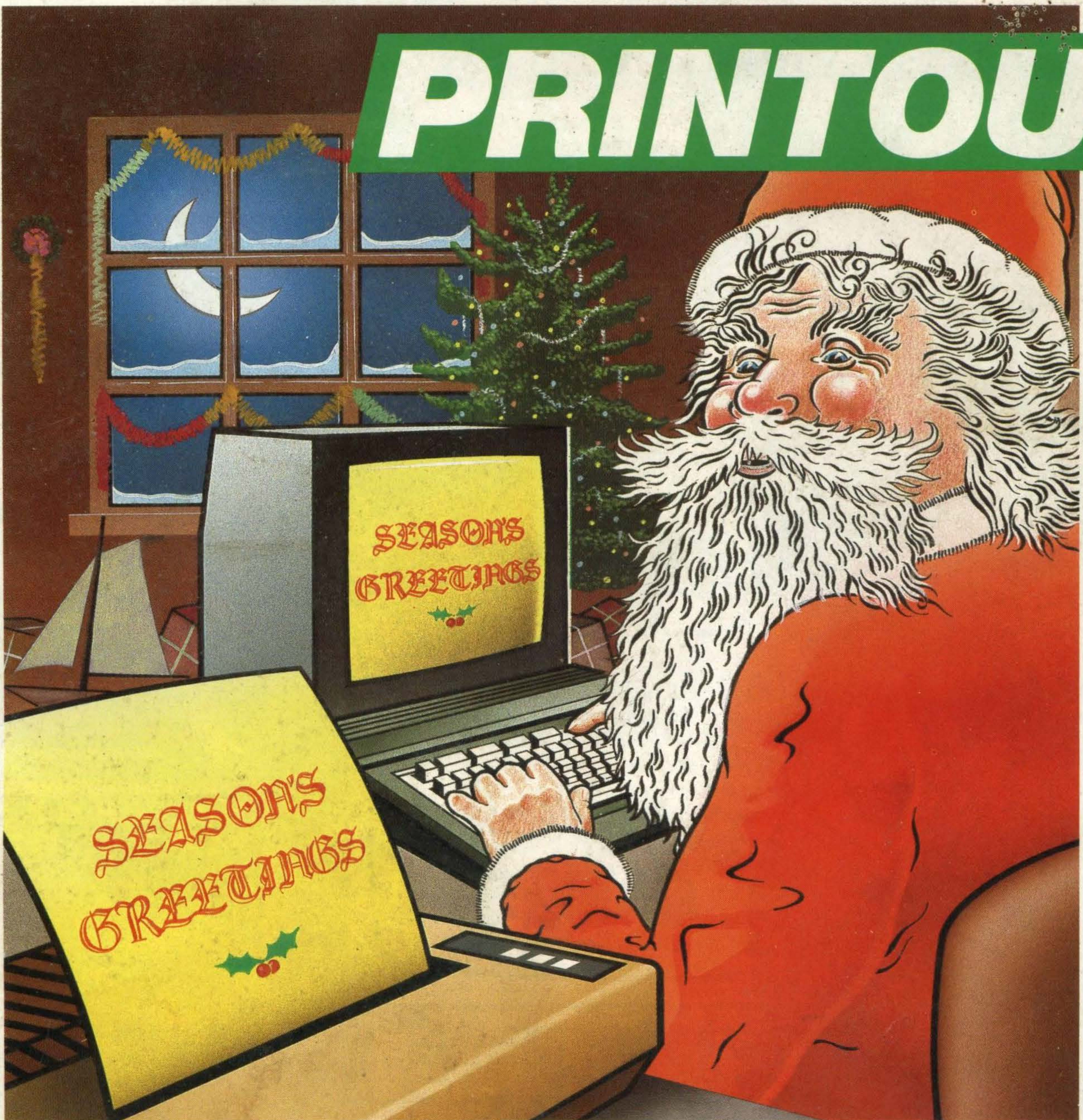


# MMSX

## COMPUTING

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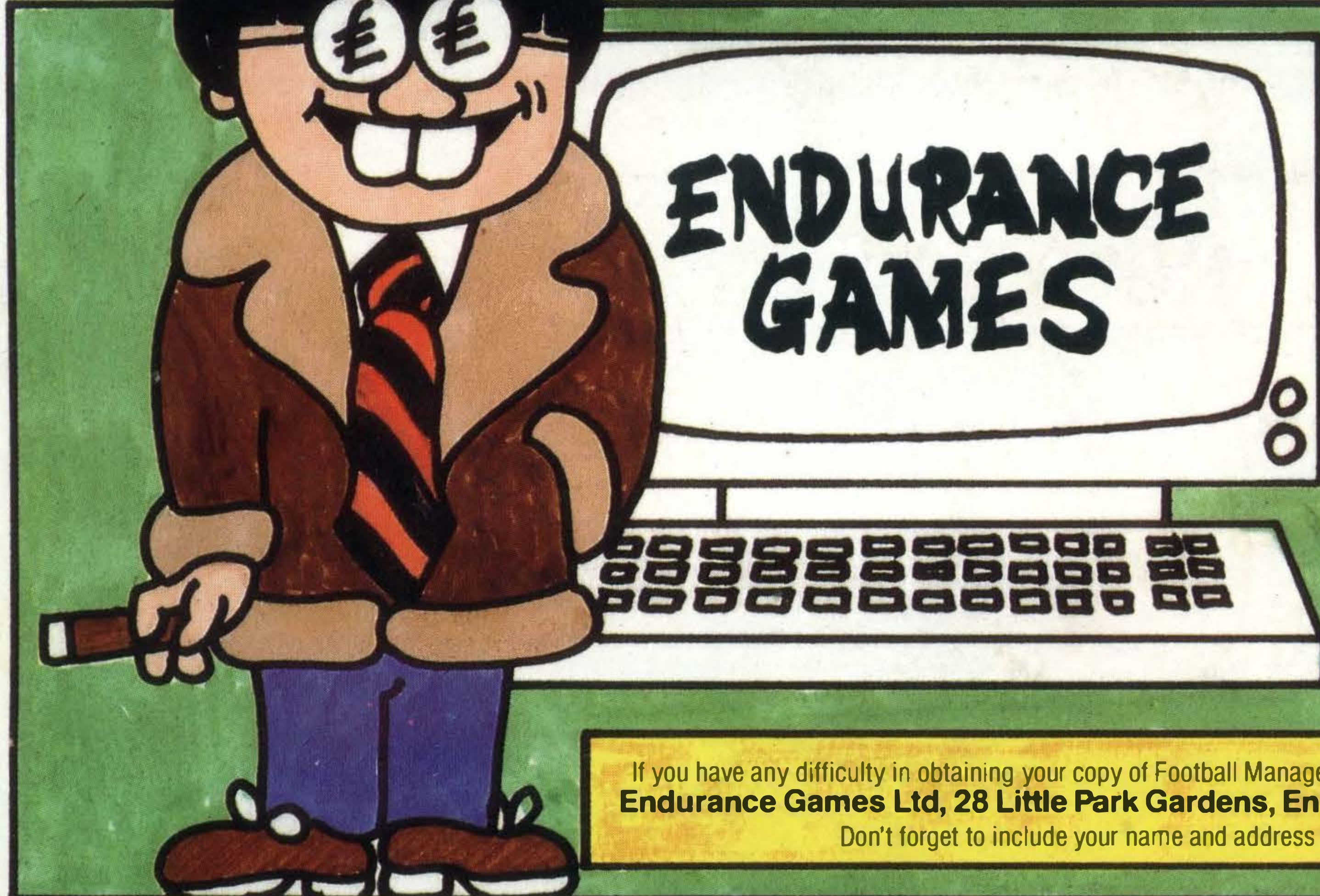
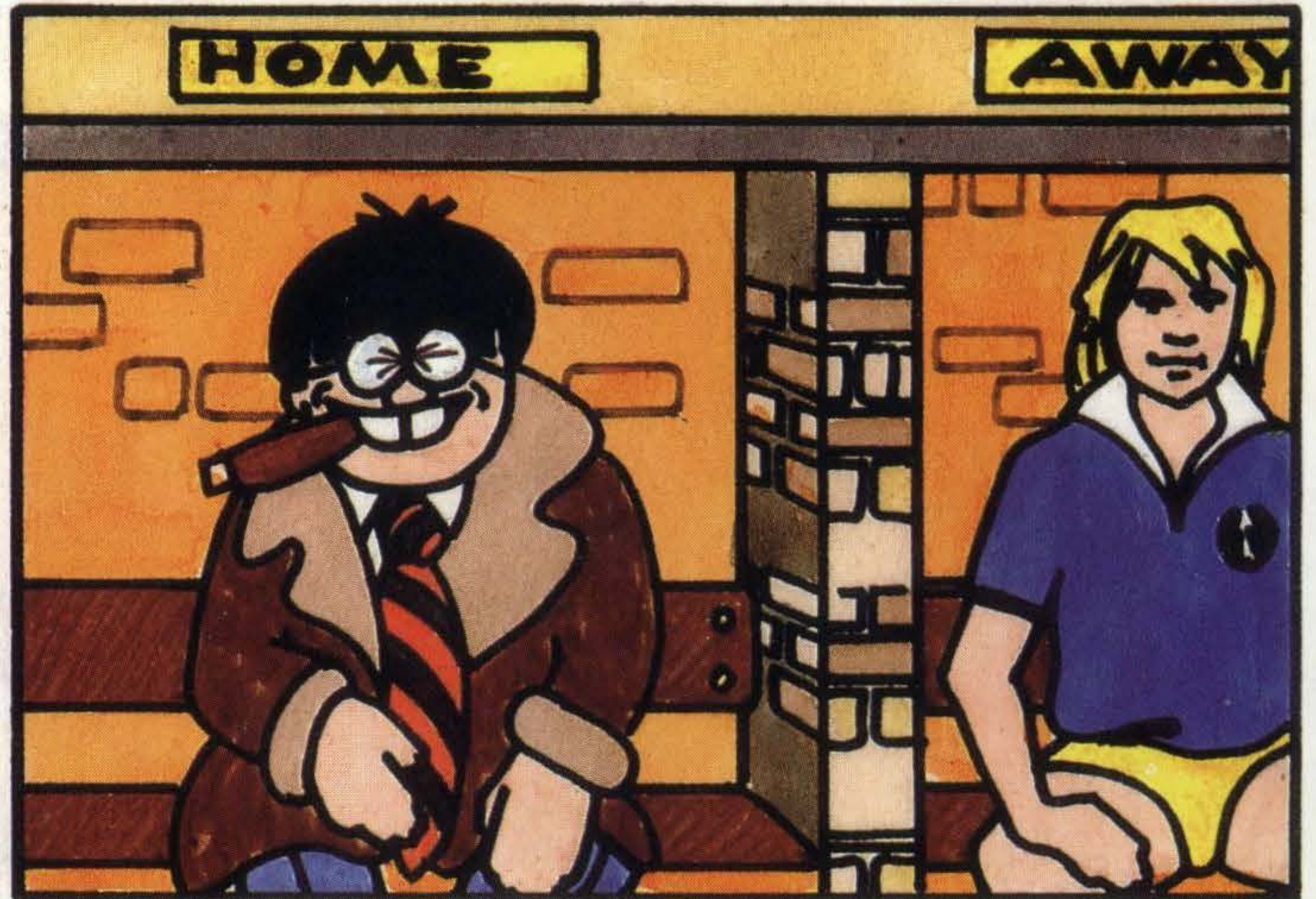
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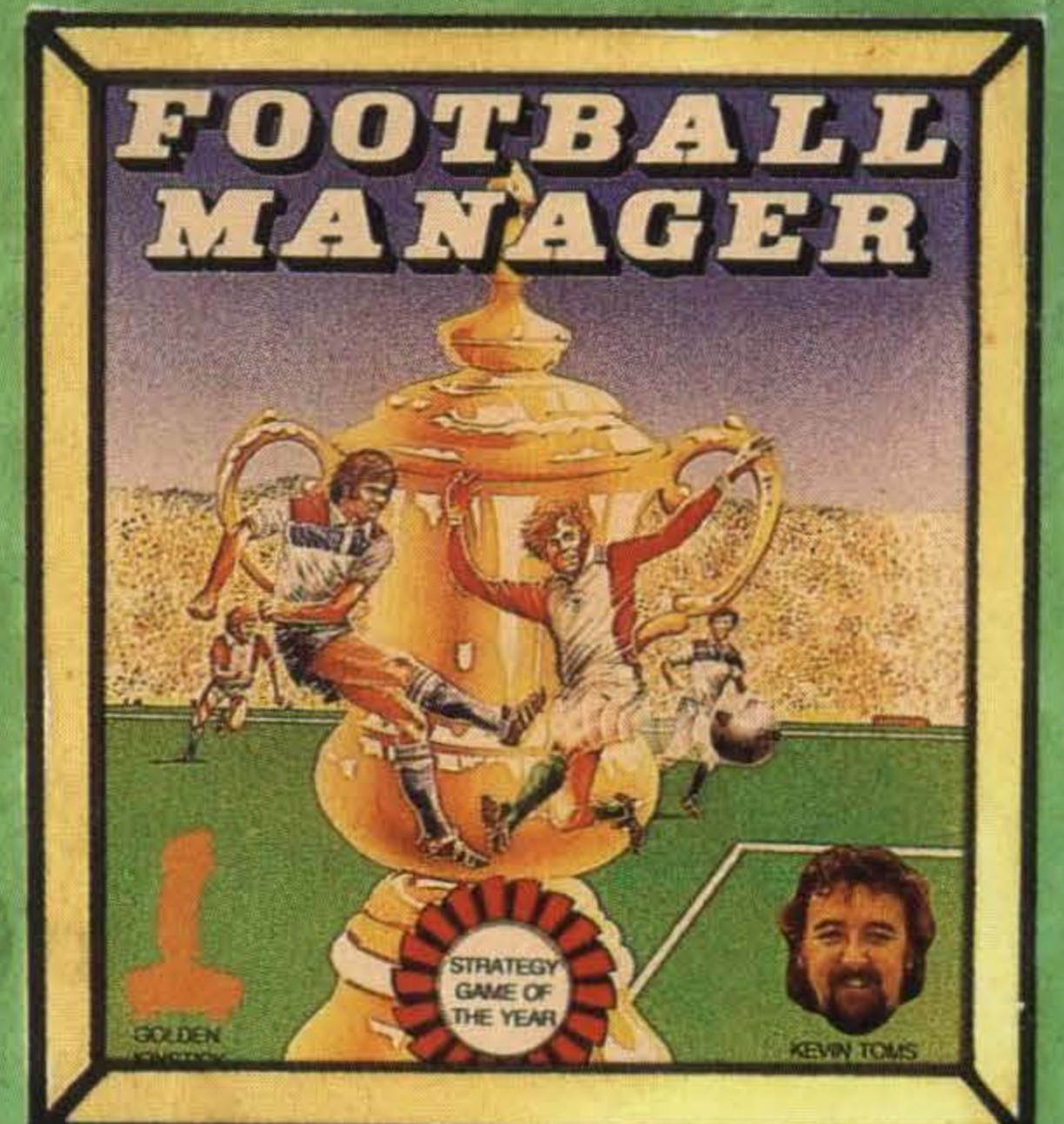
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# MSX COMPUTING

## REGULARS

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**8 POSTBAG.** Hints, queries, criticisms or praise — keep those letters coming.

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**52** Flex those fingers, tap those keys — it's listings time.

DECEMBER 1986/JANUARY 1987

# THE MSX SHORTAGE

MSX hardware will be harder to find in the shops next year. Many of the manufacturers have now completely exhausted their stocks in this country and are unwilling to commit themselves either to bring in new supplies of the familiar MSX-1 machines or to launch MSX-2 in the foreseeable future. The companies which have effectively closed their UK MSX operations are Toshiba, Mitsubishi, Panasonic, Sony and Sanyo. Once dealers' existing stocks of these machines are sold, there will be no more from the manufacturers to replace them.

Companies still marketing their MSX products are Yamaha and Spectravideo. Yamaha rightly sees the enhanced music capabilities of the CX5MII as a unique selling point taking it out of the normal home computer market. Spectravideo also has an enhanced machine, the X'Press, which is now being marketed more as a low-cost CP/M micro in the Amstrad mould than as a pure MSX. JVC retains some small stocks of the HC-7GB, though what will happen when these run out, probably just after Christmas, is anyone's guess.

What does this mean for MSX users? It's not all doom and gloom. The software scene is surprisingly healthy, as the review pages in this issue testify. The signs are that even if no-one ever sold another MSX in this country ever again, the existing user base, variously estimated at about 250,000, would be enough to ensure continuing support from software houses. Meanwhile the runaway success of MSX in the rest of Europe should ensure plenty of support from across the channel.

This issue of *MSX Computing* features some year-end changes. Out goes the old Basic programming course, having reached its logical conclusion, and in comes a new question-and-answer programming workshop. We have also managed to find space for something many of you have requested, a regular forum on arcade games, similar to Mike Gerrard's popular adventure department. These features can only thrive through your support, so keep the questions, information and comments coming.

The editor welcomes any corrections or additions. Prices quoted in editorial and advertisements are correct at the time of going to press but may be subject to variation.

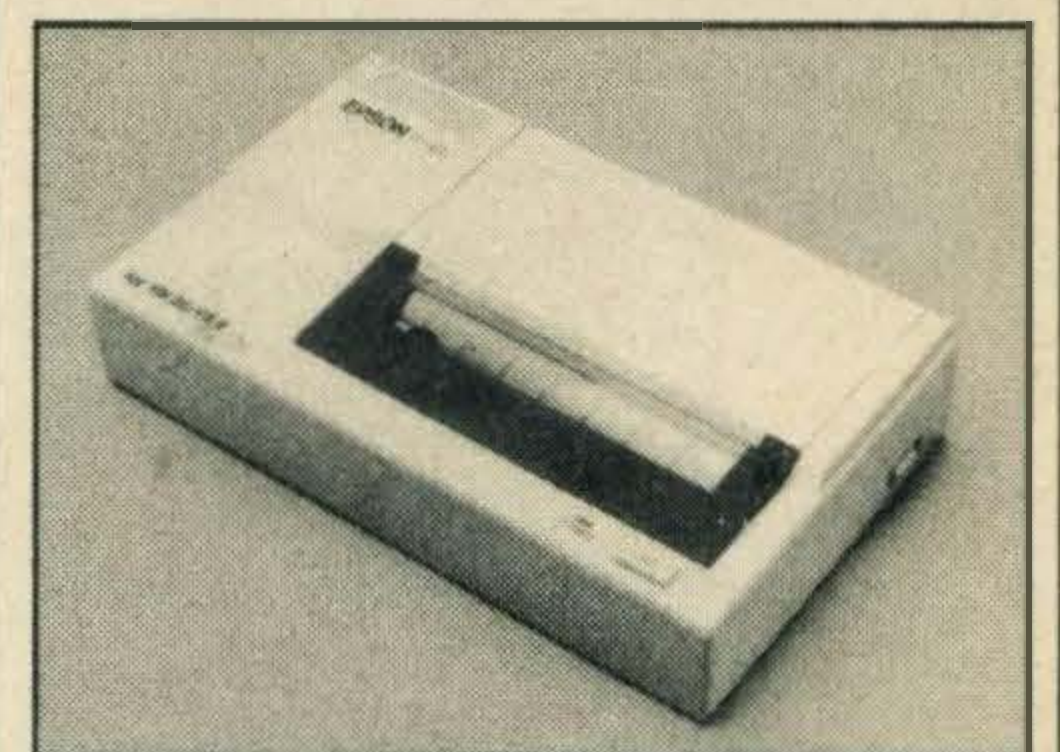
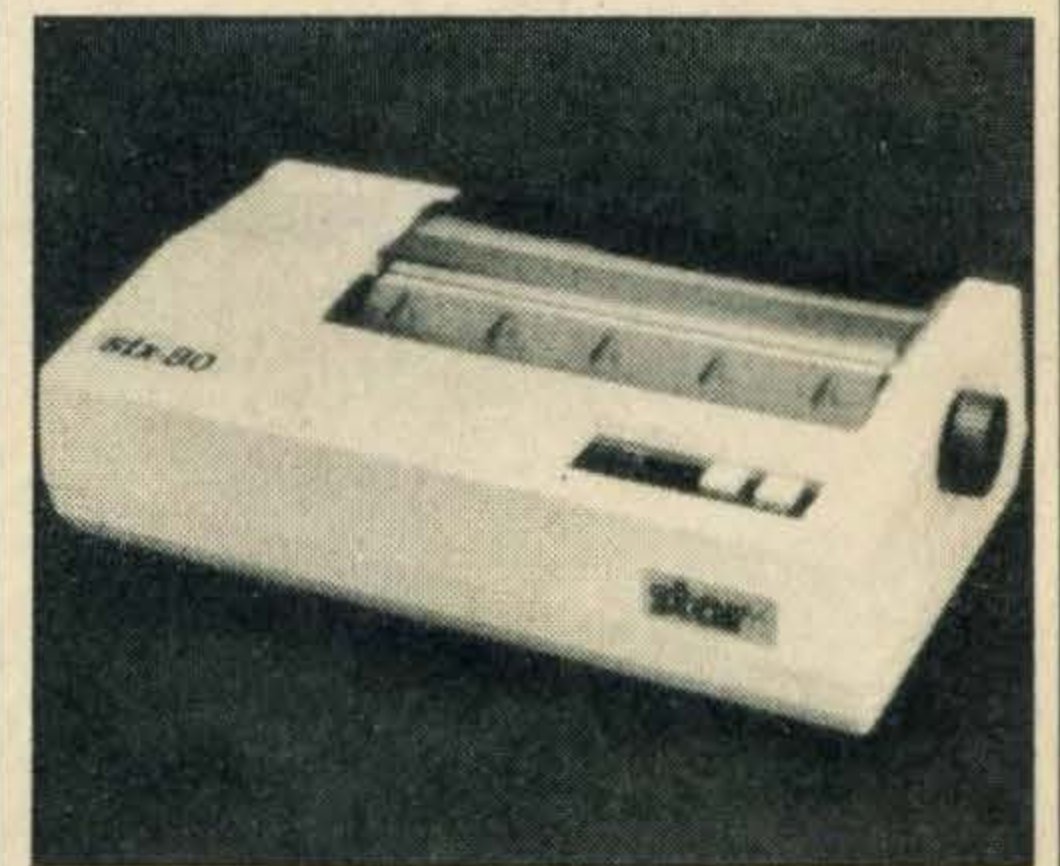
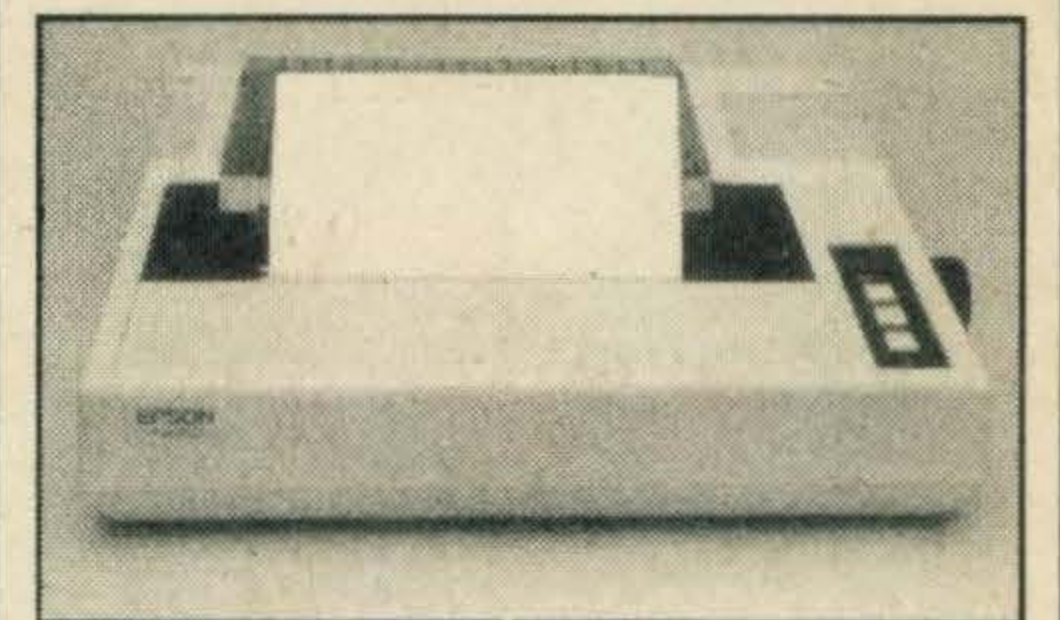
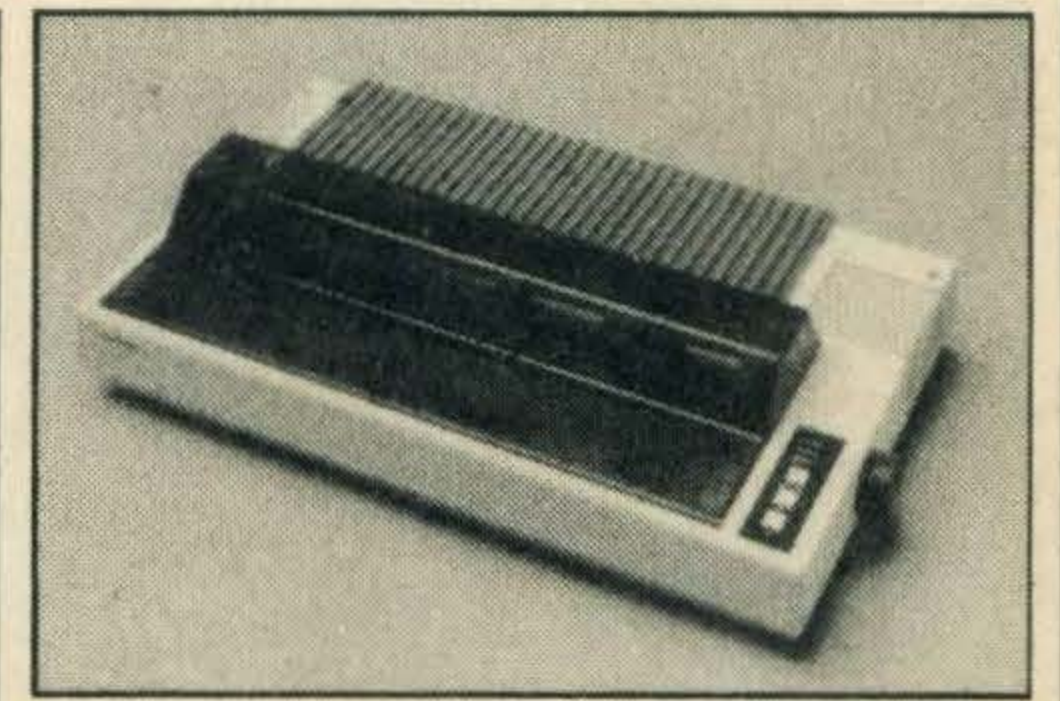
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## Prestel link with Gold

Good news for subscribers to Prestel, British Telecom's public videotex service — from early December subscribers will be able to access Telecom Gold, British Telecom's electronic mail system.

The move follows the creation of a new X 29 — based gateway link between the two services and is the first stage in establishing full communication between the two networks.

The X 29 gateway has been developed to improve the reception of Telecom Gold on videotex terminals.

One of the main advantages of the link is that information sent on a "scrolling" ASCII-type terminal will be formatted in a Prestel page style which has 24 lines with 40 characters to a line.

Another asset is that Telecom Gold will look much more elegant on a videotex terminal, with the last two or three lines of message carried forward to the top of the next page for easier reading.

Additional features of the link include text editing prior to transmission as well as simple access enabling the user to go straight to an ID entry point.

If you are worried about the extra cost, don't be, because Prestel users will only pay the equivalent of a local telephone call plus both service charges.

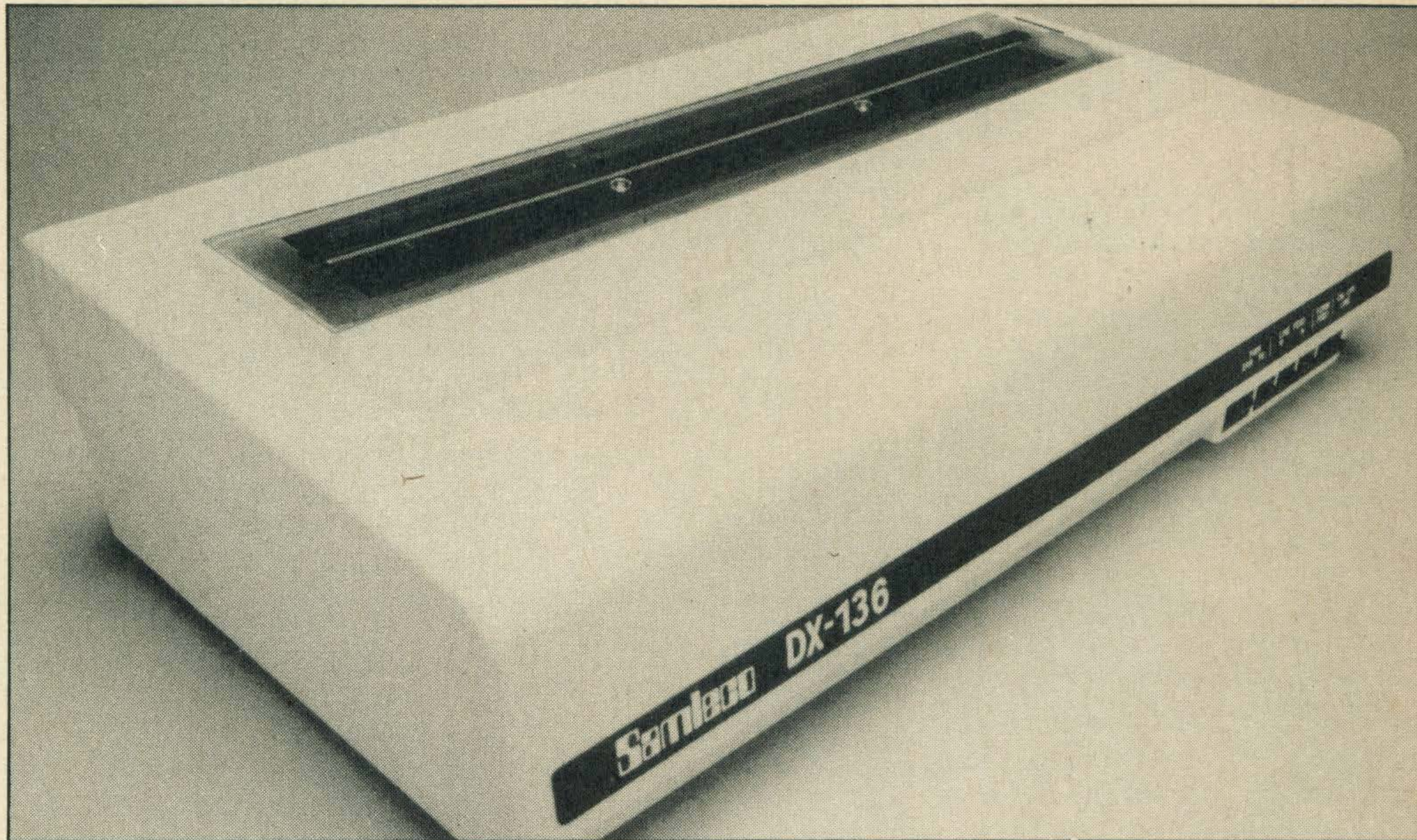
For more details contact Prestel on 01-822 1056.

## Just arrived

Bernard Babani has just published its new 1987 catalogue.

As well as listing books dealing with MSX micros specifically such as *An Introduction to MSX BASIC* by R.A. and J.W. Penfold or *Easy Add-On Projects for Amstrad and MSX Computers* by O. Bishop, the catalogue also lists many books dealing with all aspects of computer programming.

Obtain a free copy by sending your name and address to Bernard Babani at The Grampians, Shepherds Bush Road, London W6 7NF. Tel: 01-603 7296.



Samleco's up-market Epson competitor

## Competitively speaking

Samleco has added a new dot matrix printer, the DX-136 retailing at £350, to its existing range of competitively priced printers.

The printer is intended to compete with the Epson printer range, particularly the very widely used FX 100 model, and has many similar features.

The 132 column DX-136 printer has a speed of 120 characters per second and a 9

by 9 pin head character matrix. It can produce draft, correspondence as well as near letter quality print.

Other printer features include a number of different timesteps such as enlarged, sub-script and italics plus eight international languages. The DX-136 is provided with a tractor feed and has an alternative friction feed attachment.

The special MSX character

set is not included in the printer, but it is MSX compatible with the parallel interface cartridge — included in £350 price tag.

Alphatech is the main distributor for Samleco and will be supplying the printer to dealers around the country.

Further information on distribution can be obtained from Alphatech, Marlow Road, Bourne End, Bucks, SL8 SSP. Tel: (06285) 31411.

## Joystick supply assured

Konix has finally got itself together and can now meet the demand for its Speed King joystick.

Since last January UK demand has outstripped supplies three times over which meant a long wait for customers eager to get their hands on one.

Things got so bad for Konix that it had to turn down an order for 60,000 joysticks this Summer. Konix managing director, Wyn Holloway, is optimistic about meeting future demands and says, "Now that the joystick can be produced in sufficient quantities we can concentrate on ensuring the best joystick yet is also the best selling joystick yet."

Chunky and black with red stripes, the Speed King joystick has one firing button, micro-switch control, and retails at



£12.95. It is available from most computer shops or by mail order direct from Konix, Unit

12-14 Sirhowy Hill Industrial Estate, Tredegar Gwent, South Wales, NP2 4QZ.



## King size fraud

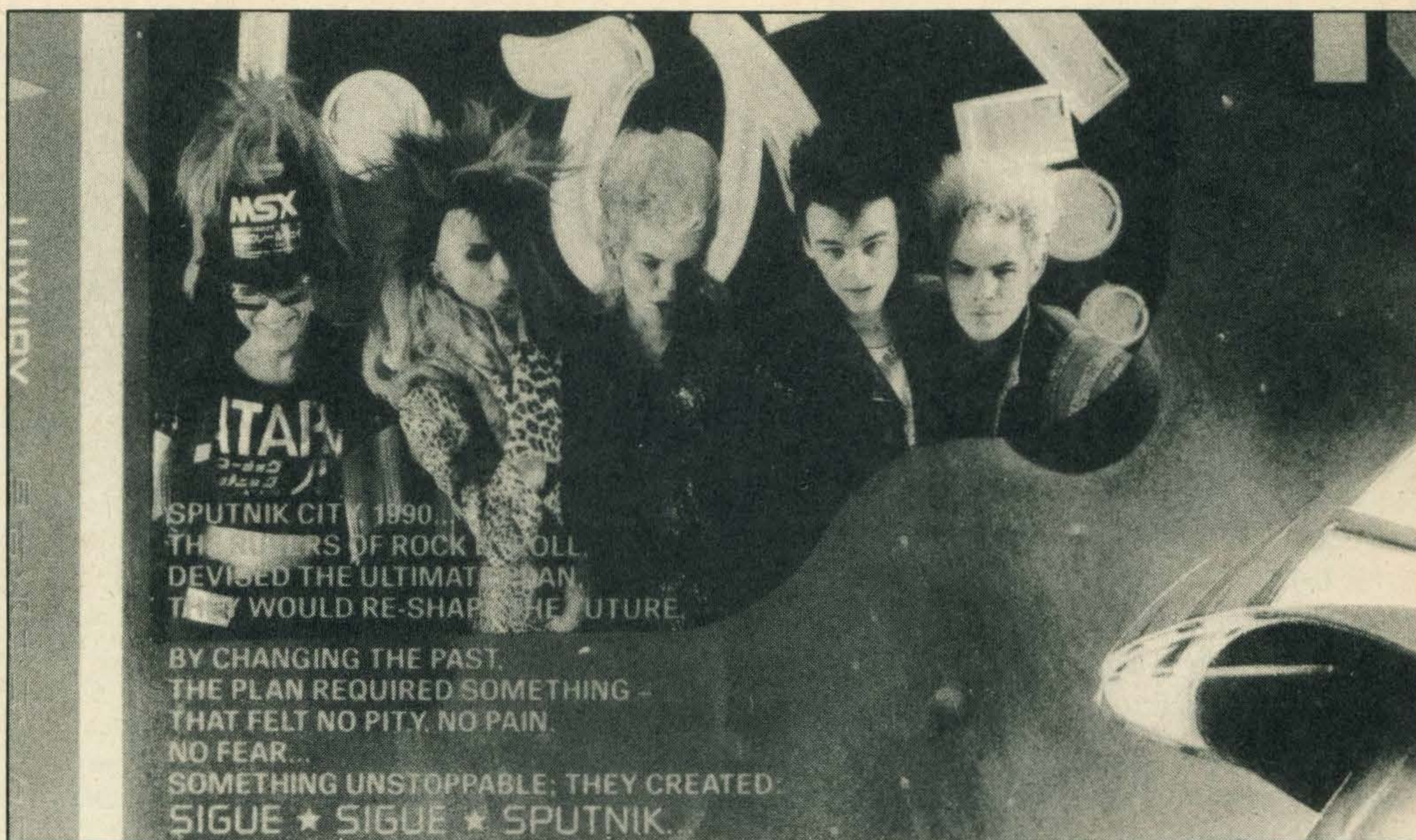
Watch out, watch out there's a fraud about! Andrew Steele of Cheshire wrote in to warn us about King Size by Robtech.

He purchased the game cassette from a branch of John Menzies in Edinburgh for £9.95, and was horrified to find that it was a direct rip off from not only our magazine listings, but bona fide games manufacturers as well.

The case cover advises users that the games cassette contains 50 games, but what it doesn't say is that at least 12 of the games are direct copies of games listings published by MSX Computing over the past year.

Nor does it mention that a game called Golf on the tape is an identical copy of Crazy Golf by Mr Micro.

We contacted John Menzies in Edinburgh and Nick Gregory, product manager of home computers, told us that after receiving this information Menzies has decided to discontinue selling King Size.



## Sputnik shock horror...

You might be forgiven for thinking that this mind-mangling crew is the cast for Konami's latest zap-a-minute cartridge game. In fact it is a collective mug shot of the entrancingly awful Sigue Sigue Sputnik, a group whose main aim in life is to make Frankie

Goes to Hollywood look like the Dagenham Girl Pipers.

We know we need a pretty bullet-proof excuse for blighting the pages of your favourite computer magazine with the grim visages of the boys behind *Love Missile F111*, to mention but one of their hideous sound

creations, but this particular picture (part of an album cover) was hard to ignore. Why is it, we wonder, that arch-Sputnik Tony James (left) is wearing a top hat with MSX written all over it? Maybe there is going to be a computer program featuring these talent-free terrors.

## Konami cartridges

Konami has grown from success to success in the last two years and its operations have spread worldwide culminating in the opening of a new headquarters in Japan.

Cartridge software for MSX has been a bit thin on the ground recently, but Konami are hoping to release two arcade games and Games Master, all in cartridge form, before 1987.

Games Master is a program designed to enhance your play of Konami's other cartridge

games and plugs into the second cartridge port.

Once plugged in, players can alter stage numbers, player numbers as well as changing the ranking mode whenever he wishes.

The advantage is that when playing a game where you have to complete the lower levels before moving to a higher level, you can bypass this occasionally tedious process and just move straight to a new higher level.

In addition, players can save

games on tape or disk and also print the scores out.

Games Master costs £15.95 and will be available in early December.

Green Beret is a high action arcade game featuring the player trying to get through German lines while avoiding all the dangerous obstacles such as guns and tanks which inevitably accompany such a dangerous mission.

Costing £15.95, the cartridge will be available just before Christmas.

## MSX Golf missing lines turn up

Funny things, program listings. Sometimes we wonder just how many people actually bother to type them in.

Until, that is, something goes wrong. The Golf listing in the last issue got a few lines chopped out of the middle, and several hundred of you rang in to let us know. The omission was entirely your editor's fault, so naturally he got someone else to find the missing chunk of program. Eventually the crucial lines of code were found adhering sneakily to the underside of contributor Phil Rotsky's ghastly plastic briefcase.

2670 PRESET (8,175),2:

PRINT #1,"Tree."

2680 GOSUB 2750

2690 PRESET

(8,175),2:COLOR

2:PRINT #1,"Tree.":COLOR 7

2700 DI=(RND(1)\*4)+1

2710 RETURN

## Fido update

This one wasn't our fault, honest. If you've been ringing the Stockton Fido computer bulletin board, you probably haven't been getting the right number. The board recently moved to (0642) 605838, 6pm to 6am. Use 300 baud.

## Adventure forum

Adventure game addicts in the Reading area will be delighted to hear that Level Nine Computing is holding its first ever Adventure Forum.

The whole Level Nine team will be at ORDEM computer store in the Harris Arcade off Friar Street, Reading between 11am and 1pm on Saturday 13th December.

Apart from talking to you about adventure problems, Level Nine might have two brand new adventure games ready.

The Growing Pains of Adrian Mole selling on the Mosaic label for £9.95 and Night Orc selling on the Rainbow label for £4.95 are the two titles to look forward to.



## Under-ware

We can't resist telling you about the latest great idea from the States (at least, that's what it says here). Underware is sweeping the microcomputing community. Buy one of these special ribbons for your Apple Imagewriter or Epson MX, RX or FX-80 printer and you can use your graphics software to make iron-on transfers which you then apply to your... er... T-shirt.

This is especially timely as this issue of *MSX Computing* carries a review of Print-X-Press, a software package suitable for just such an application. The ribbons cost between £9.95 and £14.95, and a pack of heat transfer paper a further £6.95. MGA Microsystems has these items and more: you can contact them on (05806) 4278, or write to MGA Microsystems, 140 High Street, Tenterden, Kent.

## Free software offer

Prohibitive price tags on business and scientific software can be an obstacle to serious MSX users, but the Public Domain software group has come up with a solution.

Andrew Emmerson, *MSX Computing* contributor and a member of the group explains, "Many people write their own software and wish to share it with others without making commercial gain."

"By forming a computer club or user group such as Public Domain software, users can share their utilities, business and scientific programs amongst fellow enthusiasts."

Emmerson continues, "Once a group member has written a program he thinks other users will be interested in, he advertises it amongst the group and asks a small fee to cover his costs only."

"For instance I'm asking £6 a disk for three MSX business utilities I've just written."

"Of course it is illegal to sell such programs as they are in the Public Domain," Emmerson adds.

Members of Public Domain Software pay annual membership costs of £15 and receive four magazines per year, but the group deals with all sorts of computers not just MSX.

If there is enough interest and any other MSX users would like to share their software ideas with other people Emmerson says "I will act as a clearing house for ideas, although it is important to realise that only disk software is used and that only serious business and utility programs are considered."

It sounds like an excellent idea to us and Emmerson can be contacted for further information at 71 Falcutt Way, Northampton, NN2 8PH. Tel: 0604 844130 (after 4pm). Please enclose a stamped self-addressed envelope.

## New Sony in France

The new HB-F700 computer just released by Sony in France offers a number of new facilities, not least a mouse. This comes supplied as standard, as does 256K of user RAM and 128K of screen memory (VRAM). To go with the mouse there is an on-screen menu system based on icons, rather like that of Apple's Macintosh and the Atari ST. Thus you have pictures of how to move the mouse to activate the printer, disk drive A (built-in), drive B (optional), Basic, notepad, dustbin, and so on. Also provided is Hi-Brid, a built-in suite of interactive programs for the electronic office. These comprise Hi-Text (word processor), Hi-Base (filer), Hi-Calc (spreadsheet) and Hi-Graph (a graphics designer package). Both English and French language versions are available.

Apart from this, all the normal MSX-2 features are provided, down to bit-mapped graphics of 256x212 pixels, each definable in 256 different colours. At a price of 4990 francs (about £500) this computer should really put Sony back on the map: just don't ask when it will be available here!

## Continental copy cats

Just across the water in France the MSX magazines are firing sniping shots at each other. The latest issue of *Micros MSX* points out how one of its rivals, *MSX Magazine France* has been copying material from the competition, even down to repeating errors in tables of technical data. Accepting that imitation is the sincerest form of flattery, your own *MSX Computing* is delighted to see how much our French cousins enjoyed our map of the game of Sorcery. Only the order of rooms and numbering of objects has been reversed — apart from this, the text is a literal translation and the artwork is virtually identical! *Plus ça change, plus c'est la même chose!*

### General advice to readers concerning advertisements

When replying to advertisements in this issue, you should note the following points:

1. Always clarify the exact nature of any guarantee being offered.
2. Never send cash — always a cheque, Postal or Money Order.
3. Insist on a written receipt.
4. Clearly state the equipment you seek, and detail any acceptable alternatives.
5. Request an immediate statement of how and when the goods are to be delivered and whether the delivery will be split.
6. Check by telephone the latest prices and availability of goods you are ordering.
7. Cases of non-supply or wrong supply of goods should initially be taken up directly and as soon as possible with the supplier.
8. Because of fluctuations in prices and discounts, it is advisable to ensure that you reply only to advertisements published in current issues.

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If you order goods from mail order advertisers in this magazine and pay by post in advance of delivery, this publication ('MSX Computing') will consider you for compensation if the advertiser should become insolvent or bankrupt, provided:

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Please do not wait until the last moment to inform us. When you write, we will tell you how to make your claim and what evidence of payment is required.

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This guarantee covers only advance payments sent in direct response to an advertisement in this magazine (not, for example, payments made in response to catalogues etc, received as a result of answering such advertisements). Classified advertisements are excluded.

Note: The sums referred to are annual amounts available for compensation and they will be divided equally amongst all valid claims received.

## Foreign news

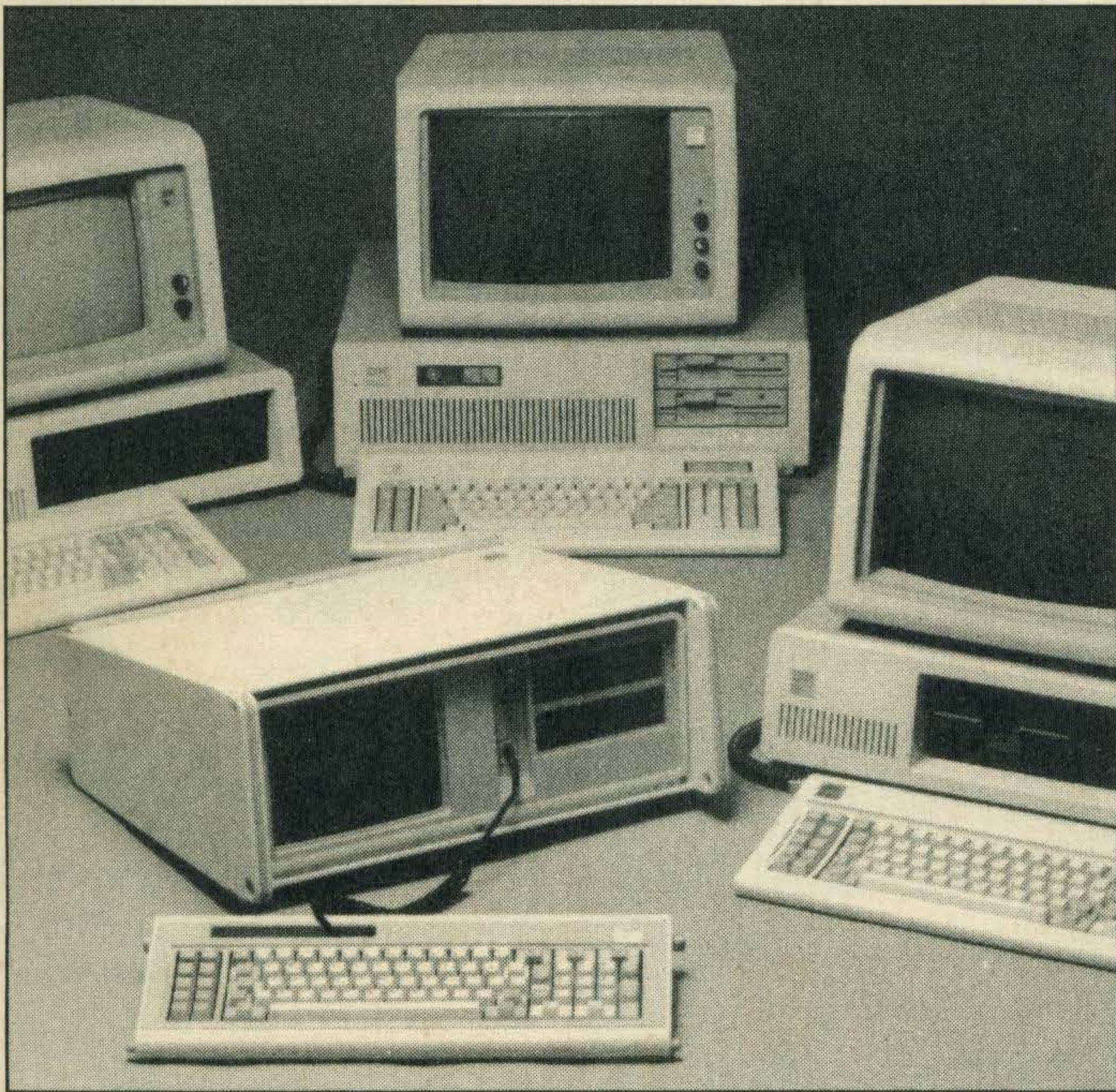
A number of readers have written to Microsoft UK to buy copies of the *MSX Technical Guide* and received a letter saying that Microsoft can no longer supply these. There has in fact been a break between Microsoft and the Japanese ASCII Corporation.

The result is that Microsoft no longer has any dealings with MSX. Microsoft suggest readers contact the various hardware manufacturers but this is clearly not going to enable you to buy the Technical or BIOS manuals.

Instead you will now have to write direct to the ASCII Corporation at Sumitomo Minami Aoyama Building, 5-11-5 Minami Aoyama, Minato-ku, Tokyo, Japan.

This is not very satisfactory, but unfortunately this is the sort of thing that happens when two business organisations fall out with each other! MSX technical books are also rumoured to be available from Quest Publishing in the USA, but we have no address for them — can anyone help?





*The IBM influence spreads ever wider*

## IBM compatible

Don't believe anything you hear about MSX-3: that's the message spelled out in *Micros MSX*. If it ever arrives in the Western World it will probably carry some other name, to escape the reputation of MSX-1 and MSX-2 (make of that what you will!).

In the meantime though, if you can't wait for MSX-3 but want the next best thing, Holland or France is the place to go. That's where you can buy the Spectravideo X'Press 16.

Billed as the most powerful home computer ever, the X'Press 16 represents a fascinating hybrid between IBM PC clone and MSX-2. It has an IBM-style keyboard and 5.25" drive, while it generally looks like the IBM as well. Full IBM compatibility is claimed, with built-in MS-DOS operating system and GW-BASIC (not MSX). Graphics are PC CGA standard, with a colour palette of 512 combinations. Memory is vast by MSX standards—256K user RAM expandable to 640K and an additional 128K for enhanced graphics. A PC-compatible joystick is also supplied; a mouse for the mouse port (mousehole?) might have been more useful.

But here the similarity with, say, the Amstrad and other PC clones ends, because the X'Press 16 also has MSX-2

features! So you get the MSX-2 Advanced Video Display Processor (AVDP) offering 256 × 212 pixel resolution with 256 colours or 512 × 212 pixels with 16 shades. Sprites — we got 'em too! Thirty-two in all, with multiple colours. You can flip the screen for animation effects. An exclusive superimpose capability enables you to overlay images created by the normal PC display on those generated by the AVDP. The MSX sound capabilities are also provided on the new X'Press, so you have 8 octaves and 3 sound channels, together with a programmable envelope generator for sound effects.

A number of bolt-on goodies are also listed. A games cartridge adapter will enable you to play virtually all MSX games and connect standard MSX joysticks. A low-cost multi-function card adds 384K of RAM, and RS232C port and a real-time clock and calendar. Cooling fans, video adapters and a second disk drive are also noted.

The price of the machine will be under 2000 Dutch guilders (approximately £660) in Holland and under 9000 francs (£900) in France. UK price and availability are not yet stated, but one thing is sure — you won't be able to upgrade your existing X'Press to 16 bits!

## Hints from Holland

MSX is well established in the Netherlands and apart from several MSX areas on Viditel, the Dutch Prestel system, there are also a few bulletin boards catering for MSX enthusiasts.

All work is on the standard viewdata (1200/75 baud) system and I have given a couple of telephone numbers at the end of this article in case you wish to explore the systems yourself.

The following hints are just a few of the interesting tips and ideas I have picked up while scanning through these boards. Some of the hints may be familiar to you already or they might not work on your particular machine, but I am sure they will be useful to someone!

Do you want to stop people from listing your programs? The following in line 1 should do the trick.

```
POKE &H8002,255
POKE &H8003,255
```

The screen can in fact be turned on and off under software control:

```
VDP(1)=VDP(1)AND 191
switches it off, and
VDP(1)=VDP(1)OR 64 turns it on again.
```

Programs which contain LPRINT statements tend to hang up if the printer has not been switched on in advance. The following line will cure the problem.

```
IF INP(&H90) = 255 THEN
PRINT "Printer not connected!
Switch on and type RUN
<RETURN> to continue":
STOP
```

The following routine will give a screendump at any time "p" is typed during a BASIC program.

```
60000 ON INTERVAL = 100
GOSUB 60020
60010 INTERVAL ON: GOTO
(start of program)
60020 IF INKEY$ = "p" THEN
60030 ELSE RETURN
60030 FOR N = 0 TO 959:
LPRINT CHR$(
(VPEEK(N)));:
M=M+1:
IF M<40 THEN NEXT
ELSE M=0:
LPRINT:NEXT.
```

If you have a disk system you will be aware that the computer

reserves some RAM for the disk operating system's use, enough in fact for two disk drives. It does this because it must be able to remember the files and their addresses.

If you have a BASIC program and wish to stop the disk system from grabbing this RAM you can do so by keeping the SHIFT key depressed while you power up the computer. Note how the message 24,456 bytes free changes to 28,815.

You will now have additional free memory enough to run cassette programs which need the extra bytes, but you will not be able to run any disks. This trick will also be useful if you have a disk system and wish to simulate a cassette system while developing programs.

In some programs you may encounter a disk-related error message such as DISK FULL which causes the program to hang up. Under these circumstances typing CLOSE, followed by RETURN often does the trick.

Finally, here is a very neat automatic disk menu program which will boot up by itself. It will run any BASIC program and should be saved under the name AUTOEXEC.BAS.

```
100 REM automatic program
110 CLS
120 WIDTH 38
130 PRINT "Contents of this
disc"
140 PRINT STRING$(38,"-")
150 FILES
160 PRINT STRING$(38,"-")
170 PRINT "Spare capacity:
";DSKF(0);"Kb"
180 PRINT
190 INPUT "Which program",
P$
200 RUN P$
210 END
```

There are two MSX bulletin boards in Holland:

Filotel . . . 0103150-145174  
MT-Tel . . . 0103178-156100

There is a handy library of free programs to download on MT-Tel. Casual visitors should enter user number 22222 and password 2222. You can register on-line to get your own personal codes.

*Andy Emmerson*



## Reset risk

I would like to point out that Brian Scott's advice about a reset switch for the MLF-80 involves risky procedure and also invalidates the guarantee.

I also had to have repairs made to my power on/off switch and my method of resetting the machine involves a switch connecting the two rightmost pins on any joystick port. This method seems to work as long as the switch is pressed down for more than two seconds.

Is there any chance that you could include machine code game listings? This would make entering listings easier and a lot more interesting.

Paul Kinsella  
Newtown  
Eire

We can't really see how machine-code games listings would be easier to enter. Even fully-documented assembly listings are a lot harder to follow than Basic, and for a given program they would be so much longer than Basic listings that we could only get one or two into each issue.

Considering that lots of readers don't have assembler/editor/debugger software we might be reduced to Basic hex loaders and reams of hex to type in. The debugging would be horrifying — one mistake and the whole machine could crash, giving you no idea of where the error lay. There's also the fact that 999 out of every thousand programs sent in are Basic.

## ... and more

With reference to the reset key for Mitsubishi's MLF-80 by Brian Scott of Aberdeenshire, I

# DOS7 BAG

Here's your chance to have a say. Have you been let down by a supplier lately? Or pleasantly surprised by the service you've received? Or perhaps you're just plain stuck on level 1,001 of your favourite arcade action mega-game?

Whether it's a word of praise, a moan, programming tips or a word of advice, we want to hear from you. It's your page, so put pen to paper — now.

feel I must warn you that this modification should not be carried out. Scott suggests that you connect a switch pin 28 of the HN613256P chip to earth.

Since all Z80 micro-processors have a reset pin, I am surprised that using that wasn't suggested. Pin 26 (RESET) of the Z80 has two inverter/buffer stages plus a resistor and capacitor connected to it. These form the power-on reset circuit found on all MSX computers. If a push-to-make switch is connected to the circuit and

earth, this would make a manual reset. See diagram.

Mr S Ellerker  
Croydon

## More switch difficulties

I read Brian Scott's letter about the reset key for MLF-80 with interest. The power switch failed on my MLF-80 after 14 months of use and when I had to buy a new switch, the dealer informed me that the power

switch on his MLF-80 had also recently failed.

