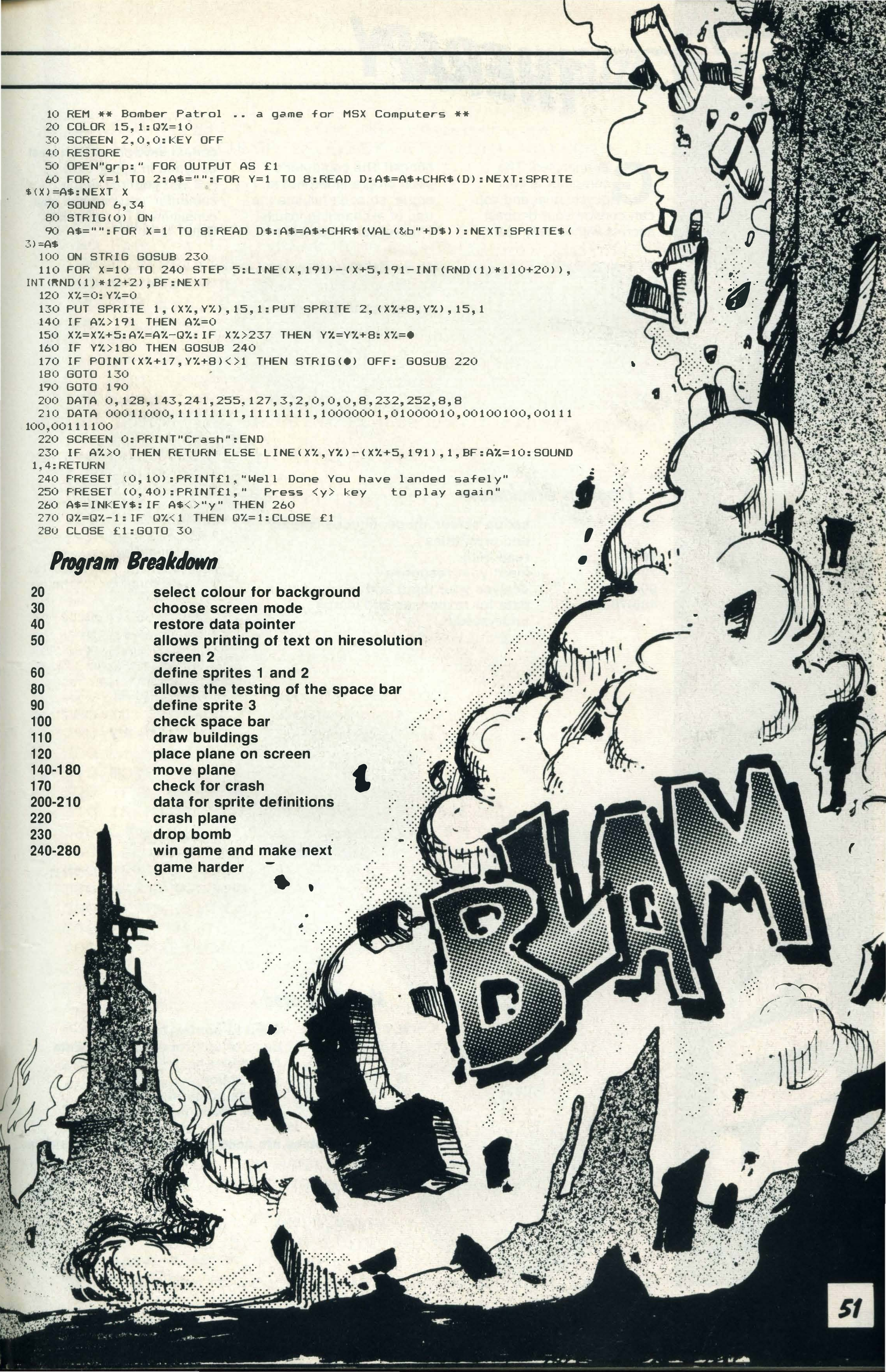

```

10 REM ** Bomber Patrol .. a game for MSX Computers **
20 COLOR 15,1:Q%=10
30 SCREEN 2,0,0:KEY OFF
40 RESTORE
50 OPEN"grp:" FOR OUTPUT AS £1
60 FOR X=1 TO 2:A$="":FOR Y=1 TO 8:READ D:A$=A$+CHR$(D):NEXT:SPRITE
$(X)=A$:NEXT X
70 SOUND 6,34
80 STRIG(0) ON
90 A$="":FOR X=1 TO 8:READ D$:A$=A$+CHR$(VAL("&b"+D$)):NEXT:SPRITE$(
3)=A$
100 ON STRIG GOSUB 230
110 FOR X=10 TO 240 STEP 5:LINE(X,191)-(X+5,191-INT(RND(1)*110+20)),
INT(RND(1)*12+2),BF:NEXT
120 X%=0:Y%=0
130 PUT SPRITE 1,(X%,Y%),15,1:PUT SPRITE 2,(X%+8,Y%),15,1
140 IF A%>191 THEN A%=0
150 X%=X%+5:A%=A%-Q%:IF X%>237 THEN Y%=Y%+8:X%=0
160 IF Y%>180 THEN GOSUB 240
170 IF POINT(X%+17,Y%+8)<>1 THEN STRIG(0) OFF: GOSUB 220
180 GOTO 130
190 GOTO 190
200 DATA 0,128,143,241,255,127,3,2,0,0,0,8,232,252,8,8
210 DATA 00011000,11111111,11111111,10000001,01000010,00100100,00111
100,00111100
220 SCREEN 0:PRINT"Crash":END
230 IF A%>0 THEN RETURN ELSE LINE(X%,Y%)-(X%+5,191),1,BF:A%=10:SOUND
1,4:RETURN
240 PRESET (0,10):PRINT£1,"Well Done You have landed safely"
250 PRESET (0,40):PRINT£1," Press <y> key to play again"
260 A$=INKEY$: IF A$<>"y" THEN 260
270 Q%=Q%-1: IF Q%<1 THEN Q%=1:CLOSE £1
280 CLOSE £1:GOTO 30

```

Program Breakdown

20	select colour for background
30	choose screen mode
40	restore data pointer
50	allows printing of text on hiresolution screen 2
60	define sprites 1 and 2
80	allows the testing of the space bar
90	define sprite 3
100	check space bar
110	draw buildings
120	place plane on screen
140-180	move plane
170	check for crash
200-210	data for sprite definitions
220	crash plane
230	drop bomb
240-280	win game and make next game harder



Get analysed! The computer is your psychiatrist and you can confide your deepest secrets without any fears,

honest! The computer's been programmed not to argue, so don't fall into the trap of exchanging insults! This version responds to

certain keywords which must be typed in upper case.

If you get tired of the computer, you can end your consultation by telling it to SHUT UP!

Program Breakdown

10-30	set up screen mode, choose colours and print titles
40-60	read data
70-80	input your response
90-470	analyse your input and respond to it
480-760	data for responses and words understood

Variables used

X,Y	used to control loops
A1,A2,A3	used to control sections of data
Z\$	responses
I\$	your action
L	checks position in string
Q%,R%,N%	check response

Other variables are used to check position in strings.


```

> 10 REM ** Eliza ... for MSX Computers **
20 SCREEN 0:COLOR 15,4:KEY OFF:WIDTH 40:LOCATE 15,2:PRINT"E L I Z A
"
30 LOCATE 15,3:PRINT"-----"
40 DIM Q%(50),R%(50),N%(50):A1=36:A2=14:A3=112
50 A=A1+A2+A3:FOR T=1 TO A:READ Z$:NEXT
60 FOR Y=1 TO A1:READ Q%(Y),L:R%(Y)=Q%(Y):N%(Y)=Q%(Y)+L-1:NEXT
70 CLS:PRINT"Hello there. My name is Eliza, Can I help you ?"
80 PRINT:INPUT I$:PRINT:I$=" "+I$+" "
90 FOR L=1 TO LEN(I$)
100 IF MID$(I$,L,1)="" THEN I$=LEFT$(I$,L-1)+RIGHT$(I$,LEN(I$)-L):G
OTO 100
110 IF L+4<=LEN(I$) AND MID$(I$,L,4)="SHUT" THEN PRINT"SHUT UP YOURS
ELF . YOU UNGRATEFUL PATIENT !":END
120 NEXT
130 IF I$=P$ THEN PRINT"Please don't repeat yourself !":GOTO 80
140 RESTORE
150 S=0:FOR K=1 TO A1:READ K$
160 IF S>0 THEN 200
170 FOR L=1 TO LEN(I$)-LEN(K$)+1
180 IF MID$(I$,L,LEN(K$))=K$ THEN S=K:T=L:F$=K$
190 NEXT L
200 NEXT K
210 IF S>0 THEN K=S:L=T:GOTO 230
220 K=36:GOTO 420
230 RESTORE:FOR Y=1 TO A1:READ Z$:NEXT
240 C$=" "+RIGHT$(I$,LEN(I$)-LEN(F$)-L+1)+" "
250 FOR X=1 TO A2/2:READ S$,R$
260 FOR L=1 TO LEN(C$)
270 IF L+LEN(S$)>LEN(C$) THEN 320
280 IF MID$(C$,L,LEN(S$))<>S$ THEN 320
290 C$=LEFT$(C$,L-1)+R$+RIGHT$(C$,LEN(C$)-L-LEN(S$)+1)
300 L=L+LEN(R$)
310 GOTO 360
320 IF LEN(R$)+L>LEN(C$) THEN 360
330 IF MID$(C$,L,LEN(R$))<>R$ THEN 360
340 C$=LEFT$(C$,L-1)+S$+RIGHT$(C$,LEN(C$)-L-LEN(R$)+1)
350 L=L+LEN(S$)
360 NEXT L
370 NEXT X
380 IF MID$(C$,2,1)="" THEN C$=RIGHT$(C$,LEN(C$)-1)
390 FOR L=1 TO LEN(C$)
400 IF MID$(C$,L,1)="!" THEN C$=LEFT$(C$,L-1)+RIGHT$(C$,LEN(C$)-L):G
OTO 400
410 NEXT
420 RESTORE:FOR X=1 TO A1+A2:READ P$:NEXT
430 FOR Y=1 TO R%(K):READ F$:NEXT
440 R%(K)=R%(K)+1:IF R%(K)>N%(K) THEN R%(K)=Q%(K)
450 IF RIGHT$(F$,1)<>"*" THEN PRINTF$:P$=I$:GOTO 80
460 PRINTLEFT$(F$,LEN(F$)-1);C$
470 P$=I$:GOTO 80
480 DATA CAN YOU,CAN I,YOU ARE,YOU'RE,I DON'T,I FEEL,WHY DON'T YOU,W
HY CAN'T I,ARE YOU,I CAN'T,I AM,I'M
490 DATA "YOU ",I WANT,WHAT,HOW,WHY,WHERE,WHEN,WHY,NAME,CAUSE,SORRY,
DREAM,HELLO,HI,MAYBE,NO,YOUR,ALWAYS,THINK,ALIKE,YES,FRIEND,COMPUTER,PE
RHAPS
500 DATA " ARE"," AM "," WERE "," WAS "," YOU "," I "," YOUR "," MY ","
I'VE "," YOU'VE "," I'M"," YOU'RE "
510 DATA " ME "," !YOU "
520 DATA Don't you believe me when I say I can*,Perhaps you would li

```


ke to be able to*,Do you want me to*,Perhaps you do'nt want to*,Do you want to be able to*,What makes you think I am*

530 DATA Does it please you to believe that*

540 DATA Perhaps you would like to be*,Do you sometimes wish you wer e*,Don't you really*,Why don't you*,Do you wish to be able to*,Does th at trouble you*

550 DATA Tell me more about such feelings,Do you often feel*,Do you enjoy feeling*,Do you really believe I don't*,Perhaps in good time I w ill*,Do you want me to*

560 DATA Do you think you should be able to*,Why can't you*,Why are you interested in whether or not I am*,Would you prefer it if I were n ot*,Perhaps in your fantasies I am*,How do you know you can't

570 DATA Have you tried*,Perhaps you can now*,Did you come to me bec ause you are*,How long have you been*,Do you believe it is normal to b e*,Do you enjoy being*,We were discussing you...not me!,Oh I*

580 DATA "You're not really talking about me,are you"

590 DATA What would it mean to you if you got*,Why do you want*,Supp ose you soon got*,What if you never got*,I sometimes also want*,Why do you ask*,Does that question interest you?

600 DATA What answer would please you most?,What do you think?,Are s uch questions on your mind often?,What is it that you really want to k now?,Have you asked anyone else?,Have you asked such questions before?

610 DATA What else comes to mind when you ask that?

620 DATA Names don't interest me,I don't care about names. Please go on,Is that the real reason?,Don't any other reasons come to mind?,Doe s that reason explain anything else?

630 DATA What other reasons might there be?,Please don't apologize,a pologies are not necessary,What feelings do you have when you apologiz e?,Don't be so defensive,What does that dream suggest to you?,Do you d ream often?

640 DATA What people appear in your dreams?,Are you disturbed by you r dreams?,How do you do...Please state your problem,You don't seem to be very certain,Why are you so uncertain?

650 DATA Can't you adopt a more positive attitude?,You don't seem su re,Don't you know?

660 DATA Are you saying no just to be negative?,You are being very n egative,Why not *,Are you sure?,Why no *,Are you concerned about my*,W hat about your own*,Can you think of a specific example?

670 DATA When ?,What are you thinking of?,"Really, always ?",Do you really think so?

680 DATA But you're not sure you*,Do you doubt you*,In what way ?,Wh at resemblance do you see?,What does the similarity suggest to you?,Wh at other connections do you see?,Could there really be some connection ?,How?

690 DATA You seem quite sure

700 DATA are you sure ?,I see,I understand,Why do you mention your f riends?,Do your friends worry you?,Do your friends pick on you?,Are yo u sure you have any friends ?,Do you impose on your friends ?

710 DATA Perhaps your love for friends worries you

720 DATA Do computers worry you?,Are you talking about me in particu lar?,Are you scared of machines?,Why do you mention computers?,What do you think machines have to do with your problem?

730 DATA Don't you think that computers can help people?,What is it about machines that worries you?,Do you have any psychological problem s?,What does that suggest to you?,I see.,I'm not sure that I fully und erstand you

740 DATA "Come,Come elucidate your thoughts"

750 DATA Can you elaborate on that?,That's quite interesting,1,3,4,2 ,6,4,6,4,10,4,14,3,17,3,20,2,22,3,25,3,28,4,28,4,32,3,35,5,40,9,40,9,4 0,9,40,9,40,9,40,9

760 DATA 49,2,51,4,55,4,59,4,63,1,63,1,64,5,69,5,74,2,76,4,80,3,83,7 ,90,3,93,6,99,7,106,6

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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.

Send to:

MSX User

Argus Specialist Publications

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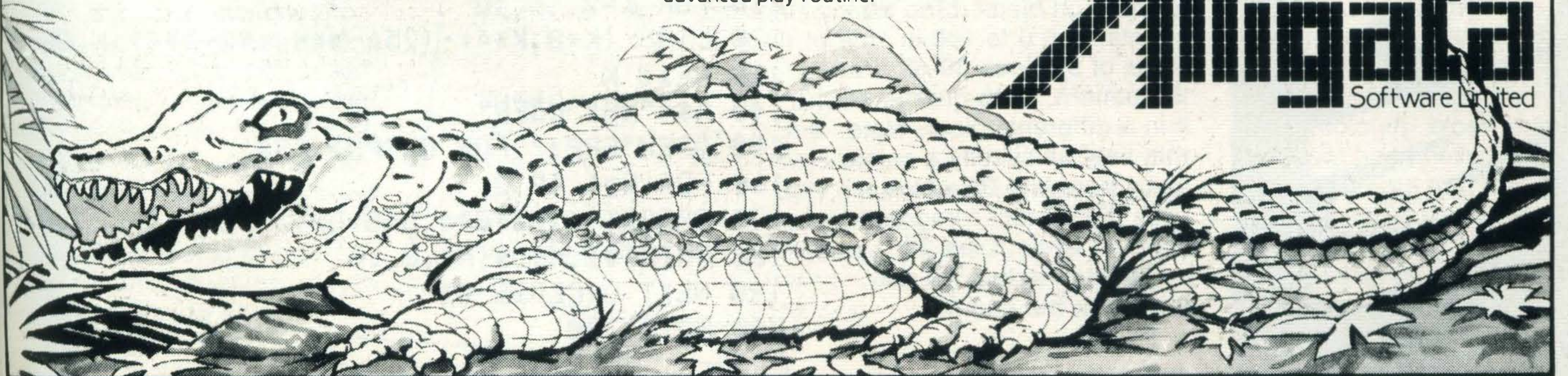


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A closer look at hi-resolution graphics and re-defining characters. Graham Knight and Stuart Pirie squabble over the keyboard.

LINE

The **LINE** command is used to draw lines, boxes or filled-in boxes in hi-res mode – SCREEN 2. The first two **LINE** co-ordinates (**X,Y**) set the start position of the line. If these are left out, the current position on the graphic screen applies. The third parameter of **LINE** (**C**) selects the colour for the lines or boxes, if it's omitted the current foreground colour applies. The last parameter specifies a rectangle or filled-in box. To draw a rectangle enter **B** (for Box) or **BF** for a Box Filled. If this parameter is omitted a line is drawn between the two specified co-ordinates.

LINE (**X,Y**) – (**X,Y**), **C**, **B/BF**

Program 10 draws a pattern on the screen similar to the 'nail and string' type pictures. **Line 10** puts the

variable by 5. **Line 80** stops the computer from going straight back into text mode. To break out of the program, press the **CTRL** and **STOP** keys at the same time. Try adding **,B** onto the end of **lines 30-60** and watch the result. (for **line 30** add **,B** otherwise the computer will interpret the **B** as a variable specifying the colour for the line).

Program 11 draws 14 different coloured boxes inside each other, then displays the words 'MSX USER' diagonally within the centre box. **Lines 110-130** use the **LINE** Command with **BF** at the end which fills in all the boxes that are drawn. **Line 150** **OPENS** a file to the hi-res screen which the

rest of the program will use for displaying the letters. **Line 160** is used for counting along the string variable that holds the message to be printed. **Line 170** sets the point at which the next letter is to be printed by the instruction in **line 180**. **Line 190** loops back to **line 170** until the whole string has been printed and then **CLOSEs** that file. **Line 200** stops the computer going straight back into text mode.

CIRCLE

The **CIRCLE** command (SCREEN 2 again) has 6 parameters which are as follows: centre (**X,Y**) Radius, Colour, Start Angle, End Angle and Aspect Ratio. The

```

●Program 10 – spirograph
10 COLOR 15,0,0:SCREEN 2
20 FOR FZ=0 TO 100 STEP 5
30 LINE (0,FZ)-(FZ,100)
40 LINE (FZ,100)-(100,100-FZ),13
50 LINE (100,100-FZ)-(100-FZ,0),2
60 LINE (100-FZ,0)-(0,FZ),6
70 NEXT FZ
80 GOTO 80

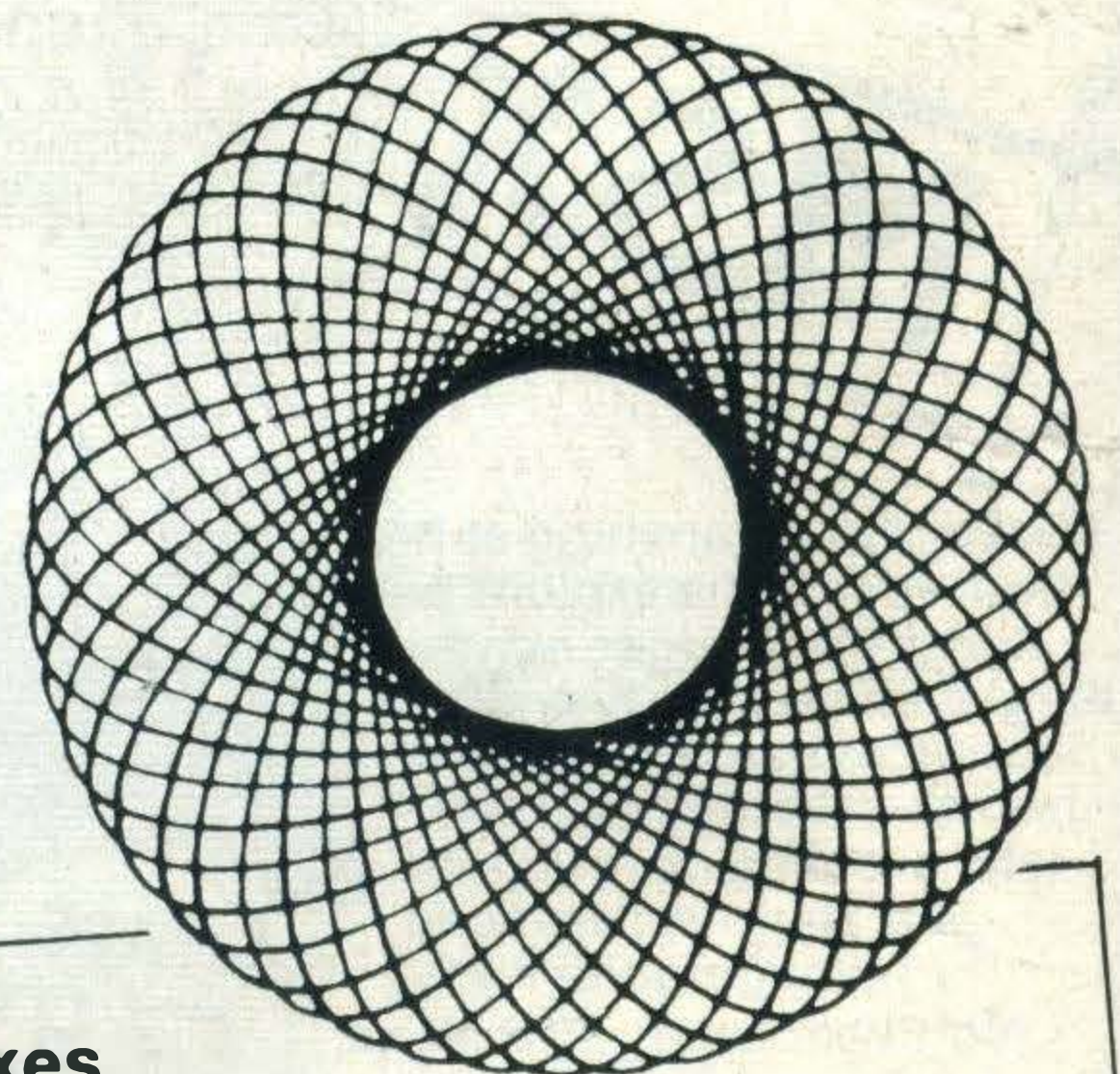
```

computer into hi-res mode and sets the current colours to white on black. **Line 20** counts from 0 to 100 in steps of 5. **Lines 30-60** draw the pattern, each quarter of it in a different colour. Note that they all specify a colour apart from **line 30** which uses the current foreground colour – white. **Line 70** loops back to **line 40** and increases the counter

```

●Program 11 – colour boxes
100 COLOR 15,13,0:SCREEN 2
110 FOR K=2 TO 13
120 LINE (K*8,K*4)-(256-K*8,192-K*4),K,BF
130 NEXT K
140 A$="MSX USER"
150 OPEN"GRP:" FOR OUTPUT AS#1
160 FOR G=1 TO 8
170 PRESET (108+G*4,G*8+58)
180 PRINT#1,MID$(A$,G,1)
190 NEXT G:CLOSE #1
200 GOTO 200

```



last four of these parameters are optional. The start angle and end angles are used to draw arcs instead of complete circles and are measured in radians (PI radians = 180 degrees). They can both range from -2PI to 2PI. The aspect ratio is the ratio of the height to the width. e.g. a value of 2 will make the shape twice as high as it is wide.

CIRCLE (X,Y), R, C, SA, EA, AR

Program 12 draws a ring of randomly coloured circles.

```

●Program 12 - circle ring
100 COLOR 15,1,1:SCREEN 2
110 PI=3.141592654#:A=RND(-TIME)
120 FOR F%=1 TO 4
130 FOR S=0 TO 340 STEP 20
140 X=127+70*COS(PI*S/180)
150 Y=96+60*SIN(PI*S/180)
160 A=RND(1)*14+2
170 CIRCLE (X,Y),24,A
180 PAINT (X,Y),A:NEXT S
190 NEXT F%
200 GOTO 200

```

Line 110 sets up the PI variable. It also sets the seed of the random number generator so that every time the program's RUN, the colours are different. Lines 140 and 150 calculate the locations of the centres of the circles. Line 180 uses the PAINT command to fill the circles with their outline colour. PAINT starts at the point specified and then fills in the area around it until the chosen colour is found. This means that anything you are filling in has to have

complete edges, if there are any gaps the 'paint' will 'spill' out and colour the whole screen!

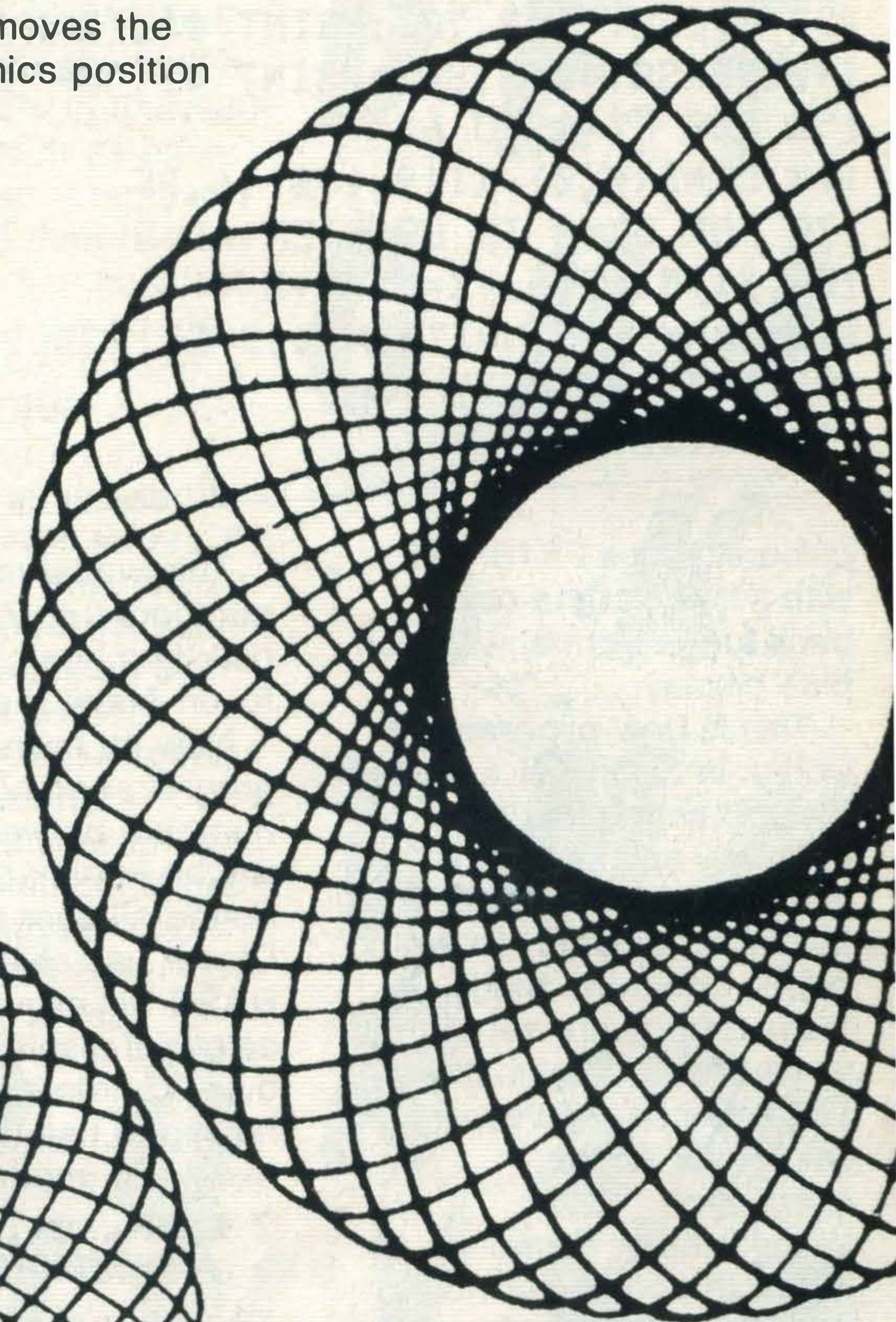
DRAW

This command also works on the hi-res screen. To make it versatile, various sub-commands are embedded within it. These allow you to draw shapes in different colours and sizes.