It appears that there may be a design fault here and I would be interested to hear Mitsubishi's comments on this. I look forward to more coverage of serious applications in future issues of *MSX Computing*. I would also like to hear from the MSX Working Party about how they intend to keep the MSX concept alive and kicking in the UK in the face of competition from companies like Amstrad.

As a user of Tasword, I am now used to seeing 64 characters per line on screen. Is there any chance of a future feature on how to achieve this for normal programming and for use with programs such as spreadsheets?

J C Brooks  
Forest Row  
Sussex

We have a utility program scheduled for the next issue which gives a very good 64 column display, but this effect can only be achieved within your own programs. Commercial software usually defaults to 40 columns, even on a machine like the Spectravideo X'Press, which has an 80 column option implemented in hardware. Incidentally, the switch went on our MLF-80 too.

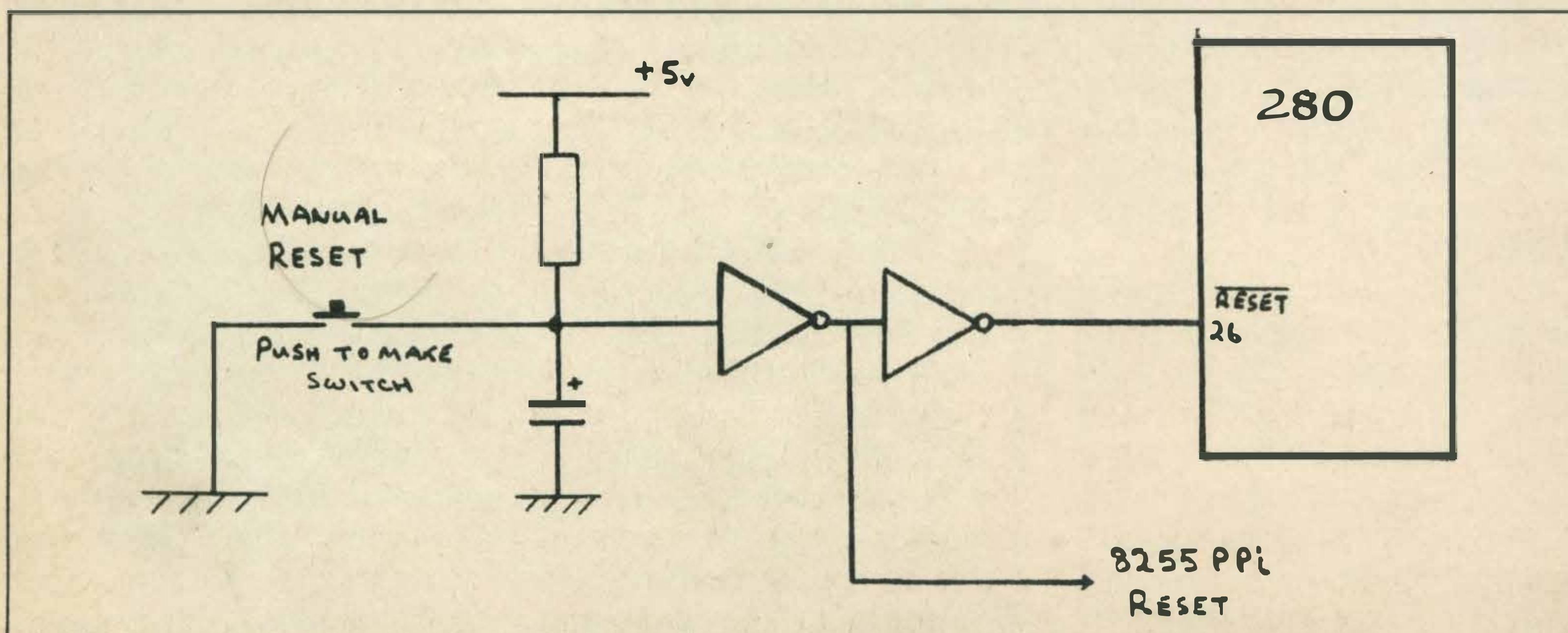
## Recommended

I recently bought an MLF-80 for my grandchildren and your magazine is useful as it helps me avoid awkward questions. Brian Scott suggests a reset switch across pin 28 of HN613256P and deck. This chip is a 32 Kb ROM, of which pin 28 is VCC (+5v). Surely a dead short across the power supply would sooner or later be disastrous?

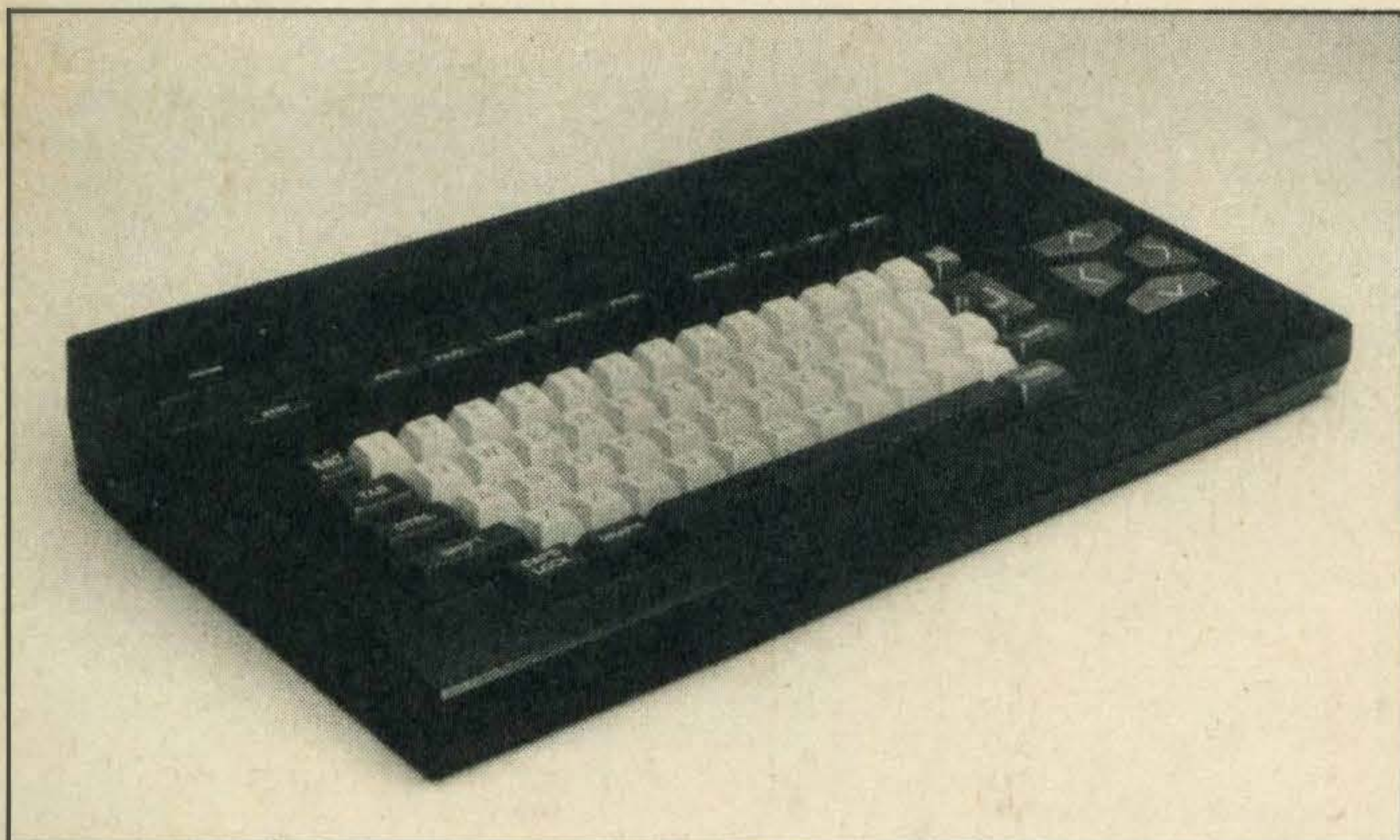
The reset on the Z80 CPU chip is pin 26 and a switch from there to earth, say pin 29, via a 47 ohms resistor will force the program counter to zero and initialise the CPU.

This would perform the following operations: disable the interrupt enable flip flop, set Register 1 to = 00H, set Register R to = 00H, set interrupt mode = 0.

During reset time, address and data busses are disabled and all control output signals







### MLF-80 power switch problems

become inactive — in other words, a cold reset.

Perhaps some bright spark might pick up the RESET connection from the cartridge port — if not too busy chasing disembodied legs . . .

I enjoy reading your magazine — after Commodore anything makes light reading.

Perhaps you, might find room in your pages for connector pin-outs? If you haven't come across them yet, I refer you to Electronics and Computing, September 1984.

*James F Fowkes F.I Diag.E  
Kings College  
London*

## Technical enthusiast

Like so many potential computer users, I was captured by computing as a consequence of the recent price-cutting war.

My first computer had too little memory, but when MSX came into existence, I felt the Sony Hit Bit had a lot going for it including a reasonable price tag (under £100), a 29K user memory and an attractive black casing.

Computers have a great role to play in this new world and we have only just begun to scratch the surface of the potential of these machines.

The price cutting policies of MSX companies have given the ordinary man or woman the chance to get over what I call techno-fear, a psychological fear of anything technical, and given them the opportunity to learn about something only a few could afford until now.

A computer is not a God and neither is programming a religion — but they are the future. When we get our act together

and really start using computers the way they can be used, then the stars will not be the limit.

*Andy Wilkinson  
Lytham St Annes  
Lancashire*

## Game loading commands

I have just bought Moleculeman by Mastertronic and I am having problems loading the game.

The loading instructions say LOAD"CAS",R, but they don't work. I have tried all the commands that I know such as BLOAD"CAS",r, CLOAD and LOAD"MOLECULEMAN,r, but nothing seems to work.

This is the second tape from Mastertronic that has left me high and dry with the game loading commands. Can you help me?

*W Barker  
Hartlepool*

**The loading instructions do indeed say LOAD"CAS",R. What they should say is LOAD"CAS:",R. The colon is the offending omission.**

## Tasword tip

In the October/November issue of *MSX Computing*, I note your reference to Tasword and the difficulty you had loading the program. I've experienced exactly the same problems.

I contacted Tasman House and someone advised me to type in GOTO 30 and press return. He also said that the problem arose with some MSX machines.

Following his instructions I loaded Tasword again and when SYNTAX ERROR IN 210

came up, I typed GOTO 30 and the following message appeared on screen: LOADING MACHINE CODE PLEASE WAIT.

The program did eventually load although I had to load it four or five times before the problem suddenly righted itself and since then I have had no further problems with Tasword.

I was intrigued to see a screen from MST-Calc in the same issue on page 19 as I have used the program quite a bit and have never seen that screen before. The manual doesn't mention it either. Is your copy a different version or am I doing something wrong?

*Gerald Cawthorn  
Bingley*

**You could say it's a different version — in fact it's a picture of a different program which accidentally got into the wrong file. Oops!**

## Magazine ambitions

Could you please tell me what qualifications I need to become a software reviewer (no, it's not a joke!), because I am very interested in becoming one later on in life — hopefully with your magazine.

*James Garnett  
Felixstowe*

**No formal qualifications are required — just an ability to do the job well, and do it reliably. If you have ambitions towards full-time magazine work you need an aptitude for lots of other skills as well. There's really no such thing as a full-time software reviewer, even among the freelance journalists who write most of our reviews. Everyone does other jobs as well.**

Magazine journalism can be a fascinating life, and if you have knowledge of a specialised area such as computers or hi-fi, that can provide a way in. If you are seriously interested in journalism as a career, you should investigate some of the polytechnic courses in periodical journalism now on offer, as these give a good grounding in the technical

aspects of magazine production, interviewing techniques and the like.

## Assemblers

Please could you recommend a good cassette-based assembler/disassembler/editor? How much would it cost and where could I obtain it?

*Paul Measday  
Greatstone*

**Hisoft Devpac, £19.95, (0525) 718181, or Zen from Kuma, £14.95, (07357) 4335, would probably fit your needs.**

## Disk decision

I have recently purchased a Sanyo MPC-100 and wish to take advantage of the software services offered by the Public Domain Software Interest Group.

I need your advice on the availability of a suitable disk drive which can use the CP/M and MSX-DOS operating systems. Would it be possible to use both disk operating systems on the one disk drive and if so, where can I buy the system disks and a suitable disk drive.

In the August/September issue, Alan Wood mentioned in his article that the CP/M and MSX-DOS systems come pre-packed with a complete disk system. Does this mean that as an MSX user I will be forced to buy two separate disk systems just to gain possession of CP/M and MSX-DOS?

I can barely afford one drive at the moment. Please put me out of my misery and offer some of your advice.

*Kevin Maynagh  
Kirkonnel  
Scotland*

**Good news and bad. You can run CP/M or MSX-DOS using the same disk drive. However, because of the way CP/M is written you need an 80 column display. Fine for MSX-2 and X'Press owners, not so good for the rest of us.**

X'Press buyers are doubly fortunate in that they can get CP/M and MSX-DOS with their machine, along with a fine collection of other software including Wordstar. Otherwise, the only source we know of at present is Hisoft. (0525) 718181.



# MSX WARNING

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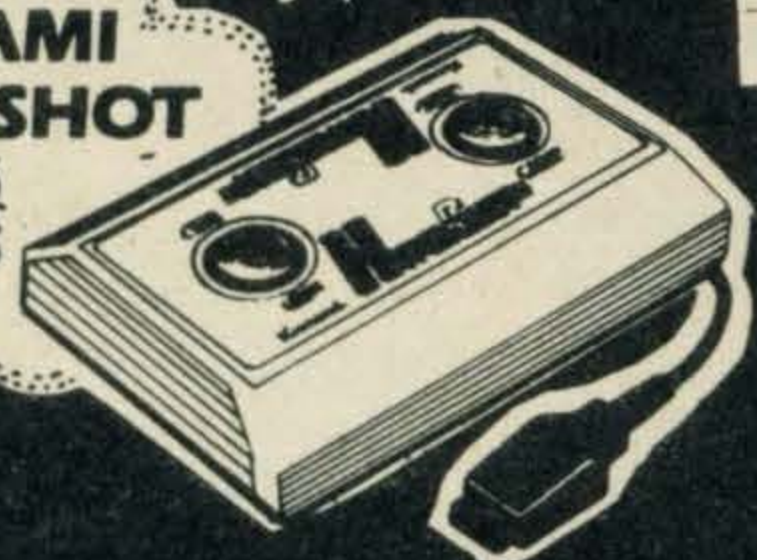


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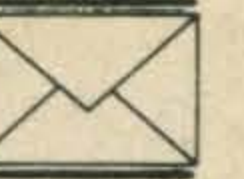
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## Exploding computing

Help! Yesterday I inadvertently withdrew and reconnected the disk drive attached to my Sony Hit Bit without first switching it off. The result is of course a mess. Can you tell me the name of any qualified and reliable firm who can repair it? Do you think I have done any terrible damage to my computer?

Lastly can you suggest a method I can use to save data from my Personal Data Bank to disk. According to the operating instructions, this can be done, but no further reference is made except for tape or cartridge.

*L C Butt  
Weston-Super-Mare  
Avon*

**Tricky.** There are a number of computer repair outfits around, but they all seem to restrict themselves to Commodore, Sinclair, Amstrad and Acorn. If any readers can recommend repair firms, we'll pass on the info. If it's any consolation, the damage is likely to be limited to a few chip replacements.

## Business application

You state in the October/November issue (on page 3) that your readers fall into two main categories. I consider that these two should be subdivided into a further two — those who use MSX computers as a games machine and those who put them to small business use.

Reviews of games software are very useful and interesting, but reviews of business software would also be of interest to people like myself.

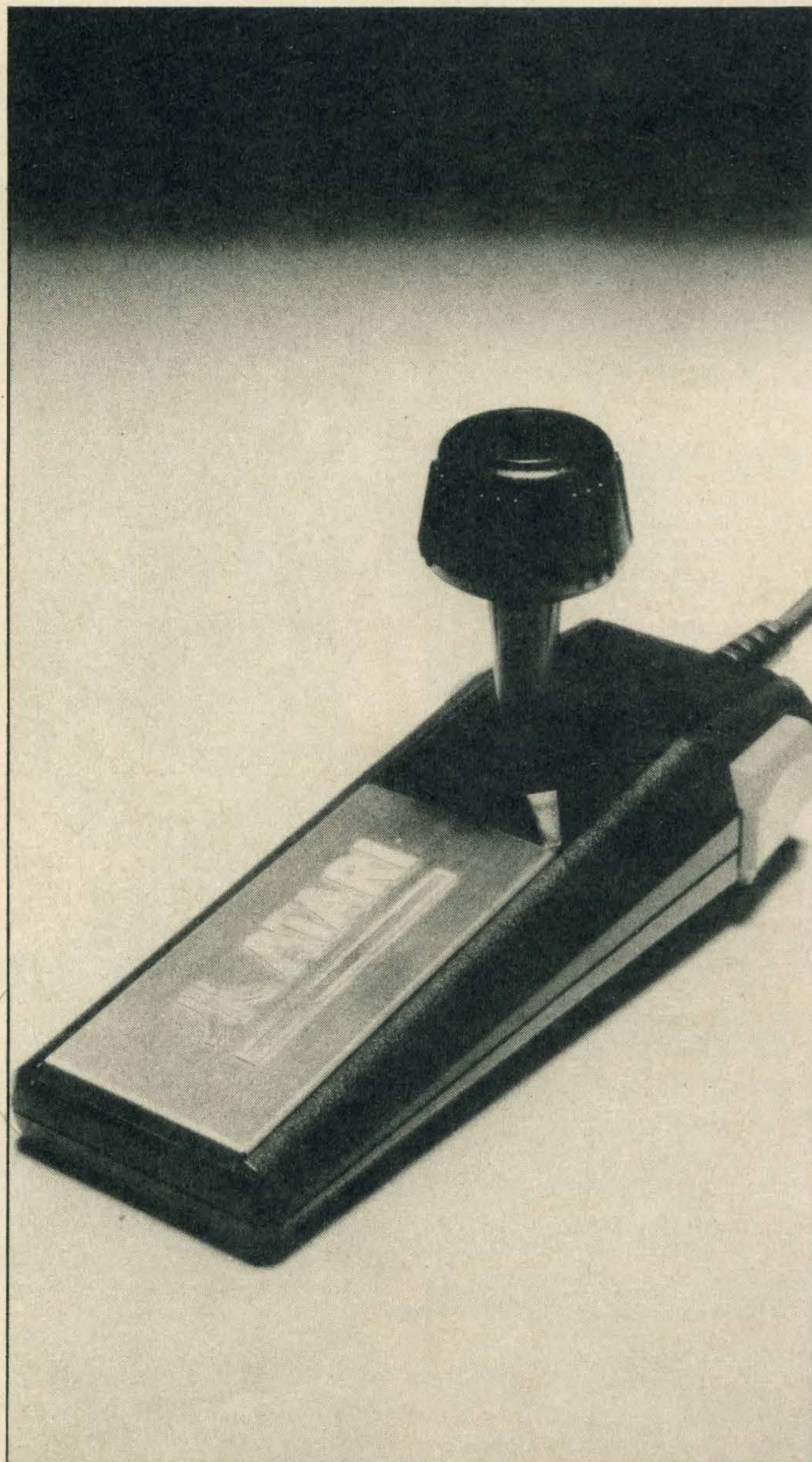
Articles relating to printers have been fairly prevalent in recent MSX Computing issues. As a computer novice, I purchased a Brother M-1009 for about £150 and was very pleased with it.

In future I hope you include more utility programs instead of games in your listings pages as I consider the MSX a useful tool in the business world.

*David Woodhams  
Guildford*



**Hit-Bit disk system — repair shop needed**



**Atari joysticks do work after all**

## Joysticks

I noted in the letters page of the October/November issue that "Disgruntled" of Lancashire couldn't get any joysticks to work with his MSX.

I use a standard Atari joystick on my Mitsubishi and also a Pointer Master from my Commodore 64 and both work perfectly. They also work on my friend's Toshiba. From the way "Disgruntled" calls everything rubbish, I suspect that it's not the equipment, but the man that's rubbish.

*H Fisher  
Dewsbury  
Yorkshire*

## MSX

### library

I agree with all the complaints about the shortage of MSX software and I must agree that it is difficult to get hold of in the usual retail outlets.

There is another way of obtaining MSX software — hire it. The Midlands Computer Library, based in Worcester, hires out software from 75p to £2.50 per week. To get its MSX software catalogue, send £1 and state clearly that you have an MSX computer.

Apart from the obvious advantage of hiring (it's less expensive), it also enables potential purchasers to test-drive programs. The address is Midland Computer Library, 28 College Street, Worcester WR1 2LS. Tel: (0905) 611072.

*Colin Hunter  
Salisbury  
Wiltshire*



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# CHRISTMAS CHOICE

**N**ormally, I don't take too kindly to having my sleep disturbed by unwarranted interventions, even by people I know, so when the esteemed editor of this august organ telephoned me the other day, I took a dim view of things.

But that was only at first, for he quickly managed to pacify my rising angst with a simple and magic word: Christmas. That's what he said, just like that. My curiosity was aroused.

With care he became more specific. No, he wasn't actually offering me a Christmas present, and certainly not one now, that would be most unfair. Instead, he wanted me to look at some Christmas presents. "For me?" I enquired hopefully.

The answer was disappointing; well, for me it was, anyway. The presents weren't for me, they were for you lot out there. Then again, they were only for you lot out there if someone

## *Martin Banks dons his Santa suit and selects some all-time classics for the festivities*

was kind enough (or mug enough, it depends upon your point of view) to rush out and buy some for the festive period.

What the man wanted me to do was examine some games programs, things that might make suitable presents for the vast army of you out there. This, it has to be said, was quite a brave thing to do, for your esteemed editor knows full well that I am not the world's greatest lover of games software. But your editor is nothing if not perverse. "Go on, be rude if you want to," he said.

Now that is an offer one doesn't get every day of the week, and I'm afraid it proved to

be just too tempting. So, here we are, and you'll have to put up with it. Games I was asked to look at, and my view of them is what you're going to get.

Those of you who have been following my recent exploits with an MSX computer, a tape recorder and a great deal of frustration will understand why I made an immediate grab for the cartridge games. Those who haven't been following probably aren't into self-pity anyway.

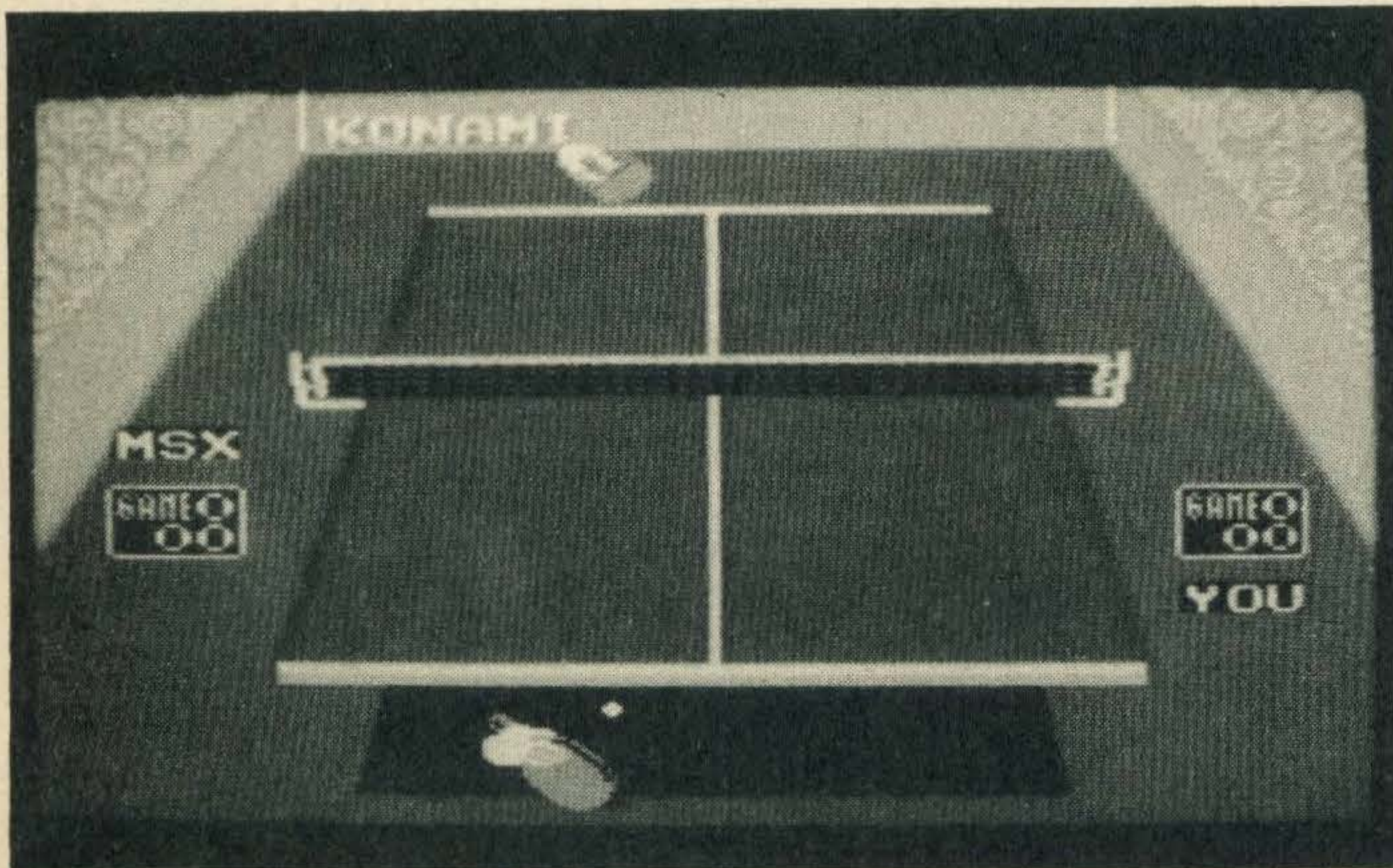
Needless to say, when the bag of programs arrived, I made a beeline for the two games from Komani, not because I am a great lover of

them, but simply because they were cartridges. I know they're more expensive to make and all that, but I'm lazy and cartridges are so much more convenient.

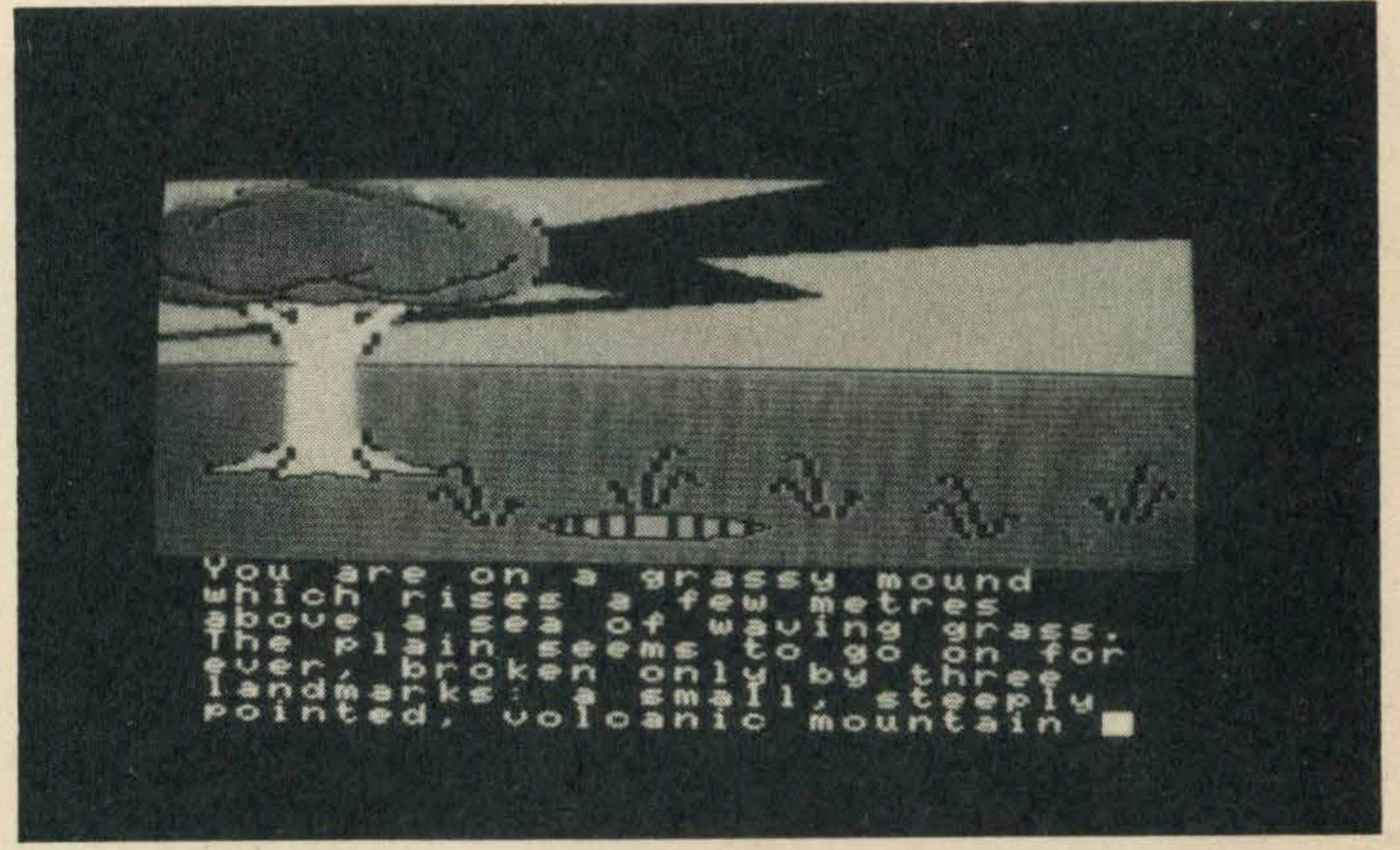
First out of the bag was *Golf*, which by chance was the game I ended up liking best, though that pre-empts my story a bit. This game actually surprised me quite a bit, because I have never been one of the greatest lovers of golf itself, though I have understood the principles for some time. (There are some things I like, honest).

Anyway, I banged in the cartridge and started to play. The game is really quite realistic for a two-dimensional representation of a three dimensional event. It was also interesting to note that the player, or players when working it mob-handed, are women. Too much macho is bad for you, these days.

It gives you all the expected playing options, together with a good bit of additional useful



*Ping-pong's disembodied hands*



*New graphics enhance the adventures*



information, to make for an interesting nine-hole game of golf. Its one possible drawback over other golf games I have seen is that it only plays over the same nine holes, in the same order. The counter-argument to this is that most people will, in real life, predominantly play on the same course, and will get to know it well.

I have to report this is so. I went from something horrendous like 14 over par for nine holes, to a best of three under. Not bad, eh?

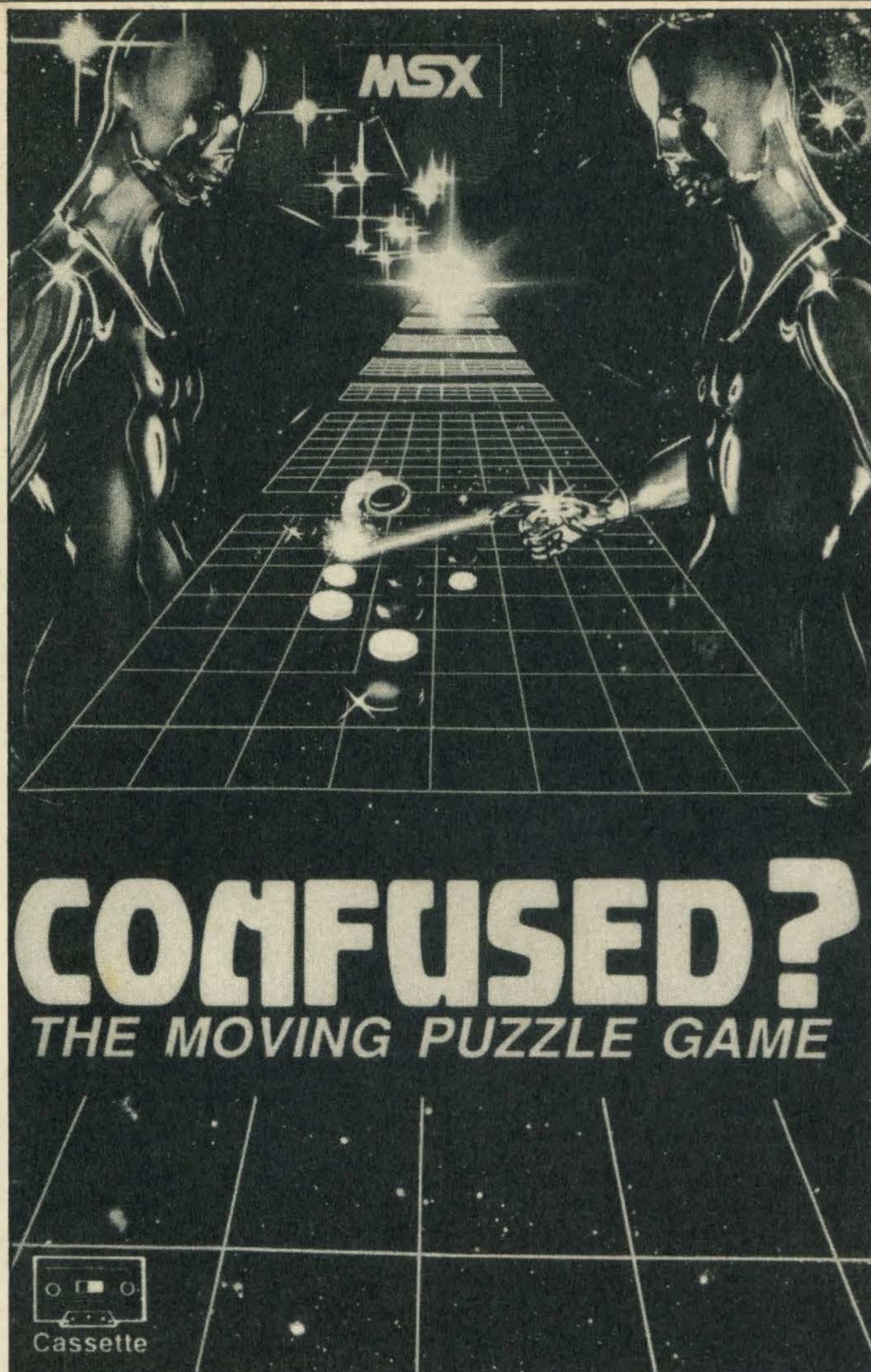
You start by choosing the type of shot—straight, hook or slice, while the system tells you the distance to the hole. The graphics are very good, as with most Konami games I've seen, with a 3D view of the fairway, plus a plan view of the entire hole. This can be very useful, for a couple of holes are real devils, where you have to play to a small patch of ground surrounded by woods.

Using either the control keys or the joystick, a cross-shaped cursor can be moved around the plan view to indicate the direction of the shot. There is also a small panel which shows what number hole is being played, whose shot it is, the par for the hole, and how many strokes they have taken so far. Also displayed are the wind direction and strength, which must be taken into consideration.

The manual gives details of the distance that can be hit with any club, and the system shows how many metres are left to the pin. You select your club and use the sliding power meter to gauge the strength of the wallop you give the ball.

And so you make a stately progress up the green to the pin. Alternatively, you can find yourself in the rough or out-of-bounds, both of which I achieved with startling regularity to begin with.

As I have said, this is one game I actually got to like playing. It almost got me to the point of being just a bit interested in real golf, until I realised the game's one fatal flaw. There is no nineteenth



*Confused? You will be . . .*



*Or try a relaxing game of Chess*

hole, and even if there was, two-dimensional graphical representation would somehow not seem to have the same promise of sensory pleasure. Ah well.

So it was on to the next game, another Konami cartridge called, with stunning originality, *Ping Pong*. Hands up anyone who can't guess what this was about . . . no sir, it was not about bells and smells.

Yes, it was all about table

tennis, which is another game that I am not totally struck by. Maybe it's because it tends to remind me of cold and damp winter evenings spent as a callow youth down at the local youth club. It was either play table tennis, or watch others playing table tennis. Life was not too exciting in those days, I can tell you.

Despite this latent prejudice, I decided to have a go. This was a game that was not so easy as

*Golf*, mainly because it required the learning of a particular sense of timing so that the ball (pong?) could be hit. Again, this game had Konami's generally excellent graphics. In this case however, the 2D display of a 3D event made it difficult for me to pick up a sense of where the ball actually was in relation to the bat.

In a word, I was always either too early, or too late. In both cases the result was the same: total ignominy for me and a rapid accumulation of points for the computer. One of the strangest things about this is also the most sensible, logically. Unlike Konami's version of ordinary tennis, where the tennis players can be seen in all their glory, having players in the ping-pong picture would only get in the way of seeing what was happening on the table.

This means that the sensible alternative is taken. All that appears of each player is a disembodied hand. Using either the cursor keys or the joystick, this hand can be made to play either forehand or backhand, and hit the ball. This is the bit that I really couldn't cope with. I just could not get the timing of this right with any degree of consistency.

Needless to say, the computer stomped all over me. The most points I scored in any game was three, and most of the ones I lost were given away by my inability to hit the damned ball at all. Ironically, and indeed perversely, I found it easier to hit the ball on the harder levels. The game offers five different levels, and I found that on the toughest I could get some really worthwhile rallies going against the computer, which proved impossible with the lowest, easiest level.

This must prove something, though I'm not sure what, especially as I never actually managed to win a single point in any game played at this level.

A couple of points on *Ping Pong* that struck me about the graphics. Firstly the crowd, who are amazingly partisan, with one side cheering the computer and the other side supporting me (guess who had little to



do?). They were great, and I would swear that one looked just like a chimpanzee (make what you like of that). The other point is the other player whose hand, on winning a game, danced around making 'V' signs at me. I was most hurt.

Next came the point I had feared, it was time to try some cassette-based games. Knowing my luck things started out badly. Having had so much trouble with cassette loading in the past (see *MSX Computing* passim) Murphy's law predicted the same problems would arise again, and they did. This time, however, I found the tape recorder genuinely was broken, so after a quick change, we were successfully in business.

First up was the Aacksoft game, *Confused*, which is probably an apt name for it. It is somewhat strange, though in the end highly entertaining. The object of the exercise is to match up one picture with another. It would have been better called Jigsaw as that is the basis. The screen has three main sections, one window has the source picture, another has a blank space into which bits of this picture can be placed, and the third has the bits of picture.

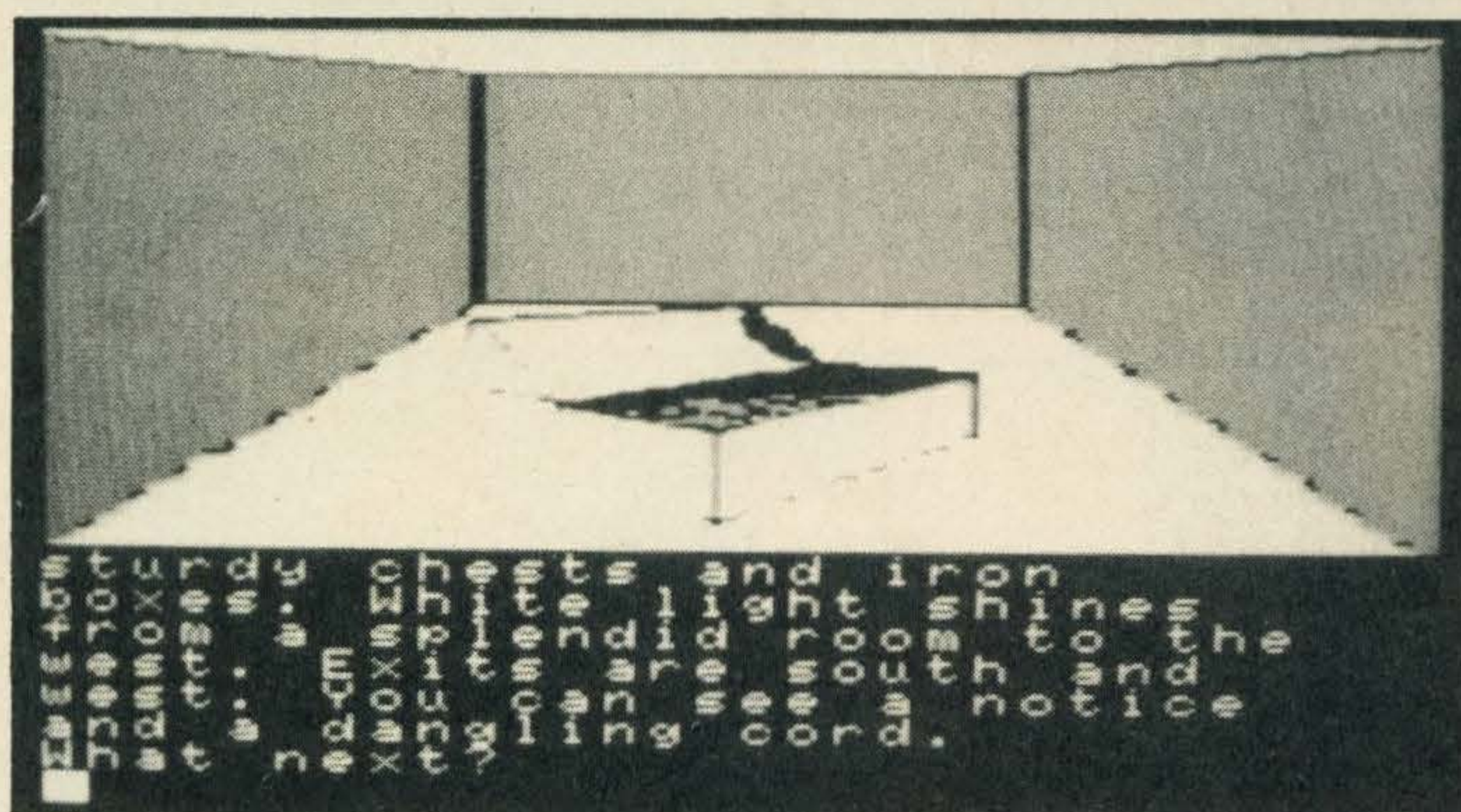
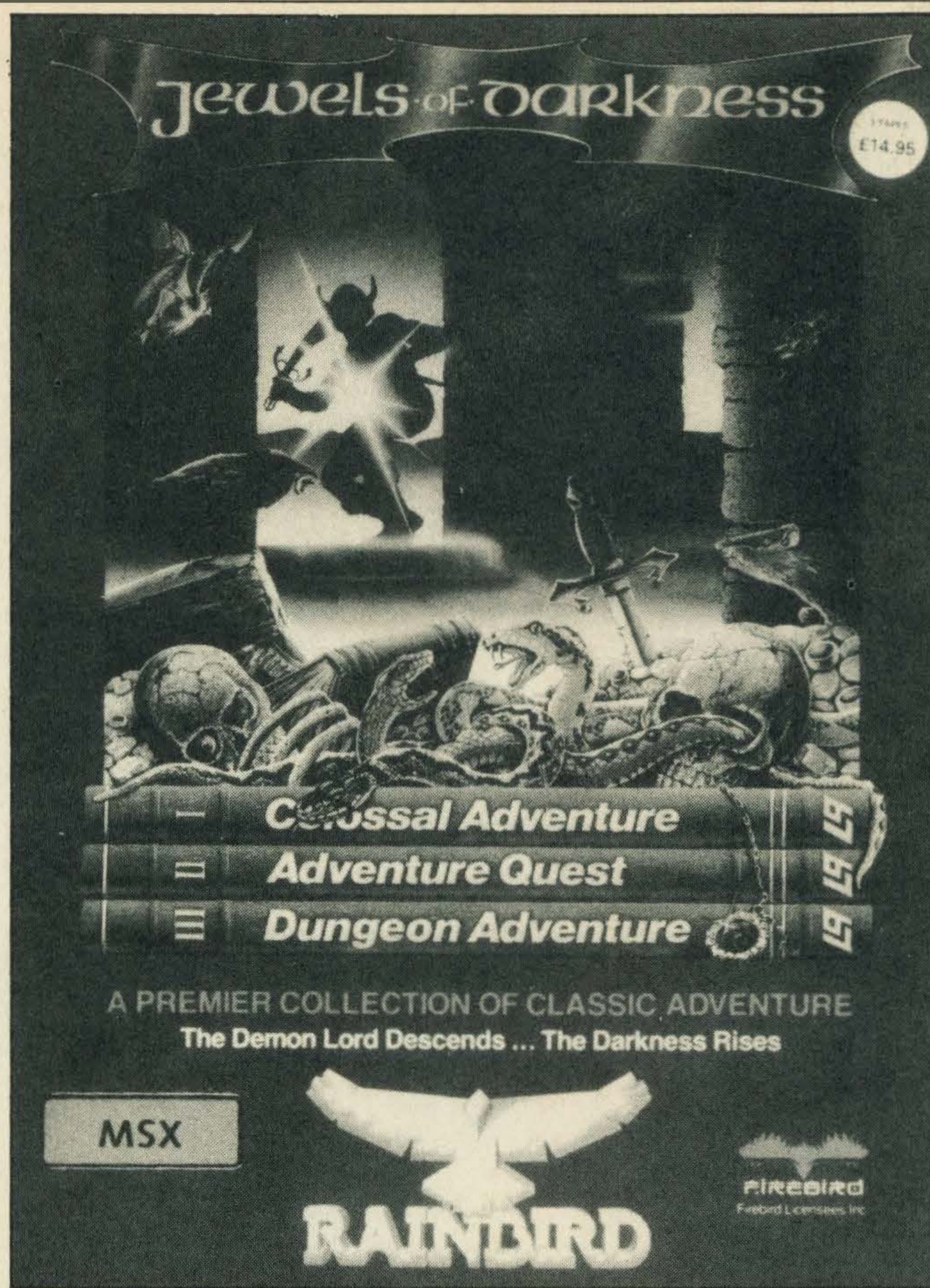
Difficulty is varied by increasing or decreasing the number of picture pieces that have to be fitted together. This can vary from four to 12 pieces, some of which are the right way up and others inverted.

Picking up these pieces and placing them in the window, either with the cursor keys or the joystick, sounds relatively easy, but it is made harder by the fact that the source picture is moving. This makes life much more interesting.

The game can be played in non-competitive or competitive modes. With the latter, it means completing the picture in time to beat a descending score counter; something I never managed to do.

And do I move on to another Acksoft game. *Ultra Chess*. I'm not too sure about this one, not because there was anything wrong with it that I could find, more because I'm so congenitally hopeless at chess that I'm the last person on earth to pass any valid opinion on it.

Needless to say, the game just wiped me out everytime I looked at it, but then any chess board can do that, even without a second player. Simply by my looking at the pieces I can find



More of those Rainbird/Level 9 graphics

myself in checkmate. Outside assistance was therefore recruited.

Chess is a game mastered only by those of high intelligence and a keen tactical mind. It was obviously useless to call upon the opinion of any member of the *MSX Computing* staff, but Big 'Ed Craven did come up trumps by suggesting the services of my fellow lexical choreographer and communications buff Phil Roisky.

This sterling fellow reported that the playing standard of *Ultra Chess* was gratifyingly high. Features which he singled out for praise included the ability to save partially-completed games on cassette for later contemplation, and a printer logging function which prints out a complete record of the

moves in a game as they occur. A simplified copy of the board layout can also be dumped to the printer at any time. The impoverished Rotsky household only runs to a black and white TV, so he also appreciated the ability to change all the on-screen colours and thus make the display more legible. The playing strength of the computer is adjusted by telling it how many seconds it is allowed to spend contemplating each move.

The only criticism I have about *Ultra Chess* is that it seems just a bit over-sold, especially in the futuristic graphics of the packaging.

The last package your esteemed editor, 'Biggles' Craven, asked me to open was a compendium of classic

adventures, *Jewels of Darkness*, from Level 9 and Firebird. This is, a pack of three cassettes and a well-presented book.

The three cassettes contain a trilogy of adventure games: *Colossal Adventure*, *Adventure Quest*, and *Dungeon Adventure*. Between them, there should be enough excitement to satisfy the needs of most people, especially those who haven't tried entering the strange, alternative worlds of the adventure game before.

These are well presented versions of the breed which have been updated by Level 9 and Firebird. Not least in the updating is the graphics, a new addition to the original text-based game. These are really quite good, and give an added dimension to events by having such eerie things as mauve-coloured tree trunks.

For one who has read and enjoyed *Lord of the Rings* several times, I sometimes find adventure games rather frustrating, and I found these occasionally just a bit inconsistent. At one point for example, I was obviously going the wrong way, but found that every exit from the point I had reached seemed to lead back to where I had come from.

The presentation of the games is excellent, however. They come with a really interesting guide book both to the games themselves and the ambience of the idea. This book is much more than the usual documentation or instruction sheet, though all that sort of stuff is included. Its main difference is the inclusion of a short novella, called *The Darkness Rises*, by Peter McBride. If nothing else, it makes good reading while loading.

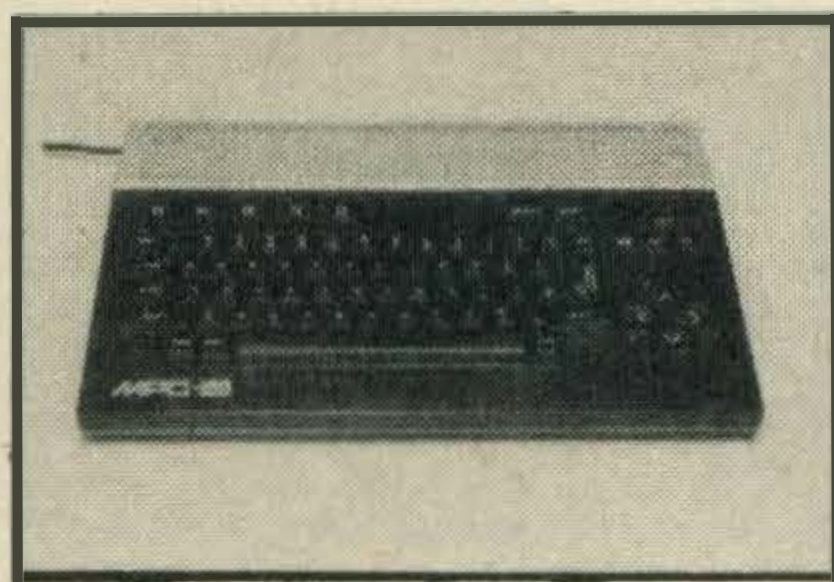
One minor point to bear in mind, of course, is that these games are intended to run on the MSX computer and, unfortunately, on a few examples of the breed that I have come across recently, a lack of efficiency in the keyboard area has been noticeable. It can be very frustrating when you're trying to play a text-oriented game and the keyboard (or bits of it) seem to refuse to acknowledge that you exist.

So if you are a new-ish MSX owner in need of some classic games that won't get boring for a long time, try leaving these pages on view around the house, with the relevant titles underlines in red. Your loved ones should get the message.

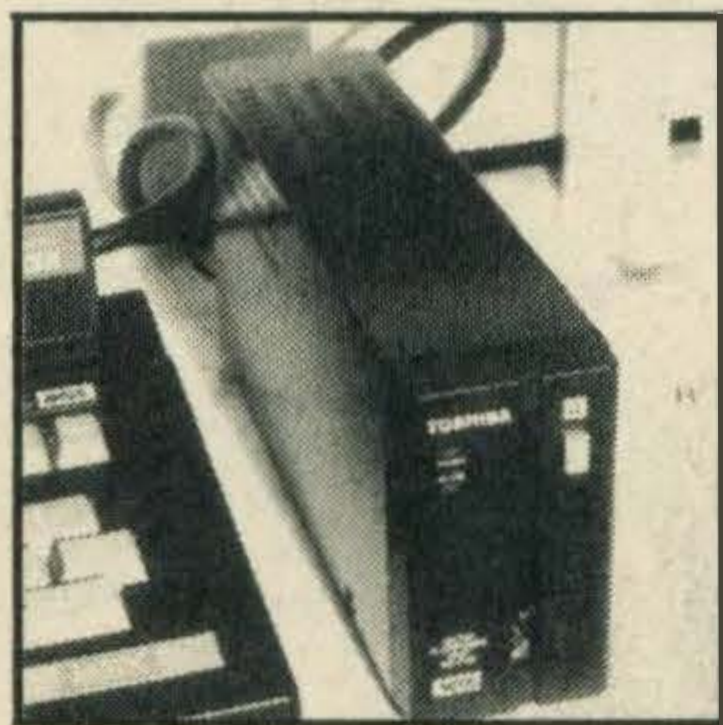


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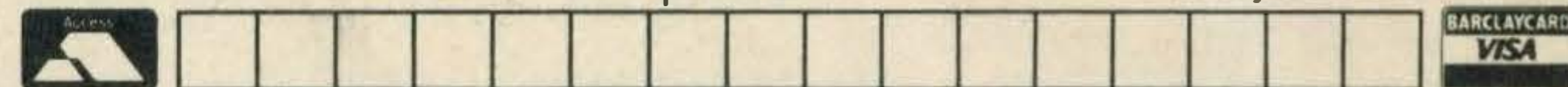
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# PROGRAMMER'S PROGRESS

**T**his is the final appearance of the Basic course in its present form, but to make up for that, the first instalment of a Basic programming question/answer shop is incorporated into this feature.

It will be a regular series and its driving force will be you — so write to *MSX Computing* with any queries and, in particular, any tips you have for other readers.

It's your chance to get into print, but first it seems appropriate to round off the present Basic series and to review the essential points covered. So mainly for beginners, here goes.

Perhaps the most obvious talent you would expect of your computer is the ability to compute.

You need to know nothing about programming to do simple sums like this — providing you always press RETURN to send each line for processing.

```
?25+134      [RETURN]
159           (answer)
```

You can also try rather more complex formulae like this sequence to convert from Centigrade to Fahrenheit:

```
LET C=25
Ok
LET F=32+C*9/5
Ok
?F
77
```

Remember that the asterisk means multiply in Basic and the circumflex is "to the power of". You can also use left and right brackets for expressions.

Most of you will recognise LET as being one of the most powerful, but least used keywords in the Basic programming language. The computer's intelligent interpretation will understand the statement even if LET is missing. It also takes up valuable memory space — so it is rarely, if ever, used.

*Tim Markes rounds off his programming course and introduces a new help feature*

To create a program, just number the key lines in the sequence and they will be stored in the computers memory to be used again and again, as often as you like.

```
1 F=32+C*9/5
2 ?F
```

Now we can run this simple temperature conversion program (for that's what it is) for any value of C, like this, for example:

```
C=22
GOTO 1
71.6
Ok
```

Any list I make usually needs renumbering to allow for later insertions — and program lines are no different. Type RENUM to number in increments of ten and LIST to check the result. Notice that the symbol ? is actually a shorthand single keystroke version of PRINT — which in Basic normally means "display on the screen".

C is a variable name, which can be up to two significant characters. Imagine it as a pigeon hole in the computer memory where you can hold numeric values or text (character strings). Naturally you can INPUT information from the computer keyboard — so a more flexible interactive program would look like this:

```
05 'Temp Convert
10 INPUT "Centigrade";C
20 F=32+C*9/5
30 PRINT "Fahrenheit",F
40 END
```

Type RUN, which clears out all the variable locations and starts the program sequence at the lowest line number.

This functional trio of INPUT information, PROCESS it, and OUTPUT the result, is fundamental to all computer software — including games. Another key feature of computer programs is their looping ability. Here is a looping program you can type and RUN, which plays all the notes in the MSX music scale (in semitones):

```
10 'Chromatic Scale
20 X=X+1
30 PLAY "N=X;"
40 GOTO 20
```

The format of PLAY doesn't conform to the usual BASIC rules — it is part of a special MSX Music Macro language, which you can read all about in your manual (or back copies of *MSX Computing*).

Notice that a variable location like X, which is initially set to zero by the RUN command, can be changed ( $X=X+1$ ) during the progress of a program sequence. This "Chromatic Scale" program will eventually go illegal, when the value of X becomes higher than the sound system can manage — check using PRINT X. You can prevent this happening by ENDing the program when the final note value (96) has been reached:

```
40 IF X<96 THEN 220 ELSE
END
```

The IF . . THEN . . ELSE command is a very powerful method of conditionally changing the sequence in which a program is performed. You can also use IF to test for equality, inequality, greater than etc., most of which are used in this article.

A semitone scale is actually a very simple example of "repeat this sequence for values of X from 0-96 (in steps of 1)". It's better programming practice in these circumstances — and much easier to understand — if you use a FOR .. TO .. NEXT .. LOOP like this:

```
05 'Chromatic scale
10 FOR X=0 TO 96 STEP 1
20 PLAY "N=X;"
30 NEXT X
40 END
```

Check that negative STEPS are also OK by altering line 10 as follows:

```
10 FOR X=96 TO 0 STEP -3
and you will hear the notes of a "diminished" chord!
```

Words, sentences or any character string can also be stored and recalled as variables (add the character\$), as in this question and answer sequence:

```
05 'Text/Numbers
10 INPUT "Name, Age";N$,A
20 PRINT "Hallo! "N$" aged "A
The Basic programming language also has a method of reserving a group of locations, which can then be treated like a table or list. Take this sequence for continuously storing and recalling up to fifty different items — say people at a party, for example.
05 'Remember me?
10 DIM NA$(50)
20 INPUT "Name"; NA$(0):
S=0
30 S=S+1
40 IF NA$(S)=NA$(0)
THEN PRINT "Hello again"
50 IF NA$(S)=" " THEN
NA$(S)=NA$(0)
:PRINT "Welcome"
60 IF NA$(S)=NA$(0) THEN 20
ELSE 30
```

The powerful DIM command in line 10 will set up a "string" variable NA\$ with 51 elements, numbered NA\$(0) to NA\$(50) each of which can be addressed using the number in brackets — which is called a subscript. A multi element variable



like this is called an array. DIM can get quite complex according to the DIMensions of the "table" it is representing. Notice that line 50 shows an example of two instructions on one program line.