DRAW "string expression"

Program 13 draws a small letter E in the top left hand corner and then zooms it forward in twenty increasing sizes. The letter E is drawn by line 190, the sub commands used are as follows: BM moves the current graphics position

without drawing a line, S sets the scale factor, U D L & R draw lines Up, Down, Left & Right respectively. The value of G% sets the scale. Change the numbers in line 170 to alter the size



and speed of the zoom effect.

Special routines

In the last issue of MSX User, we told you that there is a way of displaying all 16 colours on the screen at the same time in SCREEN 1 mode. This is different from the MSX specification which states that only three colours are possible in SCREEN 1 mode: foreground, background and border. MSX BASIC only supports these three colours but with the use of the VPOKE command, all 16 colours can be displayed.

Start to learn about the VPOKE command by typing in and running Program 14. This displays all the 256 characters in white on blue then changes the display into random combinations of all 16 colours. When the program has finished enter LIST and note that the program itself is now in different colours. Experiment by pressing character keys - they also appear in different

Cmd	Movement
U n	— Up
D n	— Down
L n	— Left
R n	— Right
E n	— Diagonally Up & Right
F n	— Diagonally Down & Right
G n	— Diagonally Down & Left
H n	— Diagonally Up & Left
M x,y	— Absolute or Relative
Prefixes:	B — plots no points
	N — returns to start point
Cmd	Function
A n	— Sets angle n
C n	— Sets colour n
S n	— Sets scale factor for movement commands
X (string variable)	— executes another string from within the first

● Program 13 - Es

```
100 COLOR 15,6,6:SCREEN 2
110 OPEN "GRP:"AS#1
120 PRESET(120,60):PRINT #1,"THE SCALE COMMAND"
130 PRESET(120,70):PRINT #1,"CAN ZOOM A LETTER"
140 PRESET(146,80):PRINT #1,"UP IN SIZE"
150 FOR F%=1 TO 6
160 LINE(0,0)-(119,190),6,BF
170 FOR G%=8 TO 88 STEP 4
180 X%=G%/2+5:Y%=G%/2+5
190 DRAW"C15BM=X%;,=Y%;S=G%;R3DL2DRDLDR2DL3U5"
200 NEXT G%:NEXT F%
210 GOTO210
```

colours. Press F6 (SHIFT with F1) to set the colours back to the normal white on blue display.

This is how program 14 works: in SCREEN 1 mode, the 256 characters are internally split up into 32 groups of 8. When entering this mode or when changing colour within the mode, all these groups are set to the same colour combination. This effectively gives two colours for all the characters.

The area of memory where the computer holds the colour data is given by the **BASE** () command. To change the colour of the numbers 0 to 7, you would change the colour of group 6. This is calculated by taking the ASCII code of the first character in the group ('O' has ASCII code 48). Then divide this number by 8. After having calculated the group number (in this case 6), simply **VPOKE** the colours required. In our example the command would be:

```
VPOKE BASE (6) + 6,&HF1.
```

This would make the numbers 0 to 7 appear in pink (the hex code for pink is F) on black (hex 1).

Now try listing the program and note that the numbers between 0 and 7 will be in pink on black dotted all over the screen. Clever use of **VPOKE** and **BASE** will allow much more colourful displays in your own programs without having to use the high resolution mode.

Re-defining characters

This facility is available in screen modes 0 and 1 but again there is no description of how to do this in the MSX specification. When you enter mode 1, the character set data is copied from the MSC BASIC ROM into the Video RAM. Normally it remains unchanged, giving the standard 256 MSX characters, but it is very easy to change these characters into any shape you want.

● Program 14 - multicolour characters

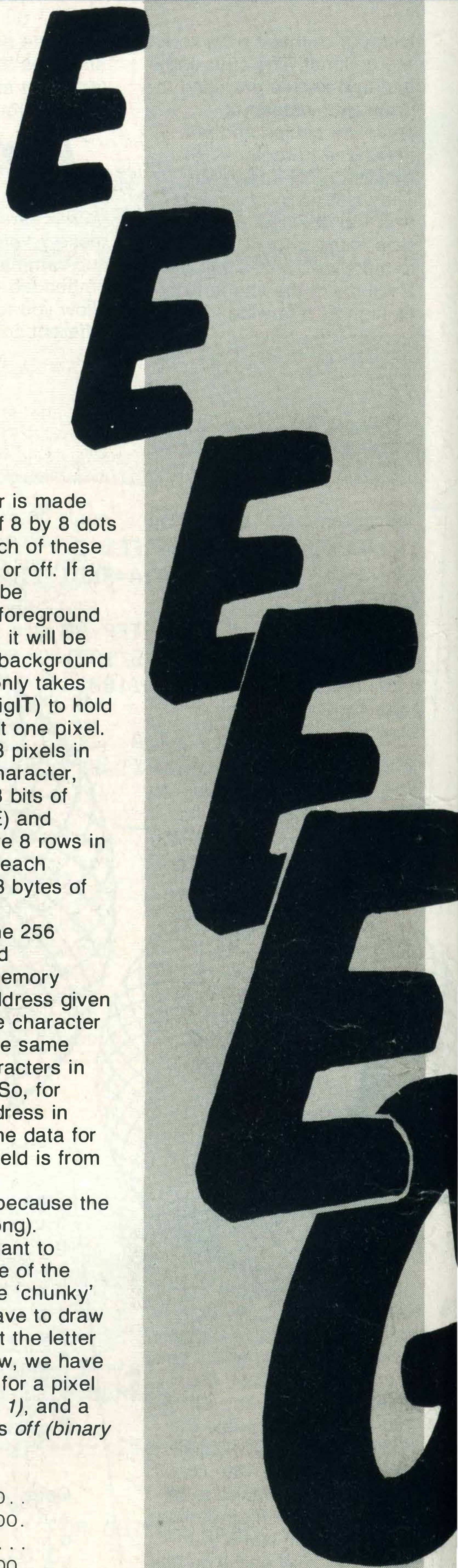
```
100 SCREEN 1:COLOR 15,4,0
110 LOCATE 5,1
120 PRINT "ALL 256 CHARACTERS"
130 FOR Y=0 TO 15:FOR X=0 TO 15
140 VPOKE BASE(5)+32*Y+X+136,X*16+Y
150 NEXT X,Y
160 LOCATE 5,21
170 PRINT "MSX USER MAGAZINE"
180 FOR GK=1 TO 2000:NEXT
190 FOR N=1 TO 100
200 FOR GK=0 TO 31
210 VPOKE BASE(6)+GK,RND(1)*256
220 NEXT GK,N
```

Each character is made up of a square of 8 by 8 dots called pixels. Each of these can be either on or off. If a pixel is *on* it will be displayed in the foreground colour. If it is *off*, it will be displayed in the background colour. Thus, it only takes one bit (**B**inary **d**ig**I**T) to hold information about one pixel. Since there are 8 pixels in every row of a character, each row takes 8 bits of memory (a **BY**TE) and because there are 8 rows in every character, each character takes 8 bytes of memory.

The data for the 256 characters is held sequentially in memory starting at the address given by **BASE** (7). The character data is held in the same order as the characters in the ASCII table. So, for example, the address in memory where the data for the letter 'G' is held is from $ASC("G") * 8$ to $ASC("G") * 8 + 7$ (because the data is 8 bytes long).

Let's say we want to change the shape of the letter G to a more 'chunky' letter. First we have to draw out what we want the letter to look like. Below, we have used the letter 0 for a pixel that is *on* (binary 1), and a dot for one that is *off* (binary 0).

Line 0	.00000..
Line 1	00...00.
Line 2	00.....
Line 3	00..000.
Line 4	00...00.
Line 5	00...00.
Line 6	.00000..
Line 7



● Program 15 - bigger G

```

100 SCREEN 1
110 A%=BASE(7)+ASC("G")*8
120 VPOKE A%+0,&B01111100
130 VPOKE A%+1,&B11000110
140 VPOKE A%+2,&B11000000
150 VPOKE A%+3,&B11001110
160 VPOKE A%+4,&B11000110
170 VPOKE A%+5,&B11000110
180 VPOKE A%+6,&B01111100
190 VPOKE A%+7,&B00000000
    
```

Note that the right-most column and the bottom line of pixels are all off. This is so that letters don't touch when placed together on the screen. Program 15 uses this information to redefine the letter G. It can be written in a more efficient form, using hexadecimal numbers instead of binary and using a FOR...NEXT loop to read in and store the numbers. It's written in its current form to allow you to understand it more easily. Below are the

hexadecimal equivalents of the binary numbers 1 to 16 in the pixel representation used above:

0	8	0...
1	...0	9	0..0
2	..0.	A	0.0.
3	..00	B	0.00
4	.0..	C	00..
5	.0.0	D	00.0
6	.00.	E	000.
7	.000	F	0000

To express an 8 bit binary number in hex, you split it up into two groups of 4 bits and take the hex equivalent of those two groups. For example, the first line of our new letter G is .00000.. Looking up the hex for .000 we get 7, looking up 00.. we get C. So, the hex

equivalent of .00000.. is 7C. This means that in line 120 of program 15 we could change the number after the comma to &H7C.

Program 16 displays the standard characters first then re-defines the WHOLE Alphabet into chunky letters. The three BEEPs in line 180 allow you to watch as each letter is changed - remove the BEEPs and then re-RUN the program to see how fast you can change the shapes. It would very, very laborious to use 208 VPOKE statements, so a FOR...NEXT loop is used to read in the 208 (26 letters * 8 bytes) of data. This is split up into lines 190-214, each of 16 bytes; have a go at making up your own characters and entering the data into the program. Remember, you can do no harm experimenting. To get back to the standard MSX characters, simply type SCREEN 1 and press RETURN.

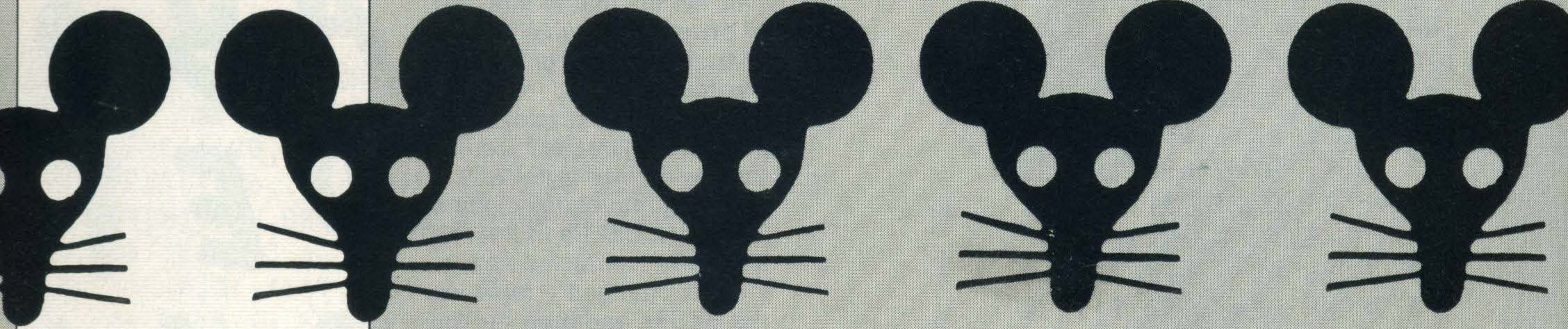


● Program 16 - 2 alphabets

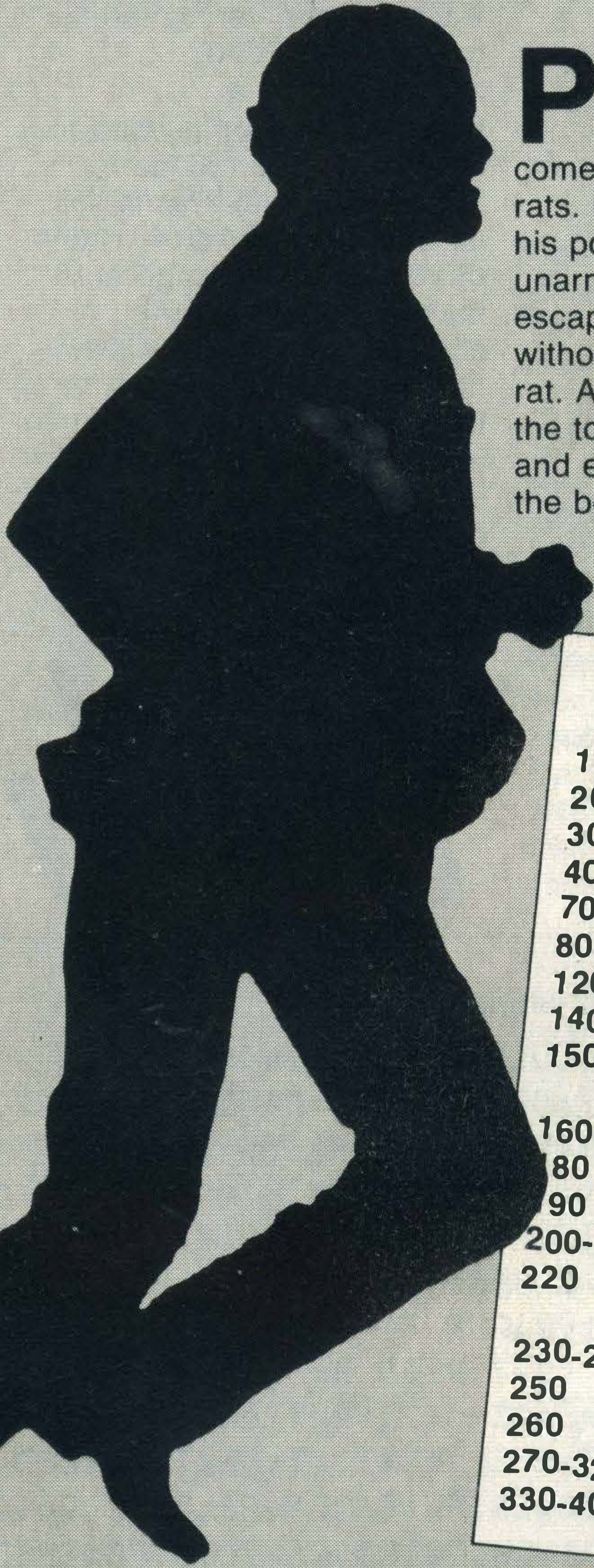
```

100 SCREEN 1:COLOR 15,1,6:WIDTH 29
110 LOCATE1,7:PRINT"THIS PROGRAM REDEFINES THE"
115 LOCATE1,9:PRINT"SHAPE OF CHARACTERS A TO Z"
116 LOCATE1,11:PRINT"FROM STANDARD TO CHUNKY."
118 LOCATE1,16:PRINT"ABCDEFGHIJKLMNOPQRSTUVWXYZ"
120 FORGK=1 TO 3000:NEXT GK
150 RESTORE 190:FOR FZ=1 TO 26
160 FOR XZ=0 TO 7:READ A$
170 VPOKE FZ*8+XZ+512,VAL("&H"+A$)
180 BEEP:BEEP:BEEP:NEXT XZ:NEXT FZ:END
190 DATA 7C,C6,C6,FE,C6,C6,C6,0,FC,C6,C6,FC,C6,C6,FC,0
191 DATA 7C,C6,C0,C0,C0,C6,7C,0,FC,C6,C6,C6,C6,C6,FC,0
192 DATA FE,C0,C0,F8,C0,C0,FE,0,FE,C0,C0,F8,C0,C0,C0,0
193 DATA 7C,C6,C0,CE,C6,C6,7C,0,C6,C6,C6,FE,C6,C6,C6,0
194 DATA 3C,18,18,18,18,18,3C,0,3C,18,18,18,D8,D8,70,0
200 DATA C6,C6,CC,F8,CC,C6,C6,0,C0,C0,C0,C0,C0,C0,FE,0
201 DATA EE,D6,D6,C6,C6,C6,C6,0,C6,E6,E6,D6,CE,CE,C6,0
202 DATA 7C,C6,C6,C6,C6,C6,7C,0,FC,C6,C6,FC,C0,C0,C0,0
210 DATA 7C,C6,C6,C6,D6,CE,7C,0,FC,C6,C6,FC,D8,CC,C6,0
211 DATA 7C,C6,C0,7C,06,C6,7C,0,7E,18,18,18,18,18,18,0
212 DATA C6,C6,C6,C6,C6,C6,7C,0,C6,C6,C6,C6,C6,6C,38,0
213 DATA C6,C6,C6,C6,D6,D6,EE,0,C6,C6,6C,7C,6C,C6,C6,0
214 DATA 66,66,66,3C,18,18,18,0,FE,6,C,18,30,60,FE,0
    
```





RATCATCHER



Poor old Fred, the village ratcatcher, got an urgent phone call to come and rid the factory of rats. Unfortunately, he forgot his poison and, totally unarmed, he must try to escape from the factory without getting bitten by a rat. At the moment he's on the top floor of the building and each time he reaches the bottom right of the

screen, he scores one point. There are a number of greasy poles in this factory and you can guide Fred so that he slides down these to escape from the rats but, unfortunately, he can't go up the poles. Each screen cleared causes the rats to move faster! Use the cursor keys to move left, right or down.

Program Breakdown

10	turn off messages and set variables
20	choose screen mode and define colours
30	allows writing on hi-res screen
40-60	defines sprites
70	draw factory floors
80-110	draw poles
120-130	sprite collision detection
140	test cursor keys
150	sound effect... very simple and could be changed to suit
160-170	move Fred left or right
180	go down poles
190	move Fred
200-210	move rats
220	sound effects off... remove or change to suit yourself
230-240	move more rats
250	jump back to test joystick
260	sprite definition DATA
270-320	lose game
330-400	slide down poles

Variables used

X,Y	coordinates for Fred
G	x coordinates for rats
\$\$	used in sprite definition
S	tests joystick
GA	speed of rats
\$\$	score

I haven't added many sound effects because the program was developed on a monitor without a sound output. It should make an interesting exercise to add sound effects. You could also try changing some of the sprites so that you're being chased by other monsters!

RAT-CATCHER

```
10 KEYOFF:S%=0:Z=10
20 SCREEN 2,0,0:COLOR 10,4:G=20:H=30:GA=2
30 OPEN"grp:" FOR OUTPUT AS #1
40 RESTORE:FOR X=1 TO 8:READ D:S$=S$+CHR$(D):NEXT:SPRITE$(1)=S$:S$=
""
50 S$="":FOR Y=1 TO 8:READ D:S$=S$+CHR$(D):NEXT Y:SPRITE$(2)=S$:SPR
ITE$(4)=S$:SPRITE$(6)=S$:SPRITE$(8)=S$:SPRITE$(10)=S$:SPRITE$(12)=S$:S
PRITE$(14)=S$
60 S$="":FOR Y=1 TO 8:READ D:S$=S$+CHR$(D):NEXT Y:SPRITE$(3)=S$:SPR
ITE$(5)=S$:SPRITE$(7)=S$:SPRITE$(9)=S$:SPRITE$(11)=S$:SPRITE$(13)=S$:S
PRITE$(15)=S$
70 FOR X=10 TO 190 STEP 10:LINE(0,X)-(255,X),1:NEXT:X=10:Y=0
80 LINE(100,10)-(102,20),7,BF:LINE(150,30)-(152,50),7,BF
90 LINE(22,60)-(24,80),7,BF:LINE(170,90)-(172,110),7,BF
100 LINE(122,120)-(124,140),7,BF:LINE(70,150)-(72,170),7,BF
110 LINE(122,80)-(124,100),7,BF
120 SPRITE ON
130 ON SPRITE GOSUB 270
140 S=STICK(0)
150 SOUND 8,5
160 IF S=3 THEN X=X+Z:IF X>247 THEN Y=Y+10:X=0:IF Y>180 THEN S%=S%+1
:GA=GA+2:Y=0:X=5
170 IF S=7 THEN X=X-Z:IF X<0 THEN Y=Y-10:X=255:IF Y<10 THEN Y=0
180 IF (S=4 OR S=5 OR S=6) THEN GOSUB 330
190 PUT SPRITE 1,(X,Y),1,1
200 PUT SPRITE 3,(G,H),14,3:PUT SPRITE 2,(G-8,H),14,2:PUT SPRITE 5,(
G-10,H+40),15,5:PUT SPRITE 4,(G-18,H+40),15,4:G=G+GA:
210 PUT SPRITE 6,(-G,H+50),11,6:PUT SPRITE 7,(-G+8,H+50),11,7:PUT SP
RITE 8,(-G+40,H+90),5,8:PUT SPRITE 9,(-G+48,H+90),5,9
220 SOUND 0,0
230 PUT SPRITE 10,(-G+150,20),2,2:PUT SPRITE 11,(-G+158,20),2,3:PUT
SPRITE 12,(-G+70,140),12,10:PUT SPRITE 13,(-G+78,140),12,11
240 PUT SPRITE 20,(G+200,130),13,3:PUT SPRITE 14,(G+192,130),13,2:PU
T SPRITE 15,(G-110,160),15,5:PUT SPRITE 16,(G-118,160),15,4:G=G+GA
250 GOTO 140
260 DATA 28,28,8,127,8,20,34,65,0,0,7,159,191,127,51,16,0,0,8,216,24
4,254,36,32
270 SCREEN 0:PRINT"You lose... you have scored ";S%
280 LOCATE 0,20:PRINT"Do you want to play again <Y/N> ?"
290 A$=INKEY$
300 IF A$="N" OR A$="n" THEN CLS:PRINT"Goodbye.":END
310 IF A$="Y" OR A$="y" THEN RUN
320 GOTO 290
330 IF Y=0 AND (X>94 AND X<104) THEN Y=20:RETURN ELSE IF Y=0 THEN RE
TURN
340 IF Y=20 AND X>145 AND X<155 THEN Y=50:RETURN
350 IF Y=50 AND X>13 AND X<23 THEN Y=80:RETURN
360 IF Y=80 AND X>85 AND X<95 THEN Y=110
370 IF Y=110 AND (X>114 AND X<124) THEN Y=140
380 IF Y=140 AND X>65 AND X<75 THEN Y=170
390 IF Y=70 AND (X>117 AND X<127) THEN Y=100
400 RETURN
```


CONSEQUENCES

boy's name girl's name place name he said she said the world said wait for key pressed option from menu pointer for word

Do you remember, before you bought your MSX, when you had time to play games like *Consequences*? In this version you have two options, either allow the computer to use the DATA held in memory to create the stories or enter the DATA from the keyboard (don't forget MSXs built-in AUTO CENSOR! - Ed). When the program is RUN, a menu is displayed. Press the appropriate letter to make your choice.

Program Breakdown

20	clear string space for words
30	select colours and screen mode
40	DIMension arrays
50	titles
60-110	main menu
180-220	print story
240	title
250-280	make up story
290	print story
300-320	use DATA in computer's memory
330-520	enter DATA from keyboard
530	DATA for stories

Variables used

M\$(x)	boy's name
F\$(x)	girl's name
L\$(x)	place name
S\$(x)	he said
Y\$(x)	she said
C\$(x)	the consequence is
W\$(x)	the world said
G\$	wait for key pressed
A\$	option from menu
N%	pointer for word

```

10 REM ** Consequences ... a game for MSX Computers **
20 CLEAR 5000
30 KEYOFF:SCREEN 0:WIDTH 40:N%=0:COLOR 4,15
40 DIM M$(60),F$(60),L$(60),S$(60),Y$(60),C$(60),W$(60)
50 GOSUB 240
60 PRINT:PRINT:PRINT"Press :-"
70 PRINT:PRINT"E. To enter new text at the keyboard"
80 PRINT:PRINT:PRINT"M. To load text from the computer's me
mory"
90 PRINT:PRINT"Q. To quit"
100 PRINT:PRINT"A. To add to the existing text"
110 A$=INKEY$:IF A$="q" OR A$="Q" THEN CLS:END
120 IF A$="m" OR A$="M" THEN GOSUB 300:GOTO 180
    
```



```

130 F=RND(1)
140 IF A$="e" OR A$="E" THEN N%=0:GOTO 330
150 IF (A$="a" OR A$="A") AND N%=0 THEN GOSUB 240:PRINT"You have no
text to add to!":FOR X=1 TO 1000:NEXT:GOTO 50
160 IF A$="a" OR A$="A" THEN GOTO 330
170 GOTO 110
180 GOSUB 240:GOSUB 250:GOSUB 290
190 PRINT:PRINT:PRINT"Do you want another go <y/n> ?"
200 A$=INKEY$:IF A$="y" OR A$="Y" THEN 180
210 IF A$="n" OR A$="N" THEN 50
220 GOTO 200
230 END
240 CLS:LOCATE 8,2:PRINT"C o n s e q u e n c e s":PRINT:RETURN
250 M$=M$(INT(RND(1)*N%)+1):F$=F$(INT(RND(1)*N%)+1):S$=S$(INT(RND(1)
*N%)+1):Y$=Y$(INT(RND(1)*N%)+1):C$=C$(INT(RND(1)*N%)+1):W$=W$(INT(RND(
1)*N%)+1):L$=L$(INT(RND(1)*N%)+1)
260 ST$=M$+" met "+F$+CHR$(10)+CHR$(13)+"At "+L$+CHR$(10)+CHR$(13)+"
He said to her, '"+S$+" '"+CHR$(10)+CHR$(13)
270 ST$=ST$+"She said to him, '"+Y$+" '"+CHR$(10)+CHR$(13)+"The conseq
uence was :-"+C$+CHR$(10)+CHR$(13)+"And the world said "+W$
280 RETURN
290 PRINTST$:RETURN
300 N%=5:RESTORE:FOR I=1 TO 5
310 READ M$(I),F$(I),L$(I),S$(I),Y$(I),C$(I),W$(I)
320 NEXT:RETURN
330 GOSUB 240:PRINT:PRINT:PRINT"Enter data in lower case. (Make sure
that the caps lock light is off). "
340 FOR T=1 TO 1000:NEXT T
350 N%=N%+1:GOSUB 240
360 IF N%>50 THEN N%=50:PRINT:PRINT:PRINT"My memory is full!":FOR T=
1 TO 1000:NEXT T:RETURN
370 PRINT:INPUT"Boy's name :-";M$(N%)
380 PRINT:INPUT"Girl's name :-";F$(N%)
390 PRINT:INPUT"Place name :-";L$(N%)
400 PRINT:INPUT"He said :-";S$(N%)
410 PRINT:INPUT"She said :-";Y$(N%)
420 PRINT:INPUT"The consequence was :-";C$(N%)
430 PRINT:INPUT"The world said :-";W$(N%)
440 IF LEN(M$(N%))+LEN(F$(N%))+LEN(L$(N%))+LEN(S$(N%))+LEN(Y$(N%))+L
EN(C$(N%))+LEN(W$(N%))>160 THEN PRINT"Your text is too long. Try again
":FOR T=1 TO 1000:NEXT:GOTO 370
450 PRINT:PRINT"Is this correct <Y/N> ?"
460 G$=INKEY$:IF G$="n" OR G$="N" THEN 370
470 IF G$="y" OR G$="Y" THEN GOSUB 240:GOTO 490
480 GOTO 460
490 PRINT:PRINT:PRINT"Do you want to enter more text <Y/N> ?"
500 G$=INKEY$:IF G$="y" OR G$="Y" THEN 350
510 IF G$="n" OR G$="N" THEN GOTO 180
520 GOTO 500
530 DATA Tony Benn,Twiggy,Sid's Cafe,I want to kiss you,Never!,they
eloped,We guessed so!
540 DATA Arthur Scargill,Mrs Thatcher,midnight on the balcony,What's
a nice girl like you doing in a place like this,Come up and see me so
metime,she slapped him across the face,It'll end in tears
550 DATA King Kong,Barbara Woodhouse,Empire States Building,Ggggrrrr
,Walkies,They fell in love,I told you so
560 DATA Bugs Bunny,Nora Batty,The Rovers Return,Whats up doc?,Get a
way with you,a punch up,I told you so
570 DATA Fred Gee,Sue Ellen,behind the bike sheds,What's up?,I prefe
r Bobby,she ran away,you never can tell!