Basic will also allow you to define tables of preset DATA, but you can't do anything with this information until you READ it into variable storage—which might also be an array, of course. Here's an example of using READ and DATA to hold the notes of a melody (Good King Wenceslas, since it's Christmas soon).

```
05 'Tune
10 RESTORE 40
20 READ N$
30 IF N$ <> "Z" THEN PLAY N$
ELSE END
40 DATA L404C,C,C,D,C,C,
L203G,Z
50 GOTO 20
```

The instruction READ always picks up the next item in the DATA list, but you must point to the first DATA line using RESTORE or the program will find itself trying to play a DATA line from another section of the program.

There are several Basic methods of examining character strings — to find a letter or phrase, for example. Just one of them is INSTR, which you could use to find the position of

a word in a line of text, say. Like many other BASIC facilities, it can be used in some surprising situations. Here is INSTR, helping to convert your computer keyboard into a simple monophonic synthesiser (my final method!). It can be done in just 5 instructions, but here is the enhanced fully transposable model (use the < > keys) in just 7 lines. Just add appropriate characters to line 10 to complete the keyboard and get octaves too.

```
05 'Tuneable Synth
10 T=30:P$="qawsedftgyhjik"
20 K$=INKEY$: IF K$=""
THEN 20
30 IF K$="<" THEN T=T-1
40 IF K$=">" THEN T=T+1
50 X=INSTR(P$,K$)+T
60 IF X<>T THEN PLAY
"N=X;"
70 GOTO 20
```

I seemed to have used music as a logical teaching tool once again, but when you understand the fundamentals of variables, looping and changing direction, you will find it simple to apply these techniques to any MSX application.

Now for the very first time here's the new Basic programming questions and answers series. For the first session, you've sent in some very interesting letters and apart from the enormous enjoyment I get

from reading them, you've brought up some fascinating topics for me to try and solve such as time, music, colour and graphics. Keep them coming.

I wonder how many of you forgot to put your clocks back this year and arrived for a date an hour early on Sunday 26th October? I know a few people who did which just goes to show that we could all do with a built-in timer occasionally and this happens to be the subject of our first letter from D. Lindsay of Lancashire.

He writes to ask if his Sony Hit Bit has a built-in timer? Well the short answer is no, but perhaps it is worthy spending *time* to explain further. Any timer which keeps track of real (24 hour clock) time needs a processing capability and power to drive it.

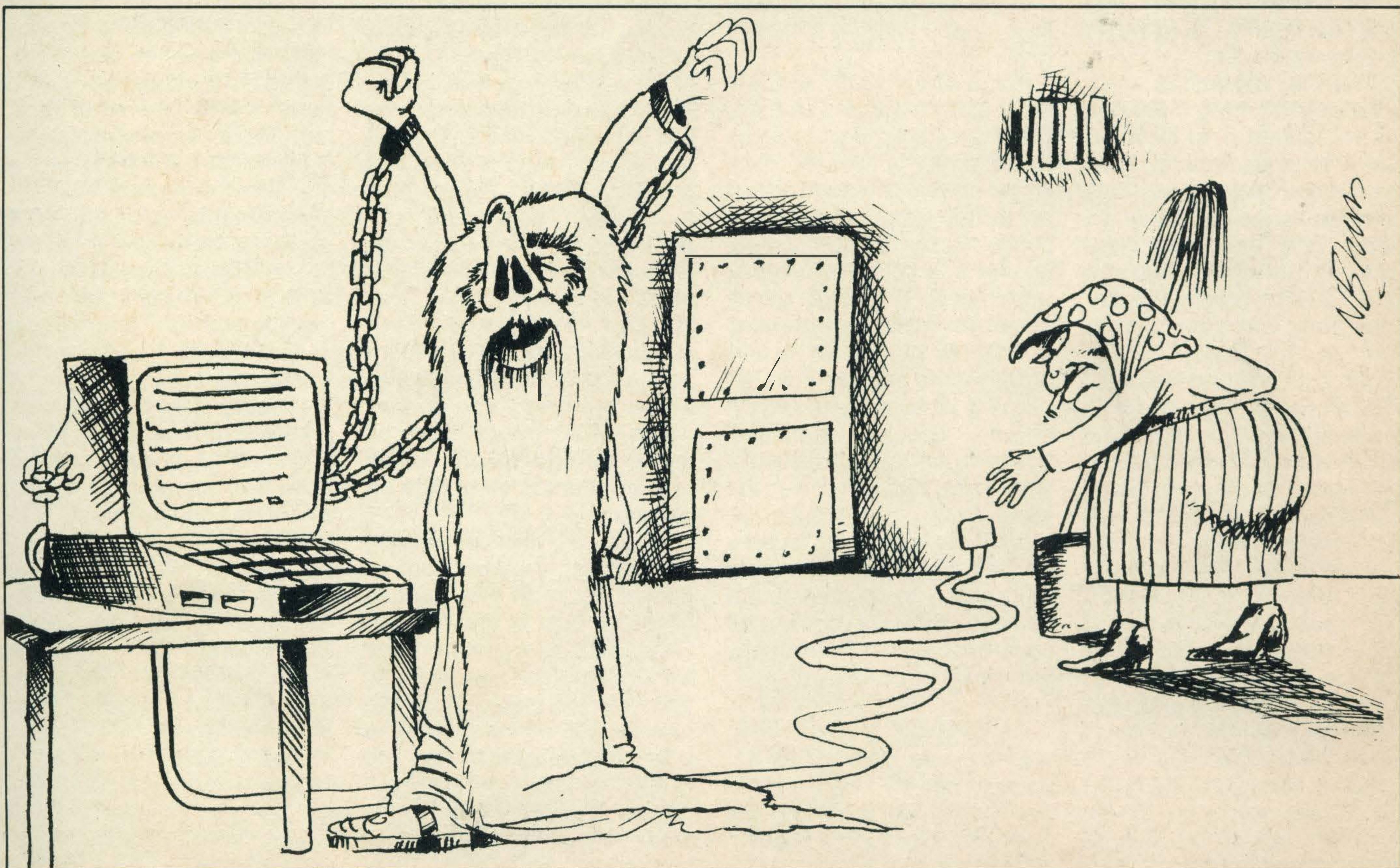
In pre-chip days, clocks were driven by a wind up spring. Now they need continuous mains or battery power to keep accurate time. The Sony Hit Bit was unique in that it provided a battery powered 4K RAM Data Cartridge system, which could be used with special organiser software in 16K ROM to create and store names and addresses etc. When the Sony MSX was switched off, the batteries in the Data Cartridge continued to preserve the contents of its (CMOS) 4K RAM.

There was no processor in the Sony cartridge and so the passage of real time could not be measured — although this facility is actually available on several computers in the business field (for example Apricot and the latest Amstrad 1512). But don't lose heart! Our MSX computers do have a time feature in MSX Basic, which is all that most of our readers will need.

Time is a reserved location in computer memory which is incremented 50 times per second — once the computer is switched on. As you can guess, the contents of this memory slot will regularly overflow as the number gets too big to hold. In fact time will reset to zero at a value of 65536 (work that out in powers of two). With that in mind, it should be a simple task to measure the passage of time. You could use this stopwatch program sequence:

```
05 '**Stopwatch**
10 CLS: TIME=0
20 LOCATE 4,21
30 PRINT "MINS SECS"
40 T=TIME/50
50 LOCATE 5,20
60 PRINT INT(T/60);T MOD 60
70 GOTO 40
```

Regular *MSX Computing* followers will remember that I used this kind of technique to measure typing speed in words





per minute (March '85). I wonder if any of our readers have an unusual time application?

Something to brighten up the longer and darker winter evenings is a touch of colour — another of the postbag topics this month. A neatly written question from Wayne Slatford and Brett Rapley in Manchester says "we are puzzled by the inclusion of the colour 0 (i.e. transparent) — why put in a colour you cannot see?"

On the same subject, David Barnes from Reading would like to know if you can — "change physical colours corresponding to their logical colours like you can do with the BBC Micro's VDU command"?

You won't always find a neat answer to the question why is this or that facility present or absent. Sometimes hardware and software designers will include something just because it's simple and cheap to implement. Only later does it turn out to be amazingly useful. The COLOR 0 (zero) looks and sounds transparent, so if 0 is going to be included in the coding system at all, it might as well be transparent — eh?!

On the BBC Micro (0=BLACK), there is no transparent colour. This means that to make something on a multi-colour screen disappear, you have to display it again in background colour.

Displaying the image again in the original foreground colour will cause it to flash or appear to move depending on its position. On MSX, you can make an image disappear no matter what the background colour by turning it transparent with COLOR 0, which is simpler to program (and remember).

In the text based screen modes zero and one the Basic COLOR codes refer directly to an actual colour (for example 6 always equals dark red). The BBC Micro, on the other hand, operates a paint palette system. In other words, you can change which actual colours are in which logical pot numbers. Your MSX system uses a similar palette arrangement to manage the colour display in screen mode two and you need to be aware of how it works to avoid smudged pictures.

Screen two has a 256×192 dot (pixel) matrix. In theory then, you should be able to PSET any of these 49152

points to any of the 16 colours (including transparent) available on MSX. This is a memory crunching task indeed and the more the system reserves for its own use, the less there is for you. Hence we have a compromise. Marginally less colour choice, and correspondingly more RAM for us.

In practice, you can select only two colours for every 8×1 (across, down) pixel block on the screen in mode two. The MSX video RAM map holds these as Background (=0) or foreground (=1). A separate two colour attribution or palette table is kept to show which two colours are allocated to which of the 6144 (8×1) pixel blocks on the screen. So what then?

Well, since MSX holds only two colours for each block, what happens if a third colour is requested for any part of an 8×1 block? You can guess, perhaps. The effect will be familiar to anyone who has tried painting with water colours. Just dip the tip of the brush onto your wet painting with another colour and it runs.

This "smudging" effect is what you might get using colour on screen two if you don't keep a careful map of which two colours are attributed to which block. The bonus is that you can change the colour scheme of any block just by pointing (PSET) at it.

For a dramatically different topic, we turn to Phillip Morris of Cheshire. Phillip even includes a brief profile of himself, which we welcome — mentioning that he started programming on a pocket Casio PB-100 computer. He has provided a handwritten program which solves quadratic equations. I think that writing his biographic details proved more exciting than debugging (or even keying in) his seven line masterpiece, however, he left out the most significant function — the square root.

MSX Basic provides an easy method of calculating square roots using the mathematical function SQR. To find the square root of 6.25 for example, just: PRINT SQR(6.25)

2.5

To calculate a fourth root, you can use (SQR(SQR(X))), but suppose you want a more general solution to the Nth root of a number X? It looks like this:

10 '\*\*Nth root of X \*\*

```
20 INPUT "x,n";X,N
30 R! = X^(1/N)
40 PRINT R!
```

Unless you use single precision variables which are correct to six digits only, rather than the usual 14, you will need to round up for a more accurate result — check it out. Perhaps our readers have developed some interesting games with numbers on MSX?

Having finally written your masterpiece, how do you prevent your friends from stopping the program and listing it — another postbag query? The short answer is to use the STOP ON and ON STOP features:

```
10 '** Security **
20 STOP ON
30 ON STOP GOSUB 70
40 PRINT "Running"
50 GOTO 40
60 'STOP Routine
70 BEEP
80 FOR Z=1 TO 999:NEXT
90 K$=INKEY$
100 IF K$="?" THEN END
110 RETURN
```

Remember to include your own method of ending the program or you will be forced to use the rest switch!

On the subject of graphics, G. White of Rochester has been trying to dump Hi Resolution screens to his Canon T-22A thermal dot-matrix printer, but has been unsuccessful so far — can our readers help?. *MSX Computing* would also like to hear from everyone who has experience of creating and producing hard copy of graphics screens. Please write to us with details of your particular hardware/software technique and see your name in print.

So far this month, we have mentioned time, colour, numbers, security and graphics. But I have received more queries about MSX music than all these, so in reply to many readers, here is an update on the scene.

Musically inclined *MSX Computing* readers on a budget will know that you can now use most of the Yamaha CX5M music features on any MSX computer. Details of how you can connect Yamaha's new SFG05 sound module to your MSX appear in the November issue of *Yamaha X Series Owners Club Newsletter*. Any MSX owner with an interest in music should be-

come a member — apply to: Box 494 Bletchley, Milton Keynes. Membership fee is £5.

Another Yamaha product in tremendous demand is the FB01 Sound Generator. This can be MIDI connected to any multi-channel music software system (for example the EMR Performer) to produce up to any eight of 240 preset FM stereo sounds of DX7 keyboard quality. At under £300, this is a multi-timbral heart stopper!

Yamaha and EMR will also be producing editing packages for original FB01 voice creation in time for the Christmas market. Watch out too for a nippy new Playcard system — music on credit? This multi-track fun/teach product will be on special offer to X Series members for £25 — is this a record and can you tell the difference?

CX5 (or MSX+SG05 system) owners are eagerly awaiting Digital Music Systems DMS1.2 package, confidently expected for release by Christmas. Expect a full colour, touch sensitive, 16 track music composition system, with windows and mouse option, designed for use with the SG05 sound module, but with facility for i/o from any MIDI instrument.

This is the first of new series of integrated music modules for the CX5 from DMS, which will include a sound sampling system, score writer and multi-cartridge expansion unit. Watch out for reviews of these and other music products soon.

Remember, if you are having any Basic programming problems, are having trouble with a particular technique or have a tip you'd like to pass on why not write to us. We can't guarantee to solve every problem as Basic does have its limitations, but we'll do our best.

Unfortunately we can't give personal replies, but as many enquiries as possible will be answered through the magazine. The address to write to is Basic problems, *MSX Computing*, 38-42 Hampton Road, Teddington, Middlesex TW11 0JE.

References:

Electro Musical Research (EMR) Ltd, 14 Mount Close, Wickford, Essex SS11 811G. Tel: 0702-335747.

Digital Music Systems (DMS) Ltd, 182 Wilmslow Road, Heald Green, Cheshire SK83BG. Tel: 061-436 4799.



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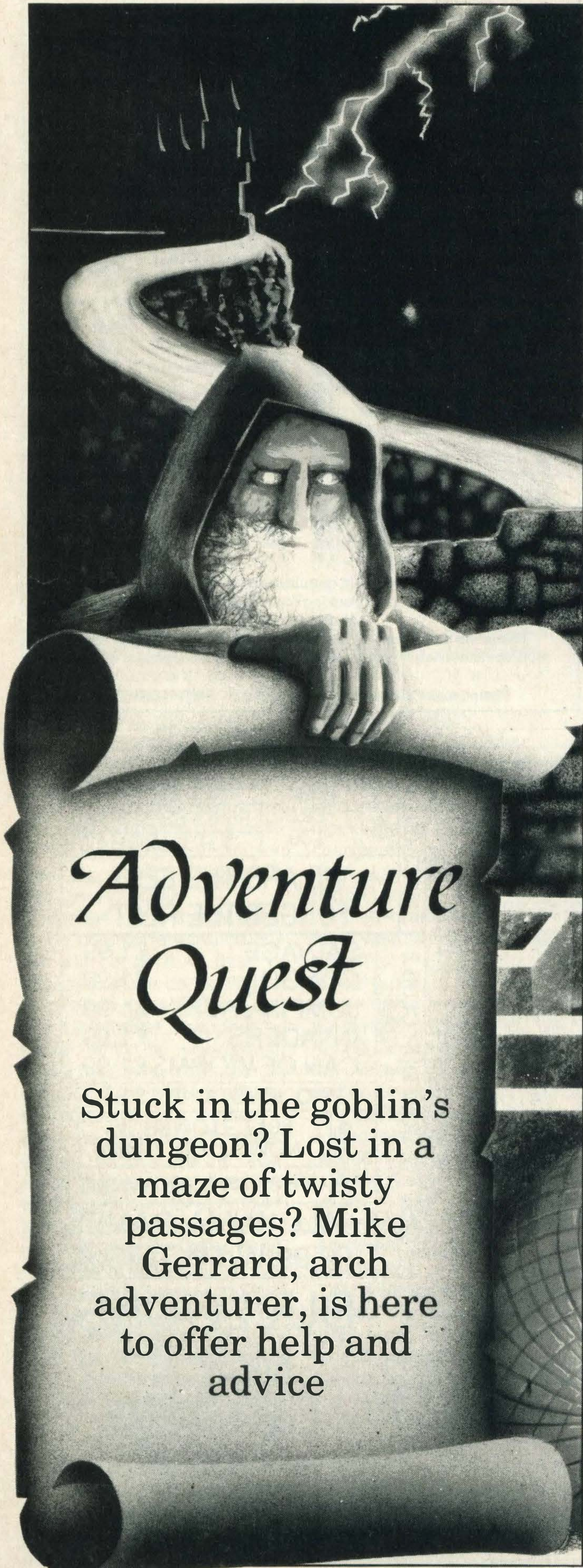
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## Adventure Quest

Stuck in the goblin's dungeon? Lost in a maze of twisty passages? Mike Gerrard, arch adventurer, is here to offer help and advice

**A**s the editor's pinched the new adventure *Castle Blackstar* for his software pages, I'll concentrate on your letters and throw in some clues . . . including several for *Castle Blackstar*, a game I've seen and enjoyed on other micros.

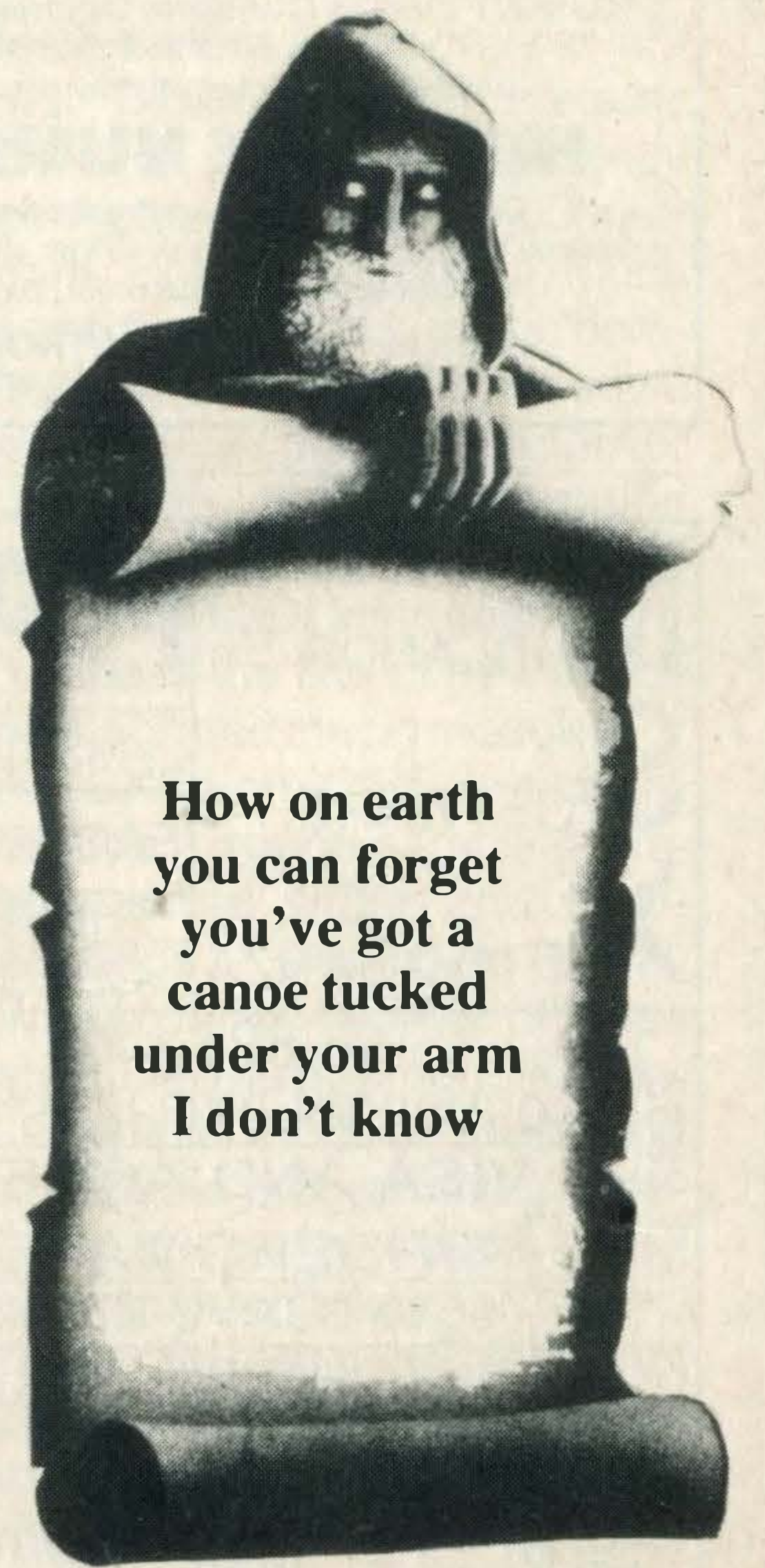
Level 9 games are all available across a range of machines, too, and Bob Fitzgerald of Bearsted is having trouble with a couple of them, *Emerald Isle* and *Snowball*. Having been told that he needs a long rope to deal with the statue's arm in *Emerald Isle*, he now can't find the rope! That's to be located: TNEMUNOM EHT WOLEB XELPMOC EHT NI. If you can't reach that set of locations, a bit of leverage will get you there: EUQALP EHT WOLEB TSOP EHT TRESNI. Bob's also looking for an idol in the same game, and that is: SNIUR TSEROF EHT NI TPYRC EHT DNOYEB.

In *Snowball*, Bob's problem is simply getting started. He's got beyond the very beginning, which often has people stumped for a while, till they try typing KOOL RO ENIMAXE, but when he goes above the elevator and tries cutting a tube he always dies. Try not cutting the tube for a change! The start of *Snowball*, usually slows people up so I'll give some answers to this one, and give them forwards, so anyone about to embark on the game should skip the next paragraph.

If you go out of the mortuary at the start of the game, you are continually hounded by the nightingales, and as you can't beat these very easily the answer is to get away from them somehow. The way is to PRESS BUTTON at the mortuary entrance, doing it three times (any button will do), and this produces another coffin in the mortuary. You can climb on this and go up to the next level, which you'll discover is almost identical to the first. In fact you're now on the grey level of the spaceship, as opposed to the white level where you began, and the nightingales here don't patrol quite so regularly. You can gauge their movements by watching the messages on the screen about

clanking noises, and by doing this you can keep out of their way. This allows you to explore these corridors a little more, and to send you on your way I'll tell you to look out for a button on the floor.

On to something a little easier, and that's *Zakil Wood*. Not my favourite adventure, but lots of you bought it judging by the requests I've had for copies of the clue sheet. Sunil Bhavnani from sunny Neasden asked how to get into the cottage after crossing the river at the start of the game. That's a fairly straightforward EGATTOC RETNE, but you'll only get in provided first you remember to EONAC EHT PORD. How you can forget you've got one of those tucked under your arm I don't know.



How on earth you can forget you've got a canoe tucked under your arm I don't know

Nor do I know why S. Robinson, who lives in Sunderland, is having trouble with typing the command GET LEAVES when reaching the Path of Eternal Sleep in *Zakil Wood*. When he tries this he's told that he must drop something first, which is not necessarily unusual in itself except that this happens when he isn't even carrying anything! Sounds like a bug in the program to me, as the command to GET LEAVES should work quite straightforwardly. Has anyone else experienced this problem, and discovered if



there's a particular set of circumstances that triggers it off? If so, let both me and S. Robinson know. He or she lives at 3 Coastguard Station, Roker, Sunderland SR6 0PD, and I live in a cage in a damp dungeon in the basement of Haymarket Towers, where the editor throws me the occasional dead rat as a reward for my adventurous endeavours.

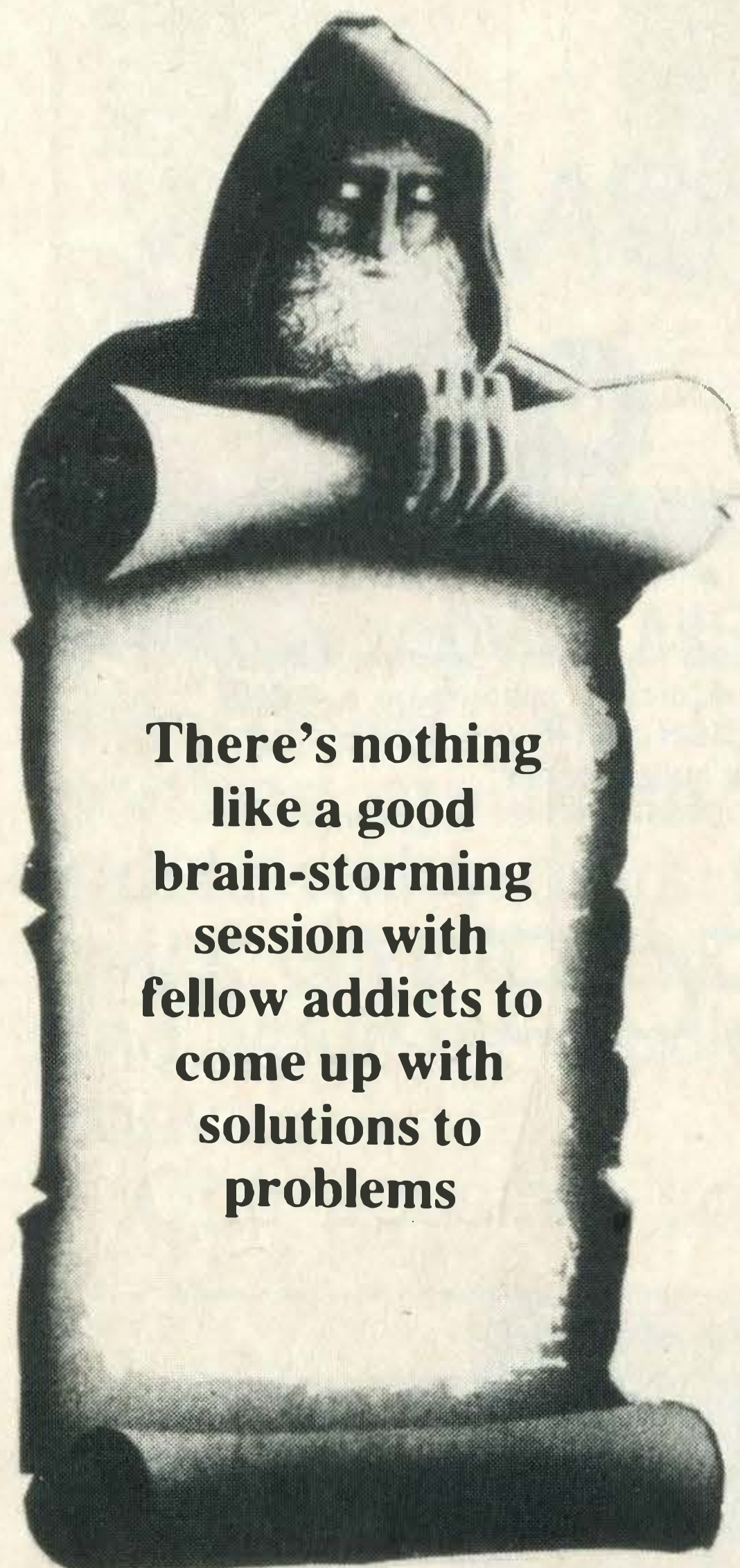
Andrea Murdie's puppy has strange eating habits too, or should that be strange eating hobbits? That's because it chewed up her instruction leaflet for *The Hobbit*, and she wrote to me to ask if I had a spare copy. I suggested she contact those awfully nice Melbourne House people, who I'm sure will be happy to help, and then she can contact Barbara Woodhouse for advice about the puppy. Adventures are difficult enough without that kind of problem to contend with.

Andrea, who's ten, was also enthusiastic about Bug-Byte's adventure, *Journey to the Centre of the Earth*, even though she found it fairly easy and polished it off in about three weeks after school hours. She found it well set out and very playable, and thinks it gives people in her age group an insight into adventure games. She's also kindly supplied some clues, as well as the passwords needed to start the final three parts, though I can't imagine anyone having too much trouble finding these out for themselves. However, just in case, the password for part two is TNECED, for part three TFIRDA, and for part four NRUTER. If anyone wants a copy of Andrea's complete solution to the game, send me a stamped addressed envelope and I shall oblige . . . such generosity.

Neil Hayes wrote from Merseyside to ask how to get into the complex in Lothlorien's *Special Operations*, and as this isn't a game I've played much myself I hope someone will write to Neil to help him out. His address is 27 Borrowdale Road, Bebington, Wirral, Merseyside. We've covered how to get into the compound in that game in earlier columns (which you've probably since used to line the gerbil's cage),

but not how then to get into the complex. If someone can provide a complete solution to that game then let me know, and I'll make it available as another freebie. Who knows, the best solution might even earn the sender a Level 9 adventure.

If you've solved an adventure and are prepared to help other readers who may be stuck, let me know, and I'll print your address. The same applies if you're looking for adventure pen-pals, or seeking other MSX adventurers in your area. There's nothing like a good brain-storming session with fellow adventure addicts to come up with solutions to problems . . . or even just a good moan about being stuck in the same place.



Gavin Kruse is stuck in *The Worm in Paradise*, wondering how to get tickets for the boat, get to a party, and find himself a job. Firstly some general advice on this game, as it's not one with a set solution that's identical every time you play it. Only the very early part is constant, and there are lots of random elements governing the later stages, not to mention things that you the player can do which create new problems for yourself not covered by any conventional 'solution'. One piece of advice is to be sure to be home before the curfew is in

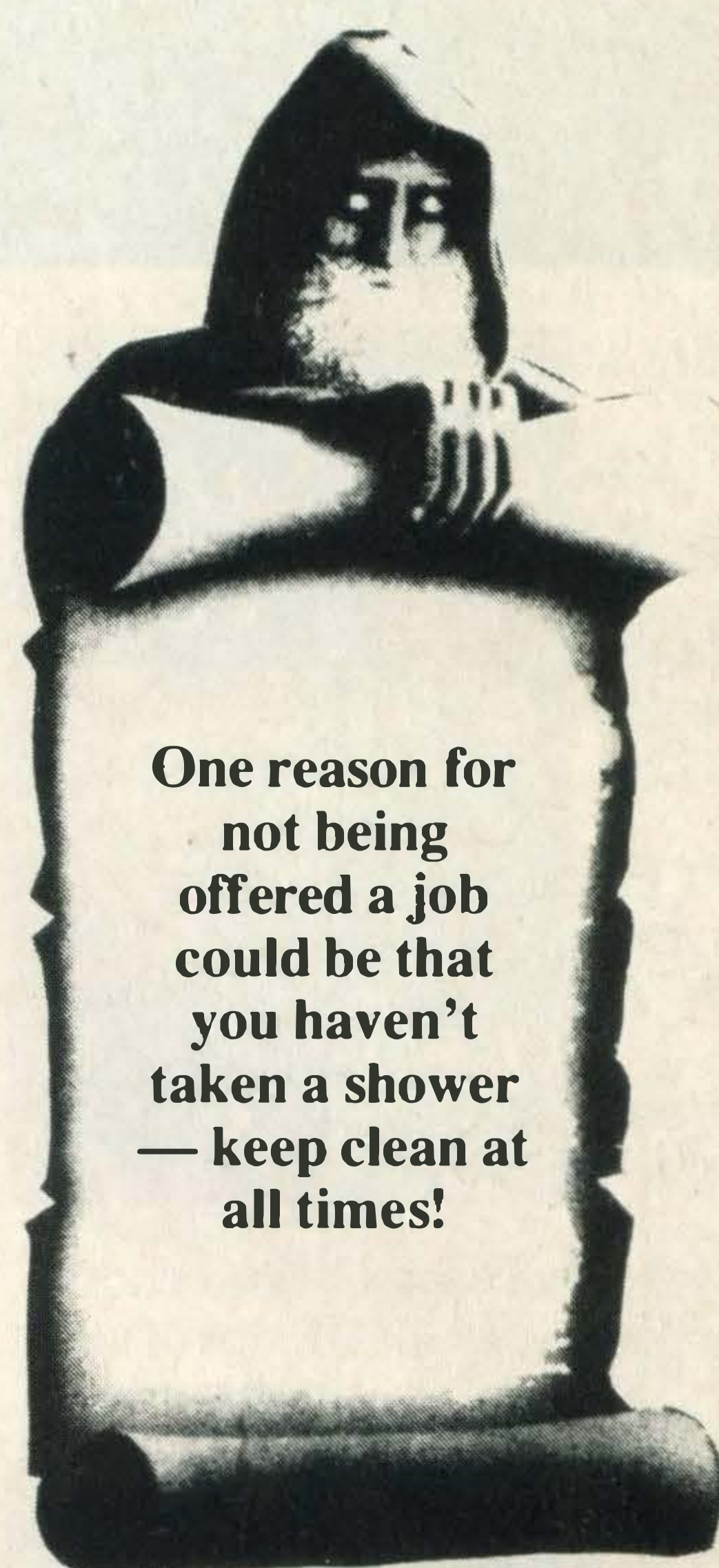
force, and also don't attempt to start a job too late in the day or the Workstation Droid will reject you. Never be in debt, either, as you can't afford to pay the fine and complete the game, so keep an eye on your creds.

For a job you'll need to know where the Government Job Centre is, and the details of this will be given out on a TV advert. TV ads will also tell you about a travel agent (for the tickets Gavin asked about), a florist and a hardware warehouse. Another piece of advice is that the time system in the game is governed by a decimal clock, where 'five' is midday and 'ten' is midnight. Curfew is from ten till three the next morning. Each hour consists of a hundred minutes, and if you type WAIT that passes ten minutes of time, while any other command that you type in causes one minute to pass.

On the job front, you should go to the Jobcentre and take a job as a clerk. Don't accept a YTS or YOP job, and if you're not offered a clerk's job you should keep trying, though one reason for not being offered one could be that you haven't taken a shower in your Habihome—keep clean at all times! You should also progress to better jobs as time passes.

Gavin also asked about the party at the Temple. For the invitation for that you need to go to the Socialist's Habihome, the location for which is found by examining a brooch. You must take your faithful Dagget with you, and this will find the invitation for you.

Some of these comments will also help reader Jeremy Stocks, who asked me various questions about the adventure, and who also asked me to print the answers backwards so he could choose which ones to read rather than read them all. In a game like this, though, some answers are so long that it's impossible to print them backwards. What I can tell you, though, is the use for the Batpak you asked about: TEGGAD NI TRESNI. Spilling wine when opening the bottle at the party: DAETSNI EMOH TI EKAT. Where to get the valve: RERUOBAL A ERA UOY NEHWESUOHERAWERAW-DRAH NI YUB.



Jeremy's final two questions were how to cross the ravine and how to get the scale off the Behemoth. These two are linked, and again it will have to be given forwards so be warned. Once the Behemoth wakes and starts to chase you, you can hide in the thornbush thicket close by, and at this the creature lumbers past and will fall into the ravine. You can then cross the ravine on its back, taking the scale as you go. and see what happens then! Finally those clues on *Castle Blackstar*. Map the forest maze by dropping objects. It contains: SNOITACOL LAICEPS EERHT. These are: ELPMET DNA ETARG, GNIRAELC. To get past the drawbridge: WORRA ERIF. To get the eggs from the aviary: NILOIV YALP. For this you need: WOB DNA NILOIV. Use of the gold ring: SNOGARD DNA SEVRAWD OT ELBISIVNI UOY SEKAM.

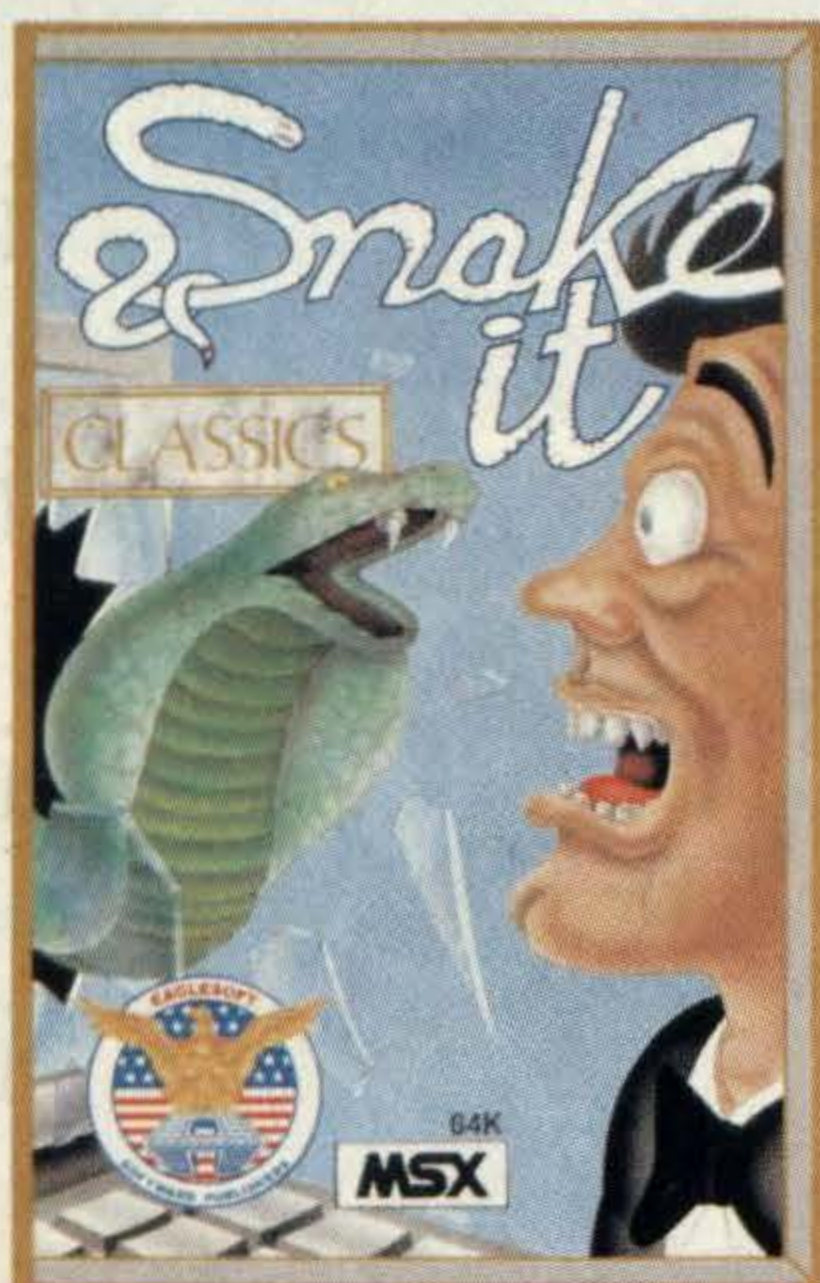
I can see the bottom of the page approaching, so it just remains for me to say: EMIT TXEN UOY EES.

STOP PRESS: the editor informs me that the best complete solution to *Special Operations* received by 5th January 1987 will in fact win the Firebird/Level 9 *Jewels of Darkness* trilogy. Entries must be your own work.

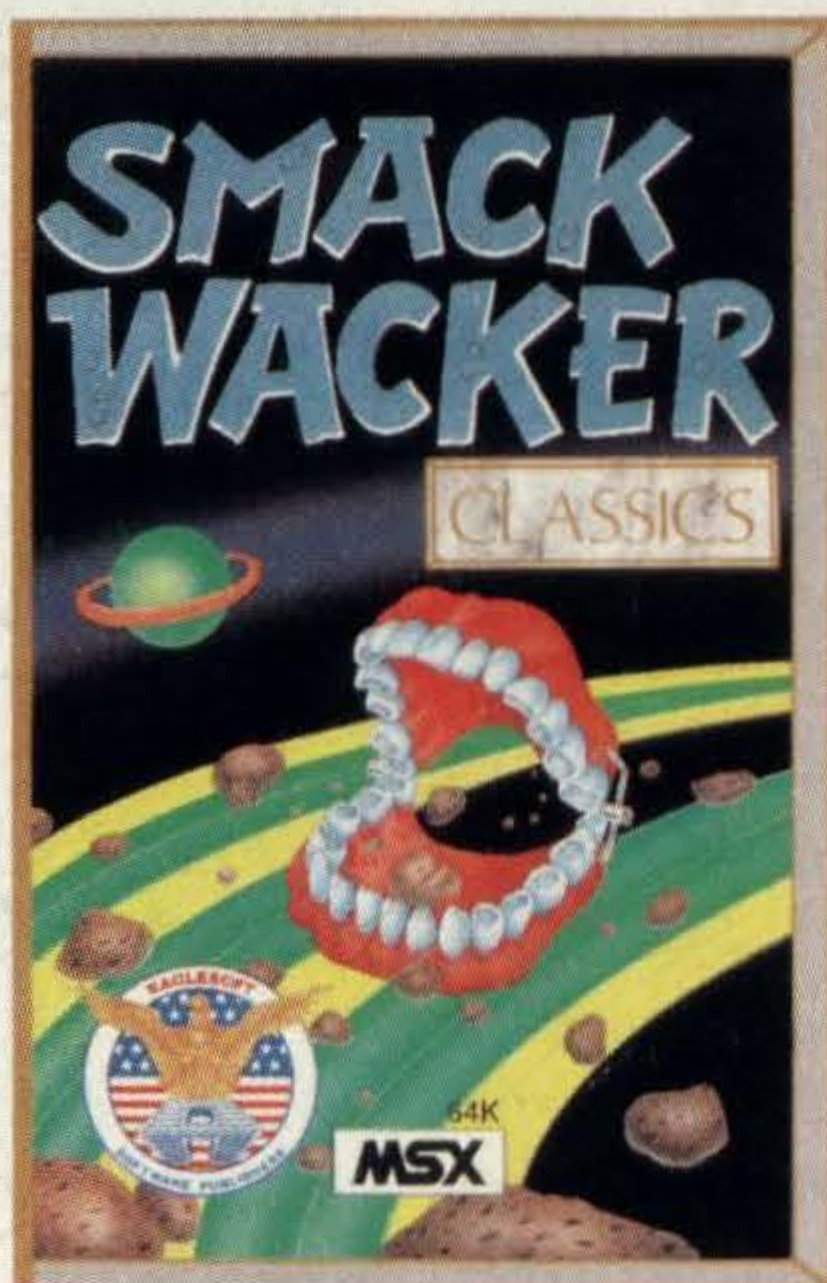


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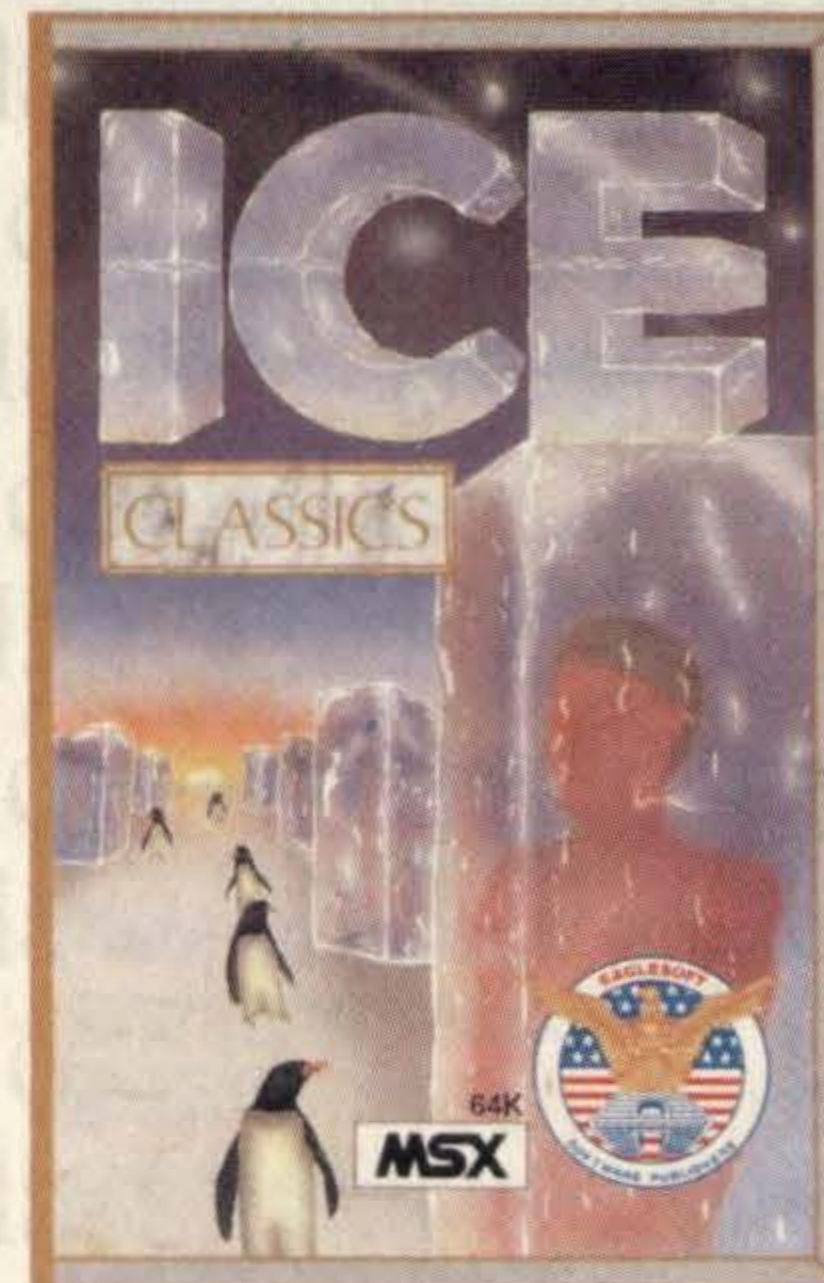
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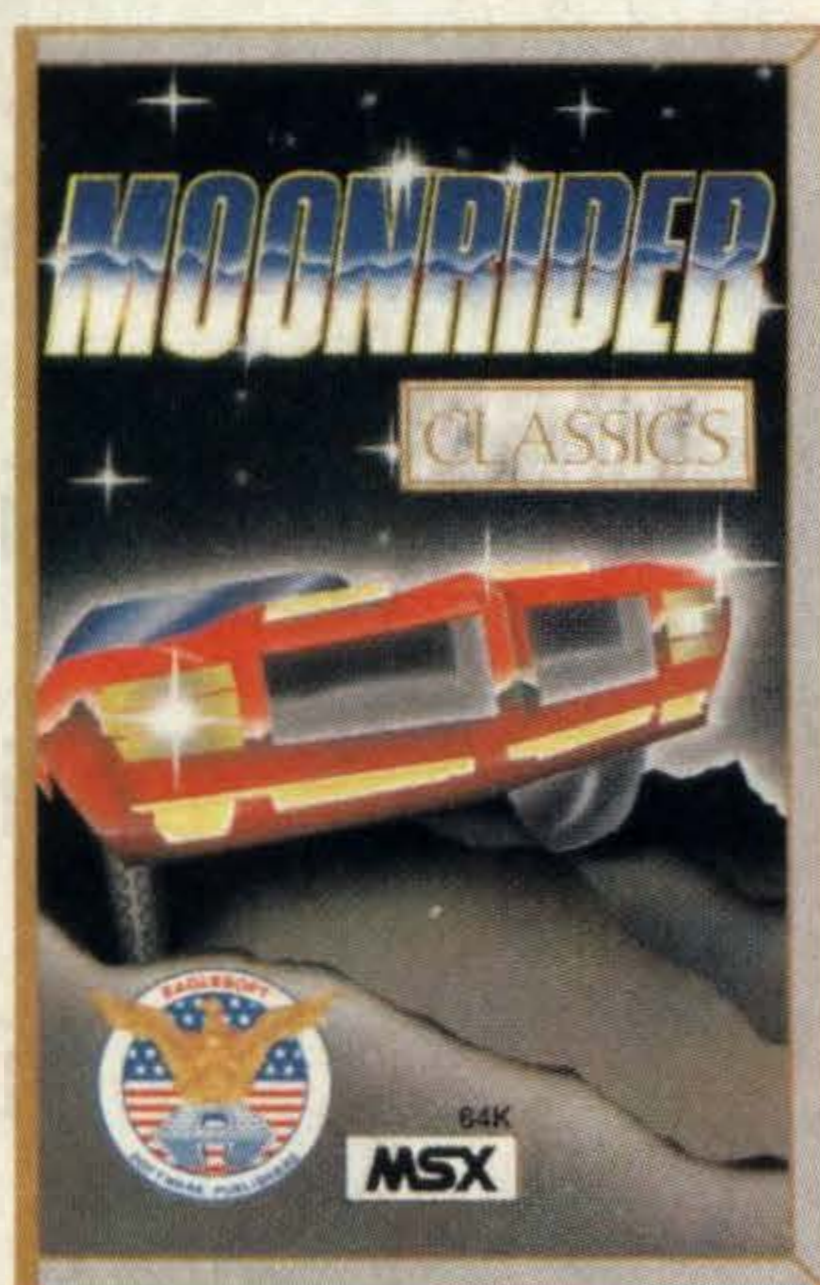
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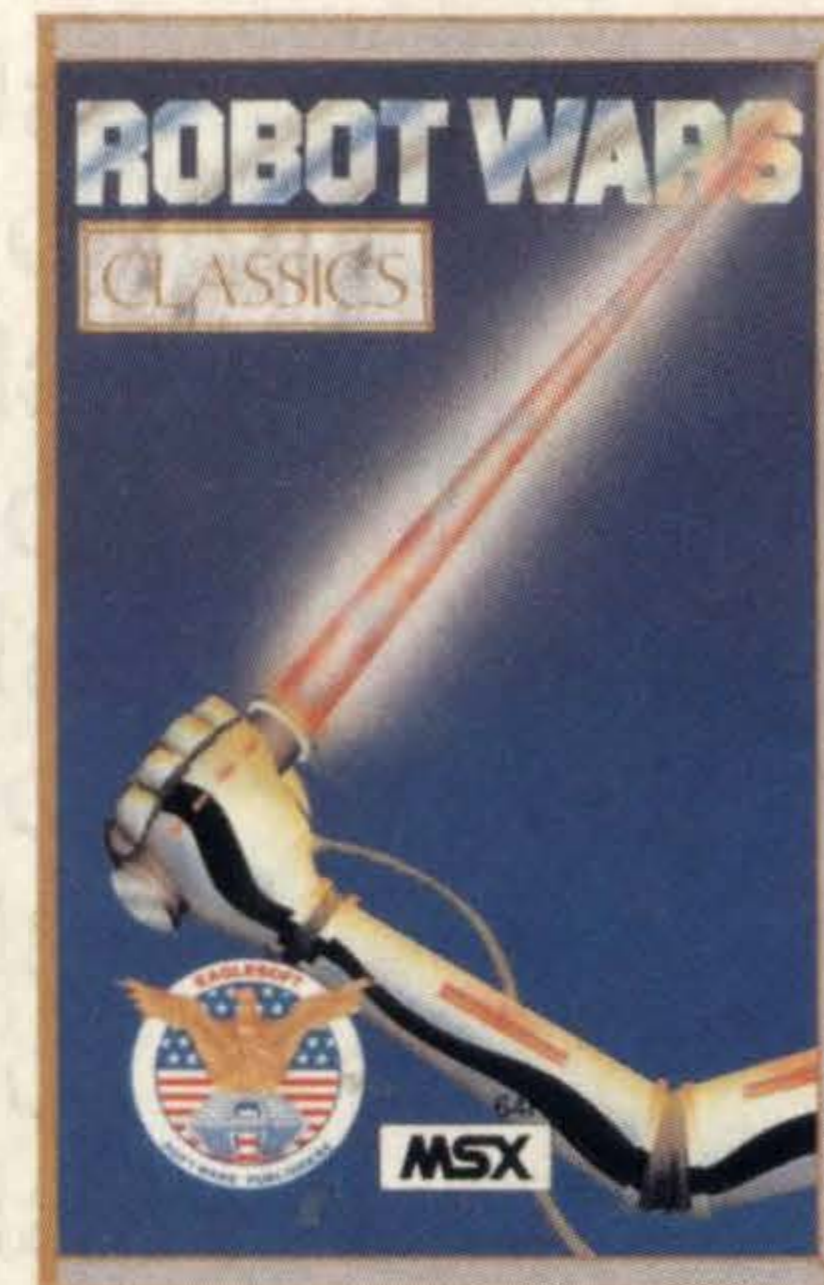
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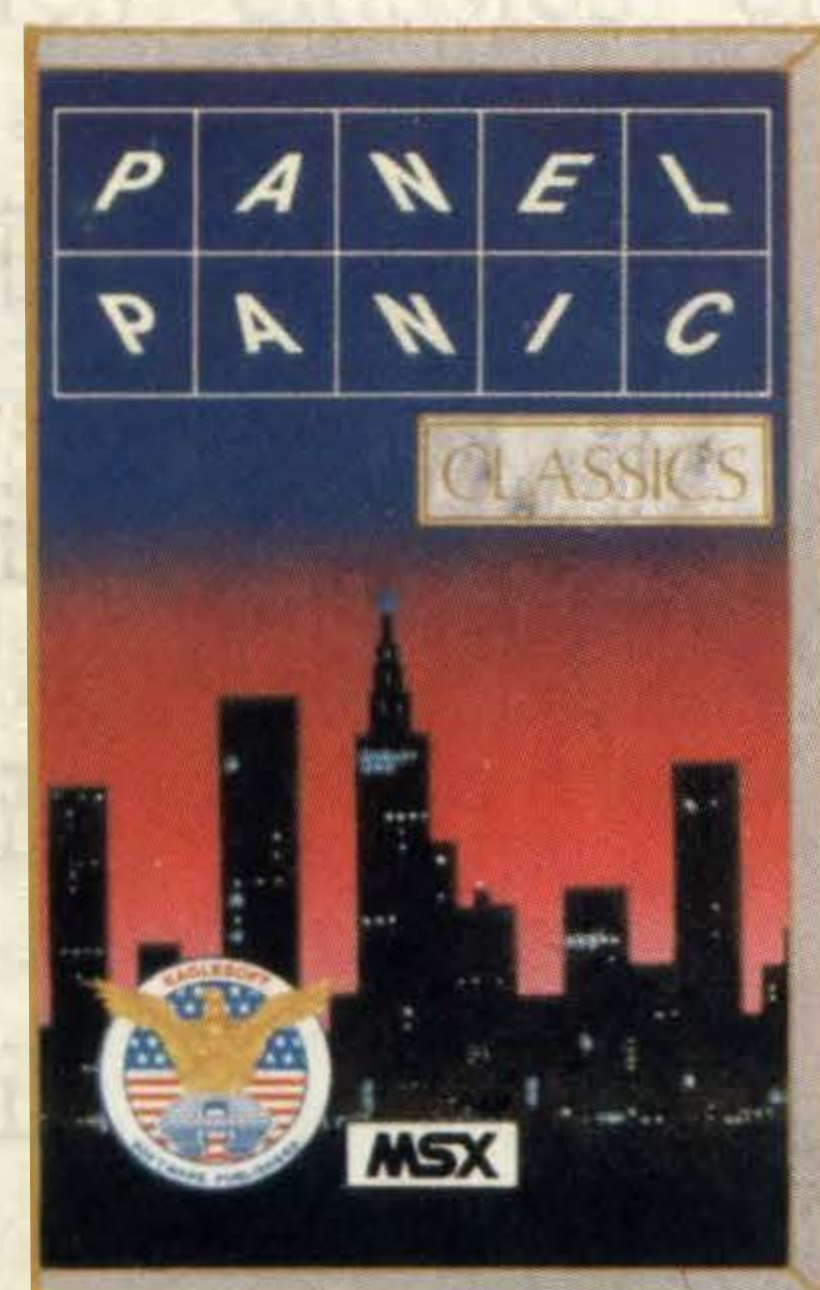
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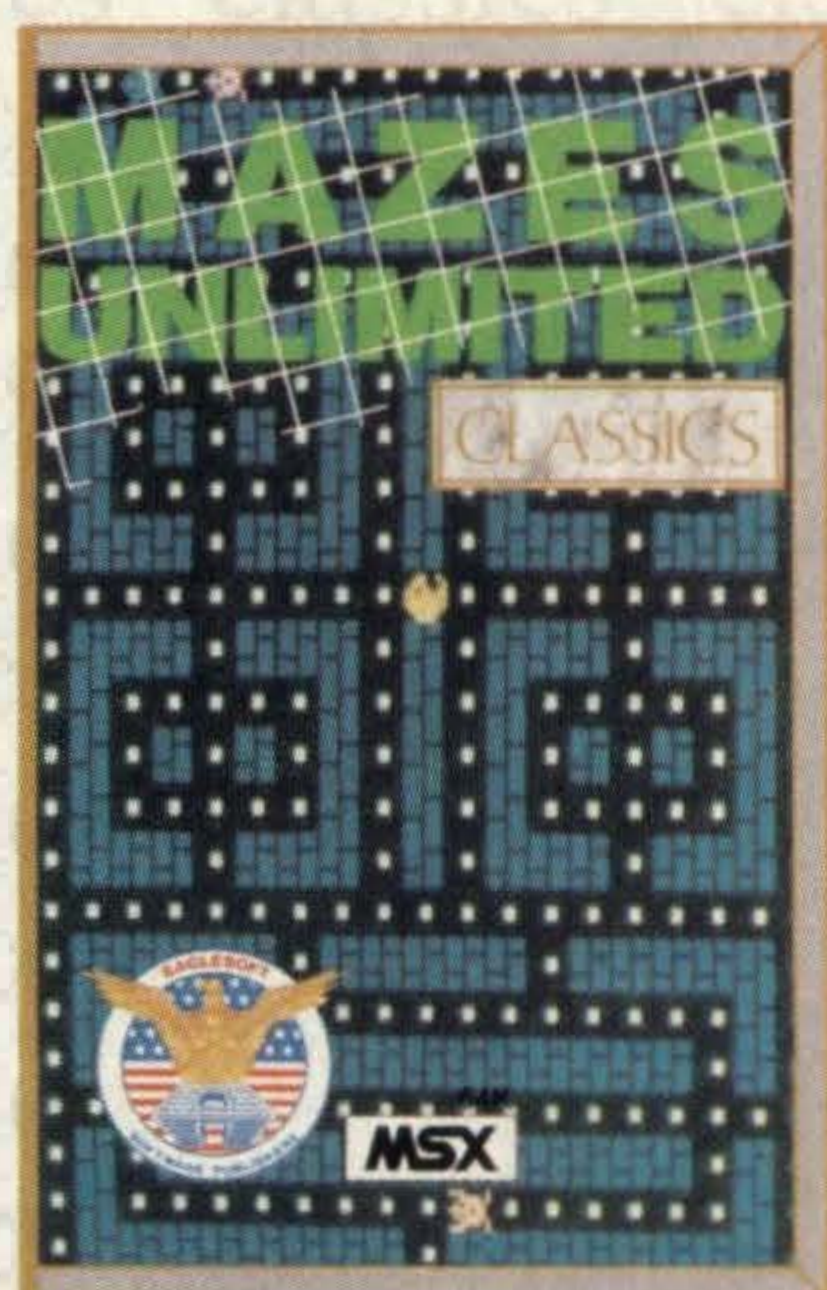
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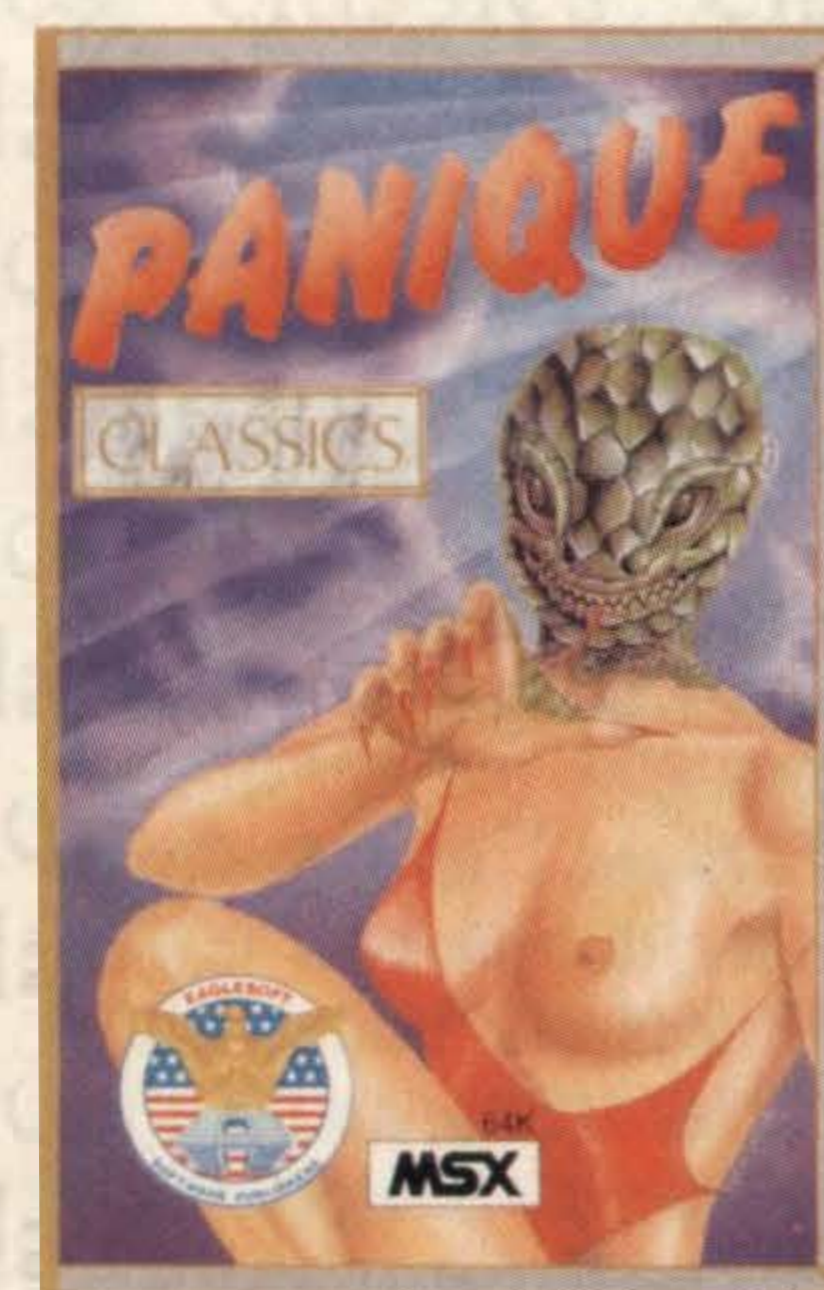
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# READ ALL ABOUT IT

## June/July 86

Beyond Basic — the first steps to more advanced programming with other languages. Typing in readers' listings — where to look if you run into difficulties, and some hints on sending in your own program-

## August/September 86

Yamaha's new software for the CX5M II revealed, plus an explanation of MIDI. Programming hints to help you get the best from your disk drives. Making the Spectravideo Xpress work for its living, by a satisfied user. Compact printer — the near

If you've missed these issues of *MSX Computing* and want to get hold of a particular feature, help is at hand.