```


MSX

STUNTMAN

THERAPY

You've just been given a job as a stunt man on a new movie and must practice your driving by jumping over airplanes, moving boats, fences and underneath an evil bone crusher. Each screen you complete increases your score by one and makes your engine run faster, so your next stunt is more difficult.

There are just 3 controls

s	-	brakes
j	-	jump
space bar	-	accelerator

NOTE

1 you can only jump if your wheels are on the ground,
2 the printer used to list the program prints the hash sign as £ (pound). You should make sure that these are typed in correctly (SHIFT 3).

Program Breakdown

30	allows printing of text on graphics screen
40-50	set variables
60	select screen mode
70-150	sprite definition
160-200	draw lines
210	detect space bar
220	set variables
230	detect sprite collisions
250-270	place stationary sprites
290	start location for car
300	play music (?)
310-320	move car
330	change co-ordinates
340	detect key for braking (s)
350-360	move boat and bone crusher sprites
370-390	change co-ordinates
400	jump routine
410-420	go back to move car
430	accelerate
440-540	crash routine

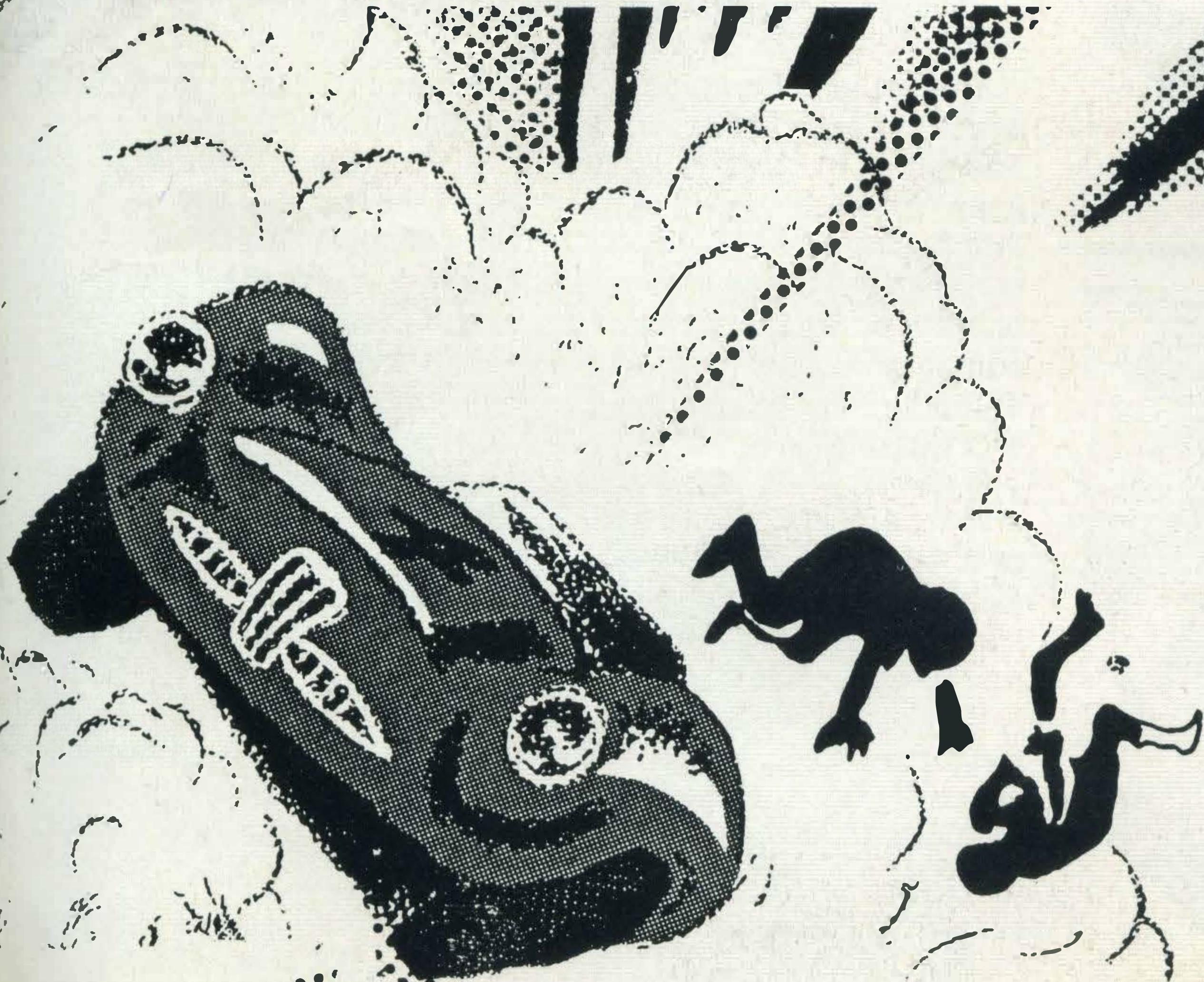
Variables used

S%	score
X%Y%	co-ordinates of Stunt Man
F%G%T%	movement of sprites
Z%	speed of Stunt Man
KK%	check if Stunt Man is jumping
A\$	sprite definition
DPXY	general variables in loops



STUNTMAN

```
10 REM Stunt Man an arcade game for MSX Computers **
20 REM ** Steve W. Lucas October 1984 **
30 OPEN"grp:" FOR OUTPUT AS £1
40 S%=0:P=2:G%=20
50 DIM Z$(20)
60 SCREEN 2,0,0:KEYOFF
70 REM ** Sprite definition **
80 FOR X=1 TO 16:A$="":FOR Y=1 TO 8
90 READ D:A$=A$+CHR$(D):NEXT:SPRITE$(X)=A$
100 NEXT
110 REM ** data for sprites **
120 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
130 DATA 0,0,15,24,127,255,24,24,0,0,192,48,252,255,24,24,7,28,15,9,
9,4,4,3,240,156,248,72,72,16,144,224
140 DATA 247,0,0,3,14,10,11,25,16,128,128,224,56,40,236,196,132,255,
136,255,136,255,255,24,24
150 DATA 255,133,255,5,255,255,12,12,1,3,3,3,15,25,56,58,192,224,224
,224,248,204,14,174,49,51,3,3,2,6,4,12,198,230,224,224,32,48,16,24
160 LINE (0,20)-(255,24),7,BF
170 LINE (0,60)-(255,64),7,BF
180 LINE (0,100)-(255,104),7,BF
190 LINE (0,140)-(255,144),7,BF
200 LINE (0,180)-(255,184),7,BF
210 STRIG(0) ON
220 F%=400
230 SPRITE ON
240 ON STRIG GOSUB 430
250 PUT SPRITE 4,(133,10),13,4:PUT SPRITE 3,(125,10),13,3
260 PUT SPRITE 11,(202,90),10,11:PUT SPRITE 12,(210,90),10,12
270 PUT SPRITE 15,(45,170),2,15:PUT SPRITE 16,(53,170),2,16
280 ON SPRITE GOSUB 440
290 X%=10:Y%=11
300 PLAY"ccdc edcf dcdc"
310 PUT SPRITE 2,(X%+8,Y%-K%),1,6:PUT SPRITE 1,(X%,Y%-K%),1,5
320 IF X%>250 THEN X%=0:Y%=Y%+40:IF Y%>180 THEN Y%=11:S%=S%+1:P=P+1:
Z%=Z%+1
330 X%=X%+Z%:T%=T%+2
340 A$=INKEY$:IF A$="s" OR A$="S" THEN Z%=Z%-1:IF Z%<1 THEN Z%=0
350 PUT SPRITE 6,(T%+8,50),15,2:PUT SPRITE 5,(T%,50),15,1
360 PUT SPRITE 7,(102,120+INT(F%/50)),14,7:PUT SPRITE 8,(110,120+INT
(F%/50)),14,8
370 F%=5+F%-G%:IF F%<-400 THEN G%=-20
380 IF F%>400 THEN G%=20
390 KK%=KK%-10:IF KK%<1 THEN KK%=0
400 IF (A$="j" OR A$="J") AND KK%=0 THEN KK%=900
410 K%=INT(KK%/50)
420 GOTO 310
430 SOUND 7,5:SOUND 8,7:SOUND 6,9:Z%=Z%+P:RETURN
440 CLS:PRESET(70,35):STRIG(0) OFF:SPRITE OFF
450 PRINT £1,"C R A S H"
460 PRESET(10,70):COLOR 15:PRINT£1,"you scored :- ":PRESET (120,70):
PRINT £1,S%
470 PUT SPRITE 1,(0,0),0,1:PUT SPRITE 2,(8,0),0,2
480 PUT SPRITE 3,(100,20),0,3:PUT SPRITE 4,(108,20),0,4:PUT SPRITE 5
,(116,20),0,5:PUT SPRITE 6,(126,20),0,6
490 PRESET (0,180):COLOR 1:PRINT£1,"Do you want another game <Y/N> ?
"
500 Z%=0
510 A$=INKEY$
520 IF A$="y" OR A$="Y" THEN CLS:GOTO 160
530 IF A$="n" OR A$="N" THEN END
540 GOTO 510
```





Jim Gregory itemises occidental accidents

Last month I was happy to bring you the story of MSX to date in a general positive sort of way. But this month we need to put things in perspective and to be aware that all is not roses in the MSX garden. First of all, I'm beginning to wonder how many people who buy computer magazines can read, or at least understand English (MSX Users excepted - Ed).

For example; one company is currently running an ad which invites people to send off for an MSX Launch pack. Now, wouldn't you think that by this time, people would know what MSX is? You'd be wrong 'cos at least 25% of the letters received are from non MSX owners. They all say something like: "**Can you send me details of MSX software for the Spectrum?**"!

I sometimes think that the world is full of micro WALLIES who believe that the Spectrum will run anything. Well the cruel fact is that all the owners of non MSX machines are out in the cold. Or if I really must spell it out for anyone who still can't get it through their ports: **MSX IS ONLY COMPATIBLE WITH MSX**. OK, lets really hammer it home: MSX software does not work with the Spectrum, the BBC, the CBM 64, the Dragon, the VIC 20 or ANYTHING that hasn't got the three magic letters on it - OOPS I came close there, I bet someone might get the idea that any three letters will do. **NO THEY WILL NOT** ...if it doesn't say MSX on the computer, then it isn't MSX.

Some hopeful computer manufacturers are even encouraging the situation because their machines aren't MSX and don't want to be left out. The Tatung Einstein is not MSX but its salesmen are happily saying that it's hardware MSX compatible - because it uses some of the same bits inside. They're even promising an MSX adaptor - but until you see MSX on the machine it is *not* an MSX machine.

Hello Tosh - dropped a clanger?

Not that MSX manufacturers are helping themselves with their advertising. Take a close look at the last Toshiba advert. See what I mean. A few people have referred to the ad in support of their belief that MSX makes all software interchangeable! When I tell them they're wrong (or crazy!) they say "**but it says it's got a cassette interface like the BBC and it says that it can use an ORIC printer**" ...then they add triumphantly "**Look, it says here that the cartridge slot is the same as the CBM 64!**" Well I have to admit that when I read the blurb again, after hearing the comments, I could see how somebody could get the wrong idea.

The list also contains some real clangers from whoever wrote the copy - For example: did you know that the Oric has a built in power supply - or do Toshiba mean that their's is an 'external' power supply? Then there's the new feature that Toshiba have bestowed on the Sinclair Spectrum - surprisingly, it now has sound output through the TV? Nice one Tosh, Sir Clive should be very pleased with the campaign you're running but the advertising standards authority may be hearing from Sord, TI, Memotech, Einstein and Spectravideo.

It seems clear to me that somehow the MSX group have convinced themselves that the Microtrade know about MSX and therefore Joe Public knows. The sad fact is that Joe Public *doesn't* know. He (or she - Feminist Ed) still thinks it's a new tyre from Michelin, I even doubt whether half the trade know what it's all about yet.

In fact, the idea that MSX is a tyre was supported by a large publishing group recently. The switchboard girl was asked by my secretary if they had any plans for MSX features. "**Oh yes, you'll want our car magazine editor**"

was the reply – but that's not all folks.

Just the other week I was the proud recipient of a telephone sales call from a young advertising executive who announced "Our magazine is bringing out a special MXS supplement". "Great" I said "What is MXS? He was proud to be able to answer "A sort of Japanese BASIC that means computers like the Spectrum and CBM 64 can all use the same tapes". I couldn't help milking the situation. "Does it work with VHS?" I asked, enjoying the fun – "Oh I think it will do with an adaptor..." Needless to say I wasn't very interested in his magazine.

No one will believe this next one and the man will deny it since he now knows the error he made but I promise you that we were approached by a distributor who said "We want to stock all MSX software, that way by stocking just MSX we can cover the whole Spectrum and CBM 64 market as well" – he didn't know why every other distributor hadn't realised that MSX solved all stock problems (Is your face red, Mr X, as you read this?).

Mad Software Xchanges

This nonsense gets worse because not only are the public not aware of what MSX really is (keep reading this magazine to find out – Ed), evidence has come to me that more than a few software houses are in the dark as well. Unbelievably there are at least a dozen software houses that have spent the last few months trying to 'PORT' software from beasts like the Spectrum or even the 64. For those of you who are not familiar with porting it means connecting the machines together with wires and transferring the program direct from one machine to another. This can work with some nearly compatible machines such as the IBM types or even under special circumstances, between machines like the 64 and the BBC. Some companies have successfully ported software between the Spectravideo 328 and MSX but oh my GOD, the stories I've heard recently make one wonder how Britain came to be regarded as the origin of great software.

So called leading software houses also thought they could just transfer the code from, say, a Spectrum, make a few changes and 'WHAM' an MSX game. What everyone who tried this unholy cross breeding didn't comprehend was that MSX uses a totally different method of screen handling to most other computers. Let me explain a little. Most computers use Memory Mapping and games programmers know where they are with that system. It means that if you put a character such as a little space invader in a screen memory location, it can be seen. Replace it with a blank and put the little chap into part of the memory next door and you have animation. This is pretty well understood by even the least experienced prog people. The plan goes sadly wrong when the hexadecimal kids try the same cute trick on MSX. The result is misery and cries of "MSX is too slow" or if they are more technical "MSX is the pits".

You see all that lovely video ram – all 16K of it, is locked away behind what I can only describe as a HI-TECH chastity belt. The entrance to this magic port is only allowed to be open for a certain period and then it closes.

A programmer has to arrange that his data whips in whilst the port is open and doesn't get chopped off as it shuts. The MSX operating system will usually take care of timing but the result is unacceptably slow when a lot of action is required. There is a solution to this but at the time of writing I have only seen evidence of the right method being used in the output from three or four software houses.

To see for yourself, look at the programs that are available on other machines. The MSX version is usually slower – the timing wrong. This is a sure sign that someone somewhere, doesn't have the key to the MSX video chastity belt.

Consequences

This inability to write on MSX machines has resulted in a

few embarrassing delivery problems. Many software houses made promises they couldn't keep.

They buyer for one of Britains largest distributors recently gave me an insight into the situation from his point of view.

"We've been let down badly," he told me. "Our promotional literature features many titles that are not yet available, one or two of them are months behind schedule. I've contacted all the people that are supposed to have software and the results are pathetic, only a small number of them have come up with the goods."

He went on to say that he'd been told such things as "We are waiting to see what happens" or "We can't do anything until someone produces a decent MSX manual," and, "I won't write anything until they give me a disk drive and an assembler."

The companies that *have* got their act together tend to be those who are used to working on a number of different machines or who actually have programmers, rather than the sort who get their software through the post from persons unknown. The companies who have previously cut their teeth on such machines as the Memotech, Spectravideo, Einstein or even the TI99, seem to have a head start. Their lead is probably due to the experience they have with the similar internal workings of those machines.

Gradually, the rest will catch up but for now you won't see any very detailed how-to-do-its or trade secrets being revealed for free; at least, not until that knowledge is a little less precious. Meanwhile, if you have a young MSX monster sat on your kitchen table yearning to be fed with software, there should be just enough around to spend your pennies on so your machine won't go hungry.

Who know, if you can teach yourself the secrets of MSX seduction you too may be able to produce an MSX masterpiece and swell the number of programs available to say nothing of swelling your wallet (write to us first – Capitalist Ed).

MSXmas

As I near the end of this months insight into the occidental MSX world (that's a long word for western by the way) I confess that I am still wondering whether we will see enough machines on the market in time for Christmas.

Sony, Toshiba and Sanyo with a little help from Canon surely can't cope alone. Spectravideo only talk in thousands and the outsider GoldStar is demanding a great deal of commitment from its UK distributors Microdealer. As I write, a cliffhanger situation is developing as senior executives try to balance how many they need with how many they can get and how many they can afford.

The micromarket has become a high risk business. Now MSX has raised the stakes and companies will have to decide if they are still in the game ...or want to fold.

My advice to readers is to shop early for MSXmas. If you see the one you like at the price you can pay, from a place you want to get it from ...then get it.

There has been an awful lot of fence sitting by manufacturers, distributors and dealers; all because they are waiting for the *customers* to get off the fence!

When it starts, the action will be fast and furious so to avoid disappointment, buy your MSX machine soon. Oh, and do please note that it will not run Spectrum programs or CBM 64 programmes, you can't plug a Toshiba microwave cooker into it and Michelin have no plans to release a computer that is compatible with all cars!

A quick MSXit

Next month I'll share some more MSX views with you. In particular I'll be looking at *non* far-Eastern machines, badge-engineered own-branding and, deadlines permitting, the aftermath of Christmas. I may even be able to tell you about the first MSX megagame.

THERAPY

Once upon a time there was a miller who was so poor that when he died, all he left was his mill, his donkey and his cat. The mill, of course, was left to the eldest son, the donkey to the second son and all that remained for the youngest son was the cat. Now, this was no ordinary cat and you can imagine the reaction of the miller's son when the cat spoke to him: "Find me a leather bag and a pair of Doc Marten's boots and I'll solve all your problems, dear master", it said. Being a naive sort of chap, the miller's son agreed...

In this version of the familiar panto tale, the computer plays the role of Puss and you are the miller's youngest son. You must give Puss instructions as to what you want to do in the form of two word sentences or just a single letter (N,S,E,W). Remember that cats have a very limited vocabulary, even cool cats, and if Puss doesn't seem to understand you, try another approach. This game follows the plot of the fairytale very closely and if you get stuck, you could always try reading the book. Although, typing *help* will sometimes give you a clue. Don't forget! Lower case only.

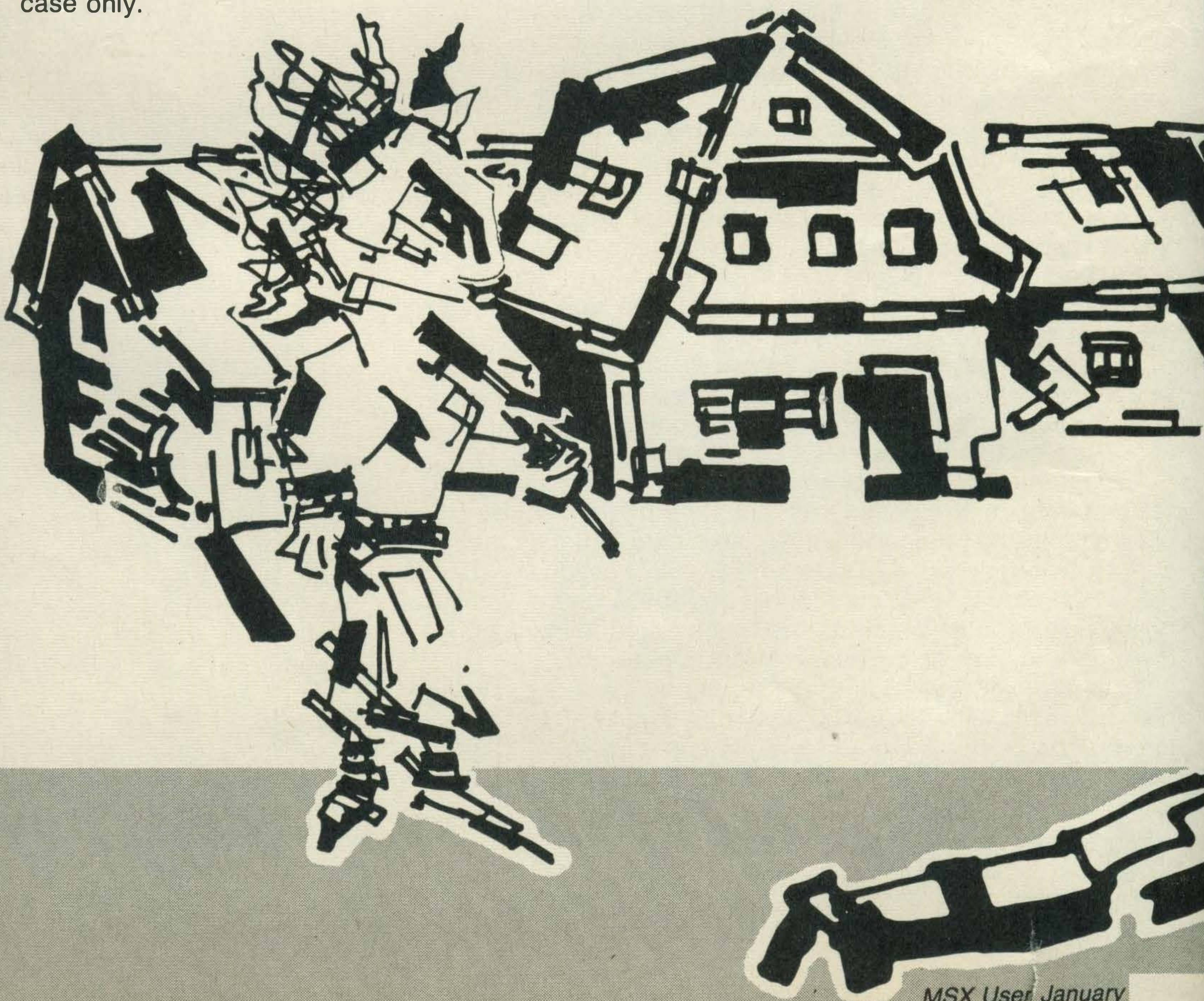
Variables used

P%	current location
V\$(X)	inventory
S%(x,y)	holds map
U%	check if you are carrying the ring
AA-AZ	flags
Q\$(x)	locations
G\$(x)	objects
N\$(x)	words understood
Z\$,C\$,B\$,D\$	action
L\$	second word entered
E%,F%	check for objects
N%(x)	pointer to words understood
B%(x,y)	pointer to objects

Program Breakdown

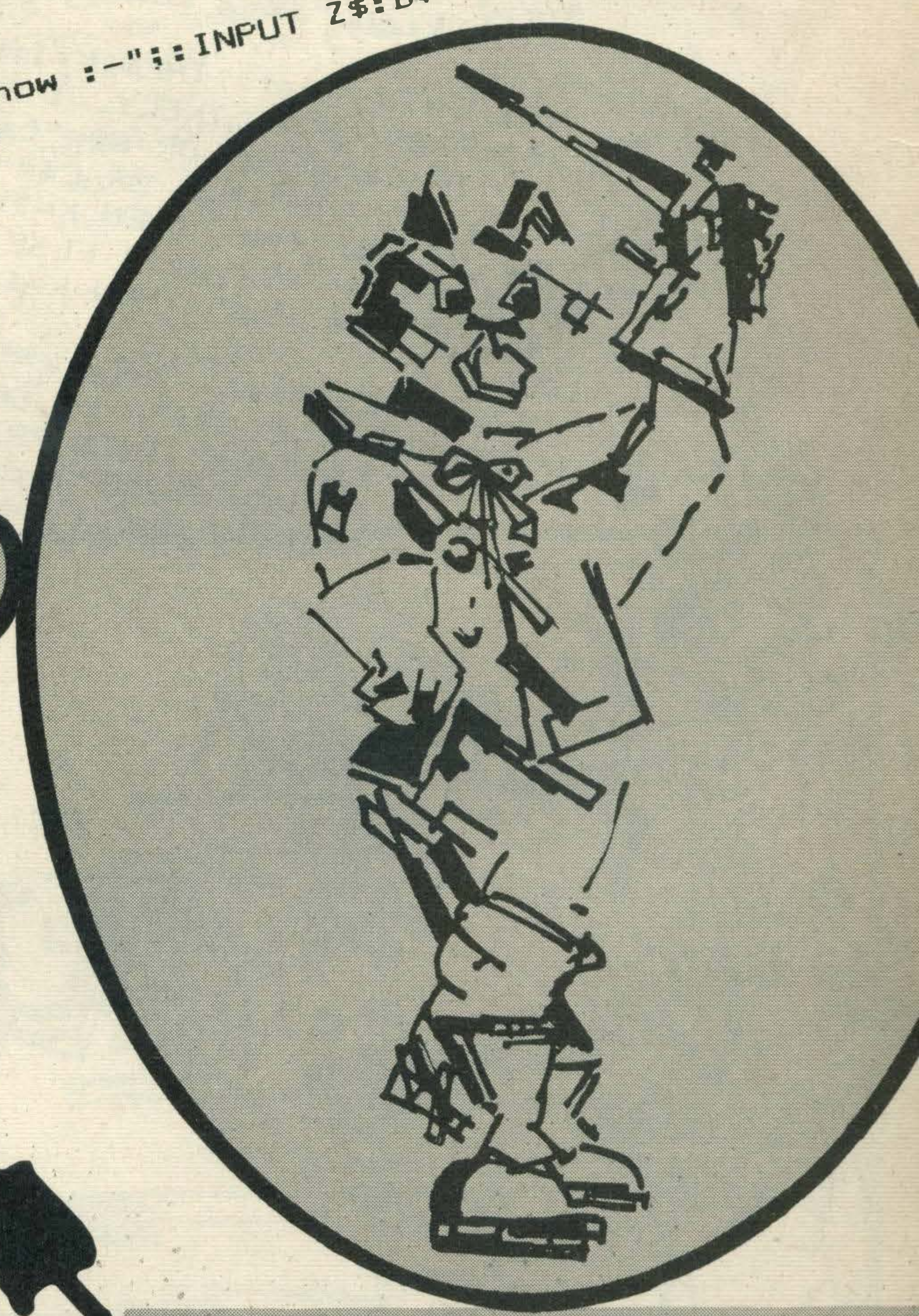
10-90	initialise screen mode, variables and arrays
100-500	main control loop
120	describe location
130-200	describe directions
210-240	describe objects
250	input action
260-540	select subroutine
510-550	win game
560	subroutines for actions

PUSS IN BOOTS



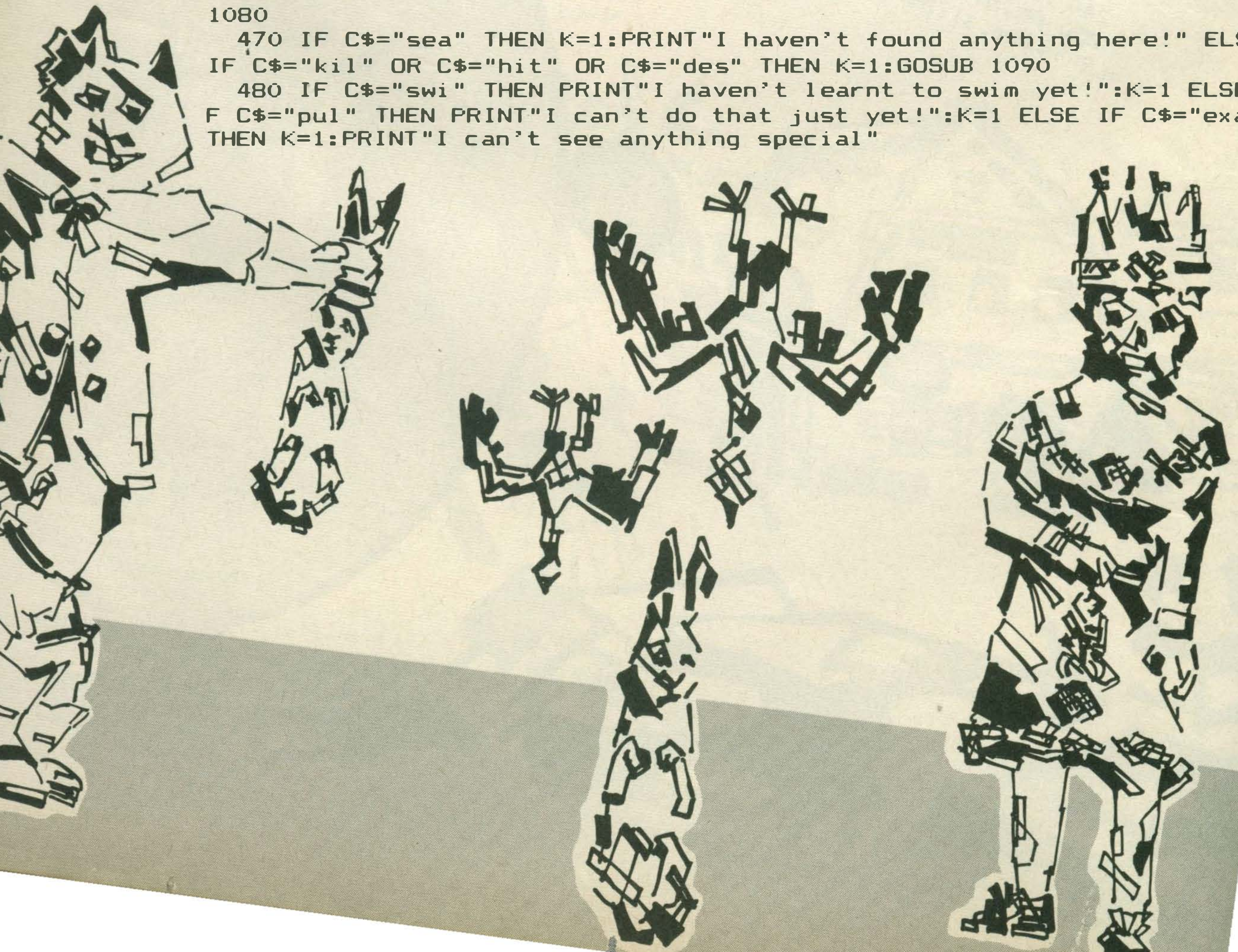
PUSS IN BOOTS

```
10 REM ** Puss in Boots **
20 REM ** S.W. Lucas for MSX User **
30 SCREEN 0:KEYOFF:WIDTH 40:COLOR 15,0
40 GOSUB 1740
50 AQ$="":P%=1:DIM S%(103,4),X$(37),N%(33),Q$(103),G$(31),V$(4),B%(
30,1),N$(31)
60 FOR X=1 TO 51:READ Q$(X):FOR Y=1 TO 4:READ S%(X,Y):NEXT Y,X
70 FOR X=1 TO 16:READ G$(X),B%(X,1):NEXT X
80 FOR X=1 TO 22:READ N$(X),N%(X):NEXT X
90 CLS
100 IF P%=50 AND U%=1 THEN W%=W%+1:P%=51:K=1 ELSE IF P%=50 THEN PRIN
T"Whoops I've forgotten the ring!":K=1
110 IF P%=14 AND AE=1 THEN GOSUB 1510
120 PRINT:GOSUB 1220:PRINT:PRINT"I am :-":PRINTQ$(P%):A$="":IF S%(P%
,1)>0 THEN A$="North"
130 IF S%(P%,2)>0 AND LEN(A$)>0 THEN A$=A$+",South" ELSE IF S%(P%,2)
>0 THEN A$="South"
140 IF S%(P%,3)>0 AND LEN(A$)>0 THEN A$=A$+",East" ELSE IF S%(P%,3)>
0 THEN A$="East"
150 IF S%(P%,4)>0 AND LEN(A$)>0 THEN A$=A$+",West" ELSE IF S%(P%,4)>
0 THEN A$="West"
160 IF P%=45 THEN A$="Nowhere..The King won't let me!" ELSE IF P%=
OR P%=4 THEN A$=A$+",In"
170 IF P%=8 THEN A$="Up,Out" ELSE IF P%=9 THEN A$="Down" ELSE IF P%=
18 THEN A$=A$+",Up" ELSE IF P%=22 THEN A$=A$+",Down"
190 IF A$="" THEN A$="Nowhere!" :F=FRE("")
200 PRINT:PRINT"I can go :-":PRINTA$:PRINT:PRINT:E=0:FOR T=1 T
0 20:PP%=0:IF B%(T,1)=P% THEN PP%=1
210 IF PP%=1 THEN 230
220 NEXT:GOTO 250
230 IF E=0 THEN PRINT"I can see:--"
240 PRINTG$(T):E=E+1:GOTO 220
250 PRINT:PRINT"what should I do now :-":INPUT Z$:B$=LEFT$(Z$,2):C$
=LEFT$(Z$,3):D$=LEFT$(Z$,4):CLS:K=0
```



THERAPY

```
260 IF C$="ask" OR C$="say" OR C$="tal" THEN GOSUB 1640
270 IF C$="loo" THEN K=1 ELSE IF C$="sco" THEN K=1:GOSUB 1220 ELSE I
F C$="eat" THEN K=1:PRINT"I'm absolutely full and couldn't eat anot
her thing!"
280 IF C$="rub" THEN PRINT"Don't be ridiculous!":K=1 ELSE IF C$="dri
" THEN PRINT"I'm not thirsty at the moment thank you!":K=1 ELSE IF C$=
"thr" THEN PRINT"I'm not throwing anything here!":K=1
290 IF C$="hel" THEN K=1:GOSUB 1230
300 IF C$="run" THEN K=1:GOSUB 1380 ELSE IF C$="wea" OR C$="try" THE
N K=1:GOSUB 1400
310 IF C$="pra" OR C$="cry" THEN K=1:GOSUB 1160 ELSE IF C$="pho" THE
N PRINT"Don't be absurd!":K=1
320 IF (B$="n" OR D$="go n") AND S%(P%,1)>0 THEN P%=S%(P%,1):K=1
330 IF (B$="s" OR D$="go s") AND S%(P%,2)>0 THEN P%=S%(P%,2):K=1
340 IF (B$="e" OR D$="go e") AND S%(P%,3)>0 THEN P%=S%(P%,3):K=1
350 IF (B$="w" OR D$="go w") AND S%(P%,4)>0 THEN P%=S%(P%,4):K=1 ELS
E IF B$="re" THEN PRINT"Cats can't read you know!":K=1
360 IF (B$="n" OR B$="e" OR B$="s" OR B$="w") AND K=0 THEN PRINT"I c
an't go that way!":K=1
370 IF C$="ent" OR C$="din" OR C$="fee" OR C$="lun" OR C$="ban" THEN
K=1:GOSUB1710 ELSE IF B$="fu" OR B$="pi" THEN K=1:PRINT"Don't be so r
ude!" ELSE IF C$="hid" THEN K=1:GOSUB 1590
380 IF C$="buy" THEN K=1:PRINT"What do you think I am ...made of mon
ey?" ELSE IF C$="inv" THEN K=1:GOSUB 1040 ELSE IF C$="row" OR C$="sai"
THEN K=1:PRINT"I don't have a boat"
390 IF B$="up" OR C$="cli" OR D$="go u" THEN K=1:GOSUB 560 ELSE IF C
$="dow" OR D$="go d" THEN K=1:GOSUB 580
400 IF C$="out" OR D$="go o" THEN K=1:GOSUB 600 ELSE IF C$="in" OR D
$="go i" THEN K=1:GOSUB 610
410 IF C$="was" THEN PRINT"I'm not a servant you know!":K=1 ELSE IF
C$="pus" THEN GOSUB 1340
420 IF C$="dan" THEN PRINT"O.K. I dance but nobody seems to pay a
ny attention.":K=1 ELSE IF C$="rid" OR D$="go r" THEN PRINT"not yet!":
K=1
430 IF C$="wai" THEN K=1:GOSUB 1350 ELSE IF C$="jum" OR C$="div" THE
N K=1:PRINT"NOT LIKELY. I MIGHT BREAK MY NECK!"
440 IF C$="get" OR C$="tak" OR C$="gra" THEN K=1:GOSUB 750 ELSE IF C
$="dro" OR C$="lea" OR C$="put" THEN K=1:GOSUB 960
450 IF C$="swe" THEN K=1:PRINT"Don't be silly!" ELSE IF C$="ope" THE
N K=1:PRINT"Not yet!" ELSE IF C$="unl" THEN K=1:GOSUB 1560
460 IF C$="kis" THEN K=1:GOSUB 1070 ELSE IF C$="giv" THEN K=1:GOSUB
1080
470 IF C$="sea" THEN K=1:PRINT"I haven't found anything here!" ELSE
IF C$="kil" OR C$="hit" OR C$="des" THEN K=1:GOSUB 1090
480 IF C$="swi" THEN PRINT"I haven't learnt to swim yet!":K=1 ELSE I
F C$="pul" THEN PRINT"I can't do that just yet!":K=1 ELSE IF C$="exa"
THEN K=1:PRINT"I can't see anything special"
```



PUSS IN BOOTS

```
490 IF K=0 THEN PRINT"I'm sorry I can't understand you."
500 IF WZ<>10 THEN 100
510 GOTO 530
520 END
530 CLS:PRINT:PRINT" Well Done.....You have solved this "
540 PRINT"adventure. The Miller's son has married the beauti
ful princess and you live happily ever after in the royal palace."
550 END
560 IF P%=8 THEN P%=9:PRINT"O.K.":RETURN ELSE IF P%=18 THEN P%=22:PR
INT"O.K.":RETURN
570 PRINT"Now then don't be silly!":RETURN
580 IF P%=9 THEN P%=8:PRINT"O.K.":RETURN ELSE IF P%=22 THEN P%=18:PR
INT"O.K.":RETURN
590 PRINT"Don't be stupid!":RETURN
600 IF P%=21 THEN P%=4:PRINT"O.K.":RETURN ELSE IF P%=8 THEN P%=2:PRI
NT"O.K.":RETURN ELSE PRINT"Not now!":RETURN
610 IF P%=4 THEN P%=21:PRINT"O.K.":RETURN ELSE IF P%=2 THEN P%=8:PRI
NT"O.K.":RETURN ELSE PRINT"not here":RETURN
620 DATA outside an old rundown mill,2,5,7,3,outside an old barn,0,1
,0,0,on an overgrown footpath,0,4,1,0,outside the village shop,3,0,0,0
,inside the mill. It is full of cobwebs,1,6,0,0
630 DATA in the living quarters. It's deserted,5,0,10,0,in an overgr
own garden. A large apple tree grows in one corner,0,0,11,1,inside t
he old barn. A ladder leads up into the hayloft,0,0,0,0
640 DATA inside the hayloft. The ladder leads down from here,0,0,
0,0,in a bedroom. It's thick with dust,0,0,0,6,on a narrow footpath. I
t's too muddy to go East without boots,0,0,0,7,by a rabbit hole,0,13,0
,11
650 DATA outside an old castle. The guard will not let me pass Sou
th,12,0,0,0,in an eerie courtyard. The guard will not let me go North,
0,15,0,0,at the entrance to the King's chamber,14,18,16,19
660 DATA at the Northern end of the King's chamber,0,17,0,15,a
t the King's bedside. Two large dogs prevent me going East,16,0,0,0,
at the bottom of some steps,15,0,0,0
670 DATA on a footpath leading into the country,0,20,15,0,on a brack
en covered hillside. There are pheasants to be seen,19,0,0,0,inside a
small village shop,4,0,0,0,at the top of a flight of stairs,0,23,0,0,i
n a long passage,22,26,24,27
680 DATA in a narrow passage lit by candlelight,0,0,25,23,in a small
dusty room. All the furniture is covered with sheets,0,0,0,24,on the b
attlements. I can see fields in the distance,23,0,0,0,in a wide passag
e,0,28,23,29
690 DATA in an empty chamber,27,0,0,0,in a large room full of old fu
rniture,0,0,27,0,in the royal kitchens,0,0,31,17,in a courtyard (by th
e royal dustbins),0,32,0,30,on a footpath,31,33,0,0,by a locked gate,3
2,0,0,0
```



THE THERAPY

700 DATA by the river banks,33,35,0,0,on the banks of the river. The miller's son is swimming here,35,36,0,0,by some shrubs,35,0,0,0,in a large meadow of golden corn,37,37,37,37,on a footpath outside a cottag

710 DATA inside the doorway of the Ogre's cottage. The Evil O gre is here,38,0,0,0,in a large kitchen full of food,39,0,0,41,in a pa e house,42,0,40,43,in a large living room,0,41,0,0,at the entrance to th

720 DATA "by the Ogre's cottage. The Miller's son,princess and the K ing are waiting for me",0,0,43,0,"seated in the banqueting hall with t he King, Princess and the Miller's son",0,0,0,0

730 DATA "riding in the royal coach with the King,Princess and Mille r's son",0,0,0,0,in a stationary coach,0,0,48,0,outside the village ch urch,49,0,0,47,walking down the aisle. I hope I remembered the

740 DATA "at the altar. The King, the Princess and the Miller's son are here",0,0,49,0,at the wedding,0,0,0,0

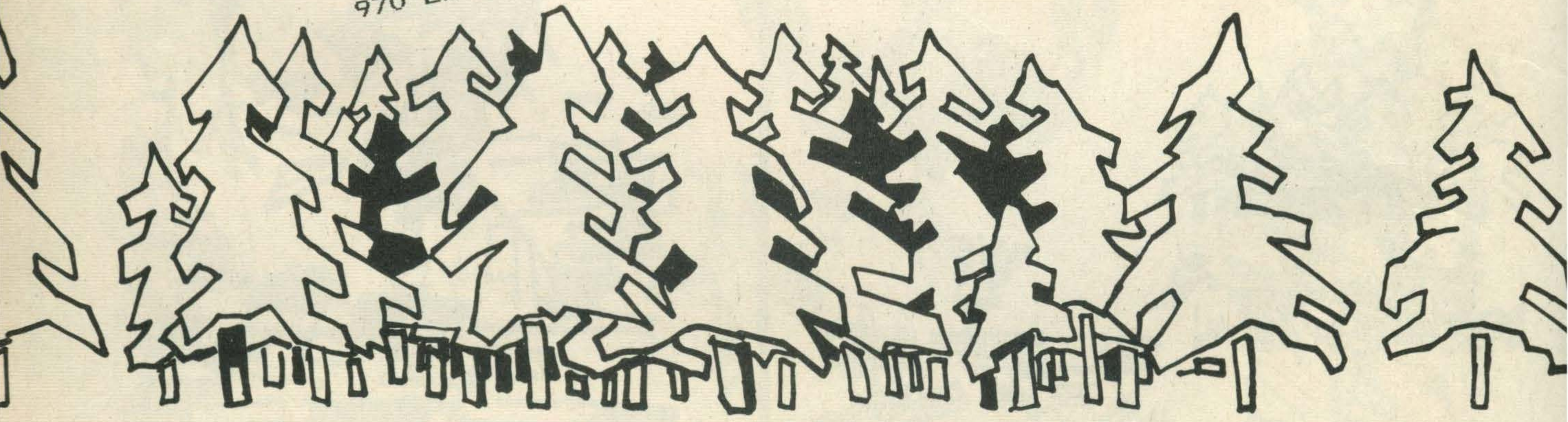
750 GOSUB 920:IF L%<>1 THEN RETURN
 760 E%=0:FOR H=1 TO 16:IF B%(H,1)=P% AND B%(N%(R),1)=P% THEN E%=1
 770 NEXT:IF E%=0 THEN PRINT"I can't see it here!":RETURN
 780 IF R=1 OR R=2 THEN PRINT"Do you have to be so silly?":RETURN
 790 IF R=11 THEN X\$(1)="I cut myself to death":GOTO 1100
 800 IF R=12 THEN PRINT"Not likely!":RETURN ELSE IF R=18 OR R=19 THEN

U%=1
 810 IF R=5 THEN AA=1 ELSE IF R=6 OR R=7 THEN AC=1 ELSE IF R=8 THEN A D=1
 820 IF R=8 AND SA=0 THEN W%=W%+1:SA=1
 830 IF R=9 THEN GOSUB 1460:IF AE<>1 THEN RETURN
 840 IF R=10 AND AD<>1 THEN PRINT"I need a bag to catch it in!":RETUR

N
 850 IF R=10 THEN AF=1 ELSE IF R=22 THEN AG=1 ELSE IF R=14 THEN PRINT "I'd need a spade to do that!":RETURN
 860 IF R=13 THEN AH=1 ELSE IF R=15 OR R=16 THEN PRINT"Don't be a DUM DUM!":RETURN
 870 IF P%=21 AND (R=3 OR R=4) AND AA<>1 THEN PRINT"The assistant won

't let me!":RETURN
 880 E%=0:IF R=3 OR R=4 THEN AB=1
 890 FOR D=1 TO 3:IF V\$(D)=" THEN V\$(D)=G\$(N%(R)):E%=1:D=8
 900 NEXT:IF E%=0 THEN PRINT"I'm sorry my hands are full!":RETURN
 910 B%(N%(R),1)=0:RETURN
 920 L\$="":FOR H=1 TO LEN(Z%):IF MID\$(Z%,H,1)=" " THEN L%=RIGHT\$(Z%, (LEN(Z%)-H)):H=H+40

930 NEXT:R=0:L%=0:IF LEN(L%)<2 THEN RETURN
 940 FOR H=1 TO 27:IF LEFT\$(N%(H),LEN(L%))=L% THEN L%=1:R=H
 950 NEXT:RETURN
 960 GOSUB 920:IF L%<>1 THEN PRINT"I can't see a ":L\$:RETURN
 970 E%=0:FOR D=1 TO 3:IF V\$(D)=G\$(N%(R)) THEN V\$(D)="":E%=1

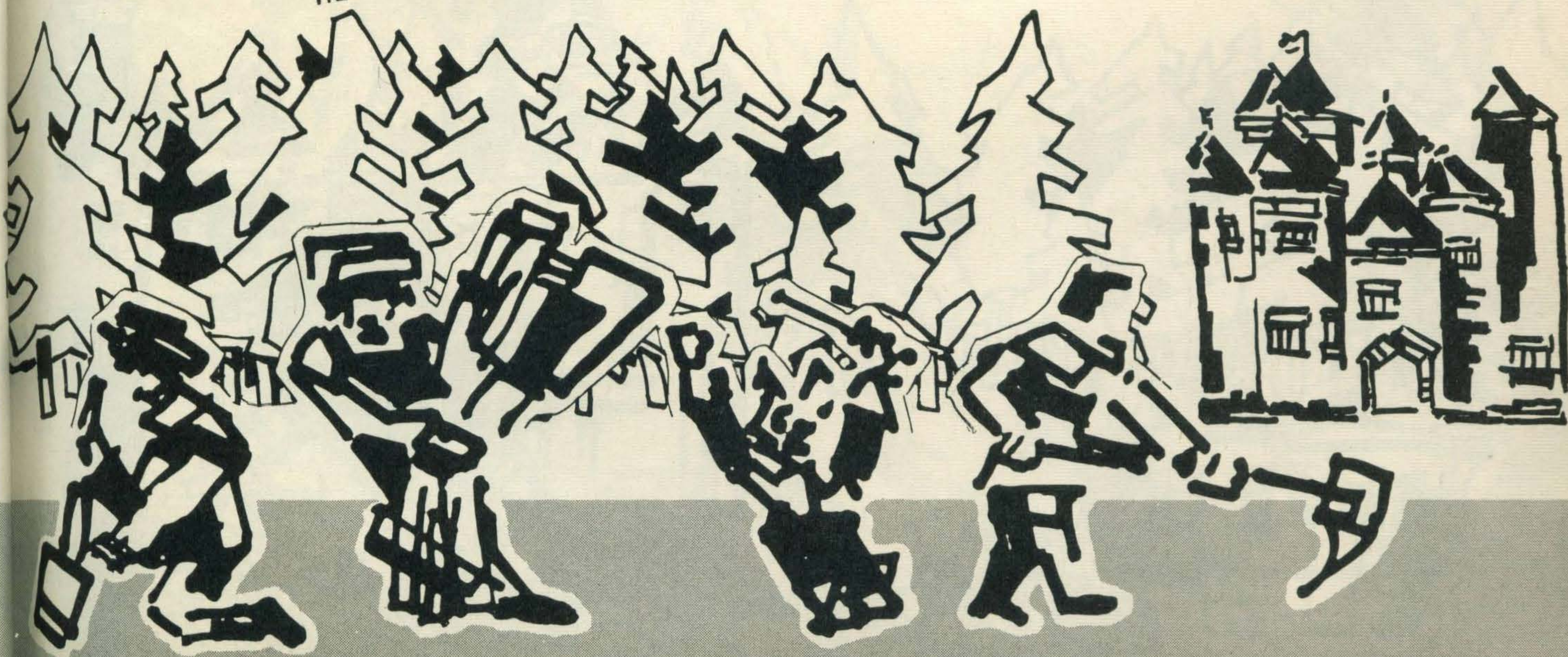


PUSS IN BOOTS

```

980 NEXT:IF E%<>1 THEN PRINT"I haven't got a ";L$:RETURN
990 B%(N%(R),1)=P%:CLS:IF R=5 THEN AA=0
1000 IF R=18 OR R=19 THEN U%=0 ELSE IF R=3 OR R=4 THEN AB=0 ELSE IF R
=6 OR R=7 THEN AC=0
1010 IF R=8 THEN AD=0 ELSE IF P%=17 AND R=10 AND SB=0 THEN GOSUB 1540
1020 IF AF=1 AND R=10 THEN AF=0 ELSE IF R=22 THEN AG=0 ELSE IF R=13 T
HEN AH=0
1030 RETURN
1040 PRINT:PRINT"I am carrying :--":PRINTAQ$:F%=0:FOR X=1 TO 3:IF V%(X
)<>"" THEN PRINTV%(X):F%=1
1050 NEXT:IF F%=0 THEN PRINT"Not a thing!"
1060 PRINT:RETURN
1070 PRINT"Cats hate kissing humans!":RETURN
1080 PRINT"There's not much I want to give away !":RETURN
1090 IF P%<13 THEN PRINT"I can't do that here":RETURN ELSE PRINT"Don'
t be silly":RETURN
1100 CLS:LOCATE 15,2:PRINT"That's done it !!"
1110 PRINT:PRINT:PRINT:PRINTX$(1)
1120 PRINT:PRINT:PRINT"The King is very SAD to see me lose my life."
1130 A%=INKEY$:IF A%="y" OR A%="Y" THEN RUN ELSE IF A%<>"n" THEN 1140
1140 A%=INKEY$:IF A%="y" OR A%="Y" THEN RUN ELSE IF A%<>"n" THEN 1140
1150 CLS:PRINT"Thank you for playing...Goodbye.":END
1160 PRINT"D.K.":FOR KK=1 TO 1000:NEXT
1170 IF P%<28 THEN PRINT"Nothing happens!":RETURN
1180 IF A%>0 THEN PRINT"I can only be transported TWICE!"
1190 IF A%>2 THEN RETURN
1200 IF P%=28 THEN A%=A%+1:P%=49:PRINT"WOW I've been transported som
ewhere!":RETURN
1210 P%=28:PRINT"WOW I've been transported!":S%(28,1)=0:Q$(28)="In an
empty chamber. The door North is locked":A%=A%+1:RETURN
1220 PRINT"You have scored :--";W%:" out of 10":RETURN
1230 IF P%=21 THEN PRINT"The shop assistant isn't going to give anyt
hing away!" ELSE IF P%=39 THEN PRINT"Why not ask the Ogre if he can tu
rn intoSOMETHING ?"
1240 IF P%=37 THEN PRINT"The meadow is so large that I will need to R
UN if I am to get anywhere!" ELSE IF P%=12 THEN PRINT"I do believe tha
t rabbits are very fond of lettuce leaves!"
1250 IF P%=2 OR P%=4 THEN PRINT"Why not go IN ?" ELSE IF P%=21 THEN P
RINT"Why not go OUT ?" ELSE IF P%=22 OR P%=9 THEN PRINT"I'd go down!"
1260 IF P%=8 OR P%=18 THEN PRINT"why not go UP?" ELSE IF P%=46 THEN P
RINT"There's not much to do here but WAIT!" ELSE IF P%=14 THEN PRINT"T
he guard won't let me in without a giftfor the King!"
1270 IF P%=17 THEN PRINT"The King is very fond of partridges" ELSE IF
P%=44 THEN PRINT"Why not ENTERTAIN the King as your guesstin the Ogre'
s cottage ? Who knows what might happen ?"
1280 IF P%=13 THEN PRINT"The guard's say they won't let me in if I'm
not bringing the King a rabbit!"

```



THERAPY

```

1290 IF P%=45 THEN PRINT"The miller's son seems to be getting on very
well with the Princess! I think I'd just wait around awhile!"
1300 IF P%=35 THEN PRINT"The King will be riding by shortly! Why
not hide those clothes?" ELSE IF P%=36 THEN PRINT"Those bushes look g
ood for hiding thingsin!"
1310 IF P%=28 THEN PRINT"A wedding ring would come in useful!" ELSE I
F P%=50 THEN PRINT"When I forget something, I usually PRAY"
1320 IF P%=30 THEN PRINT"The Knife looks dangerous!" ELSE IF P%=66 TH
EN PRINT"The Princess likes chocolates!" ELSE IF P%=33 THEN PRINT"Have
you remembered the key?"
1330 RETURN
1340 K=1:PRINT"Do you always have to make stupid
suggestions?"
:RETURN
1350 PRINT"O.K.":FOR XX=1 TO 1000:NEXT:IF P%=46 THEN P%=47:PRINT"The
coach comes to rest and they all get out!":RETURN
1360 IF P%=45 THEN PRINT"Well that seems to have done the trick! My m
aster proposes marriage to the beautiful princess and she accepts
The King puts me into a coach.":P%=46:RETURN
1370 PRINT"nothing special happens!":RETURN
1380 IF P%<>37 THEN PRINT"I'm too tired to run anywhere!":RETURN
1390 P%=38 PRINT"O.K. I run as fast as I can!":W%=W%+1:RETURN
1400 IF AB=1 THEN PRINT"O.K. I will wear the boots!" ELSE PRINT"I can
't do that just yet!":RETURN
1410 FOR H=1 TO 3:IF V$(H)=G$(2) THEN V$(H)=""
1420 NEXT:AQ$="a pair of boots:- worn PLUS":AB=3:S%(11,3)=12:W%=W%+1:
RETURN
1430 DATA a shop assistant,21,a pair of boots,21,some coins,10,some l
ettuce leaves,7,an old bag,9,a fat rabbit,12,a partridge,20,a rusty kn
ife,30,a dead rat,25,the Miller's sons clothes,35,some bushes,36
1440 DATA the EVIL OGRE,39,some food,42,a gold wedding ring,28,a pala
ce guard,13,a key,29
1450 DATA shop,1,assistant,1,pair,2,boots,2,coins,3,lettuce,4,leaves,
4,bag,5,rabbit,6,partridge,7,knife,8,rat,9,clothes,10,bushes,11,ogre,1
2,evil,12,food,13,wedding,14,ring,14,palace,15,guard,15,key,16
1460 IF AE=1 THEN RETURN
1470 IF AC<>1 THEN PRINT"I need something to entice the rabbit"
1480 IF AD<>1 THEN PRINT"I need a bag to catch it in"
1490 IF AC=1 AND AD=1 THEN PRINT"I put some lettuce leaves into the b
ag and the rabbit rushes over. I quickly trap it in the bag.":AE=1:
S%(13,2)=14:Q$(13)=LEFT$(Q$(13),21):RETURN
1500 RETURN
1510 K=1:W%=W%+1:AE=0:FOR X=1 TO 3
1520 IF V$(X)=G$(6) THEN V$(X)=""
1530 NEXT:PRINT"The guard takes my gift from me and goesto show the K
ing. He is very pleased and asks for a Partridge":RETURN
1540 IF AF<>1 THEN PRINT"I don't have it to give":RETURN

```



PUSS IN BOOTS

```
1550 PRINT"The King thanks me and calls his dogs out of the way to
let me pass.":S%(17,3)=30:SB=1:W%=W%+1:Q$(17)=LEFT$(Q$(17),22):RETURN
1560 IF P%<>33 THEN PRINT"Not here!":RETURN
1570 IF AG<>1 THEN PRINT"I need the key!":RETURN
1580 PRINT"O.K. the gate is now open!":Q$(33)="by an open gate":S%(3
3,2)=34:W%=W%+1:RETURN
1590 IF P%<>36 THEN PRINT"I can't hide anything here!":RETURN
1600 IF AH<>1 THEN PRINT"I haven't got anything to hide!":RETURN
1610 FOR X=1 TO 3:IF V$(X)=G$(10) THEN V$(X)="
1620 NEXT:AH=0:W%=W%+1:PRINT"The King rides past your master (The
Miller's son) and sees that he is in distress. He takes him for a r
ide in theRoyal Coach and I run on ahead."
1630 P%=37:RETURN
1640 K=1:IF P%<>39 THEN PRINT"I don't see much point in talking here!
":RETURN
1650 IF SD<>0 THEN PRINT"Nothing happens!":RETURN
1660 CLS:PRINT"O.K. I ask the Ogre if he can turn into something else
"
1670 PRINT:PRINT:PRINT"He says 'Of course I can! What would you li
ke me to turn into?'"
1680 SD=1:PRINT:PRINT:PRINT:INPUT Z$:IF LEFT$(Z$,3)<>"mou" THEN X$(1)
="He turns into a tiger and devours me!":GOTO 1100
1690 CLS:PRINT"The Ogre turns into a tiny mouse. I pounce on it
and kill it!":G$(12)="a dead mouse":S%(39,2)=40
1700 W%=W%+1:N$(15)="mouse":N$(16)="dead":Q$(39)=LEFT$(Q$(39),46):RET
URN
1710 IF P%<>44 THEN PRINT"Don't be silly!":RETURN
1720 W%=W%+1:P%=45:PRINT"O.K.":PRINT"I invite the King and his daught
er into the Ogre's cottage. The servants prepare a magnificent banquet
!"
1730 PRINT:PRINT"The King is most impressed. He must think that m
y master provided it!":RETURN
1740 CLS:LOCATE 14,2:PRINT"Puss in Boots"
1750 PRINT:PRINT" <C> Steve Lucas Sept 1984"
1760 PRINT:PRINT:PRINT"Once upon a time there lived a miller who ha
d three sons. He was so poor that when he died he left nothing but his
Mill, his donkey and his cat."
1770 PRINT:PRINT"The mill, of course, had to be left to his eldest s
on, the donkey to his secondand all that was left for the youngest so
n was his fathers cat."
1780 PRINT:PRINT:PRINT" Press the <Space Bar> to continue."
1790 A$=INKEY$:IF A$<>" " THEN 1790
1800 CLS:PRINT"'Do not worry dear master', said the cat 'give me a pa
ir of boots and a bag and I shall solve all your problems'"
1810 PRINT:PRINT:PRINT"My name is Puss and you are the youngestson of
the miller. You must help me to help you."
1820 RETURN
```



THE EMPEROR OF ZOBLOVIA

Finally, after months of saving, I've booked my holiday on the sunny island of KOL - but I rather wish I hadn't.