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Listed below are the currently available back issues with a brief description of the major features, tests and reviews in each. All issues carry software reviews and listings.



JUNE '86



AUGUST '86



OCTOBER '86

letter quality Brother M-1109 tested.

Sony's SMC-T11 tested — a possible insight towards the way MSX might develop.

How to get the most from the function keys in your own Basic programs.

## October/November 86

MUD is not just an adventure game, it's a way of life. We explain.

Control a disk system using your own programs with Allan Wood.

Don't keep yourself in the dark, our Knight Tyme map helps you see the light.

Adding on a second disk drive does wonders for your MSX. We show you how.

Tim Markes examines MSX music software written by two talented enthusiasts.

## EVENT QUEUE

Early deadlines for this Christmas issue of *MSX Computing* mean that the forthcoming February/March 1987 issue is still in the earliest stages of planning... however, a rub on the editorial crystal ball reveals the murky outline of a Phillips MSX-2 micro.

Even if official imports do not appear, our sources believe that 'grey imports' are likely to start soon. We hope to bring you full details of the computer and its availability. There's also news of an MSX-1 micro using new cost-saving technology.

Coverage of the games scene continues with our help columns for arcade and adventure fans — keep those hints and tips rolling in!

On sale Wednesday 11th February. Contents subject to late revision.

When a copy of *MSX Computing* comes out, newsagents' shelves are often emptied of stocks within days. If you aren't quick off the mark you might find yourself stuck without a copy.

One possible solution is to

pop down to your local newsagent waving a very large axe, and suggest politely that he increases his order. But we recommend a second method — so much more civilised — your own personal postal subscription to *MSX Computing*.

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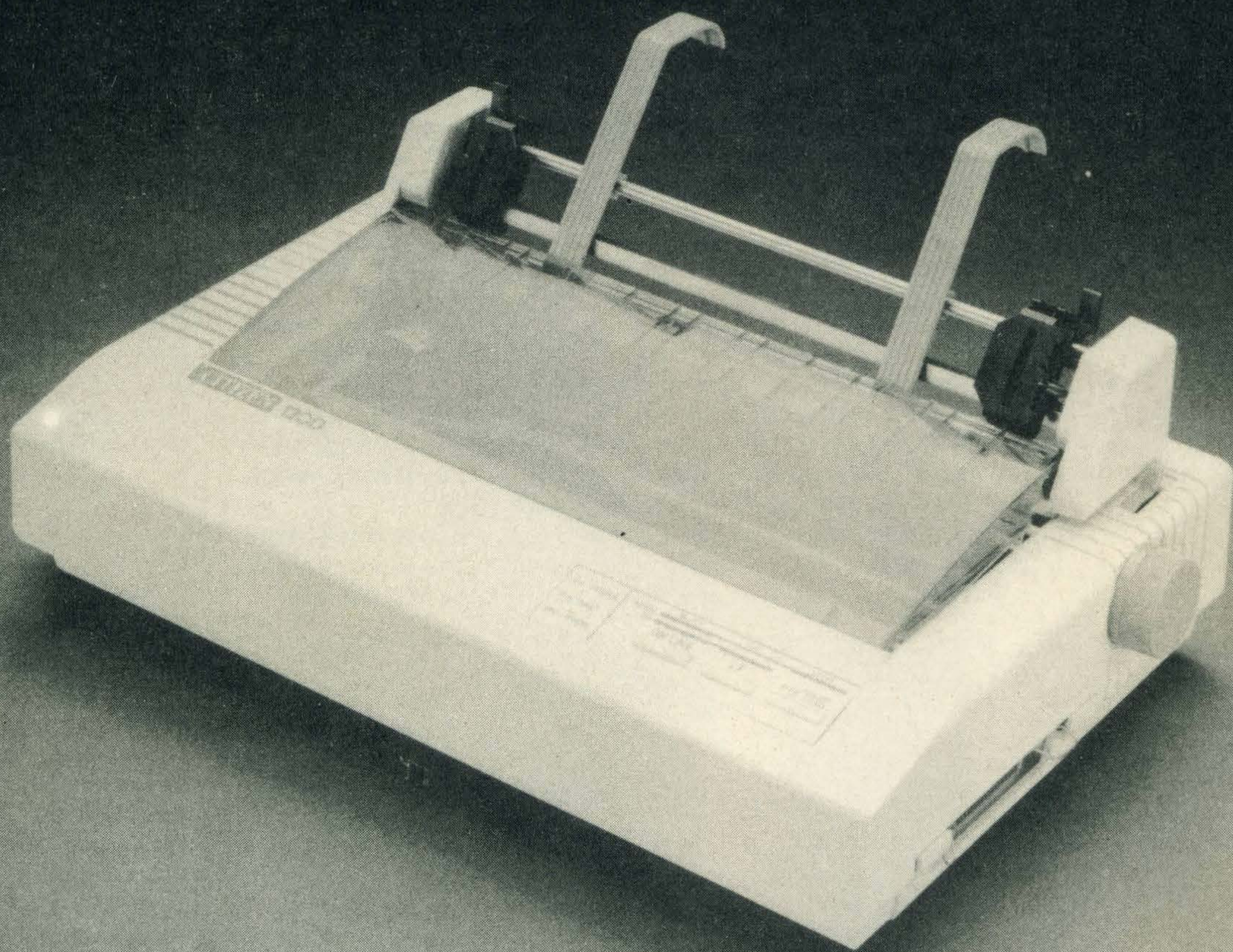
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# BUDGET PRINTING

**W**hat's noisy, expensive and takes up valuable room on your desk? The answer is, of course, a printer. If you didn't know the answer, the chances are that you haven't got a printer, in which case read on. The rest of you can go back to debugging, or playing games or whatever else it is you do with your computer.

Choosing a printer isn't easy, especially if you get bogged down in the terminology (for which we have a less polite name, but the editor probably won't let me print it).

To help you out we've put together an interesting selec-

*Hard copy costs hard cash, but Steve Mansfield has his eye on some low-cost options*

tion of printers, from the very inexpensive to the moderately inexpensive.

Which printer you finally go for depends on too many variables for us to pick one of this bunch as the best choice. What we've tried to do is select a representative range and give you some idea of the kind of features you can expect in the various price brackets, with a

ceiling around £300. The list is by no means exhaustive, but it should be instructive.

If the opening description has put you off printers, take heart — things are changing. For example, printer prices have come down and are still dropping. Or, if you're prepared to pay, you can get features which were just a glimmer in a printer designer's eye a couple

of years ago. As for the last bit of the description, once you've got a printer you'll find it's worth every square inch of that valuable space.

For any serious computer application a printer is essential. If you use a word processor you'll need some way of committing your pearls of wisdom to paper — unless you're going to invite all your friends round to your house to read the words on the screen. You might improve your social life that way and decide to give up mucking about with computers altogether, but check the idea out with the rest of the family first.

Any self-respecting busi-



ness program will include an option to dump the facts and figures it manipulates to a printer. That saves your accountant having to fight his or her way through all the people reading your novel on-screen, in order to work out how much you owe the Inland Revenue. Of course, having bought a computer you now can't afford an accountant, but let's not worry about that here.

Programmers also find printers invaluable. It's a real strain scrolling up and down the screen in a desperate search for a recalcitrant bug. Once a program is down in print it's amazing how those syntax errors just leap off the page at you.

So who doesn't need a printer? Well, anyone who only plays games. But you wouldn't do that, would you? Or even if you do, you probably wouldn't want to admit to it, so having a nice, shiny printer sitting next to your micro is one way of convincing people that you're serious about this computing business. Printers have a high bluff factor.

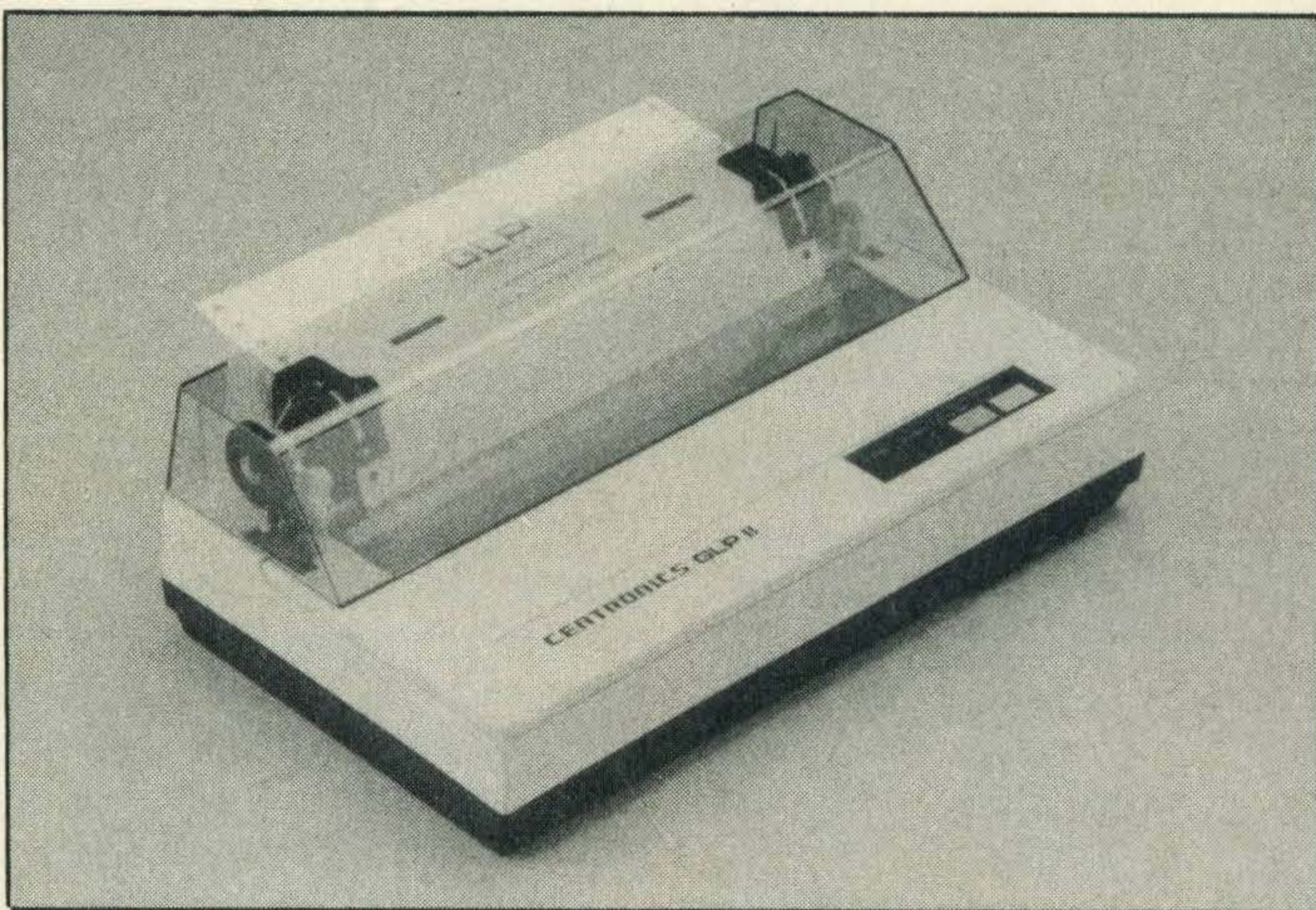
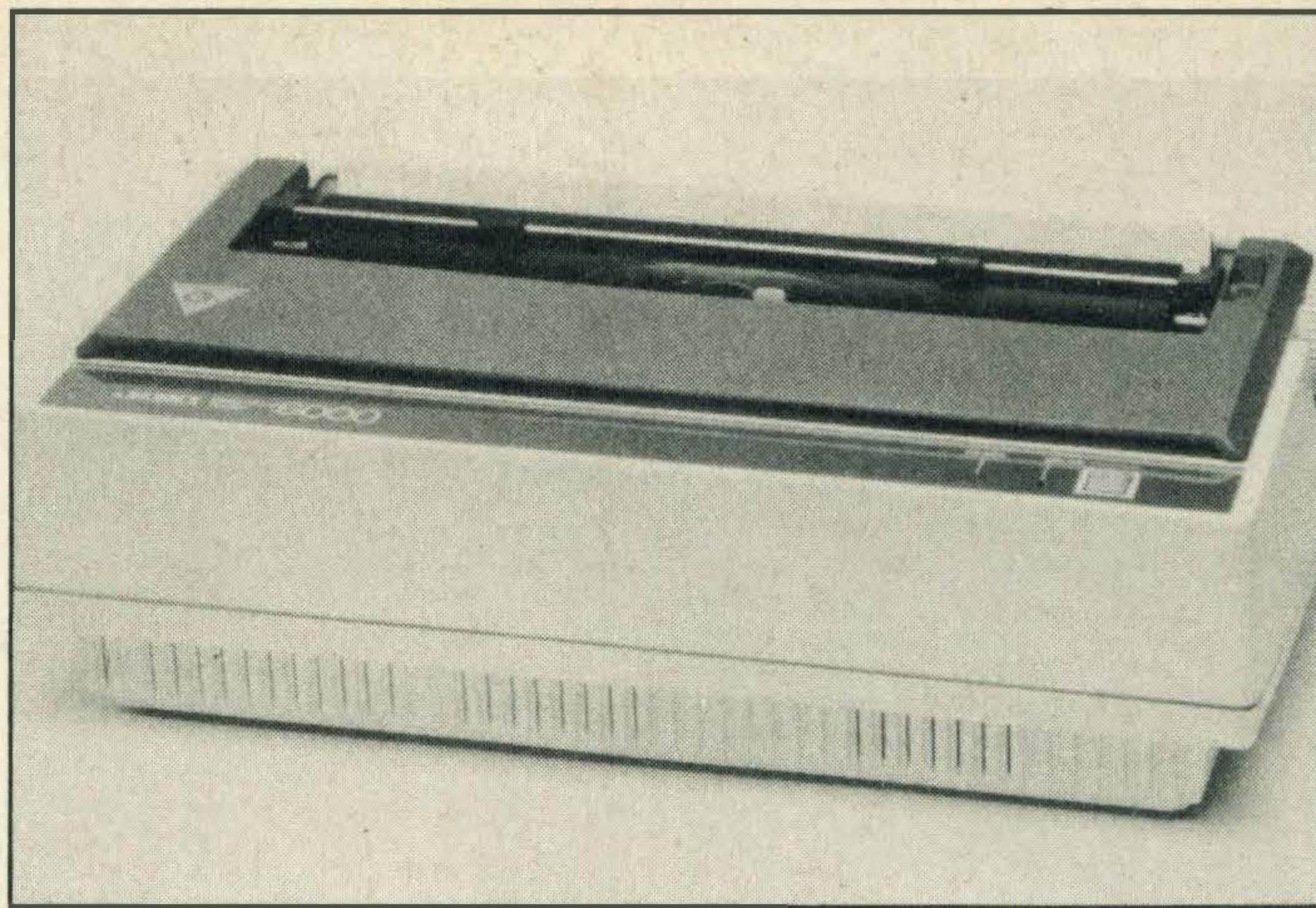
Of course, buying a printer is an expensive way of impressing your friends. Hanging furry dice in your Ford Escort is far cheaper, although it doesn't have the pizzazz of new technology.

The one thing that determines the cost of a printer more than any other is the printing mechanism itself.

Dot matrix printers, which are by far the most common type, use a row of pins which hit an ink ribbon, building up the characters out of a matrix of tiny dots—so the name makes sense, really. But that kind of precision doesn't come cheap, so before we get into normal dot matrix printers let's have a look at an alternative.

That alternative is the thermal printer which uses heat sensitive paper. The printing heads on this kind of device are much simpler and so tend to be a lot cheaper.

The Epson P-40, for example, should cost you around £95. Possibly the most interesting feature of this miniscule device is that it's portable, running off batteries. That's probably of little interest to MSX owners, as you're still going to have to find somewhere to plug in the computer. But it must have seemed like a good idea at the time as far as Epson was concerned, especially as that



**Top: Juki 6000. Above: Centronics GLP II**

company markets a battery-powered laptop micro.

The P-40 will give you reasonable print with its  $9 \times 6$  matrix, albeit on narrow paper. As well as the standard pica-style characters this machine will come up with emphasised, enlarged and condensed fonts.

It's not up to producing classy letters, especially as it uses tacky thermal paper, but it's more than adequate for program listings and hard copy for your own records. In spite of the narrow paper you still get 80 characters a line with the standard font. That's handy when you're printing listings as it prevents too many program statements being broken over a couple of lines.

There's just one snag, however. Epson, in its infinite wisdom, has just decided to drop the P-40 from its range, so if you do find one of these printers make sure that you get any accessories you need—like a mains power unit and rechargeable batteries—straight away. You might not be able to find them in a few months.

Star's STX-80 is another thermal printer, but has the

advantage over the Epson of taking wider paper. Like most thermal models it's very quiet, and in spite of being cheap produces quite good quality type. Part of the reason for that is that it uses a  $7 \times 9$  matrix which gives more detailed characters than you get from most printers of this type.

It's a little limited when it comes to typestyles, however. You get a choice of normal or enlarged—that's it.

At 60 characters per second (cps) the STX-80 is reasonably fast yet it has the one real advantage of thermal printers—it whispers. Try holding a telephone conversation next to a normal printer as it spews out text and you'll realise what a boon a quiet printer can be.

The Citizen 120D might not be particularly quiet—it is, after all, a standard dot matrix machine. But it has a few other things going for it. For a start, it has that magical attribute to which so many printers aspire these days—near letter quality (NLQ).

Unfortunately, the term NLQ has a wide range of interpretations in the printer manufacturing community. With top of the

line dot matrix printers, like Epson's LQ series, costing in the region of £500-£600 upwards, the phrase means exactly what it says—that the quality of the print is very close to the letter or correspondence quality that you get from something like a posh electric typewriter.

It's a bit much to expect that kind of quality from a printer which only sets you back a couple of hundred, but the Citizen has a pretty good stab at it. As well as the NLQ mode the 120D will, if you ask it nicely, come up with emphasised, condensed, expanded and double strike modes. It will also provide super- and subscript and underlining.

Hidden inside the machine are a load of chips which can save you a lot of hanging around. These are memory chips used as a buffer. Printers without decent buffers stop the computer sending characters while they print the ones they've already got. As printers invariably print slower than the computer sends out data the result is a micro which does a lot of waiting and not a lot of computing.

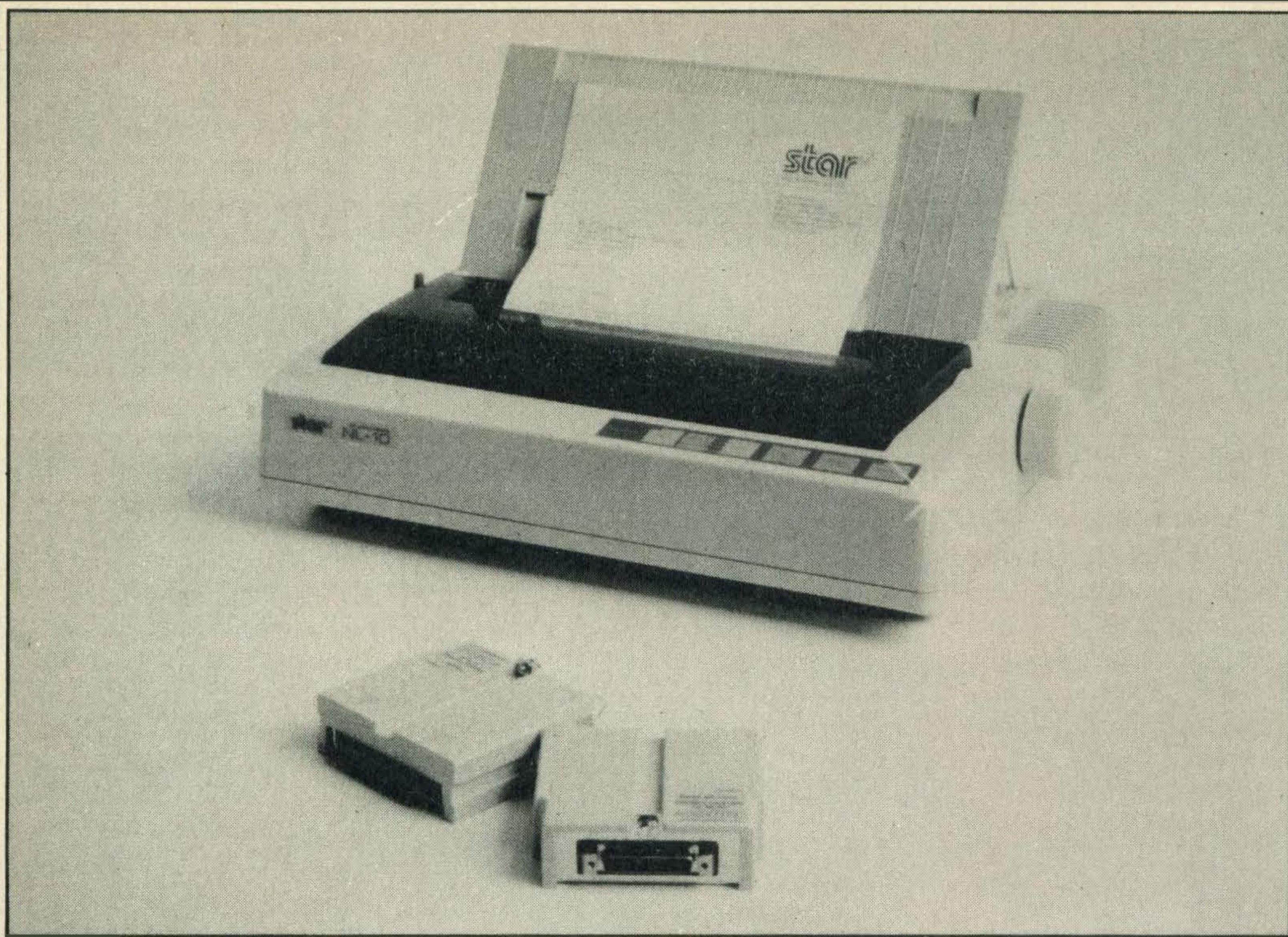
A buffer takes as much data as it can handle, feeding it to the printer when it's ready. Once all the data is dumped into the buffer the micro is once more free to do your bidding while the printer plods away. The Citizen has a generous 4K buffer which is equal to a reasonably large word processed document or Basic program.

Another interesting point about this machine is the interface. Most micros talk to their printers through a parallel interface, mainly because it's fast. But there are occasions when a serial interface is required—because the micro hasn't got a parallel port, is using it for something else or is talking to the printer through some other device which happens to be serial, like a network.

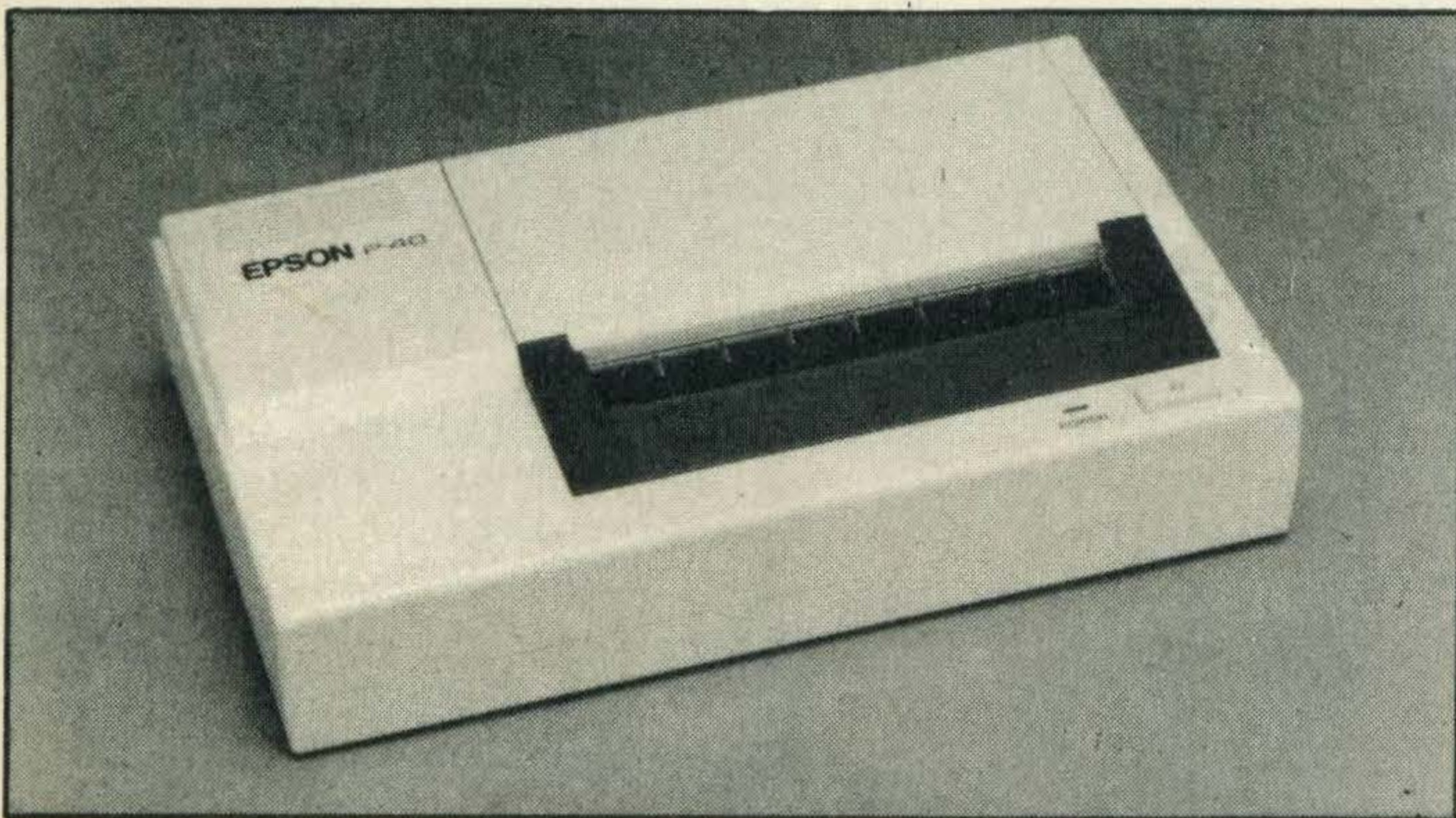
For those reasons the majority of printers are available in serial or parallel versions. The trouble is that once you've chosen which you want, and have handed over the required dosh, it can be a little difficult changing to the other type—short of replacing the main circuit board in the printer.

To overcome this, many printer manufacturers are providing interchangeable interfaces on their machines. In some cases the interface comes ex-





**Star NL10 with plug-in interfaces**



**Battery power with the Epson P40**



**Britain's contender: the Samleco DX-85**

tra, which is worth bearing in mind when you're budgeting for your printer. That's the case with the Citizen 120D. It does mean, however, that changing interfaces is a comparatively easy and inexpensive job, and the change isn't permanent.

The 120D is one of a bunch of printers now available around this price range which offer virtually everything you're likely to need, except for making coffee and advising you on your grammar. These are general-

purpose machines which can do most jobs with reasonable quality and reliability.

Another contender in this arena comes from Centronics. If that name sounds familiar it's because it gave its name to the standard parallel printer interface found on most computers these days.

Whoever was in charge of modesty at Centronics obviously had the day off when the company named its budget printer — the GLP. Those

initials stand for 'Great Little Printer'. But perhaps Centronics can be forgiven a little trumpet blowing considering they invented the dot matrix printer in the first place.

The GLP is now in its second incarnation. The main improvement over the first model is in speed — the GLP II rattles along at 100cps in draft mode, which is about 100 per cent faster than the previous model.

It's a compact machine and has a few tasty design features — like a large dust cover which is clear enough to read the printed text easily. It has the obligatory fonts for a machine at this price, including NLQ, condensed and emphasised characters, double-strike, subscript, superscript, and underline.

What the GLP can't do is print all the characters you can produce on your micro. Indeed, the main disadvantage about most of the printers in this survey is that they are not fully MSX compatible.

Of course, they are all capable of handling the characters common to all micros — in other words, the ASCII character set. But they can't handle the special characters, including graphics symbols, which MSX micros can so effortlessly produce.

The one possible exception is the Samleco DX-85. This uses interchangeable interfaces with versions for most popular home and business

micros. One of these is for MSX machines, but you will need to check availability at the time of purchase — you may have trouble getting hold of one.

Even without the interface, the Samleco is worth considering. It has all the usual features plus automatic paper loading and a fast print speed, at 120cps. It's also a British product in a predominantly Japanese market.

Another good competitor in this medium price bracket, although not British, is the Shinwa CPA80+, which can also be found under the Micro P badge. It's another NLQ machine with its main feature being a buffer option — you can have 2K or 4K.

The CPA80+ is a good, all-purpose printer with perhaps its main attraction being that it comes from a reliable stable, through a distributor — Micro Peripherals — which is best known for its professional services. For example, the machine comes with a two year warranty.

Although most of the current crop of dot matrix printers will give you near letter quality print, that still might not be good enough. In that case you'll want to go the whole hog and get a real letter quality printer. In most cases that means a daisywheel and a bigger over-draft.

Daisywheels use electric typewriter technology to give superb quality print. Even the best NLQ dot matrix printers have trouble matching it, but daisywheel printers have tended to be expensive. The Juki 6000, however, is reasonably priced. It's slow, fairly noisy and unsophisticated in the way of features, but what comes out of it is indistinguishable from the more expensive members of the species.

What you do get for your money is variable character pitch — that's the number of characters you get to the inch along the line — underlining and, unusually for an inexpensive printer, automatic centering of text if required.

The Citizen LSP-10 also has an interesting text feature in the shape of proportional spacing. Once again it's something that was rare a couple of years ago but is now definitely in vogue. What it means is that instead of every letter taking up the same amount of line space, regardless of whether a letter is a capital 'M' or a lowercase 'i', the



letters are properly sized. It makes full justification in word processing difficult but the text is more readable.

The LSP-10 is generally well specified, including a very good NLQ mode and automatic sheet loading with the optional feeder. It's a machine for those who need both high quality and high throughput — a good choice as a main office printer.

With the last printer in our selection we're starting to get into the classy end of the market, although still at a price which won't bring tears to your bank manager's eyes.

The Star NL-10 has most of the features we've already talked about. It uses interchangeable cartridges containing the interface. It has a very high quality NLQ mode. And it has virtually every font your average dot matrix user could reasonably want, including italics and double and quadruple height letters.

The buffer is a very useful 5K, which means that it will take most documents in one squirt. In addition to that, printing is quite fast, clocking up a useful 30cps in NLQ mode.

The other notable feature is the ease with which you can select many of the settings — like NLQ, italics and margins — from the control panel, as well as in software.

When you select a printer there should be a few points you should check with your dealer. How much do the ribbons cost, how long do they last, and can you get replacements easily? If the printer is an unusual make, does it use the same control codes as a better-known brand, such as Epson? This will make it easier to achieve a full range of effects with some software packages. Finally, can he repair it if it goes wrong?

So that's it. Now all you have to do is talk your bank account into parting with some money.

**STAR STX-80** £79  
**TYPE:** Thermal dot matrix (7 × 9 matrix)  
**PRINTING SPEED:** 60cps  
**MAXIMUM PAPER WIDTH:** 213mm (thermal roll)  
**PAPER FEED:** Friction  
**PRINTING DIRECTION:** Bi-directional, logic seeking  
**BUFFER:** One line  
**INTERFACE:** Centronics as standard  
**DIMENSIONS:** 352 × 190 × 100mm  
**WEIGHT:** 3.5kg  
**SPECIAL FEATURES:** Quiet

**OPTIONS:** Serial to parallel converter available  
**CONTACT:** Star Micronics, Craven House, 40 Uxbridge Road, London W5 2BS. Tel: 01-840 1800.

**EPSON P-40** £95  
**TYPE:** Thermal (9 × 6 matrix)  
**PRINTING SPEED:** 45cps  
**MAXIMUM PAPER WIDTH:** 112mm  
**PAPER FEED:** Friction  
**INTERFACES:** Centronics or RS232 versions  
**DIMENSIONS:** 46 × 216 × 128mm  
**SPECIAL FEATURES:** Battery powered (comes with mains adaptor).  
**OPTIONS:** Rechargeable batteries available  
**CONTACT:** Epson (UK) Ltd, Dorland House, 388 High Road, Wembley, Middlesex HA9 6UH. Tel: 01-902 8892.

**CITIZEN 120D** £197  
**TYPE:** Dot matrix (9 pins)  
**PRINTING SPEED:** 120cps (draft) 25cps (NLQ)  
**MAXIMUM PAPER WIDTH:** 250mm  
**PAPER FEED:** Friction and tractor  
**PRINTING DIRECTION:** Normal: Bi-directional, logic seeking  
NLQ and Graphics: Uni-directional  
**BUFFER:** 4K  
**INTERFACE:** Plug-in. Centronics as standard  
**DIMENSIONS:** 386 × 240 × 90.5mm  
**WEIGHT:** 3.7kg  
**OPTIONS:** Parallel interface (£38). Serial interface (£52). Automatic sheet feeder (£90).  
**SPECIAL FEATURES:** Plug-in interface cartridges. B/W reverse image print.  
**CONTACT:** Citizen Europe Ltd, Wellington House, 4/10 Cowley Road, Uxbridge, Middlesex UB8 2XW. Tel: (0895) 72621.

**CENTRONICS GLP II** £199  
**TYPE:** Dot matrix (9 pins)  
**PRINTING SPEED:** 100cps (draft) 25cps (NLQ)  
**MAXIMUM PAPER WIDTH:** 254mm  
**PAPER FEED:** Friction  
**PRINTING DIRECTION:** Normal: Bi-directional, logic seeking  
Graphics: Uni-directional  
**INTERFACES:** Centronics and serial versions available  
**DIMENSIONS:** 327 × 195 × 71mm  
**WEIGHT:** 3.5kg  
**OPTIONS:** Paper roll and

tractor feed available  
**SPECIAL FEATURES:** NLQ mode. Small  
**CONTACT:** Centronics Data Computer (UK) Ltd, Petersham House, Harrington Road, London SW7 3HA. Tel: 01-581 1011.

**SAMLECO DX-85** £217  
**TYPE:** Dot matrix (9 pins)  
**PRINTING SPEED:** 120cps (draft)  
**MAXIMUM PAPER WIDTH:** 240mm  
**PAPER FEED:** Friction and tractor  
**PRINTING DIRECTION:** Bi-directional, logic seeking  
**INTERFACES:** Plug-in. Most available  
**DIMENSIONS:** 370 × 280 × 130mm  
**WEIGHT:** 6.0kg  
**SPECIAL FEATURES:** Forward and reverse line feed. Plug-in interfaces. Ribbon or spool option  
**OPTIONS:** MSX interface available  
**CONTACT:** Samleco Ltd, 9 Fairacres Industrial Estate, Dedworth Road, Windsor, Berks SL4 4LE. Tel: (0753) 854717.

**SHINWA CPA 80+** £230  
**TYPE:** Dot matrix (9 pins)  
**PRINTING SPEED:** 100cps (draft)  
**MAXIMUM PAPER WIDTH:** 254mm  
**PAPER FEED:** Friction and tractor  
**PRINTING DIRECTION:** Normal: Bi-directional, logic seeking  
Graphics: Uni-directional  
**BUFFER:** 2K or 4K options  
**INTERFACES:** Centronics as standard. Serial version available  
**DIMENSIONS:** 384 × 315 × 125mm  
**WEIGHT:** 5.0kg  
**SPECIAL FEATURES:** NLQ mode. Can be changed between parallel and serial types by replacing interface board inside printer  
**CONTACT:** Micro Peripherals Ltd, Intec 2, Unit 3, Wade Road, Basingstoke, Hampshire RG24 0NE. Tel: (0256) 473232.

**JUKI 6000** £230  
**TYPE:** Daisywheel  
**PRINTING SPEED:** 10cps  
**MAXIMUM PAPER WIDTH:** 300mm  
**PAPER FEED:** Friction  
**PRINTING DIRECTION:** Bi-directional, logic seeking  
**BUFFER:** 2K

**INTERFACES:** Centronics or serial options.  
**DIMENSIONS:** 415 × 222 × 128mm  
**WEIGHT:** 6.0kg  
**SPECIAL FEATURES:** Low noise. Simple operation  
**CONTACT:** Micro Peripherals Ltd, Intec 2, Unit 3, Wade Road, Basingstoke, Hampshire RG24 0NE. Tel: (0256) 473232.

**CITIZEN LSP-10** £266  
**TYPE:** Dot matrix (9 pins)  
**PRINTING SPEED:** 120cps (draft) 25cps (NLQ)  
**MAXIMUM PAPER WIDTH:** 250mm  
**PAPER FEED:** Friction and tractor  
**PRINTING DIRECTION:** Normal: Bi-directional, logic seeking  
NLQ and Graphics: Uni-directional  
**BUFFER:** 4K  
**INTERFACES:** Plug-in. Centronics as standard  
**DIMENSIONS:** 385 × 255 × 90mm  
**WEIGHT:** 3.7kg  
**SPECIAL FEATURES:** Plug-in interface cartridges. B/W reverse image print. Proportional spacing. Hex dump  
**OPTIONS:** Stand for bottom feeding  
**CONTACT:** Citizen Europe Ltd, Wellington House, 4/10 Cowley Road, Uxbridge, Middlesex UB8 2XW. Tel: (0895) 72621.

**STAR NL-10** £278  
**TYPE:** Dot matrix (9 pins)  
**PRINTING SPEED:** 120cps (draft) 30cps (NLQ)  
**MAXIMUM PAPER WIDTH:** 250mm  
**PAPER FEED:** Friction and tractor  
**PRINTING DIRECTION:** Normal: Bi-directional, logic seeking  
NLQ and Graphics: Uni-directional  
**BUFFER:** 5K minimum  
**INTERFACES:** Plug-in. Most available  
**DIMENSIONS:** 400 × 336 × 104mm  
**WEIGHT:** 6.6kg  
**SPECIAL FEATURES:** Forward and reverse micro feed. Hex dump. Front panel operation  
**OPTIONS:** Automatic cut sheet feeder. Interface cartridges  
**CONTACT:** Star Micronics, Craven House, 40 Uxbridge Road, London W5 2BS. Tel: 01-840 1800.



# ARCADE ACTION

**A**t last — we've got enough space to include all those handy hints, topical tips, adventure game maps and all those cunning methods you keep sending in to us on how to get ahead with your favourite games.

From now on, *MSX Computing* will be including any information you may care to pass on to fellow readers. We'll also print a selection of game queries and judging by the volume that we receive there are an awful lot of frustrated games players out there!

So keep the information flowing in and help a fellow MSX user beat the system. Write to Arcade Action, *MSX Computing*, 38-42 Hampton Road, Teddington, Middlesex TW11 0JE.

## KNIGHTMARE

I have just purchased the game *Knightmare* by Konami, but I can't get past the snake-headed Medusa in the first level as she blocks the entrance to the next level. I think I have tried everything.

*J. Griffiths  
Newcastle*

**Just keep shooting. She can absorb a lot of hits but eventually you will destroy her.**

## JACK THE NIPPER

I enclose a map and hints for *Jack the Nipper*.

I compiled the map after my friend and I had completed the game. Everything has been checked thoroughly and so there should be no mistakes. We hope to send in further maps and hints on other games in the future.

*Nicholas Lewus  
Colin Mangle  
Sheffield*

Rooms:

- 1 Bedroom
- 2 Hall
- 3 Jack's Bedroom
- 4 Launderette

In response to popular demand, hints and tips for those infuriating arcade games

- 5 Street
- 6 Museum
- 7 Exit (to next street)
- 8 Just Micro
- 9 Toy Shop
- 10 China Shoppe
- 11 Police Station
- 12 Jail
- 13 Museum
- 14 Gummo's Chomping Molars
- 15 Exit
- 16 Technology Research
- 17 I. Bloom
- 18 Hummo's Socks
- 19 Room behind radiator (bank)
- 20 Park
- 21 Graveyard
- 22 Park
- 23 Park
- 24 Exit
- 25 Playschool
- 26 Bank
- 27 Park
- 28 Park (Entrance to house)
- 29 House
- 30 Playschool
- 31 Room behind radiator (bank)

- 32 House
  - 33 House
  - 34 House
  - 35 Lounge
  - 36 Hall
  - 37 Kitchen
- Useful items: find the object in the first room number listed, and use it in the second.
- |                |          |
|----------------|----------|
| Washing powder | 19 4     |
| Weight         | 12 18    |
| Bomb           | 34 12    |
| Potty          | 30 10    |
| Battery        | 11 8     |
| Weedkiller     | 17 20    |
| Horn           | 33 11,30 |
| Clay           | 30 25    |
| Glue           | 4 14     |
| Credit card    | 1 26     |
| Floppy disk    | 26 16    |

The key (27) enables you to enter the secret passages behind the radiators. The peashooter (3) is useful for getting rid of irritating ghosts!

## NEMESIS TIPS

**Level One.**  
At the start of every level there are formations of ships to

destroy. Take out a whole formation and you are left with an energy capsule to remember them by. Using these capsules you can build up the appropriate amount of energy to be supplied with an extra weapon. On this level try to get multiple fire and missiles. By picking up missiles twice you get faster missiles which can't be bad. Being a basic level no problems should arise until you reach the twin volcanos: there you should position your ship directly above the first volcano, just under the roof, where you safely avoid balls of lava or shoot them. At the end of each level, most of the time there is a guardian ship. To destroy this simply weave between his shots while delivering your own. Either wear him down or hit him dead centre. Lasers are most effective now.

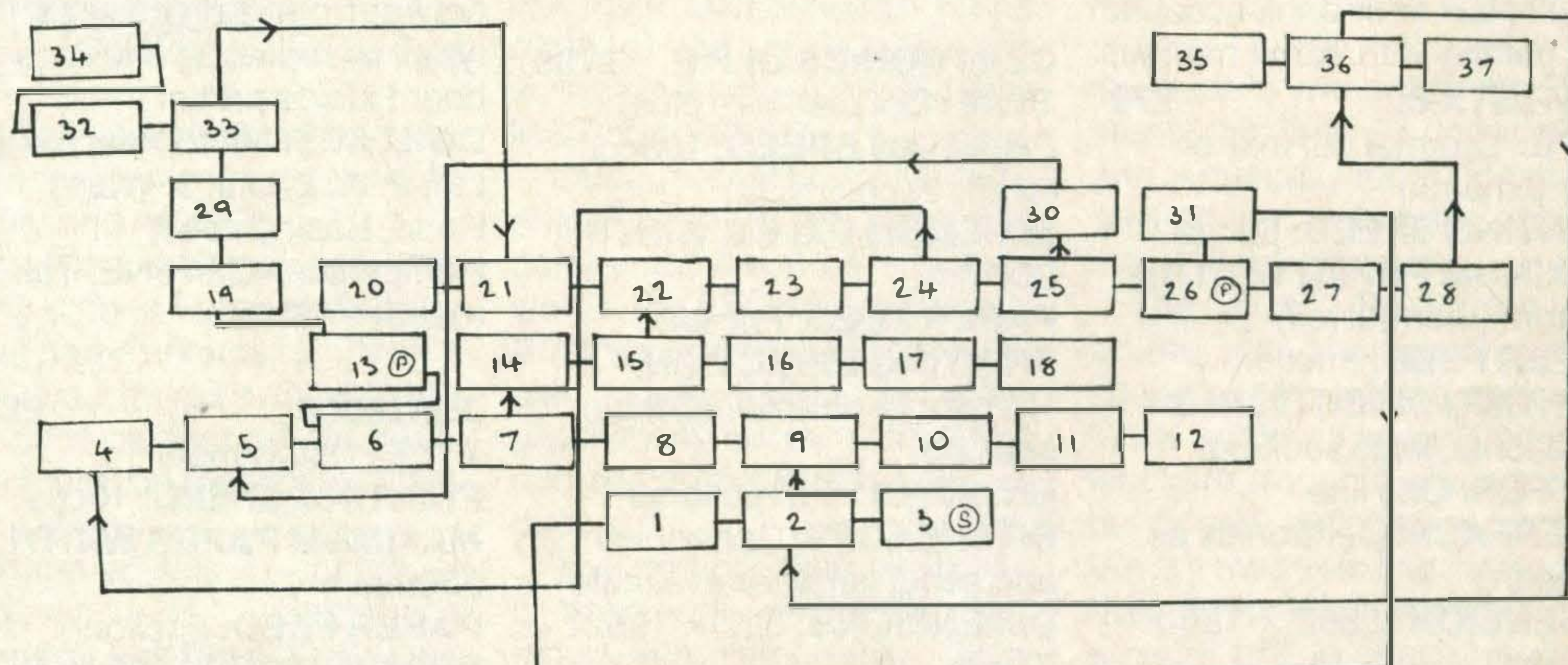
## Level Two.

Armed with lasers and missiles simply shoot away the red walls and avoid the turrets. Try to get a shield. The strange package-shaped aliens near the end can be flown through while you concentrate on blasting a hole to fly through. The next bit has yet more package monsters which materialise wherever your ship is, so keep moving. Deal with the guardian in the usual manner.

## Level Three.

Normal multiple fire and missiles are needed here, to keep a constant flow of fire into the mouths of the stone heads, thus destroying them. Hiding behind or between the heads will provide safety. The second set of stone heads standing back to back should be flown between to move you on to the bonus level which is a much better move than going on.

KEY: S — STARTING PLACE; P — SECRET PASSAGE





#### Bonus Level.

Switch to multiple double fire and missiles and go through the centre passage. With this fire you can blow a hole in the roof to reach the yellow capsules for extra bonus points. The green capsules give extra lives.

#### Level Four.

Much like level one but faster and upside down. Using multiple fire and missiles dive low under the roof volcano and move off when clear. The insect drones can be simply blasted, then avoided and finished off on their next pass.

#### Level Five.

One of the toughest levels to crack but it can be beaten if you use the enemies' weapons against them. Again multiple fire and missiles are the best weapons as you will need a constant flow of fire. Shoot at the skulls as soon as they appear, before they can shoot, and they will go down a treat. Hide behind the skulls you can't shoot in time. The skulls take a lot of shooting but do go down and the pools need to be blown up. Avoid the flying bones and the few more dragon skulls and you will be on to the next bit which is quite tricky.

Stay at the top left half of the screen to avoid the alien croissants and make sure none of the blue ball-shaped aliens get above you. Make sure you shoot as many as you can without moving too far down.

#### Level Six.

A very simple but time-consuming level which is made much easier by a technique which leaves the aliens practically harmless. Try to get multiple fire and when faced with the brains with tentacles, shoot away the red segment of the tentacle to render it harmless. If you don't have time to take out a tentacle then dive to the bottom of the screen and fly under the alien. Deal with the guardian in the usual manner.

#### Level Seven.

You must have lasers for most of this level as you have to shoot your way through. Make sure you can switch to multiple fire near the end as you will need a constant flow of fire and a shield if possible. At the end, position yourself between the two blue layers of wall so you are firing a constant stream of fire two bullets thick, with your ship positioned near the back of the screen using the blue walls for cover. Fire centrally so none of the big white aliens fire can get past your own. Soon he should

phase out and dissolve leaving you with immense satisfaction and the final level to work on.

#### Level Eight.

Armed with double fire and missiles simply push forward trying to stay as central as possible. A little speed will be needed to out-manoeuvre the package monsters and the ridiculous hailstorm of bombs. At the end of this level shoot away at one of the arms and fly through the gates before they slam on you. Now you're here shoot away the ropes holding the master brain together, and you will see . . . well, do it and see for yourself.

Finally . . . buy a big bottle of Scotch and do it again in one game. I managed to get one and a half times round before retiring.

*Nick Brown  
Farnham*

### SORCERY

I need help with Virgin's Sorcery. I have managed to free all the sorcerers, reached the fountain of life where they are waiting and received the message, "You have rescued all the sorcerers", but I noted in the April/May issue that someone sent in a high score of 109,841 and reached stage 3.

My problem is that my game doesn't have any more stages and my highest score is only 28,000 after completing the game. Is there anything wrong with my program?

*David Kelly  
Findhorn  
Scotland*

**Our mistake, David, it was a printing error. There is only one level in Sorcery and the sole aim of the game is to find all the sorcerers. The person responsible has been made to use a Commodore 64 for a week.**

### VARIOUS GAMES

I have taken time off from playing my computer to write down some hints and tips on Mutant Monty, Ghostbusters and Way of the Tiger for fellow readers.

Mutant Monty: for endless lives press RUN after line 50 of the following program and press play on Mutant Monty tape.

```
10 CLEAR 100,&H87FF
```

```
20 BLOAD "CAS:"
```

```
30 POKE#27872,0
```

```
40 DEF USR=&H9000
```

```
50 A=USR(0)
```

Ghostbusters: buy a compact, ghost bait and one trap and then sit outside GHQ. Press B on marshmallow alert and move your car only when the key and lock get close to Zuul.

When asked for account name type in CODEBUSTERS and press return. When asked for account number type in 00166605 for a million dollars. Try account name ANDY and number 777 for unlimited amount of money. When asked for name just press RETURN. When asked for code type 31222646 for 999,000 dollars. finally, when asked for name just press RETURN. When asked for code type: 614.

Way of the Tiger — Sword Fighting: 1st Warrior — keep slashing at the legs. Ninja — keep doing a head splitter. 2nd Warrior — hit him and jump out of the way. After a while you'll be able to do a continuous slash to the legs. Armed warrior — he is only vulnerable in the neck and legs. A sword ritual is effective against him and so is any move to the neck or legs.

Green Beret: the defenders who carry guns are able to walk up ladders so be careful if you are at the top of a lorry or platform. The defenders who don't carry guns occasionally start to jump, but to stop them

just jump in the air and stab them. Try to keep your weapons until the end as there is a final charge at you before you go on to the next level.

On level 2 (the harbour) go to the far left hand of the screen if you see a parachute in the sky as his bullets can't always reach that far.

If you encounter a bouncing dog at the end of the level, use the same tactics as on the defenders in the first level, but be aware that they come from both sides.

On level 3 (the bridge) run along the top and kill commandant before descending to run along the bottom of the screen. If he appears on the top while you are at the bottom, fire a grenade to kill him.

Keep three bazookas for the final stage as three men in helicopters appear. Run left and turn around when the first man descends, fire and run right. Turn and fire at the second man as he comes down and finally turn left to fire at the last one.

Level 4 (prison camp) is the hardest and longest stage. Enemy soldiers appear with flame throwers at the end. They are difficult to combat, but try jumping towards them and stabbing at them when close enough. When the three or four attackers are dead, you've accomplished the mission.