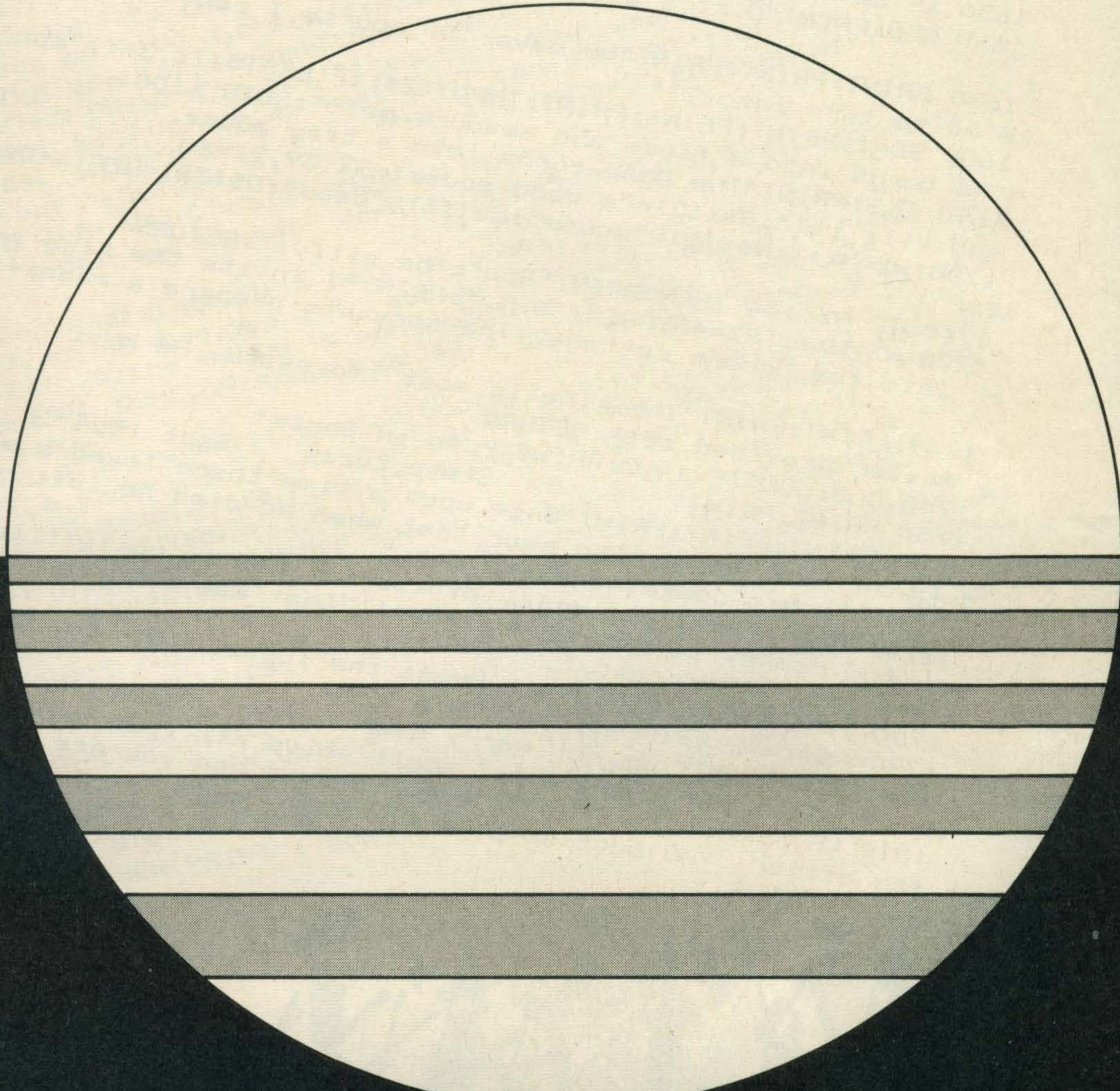
There was a baggage strike at the airport, which delayed my flight, and then when I arrived, I was so tired that I slept for 48 hours. Despite the fact the island holds the

record for sunshine, the rain has been torrential and many areas of the island are flooded. When I awoke this morning, my hotel was flooded and to cap it all, the island had been invaded by the Mad Emperor of Zoblovia, who is threatening to blow up the island if the locals don't deliver the famed Diamond of Kol.

I seem to be the only

person left alive and am stuck on the hotel roof. There are only 150 minutes left in which to either deliver the diamond or, if I am brave enough, kill the Emperor. Each move takes one minute and you should give me the instructions in the form of two word sentences such as kill emperor.

NOTE your instructions should be in lower case.



Variables used

SA-SX	flags
x,y,	control variable
G\$(x)	items
Q\$(x)	locations
NS(x)	words understood
N%(x)	pointer to words
B%(x,y)	current location
P%	current location
S%(x,y)	map

Program Breakdown

10-60	titles/set variables
70-90	fill arrays
100-130	want instructions?
140-700	main control loop
140	describe location
150-220	describe directions
230	number of moves left
240-290	describe objects
300-310	input action
320-700	call subroutine/action
710-1690	subroutines for action
1700-2050	data for game
2060	titles and instructions

THE EMPEROR OF ZOBLOVIA

```
10 REM ** The Emperor of Zoblovia **
20 REM ** an adventure game for MSX computers **
30 REM ** Steve Lucas September 1984 **
40 SCREEN 0:WIDTH 40:COLOR 15,1:KEYOFF
50 G%=0:P%=54:DIM S$(103,4),X$(35),N$(70),Q$(103),G$(60),V$(4),B$(103,1),N$(101)
60 GOSUB 2060
70 RESTORE: FOR X=1 TO 103:READ Q$(X):FOR Y=1 TO 4:READ S$(X,Y):NEXT Y:NEXT X
80 FOR X=1 TO 35: READ X$(X): NEXT X: FOR X=1 TO 20 :READ G$(X),B$(X,1):NEXT
90 FOR X=1 TO 27: READ N$(X),N%(X): NEXT
100 LOCATE 5,20:PRINT"Do you want instructions <y/n> ?"
110 AA$=INKEY$: IF AA$="" THEN 110
120 IF AA$="y" OR AA$="Y" THEN GOSUB 2100
130 CLS
140 PRINT:PRINT" I am :-":PRINT:PRINT Q$(P%):A$="":GH=FRE("")
150 IF S$(P%,1)>0 THEN A$="North"
160 IF S$(P%,2)>0 AND LEN(A$)=0 THEN A$="South" ELSE IF S$(P%,2)>0 THEN A$=A$+",South"
170 IF S$(P%,3)>0 AND LEN(A$)=0 THEN A$="East" ELSE IF S$(P%,3)>0 THEN A$=A$+",East"
180 IF S$(P%,4)>0 AND LEN(A$)=0 THEN A$="West" ELSE IF S$(P%,4)>0 THEN A$=A$+",West"
190 IF A$="" THEN A$="nowhere obvious"
200 IF P%=103 AND AA=1 THEN CLS: GOTO 710: REM win game
210 IF G%>149 THEN X$="You ran out of time and He blew the island up !": GOTO 2230
220 PRINT:PRINT:PRINT"I can go :-":PRINT:PRINT A$
230 PRINT:PRINT"I have ";150-G%;" moves left"
240 E=0:FOR x=1 TO 20
250 PP%=0: IF B$(X,1)=P% THEN PP%=1
260 IF PP%=1 THEN 280
270 NEXT: GOTO 300
280 IF E=0 THEN PRINT:PRINT"I can see :-"
290 PRINT G$(x): E=E+1: GOTO 270
300 PRINT:PRINT:INPUT"What should I do now ";Z$
310 B$=LEFT$(Z$,2): C$=LEFT$(Z$,3)
320 CLS: G%=G%+1
330 IF C$="loo" THEN 130
340 IF C$="sco" THEN PRINT"This isn't a game you know!": GOTO 140
350 IF C$="eat" THEN PRINT x$(9): GOTO 140

360 IF C$="rub" THEN PRINT x$(12): GOTO 140
370 IF C$="hel" THEN PRINT x$(16): GOTO 140
380 IF C$="dri" THEN PRINT" I don't see anything here I'd like to drink!":GOTO 140
390 IF C$="say" OR C$="spe" THEN PRINT X$(4): GOTO 140
400 IF C$="pra" THEN PRINT X$(18): PRINT"Nothing happens!": GOTO 140
410 IF B$="n" AND S$(P%,1)<>0 THEN P%=S$(P%,1): PRINT X$(27): GOTO 140
420 IF B$="s" AND S$(P%,2)<>0 THEN P%=S$(P%,2): PRINT X$(27): GOTO 140
430 IF B$="e" AND S$(P%,3)<>0 THEN P%=S$(P%,3): PRINT X$(27): GOTO 140
440 IF B$="w" AND S$(P%,4)<>0 THEN P%=S$(P%,4):PRINT X$(27): GOTO 140
450 IF C$="rea" THEN PRINT"I can't see anything to read!": GOTO 140
460 IF B$="n" OR B$="s" OR B$="e" OR B$="w" THEN PRINT"I can't go that way !": GOTO 140
470 IF C$="pho" THEN PRINT"now then don't be silly!": GOTO 140
480 IF B$="fu" OR B$="pi" THEN PRINT X$(22): GOTO 140
490 IF C$="bug" THEN PRINT X$(23): GOTO 140
500 IF C$="inv" THEN 1440
510 IF C$="row" OR C$="sai" OR C$="pad" OR Z$="go dinghy" THEN 1580
520 IF C$="up" OR C$="cli" OR Z$="go up" THEN 740
530 IF C$="dow" OR Z$="go down" THEN 800
540 IF C$="out" OR Z$="go out" THEN 850
550 IF B$="in" OR Z$="go in" THEN 890
560 IF Z$="go bus" OR Z$="go ride" OR C$="rid" THEN 920
570 IF C$="wai" THEN PRINT X$(27): FOR X=1 TO 1000: NEXT X: G%=G%+1: GOTO 140
580 IF C$="jum" THEN 950
590 IF C$="div" THEN 970
600 IF C$="get" OR C$="tak" OR C$="gra" THEN 1000
610 IF C$="dro" OR C$="lea" OR C$="put" THEN 1310
620 IF C$="ope" AND P%=64 THEN PRINT X$(26): GOTO 140
630 IF C$="unl" THEN 1510
640 IF C$="kis" THEN 1570
650 IF C$="giv" THEN 1610
660 IF C$="exa" THEN PRINT"I see nothing special or unusual !": GOTO 140
670 IF C$="swi" THEN PRINT"Just give me a direction and I'll swim if I have to !":GOTO 140
680 IF C$="kil" OR C$="sho" OR C$="des" THEN 1640
690 IF C$="sea" THEN PRINT"I see nothing here": GOTO 140
700 PRINT X$(5):GOTO 140
710 CLS:PRINT:PRINT" Well Done"
```



```

720 PRINT:PRINT:PRINT:PRINT"      You have solved this adventure."
730 END
740 IF P%=29 THEN PRINT X$(7):P%=30: GOTO 140
750 IF P%=100 THEN PRINT X$(7):P%=101: GOTO 140
760 IF P%=13 THEN PRINT"I keep slipping back !": GOTO 140
770 IF P%=60 THEN PRINT X$(7): GOTO 140
780 IF P%=41 THEN PRINT X$(7): P%=40: GOTO 140
790 PRINT"I can't do that here !": GOTO 140
800 IF P%=30 THEN PRINT X$(8):P%=29: GOTO 140
810 IF F%=40 THEN P%=41: PRINT X$(8): GOTO 140
820 IF P%=101 THEN PRINT X$(8):P%=100: GOTO 140
830 IF P%=61 THEN PRINT X$(8):P%=60: GOTO 140
840 GOTO 790
850 IF F%=74 THEN PRINT X$(27):P%=73: GOTO 140
860 IF P%=28 THEN P%=27:PRINT X$(27): GOTO 140
870 PRINT"How can I do that here ?": GOTO 140
880 PRINT"Now who's a SILLY BILLY then ?": GOTO 140
890 IF P%=27 THEN P%=28:PRINT X$(27): GOTO 140
900 IF F%=73 THEN P%=74:PRINT X$(27): GOTO 140
910 PRINT"I can't do that here!": GOTO 140
920 IF F%=26 THEN PRINT"There's not a bus in sight that's      runnin
g!": GOTO 140
930 IF P%=38 THEN PRINT X$(27): PRINT"I get off at the next stop": P%=
26: GOTO 140
940 PRINT"Don't be absurd !": GOTO 140
950 IF P%=90 THEN PRINT X$(27):P%=89: GOTO 140
960 IF P%=89 THEN P%=90:PRINT"Phew just made it!": GOTO 140
970 IF P%=63 OR P%=59 THEN PRINT"SPLASH!": P%=15:GOTO 140
980 PRINT"Now who's a SILLY BILLY then ?": GOTO 140
990 IF SE=1 THEN PRINT X$(25): GOTO 140
1000 GOSUB 1230
1010 IF LZ=1 THEN 1030
1020 GOTO 140
1030 E%=0
1040 FOR X=1 TO 20: IF B$(X,1)=P% AND B$(N%(R),1)=P% THEN E%=1
1050 NEXT X
1060 IF E%=0 THEN 140
1070 IF P%=103 AND (R=1 OR R=2) THEN PRINT X$(19):GOTO 140
1080 IF R=8 THEN SA=1
1090 IF R=18 THEN SB=1
1100 IF R=26 THEN SC=1
1110 IF R=25 THEN SB=1

1120 IF P%=64 AND R=7 AND SE<>1 THEN PRINT X$(3): GOTO 140
1130 IF P%=64 AND R=23 AND SE<>1 THEN PRINT"I can't see it here!": GOT
O 140
1140 IF P%=36 AND R=27 THEN PRINT"What sort of person do you take me f
or ?": GOTO 140
1150 IF P%=98 AND R=24 THEN PRINT"It's stuck!": GOTO 140
1160 IF R=23 THEN SS=1
1170 IF R=15 AND P%=23 THEN PRINT X$(11):GOTO 140
1180 E%=0
1190 FOR X=1 TO 3: IF V$(X)="" THEN V$(X)=G$(N%(R)): E%=1: X=7
1200 NEXT
1210 IF E%=0 THEN PRINT"My hands are full!":GOTO 140
1220 B$(N%(R),1)=0: GOTO 140
1230 L$="": FOR X=1 TO LEN(Z$)
1240 IF MID$(Z$,X,1)=" " THEN L$=RIGHT$(Z$, (LEN(Z$)-X)): X=X+40
1250 NEXT X
1260 R=0: LZ=0: IF LEN(L$)<2 THEN RETURN
1270 FOR X=1 TO 27
1280 IF LEFT$(N$(X),LEN(L$))=L$ THEN LZ=1: R=X
1290 NEXT
1300 RETURN
1310 GOSUB 1230
1320 IF LZ=1 THEN 1340
1330 PRINT"I can't see a ";L$
1340 E%=0
1350 FOR X=1 TO 3: IF V$(X)=G$(N%(R)) THEN V$(X)="": E%=1
1360 NEXT X
1370 IF E%=1 THEN 1390
1380 PRINT"I don't have it !":GOTO 140
1390 B$(N%(R),1)=P%
1400 CLS
1410 IF R=26 THEN SC=0 ELSE IF R=25 THEN SB=0 ELSE IF R=8 THEN SA=0 EL
SE IF R=7 THEN SD=0
1420 IF R=22 THEN SS=0
1430 GOTO 140
1440 PRINT"I am carrying :-"
1450 F%=0
1460 FOR X=1 TO 3
1470 IF V$(X)<>"" THEN PRINT V$(X): F%=1
1480 NEXT
1490 IF F%=0 THEN PRINT"Not a thing!"
1500 GOTO 140
1510 IF P%=64 OR P%=35 THEN 1530
1520 PRINT"Don't be silly !": GOTO 140

```


THE EMPEROR OF ZOBLOVIA

```
1530 IF P%=64 AND SA<>1 THEN PRINT X$(15): GOTO 140
1540 IF P%=35 THEN PRINT"The padlock is too rusty to unlock with this
key!": GOTO 140
1550 IF SE=0 THEN 1560 ELSE PRINT X$(25): GOTO 140
1560 SE=1: PRINT X$(29):PRINT X$(30): G$(16)="The DIAMOND": GOTO 140
1570 IF P%<>36 THEN PRINT"I can't do that here": GOTO 140 ELSE PRINT X
$(27): PRINT"She smiles for a second": GOTO 140
1580 IF P%=53 OR P%=52 THEN 1590 ELSE PRINT"I can't do that here!": GO
TO 140
1590 IF P%=52 THEN PRINT X$(27):PRINT"I sail the boat": P%=53: B$(6,1)
=53: GOTO 140
1600 PRINT"I paddle the dinghy": P%=52: B$(6,1)=52: GOTO 140
1610 IF P%<>103 THEN PRINT"I can't give the diamond to the emperor HER
E !": GOTO 140
1620 IF SB<>1 THEN X$="He notices that I don't have the DIAMOND and ki
lls me with his sword!": GOTO 2230
1630 CLS: GOTO 710
1640 IF P%=23 THEN PRINT"Don't be so cruel!": GOTO 140
1650 IF P%=36 THEN PRINT"What do you take me for ...a SADIST ?": GOTO
140
1660 IF P%<>103 THEN PRINT"Not here!": GOTO 140
1670 IF SB<>1 THEN PRINT"I have no weapon !": GOTO 140
1680 IF SC<>1 THEN PRINT"I pull out the gun..but there's no bulle
t !": X$="I don't think He liked that": GOTO 2230
1690 PRINT"I quickly load the gun and kill the EMPEROR":FOR X= 1 T
O 2000: NEXT X: GOTO 710
1700 DATA in the main shopping street,22,2,23,27,in a covered market,1
,3,0,0,by a street stall. It's empty,2,4,8,7,outside the public librar
y,3,5,0,6,in the civic centre,4,16,12,0,by the checkout desk of the li
brary,0,0,4,86
1710 DATA in a small chemist's shop. The shelves are empty,0,0,3,0,on
a main road. There's not a car in sight,0,0,9,3
1720 DATA on the main road,0,0,10,8,by some traffic lights which seem
to be out of order,26,0,11,9,by a workman's hut. There's a deep hole h
ere
1730 DATA 0,0,0,10,at the entrance to a swimming pool,0,0,0,5,at the b
ottom of a muddy hole. I keep slipping in the mud!,0,0,0,0
1740 DATA at the shallow end of a swimming pool,12,0,0,0,swimming in d
eep water,0,58,0,0,in the village square. It's full of cafe's
1750 DATA 5,0,0,17,outside the Hotel Colrosa,0,21,16,18,walking along
a narrow footpath with woods on either side,0,0,17,19,deep in the f
orest. There's a tall tree here,0,0,18,0
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```
1760 DATA at the top of a tree,0,0,0,0,in the hotel entrance,17,64,0,0
1770 DATA outside an amusement arcade,73,1,24,0,inside an amusement arc
ade. All the machines have been turned off,24,0,0,1,in a dirty al
leyway,0,23,25,22
1780 DATA on the top of a low wall,0,0,0,24,at a bus stop,0,10,0,0,out
side Woolworth's
1790 DATA 0,0,1,0,in the gardening section. The entrance is nearby,0,
0,0,29,at the bottom of a staircase,0,34,28,0,at the top of the stairs
,0,0,31,0,in the electrical department,0,32,33,30
1800 DATA in the staff canteen,31,0,0,0,by a display of computers,0,0,
0,31,at the checkout,29,0,0,0,in a loading bay,0,0,36,0,in a narrow tu
nnel,0,37,0,35,at the end of the tunnel,36,0,38,0
1810 DATA at a bus terminus. There are plenty of buses here,39,0,0,37
,on the edge of town,0,38,40,0,at some traffic lights. There's an open
manhole in the ground,42,0,0,39,in a sewer . It's full of rats and ff
ff,0,0,0,0
1820 DATA on a main road. The river has burst its banks,45,40,0,43,pad
dling waist deep in muddy water,44,0,42,0,outside the National Bank of
Holoria. It is flooded,50,43,45,46,by deep flood water. I can see onl
y water to the North,0,42,0,44
1830 DATA in the bank entrance. It's flooded,49,47,44,48,at the counte
r. There's no one serving!,46,0,0,0,in the main hall of the bank,0,0,4
6,0,in the manager's office. The water is very deep here.,0,46,0,0,out
side a cinema,52,44,51,0
1840 DATA inside the cinema entrance. It's closed!,0,0,0,50,in the mid
dle of the road. I can't go North because of the floods,0,50,0,0,by
the roof of a large flooded warehouse,55,0,0,54
1850 DATA on a large plank of wood floating on the water,0,0,53,0,on t
he roof of a building,0,53,56,0,by a tall chimney,0,57,0,55,at the oth
er side of the roof. The flood stretches for miles,56,0,0,0,on the ste
ps at the side of the pool,15,0,59,0
1860 DATA at the side of the pool,0,60,0,58,at the bottom of some step
s,59,0,0,0,on a balcony looking out over the floods,0,0,62,0,on a divi
ng board,63,0,0,61,at the end of the board,0,63,0,0
1870 DATA by a reception desk. A sullen looking lady frowns at me,21
,65,0,0,in a large hall full of tables,64,0,66,0,at the end of the hal
l. People are dining,0,67,0,65
1880 DATA at the end of a long bar,66,0,68,0,at the far end of the bar
. The barman is asleep,0,69,0,67,in a lounge,68,71,70,72,in a toilet,0
,0,69,in a lounge. All the tables have been pushed to one side,69,
0,0,0
1890 DATA in an alcove,0,0,69,0,at the entrance to the 'Royal Holdavia
n Ice Caverns',0,22,0,0,in a vast gloomy cavern. Water drips down t
```


he walls,75,0,0,0,at the end of the gloomy cavern. A dead body lies on the floor,85,74,76,80

1900 DATA in a wide passage lit by torches in the wall,0,77,0,75,in a twisty passage,76,0,78,0,in a winding passage,79,0,0,77,in a small chamber,88,78,0,0,by a subterranean waterfall,84,81,75,82

1910 DATA on a narrow ledge at the side of the waterfall,80,83,0,0, paddling in the water. It's too deep to go further,0,0,80,0,at a dead end,81,0,0,0,in a narrow passage which is blocked to the north by a large boulder of ice,0,80,0,0

1920 DATA in a cavern of solid ice,0,75,0,0,in the reference section. A book lies open ON a page showing some 'Ice Caves',0,0,6,87,in the reading room. A sign reads 'SILENCE'.0.0.86.0.at the end of a gloomy passage,84,79,0,0

1930 DATA in a small chamber. There's a narrow ravine to the north,0,88,0,0,on a narrow ledge. There's a ravine to the South and I can just make out a passage,91,0,0,0,in a passage deep inside the mountain,0,90,93,92

1940 DATA in a small cavern where passages lead off in all directions,97,96,91,0,in a tunnel lined with strange carvings,94,95,0,91,in a vast underground chamber,0,93,0,0,in a cavern where the stalagmites are enormous,93,0,0,0

1950 DATA in a small office. It seems strange to find an office here!,92,0,0,0,in a man made corridor. The walls are lined with plastic.,0,92,0,98,in a wide passage which bends to the east,0,99,97,0

1960 DATA in a glass corridor lit with fluorescent tubes,98,100,0,0,by a sheer wall of ice. A thick rope hangs down from above,99,0,0,0,in a small room chamber. There's a sheer drop here. A rope hangs over the edge. It's fastened to a metal ring

1970 DATA 0,0,102,0,in a wide passage,0,103,0,101,in the hall of the 'Mad Emperor of Zoblovia'. He is here!!!!,102,0,0,0

1980 DATA " "

1990 DATA that's far too dangerous,It's far too heavy to lift,I'm sorry I don't speak the language,I'm sorry I don't seem to understand you!,It's stuck,I climb up, I climb down,I'm not hungry thank you

2000 DATA Sorry. That word is not in my vocabulary,AAAGGGGHHHH it got me!,What a stupid suggestion!,I already know that dummy!,I'm nearly there,I don't have the key,Sorry. I don't have a clue,Time is running out

2010 DATA I'll try it if you like,I wouldn't recommend it!,How ugly it looks!,Not Bloomin' Likely !,How dare you speak to me like that !,Don't be so rude!,It said you are a stupid fffffff,It's already open dummy!

2020 DATA It's locked!,O.K., something happened!,I see something there ,It gleams brightly,What fun,That's far too dangerous here!,It's too hard,I've nothing to do that with,I'd need a shovel

2030 DATA the Emperor himself !,103,a litre of beer,68,a bar of soap,70,a large suitcase,64,a small key,65,a sailing dinghy,53,a padlock,35,some driftwood,54,a small puppy,23,some ice,85,a rusty nail,16

2040 DATA a pair of swimming trunks,58,a nest,20,a cup of cold tea,32,a table,66," ",64,a lever,98,a gun,47,a bullet,2,a little girl who looks lost,36,emperor,1,zoblovia,1,litre,2,beer,2,bar,3,soap,3

2050 DATA suitcase,4,key,5,sailing,6,dinghy,6,padlock,7,lock,7,driftwood,8,wood,8,puppy,9,ice,10,nail,11,trunks,12,nest,13,cup,14,tea,14,table,15,diamond,16,lever,17,gun,18,bullet,19,girl,20

2060 LOCATE 10,2:PRINT"The Emperor of Zoblovia"

2070 LOCATE 3,5:PRINT"An adventure game for MSX Computers"

2080 LOCATE 6,10:PRINT" <C> Steve W. Lucas Sept. 1984"

2090 RETURN

2100 CLS:LOCATE 10,2: PRINT"The Emperor of Zoblovia"

2110 LOCATE 2,8:PRINT" After years of saving, I booked my holiday on the sunny island of Kol in the Mediterranean."

2120 PRINT" I've had nothing but trouble since arriving! A strike at the airport delayed my departure. It hasn't stopped raining since I arrived and many areas of the island are flooded."

2130 LOCATE 2,20:PRINT"Press the <Space Bar> to continue"

2140 A\$=INKEY\$:IF A\$<>" " THEN 2140

2150 CLS

2160 PRINT"When I awoke this morning, I found that the island had been invaded by the mad Emperor of Zoblovia, who is demanding the famed 'Diamond of Kol'"

2170 PRINT"He is reputed to be in hiding somewhere on the island and is threatening to blow the island up if his demands are not met"

2180 PRINT:PRINT"Most of the inhabitants seem to have been killed and therefore I must take on the task with just your help!"

2190 PRINT:PRINT"You must give me instructions in the form of two word sentences such as EAT FOOD"

2200 PRINT:PRINT:PRINT"Press the <Space Bar> to start the game"

2210 A\$=INKEY\$:IF A\$<>" " THEN 2210

2220 RETURN

2230 CLS: PRINT" That's blown it!"

2240 PRINT:PRINT:PRINT X\$

2250 PRINT:PRINT:PRINT"Do you want to play again <Y/N> ?"

2260 A\$=INKEY\$: IF A\$="y" OR A\$="Y" THEN RUN

2270 IF A\$="n" THEN PRINT:PRINT:PRINT"Goodbye.... thank you for playing": END

2280 GOTO 2260

FUTURE MUSIC

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202 NEW KINGS ROAD, FULHAM, LONDON SW6. TEL. (01) 731 5993

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NEW!

YAMAHA CX5 MUSIC COMPUTER

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

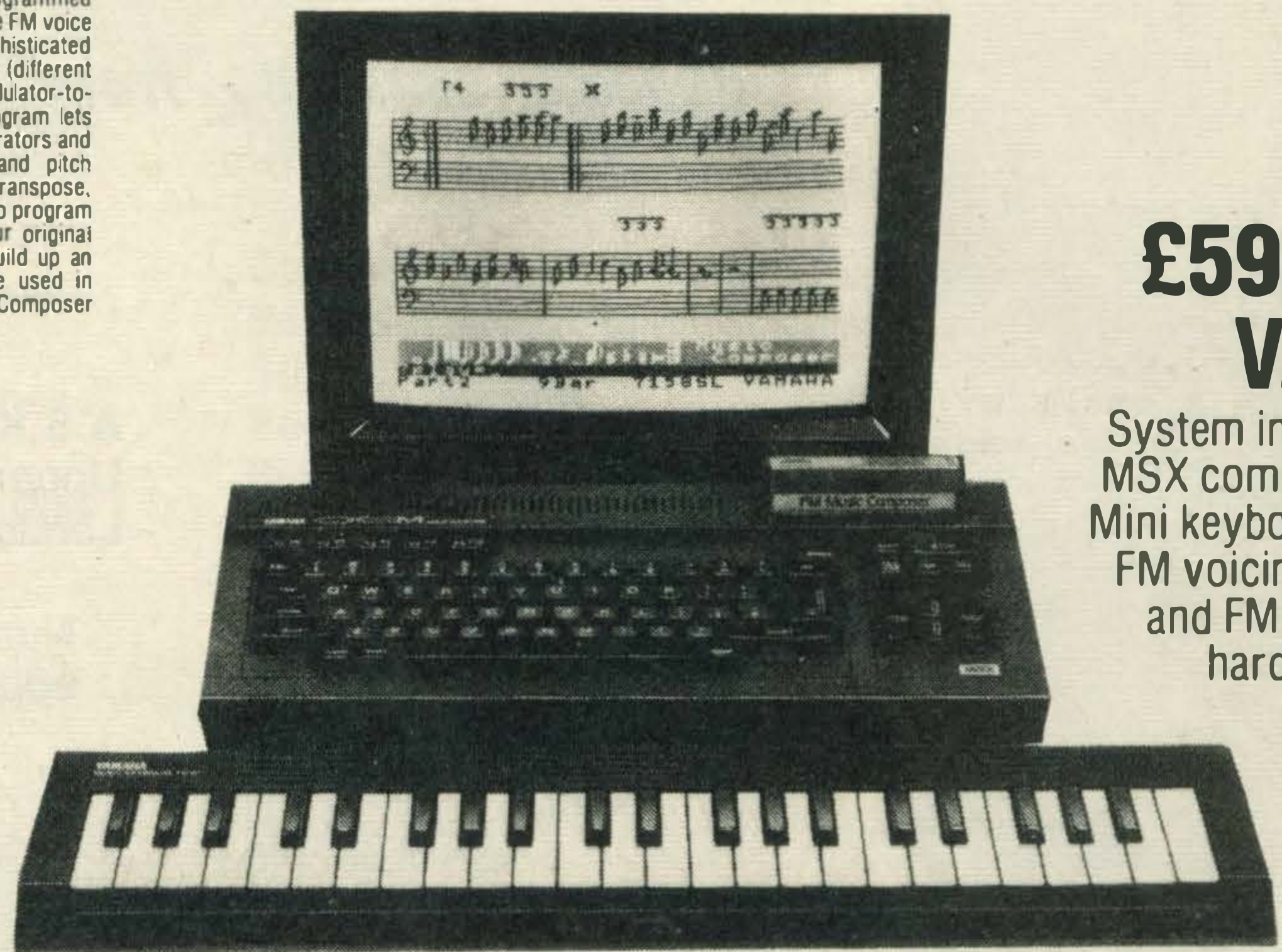
FM voice generator to edit and alter the pre-programmed voices or create totally new voices of your own. The FM voice generator employs 4 operators, each with a sophisticated envelope generator, and a choice of 8 algorithms (different configurations of operators with different modulator-to-carrier relationships). 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 DX.

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!

NEW!

ROLAND DG DXY880 INTELLIGENT XY PLOTTERS

Incredible sophistication and unbeatable price of £699 inc VAT

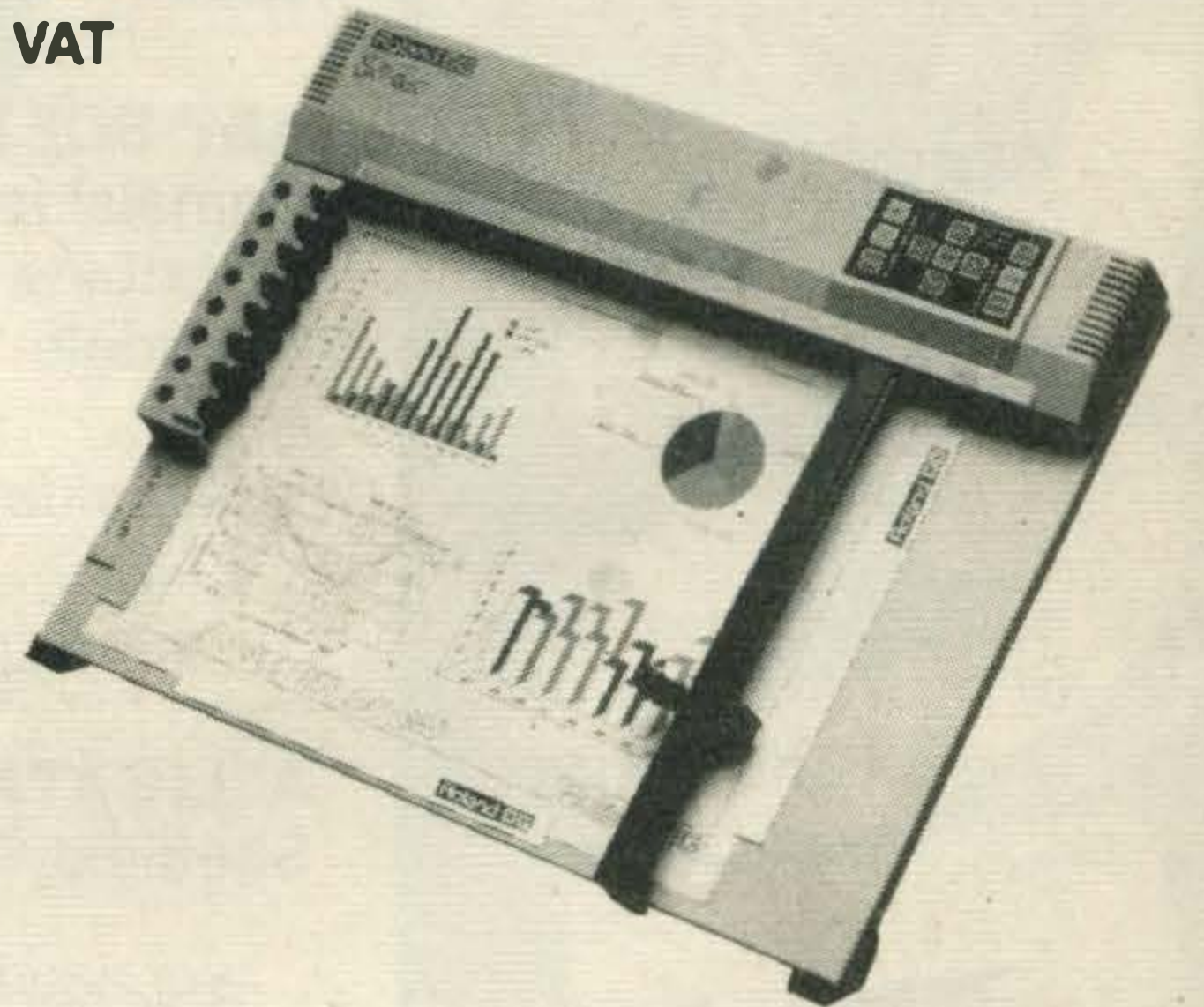
Quick and Accurate. The DXY-880's maximum plotting speed is 200 millimetres per second in all plotting directions. Thus, the DXY-880 ensures stable line quality at all times. The DXY-880 plots with a resolution of 0.05 millimetres per step. The graphics produced by the DXY-880 are excellent, even when projected on a screen by an overhead projector.

Compact. The DXY-880 has an effective plotting area of 380 x 270 millimetres (ANSI B or DIN A3 size). But the complete unit is only 553 millimetres wide and 435 millimetres deep. Furthermore, the DXY-880 can operate on a 60-degree incline to minimise installation space using a stand. The stand can be folded up inside the body when not in use. And the DXY-880 weighs only 4.3 kilograms so you can easily carry it anywhere.

Compatibility. The DXY-880 has both Centronics parallel and RS-232C serial interfaces. It is compatible with the IBM PC, Apple and other micros. The DXY-880 can also operate on most programs written for the H-P 7470, H-P 7475, and our DXY-800. The Lotus 1-2-3, pfs Graph, and BPS are only a few examples. New software will be introduced to the market continually. For the user who wants to write a program by himself, DXY and RD-GL commands are provided.

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 3.5" 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

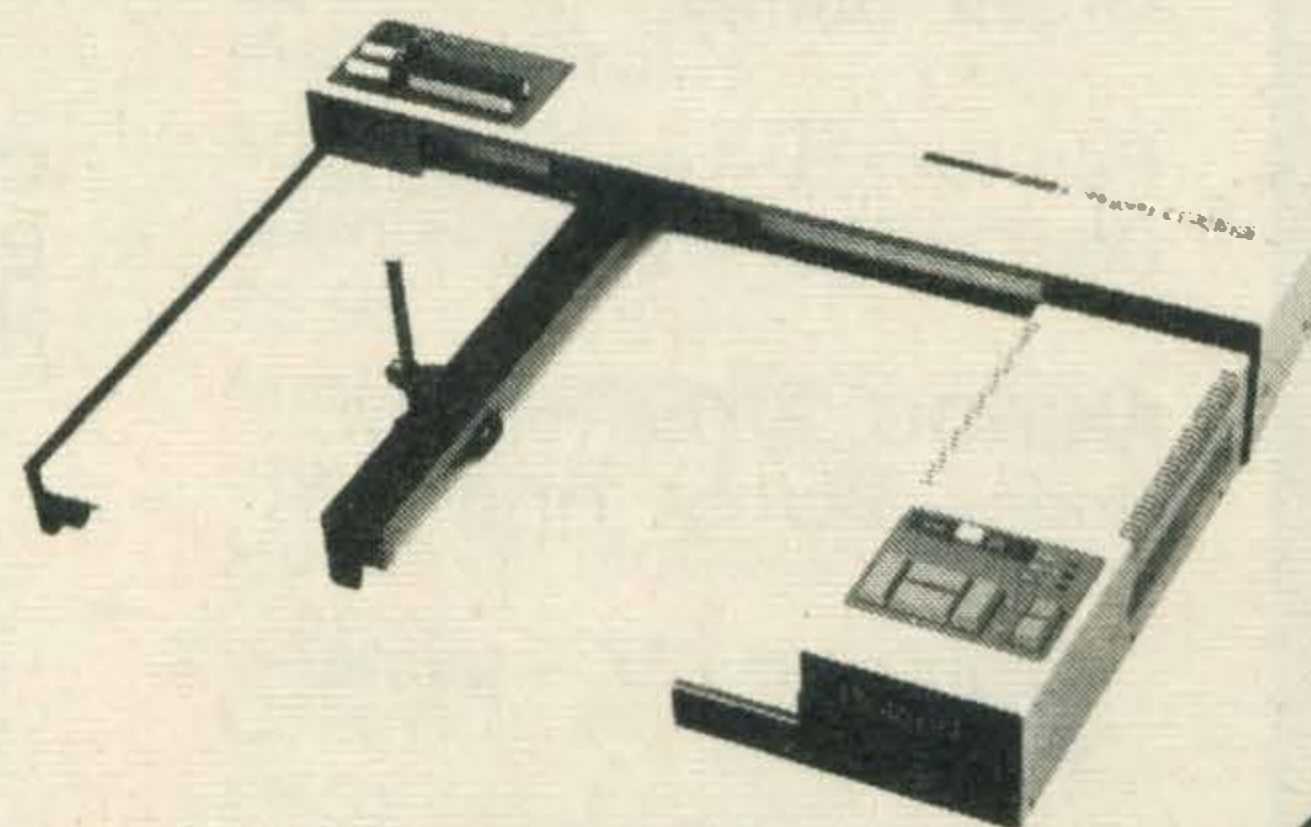


SPECIAL OFFER!

ROLAND PLOTTER PRICE MADNESS!! DXY 100R PLOTTERS

Ideal for BBC, Apple, Spectrum, etc ~~£699~~ now only £299 inc VAT

Bulk purchases make these Roland DG DXY100 A3 Plotters available at under HALF PRICE!! With free extension ROM 30 software and one year warranty! Future Music is a main agent for Roland DG computer peripherals. Call us for further information, demonstrations or advice!!



● **Plotting speed of 70mm/s. Plots up to 360 x 260mm (14.2" x 10.2")**
The DXY-100R, the first of its kind, is offered at an extremely reasonable price. This revolutionary plotter is characterised by full high-performance plotting and tabulating capacity. Quiet operation is an absolute requirement for a practical plotter. The DXY-100R successfully reduces mechanical noise to a minimum. It is suitable for use either at home or in the small-scale office. Effective plotting and tabulating size is up to 360 x 260mm. Since each step equals 0.1mm, calculation during programming is simple.

● Multiple Intelligent functions

Fourteen control commands are included in the DXY-100R. The DXY-100R also provides eight vector commands for plotting and tabulating as well as drafting continuous lines, dotted lines and coordinates; five character commands to select English capital or small letters, numerals, various other symbols, and to set their size and slant. There is also a

built-in mode command. Since each command is very simple, programs are easy to master, even with BASIC. In addition, the DXY-100R includes a self-test function to quickly check performance and operation.

● 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.

PLEASE SEND ME THE FOLLOWING POST FREE
 ROLAND DXY880
 DXY-100R
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 ADDRESS.....
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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, Drifffield, 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

CONTACT

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
Spread Sheet – £29.95
WDPRO – business
Spread Sheet – business disc
Zen Assembler – business disc
Data Base – business disc
Kuma Forth – disc – £39.95ea.

L

LLAMASOFT, 429 Mt Pleasant, Tadley, Hants:

Grid Runner – game – £5

M

MASTERTRONIC, Park Lorne, Park Rd, London NW8 7JL:

Space Walk – game
Magic Carpet – game – £1.99 each

MICRO-AID, 25 Fore St, Praze Camborne, Cornwall, TR14 0JX:

Cashbook – business – £14.95*
Memo-Calc – business – £14.95*
Payroll – business – £29.95*

MR MICRO, 69 Partington Lane, Swinton, Manchester, M27 3AL:

Punchy – game*
Humphrey – game*

Cubit – game*
Crazy Golf – game*
Zakil Wood – game* – £6.90 ea.

MIRRORSOFT, Holborn Circus, London ECP 1DQ:

737 Flight Simulator – game – £9.95

MORWOOD, Maple Walk, Bexhill, East Sussex:

Cannon Fighter – game
Panic Junction – game
Super Mind – game
Super Maze – game
Super Puzzle – game – £6.95 ea.
Intro. To Numbers – educational
Calculation 1 – educational
Calculation 2 – educational
Memory – educational
Reasoning – educational
Reflexes – educational – £14.95 ea.

P

PREMIER MICROSYSTEMS, 208 Croydon Rd, London, SE20 7YX:

Wordmate – business – £24.95
Cribbage – game – £6.95
MSXMON – utility – £9.95
Home Accounts – business – £7.95
Spelling – educational – £6.95
Plant – educational – £6.95
French Verbs – educational – £7.95
Gambling Pack – game – £6.95
Maths Games Pack – educational – £7.95
House Of Horrors – game – £6.95
Cabins of Doom – game – £6.95
Dragon Tower – game – £7.95
Dungeon of Death – game – £7.95
Adventure Plus – game – £7.95

PSS, 452 Stoney Stanton Rd, Coventry, CV6 5DG:

Champ – utility – £12.95*
Maxima – game – £7.95*
Time Bandits – game – £7.95*
Les Flics – game – £7.95*

Q

QUICKSILVA, Palmeston Hse, Palmeston Rd, Southampton, SO1 1LL:

Games Designer – utility – £9.95
Ant Attack – game
The Snowman – game
Fred – game
Bugaboo – game – £7.95 ea.

S

SOFTCAT, Woodbridge Rd, Derby Green, Blackwater, Camberley, Surrey:

Challenge My Bluff – educational – £8.95
Kriss Kross Kwiz – educational (twin pack) – £8.95

T

TOSHIBA, Toshiba Hse, Frimley Rd, Frimley, Camberley, Surrey:

3D Golf – game
Polar Star – game
Pinball – game
Pyramid Warp – game
Battleship Clapton 11 – game – £7.95ea.

TASMAN, Springfield House, Hyde Terrace, Leeds, LS2 9LN:

Tasword – business – £13.90
Tasprint – utility – £9.90

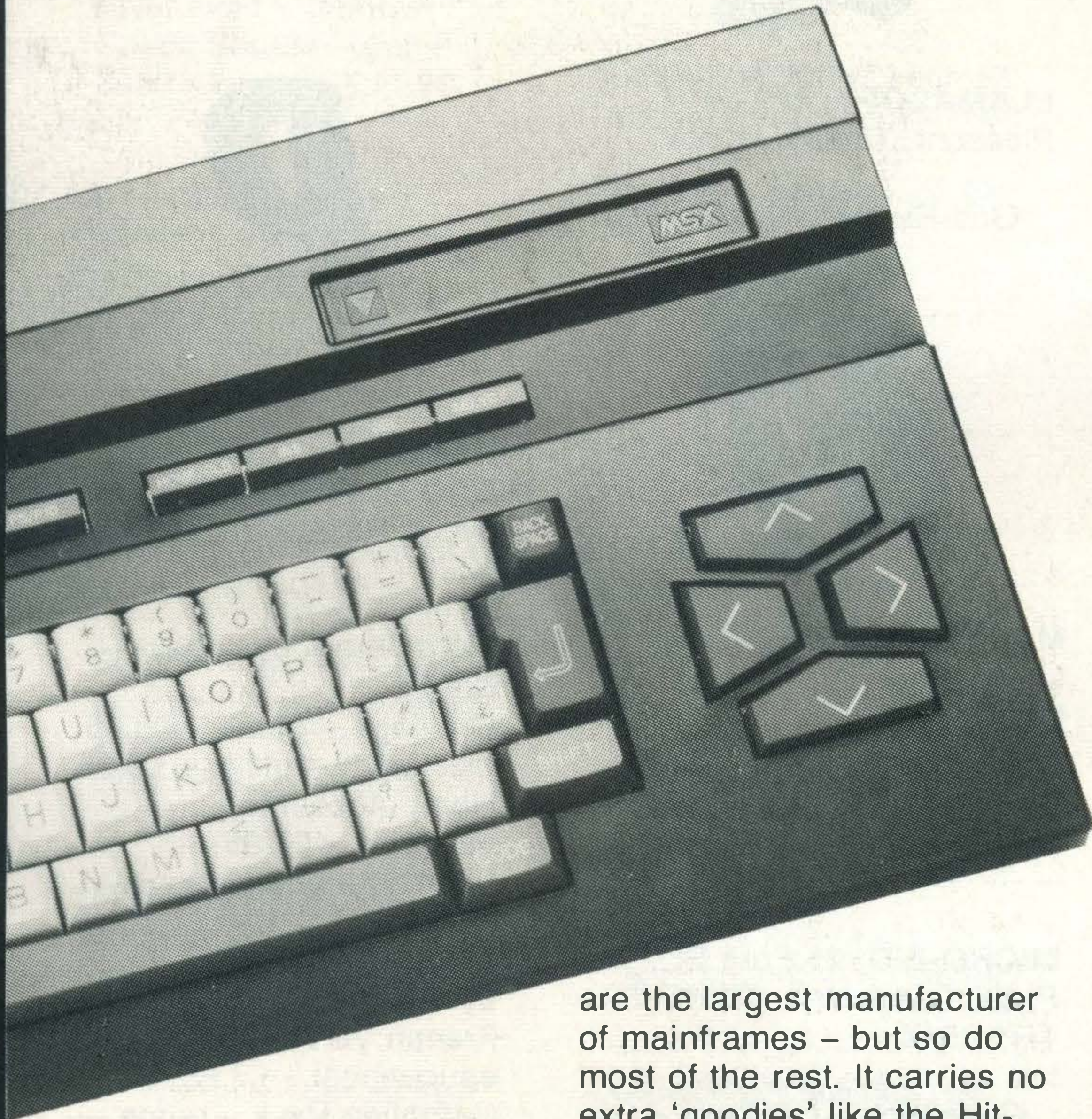
MSX

MITSUBISHI ML.F80

Karl Dallas wonders at Mitsubishi pricing policies.

Address – Mitsubishi (UK) Ltd, Hertford Place, Denham Way, Rickmansworth, Herts.

Price – £299 inc VAT



It is hard to see what makes this 64K MSX computer worth more than most of the competition and as much as the superb Sony Hit-Bit. The 32K version, the ML.F48, is also expensive at £249.

It carries a good name – though one that's not so well-known here as back home in Japan, where they

are the largest manufacturer of mainframes – but so do most of the rest. It carries no extra 'goodies' like the Hit-Bit's extra 16K ROM-based databank facility.

It has the usual two cartridge ports, one on the top and one at the back, but then so have JVC and Canon, and they're £20 cheaper.

It's a good, workmanlike machine, and though it came with no documentation – the manual's still being translated from the

Japanese – I'm assured it will be a thick 300 pages, with lots of worked examples. It'll also come with four cassette-based games.

Layout

The look of the machine is sober – much more sober than the same company's products for the Nipponese market: black, with light grey alphanumeric keys and charcoal function and editing keys. The keyboard will please most typists, with its nicely contoured keys,

though the rake is not steep enough to really suit them, and the touch of the keys is rather light for a really heavy pounder like myself. Proper touch typists should prefer it, however.

It was a little alarming to be able to see the printed circuitry between the keys. It's never a good idea to go spilling cups of coffee or cigarette ash on to your keyboard, and a dustcover is a reasonable investment for any computer, but this did seem rather exposed!

Similarly, the rear cartridge port was unshrouded and therefore unprotected.

Also, when I opened the machine up, one of the securing lugs was broken and there were some other small bits of plastic floating around, which seems to indicate someone's been rather heavy-handed – or it really is as fragile as its rather thin casing seems to indicate.

Another negative factor that must be taken into account is that its video socket, for connection to a monitor, seems to produce less signal than some of its competitors. It couldn't generate colour on my Panasonic monitor, anyway. It worked fine on a Profel monitor ... but that's a more

powerful beastie than most hackers will be using with their MSX, I'd guess.

The cursor control keys are good and large – big enough to be able to run a game like Konami's "Time Pilot" without having to look at the keys all the time. I actually preferred them to the Mitsubishi joystick which was lent to me at the same time. The stick was rather stiff, and didn't have the ease of response of the cursor keys. But this was 100 times better than the data recorder, which was also lent with the computer, because I couldn't get that to do anything at all.

Cassette Unit

It was a Japanese 100-volt model, labelled in Japanese, but none of the controls did anything apart from power on/off. I tried the MOTOR ON/OFF commands to transfer control from computer to the recorder keys, but they still wouldn't work. I tried disconnecting the remote control, but likewise. So, I went back to the trusty Sharp cassette player I use for all computers that don't have a dedicated recorder. A pity, because the absence of any kind of volume control and with soft-touch keys, which suggested logic control, did raise the hope that here might be the sort of recorder we're all waiting for: one which would work in a manner entirely transparent to the user, winding forwards and backwards under computer control, setting its own record and playback levels, finding named program or data files, and generally acting almost like a disk.

In the absence of any documentation (again!), this'll have to be a forlorn hope. But not an impossible one, I trust.

Back to the keyboard.

Keyboard

The function and editing keys are lined up along the top of the keyboard, and are all fairly small. I liked the placing of the STOP key at the extreme left, and thus close to the CTRL key,

line out, 14-pin Centronics printer socket, and second cartridge socket along the back. The on/off switch is on the left. There is no reset button.

Incidentally, talking about the printer socket, when are they going to make available a 14-pin to standard Centronics 36-pin adaptor cable? With MSX printers fairly thin on the ground, and lots of people with Epson and similar Centronics-type printers they could run with MSX, the cables just cannot be bought separately (yes they can, see First Aid – Ed), and if you want to make one up, that 14-pin socket is unusual enough to prove a bit of a hassle (again, see First Aid – Ed).

At the moment, you get a cable if you buy an MSX printer, and that's it. Not good enough, MSX!

making the CTRL + STOP key-strokes to abort a program a one-handed, thumb-and-forefinger operation.

The ACCENT key – in its usual place next to the right-hand SHIFT – was blank, but it worked fine with the CODE and/or SHIFT. Perhaps the lack of labelling was because it was a pre-production model. (The serial number label even claimed it was a 100 volt machine, though it plugged into the 240 volt mains and didn't explode!)