*John Burnikel  
Sunderland*

### PASSWORDS

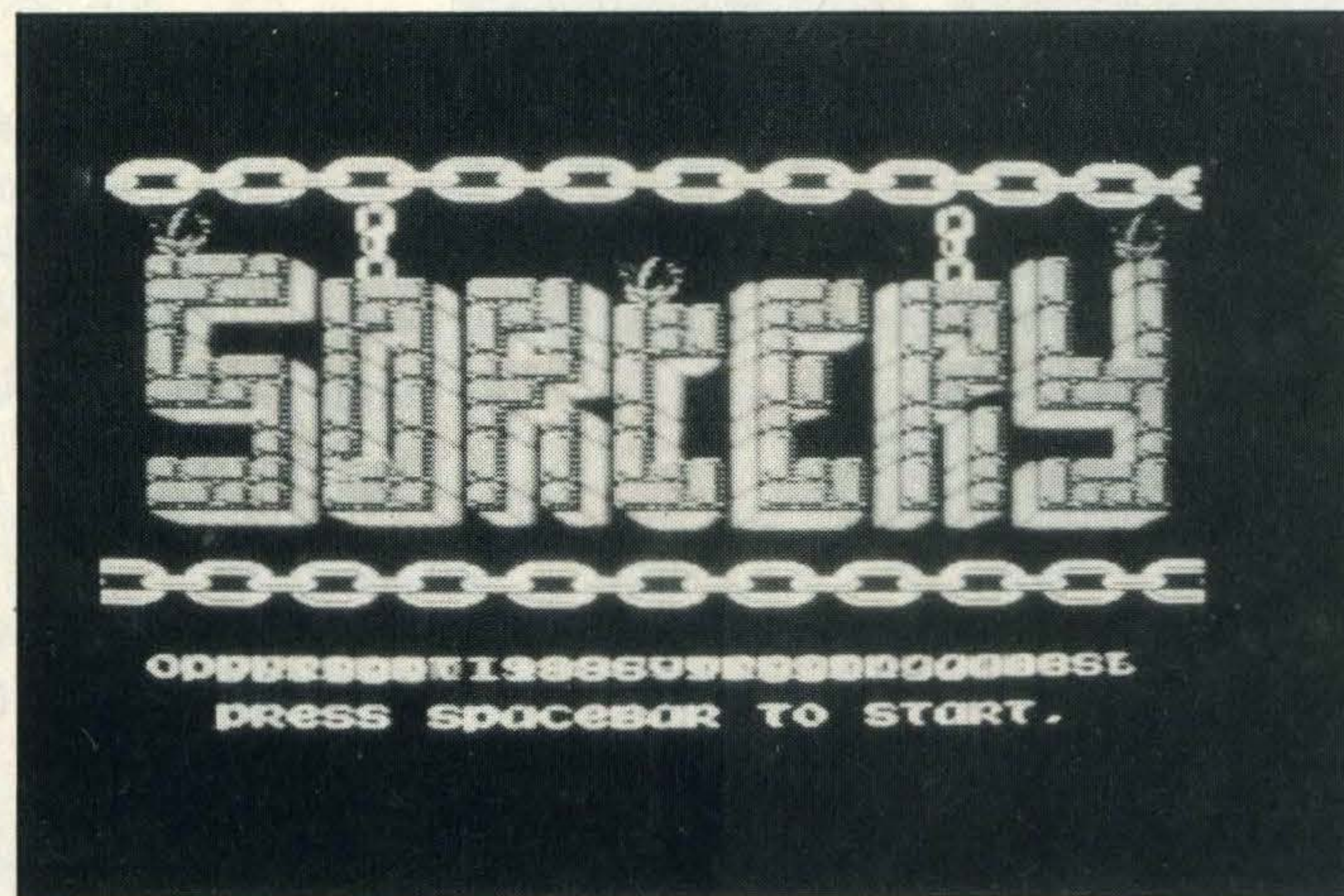
The passwords for adventures 2, 3 and 4 on Journey to the Centre of the Earth are DECENT, ADRIFT and RETURN.

On Vestron, after completing each screen, waggle your joystick frantically to avoid the heat seeking missiles.

I have a few questions too. Is there any way to load pictures designed with the Wigmore Mouse without first loading the mouse software? I compose music in Basic on my MSX and I was wondering if there is any way of getting drums to play while I'm playing Mastertronic's Formula One. And lastly does anyone have any tips on Molecule Man, Finders Keepers and Octagon Squad by Mastertronic?

*Martin Hillarg  
Bradford*

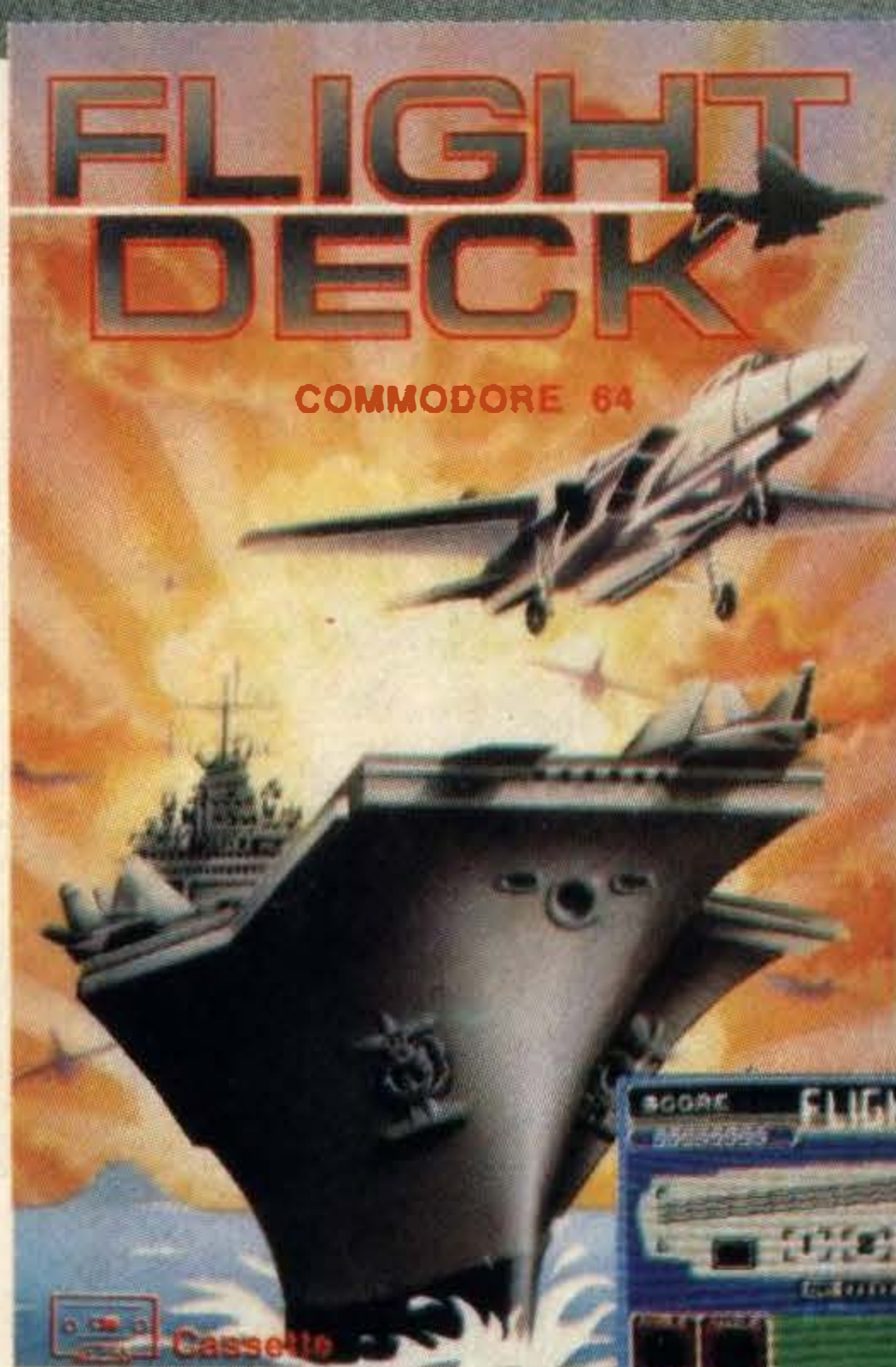
**Thanks for the tips, Martin. We know for sure that it's impossible to run your Basic drum program at the same time as playing Formula One.**



*Sorcery — only one level*



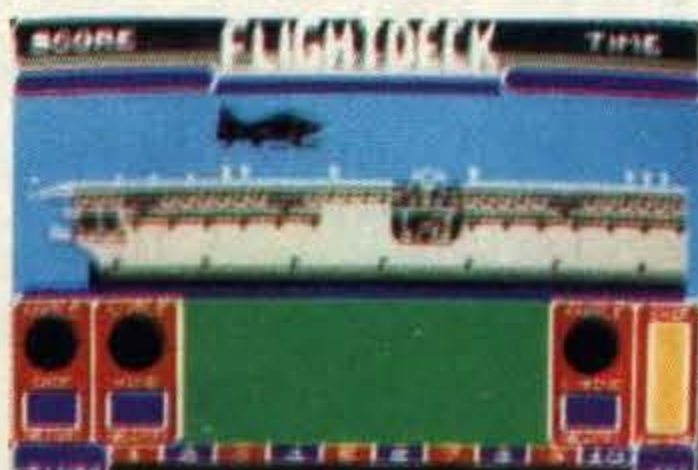
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MSX DISK  
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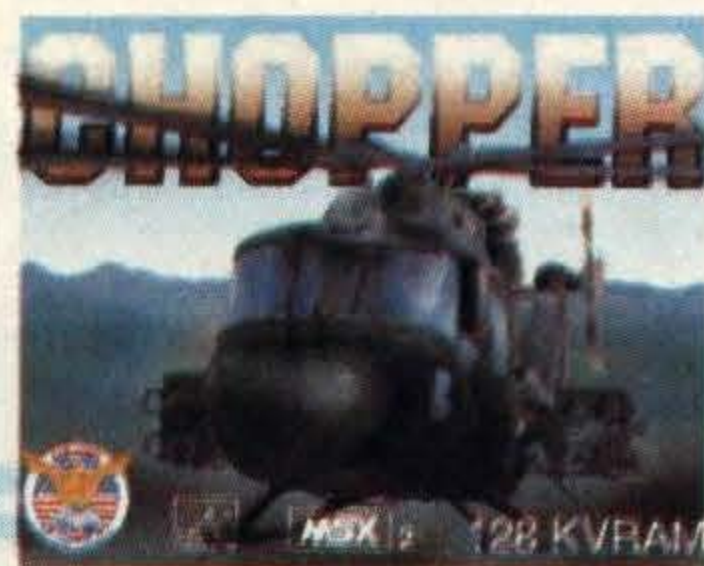


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MSX 1	DISK	Art.nr. 3370	MSX 2	DISK	Art.nr. 3260

C64	CASS.	Art.nr. 3162	£ 13.95
C64	DISK	Art.nr. 3262	£ 15.95





# CAPTION QUEST

Level Nine, giants of the adventure world, have kindly agreed to donate no less than fifty prizes to our Christmas competition.

Each winner will receive a huge laminated year planner especially designed for Level Nine and decorated with colourful graphics by Godfrey Dowson. The pictures tell of a world where science fiction and fantasy merge—just like Level Nine's adventure games really—and are superb. There is also space to plan 1987, day by day, month by month.

In addition, lucky winners will receive a Level Nine black felt-tip pen to write down all those important social engagements.

**TO WIN**

*Win one of fifty  
colourful Level 9 year  
planners — and a pen!*

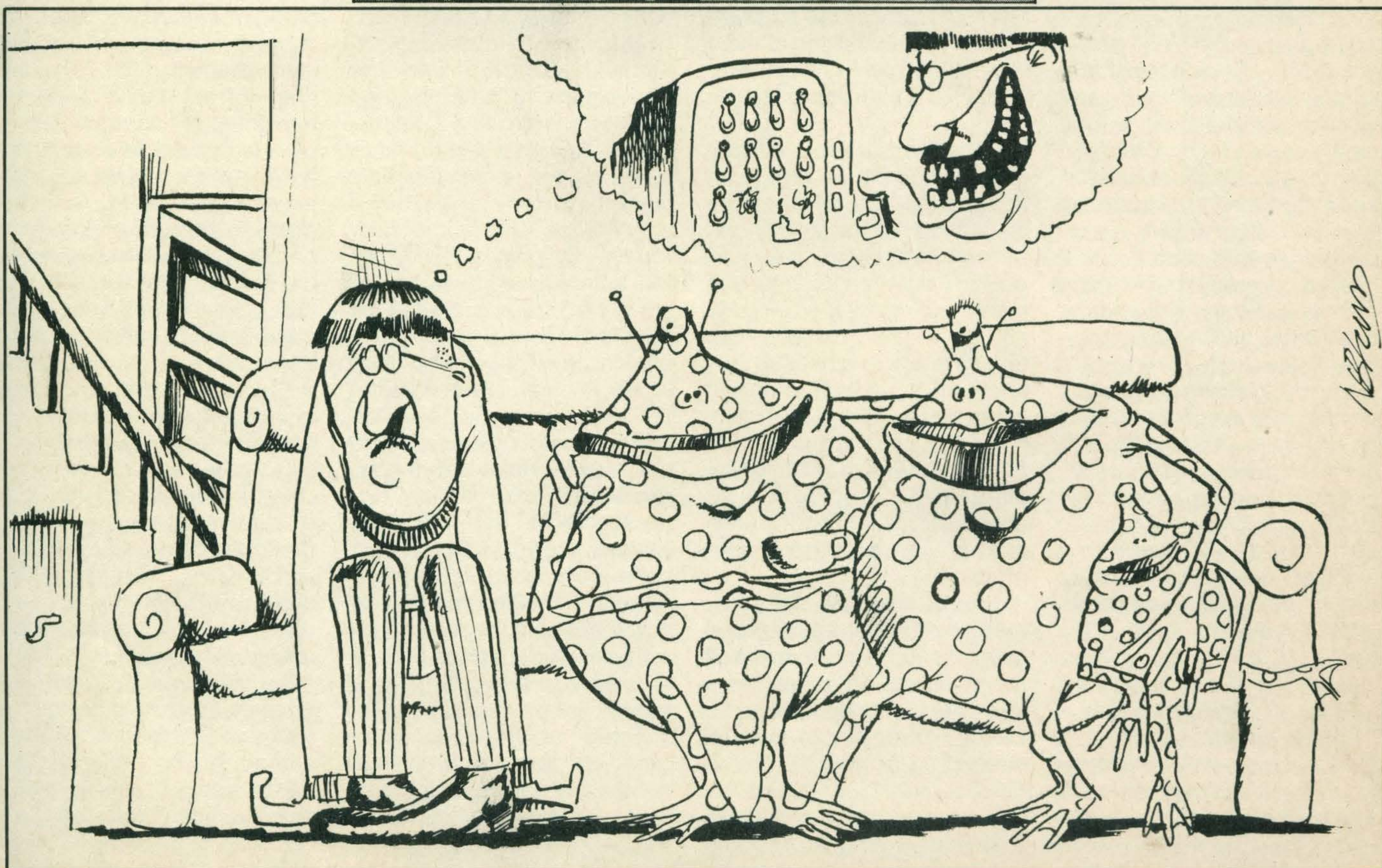


What do you have to do to win these wonderful prizes? Simply dream up two witty captions; one for the cartoon and one for the photograph of the Level Nine staff looking rather silly in the garden.

**RULES**

1. The judges' decision is final.
2. No employees of Haymarket Publishing or Level Nine or their families may enter.
3. All entries must reach us by the closing date of Monday 5th January 1987.
4. Entries must be addressed to:

The Caption Competition  
MSX Computing  
Haymarket Publishing Ltd  
38-42 Hampton Road  
Teddington  
Middlesex TW11 0JE





# DESIGNER WORDS

**O**ne of the hottest concepts of the moment is electronic or desktop publishing: with the aid of a personal computer and a printer you can create complete pages of catalogues, newsletters or magazines on your own desktop.

Text produced by word processing can be combined with graphics and headings and titles also created on the computer. You can also leave spaces for photographs, then dump the completed pages to the computer and give it straight to a printing company for offset printing.

Desktop publishing allows you to "do your own thing" and create text, pictures and page layouts, with no need to pay other people a fortune. You can then take the finished sheets to an "instant printing" shop or use your own offset printing equipment or even a photocopier if desired. Already many commercial catalogues, customer newsletters and in-house company newspapers are produced by this method, and the technique is destined to grow by leaps and bounds as the cost of the technology comes down. Sounds fabulous, doesn't it? Perhaps you would like to do this kind of thing at school or at work, or you may be the editor of a club or parish newsletter. What do you need to join in the fun?

Well, as with so many things in life, it depends! What it depends upon is what sort of results you are expecting. If you want the same quality as "MSX Computing" forget it: desktop publishing does not give those

## *Andy Emmerson investigates advanced word processing techniques*

sort of results. Even to produce a catalogue of reasonable quality you need a business computer such as a Macintosh (an IBM PC is barely adequate) and you also need a laser printer with a resolution of at least 300 dots to the inch, 32 shades of grey and an image scanner for converting pictures to computer format. By the time you have bought the software as well you are talking of more than £8,000, which is probably a little more than you or I had in mind!

But with a little bit of effort and enthusiasm, plus a little more imagination, we can achieve something not too far different on an MSX micro, using an ordinary dot-matrix printer and affordable software. Virtually all dot-matrix printers can handle graphics as well as text, and it is not difficult to design large letters for titling and headings on a micro. If you have a printer with a Near Letter Quality (NLQ) facility this will enable you to print out the main text of articles even more neatly.

Charts, diagrams and other graphics can also be produced on the printer, and all you need to do is cut out the various items to go on each page. Then you can lay them out on a blank sheet of paper, add any photographs and when you like the final layout, past them down with Pritt, Cow gum or some

other adhesive which doesn't cause the paper to cockle. If you want a special typeface or effect it may be advantageous to use Letraset or some other similar rub-down dry transfer lettering, though this tends to be expensive if you use only part of a sheet.

The finished artwork, as it is called, can then be photocopied or taken to a print shop. One tip: most professionals in this field reduce their work. Let me explain: if your finished page size is to be A4 (and you should stick to standard page sizes, as the printer probably won't handle any others) make your artwork A3. In other words, always use the next size paper (the numbers decrease as they get bigger). If you intend to print on A5 paper, make your artwork on A4 paper. All professional printers can handle the task of reducing the page-size (many photocopiers also do this now). Hand-drawn diagrams will look neater, any misalignment will look less obvious and you will be able to get more typed text on a page. Although it will be reduced by one third, all your artwork will still be perfectly legible, and the reduction in size will make it neater.

There are a number of graphics designer and word processing packages for most home micros, even some desktop publishing programs,

such as Fleet Street Editor and the lookalikes. For the MSX micro the choice is not especially wide, but two new programs, *Print-X-Press* and *AackoScribe*, will give you the tools for the job. If you've got the imagination and the enthusiasm, then you'll have no difficulties, because these are both good programs. They don't do all the work for you of course, you'll still have to be "creative designer"! You will need a dot matrix printer, and a colour TV or monitor is useful, though not essential.

*Print-X-Press* comes from Anglosoft, a Midlands company which has also produced some interesting software for the Pioneer PX-7 video graphics computer. At first I thought the program might have a special tie-in with the X'Press micro, but no, it doesn't except that this was the machine I tested the program on. The software itself comes in a very smart package, either on disk or cassette. Working with cassettes will be a slow process if you intend to load and save many files; another advantage of the disk version is that you get a number of demo and sample files.

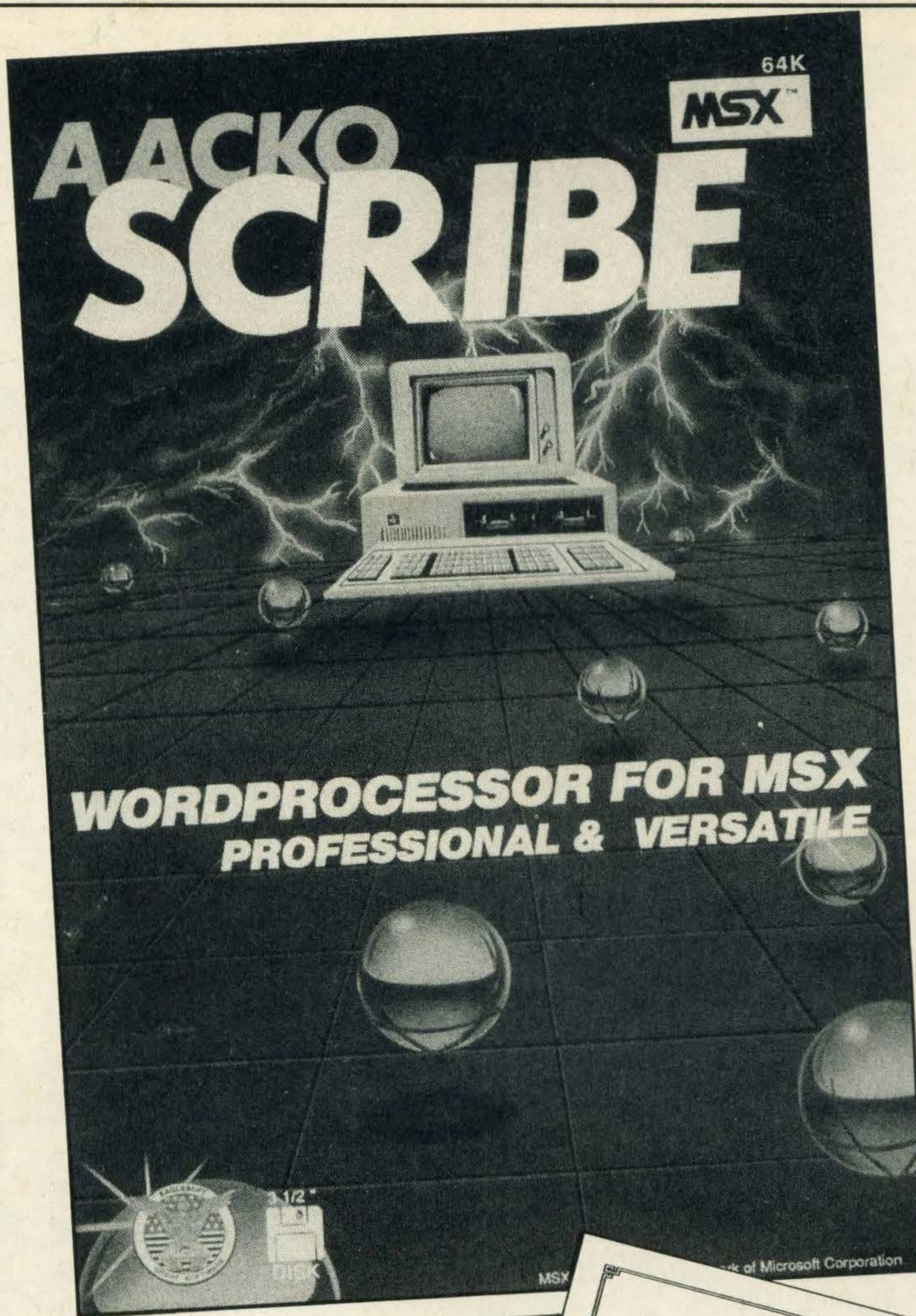
*Print-X-Press* is in fact a suite of three sub-programs called Designer, Compiler and Manuscript which enable you to design monochrome or multi-colour documents. A special colour separation facility enables you to print out text and graphics one colour at a time. If you are prepared to change printer ribbons and align the paper carefully before each pass of printing, you can overlay colours to produce multi-



coloured documents. A source of supply is given for the coloured ribbons, though I cannot guess as to their price or their availability for your particular brand of printer.

You can design your own lettering styles and graphic symbols on an 8×8 or 16×16 grid, and save up to 254 characters per file. Characters can be loaded, edited and saved, also copied, rotated, inverted and shifted. You can design your own or select or modify characters from the library supplied. Documents can be designed in up to seven colours, and you can move, copy, centre and delete portions of a document, all under keyboard or joystick control. Documents of up to A3 size can be produced if your printer can cope with this: obviously you can view only part of the document at a time on the monitor screen. Items you can design include greetings cards, invitations, labels, personalised stationery, tickets, calendars, charts, plans and music scores. All this can be done in any quantity you require limited only by the speed of your Epson or Epson-compatible dot-matrix printer.

In use the program is a pleasure to drive. Everything relies on menus and choices, and it seems to be well error-trapped — I did not manage to crash the program at any time. The disk runs automatically and presents you with the start-up menu: after this each sub-program can be run on its own or in combination. The well-written instruction manual will take about half an hour to read and digest, and after another half hour's practice you should be up and running. For all that, the manual will not be easy going for an inexperienced user. My biggest complaint about the manual is that it concentrates on the mechanical processes of running each sub-program. It does not have any illustrations at all, nor does it go to any depth into the total desktop publishing process. A complete demonstration document on the disk would have



**Top: Aackoscribe. Above: output from Print-X-Press**

been very instructive. I would also have liked to know whether an ink-jet colour printer could be used, and a complete list of compatible printers would help many potential users who may not know whether theirs is Epson-compatible (or even exactly what this means). The packing also ought to tell you a

colour TV or monitor is almost essential — trying to see a black cursor on a green-screen monitor is very difficult!

For all this I must say this program is a good effort and streets ahead of many rivals in the field of so-called serious software for MSX computers. I look forward to seeing the next

release, when hopefully some of these weaknesses have been corrected. In the meantime it represents good value for money and for all but the most inexperienced user it should prove extremely useful.

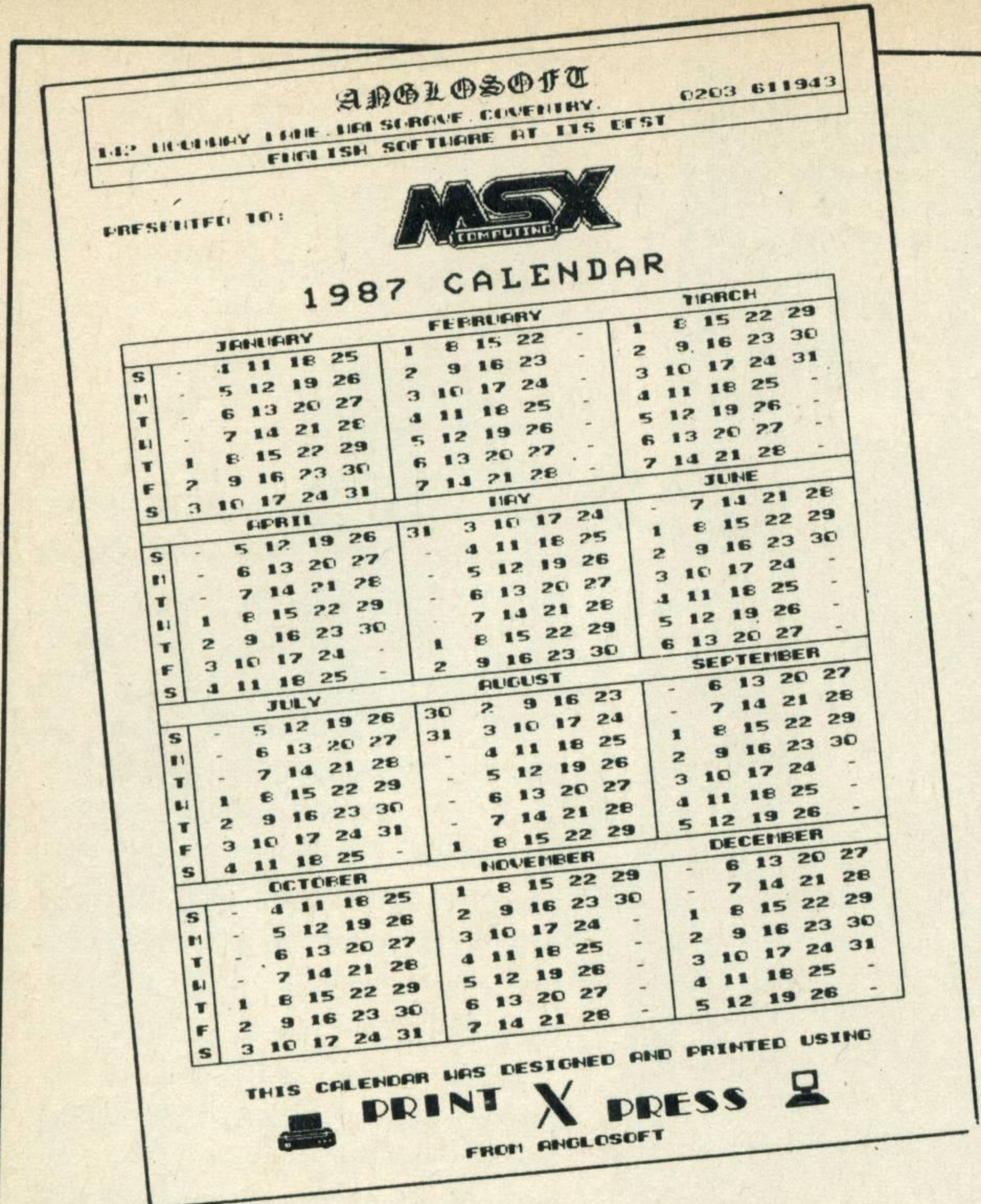
Word processor programs for MSX computers are not exactly abundant and finding one that behaves anything like professional W.P. software is a rare delight. I should know — I bought four different disk-based W.P. programs before I found one I could use! The daft thing is that there are several fairly good MSX word processors on the market, and if only one program contained all the best features of each it would be superb. If your interest in processing words goes beyond just writing letters, spare a minute to check out the features you just can't do without.

Ideally you need the following capabilities:

- edit fairly large files
- centre text as well as left and right justifying it
- saving files in ASCII as well as processed format (for sending files to electronic mail or to people with other W.P. programs)
- use familiar mnemonics for embedded commands (e.g. JO for justification on, CE for centring, etc)
- set line spacing and where a page will end
- have word count at any time
- have full control over printer facilities (e.g. change timesteps)
- stop the printer as soon as you spot a mistake
- see what you're doing (in other words the screen is a close replica of the formatted document).

This last feature is called WYSIWYG in the business — What You See Is What You Get! Having said all this, there is no single word processor which achieves all this. Wordstar gets close and that is what I use now (and intend to continue using), but it will only work on computers with an 80 column display (Spectravideo X'Press and MSX-2 series). Prior to this I used AackoText and I was





**A neat 1987 calendar produced on the Anglosoft package**

delighted to see its updated version, AackoScribe.

The Aacksoft series of programs are all well written and presented: what's more they have Interactive Data Structure, in other words an inter-compatibility. This means that names and addresses created, for instance, as AackoPresto database files can be fed into AackoScribe for merging into the text of a standard pro-forma

letter. You could also take tables out of their financial spreadsheet to put in your reports written with AackoScribe.

AackoScribe represents a considerable advance over most other MSX word processors in that it is a WYSIWYG program. You see your words as they would appear on a typewriter, complete with a cursor which moves along a

calibrated typewriter carriage. On MSX-2 computers (but not the X'Press) the display automatically changes to 80 columns, while on 40 column machines you can scan across the page with the cursor keys (which is tedious and means you cannot see all that you type.) While AackoScribe does not have MS-Text's clever "window" type menus which pull down like roller blinds, it is properly menu-driven using the function keys. A comprehensive demonstration document is provided. The program is professionally presented with little touches such as a smart design showing while the program is loading. The handbook contains 23 chapters and is exceedingly complete — all it lacks is the handy quick summary chart of commands as provided with AackoText. The book itself was produced (using AackoScribe!) on a Philips NLQ dot-matrix printer and some pages have not reproduced very well. Using double strike would have saved my eyes-train . . .

Virtually all the features I would specify for a word processor program are provided, and apart from the need for an MSX-2 computer I can find only one possible problem area. This is the amount of memory AackoScribe grabs for

workspace. The program cleverly checks the amount of RAM free as it loads and if it doesn't find enough it automatically re-loads itself while inviting you to hold down the Control key to release memory. Unfortunately it cannot co-exist with a second disk drive, so if you possess one of these you will have to unplug it physically. I dare say that will not worry most users, though.

The price, at £69, is not to be sneezed at, but this program is streets ahead of most of the competition. With the reservations just mentioned, I can recommend AackoScribe for people who need a high-performance word processor.

**PACKAGES REVIEWED:  
PRINT-X-PRESS**

**SUPPLIER:** Anglosoft, PO Box 60, Coventry, Warks.

**TYPE:** Utility.

**FORMAT:** Disk or cassette.

**RAM NEEDED:** not stated.

**PRICE:** £27.95 disk, £24.95 cassette.

**AACKOSCRIBE**

**SUPPLIER:** Aackosoft International, PO Box 3111, 2301 DC Leiden, The Netherlands.

**TYPE:** Word processor.

**FORMAT:** Disk.

**RAM NEEDED:** 64K.

**PRICE:** £69.



**Konami's programmers hard at work thinking up another original villain for their new game . . .**



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## SOFTWARE SCENE

All the latest MSX software reviewed in our usual format to help you spend your hard-earned money wisely. In addition to our detailed description of each program we use a star rating system, evaluating games on graphics, sound, value for money and our overall verdict. Where a

rating is not applicable — use of sound in a wordprocessor, for instance, the rating is given as N/A.

### STAR RATINGS

- ★ Not worth the trouble
- ★★ Acceptable, but nothing exciting
- ★★★ One of the best

## ROAD FIGHTER £14.95

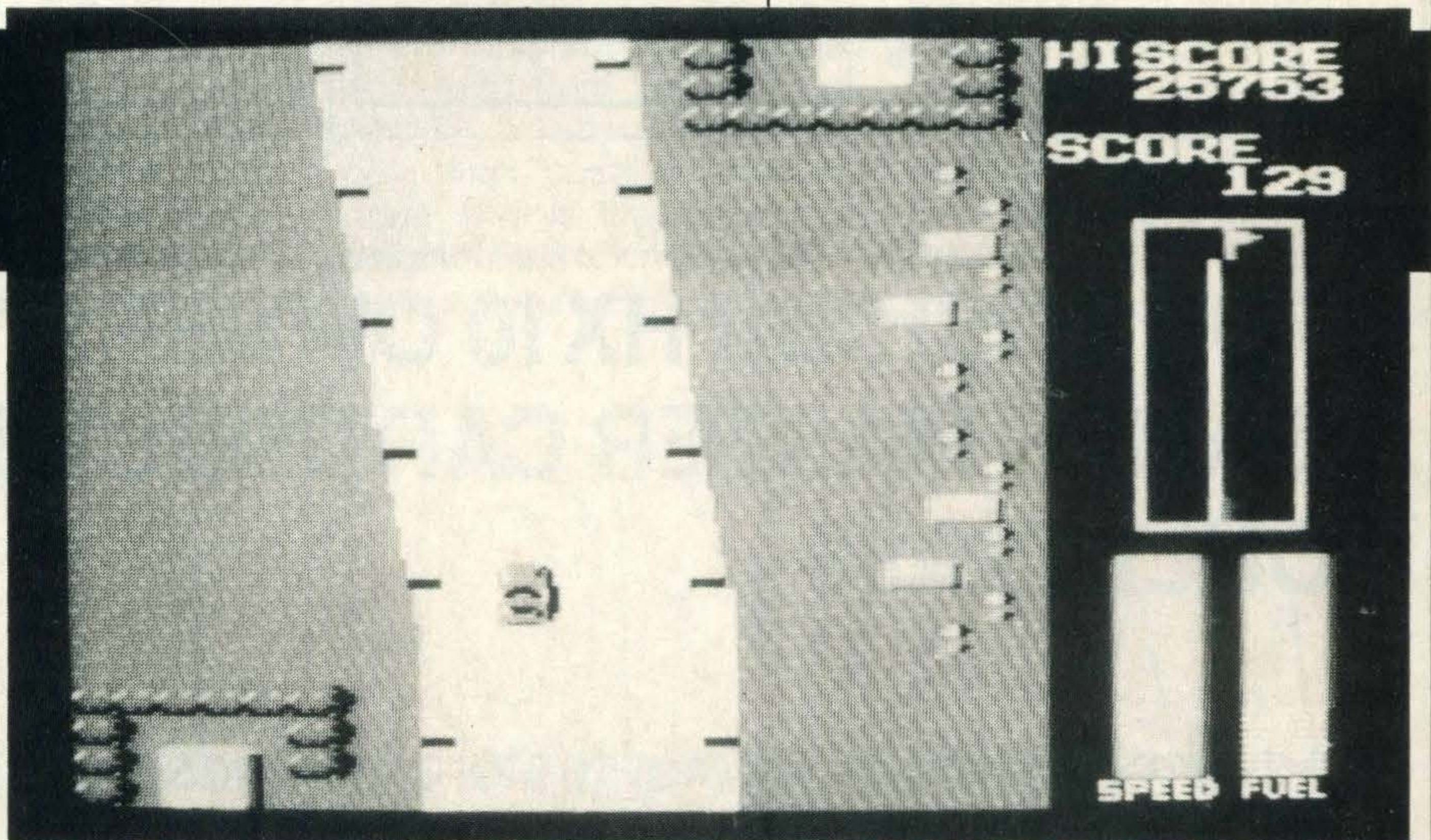
Inspired by T.V. car chases? Stop! Return your family's beloved Morris Minor safely to the garage, plug in this Konami cartridge and set yourself for the drive of your life.

In this game you race your red roadster using joystick and/or keyboard against 11 blue roadsters, avoiding obstacles on the way. These include 18-wheelers that drop off oil drums, sedate family saloons, GT cars and faster redneck hot rodders which will run you off the road given half a chance, oil slicks and of course twisting and narrowing roads.

Your viewpoint is that of a helicopter hovering above your car as the colourful scenery scrolls past below. This scenery consisting of brilliant graphics changes dramatically for each of the six stages. These include icy wastelands, cliff roads and a narrow suspension bridge. A well needed rest is given between each stage as a map of the whole course is shown indicating your position.

During racing your position on that section is shown on a control panel that also indicates speed, fuel and points. Fuel is important as an empty tank means the game is over and fuel is lost every time you crash. However, passing over a bonus purple heart gives additional fuel as well as extra points.

The sound rather than being an annoyance, as with some software, greatly enhances this game. A jolly tune accompanies 'Game Over' to take the edge off your



disappointment and a fanfare is provided for successful completion of each stage. The sounds of the engine, screeching skids and explosive crashes really make the game realistic and therefore adrenalin pumping.

It is highly addictive — other people may take over your computer. This is because you can always improve, and a skill learnt, such as driving out of skids, becomes instinctive, yet just as you are feeling proficient another hazard — such as an oil drum bouncing along the road or a deep patch of water slowing down the car — causes a spectacular crash.

The game is also very good to watch and so the family end up as back seat drivers cringing and squealing at near misses. I recommend anyone to buy this game.

(This is reader Karl Wilson's competition-winning review — see p.51).

**SUPPLIER:** Konami  
01-429 2446  
**TYPE:** Arcade  
**FORMAT:** Cartridge

**GRAPHICS** ★★★

**SOUND** ★★★

**VALUE** ★★

**VERDICT** ★★★





## SALVAGE

£1.99

**SUPPLIER:** Livewire  
**TYPE:** Adventure  
**FORMAT:** Cassette  
**RAM NEEDED:** 32K

**GRAPHICS** ★ ★

**SOUND** ★ ★

**VALUE** ★ ★ ★

**VERDICT** ★ ★

Nice to see a new release for the adventure fans which isn't from Level 9 just for a change and it's not a bad little game either particularly when you consider the £1.99 price tag.

It's got graphics, which occupy most of the top half of the screen, although down the right-hand side runs a neat Notepad feature which allows you to make memos to yourself which stay on screen for the duration of the game. To enter those you type NOTE followed immediately by the words, and on pressing RETURN the words appear on the notepad.

But what are you meant to be salvaging, and why, and what's in it for me? Typical adventures' questions. You're in a convict shuttle ship that isn't bound for Botany Bay but has simply been in orbit round an asteroid with a long name for the last 17 years. You're not doing porridge yourself as the shuttle is now redundant, but you are on board looking for the Sequerra Crystal, a valuable source of energy.

Sadly for you, your teleporter device throws a wobbler and you'll have to resort to using the shuttle's device to escape. But what's the code to bypass the security system? Any hope that it may have been secreted, in whole or in part, by convicts who were hoping to escape from the ship?

The game plays fairly conventionally, with one or two word input, a save game feature and it understands the usual LOOK, INVENTORY and so on. The Detention Room where you begin shouldn't detain you for very long, and you find a credit card with two digits on it—but are they part of the 5-figure teleport code? And why has the Andrex toilet paper got 43 written on it? The only thing I've ever seen written on toilet paper is Government Property, when the RAF thought people would steal it otherwise.

The early problems are all very straightforward, perhaps a little too straightforward for regular adventures, but at least the game's well done. Although it's disappointing that it reads the first letter of any word it doesn't recognise as an unexpected movement command.

Type SCORE, for instance, and you go south whether you want to or not. As this can just on occasion be to an instant demise, it's an irritating fault. Who wants to go east when you're trying to eat the toilet paper?

The tasks do get a little more difficult as you go, but even in a quick play it's possible to get quite a way into the game provided you use that SAVE GAME feature cautiously. We'd recommend this one mainly for beginners, but keen players too will find plenty to enjoy in this worthy effort.

## ICE

£2.99

Admit it, you've always wanted to be a penguin, haven't you? You haven't! Have you no ambition? Well you're going to be one whether you like it or not in *Ice*, which Eaglesoft has licensed from Bytebusters as part of its Classics series, "the super-action super-super arcades that will make history!" That's what it says on the inlay anyway. Pity they couldn't have found room for some instructions, although registered arcade addicts will know the general way in which you play this one.

Our hero, the aforementioned penguin, though in truth he looks more like a refugee from a Pac-Man Convention, starts the game on a screen that's partly-filled with a pattern of ice-cubes. In among the ice-cubes are three diamonds, at least on the first level, though these increase in number as the game goes on . . . or more likely doesn't, as this is a pretty tricky one, it has to be said. Why, we had to play it for hours before we could even review it. All in the call of duty, of course.

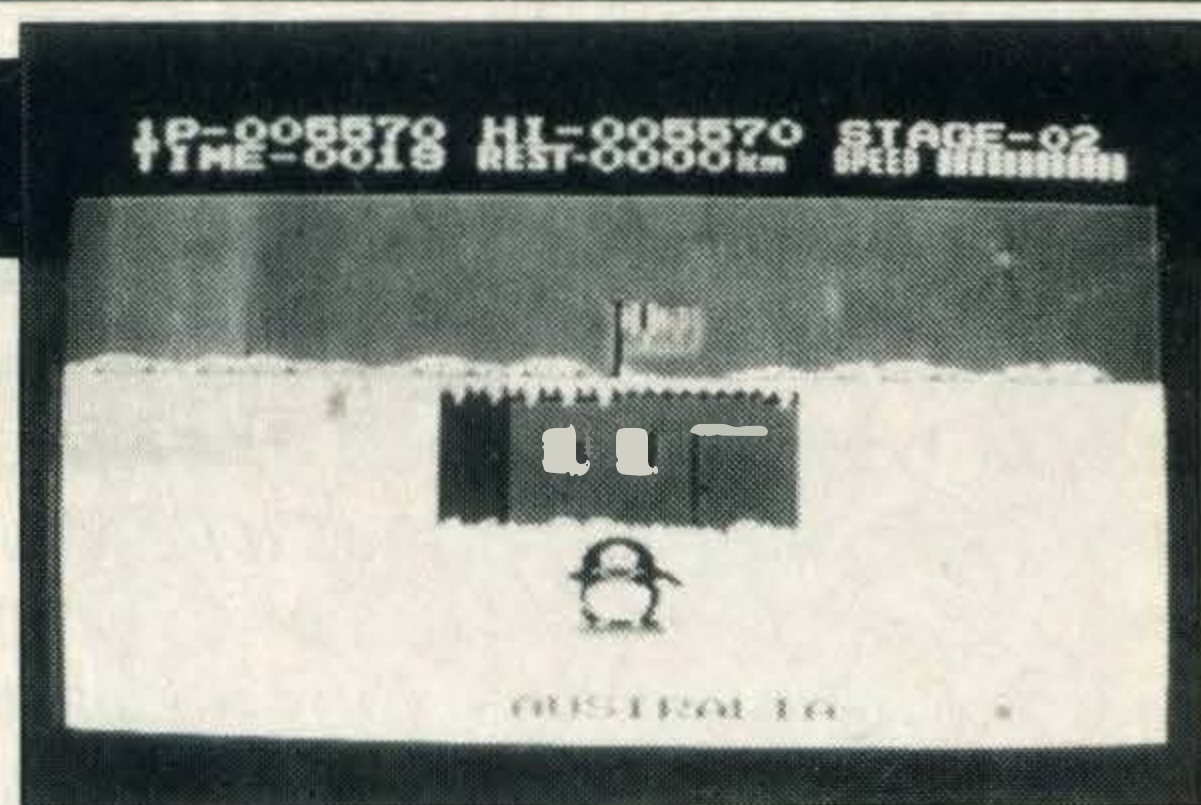
Now as any self-respecting penguin will tell you, ice-cubes are just there to be kicked, so as you move round the screen under joystick or keyboard control you can bash the space bar or hit the fire button to send an ice-cube sliding across the surface before it smashes into oblivion.

You can kick the diamonds, too, though they don't smash and that's just as well as you need to gather all of them together in one part of the screen to enable you to go through to the next level. We believe this is known as constructing a time-gate, or some such description and it's the bit the instructions don't tell you about so you could be kicking cubes forever and not have the slightest idea what you're doing.

One thing you're definitely doing is keeping away from the inevitable nasties that share the screen with you and plod relentlessly in your direction. But if you kick a cube or a diamond in their direction then they kick the bucket — at least for a while, as there's always a substitute waiting in the wings. Wouldn't you just know it? And likely as not it'll be one of the Mafia-types with the cool shades that have the ability to walk through some of the objects. Rats!

Graphics are good enough, as is the speed of the action, and we loved the sound on this one: a truly awful strangled yell when you lose a life, and the "Oh my God, game over!" when you've lost the lot. Not quite good enough to warrant three stars, but worth three quid of anybody's money.

It is a pity that the instructions aren't a bit better, otherwise we might have given it the full three stars.



**SUPPLIER:** Eaglesoft  
**TYPE:** Arcade  
**FORMAT:** Cassette  
**RAM NEEDED:** 64K

**GRAPHICS** ★ ★

**SOUND** ★ ★

**VALUE** ★ ★ ★

**VERDICT** ★ ★





## KNIGHT TYME

£1.99

**SUPPLIER:** Mastertronic  
01-377 6880  
**TYPE:** Graphic/adventure  
**FORMAT:** Cassette  
**RAM NEEDED:** 64K

**GRAPHICS** ★ ★ ★

**SOUND** ★ ★

**VALUE** ★ ★ ★

**VERDICT** ★ ★ ★

It is hard to describe *Knight Tyme* as it is not what you'd call a traditional adventure although you do have to go on a journey, figure out the clues and fulfill your quest.

*Knight Tyme* isn't in the same category as the classic text adventures, like those from Level 9, all the same it is an adventure and a cracking good one at that.

Cast as a Magic Knight, you are transported to the 25th century and are on board the Starship USS Pisces.

A metal creature called Klink has given you a datacube from which you have absorbed a host of information which should help you formulate a plan for your survival.

The first task is to locate the Tyme Guardians—that's if they exist, and obtain a Tyme machine from them so that you can make your escape.

If you've read the last issue of *MSX Computing* you'll already have a head start as we published a map of the game that was sent in by one of our avid readers. If you haven't read it, do so now, you never know when it might come in handy.

Your journey will take you far across the galaxy and you'll have to visit and explore many planets so I recommend that you draw a map as you go along otherwise you could find yourself covering the same ground.

The authors of this title have put a lot of

effort into the design of the game and I particularly like the use of a technique they call Windmation. What it means is that you are allowed to access the windows in which the command choices are given.

Do read the instruction before playing *Knight Tyme* otherwise many of the choices won't make much sense. The authors have very graciously included some playing tips on the cassette cover—use them. Don't try to be bold and manage without 'cos you'll end up making the same mistakes that I did. It took me ages to realise that Sarab wouldn't reveal how to move the starship until I appeared wearing a valid identity card.

The graphics are superb with plenty of intricate and colourful details, which all add to the game's appeal.

This is not the sort of game that can be played in a couple of hours, it is going to take several days unless you're one of these ultra-brilliant whizz kids who has a penchant for solving adventures in not time at all.

According to the text on the cassette cover *Knight Tyme* is the third in a series of adventures from Mastertronic, if that's the case all I can say is that this one's brilliant and I can't wait to get the other two!

If you're looking for an ace adventure that doesn't cost a fortune, *Knight Tyme* is a must.

## PANIQUE

£2.99

Eaglesoft must know that the only hope they have of boosting sales of this title is by putting a drawing of a topless woman on the cover, though the fact that she has a reptile's head does little to enhance her appearance.

Nor do the graphics do much to enhance the appearance of this rather dated version of the old arcade favourite, *Space Panic*, although any resemblance to arcade graphics begins and ends with the title screen, which is annoyingly the best part of it. Pity you can't play a title screen, isn't it?

For those who don't know, *Space Panic* is one of the original platforms and ladders games, before *Manic Miner* came along and made them better beyond belief. You control the legendary little man, without whom no arcade game is complete, as he climbs up and down ladders and runs along the platforms trying to avoid the meanies whose general attitude is: this screen ain't big enough for the both of us.

As he's usually outnumbered about four-to-one, the LLM is given a shovel to even things up a bit. With a bit of help from you at the fire button or space bar (the best place to buy a pan-galactic gargle-blast), he can dig holes in the platforms and hope to tempt the meanies to fall right into them.

A quick bash on the bonce with the old shovel and the meanie's sent to meet its

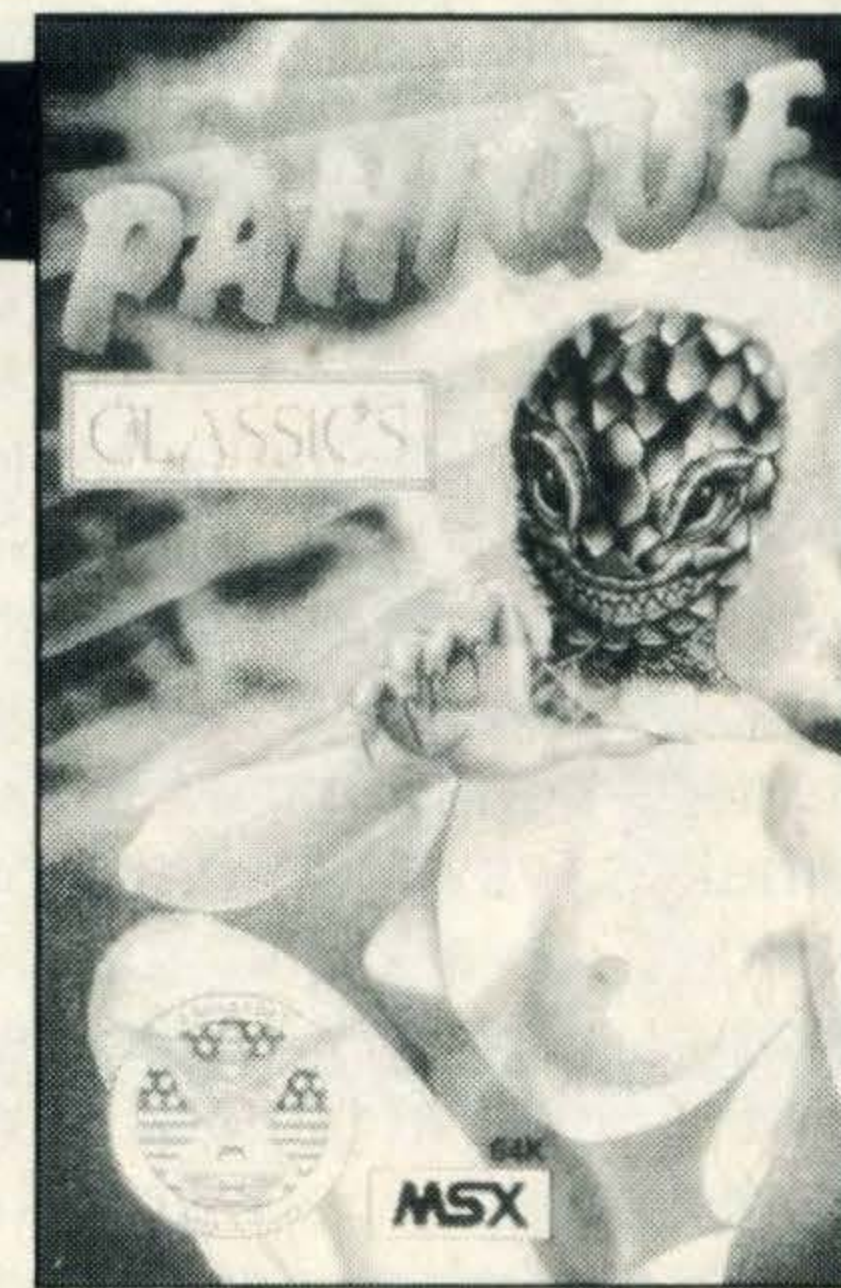
maker. If you omit to hit it quick enough, it climbs out and continues in its pursuit of you. Clear a screen of meanies and your reward is naturally to go onto even worse screens, with more complicated patterns of platforms and ladders, ensuring eventually that you probably get trapped as the filling in a meanie sandwich.

You have three lives and in addition, the man must complete doing his Charles Bronson act on the meanies before his oxygen level runs out. There are four levels of nasties you can confront yourself with, these being smart, normal, dumb or moron.

The game can be fun, and *Panique* has some nice features: keyboard or joystick control, hi-score table digitised voice saying 'Don't panic' and 'Next level.'

What it doesn't have is decent graphics. This is the original stick-man and the screen colours are very limited. Response was none too hot either, and despite the bargain basement price tag it didn't make us want to go on to the next screen, it made us want to load up the next game quickly.

If you haven't played a game like this before then it's worth £2.99 to find out what all the fuss is about, as the actual playability of the game is fine. But if you are used to the original arcade version you will be disappointed.



**SUPPLIER:** Eaglesoft  
**TYPE:** Arcade  
**FORMAT:** Cassette  
**RAM NEEDED:** 64K

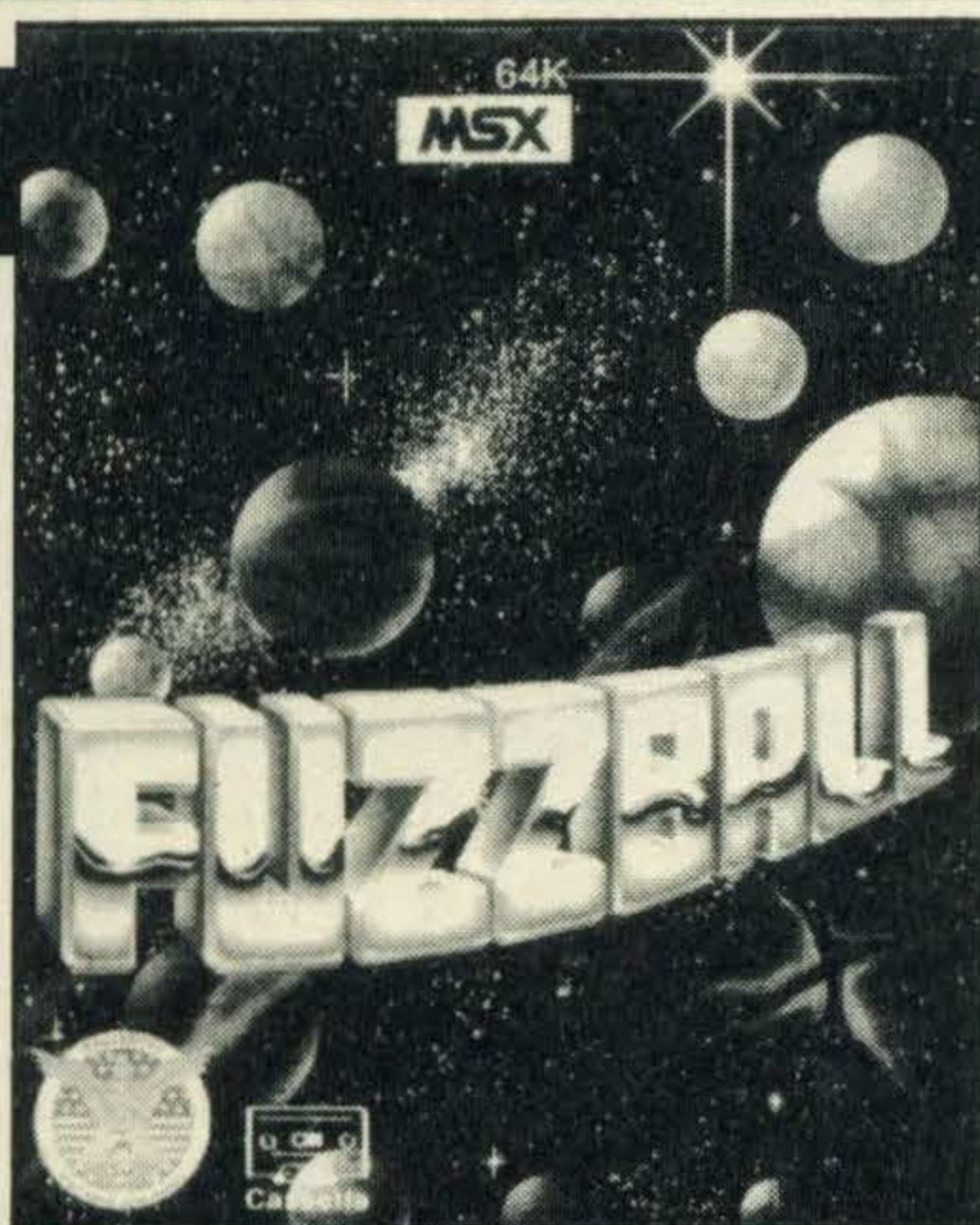
**GRAPHICS** ★

**SOUND** ★ ★

**VALUE** ★ ★

**VERDICT** ★





## FUZZBALL

£2.99

**SUPPLIER:** Eaglesoft  
**TYPE:** Arcade  
**FORMAT:** Cassette  
**RAM NEEDED:** 64K

**GRAPHICS** ★ ★ ★

**SOUND** ★ ★ ★

**VALUE** ★ ★ ★

**VERDICT** ★ ★ ★

And so once more unto the arcades, dear friends, once more, to suffer the slings and arrows of outrageous *Fuzzball*. Or something like that, anyway. But the only suffering you'll do in this one is through lack of sleep from playing it just one more time about 87 times in a row.

This is based on the arcade game called by various names along the lines of Q-Bert, in which you control (joystick or keyboard) a springy thingy as it bounces around a pyramid that's constructed from various cubes. As the thingy, hereinafter referred to as Fuzzball, lands on a cube it generally changes colour, and the idea is that you have to bounce around the pyramid until all the cubes are the same colour, the colour you want being indicated at the top left of the screen.

For those poor souls who can only afford black and white, there is a monochrome option, and we tried this too to discover that it works perfectly well. Fuzzball always starts at the top of the pyramid, and the first screen is comparatively easy as many of the cubes only change colour once, i.e. when Fuzzball lands on them a second time they don't change again. But this is only the first screen . . . guess what's coming, folks!

Yes, on later screens a cube will change each time you land on it, so you have to plan

your route very carefully. Deal with the top three cubes first is a good bet, then try and go down one side and sort out the bottom ones too, before filling in the rest. One reason for this is that Fuzzball naturally isn't the only thing on the pyramid. Balls start bouncing down from the top, so it's best to sort out that area first before the balls start raining down in abundance. Later screens have more balls, as you might expect.

The reason for attending to the bottom cubes next is that occasionally a ball will remain at the bottom instead of bouncing off-screen, and this will slowly hatch into a snake that then comes bounding after you, by which time you should be dealing with cubes elsewhere on the screen. Snakes are pretty dumb, though, and you can usually tempt them to leap suicidally over the edge, but make sure Fuzzball doesn't do it unless it's on to one of the platforms that spring you back up to the top again.

Later screens lead to more complications, without which no addictive game would be complete, like the rival who also bounces around changing all the cubes back again. By then it's hair-tearing time.

Fuzzball is frustrating, irritating, maddeningly addictive, and could result in a severely strained joystick as you thrash it from side to side. Recommended.

## MEANING OF LIFE

£2.99

Just what *is* the Meaning of Life? Is it 42, an answer that current philosophical theory holds in very high esteem? Whatever it is, the answer won't be contained in a silly game like this.

The game would be pretty poor even if it weren't for the rather nasty scenario in which your given task is to assemble the latest Soviet nuclear device, named KRAZY. Is it just us, or do you too find this hardly the right subject for a computer game? Maybe if the results had been better we might have been less critical, but one look at the first screen and you can see you're not exactly in for a life-enhancing experience.

This is the type of arcade adventure in the *Manic Miner* mode, where you move a character about the screen and have to leap over objects, pick things up by passing through them, head for an exit, and generally work out for yourself how all those things fit together. Great fun in a good game, but this ain't a good game.

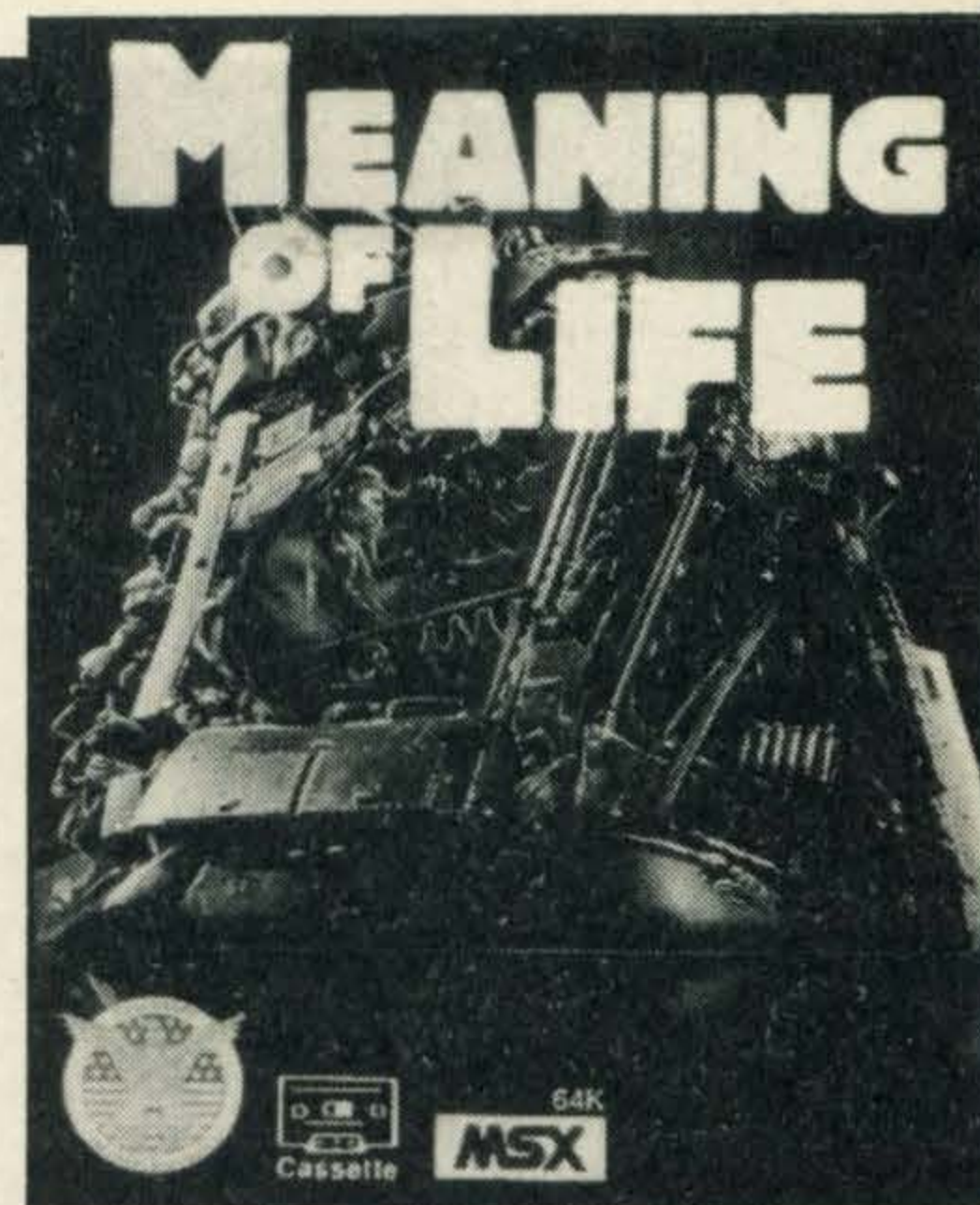
The various missile components are scattered throughout the factory that the game takes place in, and you have to pick all these up and bring them to the assembly spot, one at a time. A demo mode shows you whereabouts the assembly spot is, and what you're meant to be picking up, which is just as well as you'd be hard pushed to recognise

anything with these dismal graphics. It seems odd to have sprites the size of elephants and yet still containing no detail, but you only have to look at our screen-shot to see how lacking in detail everything is. Those enormous sets of stairs, for instance, which look like they've been drawn by a 5-year-old.

The fact that there are clashes of sprites doesn't help, either, with blocks of one colour passing through and temporarily obliterating something else. The extension of this is usually that the accuracy you need for moving about is poorly defined as well, and that's the case here — you can be on something when not seeming to be on it, and hit some things before your man actually makes contact.

Other elements of the game include a clock in the top right-hand corner that ticks down from 5,000 while you're searching for the parts, and when it reaches zero you lose a life. The ESC key allows you to quit and return to demo mode, and you can use keyboard or joystick, but why bother? There has to be more to life than this.

At £2.99 this is a low-cost product, but the budget game league has made enormous strides in recent months and this offering from the talented Eaglesoft team comes as a disappointment.



**SUPPLIER:** Eaglesoft  
**TYPE:** Arcade  
**FORMAT:** Cassette  
**RAM NEEDED:** 64K

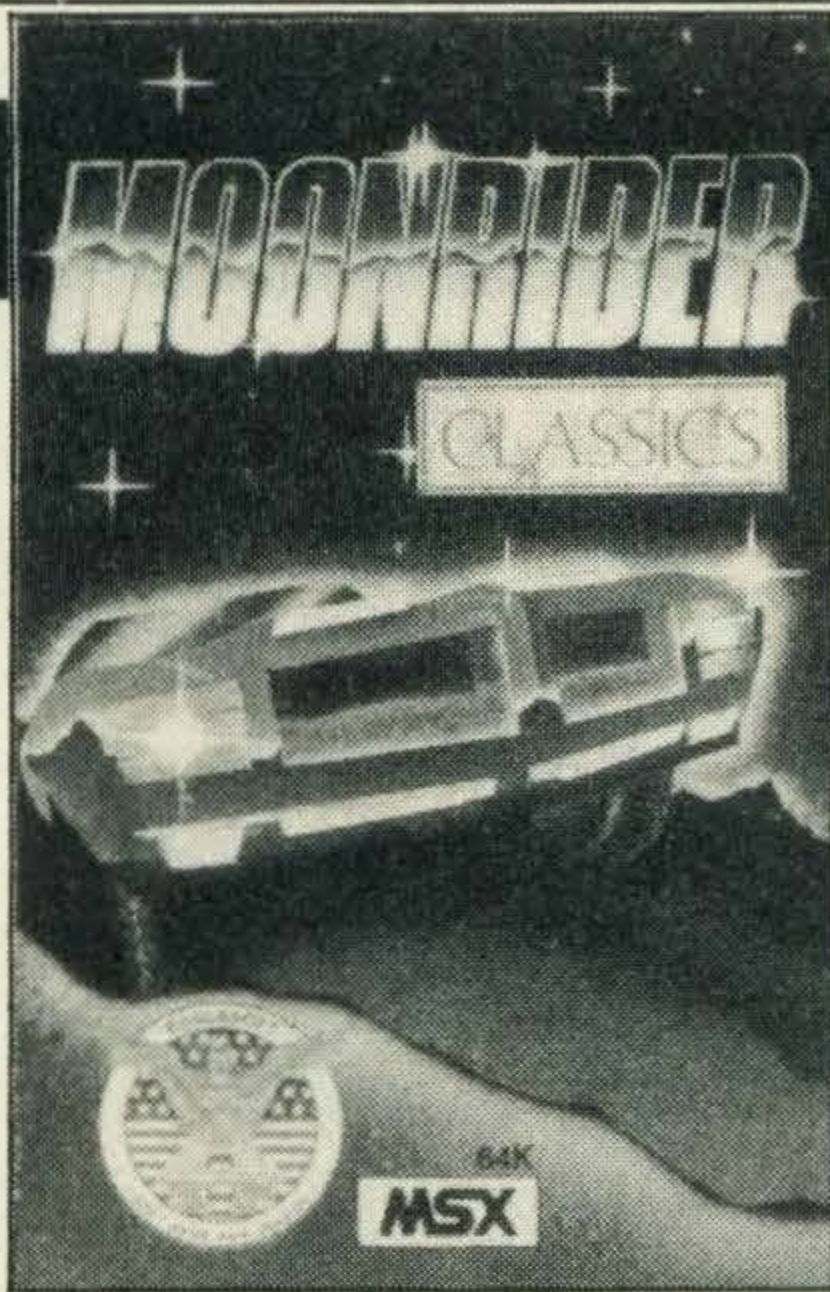
**GRAPHICS** ★

**SOUND** ★

**VALUE** ★

**VERDICT** ★





## MOONRIDER

£2.99

**SUPPLIER:** Eaglesoft  
**TYPE:** Arcade  
**FORMAT:** Cassette  
**RAM NEEDED:** 64k

**GRAPHICS** ★ ★

**SOUND** ★ ★

**VALUE** ★ ★

**VERDICT** ★ ★

Another in the series of Eaglesoft Classics, re-releases of oldies that are sometimes even goldies as well, and this version of the arcade addiction of a few years ago is one that might be worth adding to your collection.

In *Moonrider*, naturally enough, you ride the moon. Well, you don't literally sit astride it as if it were a Kawasaki made of cheese, you ride your moon buggy over its surface which unfortunately has more holes and bumps on it than the M1.

As with many of these Eaglesoft Classics, you're given the option of testing both your joystick ports as soon as the title screen's loaded, but if your port is pole-axed you can use the keyboard as well: left and right cursor keys to decrease and increase speed, up arrow to jump and space bar to fire.

It would have been nice to have had a chance to redefine this, as we found ourselves firing when we should have been jumping, but we dare say that you arcades-ters out there with your dexterous digits won't have that trouble at all.

The landscape, or moonscape, scrolls from right to left across the screen and you must leap the holes as you encounter them and shoot away the boulders and larger rocks. Just occasionally they slip in a tiny boulder that has to be jumped rather than

shot at, to keep you on your toes. Naturally enough the first stage is reasonably easy, although later ones have rather nasty combinations of boulders and holes and sequences of potholes that require a fine judging of the speed needed. A Rider Radar at the foot of the screen shows you how far you've progressed along the various sections of the surface.

Holes and boulders alone might not be too bad, if it weren't also for the UFO's that come flitting along dropping bombs and firing at you. Luckily for you, your firing action allows you to shoot forwards and upwards simultaneously, although sadly your forwards firing range is severely restricted so you need to practise hitting boulders at the last minute.

The sound effects on this one are only average, a feeble plinky-plonky effect that could surely have been beefed up a bit. However, it's well-presented with a hi-score table for all you egomaniacs out there. It also has that all important 'just-one-more-go' quality, without which no arcade game is truly complete.

At £2.99 it's not to be sniffed at, unless you're into that kind of thing, and as long as you don't expect state-of-the-art mega-blasting with the ultimate in graphics, you shouldn't be disappointed.

## JUMPING JACK

£1.99

This, according to the inlay, is "the most stunning three dimensional Frogger of all time!" Someone at Livewire obviously had a mis-spent youth. And "full colour isometric projection" they also proclaim, which sounds grand, but it has to be said that this is by far the best in Livewire's classic arcade series, at least giving you a good game which is not a million hops from the original arcade machine.

The 3-D graphics are impressive, too, and we especially liked the addition of Sinclair's C5's in the slow lane of the motorway you've got to hop across.

Anyone who's led a frogless life so far won't know what that means, but the idea of the game is that you control the hopping hero and must move him across the screen from top to bottom, the problem being that between the top and bottom lie a couple of fairly major hazards. The first is a five-lane motorway, which has to have the most unusual contra-flow system ever invented as the vehicles in alternate lanes travel in opposite directions, and generally getting faster the further across you get. Or don't get if you're not quick enough on your flippers and end up as another road traffic accident statistic. It beats the M25 any day.

Survive the hazards of the road and you then have to cross the river by leaping and

landing on turtles and logs that also flow in opposite directions. Your final leap must take you into one of five safe spaces, and as you have five lives, guess what you get to do then? Right, do it again, four more times, till all the spaces are filled with frogs. The space at the extreme left is the hardest to get at, mainly because the logs in front of it are floating from left to right and to get there you really have to hop to it.

Then what? Why, do it again with more hazards, of course. Faster cars (must have put new batteries in the C5s between levels) and snakes and crocodiles just anxious to snap at an unsuspecting frog as he crosses the river. There are bonuses, too, if you can catch a dragonfly or rescue a female frog on your travels, but as the levels progress you'll have your work cut out just in surviving. The snakeless logs start to get slippery, and the turtles have a habit of submerging just when you least want them to.

The game didn't seem to us to be quite as tricky as the original, but it's very nicely animated with good sound effects and should especially appeal to owners of 32k machines. Would that all so-called arcade classics were this good.

So if being an animated amphibian is the life for you, buy it. But can someone explain why arcade frogs can't swim?



**SUPPLIER:** Livewire  
**TYPE:** Arcade  
**FORMAT:** Cassette  
**RAM NEEDED:** 32k

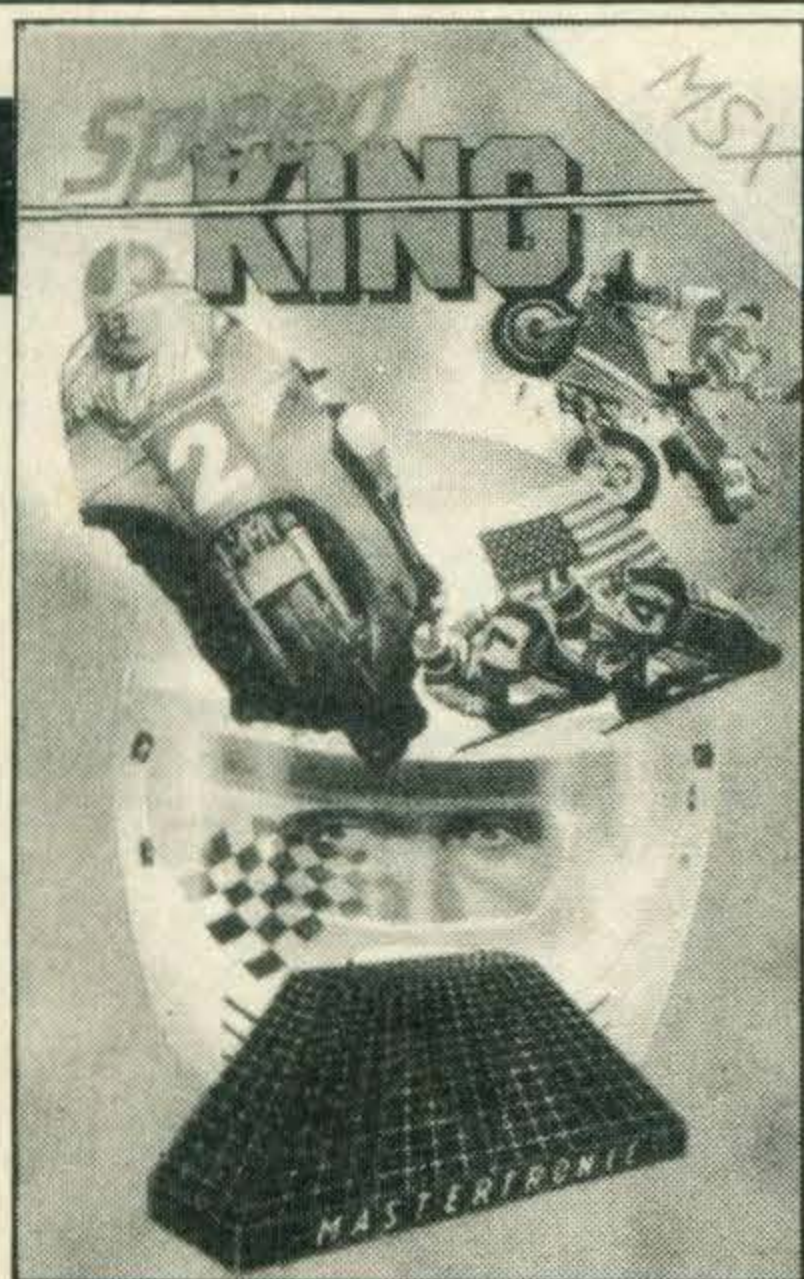
**GRAPHICS** ★ ★ ★

**SOUND** ★ ★

**VALUE** ★ ★ ★

**VERDICT** ★ ★ ★





## SPEED KING

£1.99

**SUPPLIER:** Mastertronic  
**TYPE:** Arcade  
**FORMAT:** Cassette  
**RAM NEEDED:** 64K

**GRAPHICS** ★ ★

**SOUND** ★ ★

**VALUE** ★ ★ ★

**VERDICT** ★ ★ ★

Fancy a quick spin round Silverstone on a high speed motorcycle? If the answer's yes then this release from Mastertronic called *Speed King* is the game to play.

Your aim is to pit your wits and skills against 19 other determined riders and work your way up to world class level.

The game has three skill levels and until you get the hang of things your best bet is to stick to the first level.

Your bike is equipped with six gears and the selection is made either by wagging your joystick forward and back or pressing the top and bottom cursor control keys.

Each of the gears corresponds to a particular speed range, just like 'real' gears, and although it's tricky at first, once you've practiced a few times changing gear will become second nature.

Once you get going you'll find that your speed increases very rapidly and you'll soon be tearing round the circuit at breakneck speeds of 200mph or more.

Colliding with another rider will cost you dearly as it will result in a spill from your machine and a subsequent time penalty whilst you fight to regain control. A further time penalty will be incurred if you swerve off the circuit at any time, so you need to keep a cool head.

The only other bike game I have played

involved a character called Eddy Kidd who bore a remarkable resemblance to a matchstick man. I was far from impressed with that title, but *Speed King* is far superior and will I'm sure turn out to be a winner and a real money spinner for Mastertronic.

Great skill is required throughout the game if you are to keep up a consistently high speed and stay on the circuit without becoming a cropper.

The graphics although basic are very realistic and there's a good scrolling effect as you wind your way round the many circuits on offer. My only complaint is that the background music before the start of each race is very metallic and becomes boringly repetitive after a while. However this is compensated for by the realistic purr of a cycle engine as you race around the track.

For me one of the game's major pluses is that you can choose to preview the circuit and suss out exactly what you are letting yourself in for before competing with the other riders.

If you manage to achieve a new record it will appear on the grandstand display board, another nice feature that adds to the game's appeal.

Motorcycle racing games are few and far between which is one of the reasons why I reckon this game will prove to be popular.

## THE APE MAN STRIKES AGAIN

£2.99

Now how to review two versions of the mighty *Kong* arcade game in one issue, without repeating all that gumph about Mario having to rescue his damsel in distress from the clutches of Kong by leaping over barrels etc? Because if you're interested in this then you're sure to read the review for *Congo* too.

Perhaps we could fill the space by quoting from the Dutch instructions, which makes the game sound very interesting, with phrases like "Trommelend op zijn beestachtige torso." At least the Dutch readers would know what we're on about, but you do get instructions in English as well. What we want to know is how you get an English pun like "Fight for her before she goes bananas" from a Dutch original reading "Vecht voor haar, voor ze de pisang is!" Makes it seem like she's been at the contents of the barrels.

On with the game, however. Where *Congo* has all the hallmarks of the cheapie product, *Ape Man* looks a lot better all round. It has the synthesised sound that appears in many of these games that originate in Holland from Aackosoft, and we like the way they try to do something different in each game. This time you get a real maniacal laugh, and "He's coming for you . . . Ape Man!" That's as well as the more usual "Game Over".

That's not a sound you should hear for a while, as the drawback of this version is that it appears to us to be very much easier to play. We got through the first two screens on our very first game, though we admit to still being struggling on screen three, with all so far being reasonably close approximations of the originals. *Congo's* problem is that it is harder to play, but for all the wrong reasons — sluggish and inaccurate sprite movement, for instance.

Graphics on *Ape Man* are better in some areas, worse in others. The ape himself doesn't move while lobbing the barrels down on your bonce, but he does a nice shuffle when he lopes off to the next screen. Your man Mario, Alfredo, or whatever he's called in this one, is much better animated with good detail, and his legs prove pretty long in leaping over the rolling barrels, which is one reason the first screen is so easy.

Neither of these, then, is the perfect *Donkey Kong* substitute, but overall we generally preferred *Ape Man* despite the fact that even average players like us are soon playing the last two screens. The choice is yours.

Maybe someone will do a journalist's version one day . . . a mad printer hurling rolls of paper at a writer trying to file his copy by the deadline . . .



**SUPPLIER:** Eaglesoft  
**TYPE:** Arcade  
**FORMAT:** Cassette  
**RAM NEEDED:** 64K

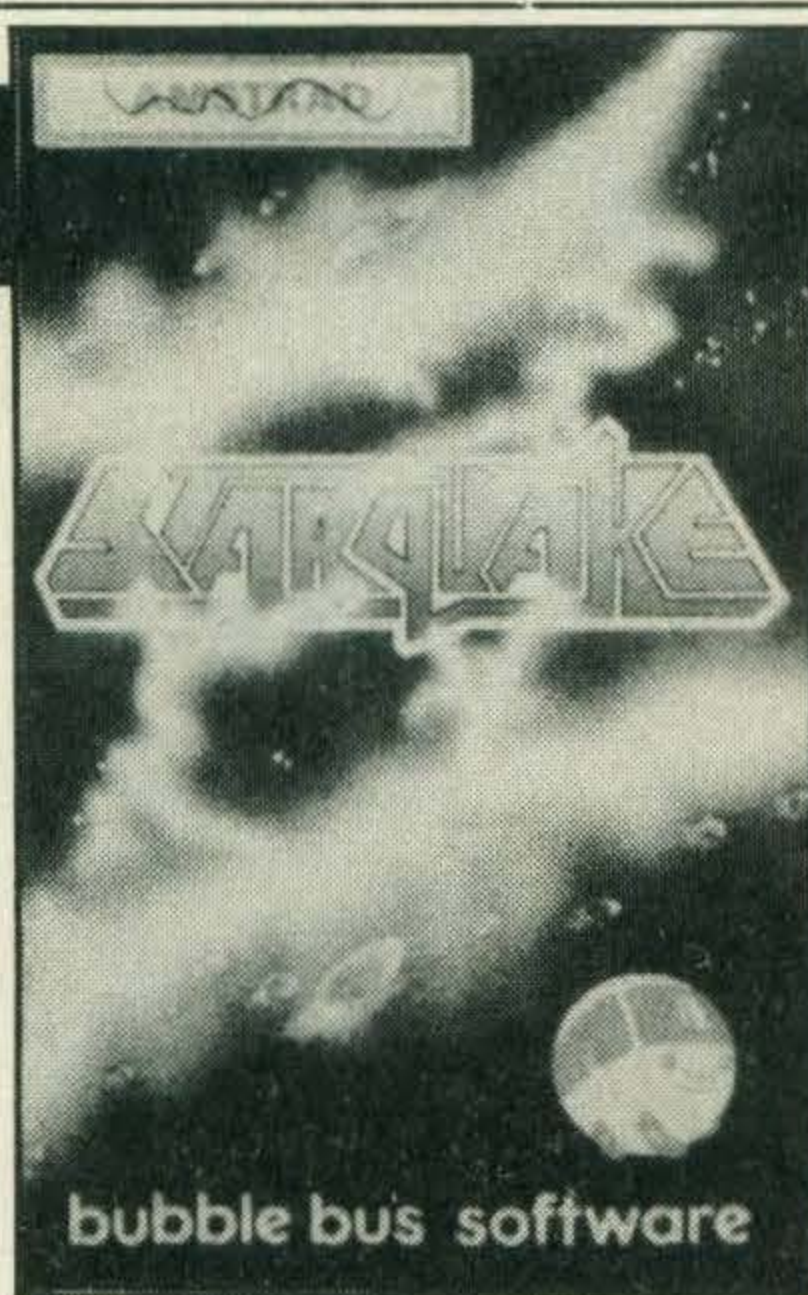
**GRAPHICS** ★ ★

**SOUND** ★ ★

**VALUE** ★ ★

**VERDICT** ★ ★





## STARQUAKE

£8.95

**SUPPLIER:** Bubble Bus  
**TYPE:** Arcade-adventure  
**FORMAT:** Cassette  
**RAM NEEDED:** 64K

**GRAPHICS** ★ ★ ★

**SOUND** ★ ★ ★

**VALUE** ★ ★ ★

**VERDICT** ★ ★ ★

Okay, we admit it, we've not the slightest idea what's going on in this multi-multi-screen arcade adventure from Bubble Bus, but we still thought it was terrific and one of the best of this month's batch of releases.

Don't blame us, we didn't get a set of instructions, and don't blame Bubble Bus because by the time you read this, finished MSX versions will be in the shops. Not for long though, as we expect that anyone with any taste who likes an arcade challenge in the style of those very popular Ultimate games will be parting with their pennies fairly quickly.

The game, in fact, is said to have over 500 screens, and that seemed a conservative estimate at times — we'd have willingly swapped around the values of five lives and 500 screens to give us some chance of succeeding at whatever it is we were meant to be doing. POKEs, anyone?

Using the cursor keys or joystick you control a little blob and it seems his dangerous mission is to reach an unstable planet that's emerging from a black hole somewhere at the edge of the galaxy. The core of the planet has to be rebuilt or there'll be a terrific implosion and then it's bye-bye universe.

You're provided with a Galaxy A-Z, and this shows that the game is choc-a-block

with elements such as secret passages, skeletonauts, teleports, weapon zapping and even flexible thingydoos — the mind boggles.

Not that our A-Z helped us much, although we did discover that you can find ways of flying about the screens as well as walking and you have to avoid the sparks that fly between what look like the horns of Viking helmets — very unflexible thingydoos they are.

You can fly off the screen up, down, left or right and you'll have to keep a careful map otherwise you'll wander around like an amateur and get absolutely lost. (Of course we weren't foolish enough to do anything like that.)

The graphics are superb, smooth and fast-moving and the game comes over as a cross between *Sabre Wulf* and *Sorcery*, if such a thing can be imagined. All praise to the Bubble Bus designer and graphics man, Stephen Crow.

In its earlier Amstrad and Spectrum versions, *Starquake* has picked up 'Crash Smash' and *C&VG* 'Game of the Month' accolades and that's not in the least surprising. Good to see a great deal of care has obviously been taken in its conversion and we can therefore only declare it MSXcellent.

## CONGO

£1.99

According to the cassette inlay, this is "For all Donkey Cong enthusiasts — a chance to relive those yesterdays in the arcades", and it isn't just the spelling they've got wrong either. Real Donkey Kong enthusiasts will be bitterly disappointed if they expect this attempt at converting the arcade version to come even close to the fun and enjoyment of the original.

For anyone who might have been living in the depths of the jungle when Donkey Kong came out, this is a four-screen arcade game that requires you as the noble hero Mario, here renamed Alfredo, to rescue your lady friend from the clutches of the killer gorilla, the mighty Kong, except this version changes the villain of the piece to Congo the crazy circus bear. Bears, frogs, gorillas, penguins — it's a real menagerie this month.

He still shares Kong's liking for rolling barrels and throwing fire, however, and in the first screen you start at bottom left and have to zig-zag up the various platforms to reach the top level, whereupon the hairy one will take the young lady and remove her to the second screen, whereupon you get to do the same to a different design that also involves moving pulleys and a bit more planning.

The barrels come rolling down the ladders at regular intervals, and it's spotting the

intervals and the patterns that will enable you to move up the screen and leap over or avoid the barrels as they come at you. There are also one or two hammers lying around, and these you can pick up to bash the barrels with, although you can't climb the ladders while you're holding a hammer — and they also have this nasty habit of disappearing without warning, too. The ape, sorry, the bear, also throws down fireballs but these are a minor irritation and usually pretty easy to dodge.

It's surprising Alfredo can dodge anything, though, as his movement is so sluggish, while the bear consists of just three sprites, hardly the ultimate in micro animation.

Later screens include umbrellas to help you in your monkeying around the ladders and platforms, while on the final screen you have to flit about and remove the joints that hold the girders together in order to bring the dreaded Congo crashing to the ground and ensure that your damsel is no longer in distress.

The game at least has all the fripperies, like keyboard or joystick control, good hi-score table, pause option, music on/off option, and so on, but none of that makes up for the actual boredom of playing it. Not a good buy, even at £1.99



**SUPPLIER:** Livewire Software  
**TYPE:** Arcade  
**FORMAT:** Cassette  
**RAM NEEDED:** 32K

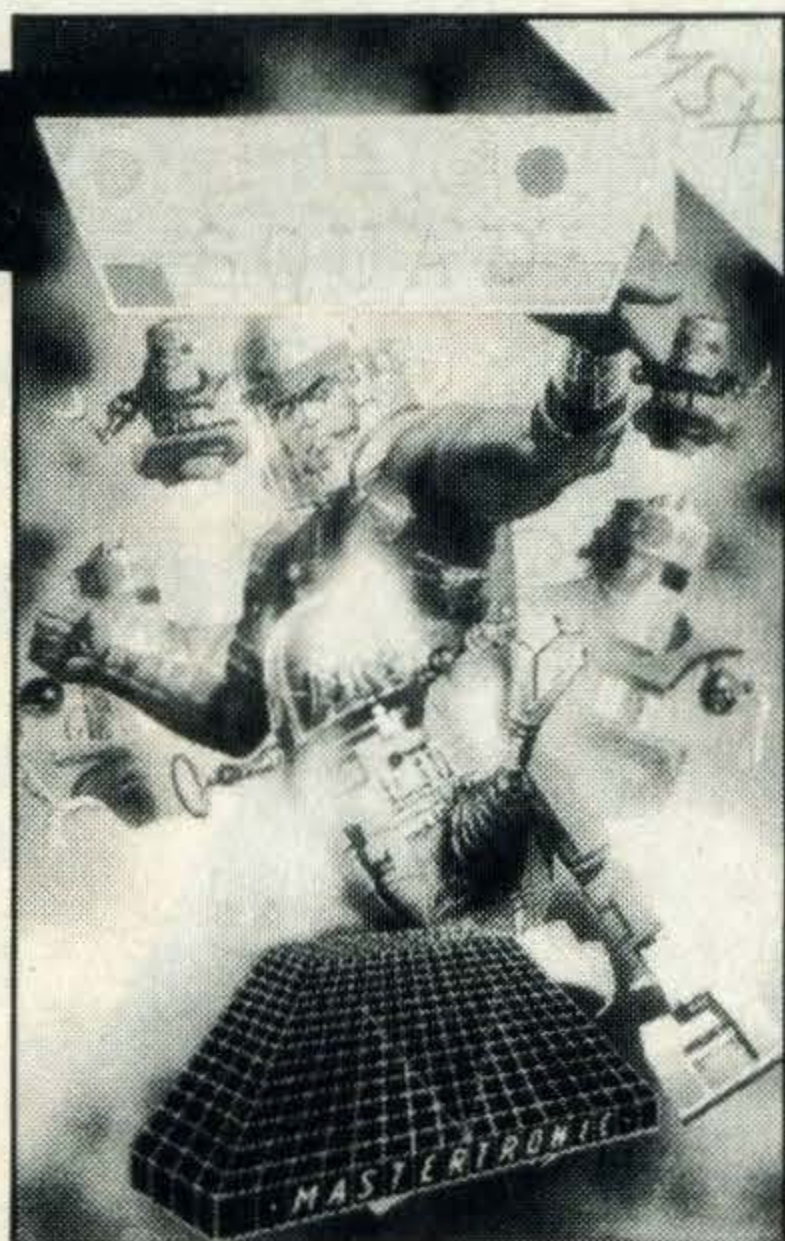
**GRAPHICS** ★ ★

**SOUND** ★

**VALUE** ★ ★

**VERDICT** ★





## OCTAGON SQUAD

£1.99

**SUPPLIER:** Mastertronic  
01-377 6880  
**TYPE:** Arcade/Strategy  
**FORMAT:** Cassette  
**RAM NEEDED:** 64K

**GRAPHICS** ★ ★ ★

**SOUND** ★ ★

**VALUE** ★ ★ ★

**VERDICT** ★ ★ ★

Strategy games seem to be the flavour of the month and *Octagon Squad* is yet another low-cost title from the Mastertronic stable. Not that I'm complaining as it is a great game to play. However before you play the game take a tip from us, read the cassette cover as you'll be utterly confused.

*Octagon Squad* is an icon driven game so you need to understand the controls and what you can and can't do, and even when you have everything under control, it still isn't plain sailing.

The key word to remember is team work. This game is described as a 'complex strategy and team work' title — and it is exactly that.

In a far-off galaxy planet 54.7 (funny name for a planet) has suffered a heavy chemical attack. There are twenty-six survivors all suffering from severe brain damage in a reactor maze.

Cast as a Commander your task is to take the Octagon Squad to the planet, beam out the survivors via the teleport fence and escape to safety. Sounds a doddle but it's going to take you a while to get to grips with the controls of the game and understand what's going on before you can make any serious attempts at winning.

Once you do get going you'll find that *Octagon Squad* is an intriguing game to play

and it is going to take a far superior gamer than I to master it. The screen is very busy at all times and in the initial stages somewhat confusing. Keeping your eye on the energy display readout is absolutely vital, and no matter how thirsty you get don't drink from the fountains as they contain an energy-draining chemical residue.

You are also required to coordinate the Equadroids — which is where the teamwork comes in. The droids need to be manoeuvred into strategic positions so that they block off the maze exits and keep the baddies out.

The wording on the cassette cover also informs you that there is a hidden edit function, all I can say is that it must be very well hidden as I certainly didn't find it despite several hours' play.

The graphics in *Octagon Squad* are superb and of the quality that is normally found in titles with a far higher price tag.

Intriguing, unusual and impressive are just some of the words I'd pick to describe the game, science fiction freaks will revel in it.

Like most of Mastertronics' titles this is being sold at a give-away price and one that I would definitely mention in my letter to Santa. What more can I say except Beam me up, Scotty!

## MOLECULE MAN

£1.99

Many software houses turn out cheap games by the thousand and most are pretty awful, but Mastertronic has built up a justly deserved reputation for launching cheap titles that are excellent value for money, and its latest game an arcade adventure called *Molecule Man* is no exception.

The blurb on the cassette cover describes this title as 'the infernal survival game', which just about sums it up as the name of the game is survival.

Radiation (you are told) is gnawing away at you and draining your body of all its precious energy resources. The pills that can bring about full recovery are hidden within a multi-perspective 3-dimensional maze, and one of your tasks is to find them.

However as with all good games there's just one itsy bitsy snag! You are lost in the maze and finding the pills as well as finding a route out will certainly keep you occupied.

You also have to race against time as the longer it takes you to find a way out, the more radiated you become, and the less chance of survival you stand.

The good news though is that there is a teleporter which you can use to escape from the maze, but the corresponding bad news is that it can only be operated by inserting 16 circuits (sounds a bit antiquated). Again, you've got to find them first.

Extra life can be bought and there are coins you can use but they are scattered (sparingly) throughout the maze. But once you find a coin you are then faced with an agonising decision: buy extra life, buy pills which can save your life or buy some bombs and blast a way out through the parts of the maze that would otherwise be completely unpassable.

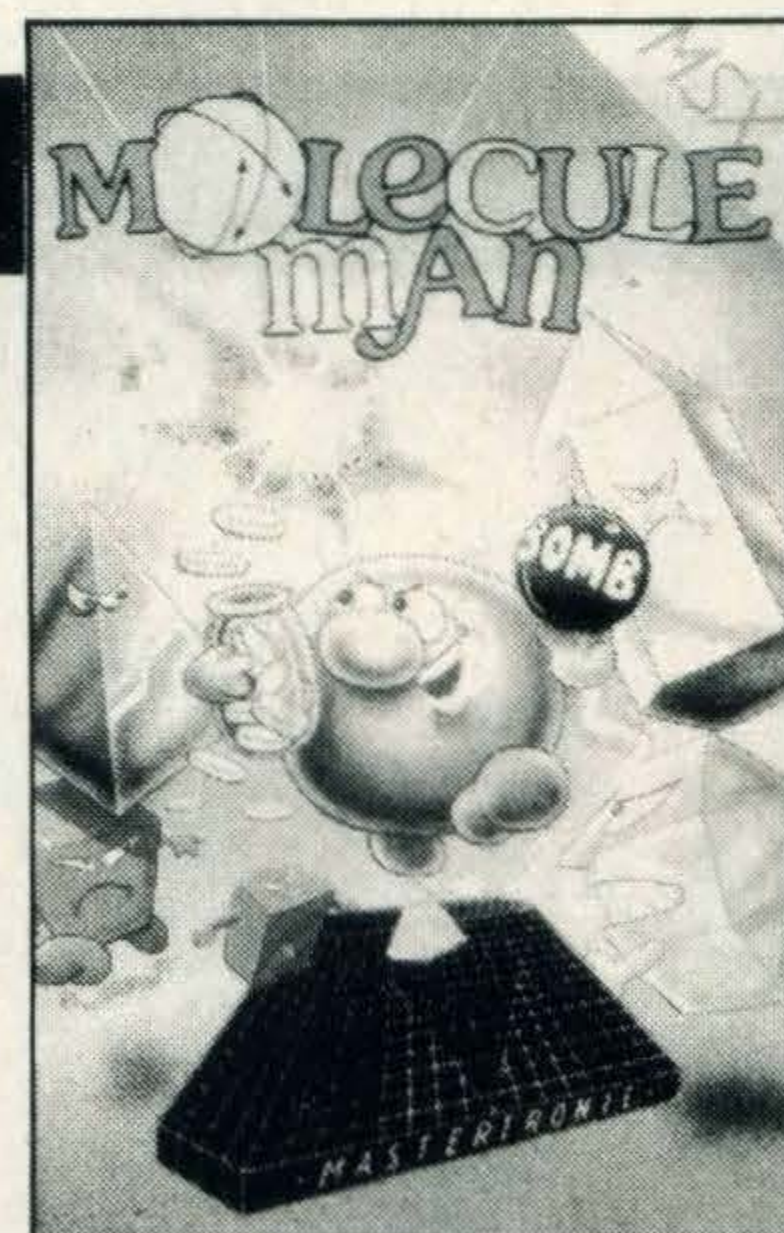
Phew! I'm just as exhausted describing it to you as actually playing it, there are so many decisions to make and possible courses of action to take that quick wits are essential.

Fortunately the game does have a pause facility so you can stop, plan your next move and have a quick cuppa at the same time to help you calm down.

I have thoroughly enjoyed playing *Molecule Man* as it is an 'adventure' game with a difference. The writers have incorporated some pretty fancy programming, with excellent graphics that are clear and colourful.

In fact it is very reminiscent of some of the Ultimate adventure/arcade games which have proved to be very popular.

This is the sort of title that will appeal to all ages and provide endless hours of intrigue and amusement. It is certainly worth buying even if it wasn't being offered at a knock-down price.



**SUPPLIER:** Mastertronic  
01-377 6880  
**TYPE:** Arcade  
**FORMAT:** Cassette  
**RAM NEEDED:** 64K

**GRAPHICS** ★ ★

**SOUND** ★ ★

**VALUE** ★ ★ ★

**VERDICT** ★ ★ ★



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Morgan, aged 29, has missed a large part of this season because of several other injuries. He pulled a leg muscle yesterday in an exhibition game, after scoring a spectacular goal against Rangers.

**Secret**

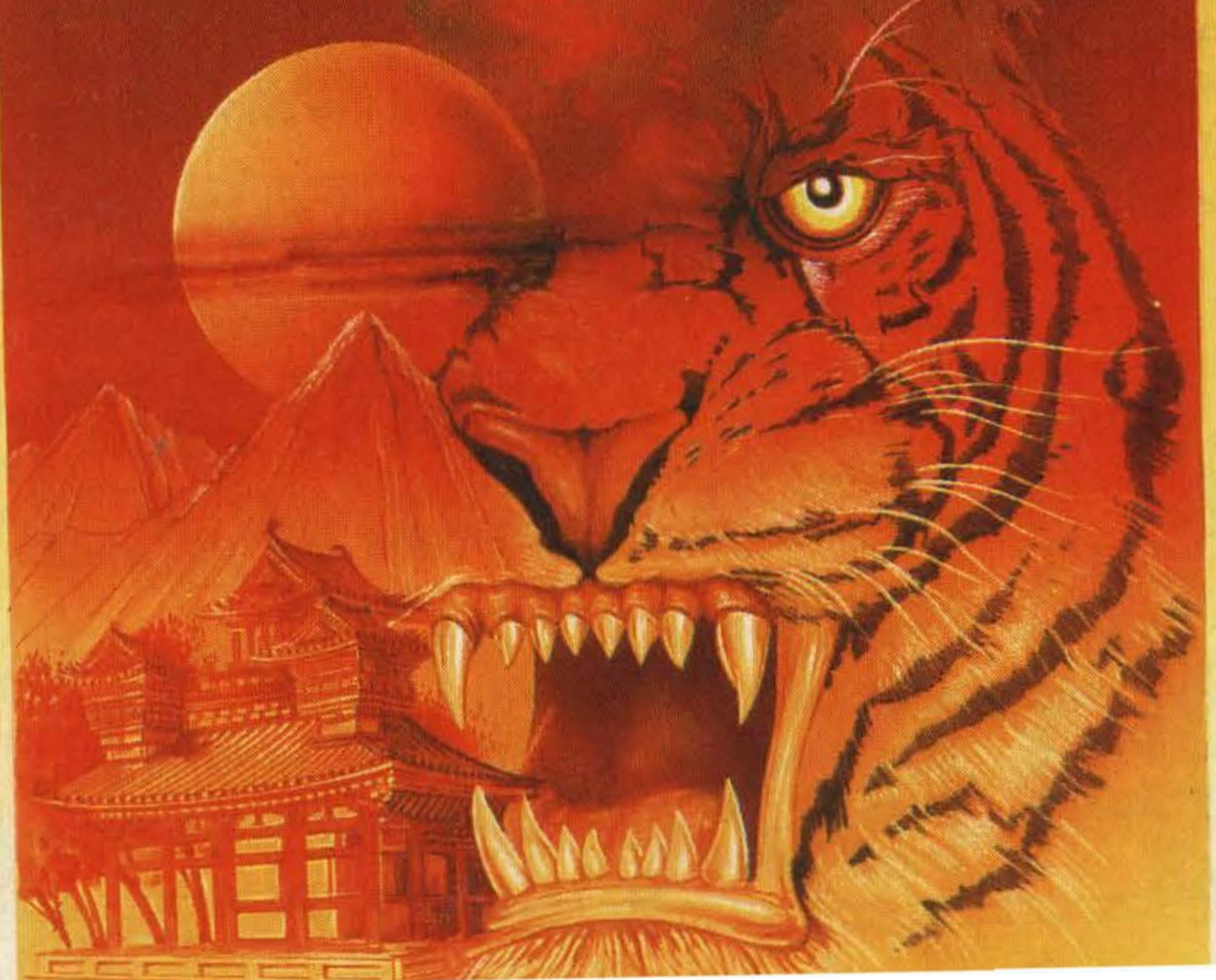
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**Trailblazer**



## ROBOT WARS CLASSICS



## ROBOT WARS

£2.99

**SUPPLIER:** Nemesis  
01-741 2299  
**TYPE:** Arcade  
**FORMAT:** Cassette  
**RAM NEEDED:** 64K

**GRAPHICS** ★ ★ ★

**SOUND** ★ ★

**VALUE** ★ ★

**VERDICT** ★ ★

Dedicated alien zappers will be in seventh heaven with this latest space blaster from the Aackosoft stable.

As the title suggests *Robot Wars* is a traditional zap 'em and kill 'em type game set in outer space. All the droids have gone bananas and together they have decided to declare war against you.

If that's not enough to contend with there's also a yellow pac-man type creature which bounds across the screen. Bump into him and you'll come to a swift demise. *Robot Wars* is a relatively easy game to get into, but it is difficult to knock up a really high score. The main snag is that bouncing character, he crops up everywhere and no matter which way I turned he still managed to kill me.

The game is made all the more interesting by the inclusion of a maze, which you have to work your way round whilst blasting the droids to smithereens.

The authors have also written a high score table into the game. You are given the option of saving it and seeing your name in lights or disregarding it. Personally I get a kick out of seeing my name at the top of the table!

Should you manage to knock up a lousy score little messages will start appearing on the screen. For example when I only managed to achieve a paltry 700 I was

informed in no uncertain terms that 'an onion could do better' — I'd like to see it try.

The sound effects are standard for this sort of game in other words they are more akin to the rat-a-tat-tat of an Uzzi sub-machine gun than a laser blaster. Mind you I've not heard a laser gun being fired but I'm convinced it doesn't sound like a conventional gun. But what can one expect from a game that only costs a few quid.

Knocking off aliens isn't normally my cup of tea but I enjoyed *Robot Wars*. It brought a very mean competitive streak in me that I didn't know existed. I also found the game compellingly addictive so much so that I couldn't leave it alone and your editor only managed to drag me away from the screen by being very persuasive!

*Robot Wars* will appeal to all ages and should keep many a boisterous child occupied for several hours (mums and dads might bear this point in mind as the Christmas holidays loom nearer). And at such a low price it is the sort of game that can be thrown to the back of the cupboard when you're sick of it and retrieved at a later date when you tire of all those adventures and athletic titles.

There are few games that I give strong recommendations to and *Robot Wars* is one of them. At £2.99 you can't go wrong.

## VESTRON

£1.99

Having left Konami's excellent *Nemesis* a smouldering heap in my cartridge slot I'll admit to fancying my chances on *Vestron* by a new company called Players.

The game is aptly subtitled 'an impossible mission' because it seems to find it necessary to obliterate any timid player until he sinks through the floor with shame at his poor performance.

The story behind the game is that you must save Earth, which is one of a few planets remaining to be conquered by the Amstradian empire. Sadly, Earth is dying and to hold off the dreaded Amstradians it will need a great deal of energy for many years to come. This is where you come in.

You are sent to *Vestron* armed with nothing at all to obtain the 'caloscin crystal' with which the Earth could win the war against the Amstradians. This is essentially a *Jetpack* type game and I have seen many of this breed before. To the best of my knowledge all of them were better than this.

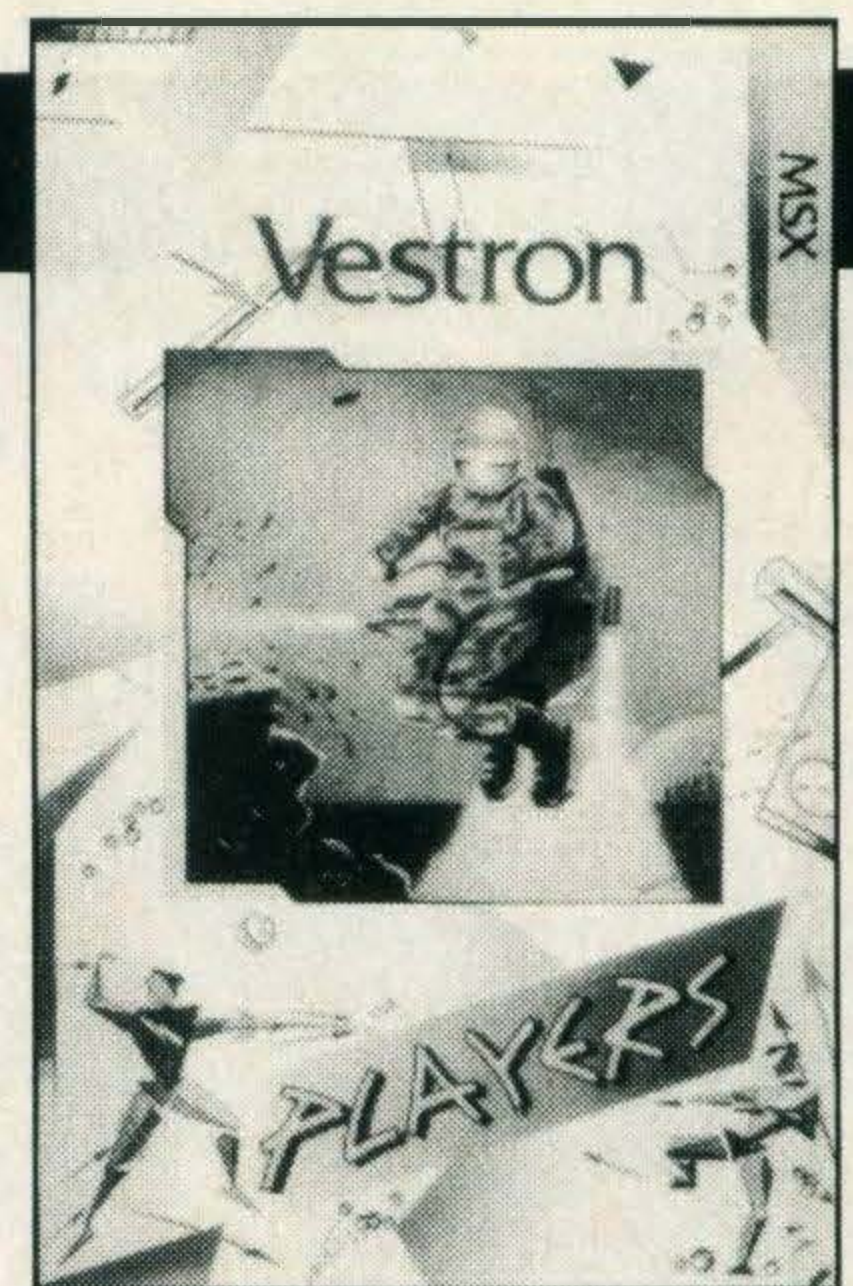
To reach this crystal you must first hover around a number of screens picking up little energy globes, some of which are real devils to pick up even if you fly over them several times. Avoiding the Amstradian ships which wander aimlessly to and fro is more tricky than it seems but you are

equipped with a hyperspace option which transports you to a random part of the screen and more often than not on top of an alien. The next part of the game is really quite unnecessary and perhaps a bit too difficult. I found all three of my lives swiftly disposed of in a matter of milliseconds by a funny green blur and a message appeared reading 'mission terminated' — there's faith for you.

Later I found dodging to be a satisfactory defence as long as it is at the last minute. A whole batch of missiles follow and a similar technique is needed to avoid them all, going faster every time if you want to survive.

It was after seeing the second level that I saw the game as nothing more than a rather bland astro-Blogger with irritating and suicidal intervals. On the whole the game is neat and tidy, though retaining an amateur feel about it.

I still feel *Players* could offer better and will not dismiss them because of an unfortunately poor first effort, but I would not buy this game at any price. *Players* seems to be an ironic title for a software house producing such unplayable games, which no company can afford to do as the games business becomes more competitive and standards rise.



**SUPPLIER:** Players  
**TYPE:** Arcade  
**FORMAT:** Cassette

**GRAPHICS** ★ ★

**SOUND** ★

**VALUE** ★ ★

**VERDICT** ★



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### MSX COMPUTER AND SOFTWARE

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# COMPETITION RESULTS



**I**f the response to our recent competitions is anything to go by, Yamaha, Star and Hisoft are favourite names among MSX Computing readers.

In the June/July issue we ran two competitions. Sally Bloomfield of Glenochil Village in Scotland is the winner of a Star NL10 printer. She correctly identified the 'bugs' printed in the magazine — they were of course prime numbers.

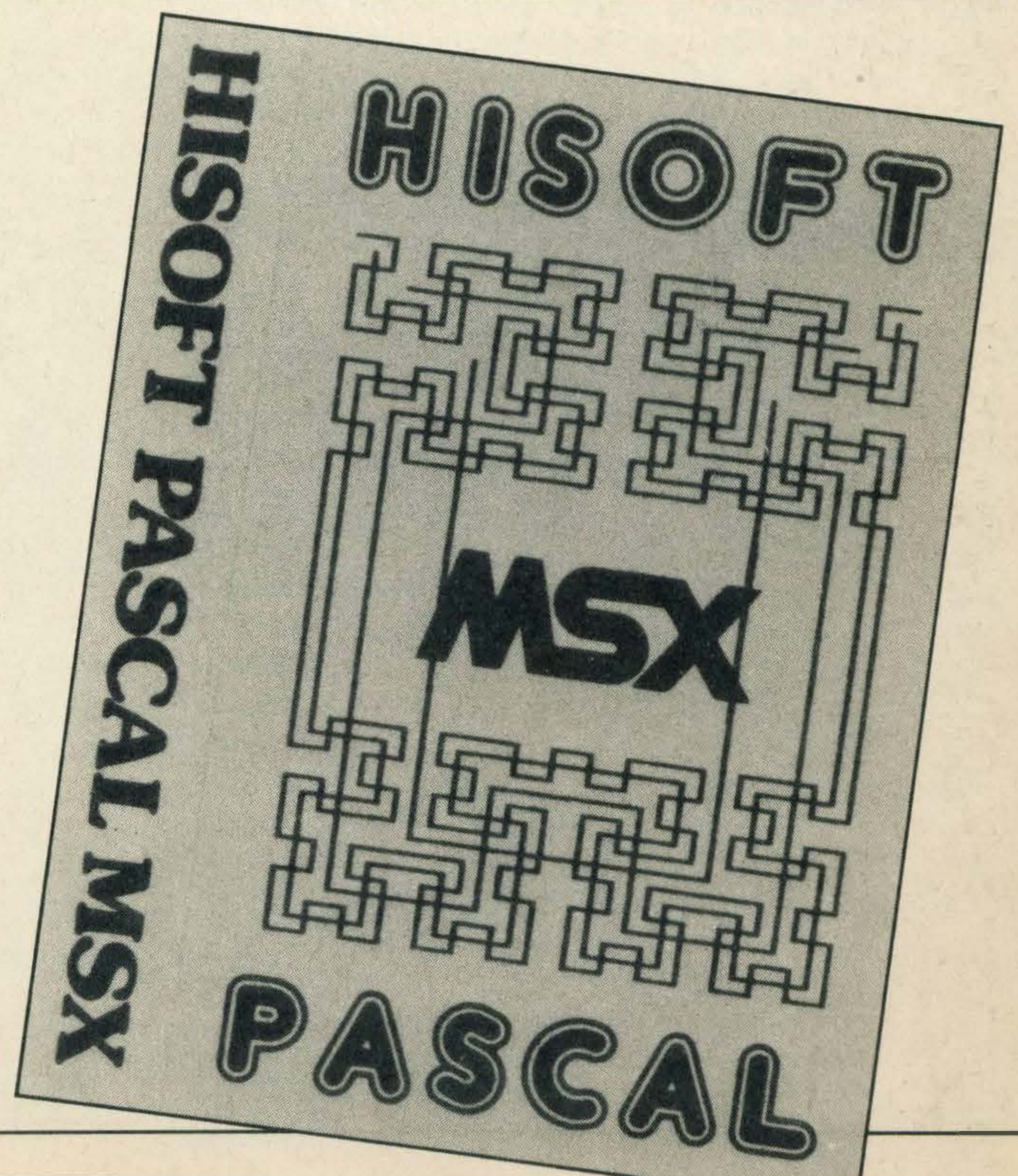
The second competition in the same issue was to win one of twelve Hisoft programming packages by telling us the number of books and magazines scattered on an untidy desktop. This one proved a little harder to crack, but the correct answer was nineteen.