Input/Output

The rest of the I/O sockets are fairly standard, to MSX at least, including two Atari-style nine-pin joystick sockets and 8-pin cassette socket on the right, the video RF, audio and video

Conclusions

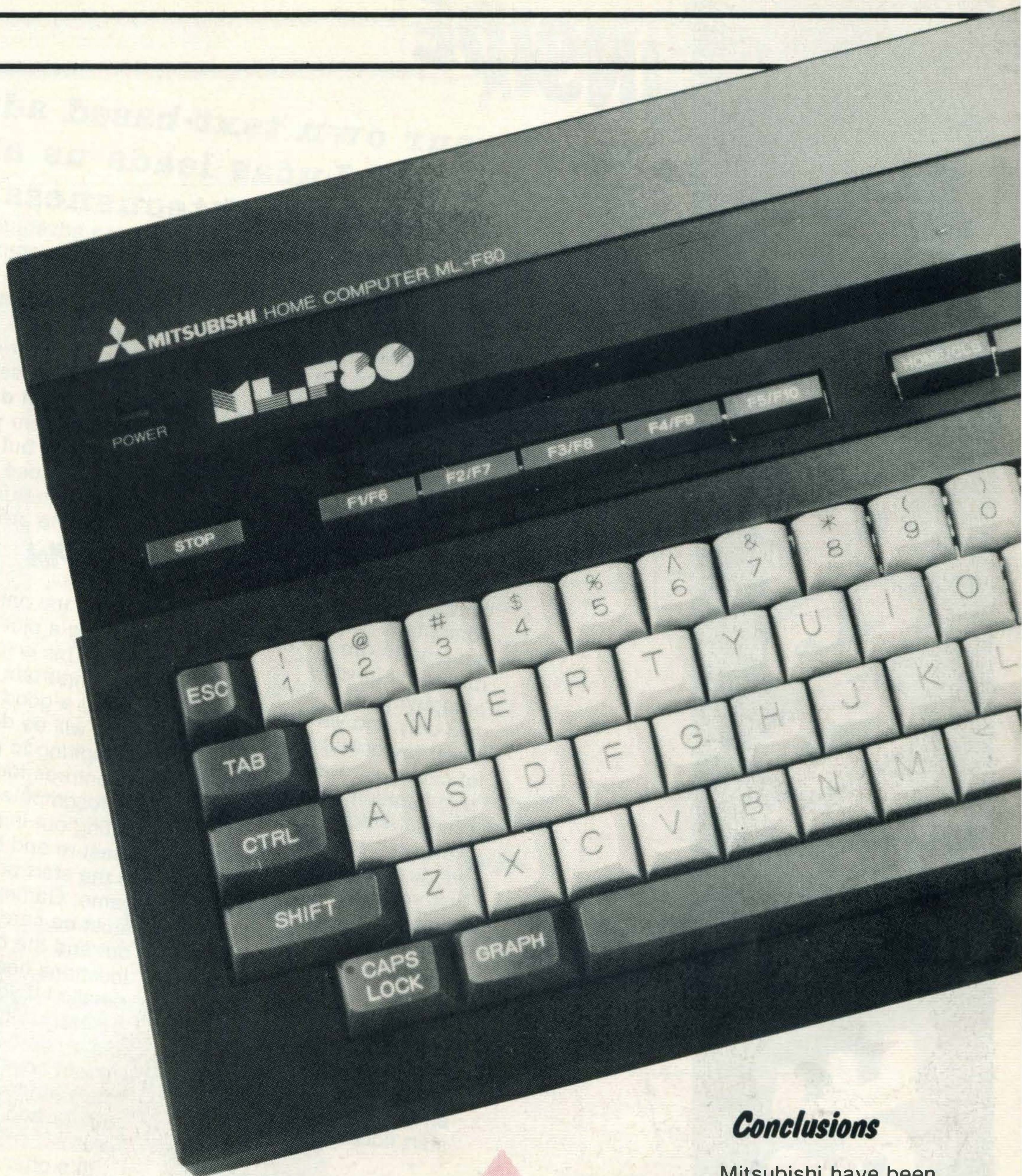
Mitsubishi have been talking about producing a 48K machine for something like £250, but since there are 64K machines around at that price, there doesn't seem much point. Certainly, it's hard to see what makes this 64K machine worth nearly 50 quid more either.

It looks like a solid and robust enough machine, but a glance at what lies beneath the six Phillips screws securing top to bottom belies that impression. Tacky.

The power supply runs nice and cool, though, which implies a certain efficiency.

Taken all-in-all, anyone price and quality conscious who compares it with the value for money offered by the eight other MSXs on the market would be tempted to give this one a miss.

And I'd have to agree with them.



Write your own text-based adventure games. Steve Lucas leads us along the path of righteousness.

An adventure game is a program that allows you, the user, to play a role in a story with many different possible sub-plots. The outcome of the game depends largely on your responses to a set of circumstances outlined by the computer in text. Probably the most famous adventure game of all is 'Colossal Cave', which is a version of the original, written for mainframe computers. This has been adapted to run on most micros by Level 9 computing. The game is text-only and you have to enter (by proxy) a labyrinth of caves, whose positions and contents are remembered by the computer, and recover various items of treasure. Instructions are given to the computer by entering two-word sentences such as GO NORTH or EAT FOOD. The computer responds by telling you the result of such actions. This might sound easy, but after two years I still haven't completed the end game when the caves start flooding!

Level 9 have become famous for the excellence of their games and I hope they decide to release MSX versions. Other software houses have started to include novel features such as graphics, sound and even the ability to understand full English sentences. My favourite adventure of this type is 'The Hobbit', which is based on Tolkein's novel of the same name. In this game you play the role of Bilbo Baggins and, as the plot of the game closely follows the book, it should be possible to solve the game by reading it.

I'm sure it won't be long before we see some excellent adventures for MSX computers which also make use of the superb MSX graphics. In the meantime, why not make a start at writing your own?

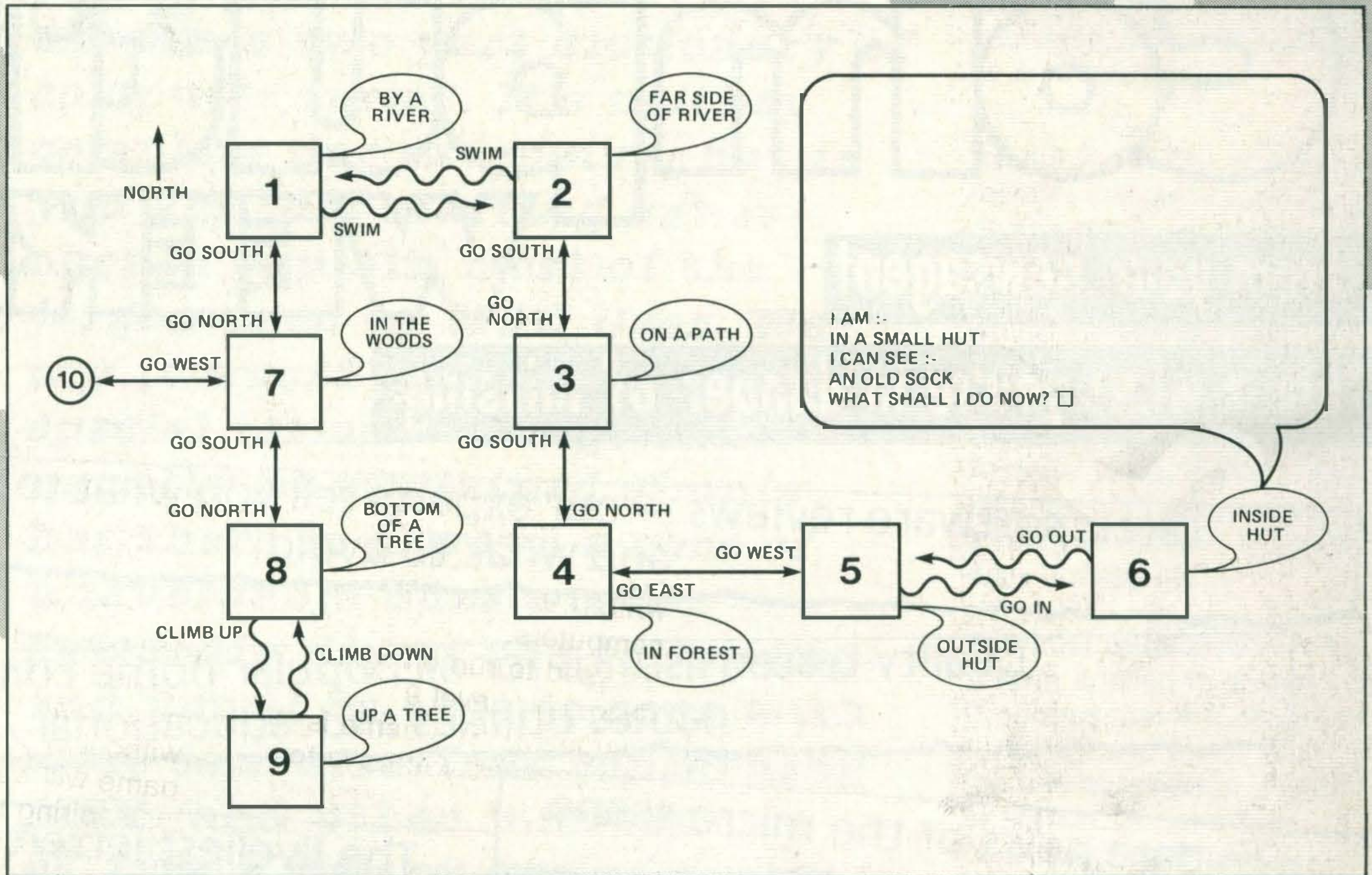
Writing an adventure game for your MSX computer is a challenge which is guaranteed to keep you busy for many weeks - or even months, but it's well worth the effort because you'll not only get a great deal of satisfaction from your achievement, but you'll also learn how to use many of the special features of MSX BASIC in the process.

The Plot

Perhaps the hardest task is choosing a plot for your game. This is in fact the most important aspect, for without a good plot your game will be dull and uninspiring to play. Early adventures for microcomputers involved setting out in search of treasure and bringing it back to the start point of the game. Games of this type must be carefully thought out and the descriptions of locations need to be very detailed if your game is to be enthralling and fun to play. The best of the more recent adventure games have tended to have a much tighter and more complex plot.

It's often useful to try to follow the plot of a favourite novel or short story, so, your first task when writing the game is to plot out the map of the main locations on paper. This need not be very detailed and figure 1 illustrates the basic idea. MSX machines with 64K of memory have about 28,815 bytes free for your programs so it's possible to fit about 150 locations into the game if it's written in BASIC and contains no graphics. I'd strongly recommend that your first attempt contains no more than 25 locations, or you'll find yourself getting lost in the complexities of programming.

Note that there's only 4 compass rose directions (N.S.E.W) and I've used wiggly arrows to link locations which are reached by other instructions - such as swimming, climbing etc.



Game DATA

The next task is to convert this map into the DATA for your game. This is best placed at the very end of your game and I usually stick it in from line 10000 onwards. LISTING 1 shows how I would convert the map shown in diagram 1.

LISTING 1

10000 DATA on the banks of a fast flowing river,0,7,0,0	1
10010 DATA on the far side of the river,0,3,0,0	2
10020 DATA on a narrow footpath,2,4,0,0	3
10030 DATA in a dark forest,3,0,5,0	4
10040 DATA outside a small foresters hut,0,0,0,4	5
10050 DATA in a small hut. A paint pot stands in one corner,0,0,0,0	6
10060 DATA in the woods,1,8,0,10	7
10070 DATA at the bottom of a tall tree,7,0,0,0	8
10080 DATA at the top of a tree,0,0,0,0	9

Each line of DATA contains a description of the location, followed by four numbers. These numbers represent the location you get to if you go North, South, East or West respectively (not the wiggly lines though). I have used the number 0 to represent a compass direction you can't take. In a similar way you should then write the DATA lines for the objects which you will come across, as in LISTING 2.

LISTING 2

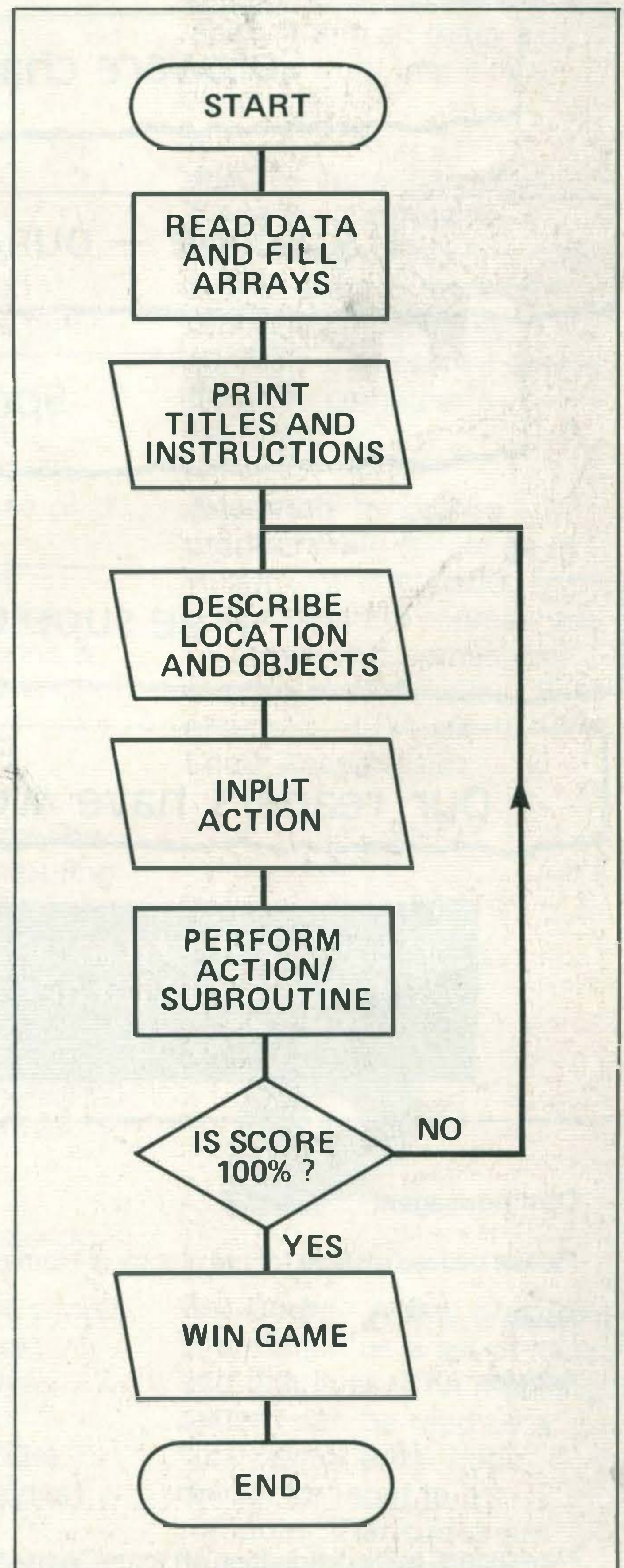
```
20000 REM ** data for objects **
20010 DATA an old sock, 6, sock
20020 DATA a kite,9,kite
20030 DATA an old man,3,man
```

Each line of DATA contains a description of the object, the number of the location in which it is found and the word the computer associates with the object.

Program Structure

Many programmers try to avoid drawing flowcharts and prefer to develop their programs at the keyboard. Time spent drawing a flowchart for a program as complex as an adventure game is well spent and the flowchart, like the map, needs only to show the basic outline. If you prefer to go straight to the keyboard, your program will probably end up as a typical 'Spaghetti' program which is almost impossible to debug. Figure 2 illustrates the sort of flowchart that's needed.

Next month we'll work at converting this flowchart into a well structured control loop. So, work out your maps and flow charts and stand by.



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Here, for your computing pleasure, is part one of a two part dictionary of computer terms. It's neither complete nor extensive, but if you are just starting out it should explain most of the jargon used in *MSX User*. We try to avoid unnecessary use of special terms – things can usually be explained simply, but there is always a core of unavoidable buzz-words.

Inwardly digest the following and you'll be able to cope with most conversations concerning MSX (and other micros).

NB. Terms in italics are explained elsewhere in the glossary

Analogue-to-digital converter – Converts *analogue* signals into *digital* equivalents for interpretation by a computer.

Animation – The creation of moving images for display on the computer *screen*.

Architecture – The way in which the various parts of the computer are arranged and connected together.

Array – *Variable* information held in computer memory in a row and column format for easy access.

Artificial Intelligence (AI) – A term applied to special *programs* that are deemed to 'learn' and apply the learned experience in their operation. For example, it's possible to construct a program that recognises digital patterns derived from speech and so react to a spoken word that it has 'learned'.

ASCII – American Standard Code for Information Interchange. This is a code that is used to represent letters, numbers and symbols that can be entered from the computer's *keyboard*.

Assembly language – A programming language in which Machine Code commands are represented by mnemonic names that suggest their function. For example – LDA stands for Load Accumulator.

GLOSSARY

A

Address – A number that identifies a single location in a computer's *memory*. By specifying an address in an instruction you can cause the computer to 'read' the contents of the specified *memory location* or in the case of *Random Access Memory (RAM)* change the contents if required as well.

Adventure game – A role-playing, generally, text based game where the computer constructs a 'world' that the player can explore and take part in. Usually this involves a quest to collect treasure where the player must first locate items of value and then figure out ways to obtain them from a 'guardian' or release them from a magic spell, etc. Most

commands the game understands are given (others you must find out). For example – EAST, WEST, NORTH, SOUTH, UP, DOWN, to direct movement, PICK UP, DIG, DROP, etc. for the use of tools and SAY for communication. Most Adventures follow formats similar to the 'Dungeons & Dragons' type fantasy games.

Algorithm – A description of how a specific task may be accomplished. In computing terms it is a computational method, usually involving mathematical formulae, to achieve a programming goal.

Alphanumeric – Concerning *characters* that are either numbers or letters.

Analogue – An expression of a quantity that continuously varies. A simple example is the volume control of a radio/TV/etc. The volume changes smoothly as you turn the knob. In contrast, a *digital* volume control would change the volume in steps.

B

Bar Code – A way of storing information as a set of thick and thin lines. The resulting pattern can be read by a *light pen* or a bar code reader for input to a computer. Bar codes are often found on the

packaging of consumer goods for stock control purposes.

BASIC – **B**eginners **A**ll-purpose **S**ymbolic **I**nstruction **C**ode. The broad term for the type of language most commonly built-in to home computers that is easy to learn and use, such as MSX BASIC.

Baud – The unit of measurement used to represent the rate at which digital information is transmitted over the telephone *network*.

Binary system – A number system that uses 2 as its base as opposed to 10 for the decimal system. All numbers can be represented with just two digits, 0 & 1. These digits are assigned values according to their position, like so:

128	64	32	16	8	4	2	1	Assigned values
1	1	1	0	1	0	1	0	Digits
128 + 64 + 32			+ 8			+ 2		= 234

So, assigning the decimal value written above the occurrence of a '1' in the *binary number* 11101010 gives it an equivalent decimal value of 234. Using eight *bits* in this manner allows you to represent whole numbers up to 255 (128 + 64 + 32 + 16 + 8 + 4 + 2 + 1).

Binary number – A number expressed in binary notation.

Bit – One of the two digits, 1 & 0, used in the *binary system*. Shortened form of **B**inary **d**igi**T**.

Boot – The implementation of instructions held in firmware when the computer is switched on. Usually to **L**OAD a *program*.

Buffer – A portion of computer memory assigned as a temporary store for data being transferred from one part of the system to another. A good example is a *printer buffer*. The purpose is to even out differences in response rate – the computer sends print *data* very fast, the printer responds slowly.

Bug – A programming or system design fault.

Bus – A channel for transferring *data* through.

Byte – Eight *bits*. The number of bits an MSX computer can deal with at once. Can be any *binary number* from 00000000 to 11111111 (0-255).

C
CAD – **C**omputer **A**ided **D**esign. Using computers for *graphic* design work.

Cartridge – A package of *memory chips* that can be inserted in the cartridge slot. Usually *ROM* containing software but can be *RAM*.

Character – Any symbol that can be displayed on a computer *screen*.

Character cell – The *matrix* of dots that make up a *character* on the screen.

Character set – All the *characters* that can be treated as one item – like a word or group of words.

Chip – A slice of silicon that contains complex *integrated circuitry*.

Clock – The master timing pulse that synchronises system operation.

Code – Often used to describe the instructions that make up a *program* but also means the pattern of *binary digits* stored in *memory*.

Command – A computer language instruction.

Compiler – A special *program* that converts

English-like languages to *machine code*.

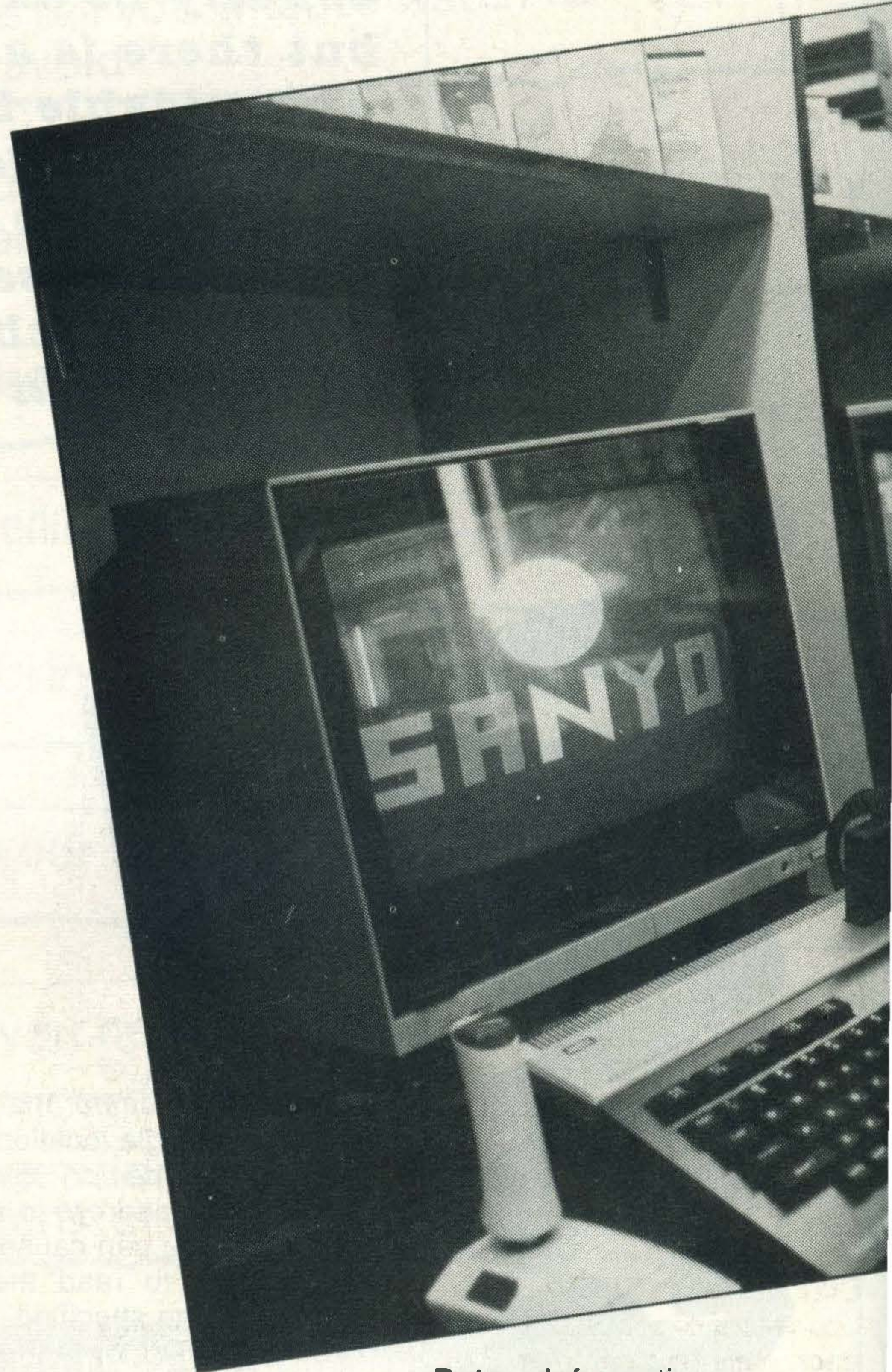
Computer literacy – Broadly, understanding how computers work and what they can do.

CP/M – **C**ontrol **P**rogram for **M**icroprocessors. A proven *operating system* soon to be available for MSX.

CPU – **C**entral **P**rocessing **U**nit. The part of a *microprocessor* that responds to *programmed* instructions.

D

Daisy-wheel printer – A *printer* that works in a similar manner to a 'golf ball' typewriter to produce letter quality print.



Data – Information

Database – A collection of *data* stored in such a way that it's easy to extract, insert and alter individual records.

Debugging – Eliminating *bugs* from a *program*. Correcting mistakes.

Digital – A term used to describe a quantity that changes in steps as opposed to continuously. See *analogue*.

Cursor – The flashing square on the screen that indicates where the next *character* will appear.

Cursor control keys – The group of four arrow-shaped keys at the right hand side of the *keyboard*. Used to move the cursor or control a *character/sprite* in a *program*.

GLOSSARY

Diskette – A flat circle of plastic coated with a magnetic material that is used to store computer *data*. Data storage and retrieval using disk is in the order of 10 times faster than tape. Also, the magnetic coating is 'formatted' into an arrangement of concentric tracks, each further divided into sectors which can usually store 256 bytes of data. See *Disk drive*.

Disk Operating System (DOS) – The controlling *program* that organises the operation of a *disk* system.

Dot matrix – The arrangement of dots, usually 8 x 8, that is used to make *characters* on a display *screen* or *printer*. Selecting appropriate dots as 'on' makes the shape of the character required.

arranged by a human expert. The system can then provide advice or instructions relating to the subject on demand.

Expression – A formula that performs a specific calculation on *data* within a *program*.

G

Gate – The lowest level building blocks for a computer system. Gates perform *logical binary* operations on several inputs to provide a single required output. For example, an AND gate provides a logical '1' output when all inputs are '1' (input 1 AND input 2 AND input 3 are '1'). Also known as logical operators.

Graphics – The construction and display of pictures by a computer, either on the *screen* or as hard copy from a *printer*.

Graphics character – A *character* constructed to be useful as a building block for simple picture creation in conjunction with other, different but allied, graphics characters.

Graphics tablet – An external device or *peripheral* that can be used to convert drawn pictures into a sequence of digits that can be understood, manipulated and stored by the computer and, of course, displayed. Sometimes known as a digitiser.

F

Fifth generation – The term used to describe computer systems currently under development. They will be much easier to use than current systems, using input devices that relate more readily to people, such as speech, and incorporate a form of *artificial intelligence*.

File – A collection of *data* stored external from the computer on cassette tape or *disk*.

Firmware – A popular piece of jargon used to describe *software* stored on a *chip*. ie a *program* stored in a *ROM*.

Fixed point number – A number that is stored and used within a computer with the decimal point in a fixed position.

Floppy disk – Just what it says, a floppy *disk*. Usually 3", 3½" or 5¼" in diameter, housed in a stiff plastic envelope with a slot cut in it that allows the disk drive *read/write* head to contact the disk. This is the most popular disk construction and will be widely used for MSX.

Flowchart – The exact arrangement of steps, expressions and procedures that make up a *program*, in the form of a diagram. The flowchart can then be used for reference when constructing a program at the *keyboard*.

E

Disk drive – The disk equivalent of a cassette deck. This unit contains the magnetic *read/write* head and associated circuitry that stores/retrieves data on/from a spinning *diskette*.

Documentation – Reference/set-up/instruction manuals supplied with *software* or *hardware*.

Download – In a *network* of computers, the transfer of *data* from the main controlling computer to one of the many micros acting as a *terminal* for a *user* to access the network.

Editing – Making changes to *text*, *programs* or *data*.

EPROM – Erasable Programmable Read Only Memory. As for *PROM* except the *data* stored can be erased using ultra violet light allowing new *data* to be stored.

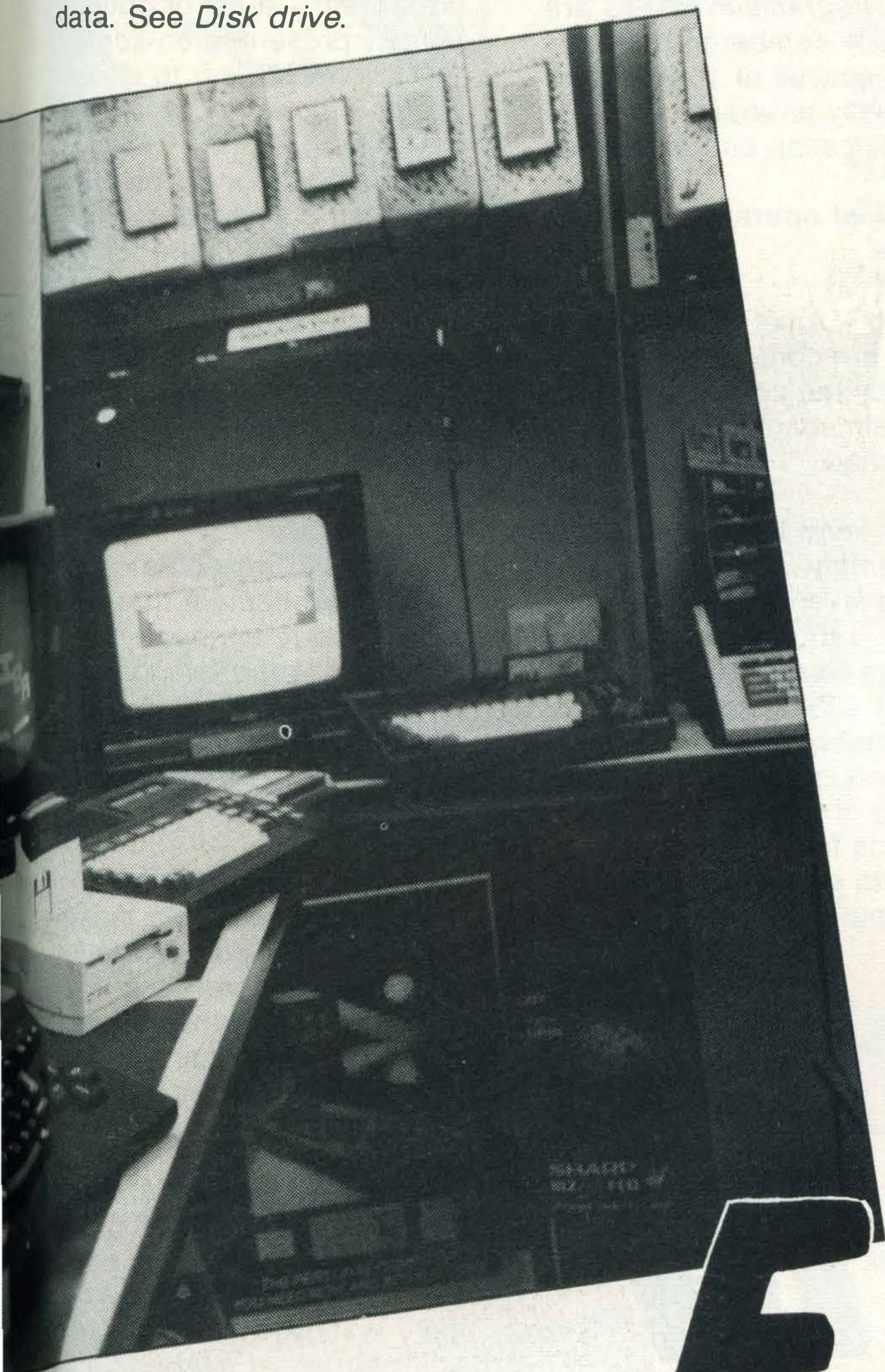
Expert system – A *program*, or set of programs, that contains a store of facts relating to a particular subject, compiled and

H

Handshaking – An exchange of coded messages between computers or computer and *peripheral* to allow the swapping of *data* to be synchronised.

Hard copy – A printout on paper of *data*, *programs*, *graphics* or *text*.

Hardware – The physical



parts of a computer. Both mechanical and electronic.

Hexadecimal – A numbering system constructed around a base of 16 as opposed to decimal's 10. The units that make up the base 16 are 1 2 3 4 5 6 7 8 9 A B C D E and F, where F is 16. This system is used constantly in *assembly language* and *machine code* programming. Example: 42B can be broken down to
 $(4 \times 16^2) + (2 \times 16) + (11 \times 1)$
 $= 156 + 32 + 11 = 199.$

High level language – An intermediate language that converts or interprets commands and instructions that are easily understood by people into the computers own language – *machine code*. There are many high level languages but the most popular at the moment is *BASIC*.

I

Icon – A complex graphic shape mimicking the action that a portion of a *program* can carry out – such as a dustbin graphic for a routine that erases or 'throws away' *data* that's no longer required. Used in conjunction with *mouse* option selection.

Initialise – To set *variables* to specific values before the start of a calculation or *routine*.

Input – Any *data* that is supplied to the computer, wherever it comes from.

Instruction – see *Command*

Integrated circuit – A very large number of components contained on a single sliver of silicon.

Interactive – Permits an exchange of information between the user and computer where the knowledge of a reply affects the next exchange.

Input/Output (I/O) – The part of the computer system that deals with communication between the *microprocessor* and its associated components and *peripherals*.

J

Joystick – A term that describes a device that uses a stick-like control to indicate directions to the computer. ie N, S, E, W. Usually used to control the movement of *graphic characters* in games.

K

K – An abbreviation for Kilo ($\times 100$) in the metric system of measurement. In the case of computing it is, confusingly, used to represent $\times 2^{10}$, which is 1024, not $\times 1000$. This is because current computers use the *binary number* system. So, 64K of *RAM* as supplied with your average MSX is actually 64×1024 , which is 65536 *bytes*.

L

Light pen – an *input device/peripheral* that is shaped like a pen with an attached length of cable

that, when pointed at a part of the screen display, tells the computer which screen cell is being indicated. Used in conjunction with a special *program*.

Line number – The means by which different groups of *instructions* are differentiated and ordered for *processing*. In the case of *BASIC* these are decimal numbers from 1 up. *Programs* in *BASIC* are usually numbered from 10, with spaces of 10 to allow for easy program modification and expansion.

Logical operators – See *Gate*.

Loop – A set of *instructions* that are continually carried out by the computer until certain conditions are satisfied.

Low-level language – *assembly language*. See *High level language*.

Large Scale Integration (LSI) – Packing a vast amount of electronic components onto one tiny sliver of silicon. *VLSI* (the V stands for Very) is the basis of *fifth generation* computers.

M

Machine code – The language used by the computer system *microprocessor*. In the case of MSX, the Z80A. All instructions are in the form of *binary* 1's and 0's.

Mainframe – An enormous, complicated and very expensive computer.

Matrix – *Data* represented in the form of a grid, like city A-Z's and road maps, where each segment of the matrix is individually *addressable* by using X and Y coordinates.

Memory – A *data* store where the location of each piece of information can be 'read' (and in the case of *RAM*, *written to*) when its *address* number is called.

Memory map – A list of the individual *memory* locations available to the computer and their usual contents.

Menu – As its restaurant equivalent – a list of options, usually presented *on-screen*, that allow the *user* to direct program flow.

Microprocessor – The 'thinking' part of your computer. This is the thing that, ultimately, you give all your instructions to when you *program* a computer. The heart of the system. For MSX, a Z80A.

Modem – A contracted form of the words **Modulator/Demodulator**. A piece of equipment that allows you to connect your computer to the telephone system and, if you have the required operating *software*, communicate with computer *networks*.

Monitor – A specially constructed computer *video display unit*. Also used to describe a *program* that provides a fundamental set of *commands* required to operate a computer system.

Mouse – A device that relays movement instructions to the computer by sensing the directions the mouse itself is moved in. Used to point arrows at *icons* on a *screen* display. Named mouse because its shape is reminiscent of a mouse. Also includes function select button/s.

MSX – A standard specification agreed and adopted by 16, mainly Japanese, consumer electronics manufacturers in early 1982 for the manufacture of home computers. Current MSX licensee companies exceeds 20.

Next month...N-Z!

Peter Green and Adam Haylett batter buttons and juggle joysticks together

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

ATHLETIC LAND
 by Konami
 £14.95
 MSX
 Cartridge

Athletic Land is the MSX user's answer to the popular VHS classic **Pitfall** by Activision.

In this multi-screen arcade game – and I reached screen 23 – you control a young sprog on a romp through a child's park. There are too many hazards to list in all, but a few you're likely to meet are wasps, trampolines, lillypads, ropes fountains, spikes, bouncing balls and giant building blocks. The graphics, general movement, colour,

sound and attention to detail are unsurpassed and the game, though easy to play, is extremely challenging and addictive at any level. In a word Athletic Land is child's play and highly recommended from toddlers to grandparents.

AH

9/10

MONKEY ACADEMY
 by Konami
 £14.95
 MSX
 Cartridge

Now this one is rather jolly. **Monkey Academy** is an educational program, on cartridge, designed to teach young children arithmetic. Your hosts are a couple of chimpanzees, who inhabit a four-level group of platforms. There are five levels of difficulty, from simple addition to bracketed expressions. At the start of a round, a bunch of balloons float up the screen and burst at the top to reveal an equation with one digit missing. You manoeuvre the chimp around the platforms pulling down 'roller blinds' which have a digit inscribed on them. When you've found the correct digit you press Select, which drops the blind into the chimp's hand so that he can carry it up to his companion on the top level, who inserts the answer in place and does a little dance. There is a time bonus allotted for each group of three answers, and then you are prompted whether you wish to change level. Life isn't quite that simple, of course: crabs keep dropping from the ceiling and crawl down to the bottom of the screen. They'll kill the chimp if they touch it, but they can be destroyed for 500 bonus points by hitting them with a piece of the fruit that grows on the platforms. I'm not sure about the biological accuracy of all this, but the program is a lot of fun even for an adult. Your kids will love it, and learn at the same time. Recommended.

PG

9/10

93



737 FLIGHT SIMULATOR

by Mirrorsoft/Salamander
£9.95
MSX
Tape

It's difficult to know how to rate this piece of software. I was able to land the plane adequately at my first attempt – on every other flight simulator that I've ever played I end by spreading plane, passengers and myself all over the landscape in a rather messy crash. Does this mean that I'm getting better, or that Mirrorsoft's game is too easy? Probably the latter. After all, among the controls are a couple of buttons that, when pressed, cause you to 'maintain current height' and 'cancel any roll'. Just like that! – on real planes, you normally have to cancel these things out with careful application of the relevant controls. Apart from that, the aircraft controls seem to be represented fairly accurately: compass, altimeter, vertical airspeed, two navigation beacons for calculating your position and heading,

landing gear and flaps control and so on. The only jarring note is that the runway, visible during takeoff and landing through the windscreen, is replaced by a radar map showing the aircraft's ground track once you fly above a certain height. I'm sure real pilots would love a feature like this, but they don't have it and neither should a true flight simulator. Like many similar programs, this game suffers from 'real time boredom', where an event that takes the 'real' amount of time to happen seems to be in slow motion by arcade game standards. A good game for people who like to have lots of controls to worry about at once, but playing this won't earn you a pilot's licence. The documentation includes a very detailed ground plan of the terrain around Alicante airport, which seems to have no relevance whatsoever to the game.

PG

6/10

HUSTLER

by Bubble Bus
£6.99
MSX
Tape

In *Hustler* you take the role of a pool player, attempting to sink the balls on the computerised green baize of the TV screen. I found the graphics rather disappointing considering what can be done using MSX hardware. The plan view of the table is very flat and the balls are two-dimensional as well: I see no reason why shadows couldn't have been provided to give a solid effect and improve the whole feel of the game. Only six balls are provided (besides the cue ball) which is also like the real thing. A variety of game options is provided: potting balls in any pocket, potting the numbered balls in numerical order and potting the numbered balls in the correct numbered pockets. One and two player options are provided but the one-player isn't you against the computer: you merely keep hitting the balls and try to minimize your total number of shots. Cueing direction is set by moving a cross-hair cursor around (the cue ball can have spin applied) and the strength of shot is controlled by pressing FIRE when the power indicator at the bottom of the screen is at the right level. I quickly got bored with this game, which is marginally less interesting than watching Cliff Thorburn prepare for a pot. It might appeal to people fed up with wanton killing, though. One oddity: on my version most of the letters had the vertical bar missing, so reading the instructions was a game in itself.

PG

6/10

HYPER VIPER

by Kuma
Price
MSX
Tape

Now this one I liked. *Hyper Viper* is a maze-type game, with slight *Pacman* overtones, in which you move a 'head' round the maze trying to eat the snakes within. You can do this by chasing them from behind and devouring them 'tail-first'. Unfortunately they can be quite agile and if they about-face in a tricky maze corner you can find yourself disappearing down their throats. Occasional pieces of fruit can be swallowed for a bonus: as an additional hazard a small insect runs around laying eggs which hatch into psychopathic Pac-people who chase you with cannibalism on their minds. Animation is fast and smooth – the maze at any level is quite a bit larger than the TV screen, which provides a sort of 'window' that moves over the play area as you search out your prey. The title screen is nice, the on-screen instructions are clear and comprehensive and if you don't touch the keyboard between games, the program drops into a very nice demo routine that shows exactly what's supposed to be happening. Well done, Kuma.

PG

9/10

HOT SHOE

by Eclipse Software
£5.95
MSX
Tape

Hot Shoe is a combination of a space arcade shoot-em-up and *Q-bert* – a game that involves hopping from square to square whilst avoiding numerous bouncing mutants. Your mission is to deactivate numerous nuclear activators orbiting in space. These reactors are reputedly unstable and if not dealt with will blow the galaxy to kingdom-come. Each reactor is surrounded by an asteroid belt which upon contact with

your ship drains your shield strength. Get the picture? Great!, then I'll continue. To stabilise the reactor you must jump between the coloured discs which make up its volatile core. Every jump into a disc brings it one step closer to safety. When a disc turns green it will remain that way until a neighbouring disc explodes or Ron The Robot jumps onto it. Roaming atoms patrol the discs and contact with them saps your precious energy level. Contact with Ron is fatal and he can only be deterred, momentarily, by firing at him. The object is of course to turn all the discs green, thus saving the galaxy and becoming the mega-hero of all time. Sounds great doesn't it? The graphics are fairly simple though effective and colour has been used to good effect. The nauseating theme tune can be switched on or off at will and control is via keyboard or joystick. *Hot Shoe* is in fact two games in one. The first screen is reminiscent of *AD Astra* on the Spectrum and the second is a *Q-Bert* variant. A game that, I feel, should appeal to the younger user and as such, not one of my faves.

AH

7/10

ANTARTIC ADVENTURE

by Konami
£14.95
MSX
Cartridge

In this antarctic arcade ice race you control a cute penguin – via keyboard or joystick – on a trek across Antarctica. There are nine courses or so to master and each section becomes progressively harder with numerous hazards to contend with. The central character, to whom I will refer to as Percy – for arguments sake, is beautifully animated and the use of colour throughout the game is excellent. The object of *Antarctic Adventure* is to successfully manoeuvre Percy past the cracks in the ice and jump

the numerous crevices en route to the finish line. Along the way you may collect red fish – presumably herring – and green flags for extra points. As if that were not hard enough there's a sealion who keeps popping his head out of crevices whom collision with will hinder your progress. Each race is played against the

appropriate flag is hoisted to mark his success. The sound is rich and comparable to the popular stand-alone arcade games. All in all, **Antarctic Adventure** is without a doubt one of the finest, addictive, amusing and well produced non-violent arcade

arcade video game. It consists of four sporting events, the first two being high diving and the vaulting horse. I don't know what the next two are because I couldn't qualify for the vault, and failure to complete on an event ends the game – you can't jump to a particular event to practice at it. Bad news. Control of

grasp the winning strategy (no English instructions were included in the review sample, and despite watching Shogun I only know that Hai means "yes"). Consequently I spent my time battering the keyboard and hoping for the best. Do I think there's room for improvement in Japanese software? Hai.

PG

5/10

OH MUMMY

by Eclipse Software
£5.95
MSX
Tape

Oh Mummy is a multi-level arcade game in which you explore a pyramid in an effort to collect treasure and recover each of the royal mummies on each of the five levels. Part of the pyramid, which is a maze, has already been uncovered and it's your task to finish the dig. Unfortunately, the workers have awoken the guardians left behind by the Pharaohs and they pursue you with tireless ease. Each maze is viewed from above and consists of twenty boxes which must be circumvented in order to access the next screen. Doubtless to say that collision with any of your bandaged adversaries results in the loss of a life, unless of course you have managed to uncover the magic scroll, in which case you've adequate protection. The higher you go, the more intelligent, profuse and faster the mummies become. The graphics are competent and colourful and the sound effects are simple. Needless to say there's an accompanying Egyptian theme tune that thankfully can be switched off if required. There are five speed levels from mummy shuffle to flippin' 'eck and control is via keyboard or joystick. Overall a simple, addictive game that is likely to appeal to the younger player and simple-minded alike.

AH

7/10



clock and a warning siren indicates when you're approaching the end of your time period. Attention to detail is superb with the smooth scrolling landscape depicted in grey and white with crevices picked out in various shades of blue. Percy is a smooth mover and flaps his wings beautifully as he precariously jumps the yawning crevices. Similarly, if he collides with the sealion he staggers uncontrollably from side to side whilst he regains control of his movements. At the end of each course, Percy does a little victory dance and the

games I've come across. It's likely to appeal to a wide range of users and is the ideal family game.

AH

9/10

HYPER SPORTS 1

by Konami
£14.95
MSX
Cartridge

Hyper Sports 1 is a game cartridge from Konami, Japanese arcade specialists, and is adapted from their own

your spritely (groan) athlete requires two buttons: hitting the left cursor repeatedly makes your player run (or somersault when diving) while the SPACE bar makes him jump or straighten out the dive. From the programming viewpoint the game is very good: the swimming pool and sports stadium are drawn in perspective, the judges produce score cards, the player animation is very detailed, right down to the victory salute, and there's a cheering crowd in the background. As far as playing the game goes, it's fairly tedious, and I couldn't

CIRCUS CHARLIE

by Konami
£14.95
MSX
Cartridge

Circus Charlie is a multi-screen arcade game set inside the Big Top. The object of the game is to successfully negotiate each screen to achieve hi-score. The first screen has you manoeuvring elf-like Charlie astride a lion through flaming hoops and over burning pots of oil. The second screen has Charlie teetering along a tightrope whilst avoiding jumping monkeys and the third screen requires his skillful balance atop numerous rolling barrels. In the fourth screen, Charlie's required to leap from his horse over hurdles ensuring a safe landing firmly on the horses back and the fifth screen has him swinging from rope to rope – tarzan style – over a pre-set distance. Needless to say, collision with any of the hazards loses a life and eventually returns you to the beginning of the game. Sound, colour, graphics, general movement and attention to detail are very good indeed. Circus Charlie is a well produced entertaining game and is likely to prove a challenge to the games player. I only managed to reach screen two after half an hour on screen one.

AH

8/10

COMIC BAKERY

by Konami
£14.95
MSX
Cartridge

Comic Bakery is a scrolling screen – left to right – arcade game, in which you manoeuvre a chef in an effort to keep the bread-line rolling. The game is divided into two screens, the production line and the despatch dept. The first screen consists of three machines which must be kept switched on in order to keep the bread rolling out.

Sounds a doddle doesn't it. Not so. The factory is over-run with Racoons, of all things – must be Macaroons (groan-Ed) – which have a nasty habit of pinching your loaves and switching the machinery off with their tails. Do not fret, for our comic baker is armed with a special gizmo that enables him to stun the offending rodents? long enough to boot them off the factory floor. If the production line is kept rolling long enough, the game switches to an 'interval' screen in which you view a clutch of packers frantically dispatching the goodies to the outside world. Again, the colour, sound and attention to detail is terrific and the scrolling, although a little staccato, is more than bearable. The baker, who shall remain nameless, is beautifully animated and on collision with the Racoons falls flat on his back with an exclamation mark appearing atop his noggin. Subsequent screens become progressively more difficult, with more intelligent Racoons to contend with. Overall, Comic Bakery is a laugh-a-minute and is destined to become a hilarious family game.

AH

9/10

HYPER OLYMPIC 2

by Konami
£14.95
MSX
Cartridge

Still on a sporting tack, this cartridge is similar to HS1, with four different sports: 110 metre hurdles, javelin, high jump and 1500 metres. Once again you have two-button control: the faster you hammer the cursor key, the faster you run. I hate to think what an enthusiastic child would do to a computer running this game – perhaps it's all a fiendish oriental plot to sell more MSX machines. Konami do offer a box with two beefed-up buttons which plugs into the joystick port and substitutes for the poor, abused keyboard (price unknown at present). (Perhaps it's a computerised antidote to frustration, like the management dummies that Japanese workers beat up every day with baseball bats). Again, great graphics, but after knacker my right arm with a three-minute pounding to complete the 1500 metres, I began to see why the MSX companies hope British software houses will start producing games. The home-grown stuff is naff.

PG

5/10

SUPER COBRA

by Konami
£14.99
MSX
Cartridge

Super Cobra is another of Konami's arcade favourites which has made the transition to the small screen of the MSX machines. In case you don't know the plot, you are piloting a helicopter from left to right across a scrolling terrain covered in tanks, missiles and fuel dumps. You knock out the missiles, tanks and other assorted nasties which appear at later stages, using your forward-firing cannon and by dropping bombs. By some curious law of physics your chopper is refuelled whenever you destroy an enemy fuel dump. Graphically the game is not too spectacular and Konami have added a plot twist that makes life a lot harder. Instead of flying straight up the screen when they launch, the missiles bounce sideways across the screen towards you, and if you miss them, they pass out of sight to the left, behind you, and then reappear on the right in front of you. Some sort of space-time warp, I suppose. Handing the joystick over to a hardened arcade colleague produced the comment "Unplayable". Rather on the harsh side, I think, but not one of the better versions of this game that I've seen.

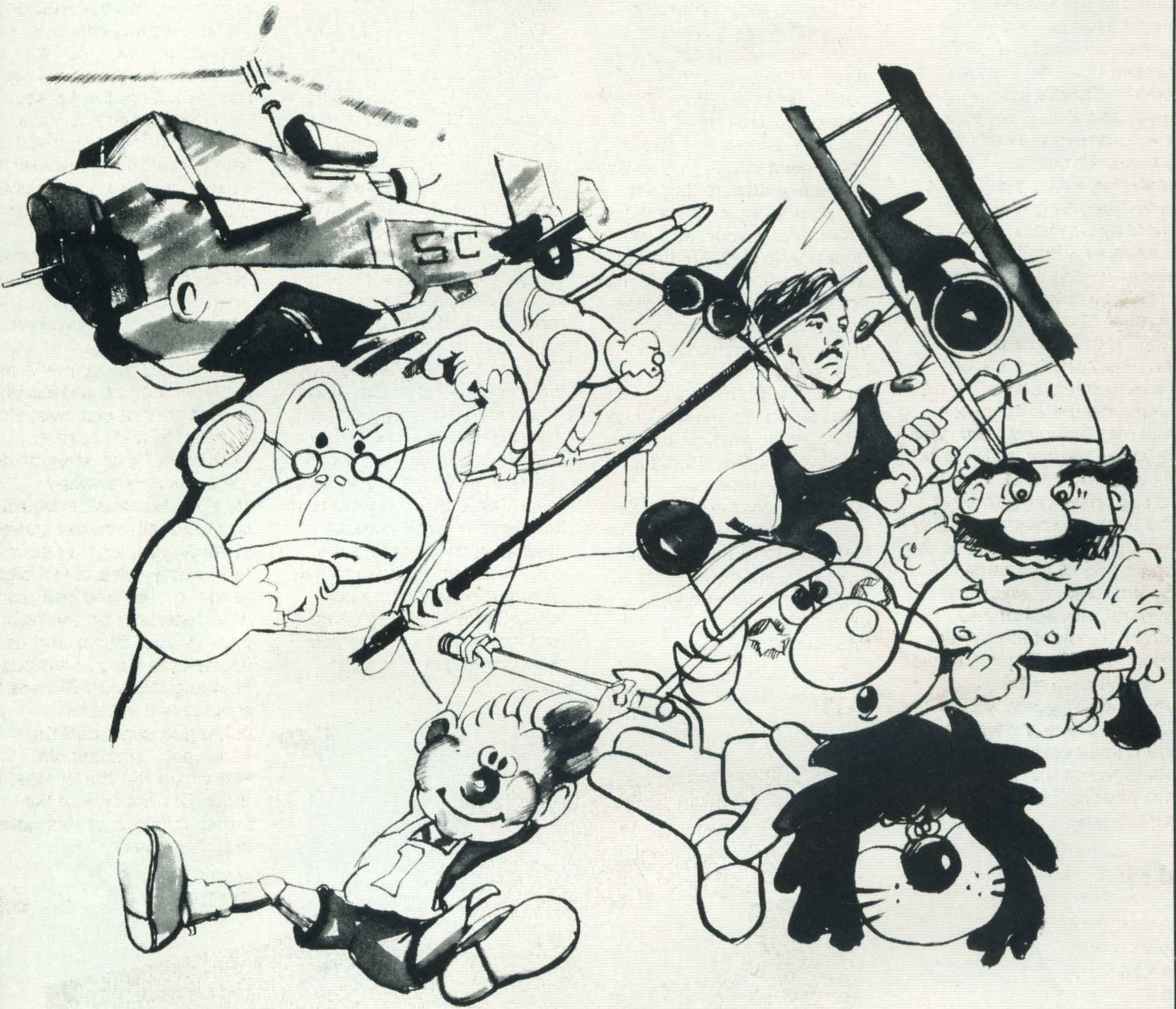
PG

6/10



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BACK

YOU WRITE, WE...

~~edit~~ ~~forget~~ collect stamps!

Well, this is the sum total of responses from the 'Giveaway' issues of MSX User in CT and HCW earlier this year, plus a few early reactions to last month's issue. Now, let's hear from YOU!

Hit Bit Blues

Dear Sir,
Can you please tell me where in Newcastle to buy a Sony HB-75? Also, if I buy one here, can I use it next year over in Belgium? I am relocating permanently to Belgium and wonder if the guarantee will be honoured there, if I get service and can buy spares if required.

Is Sony marketing in Belgium too?
Charles Widmer
Newcastle

Sony say you should be able to buy a HB-75 in any branch of Dixons, Currys and Laskeys. Sony UK and Sony Belgium are completely independent and a guarantee issued here would not be honoured abroad.

From Austria...

Dear Sirs,
We are very interested in MSX-User. Please send us some more information about this magazine. Furthermore, please send us contact-addresses for MSX-Computers in Great Britain, because we want to sell these computers in Austria.
Helmut Hackl
Computer-Beratung-Systeme
Austria

Done

Right of reply

Dear Sir,
We have just read Mark Jenkins' review of the Yamaha CX5ME music synthesizer computer in the December issue of 'MSX User'. Whilst congratulating Mark on the technical side of the review, we have a number of corrections and additions to assist the readers of 'MSX User'.

The CX5ME (which is the version built for sale in the UK) is a powerful FM Music Synthesizer built into an MSX computer. We believe that this musical instrument will not only be used by musicians, but by people who wish to learn music, and existing/potential personal computer owners who wish to make real music.

Since the CX5ME is a musical instrument, it is logical that it should be sold through music shops. Not any music shop, but 50 specially selected music dealers around the UK. Each of these music stores has staff already trained and tested at Yamaha-Kemble to be able to demonstrate the unique capabilities of the CX5ME.

The CX5ME package consists of the MSX computer with built in FM music synthesizer, plus a

choice of music keyboard. With small music keyboard it retails at £534; with full size music keyboard it retails at £614. Four Yamaha software ROM's are available at £36 retail, and we are assisting a number of UK software houses to develop more music software.

These prices are remarkably low; we know of no present alternative systems below £4,000. Mere words cannot describe the qualities and features of the Yamaha CX5ME, so we ask readers of 'MSX User' to contact us for information of their nearest dealer to hear, try and decide for themselves.

David Seville,
Sales and Marketing Director,
Yamaha-Kemble Music (UK) Ltd
Mount Avenue, Bletchley,
Milton Keynes, MK1 1JE.

Dear David,
I hope you didn't take my very minor criticism of the CX5ME too much to heart. In fact, I know of nobody who has reservations about the hardware side of the machine and emphasise that the sounds are like nothing else you could produce on a computer but I felt I had to make a few points about the software and related marketing angles. Firstly,

since the CX5ME is an MSX machine, it seems odd that Yamaha are not represented in the MSX Working Group. It's unrealistic to state that the CX5ME is different to any other MSX machine or that the FM Synth module can't be removed from it. Why not make the module available separately for users of other MSX machines? The ability to buy any MSX machine first and the synth module later would increase interest considerably.

Of course the CX5ME is a musical instrument, but marketing it through the music shops only will drastically reduce the computer user's awareness of the machine. Lower sales compared to other MSX machines will mean software houses will have less incentive to write for it and as long as the synth module is regarded as fixed, they would be writing for only one machine in any case, the very situation that MSX as a standard was designed to avoid.

As you can see, my only intention in making these points is to suggest ways in which the CX5ME can gain greater sales and exposure. Remember, I only wrote the article because I think it's a wonderful machine (crawler! - Ed).

Mark Jenkins

I've got a box of correction ribbins but no one can find Tek Tek Bag an engineer to put them in.

...to Australia

MSX USER ATTENTION

Hi! As a computer hobbyist and writer I read 'Computing Today' regularly, and the free MSX User No 1 came as a surprise. I'm sorry it missed the mark with me and seems to be written for the non technical. The promised "MSX BASIC" on the cover I could not find, and I still don't know much about it like what name are they (Microsoft) using for say 'clear screen' in MSX dialect, page had "Brainchild of the Microsoft" etc. as they wrote most BASIC dialects I see them as only trying to clean up their own mess at \$1m a time to each manufacturer. Being in a country centre I have to reserve tech mags I want, MSX User won't be one of them.

Frank Rees
Australia

MSX User 'proper' no's one and two on their way. We think they'll get closer to the mark.

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