The six Devpac MSX winners are Leo Mescia of Hendon, A.R. Edwards of Bexhill-on-Sea, Roger Adlard of Hod-

desdon, C. Ogunremi of Biggleswade, Andrew Bamford of Huthwaite Sutton in Ashfield, and Jim McAreavy from Newry, County Down. Winners who expressed a preference for Pascal MSX were S. Lewis of Milford Haven, Karyn-Ann Marshall of South Croydon, B. Strzelecki of Tewkesbury, Daren Sangeelee of Edinburgh, Wilson Aitken of Alloa, and Mark Liu of Virginia Water.

In the October/November issue, we asked you to write a software review.

Frankly we expected a fairly limited response to this — in general, the number of entries goes down as the competition becomes harder to enter. But you did us proud, with over 1000 entries, many of very high standard. Thank you for your efforts. The winner of the magnificent 128K Yamaha CX5M II is Karl Wilson, of Whitehaven.









```

360 IF INKEY$<>" " THEN 360 ELSE 370
365 AK
370 CLS:A$="STAGE 3 (THE DAM)":A=0:G
OSUB 1000
380 A$="^^^^^^^^^^^^^^^^^^^^":A=1:GOSUB
1000
390 A$=" REDUCE YOUR SPEED UNTIL TH
E GAUGE IS LEVEL WITH THE BLUE LINE
, ADJUST HEIGHT UNTIL THE TWO CIRCL
ES OVERLAP AND TURN RED.
":A=3:GOSUB 1000
400 A$=" CHECK THE SIGHTS(BOTTOM R
IGHT) TO SEE IF THE DAM EDGES (WH
ITE BOX) ARE TOUCHING THE SIGHTS. W
HEN THEY DOPRESS SPACE OR FIRE TO RE
LEASE BOMB !":A=8:GOSUB 1000
410 A$=" NOW SIT BACK AND WATCH TO
SEE IF YOU HAVE BEEN ACCURATE,
IF NOT YOU WILL BE TOLD WHERE YO
U MADE THE MISTAKE":
A=13:GOSUB 1000
420 A$="GENERAL FLYING":A=17:GOSUB 1
000
430 A$=" DONT FLY TOO SLOW (STA
LL), TOO FAST (OVERHEAT)
,OR TOO LOW (CRASH)
!":A=18:GOSUB 1000
440 A$=" PRESS SPACE BAR":
A=21:GOSUB 1000
450 IF INKEY$<>" " THEN 450 ELSE 460
460 CLS:A$=" CONTROL BY CURSOR OR
JOYSTICK":A=0:GOSUB 1000
470 A$=" UP :- REDUCES HEIGHT":A=
5:GOSUB 1000
480 A$="DOWN :- INCREASES HEIGHT":A
=9:GOSUB 1000
490 A$="LEFT :- REDUCES SPEED":A=1
3:GOSUB 1000
495 A$="RIGHT:- INCREASES SPEED":A=
17:GOSUB 1000
500 A$=" PRESS SPACE BAR TO LOAD DAM
BUSTERS":A=21:GOSUB 1000
510 IF INKEY$=" " THEN CLOAD"DAMBUS"
520 GOTO 510
1000 LOCATE 0,A:FOR I=1 TO LEN(A$):B
$=MID$(A$,I,1):PRINT "*";CHR$(&H1D);
:FOR J=0 TO 10:NEXT J:PRINT B$;:IF B
$=" " THEN NEXT I ELSE BEEP:FOR J=0
TO 10:NEXT J:NEXT I
1010 RETURN

```

```

10 CLEAR 1000
20 OPEN"GRP:"ASE1
30 DIM SPR$(16)
40 E=RND(-TIME)
50 GOSUB 2210
60 KEY OFF
70 GOSUB 2860
80 STRIG(1)OFF:STRIG(0) OFF
90 SCREEN 2,2:COLOR 15,1,1:CLS
100 GOSUB 2300
110 GOSUB 2970
120 GOSUB 2380
130 PUT SPRITE0,(X,Y),14,0
140 PUT SPRITE1,(X+16,Y),14,1

```

```

150 IF Z=0 AND PLAY(1)=0 THEN GOSUB
3490
160 GOSUB 2000
170 GOSUB 1780
180 IF Z>0 THEN PUT SPRITE2,(C,154),
14
190 PUT SPRITE7,(C+20,156),6,4
200 PUT SPRITE8,(C-50,170),6,4
210 PUT SPRITE9,(G,140),6,5
220 PUT SPRITE10,(G+100,142),6,5
230 IF Z<1 THEN GOTO250
240 GOSUB 1590
250 C=C-4:IF C<=0 THEN C=255:D=0:Z=Z
+1
260 IF Z=8 THEN GOTO 310
270 G=G-2
280 GOSUB 940
290 IF TIME>100 AND TIME<200 THEN GO
SUB 3490
300 GOTO 130
310 REM ***** GAME £2 *****
320 RESTORE 1580:D=1:L=1:C(1)=C+100:
Y(2)=-36
330 GOSUB 3490
340 PUT SPRITE3,(-20,-20)
350 PUT SPRITE2,(-20,-20)
360 SPRITE$(3)=SPR$(6)
370 SPRITE$(6)=SPR$(16)
380 GOSUB 2000
390 GOSUB 1780
400 SPRITE OFF
410 PUT SPRITE 0,(X,Y),14
420 PUT SPRITE 1,(X+16,Y),14
430 PUT SPRITE7,(C+20,156),6,4
440 PUT SPRITE8,(C-50,170),6,4
450 PUT SPRITE9,(G,140),6,5
460 PUT SPRITE10,(G+100,142),6,5
470 IFD=1 THEN GOSUB 1520
480 PUT SPRITE11,(C,Y(1)),4,3
490 PUT SPRITE12,(C,Y(1)+17),4,6
500 PUT SPRITE13,(C(1),Y(2)),5,3
510 PUT SPRITE14,(C(1),Y(2)+17),5,6
520 SPRITE ON
530 C=C-4:IF C<=-16 THEN C=255:D=1
540 C(1)=C(1)-4:IF C(1)<=-16 THEN C(
1)=255:D=1
550 G=G-2
560 ON SPRITE GOSUB 1460
570 GOSUB 940
580 GOTO 380
590 REM ***** GAME£3 *****
600 PUT SPRITE 11,(-20,-20),0:PUT SP
RITE 12,(-20,-20),0
610 SPRITE$(14)=SPR$(7):SFRITE$(6)=S
PR$(14)
620 SPRITE$(4)=SPR$(8):SPRITE$(5)=SP
R$(9):SPRITE$(7)=SPR$(5):SPRITE$(8)=
SPR$(15)
630 BU=2:SP=+3:Z=0:L=2
640 GOSUB 870
650 PUT SPRITE0,(X,Y),14
660 PUT SPRITE1,(X+16,Y),14
670 GOSUB 2000
680 GOSUB 1780
690 IF TIME>75 AND TIME<100 THEN GOS
UB 3490
700 PUT SPRITE7,(C+20,156),6,7
710 PUT SPRITE8,(C-50,170),6,7
720 PUT SPRITE9,(G,140),6,8

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# LISTINGS

```
730 PUT SPRITE10, (G+100,142),6,8
740 IF C=127 THEN Z=Z+1:GOSUB 840
750 C=C-4:IF C<=0 THEN C=255:Z=Z+1:G
OSUB 840
760 G=G-2
770 IF Z=10 THEN GOSUB 3030
780 IF Z>7 THEN GOSUB 1030
790 IF STRIG(JYK)=-1 AND BOMB<1 THEN
  BOMB=1:X(3)=X:Y(1)=Y:GAP=190-Y
800 IF BOMB=1 THEN GOSUB 1270
810 IF Z<2 THEN GOSUB 2650
820 GOSUB 940
830 GOTO 640
840 REM ****TOWER VIEW*****
850 LINE(164-(Z*2),26)-(164+(Z*2),26
+Z/2),15,BF
860 RETURN
870 REM ***** CIRCLES *****
880 X(1)=75+(Y/4)
890 X(2)=130-(Y/4)
900 FOR I=1 TO 2
910 PUTSPRITE14+I, (X(I),24),13+I,14
920 NEXT I
930 RETURN
940 REM ***** UNSTEADY *****
950 IF L<>1 AND HIT=0 THEN RETURN
960 U=RND(1):U=INT(3*U+1)
970 IF U=1 THEN Y=Y+HIT
980 IF U=2 THEN Y=Y-HIT
990 IF L<>1 THEN RETURN
1000 IF U=1 THEN Y(1)=Y(1)+1:Y(2)=Y(
2)-2
1010 IF U=3 THEN Y(1)=Y(1)-1:Y(2)=Y(
2)+2
1020 RETURN
1030 REM ***** DAM *****
1040 PUT SPRITE 4, (C+2,164),14
1050 PUT SPRITE 5, (C,152),14
1060 LINE(C+8,159)-(C+16,170),12,BF
1070 RETURN
1080 REM ***** SPLASH *****
1090 T=255:GOSUB 3410
1100 FOR I=1 TO 100
1110 IF I>0 AND I<15 THEN SPRITE$(6)
=SPR$(12)
1120 IF I>14 AND I<30 THEN SPRITE$(6)
)=SPR$(11)
1130 IF I>29 AND I<50 THEN SPRITE$(6)
)=SPR$(10)
1140 IF I>49 AND I<80 THEN SPRITE$(6)
)=SPR$(11)
1150 IF I>79 THEN SPRITE$(6)=SPR$(12
)
1160 PUT SPRITE 6, (X(3),150),COL
1170 NEXT
1180 IF BA=1 THEN GOSUB 1350 ELSE GO
TO 3030
1190 REM ***** BOMB HIT?*****
1200 IF Z<9 THEN BA=-1:COL=7:PIT=1
1210 IF Z>9 THEN BA=-1:COL=11:PIT=2
5
1220 IF Z=9 AND C<X(3)-2 THEN BA=-1:
COL=11:PIT=25
1230 IF Z=9 AND C>X(3)+9 THEN BA=-1:
COL=7:PIT=1
1240 IF BU=5.5 AND Z=9 AND C>X(3)-2
AND C<X(3)+12 THEN BA=1:COL=7
1250 GOSUB 1080
1260 RETURN
```

```
1270 REM *****MOVE BOMB*****
1280 STRIG(1) OFF
1290 Y(1)=Y(1)+SP
1300 IF Y(1)>=150 THEN SP=-3:BU=BU+.
5:T=75:PIT=1:GOSUB 3410
1310 IF Y(1)<160-(GAP/BU) THEN SP=+3
1320 IF BU=5.5 AND Y(1)>=150 THEN GO
TO 1190
1330 PUT SPRITE6, (X(3),Y(1)),15
1340 RETURN
1350 REM ***** FLOOD *****
1360 GOSUB 3550
1370 SPRITE$(6)=SPR$(13)
1380 FOR I=C TO 255 STEP 4
1390 LINE(I,159)-(I-4,169),4,BF
1400 PUT SPRITE 6, (I-12,157),15,6
1410 FOR J=0 TO 20:NEXT J
1420 NEXT I
1430 GOTO 3030
1440 PUT SPRITE6, (X(3),Y(1)),15
1450 RETURN
1460 REM *****HIT BALLOON *****
1470 IF Y>=128 THEN RETURN
1480 SPRITE OFF
1490 IF Y<128 AND HIT<4 THEN HIT=HIT
+1:GOSUB 1740
1500 SPRITE ON
1510 RETURN
1520 REM ***** BARRAGE BALLOONS *****
*
1530 IF C=255 THEN READ Y(1)
1540 IF C(1)=255 THEN READ Y(2)
1550 D=0
1560 IF Y(1)=0 THEN 590
1570 RETURN
1580 DATA 60,100,80,67,47,89,56,70,5
6,49,99,68,88,67,100,-36,-36,0,0
1590 REM***** FLAK *****
1600 IF D=1 THEN GOTO 1650
1610 F=154
1620 E=RND(1):E=INT(134*E)+20
1630 SPRITE$(3)=SPR$(2)
1640 D=1:I=154-E
1650 I=I-2:IF I<=0 OR F-8<=Y THEN GO
TO 1690
1660 PUT SPRITE3, (C-1,F-8),14
1670 F=F-10*(I/100)
1680 RETURN
1690 REM ***** EXPLODE *****
1700 SPRITE$(3)=SPR$(4)
1710 PUT SPRITE3, (C,F-8),15
1720 T=100:PIT=25:GOSUB 3410
1730 IF F>Y-16 AND F<Y+16 AND C<X+32
AND C>X-16 AND HIT<4 THEN HIT=HIT+1
ELSE GOTO 1760
1740 PSET(52+(15*HIT),7):COLOR 6:PRI
NT £1,"0"
1750 IF HIT=4 THEN CRA=1
1760 D=0
1770 RETURN
1780 REM***** REV CHECK *****
1790 IF REV>60 THEN BEEP:HEAT=HEAT+1
1800 IF REV<30 THEN Y=Y+2:
1810 IF REV<10 THEN CRA=1
1820 IF REV>29 AND REV<61 AND HEAT>0
AND CRA<1 THEN HEAT=HEAT-1
1830 IF HEAT=20 THEN CRA=1
1840 IF CRA=1 THEN Y=Y+4
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1850 RETURN
1860 REM ***** CRASH *****
1870 PUT SPRITE3, (-20, -20), 0
1880 IF HEAT=20 OR Y>=154 THEN GOTO 1
960
1890 Y=Y+5: X=X+2
1900 PUT SPRITE0, (X, Y), 14
1910 PUT SPRITE1, (X+16, Y), 14
1920 IF Y>=140 THEN GOTO 1960
1930 FOR I=1 TO 50: NEXT I
1940 GOTO 1890
1950 GOTO 1950
1960 SPRITE$(0)=SPR$(4): SPRITE$(1)=S
PR$(4)
1970 PIT=25: T=200: GOSUB 3410:
1980 FOR I=0 TO 400: NEXT I
1990 GOTO 3030
2000 REM ***** MOVEMENT *****
2010 A=0: A=STICK(JYK)
2020 IF A=0 THEN GOTO 2140
2030 IF A=1 THEN Y=Y+2: GOTO 2140
2040 IF A=3 THEN REV=REV+1: GOTO 2110
2050 IF A=5 THEN Y=Y-2: GOTO 2140
2060 IF A=7 THEN REV=REV-1: GOTO 2110
2070 IF A=2 THEN Y=Y+2: REV=REV+1: GOT
D 2110
2080 IF A=4 THEN Y=Y-2: REV=REV+1: GOT
D 2110
2090 IF A=6 THEN Y=Y-2: REV=REV-1: GOT
D 2110
2100 IF A=8 THEN Y=Y+2: REV=REV-1
2110 LINE(200, 8)-(240, 13), 1, BF
2120 IF REV>29 AND REV<61 THEN COLOR
12 ELSE COLOR 6
2130 LINE(200, 8)-(200+(REV/2), 13), , B
F
2140 IF REV<=0 THEN REV=0: GOSUB 1860
2150 IF Y>140 THEN GOSUB 1860
2160 IF Y<45 THEN Y=45
2170 X=REV*2
2180 IF L<2 THEN GOTO 2200
2190 IF Y=109 OR Y=110 THEN PUT SPRI
TE14, (X(1), 24), 6, 14 ELSE PUT SPRITE1
4, (X(1), 24), 0, 14
2200 RETURN
2210 REM ***** SPRITES *****
2220 RESTORE 2680
2230 FOR A=0 TO 16
2240 FOR B=1 TO 32
2250 READ A$
2260 SPR$(A)=SPR$(A)+CHR$(VAL(A$))
2270 NEXT B
2280 NEXT A
2290 RETURN
2300 REM ***** SET UP SPRITES *****
2310 SPRITE$(0)=SPR$(0)
2320 SPRITE$(1)=SPR$(1)
2330 SPRITE$(2)=SPR$(3)
2340 SPRITE$(3)=SPR$(2)
2350 SPRITE$(4)=SPR$(5)
2360 SPRITE$(5)=SPR$(15)
2370 RETURN
2380 REM ***** SET UP SCREEN *****
2390 COLOR 15, 1, 1: CLS
2400 LINE(0, 150)-(255, 191), 12, BF
2410 LINE(0, 151)-(255, 151), 3
2420 LINE(0, 153)-(255, 153), 3
2430 LINE(0, 157)-(255, 157), 3
2440 LINE(0, 165)-(255, 165), 3

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2450 LINE(0, 181)-(255, 181), 3
2460 DRAW"BM15, 0": DRAW"C4R235F3D14G3
L235H3U14E3"
2470 DRAW"BM20, 3": DRAW"C4R100F2D10G2
L100H2U10E2"
2480 PSET(24, 7), 1: PRINT£1, "HITS: "
2490 DRAW"BM150, 3": DRAW"C4R95F2D10G2
L95H2U10E2"
2500 PSET(152, 7), 1: PRINT£1, "REVS: "
2510 PAINT(130, 7), 4
2520 DRAW"BM84, 20"
2530 DRAW"C4D20F2R100E2U20"
2540 DRAW"BM89, 22"
2550 DRAW"R40F2D14G2L40H2U14E2"
2560 DRAW"BM143, 22"
2570 DRAW"R40F2D14G2L40H2U14E2"
2580 PAINT(87, 22), 4
2590 DRAW"BM149, 26"
2600 DRAW"D6R3D1R3D1R3D1R3D1R3D3U3R3
U1R3U1R3U1R3U1R3U6"
2610 X=30: Y=51: Z=0: REV=30: C=255: G=25
5: HIT=0: CRA=0: HEAT=0: L=0
2620 LINE(200, 8)-(200+(REV/2), 13), 12
, BF
2630 LINE(215, 4)-(215, 16), 4
2640 RETURN
2650 REM ***** LAKE *****
2660 LINE(C-4, 159)-(C+4, 170), 4, BF
2670 RETURN
2680 REM ***** DATA *****
2690 DATA 0, 48, 120, 120, 72, 111, 247, 24
7, 247, 255, 240, 96, 0, 0, 0, 0, 16, 8, 6, 9, 25
5, 143, 119, 87, 118, 142, 254, 0, 0, 0, 0, 0
2700 DATA 14, 31, 51, 93, 255, 255, 255, 3,
253, 254, 230, 243, 127, 63, 30, 0, 0, 0, 0, 0,
224, 80, 94, 253, 253, 250, 252, 0, 0, 0, 0, 0
2710 DATA 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0
2720 DATA 1, 2, 3, 3, 3, 3, 3, 3, 7, 11, 27, 60
, 63, 63, 63, 63, 0, 128, 128, 128, 128, 128, 1
28, 128, 192, 160, 176, 120, 248, 248, 248, 2
48
2730 DATA 1, 30, 36, 36, 64, 67, 41, 16, 32,
64, 49, 78, 50, 11, 4, 0, 144, 110, 17, 1, 137,
103, 194, 164, 28, 146, 18, 22, 36, 198, 76, 6
0
2740 DATA 0, 2, 114, 12, 29, 36, 67, 6, 26, 3
3, 33, 1, 1, 1, 1, 3, 0, 194, 44, 16, 81, 167, 16
8, 54, 65, 128, 128, 128, 128, 128, 128, 192
2750 DATA 31, 63, 127, 127, 255, 255, 255,
191, 159, 64, 64, 64, 32, 16, 8, 8, 193, 33, 21
1, 215, 255, 247, 243, 225, 193, 0, 0, 0, 0, 0,
0, 0
2760 DATA 3, 15, 31, 63, 63, 127, 127, 127,
127, 63, 63, 31, 15, 3, 0, 0, 192, 240, 184, 18
8, 220, 206, 238, 254, 254, 252, 252, 248, 24
0, 192, 0, 0
2770 DATA 25, 25, 31, 22, 22, 22, 22, 30, 28
, 23, 19, 19, 19, 19, 27, 15, 152, 152, 248, 10
4, 104, 104, 104, 120, 56, 232, 200, 200, 200
, 200, 216, 240
2780 DATA 5, 7, 5, 7, 3, 1, 1, 1, 1, 1, 1, 1, 1,
1, 1, 1, 64, 192, 64, 192, 128, 0, 128, 128, 12
8, 128, 192, 192, 192, 224, 224, 224
2790 DATA 0, 3, 14, 25, 38, 56, 155, 13, 69,
21, 69, 39, 6, 67, 17, 3, 0, 192, 70, 168, 252,
236, 217, 176, 164, 160, 162, 168, 224, 66, 2
08, 192

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3480 RETURN
3490 REM **** PLANE SOUND ****
3500 SOUND 0,255:SOUND 1,15
3510 SOUND 7,188:SOUND 8,28
3520 SOUND 9,11:SOUND 11,240
3530 SOUND 12,1:SOUND 13,14
3540 RETURN
3550 REM ***** FLOOD SOUND *****
3560 SOUND 6,5
3570 SOUND 7,&B10110111
3580 SOUND 8,&B00011111
3590 SOUND 11,25
3600 SOUND 12,5
3610 SOUND 13,13
3620 RETURN
    
```

```

380 Z=1:GOSUB 3010 'Matrix plot(part
)
390 STRIG(J) ON:GOSUB3550:GOSUB3500
400 RETURN
410 'End of main prog
420 'This is the Load routine
430 ON ERROR GOTO 690
440 GOSUB 2760 'Isolate main prog
450 PRINT£1," Start tape - CTRL+STOP
to exit "
460 OPEN "CAS:sprite" FOR INPUT AS £
3
470 INPUT £3,C$
480 PRINT£1," Title =";RIGHT$(C$,10)
490 PRINT £1," O.K.? (Y/N)"
500 GOSUB 1030 'string input
510 IF LEFT$(B$,1)="N"OR LEFT$(B$,1)
="n" THEN 420
520 PRESET(150,70):PRINT £1," Please
wait"
530 L8=VAL(MID$(C$,1,2))
540 FOR N=1 TO L8*8
550 INPUT £3,N1
560 S(N)=N1
570 NEXT N
580 L16=VAL(MID$(C$,3,2))
590 FOR N=1 TO L16*16
600 INPUT £3,N1
610 B(N)=N1
620 NEXT N
630 IF MID$(C$,6,1)="8" THEN SIZE=8
640 IF MID$(C$,6,1)="6" THEN SIZE=16
650 CLOSE£3
660 GOSUB 2830 'Recover main prog
670 ON ERROR GOTO 0
680 RETURN
690 'error handling
700 PRINT£1,CHR$(13);" TRY LOADING A
GAIN (Y/N)"
710 CLOSE £3
720 GOSUB 1030 'string input
730 H=2
740 IF LEFT$(B$,1)="Y" OR LEFT$(B$,1)
)="y" THEN H=1
750 IF H=1 THEN RESUME 420
760 RESUME 650
770 'This is the Save routine
780 GOSUB 2760 'Isolate main prog
790 PRINT£1," What title do you want
?"
800 PRINT£1,
810 GOSUB 1030 'Screen2 string input
820 PRINT £1,""
830 PRINT £1," Start tape (Record),a
nd press RETURN"
840 GOSUB 2300 'Wait for ret key
850 PRINT£1," Please wait"
860 A$="" '15 spaces
870 MID$(A$,1)=STR$(L8) ' Assemble
880 MID$(A$,3)=STR$(L16) 'length +
890 IF SIZE=8 THEN MID$(A$,6)="8"
900 IF SIZE=16 THEN MID$(A$,6)="6"
910 MID$(A$,7)=B$
920 OPEN "cas:sprite" FOR OUTPUT AS
£3
930 PRINT£3,A$
940 FOR N=1 TO L8*8
950 PRINT£3,S(N)
960 NEXT N
    
```

## SPRITE EDITOR

By A. Fedyn

Our first reaction to this program was 'oh no, not again!' But this sprite editor rises above the pack by offering a very wide range of features, enabling you to create sprites of various sizes and save them on cassettes for later use. It is also very easy to use, with clear instructions and logical use of the keyboard and screen. All pound signs are # (SHIFT 3).

```

100 ' Main program
110 MAXFILES=3
120 GOSUB 3140 'Start
130 X=1:Y=1:ON STRIG GOSUB 280,280:S
TRIG(J) ON
140 P=STICK(J)
150 X=X+V(P,1) ' move
160 Y=Y+V(P,2) ' cursor
170 GOSUB 220 ' Check range
180 PUT SPRITE 0,(X*12-2,(Y*12)-13),
1,1
190 FOR N=1 TO 40:NEXT N 'delay
200 GOTO 140
210 'Check that cousor within range
220 IF X>SIZE THEN X=1
230 IF X<1 THEN X=SIZE
240 IF Y>SIZE THEN Y=1
250 IF Y<1 THEN Y=SIZE
260 RETURN
270 'Reverse single bit in sprite
280 STRIG(J) OFF:GOSUB3540:GOSUB 352
0
290 GOSUB 220 'Check range
300 IF SIZE = 16 THEN 350
310 N=FNA(T8,X,Y)
320 IF N=1 THEN S(T8*8-7+Y-1)=S(T8*8
-7+Y-1)-2^(8-X)
330 IF N=0 THEN S(T8*8-7+Y-1)=S(T8*8
-7+Y-1)+2^(8-X)
340 GOTO 380
350 N=FNB(T16,X,Y)
360 IF N=1 THEN B(T16*16-16+Y)=B(T16
*16-16+Y) -2^(16-X)
370 IF N=0 THEN B(T16*16-16+Y)=B(T16
*16-16+Y) +2^(16-X)
    
```



# LISTINGS

```
970 FOR N=1 TO L16*16
980 PRINT£3,B(N)
990 NEXT N
1000 CLOSE £3
1010 GOSUB 2830 'Recover main prog
1020 RETURN
1030 'screen 2 string input
1040 COLOR 15,4,4
1050 B$="":PRINT£1," >";:FOR N=1TO 2
0:NEXT N
1060 A$=INKEY$
1070 IF A$=CHR$(13) THEN 1120
1080 B$=B$+A$:PRINT£1,A$;
1090 IF LEN(B$)>6 THEN 1120
1100 GOTO 1060
1110 PRINT £1,CHR$(13)
1120 RETURN
1130 'Here in lies the code routine
1140 GOSUB 2760 'isolate maid prog
1150 COLOR 15,4,4
1160 CLS
1170 Z=1 'Ask for printer + number
1180 GOSUB 2450
1190 IF SIZE=8 AND N<=L8 THEN 1240
1200 IF SIZE=16AND N<=L16THEN 1240
1210 PRINT £1,"Number too large"
1220 FOR N=1 TO 300:NEXTN:Z=0:GOSUB
2450
1230 GOTO 1190
1240 CLS:PRESET(0,0)
1250 Z=1:N=N-1
1260 IF SIZE=8 THEN GOSUB 1830
1270 IF SIZE=16THEN GOSUB 1940
1280 IF SIZE=16 THEN A$=A$+B$
1290 IF H=0 THEN 1320
1300 PRINT£2,"The code for sprite ";
N+1
1310 PRINT£2,""
1320 PRINT£1," The code for sprite "
;N+1
1330 PRINT£1,""
1340 FOR N=1 TO LEN(A$) STEP 2
1350 C$=MID$(A$,N,1)
1360 D$=MID$(A$,N+1,1)
1370 IF H=0 THEN 1400
1380 PRINT£2,N;" "":ASC(C$);"      ,&h"
;HEX$(ASC(C$))
1390 PRINT£2,N+1;" "":ASC(D$);"      ,&
h";HEX$(ASC(D$))
1400 PRESET(2,(N-1)*4+16)
1410 PRINT£1,N;" "":ASC(C$)
1420 PRESET(70,(N-1)*4+16)
1430 PRINT£1," ,&h";HEX$(ASC(C$))
1440 PRESET(113,(N-1)*4+16)
1450 PRINT£1,N+1;" "":ASC(D$)
1460 PRESET(180,(N-1)*4+16)
1470 PRINT£1," ,&h";HEX$(ASC(D$))
1480 NEXT N
1490 GOSUB 2300 'Wait for ret key
1500 GOSUB 2830 'Recover main prog
1510 RETURN
1520 'This is the size swap routine
1530 GOSUB 2760 'Isolate main prog
1540 IF SIZE=16 THEN SIZE=8:GOTO 156
0
1550 IF SIZE=8 THEN SIZE=16 'size
1560 GOSUB 2830 'Recover main prog
1570 RETURN
```

```
1580 'This is the view routine
1590 GOSUB 2760 'Isolate main prog
1600 CLS
1610 IF SIZE =8 THEN GOSUB 1800
1620 IF SIZE =16THEN GOSUB 1910
1630 IF SIZE =8 THEN N=INT(L8/3)+1
1640 IF SIZE =16THEN N=INT(L16/3)+1
1650 N1=1
1660 FOR Y=0 TO N+1
1670 FOR X=1 TO 4
1680 PUTSPRITE Y+X,(X*50,Y*18),1,N1
1690 PRESET(X*50-25,Y*18+5)
1700 PRINT£1,N1
1710 N1=N1+1
1720 IF SIZE=8 AND N1>L8 THEN 1760
1730 IF SIZE=16AND N1>L16THEN 1760
1740 NEXT X
1750 NEXT Y
1760 GOSUB 2300 'Wait for ret key
1770 SCREEN2,2:SPRITE$(1)=S$
1780 GOSUB 2830 'Recover main prog
1790 RETURN
1800 '8x8 sprite compliation
1810 Z=0:SCREEN2,1
1820 FOR N=0 TO L8-1
1830 A$=""
1840 FOR N1=1 TO 8
1850 A$=A$+CHR$(S(N1+N*8))
1860 NEXT N1
1870 IF Z=1 THEN 1900
1880 SPRITE$(N+1)=A$
1890 NEXT N
1900 RETURN
1910 '16x16 sprite compliation
1920 Z=0:SCREEN2,2
1930 FOR N=0 TO L16-1
1940 A$="";B$=""
1950 FOR N1=1 TO 16
1960 A$=A$+CHR$(INT(B(N1+N*16)/256)A
ND255)
1970 B$=B$+CHR$((B(N1+N*16)-32768!)A
ND 255)
1980 NEXT N1
1990 IF Z=1 THEN RETURN
2000 SPRITE$(N+1)=A$+B$
2010 NEXT N
2020 RETURN
2030 'Swap routine
2040 GOSUB 2760 'Isolate main prog
2050 FOR N=0 TO SIZE-1
2060 IF SIZE =8 THEN S(T8*8-7+N)=NOT
S(T8*8-7+N) AND 255
2070 IF SIZE =16THEN B(T16*16-15+N)=
-(B(T16*16-15+N))-1
2080 NEXT N
2090 GOSUB 2830 'Recover main prog
2100 RETURN
2110 'The help routine follows
2120 Z=0
2130 GOSUB 2760 'Isolate main prog
2140 RESTORE 3760 'HELP text
2150 CLS:COLOR 15,4,4
2160 FOR Y=1 TO 25
2170 PRESET(X*8,Y*10)
2180 READB$:IF B$="END"THEN GOTO 226
0
2190 IF B$="PAGE" THENGOSUB2300'ret
2200 IF B$="PAGE" THEN 2150
2210 FOR X=1 TO LEN(B$)
```



```

2220 PRESET(X*8,Y*10)
2230 PRINT£1,MID$(B$,X,1)
2240 NEXT X
2250 NEXT Y
2260 IF Z=1 THEN 2290
2270 GOSUB 2300 'Wait for ret key
2280 GOSUB 2830 'Recover main prog
2290 RETURN
2300 PRESET(10,175):PRINT£1,"Press R
ETURN"
2310 A$="1":A$=INKEY$:IF A$<>CHR$(13
)THEN 2310
2320 RETURN
2330 'This is the change sprite code
2340 GOSUB 2760 'Isolate main prog
2350 Z=0
2360 GOSUB 2440 'Screen2 input
2370 IF SIZE=16THEN T16=N
2380 IF SIZE=16AND N>L16THEN L16=N
2390 IF SIZE=8 THEN T8=N
2400 IF SIZE=8 AND N>L8 THEN L8=N
2410 GOSUB 2830 : 'Recover main prog
2420 RETURN
2430 '
2440 'Screen2 number input
2450 COLOR 15,4,4:CLS:PRESET(0,10)
2460 PRINT£1," Which sprite do you w
ant?"
2470 IF SIZE = 8 THEN N=T8
2480 IF SIZE = 16 THEN N=T16
2490 PRINT£1," Last on screen was ";
N
2500 '
2510 '
2520 PRINT£1," RETURN for last sprit
e"
2530 PRESET(7,40):PRINT£1,">";
2540 A$="":B$=""
2550 A$=INKEY$
2560 IF A$=""THEN 2550
2570 IF A$=CHR$(13) THEN 2620
2580 IFASC(A$)<48ORASC(A$)>57THEN255
0
2590 PRINT£1,A$;
2600 B$=B$+A$
2610 GOTO 2550
2620 IF B$=""THEN 2650
2630 N=VAL(B$)
2640 IF N>30 OR N<1 THEN 2450
2650 PRINT£1,""
2660 IF Z=0 THEN 2750
2670 PRINT£1," List results to print
er? "
2680 PRINT£1," (Y/N) >"
2690 A$="":H=2
2700 A$=INKEY$
2710 IF A$=""THEN 2700
2720 IF A$="Y" OR A$="y"THEN H=1
2730 IF A$="N" OR A$="n"THEN H=0
2740 IF H=2 THEN 2700
2750 RETURN
2760 'Disable keys etc
2770 CLS
2780 GOSUB 3540 'x1=x etc
2790 STRIG(J) OFF
2800 GOSUB 3520 'Key off
2810 PUTSPRITE 0,(X,Y),0,1
2820 RETURN

```

```

2830 'Enable keys etc
2840 GOSUB 3550 'x=x1 etc
2850 GOSUB 2890 'Matrix plot
2860 GOSUB 3490 'Key on
2870 STRIG(J)ON
2880 RETURN
2890 'draw an edit screen
2900 CLS:COLOR 15,4,4
2910 RESTORE 3710'Get lables
2920 X=1:Y=1:Z=0
2930 FOR Y=1 TO 8
2940 PRESET(195,Y*10):READ A$
2950 PRINT £1,Y;CHR$(29);A$
2960 NEXT Y
2970 'Matrix plot starts here
2980 FOR X=1 TO SIZE
2990 FOR Y=1 TO SIZE
3000 'Secondary entry point(from 380
3010 PRESET(X*12,(Y*12)-10)
3020 IF SIZE=16 THEN 3060
3030 IF FNA(T8,X,Y)=1 THEN COLOR 1
3040 IF FNA(T8,X,Y)=0 THEN COLOR 15
3050 GOTO 3080
3060 IF FNB(T16,X,Y)=1 THEN COLOR 1
3070 IF FNB(T16,X,Y)=0 THEN COLOR 15
3080 PRINT £1,CHR$(219)
3090 IF Z=1 THEN RETURN
3100 NEXT Y
3110 NEXT X
3120 X=1:Y=1 'Return to origin
3130 RETURN
3140 CLS:DEFINT A-Z:DEFSNG A-B:DEFSN
G N
3150 DIM S(248),B(496),V(8,2)
3160 COLOR 15,4,4
3170 OPEN "grp:" FOR OUTPUT AS £1
3180 OPEN "lpt:" FOR OUTPUT AS £2
3190 DEF FNA(T8,X,Y)=(S((T8-1)*8+Y)
/2^(8-X)MOD2
3200 DEF FNB(T16,X,Y)=(FNC(B((T16-1)
*16+Y)/2^(16-X)))
3210 DEF FNC(A)=A-(INT(A/2)*2)
3220 KEYOFF
3230 SIZE=8 :T8=1:T16=1:L8=1:L16=1
3240 GOSUB 3560 'Start screen
3250 PRINT "Joystick or cursor (J or
C)"
3260 J=2:Z=1
3270 INPUT A$:A$=LEFT$(A$,1)
3280 IF A$="J" OR A$="j" THEN J=1
3290 IF A$="C" OR A$="c" THEN J=0
3300 IF J=2 THEN 3240
3310 PRINT "Instructions (Y/N)"
3320 INPUT A$:A$=LEFT$(A$,1)
3330 SCREEN2,2
3340 IF A$="y" OR A$="Y"THEN GOSUB 2
140
3350 '** Define sprite **
3360 S$="":RESTORE 3660
3370 FOR N=1 TO 32
3380 READ N1
3390 S$=S$+CHR$(N1)
3400 NEXT N
3410 SPRITE$(1)=S$
3420 RESTORE 3730 'Joystick vectors
3430 FOR N=1 TO 8
3440 READ X,Y
3450 V(N,1)=X

```



# LISTINGS

```
3460 V(N,2)=Y
3470 NEXT N
3480 GOSUB 2890 'Matrix plot
3490 ON KEY GOSUB 1520,2330,2030,158
0,1130,420,770,2110
3500 FOR N=1 TO 8:KEY(N) ON:NEXT N
3510 GOTO 3530
3520 FOR N=1 TO 7:KEY(N) OFF:NEXT N
3530 RETURN
3540 X1=X:Y1=Y:RETURN
3550 X=X1:Y=Y1:RETURN
3560 WIDTH 37 :CLS
3570 LOCATE ,4
3580 PRINT"           Sprite Editor"
3590 PRINT"           -----"
3600 PRINT:PRINT
3610 PRINT"           By A.Fedyn"
3620 PRINT"           -- ----"
3630 PRINT:PRINT:PRINT
3640 FOR N=1 TO 500:NEXT N:RETURN
3650 'Data for the cursor sprite
3660 DATA 255,128,128,128,128,128,12
8,128
3670 DATA 128,128,128,255,0,0,0,0
3680 DATA 240,16,16,16,16,16,16,16
3690 DATA 16,16,16,240,0,0,0,0
3700 'Lables for the function keys
3710 DATA Size,Num.,Swap,View,Code,L
oad,Save,Help
3720 'Vectors for cursor or joystick
3730 DATA 0,-1,1,-1,1,0,1,1
3740 DATA 0,1,-1,1,-1,0,-1,-1
3750 'Help text
3760 DATA "           Sprite Editor"
3770 DATA "           -----"
3780 DATA ""
3790 DATA "This program allows you t
o "
3800 DATA "design sprites without pe
n and"
3810 DATA "paper.",""
3820 DATA "Each sprite is shown as a
grid"
3830 DATA "on the screen. Each squar
e on"
3840 DATA "the screen represents an
"
3850 DATA "element of the sprite."
3860 DATA ""
3870 DATA "A cursor (the black squar
e)"
3880 DATA "shows were you are."
3890 DATA "PAGE"
3900 DATA
3910 DATA "The cursor is moved aroun
d the "
3920 DATA "screen with the cursor ke
ys or"
3930 DATA "joystick. When it is corr
ect"
3940 DATA "pressing either space bar
or"
3950 DATA "fire button respectivly w
ill"
3960 DATA "change the colour of that
"
3970 DATA "element"
```

```
3980 DATA ""
3990 DATA "Other functions are calle
d by"
4000 DATA "pressing one of the funct
ion"
4010 DATA "keys (1-8)."
4020 DATA "These functions are descr
ibed "
4030 DATA "on the next pages"
4040 DATA "PAGE"
4050 DATA " Function 1 - Size"
4060 DATA " ----- - ----"
4070 DATA ""
4080 DATA "This selects the other si
ze of"
4090 DATA "sprite."
4100 DATA "ie. changes 8x8 to 16x16"
4110 DATA "or changes 16x16 to 8x8"
,"PAGE"
4120 DATA " Function 2 - Num. "
4130 DATA " ----- - ----"
4140 DATA ""
4150 DATA "Allows any sprite to be e
dited."
4160 DATA "Answer the prompt (>) wit
h any"
4170 DATA "number between 1 and 30."
4180 DATA ""
4190 DATA "Sprite Editor will allow
up to"
4200 DATA "30 of each size sprite to
be"
4210 DATA "in memory at any one time
"
4220 DATA "PAGE"
4230 DATA" Function 3 - Swap"
4240 DATA" ----- - ----"
4250 DATA""
4260 DATA"The current sprite is inve
rted"
4270 DATA"That is each element is ch
anged"
4280 DATA"in colour. Black becomes w
hite,"
4290 DATA"and white becomes black"
4300 DATA"PAGE"
4310 DATA" Function 4 - View"
4320 DATA" ----- - ----"
4330 DATA""
4340 DATA"All the sprites of the cur
rent "
4350 DATA"size are displayed."
4360 DATA""
4370 DATA"8x8 sprites are shown magn
ified."
4380 DATA"16x16 sprites are unmagnif
ied."
4390 DATA""
4400 DATA"Each sprite is shown again
st its"
4410 DATA"number.,""PAGE"
4420 DATA " Function 5 - Code "
4430 DATA " ----- - ----"
4440 DATA ""
4450 DATA "A list of the numbers tha
t"
4460 DATA "make up the specified spr
ite,"
```



```

4470 DATA "of the current size is produced"
4480 DATA ""
4490 DATA "The list is given in hex and"
4500 DATA "decimal. Each byte is numbered"
4510 DATA "and may be dumped to a printer."
4520 DATA ""
4530 DATA "Simply answer the prompt (>)"
4540 DATA "with the required sprite and"
4550 DATA "printer option as required."
4560 DATA "PAGE"
4570 DATA " Function 6 - Load"
4580 DATA " ----- - ----"
4590 DATA ""
4600 DATA "Data for sprite patterns is"
4610 DATA "read from tape. When the header"
4620 DATA "has loaded a title is printed."
4630 DATA "Pressing CTRL + STOP will abort"
4640 DATA "the load with an option to"
4650 DATA "go back to the main program or"
4660 DATA "reload data."
4670 DATA "PAGE"
4680 DATA " Function 7 - Save"
4690 DATA " ----- - ----"
4700 DATA ""
4710 DATA "Data for all sprite patterns"
4720 DATA "is dumped to tape"
4730 DATA "First you are asked for a title"
4740 DATA "which should be given after"
4750 DATA "the prompt (>)."
4760 DATA "PAGE"
4770 DATA " Function 8 - Help"
4780 DATA " ----- - ----"
4790 DATA ""
4800 DATA "Help reprints this text"
4810 DATA "PAGE"
4820 DATA "", "", "", "", "", "", "", "", "", "F
or Sprite Editor program,", "PAGE", "
END"

```

# TANK ATTACK

By Jacob Lildballe

This game from Denmark puts you in control of a cannon which runs along a railway line out from your headquarters. Enemy tanks appear on your radar, and you have to destroy them before they reach your base. The program uses a machine-code routine poked in from Basic to give the horizontal scrolling effect — a mistake in the data lines here could crash the machine, so you must save the program on cassette before you attempt to run it. All pound signs are # (SHIFT 3).

```

10 REM TANK ATTACK
20 REM BY JACOB LILDBALLE
100 CLEAR200,61439!:DEFINTA-Z:OPEN"gr
p:"ASE1:I=RND(-TIME):ONINTERVAL=150
GOSUB1860
110 COLOR15,1,1:SCREEN2,2:GOSUB1920:
GOSUB1620:INTERVALOFF:BEEP:COLOR,4
120 SV=1:SC!=0:LI=5:EX!=5000
130 TA=0:GOSUB1470
140 GOSUB1230
150 HE=0:HR=0
160 FS=0:X=760:S1=0:PUTSPRITE9,(X/21
+10,10),15,10
170 FORQ=1TO2:GOSUB1050:NEXT
180 REM * Move cannon *
190 D=STICK(0):E=STICK(1)
200 IFD=0ANDE=0THEN240
210 IFD=3DRE=3THEN340
220 IFD=7DRE=7THEN370
230 PUTSPRITE9,(X/21+10,10),15,10
240 IFS1=1THEN290
250 IFSTRIG(0)=0ANDSTRIG(1)=0ANDSTRIG(3)=0THEN440
260 IFSK>24THEN440
270 S1=1:ST=39:SY=125:SX=127:SR=-9
280 GOSUB1190:SK=SK+1:LINE(250,0)-(2
50-SK*4,6),1,BF
290 SY=SY+SR:SR=SR+1:ST=ST+1
300 IFSR>-1THENSR=-1
310 IFS7=54THENS1=0:GOSUB400:SX=256:
SY=192
320 PUTSPRITE1,(SX,SY),6,ST/3
330 GOTO440
340 X=X+4:IFX>1600THENX=1600:GOTO240
350 D=USR1(0):SX=SX-4:FX=FX-7
360 GOTO230
370 X=X-4:IFX<0THENX=0:GOTO240
380 D=USR(0):SX=SX+4:FX=FX+7
390 GOTO230
400 REM * Check bullet *
410 FORI=1TO2
420 IFX(I)-X+ST(I)<SX+4ANDSX+4<X(I)-
X+15-ST(I)THEN940
430 NEXT:RETURN
440 REM * Move tanks *
450 FORI=1TO2
460 IFD(I)=1THENIFINT(RND(1)*40)=1TH
ENQ=I:GOSUB1050ELSE570
470 IFHE=1THEN670
480 X(I)=X(I)-SV
490 IFX(I)<-67THEN1310
500 PUTSPRITE6+I,(X(I)/21+7,13-ST(I)
),15,17+(HE=1)-(I=2ANDHE=1)*2
510 IFX(I)-X<-15ORX(I)-X>255THENT(I)
=HE:PUTSPRITE3+I,(256,192),0,20:PUTS
PRITE13,(256,192),0,20:GOTO570
520 IFT(I)=0THENIFINT(RND(1)*20)=1AN
DHE=0THENT(I)=1
530 IFINT(RND(1)*30)=1ANDHE=0THENT(I)
)=0
540 IFT(I)=1ANDINT(RND(1)*25)=1THENG
OSUB640
550 IFHE=1THENPUTSPRITE4,(X(I)-X,69)
,1,8+(HR=-1):PUTSPRITE13,(X(I)-X,85)
,1,11:GOTO570
560 PUTSPRITE3+I,(X(I)-X,70),1,ST(I)
+ST(I)-1+T(I)
570 IFFS=0THEN620
580 FY=FY+FR:FR=FR+1:F1=F1-1
590 IFFX<0ORFX>255THENSFS=0:FX=256:FY
=192

```



# LISTINGS

```
600 IFF1=65-(HE=1)*3THENGOSUB730
610 PUTSPRITE2,(FX,FY),1,F1/5
620 NEXT
630 GOTO180
640 IFFS=1THENRETURN
650 GOSUB1190:FS=1:FX=X(I)-X+4:F1=89
+(HE=1)*3:FY=74:FR=-8-(HE=1)*4
660 RETURN
670 REM * Move helicopter *
680 IFX>X(1)THENHR=1
690 IFX+255<X(1)THENHR=-1
700 IFX(1)-X>0ANDX(1)-X<255ANDINT(RN
D(1)*20)=1THENHR=-HR
710 X(1)=X(1)+HR*(1+SV)
720 GOTO500
730 REM * You die *
740 FS=0:IFFX>240ORFX<15THENFX=100:F
Y=84
750 IFPOINT(FX,FY+7)=10ANDPOINT(FX+7
,FY+7)=10THENFX=256:FY=192:RETURN
760 FX=256:FY=192:PUTSPRITE2,(FX,FY
,0,20:GOSUB1190
770 LINE(40,40)-(215,48),12,BF:COLOR
1:PSET(79,41),12:PRINT£1,"YOU WERE H
IT"
780 FORJ=1TO50:COLOR,,8:FORQ=1TO40:N
EXT:COLOR,,1:FORQ=1TO40:NEXTQ,J
790 LI=LI-1:GOSUB1560:IFLI=0THENRETU
RN830
800 GOSUB1600
810 LINE(40,40)-(215,48),4,BF
820 RETURN
830 REM * Game over *
840 GOSUB1220
850 SOUND7,56:PLAY"o5defdefgefdefdge
fdd"
860 LINE(24,33)-(231,63),6,BF:LINE(2
6,35)-(229,61),1,B:COLOR1:PSET(95,37
),6:PRINT£1,"GAME OVER"
870 PSET(55,51),6:COLOR15:PRINT£1,"A
NOTHER GAME (Y/N)?"
880 IFSC!>HS!THENHS!=SC!:GOSUB1580
890 FORI=1TO50:K$=INKEY$:NEXT
900 K$=INPUT$(1)
910 IFK$="n"ORK$="N"THENCOLOR15,4,4:
END
920 IFK$="y"ORK$="Y"THENBEEP:GOTO120
930 GOTO900
940 REM * You hit tank *
950 PUTSPRITE13,(256,192),0,20
960 PUTSPRITE6+I,(X(I)-X-2,70),6,9:P
UTSPRITE3+I,(X(I)-X,70),11,9:PUTSPRI
TE1,(X(I)-X+2,69),6,9
970 GOSUB1190
980 SC!=SC!+50*ST(I):GOSUB1520:TA=TA
+1:LINE(255,16)-(250-TA*6,21),1,BF
990 FORJ=1TO1500:NEXT
1000 D(I)=1:X(I)=3000
1010 PUTSPRITE3+I,(256,192),0,20:PUT
SPRITE6+I,(256,192),0,20
1020 IFHE=1THEN1100
1030 IFTA=15THENHE=1:Q=1:GOSUB1060
1040 RETURN
1050 IFHE=1OR(TA=14AND(D(1)=0ORD(2)=
0))THENRETURN570
1060 T(Q)=0:ST(Q)=RND(Q)*3+1:D(Q)=0
1070 X(Q)=RND(1)*1100+500:IFX(Q)-X>-
16ANDX(Q)-X<256THEN1070
1080 IFHE=1THENST(1)=0:D(2)=1:X(2)=3
```

```
000
1090 RETURN
1100 REM * You won *
1110 INTERVALON:FORQ=1TO2000:NEXT
1120 GOSUB1220:J=0
1130 LINE(24,33)-(231,63),1,BF:LINE(
26,35)-(229,61),11,B:COLOR9:PSET(96,
37),1:PRINT£1,"YOU WON":COLOR13:PRIN
T£1,"PRESS ANY KEY TO":COLOR
2:PRINT£1,"START IN THE NEXT LE
VEL"
1140 LINE(80,160)-(179,168),6,BF:COL
OR1:PSET(87,161),6:PRINT£1,"BONUS: ";
:COLOR15:PRINT£1,SV*2000:SC!=SC!+SV*
2000
1150 SV=2:GOSUB1520
1160 FORI=1TO50:K$=INKEY$:NEXT
1170 K$=INKEY$:IFK$=""THEN1170
1180 INTERVALOFF:BEEP:RETURN130
1190 REM * Crash *
1200 SOUND0,0:SOUND1,5:SOUND2,0:SOUN
D3,13:SOUND4,255:SOUND5,15:SOUND6,30
:SOUND7,0:SOUND8,16:SOUND9,16:SOUND1
0,16:SOUND11,0:SOUND12,5:SOUND13,0:S
OUND12,56
1210 RETURN
1220 FORJ=0TO13:PUTSPRITEJ,(256,192)
,0,20:NEXT:RETURN
4,BF:GOSUB1230:GOTO160
1470 REM * Write score on screen *
1480 SCREEN2:COLOR15:LINE(0,0)-(255,
32),1,BF:LINE(0,181)-(255,191),1,BF
1490 PSET(31,0),1:PRINT£1,"RADAR:":L
INE(7,10)-(105,30),15,B:DRAW"c15bm15
,28u2d1r80u1d2"
1500 PSET(111,0),1:PRINT£1,"AMMU:":G
OSUB1600:PSET(111,15),1:PRINT£1,"TAN
KS:":GOSUB1610
1510 PSET(7,183),1:PRINT£1,"SCORE:
LIVES: TOP:":GOSUB1520:GOSUB15
60:GOSUB1580:RETURN
1520 A$="000000":B$=STR$(SC!):Q=LEN(
B$)-1:MID$(A$,7-Q,Q)=RIGHT$(B$,Q)
1530 LINE(103-Q*8,183)-(103,191),1,B
F:PSET(55,183),1:PRINT£1,A$
1540 IFSC!>=EX!THENEX!=EX!+5000:LI=L
I+1:GOSUB1560
1550 RETURN
1560 COLOR15:LINE(159,183)-(168,191)
,1,BF:PSET(151,183),1:PRINT£1,LI
1570 RETURN
1580 A$="000000":B$=STR$(HS!):Q=LEN(
B$)-1:MID$(A$,7-Q,Q)=RIGHT$(B$,Q)
1590 LINE(255-Q*8,183)-(255,191),1,B
F:PSET(207,183),1:PRINT£1,A$:RETURN
1600 SK=0:FORJ=151TO147+(25-SK)*4STE
P4:DRAW"bm=j;,6r211u5":NEXT:RETURN
1610 FORJ=161TO155+(15-TA)*6STEP6:DR
AW"c7bm=j;,21r2e1h112g1br2u312r3d1":
NEXT:RETURN
1620 REM * Instructons *
1630 J=0:INTERVALON:GOSUB1860
1640 LINE(0,0)-(255,36),4,BF
1650 DRAW"c1bm5,6e1r18f1d3g116g1d20g
112h1u20h116h1u3bm30,6e1r18f1d25g112
h1u10h1110g1d10g112h1u25bm34,10e1r10
f1d5g1110h1u5"
1660 DRAW"bm55,6e1r2f1d4f12u16e1r2f1
d25g112h1u4h12d16g112h1u25bm80,6e1r2
f1d10e11f3g11f10g3h10d9g112h1u25"
```



```

1670 DRAW"c15bm110,6e1r18f1d25g112h1
u10h1110g1d10g112h1u25bm114,10e1r10f
1d5g1110h1u5bm135,6e1r18f1d3g116g1d2
0g112h1u20h116h1u3bm160,6e1r18f1d3g1
16g1d20g112h1u20h116h1u3"
1680 DRAW"bm185,6e1r18f1d25g112h1u10
h1110g1d10g112h1u25bm189,10e1r10f1d5
g1110h1u5bm210,6e1r18f1d7g112h1u3h11
10g1d17f1r10e1u2e1r2f1d6g1118h1u25bm
235,6e1r2f1d10e11f3g11f10g3h10d9g112
h1u25"
1690 FORI=7T082STEP25:PAINT(I,6),1:N
EXT:FORI=112T0237STEP25:PAINT(I,6),1
5:NEXT
1230 REM * Background *
1240 LINE(0,79)-(255,79),14:LINE(0,8
0)-(255,180),10,BF
1250 PRESET(0,71):FORI=0T0255STEP8:L
INE-(I+4,68+RND(1)*10),14:LINE-(I+8,
68+RND(1)*10),14:NEXT:PAINT(0,78),14
1260 GOSUB1290
1270 DRAW"bm40,180c12m60,155m90,150m
170,150m200,155m220,180l180bm122,149
c1m125,126r10m138,149l116":PAINT(45,1
79),12:PAINT(125,148),1:CIRCLE(130,1
72),15,1,,.4:PAINT(130,176),1:CIRCL
E(130,180),31,1,,.3.16,.7:PUTSPRITE0,
(123,71),1,0
1280 RETURN
1290 PRESET(0,106):FORJ=0T0255STEP24
:LINE-(J+24,104+RND(1)*4),4:NEXT
1300 PRESET(0,116):FORJ=0T0255STEP24
:LINE-(J+24,114+RND(1)*4),4:NEXT:PAI
NT(0,107),4:RETURN
1310 REM * Tank reach headquarter *
1320 SOUND7,56:PLAY"o4fdgfdgfdgfeff
"
1330 LINE(23,40)-(231,48),12,BF:COLO
R1:PSET(43,41),12:PRINT£1,"TANK REAC
H HEADQUARTER"
1340 FORJ=1T09999:NEXT
1350 SCREEN2:GOSUB1470
1360 LINE(0,80)-(255,180),10,BF:LINE
(78,79)-(255,79),14
1370 PRESET(79,79):FORJ=79T0255STEP8
:LINE-(J+4,68+RND(1)*10),14:LINE-(J+
8,68+RND(1)*10),14:NEXT:PAINT(100,78
),14:GOSUB1290
1380 LINE(32,82)-(55,72),15,BF:LINE(
35,74)-(37,76),1,BF:LINE(52,74)-(50,
76),1,BF:LINE(42,82)-(45,74),1,BF
1390 DRAW"c6bm30,72e5r16f5l26":PAINT
(35,71),6
1400 FORJ=255T0130STEP-1:PUTSPRITE0,
(J,70),1,ST(I)+ST(I)-1:FORQ=1T040:NE
XTQ,J
1410 GOSUB1190:FORJ=122T055STEP-1:PU
TSPRITE1,(J,71),1,17:FORQ=1T010:NEXT
Q,J
1420 GOSUB1190:PUTSPRITE1,(28,69),6,
9:PUTSPRITE2,(36,71),6,9:PUTSPRITE3,
(41,68),6,9:FORJ=1T03000:NEXT
1430 LINE(8,40)-(247,56),12,BF:PSET(
16,41),12:COLOR1:PRINT£1,"YOUR HEADQ
UARTER IS DESTROYED":PRINT£1,"
AND YOU LOSE A LIVE"
1440 SOUND7,56:PLAY"o4fedfedgdfegg"
1450 LI=LI-1:GOSUB1560:FORJ=1T09999:
NEXT:IFLI=0THEN850
1460 GOSUB1220:LINE(0,33)-(255,180),

```

```

1700 DRAW"bm100,63r40u3l20d3r30u5r5u
5r10u2l10u2l10d2l2d5r2u5br4bd1r3b17d
6r4d5r10d35r80d20l200g10l10e30r110l6
0u13m7,73u10m100,75u12bm45,123r185bm
238,139m217,157bm70,160r140bm37,140m
64,158bm120,111u7r2f1d3r5u4r5f4g415u
415d3g112"
1710 CIRCLE(45,133),10:CIRCLE(45,133
),3:CIRCLE(230,133),10:CIRCLE(230,13
3),3:FORI=70T0210STEP20:CIRCLE(I,153
),7:CIRCLE(I,153),2:NEXT:FORI=80T021
0STEP30:CIRCLE(I,127),3:PSET(I,127):
NEXT
1720 COLOR12:PRESET(47,40):PRINT£1,"
BY JACOB L. (C) 1986"
1730 COLOR8:PRESET(71,183):PRINT£1,"
INSTRUCTIONS(Y/N)?"
1740 FORI=1T050:K$=INKEY$:NEXT
1750 K$=INKEY$:IFK$=""THEN1750
1760 IFK$="y"ORK$="Y"THEN1790
1770 IFK$="n"ORK$="N"THENRETURN
1780 GOTO1750
1790 INTERVALOFF:BEEP:CLS:RESTORE216
0
1800 DRAW"bm55,0r144g5l134h5d30r144u
30g5d20f5h5l134g5e5u20":COLOR3:PRESE
T(83,12):PRINT£1,"TANK ATTACK":COLOR
15:PUTSPRITE0,(20,8),5,8:PUTSPRITE1,
(219,8),5,7
1810 FORI=35T0172STEP9:READA$
1820 PRESET(7,I):PRINT£1,A$:NEXT
1830 COLOR7:PRESET(79,183):PRINT£1,"
Press any key"
1840 FORI=1T050:K$=INKEY$:NEXT
1850 K$=INPUT$(1):RETURN
1860 REM * Tune *
1870 J=J+1:IFJ>4THENJ=4:RETURN
1880 A$="cc.a16a.a16a4acc.a16a.a16b-
r8gg.f16e.f16g.a16b-.o5d16d.c16co4bo
5c.o4b-16a.g16a4f4f.f16f.e16d4b-4b-4
r8o5dd.c16ccc.o4b-16b-egffffr8"
1890 SOUND7,56:B$=MID$(A$,(J-1)*32+1
,32)
1900 PLAY"m5000s118xb$;"
1910 RETURN
1920 REM * Sprites & machinecode *
1930 RESTORE1980:FORSC!=61440!T06156
9!:READJ:POKESC!,J:NEXT:DEFUSR=61442
!:DEFUSR1=61493!
1940 FORI=14336T014714
1950 READA$:VPOKEI,VAL("&h"+A$):NEXT
1960 FORI=14752T014880STEP32:FORJ=0T
07:READA$:VPOKEI+J,VAL("&h"+A$):NEXT
J,I
1970 RETURN
1980 DATA9,7,38,240,46,0,70,35,126,1
28,71,126,46,223,38,23,17,32,0,25,16
,253,87,6,31,14,153,205,101,240,95,4
3,205,101,240,35,205,114,240,43
1990 DATA16,245,123,205,114,240,43,2
1,175,186,32,227,201
2000 DATA38,240,46,0,70,35,126,46,22
4,38,23,17,32,0,25,16,253,87,6,31,14
,153,205,101,240,95,35,205,101,240,4
3,205,114,240,35
2010 DATA16,245,123,205,114,240,35,2
1,175,186,32,227,201,243,237,105,237
,97,13,0,0,237,120,12,251,201
2020 DATA243,237,105,8,124,246,64,23
7,121,8,13,237,121,12,251,201

```



```

2030 DATA01,01,01,01,01,01,0,fc,fc,0
,01,01,01,01,01,01,80,80,80,80,80,80
,0,3f,3f,0,80,80,80,80,80,80,80
2040 DATA0,0,0,07,ff,ff,07,7f,ff,ff,
80,7f,e0,ed,4d,3f,0,0,0,e0,e0,e0,e0,
fe,ff,ff,01,fe,07,b7,b2,fc
2050 DATA01,01,01,07,06,06,07,7f,ff,
ff,80,7f,e0,ed,4d,3f,80,80,80,e0,60,
60,e0,fe,ff,ff,01,fe,07,b7,b2,fc
2060 DATA0,0,0,0,03,3f,03,1f,3f,20,1
f,30,15,0f,0,0,0,0,0,0,e0,e0,e0,fc,f
e,02,fc,06,54,f8,0,0
2070 DATA0,0,0,0,03,03,03,1f,3f,20,1
f,30,15,0f,0,0,0,0,80,80,60,60,e0,fc
,fe,02,fc,06,54,f8,0,0
2080 DATA0,0,0,0,0,07,01,07,0f,07,0d
,07,0,0,0,0,0,0,0,0,c0,c0,f0,f8,f0
,58,f0,0,0,0,0
2090 DATA0,0,0,0,0,01,01,07,0f,07,0d
,07,0,0,0,0,0,0,0,80,40,c0,f0,f8,f
0,58,f0,0,0,0,0
2100 DATA0,7f,02,07,3f,47,c7,ff,ff,7
f,3f,12,92,7f,0,0,0,f0,0,81,c3,ff,e0
,c0,c0,80,0,0,0,80,0,0
2110 DATA0,0f,0,81,c3,ff,07,03,03,01
,0,0,0,01,0,0,0,fe,40,e0,fc,e2,e3,ff
,ff,fe,fc,48,49,fe,0,0
2120 DATA0,02,02,40,24,07,4f,1d,2f,0
f,7f,08,04,02,0,0,0,20,02,84,88,f0,f
4,f0,f0,dc,f2,28,24,22,0,0
2130 DATA80,80,80,80,80,80,80,80,20,
80,80,80,81,81,87,87,02,02,02,02,02,
02,02,02,02,02,02,02,02,c2,c2
2140 DATA0,0,0,0,0,07,3f,ff,ff,3f,07
,0,0,0,0,0,0,0,0,0,0,e0,fc,ff,ff,fc,
e0

```

```

2150 DATA18,3c,7e,ff,ff,7e,3c,18,0,1
8,3c,7e,7e,3c,18,0,0,0,18,3c,3c,18,0
,0,0,0,0,18,18,0,0,0,0,0,0,0,0,0,0
2160 DATA"In this game you're contro
lling"
2170 DATA"the last cannon,which can
stop"
2180 DATA"the enemy army from reachi
ng"
2190 DATA"your general staff's headq
uar-"
2200 DATA"ter.It can move forward a
nd"
2210 DATA"backward on a long rail,an
d you"
2220 DATA"have a radar,so you can se
e the"
2230 DATA"whole battlefield.You must
hit"
2240 DATA"15 tanks and one helicopte
r,"
2250 DATA"before you can go on to th
e"
2260 DATA"next level,where the enemi
es"
2270 DATA"moves quicker.You die if a
"
2280 DATA"shoot hits you,or a tank r
each"
2290 DATA"your headquarter,but you c
an"
2300 DATA"get an extra live for ever
y"
2310 DATA"5000 points."

```

## IF IT RUNS, WE WANT TO SEE IT!

As you grow more familiar with your micro, and become confident that you can produce a game or program of interest to all our readers, why not send it in? But we have to insist on tape or 3.5 inch disk copies, as we haven't the time to type in programs ourselves.

Your covering letter should include instructions on how to use or play the program, as well as a brief description of any interesting programming techniques and a list of the main variables.

We will, of course, pay for any listings we print, exactly how much depending on the quality of the program — NOT the length!

### Entering your listings

Most of the (fortunately few) complaints we get about listings can be traced to incorrect typing of the program. So it's worth making a few points about how to enter listings, and problems to watch out for.

Sometimes you will see a row of letters or other characters in a PRINT statement. This happens when the program, as supplied, contains graphics characters which our printer doesn't recognise. If the particular character is important then we'll tell you what it should be in the introduction to the program.

When a program crashes, you will often get an error

message which refers to a particular line number. But this isn't always as useful as it sounds because it may not be that line which contains the fault. For example, the line may contain a READ command, but the program will crash because of a lack of DATA for this line to READ. The fault actually lies in the DATA statement.

For this reason you must take particular care over DATA entries. Some programs can contain a couple of hundred numbers and strings in DATA lines. Miss out just one item, or one comma, and the program will fail through DATA starvation.

Make sure you are entering exactly what is shown in the listing. Don't type a zero when it should be the letter O, or a small I when it should be the number one.

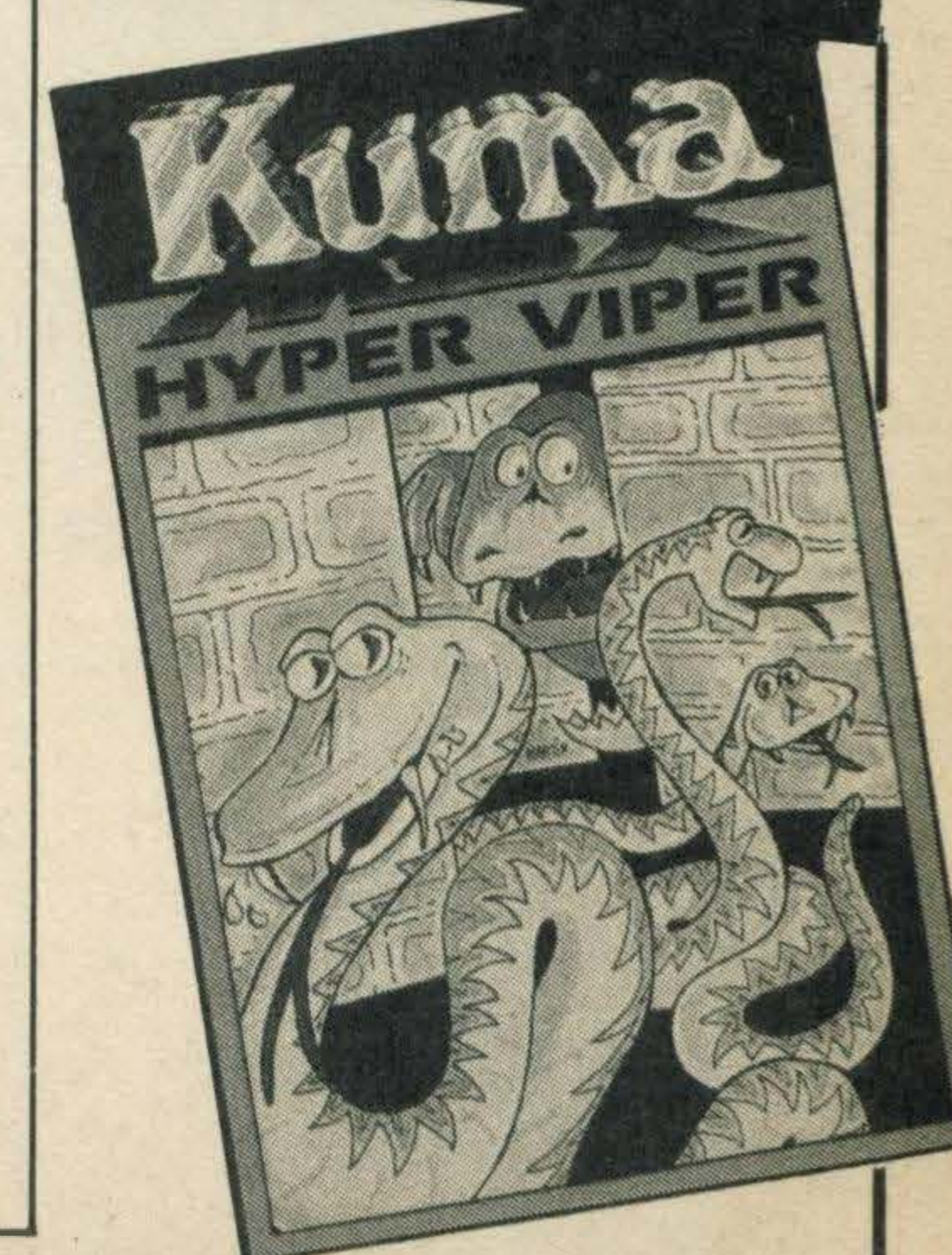
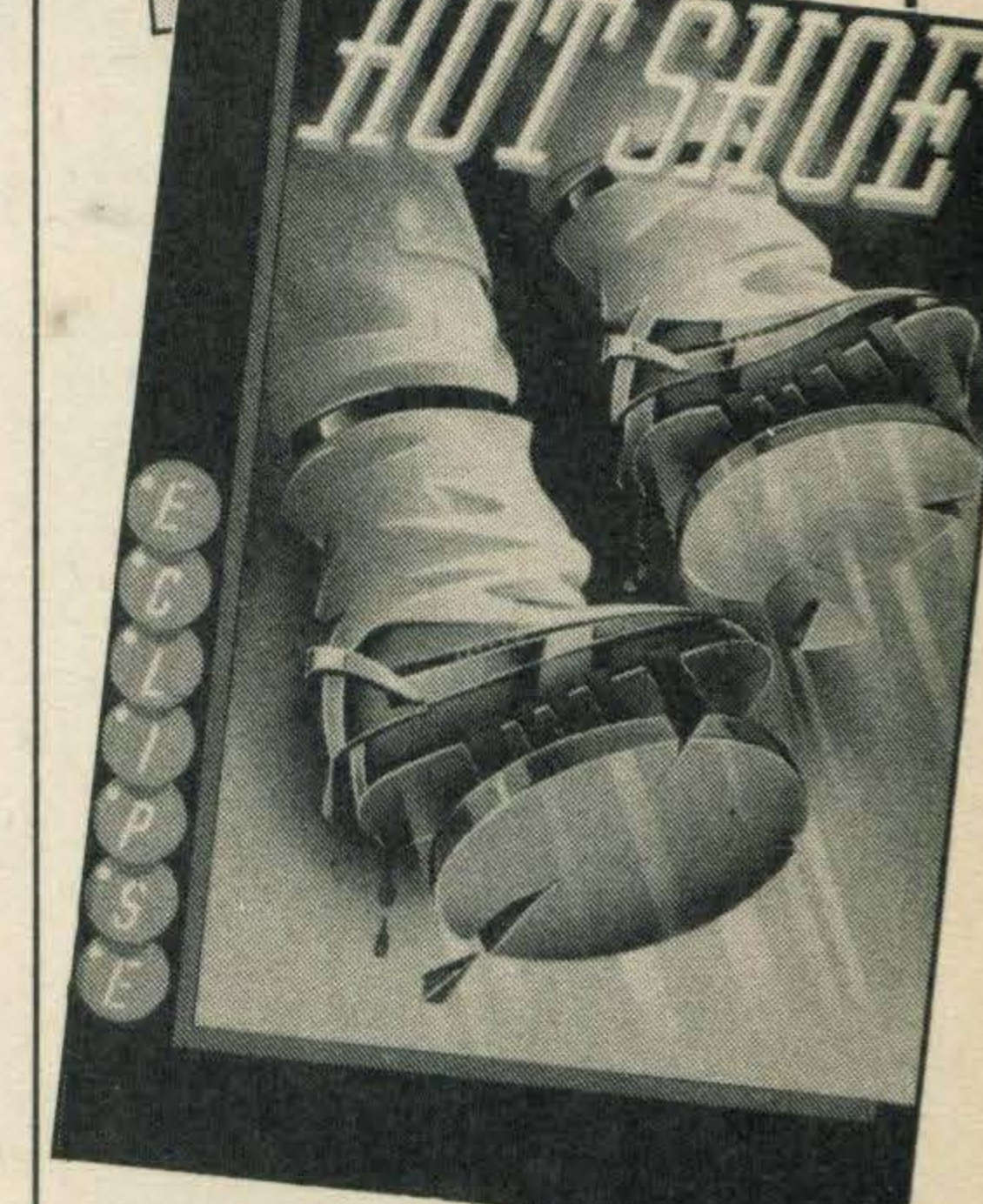
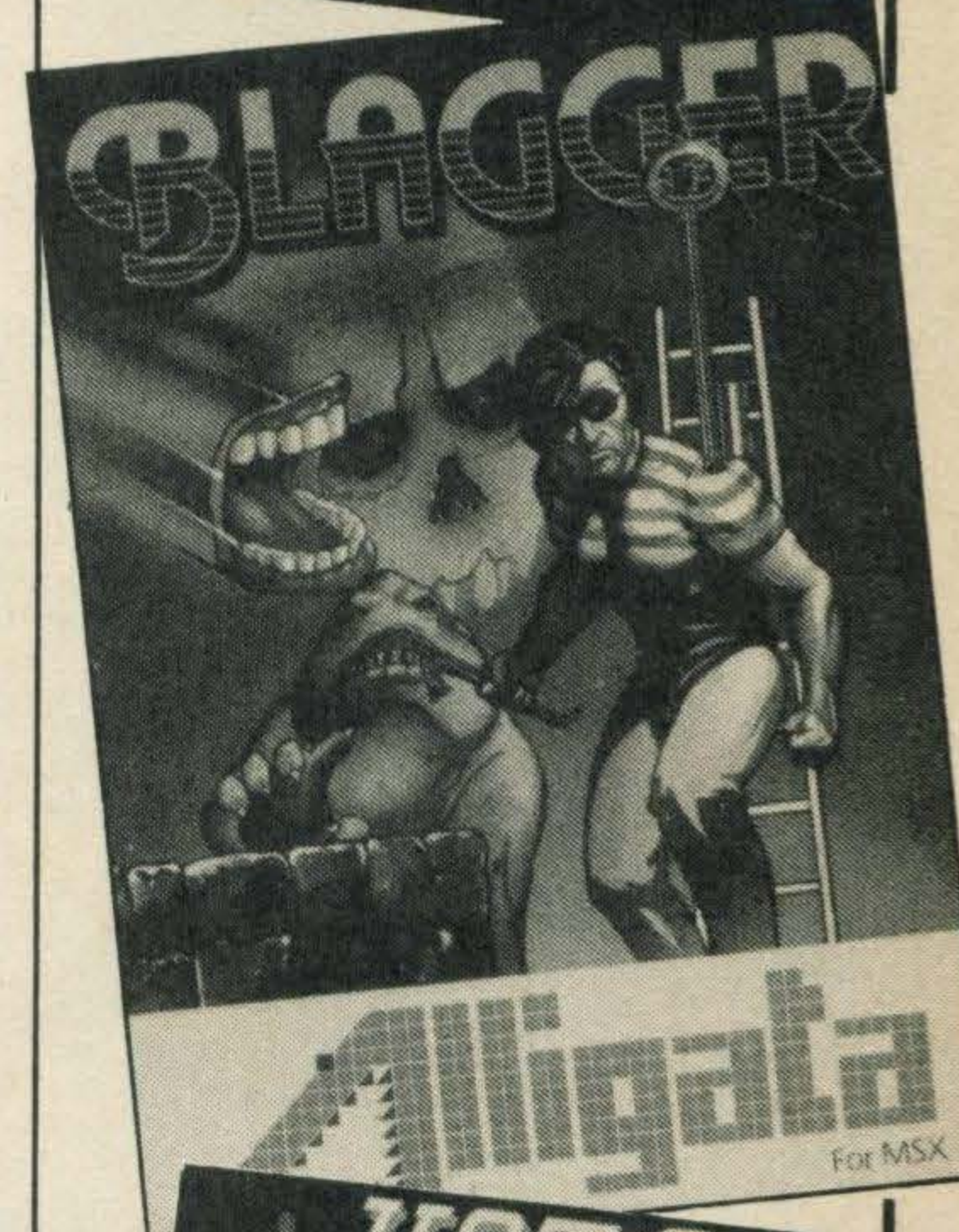
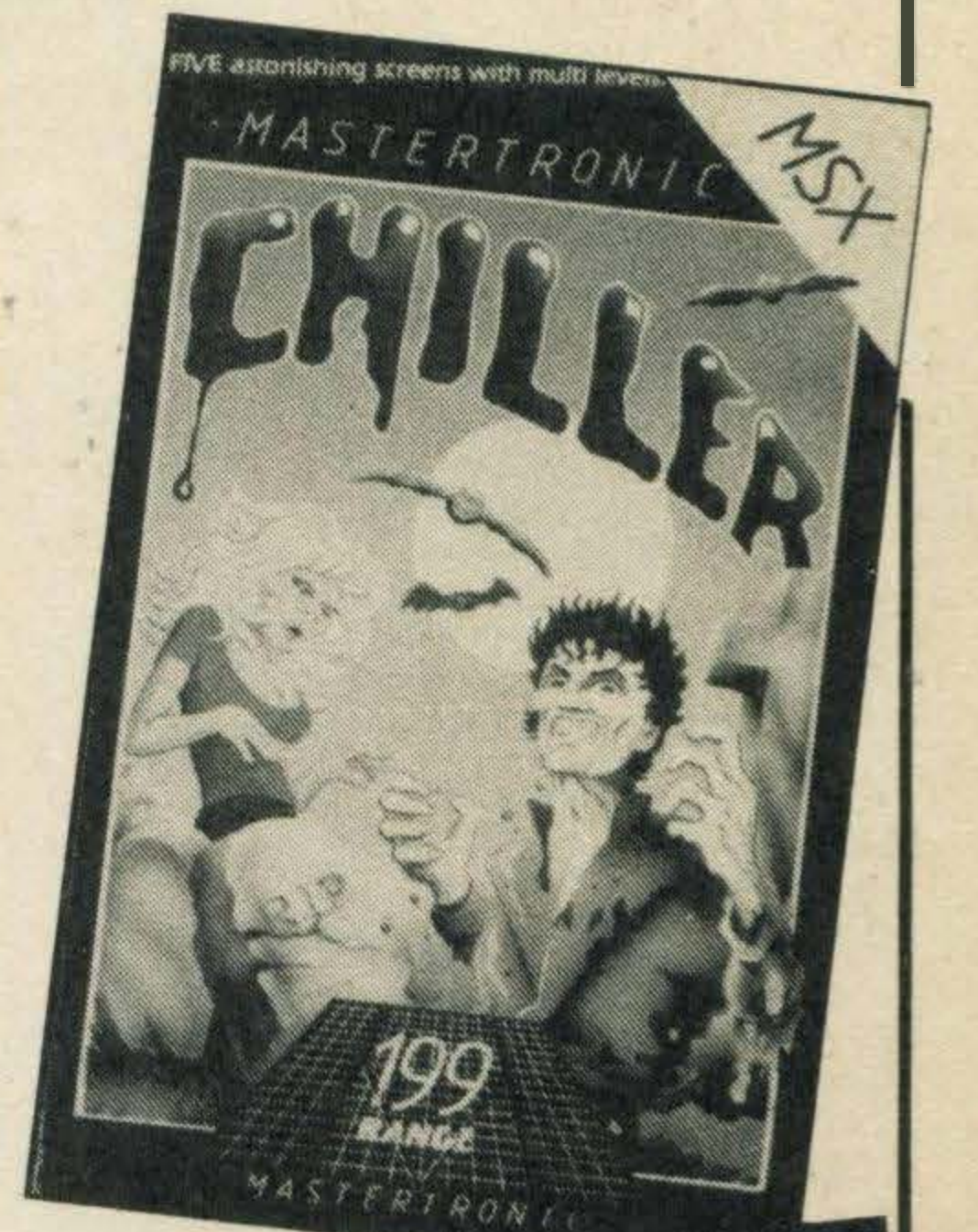
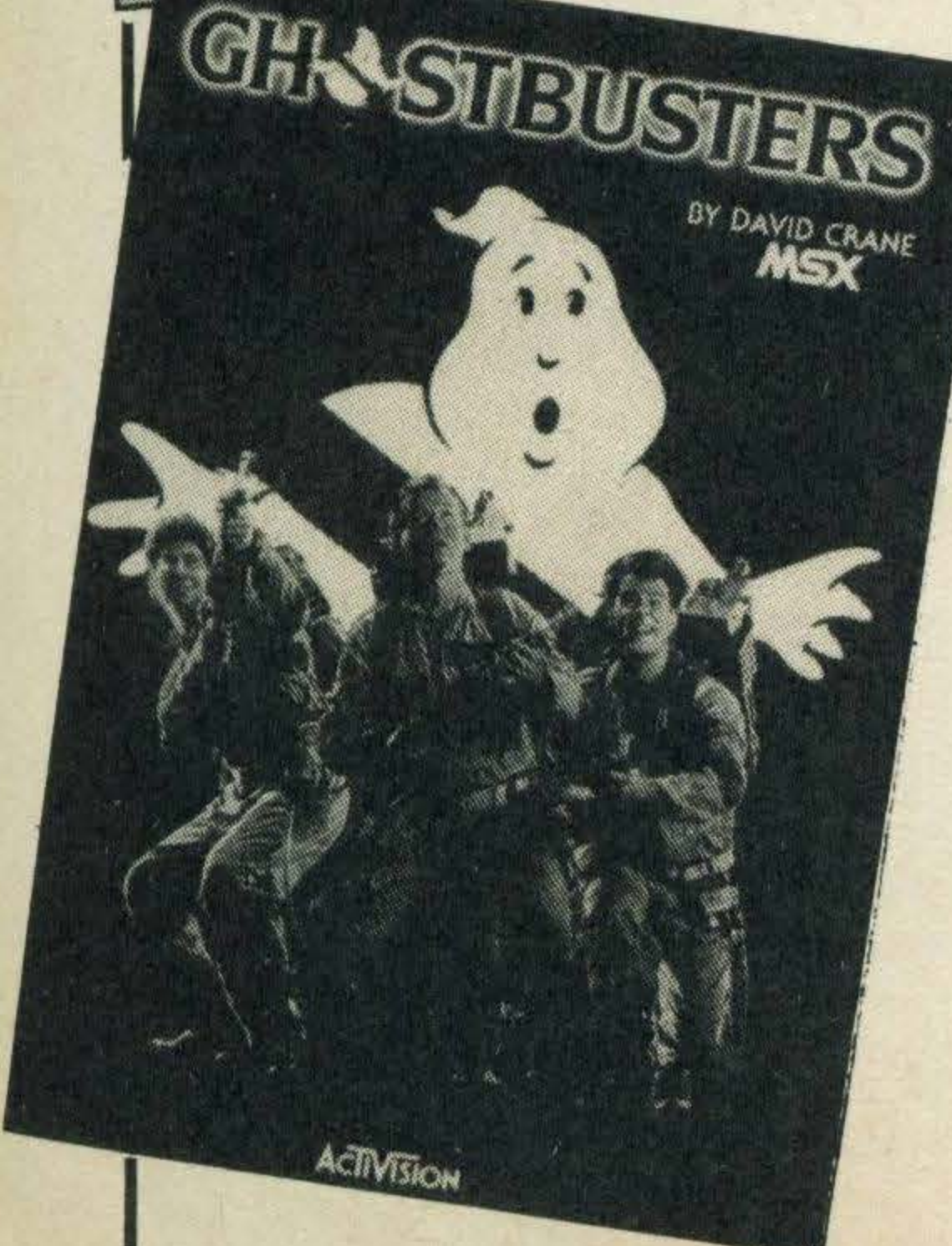
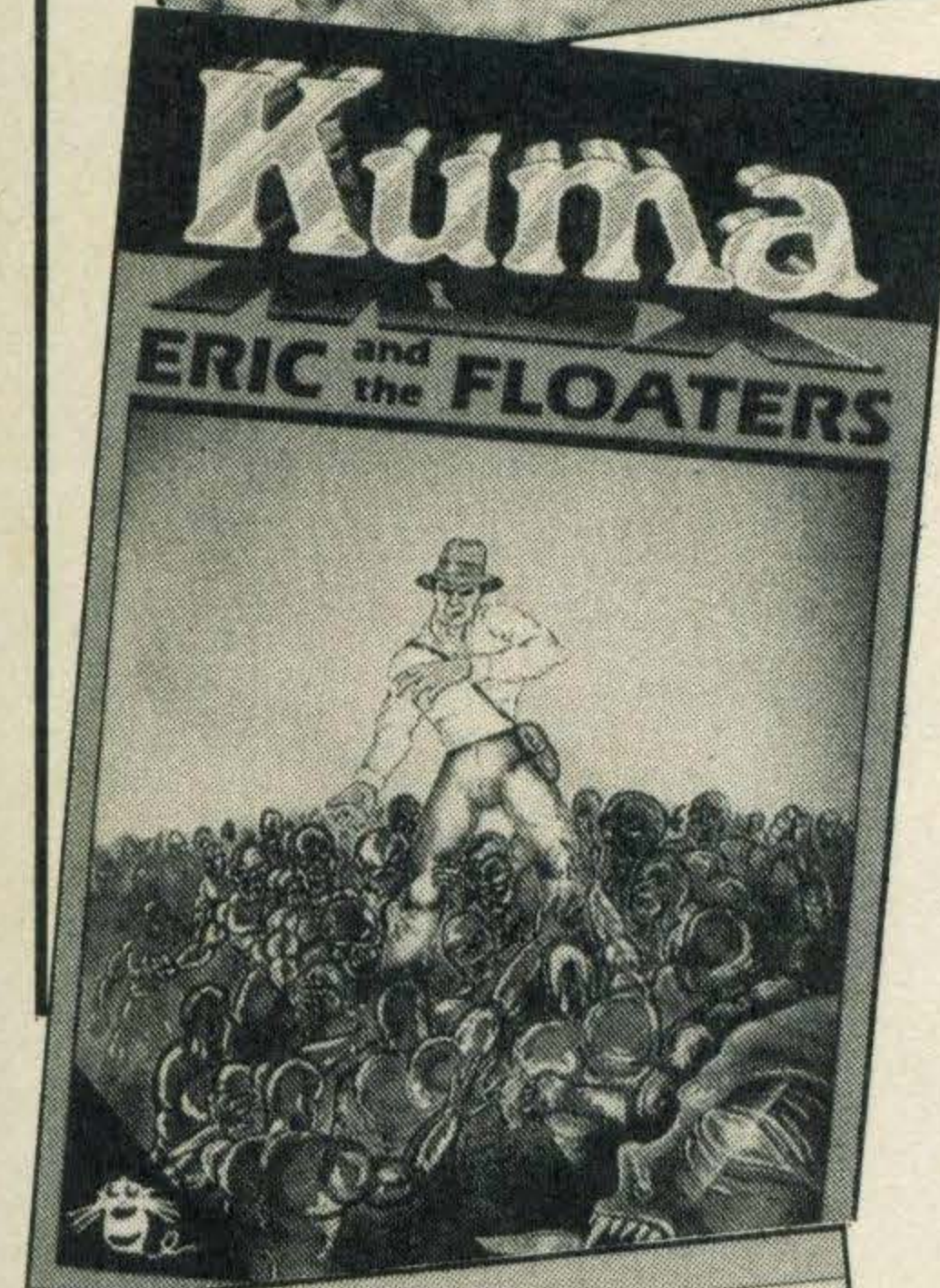
REM statements can usually be omitted, which saves time and effort. But they do help to explain what is going on. That's handy when you come back to a program after a break and want to make some changes. And watch out for GOTOs. If one of these commands directs the program to a REM line which you've omitted, the program will crash.

If, in the end, you still can't get the program to work, then let us know. But PLEASE WRITE, don't telephone. It's virtually impossible to de-bug a program over the phone, and the intricacies of a program are usually known only to the original programmer, who is never around to answer your questions!

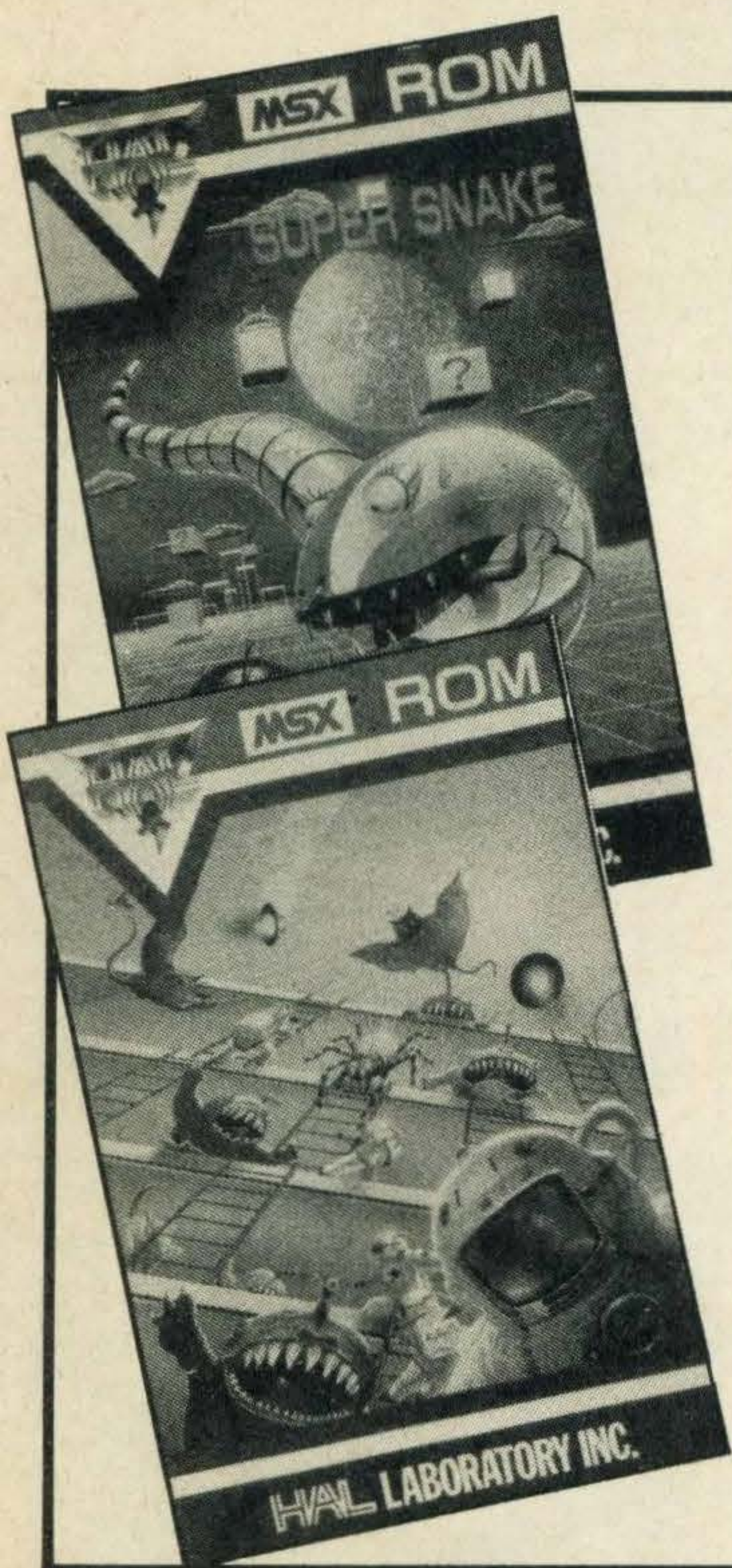


Send your high scores to: High Scores, MSX Computing, 38-42 Hampton Road, Teddington, Middlesex TW11 0JE

Game	Name	Score	Stage
Alien 8	Andrew Talbot (Bridlington)	49%	
Alpha Blaster	Mohamad Shuib (Pontypridd)	89,235	
Barnstormer	Graham Dixon (Lincolnshire)	279,955	12
Battleship Clapton II	RS Clark (Bradford)	97,300	
Beamrider	Sean Baxter (Dyfed)	133,380	25
Blogger	Euan Marshall (Epping)	231,520	
Boom	Christopher Swain (Kent)	99,240	34
Boulderdash	Alan Jones (Streatham)	59,848	F/4
Bounder	Johan Karda (Norway)	286,726	5
Boxing	Philpott (Chaddesden)	—	10
Buck Rogers	Neil Macfall	310,900	6
Centipede	Tracy Randles (Penrion)	53,795	7
Chiller	Martin Allen (Weybridge)	33,481	
Choro Q	Scott Fielding (Truro)	42,380	
Circus Charlie	Ian Bucklow (Worksop)	1,198,460	105
Disk Warrior	Chris Needham (Banstead)	1,400,000	
Dogfighter	Neil Sims (Derbyshire)	10,100	
Elidon	Andrew Talbot (Bridlington)	94%	
Eric and the Floaters	Sean Baxter (Dyfed)	1,844,160	
Finders Keepers	A. Munro (N. Yorks)	18,323	
Fire Rescue	Mark Lowles (Greenock)	29,540	
Flight Deck	D. Booth (Southampton)	6,410	
Fruity Frank	Lesley Robinson (Blairgowrie)	21,000	
Galaga	Gary Barnes (Holland)	244,010	
Ghostbusters	Laurence Burke (Ireland)	\$999,900	
Golf	Joseph Gleeson (Ireland)	28 under par	
Gridtrap	Lynn Scott	558,120	
Gunflight	Neil Aldritt (Parkhurst)	\$150,000	51
Heist	Ashok Ras	384,201	
Hero	Gerry Van Cleef (Holland)	692,120	Pro
Highway	Dermot Long (Ireland)	339,360	4
Hopper	Christopher Rutherford (Hexham)	100,050	3
Hotshoe	Dan Gavik (Denmark)	187,575	19
Hunchback	David McEwan (Lanarkshire)	2,700,000	
Hustler	Derek Powers (Milton Keynes)	8 shots	
Hyper Rally	Dermot Long (Ireland)	239,500	
Hyper Sports I	Mark Bosselli (Kenton)	2,050,800	51
Hyper Sports II	L Henry (Battersea)	500,500	
Hyper Sports III	Richard Reynolds (Brampton)	59,713	
Hyper Viper	Helen Carter (Mkt Weighton)	127,500	
International Karate	Ian Povey (Nowan)	999,999	
Jet Fighter	Andrew Talbot (Bridlington)	214,950	
Jet Set Willy II	Sally Wood (Turkey)	120 objects	
Kings Valley	Paschal Wilson (N. Ireland)	5,642,600	928
Knightmare	Morten Sørink (Norway)	238,020	
Lazy Jones	Mark Sutton (Rayleigh)	149,650	
Les Flics	Rob Cranston (Northampton)	100,200	
Le Mans	Jacob Poviah	42,530	8
Manic Miner	W. Wither (Scotland)	117,321	52
Maxima	Les Lynch (Worsley)	211,120	120
Monkey Academy	Michael Masson (Fraserburgh)	305,300	
Mopiranger	Ian West (Aylesbury)	620,400	44
Mutant	Mark Drabwell (Essex)	737	7
Nightshade	Paul Grave (Caithness)	137,000	13%
Ninja	Marion Worsley (Orpington)	23,550	
Oh Mummy	Paul Tooke (Whitley Bay)	5,030	
Oh No!	J C Ledesma (London)	76,250	
Oil's Well	Andrew Talbot (Bridlington)	198,400	
Panic Junction	A. Stubbs (Warrington)	14,919	10
Pastfinder	Daniel Goodwin (Evesham)	24,205	
Pillbox	Roger Worsley (Orpington)	2,800	3
Pinball	A Baker (London)	1,240,680	
Pitfall II	Arild Tønnessen (Norway)	199,000	
Polar Star	P. French (Walsall)	289,990	8
Punchy	William Sanchez (Gibraltar)	6,959,870	
Price Magik	Barrie Fleming (Glasgow)	12%	18







Game	Name	Score	Stage
Pyramid Warp	Marcus Sear (Botley)	820,758	
River Raid	D. J. Cowell (Blackburn)	73,450	38
Road Fighter	Richard Cobelli (Faversham)	998,675	7
Roller Ball	A Baker (London)	3,120,180	
Sasa	Nigel Sims (Derbyshire)	200,195	
Scion	Gary Barnes (Holland)	67,900	
Soccer	David Orpington (Camberley)	40-0	
Space Walk	Stephen McCloskey	1,846,200	
Spooks and Ladders	Helen Carter (Mkt Weighton)	189,930	79
Step Up	Mick Bedwell (Whitstable)	60,250	
Stop The Express	Johan Kovda (Norway)	7,360	2/2
Super Cobra	Ian West (Aylesbury)	501,100	62
Sweet Acorn	Brian Richardson (Ossett)	6,348,460	240
Tennis	Mark Drabwell (Essex)	6-0, 6-0	
The Snowman	Ole Morten Finnset (Norway)	36,510	
The Wreck	Niclas Penn Shog (Sweden)	23,975	
Time Bandits	K. Baird (Beaumont)	9,990	8
Time Curb	Amy Louise Goulsbra (Lincs)	176,050	
Time Pilot	Uilam Vu Ong (London)	689,000	
Track and Field I	V. Williams (Kirkby)	266,640	
Track and Field II	Martin Green (London)	500,300	
Turmoil	Peter Bell (Hexham)	11,740	
Vacumania	Tony Watson (Boroughbridge)	22,340	
Valkyr	Martin Green (London)	23,975	

## JOIN THE CLUB

Judging by the number of calls and letters we get on the subject, MSX computer users often have difficulty getting in touch with like-minded enthusiasts. One way around this problem is to join a club or user group if there is one in your area.

Listed below are the clubs and user groups we know of. The information is that supplied by the organisers, and inclusion in this listing should not be taken as any form of endorsement or recommendation by *MSX Computing*. Readers are advised to satisfy themselves as to the value of the services offered by any organisation before making a commitment.

Some clubs actually meet at regular intervals, and this is probably the best kind to join if you can find one within a reasonable distance of home. However, you may find that a user group connected by the mail is the only option. The best user groups put out regular newsletters and some freely exchange software written by their own members.

If you run a user group, computer club or information source of interest to owners of MSX computers, please write with details to User Groups, *MSX Computing*, 38-42 Hampton Road, Teddington, Middlesex TW11 0JE.

**MSX'r**  
C/O Tony Brown  
23 Hall Street  
Foham  
Cambridgeshire  
CB7 5BN  
Tel: N/A

**Memory Alpha**  
C/O Ross Carter  
16 Mayfield Road  
North End, Portsmouth  
Hampshire  
Tel: (Portsmouth)  
696543

**MK-MSX**  
C/O Jeff Whiting  
8 Blackheath Crescent  
Bradwell Common  
Milton Keynes  
MK13 8AD  
Tel: (0908) 674065

**MSX Link**  
C/O David Webb  
11 Ayscough Avenue  
Spalding  
Lincolnshire PE11 2QB  
Tel: N/A

**The MSX Club (Wales)**  
C/O PJ Morgan  
230 Duvant Road  
Swansea  
West Glamorgan SA2  
7SR

**MSX West**  
C/O Mark Smith  
14 Beech Hill  
Wellington  
Somerset  
Tel: N/A

**Yamaha DX/MSX  
Users Club**  
C/O Tony Wride  
PO Box 6  
Ripon  
North Yorks HG4 2QT

**The MSX Computer  
Club**  
C/O Dean Adams  
173 Hampden Way  
Southgate  
London N14

**MSX Users' Club**  
C/O V.W. Warren  
32 Stafford Road  
Great Yarmouth  
NR31 0EX

**MSX User Group**  
C/O Andrew Phillips  
Room 5  
14 Moor Street  
Ormskirk  
Lancashire

**MSX Ireland**  
C/O Liam Lynch  
84 Orchardville  
Crescent  
Finaghy Road North  
Northern Ireland  
BT10 0JT



the first choice

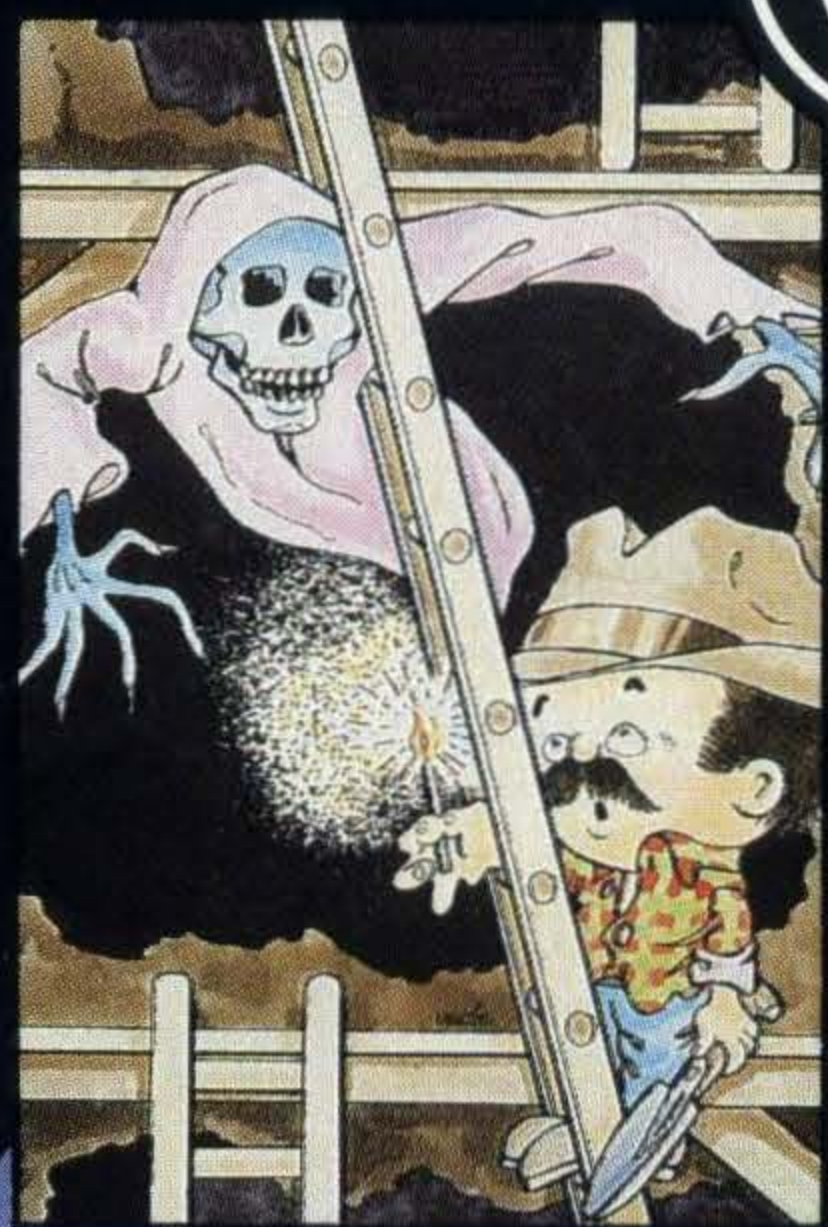
# Kuma

NEW

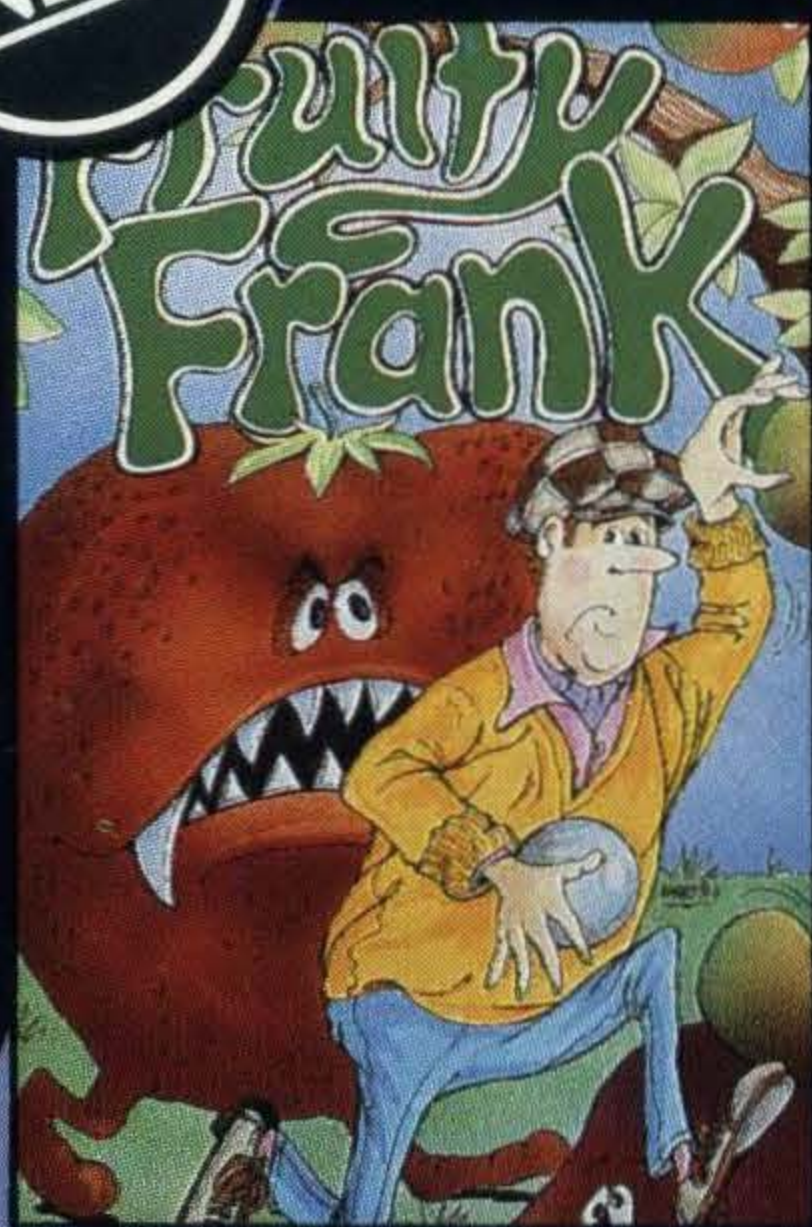


Kubus

NEW



Spooks and Ladders



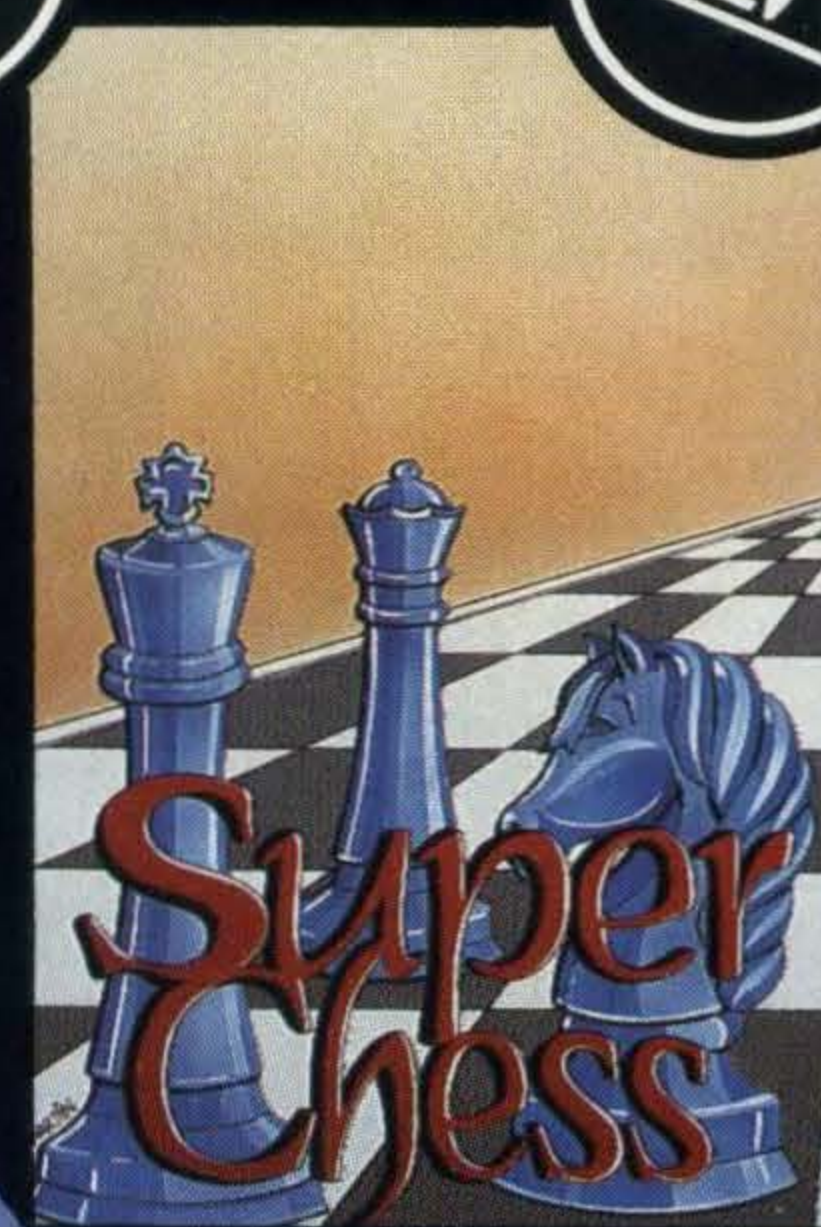
Fruity Frank

NEW



Shnax

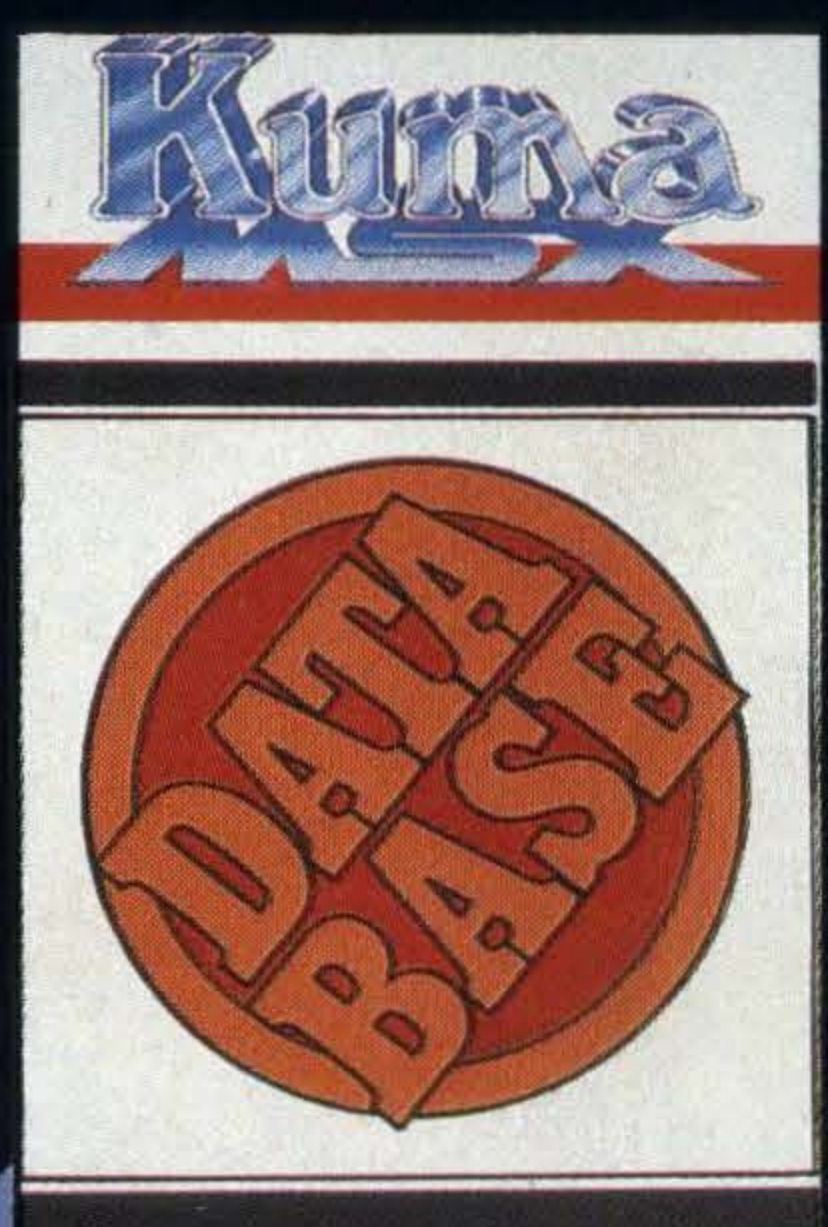
NEW



Superchess



Kuma FORTH



Database



Zen Assembler



WDPRO



Spreadsheet

An outstanding selection from Kuma's rapidly expanding range of Entertainment and Application Software for the MSX Micro-computer.



BOOKS

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- Starting with the MSX
- Starting Machine Code on the MSX

- Programming in MSX Basic for serious and not-so-serious applications.
- Ideas for MSX



## ACCESSORIES

- RS232C Interface
- Parallel Interface

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Please send full catalogue on MSX products.

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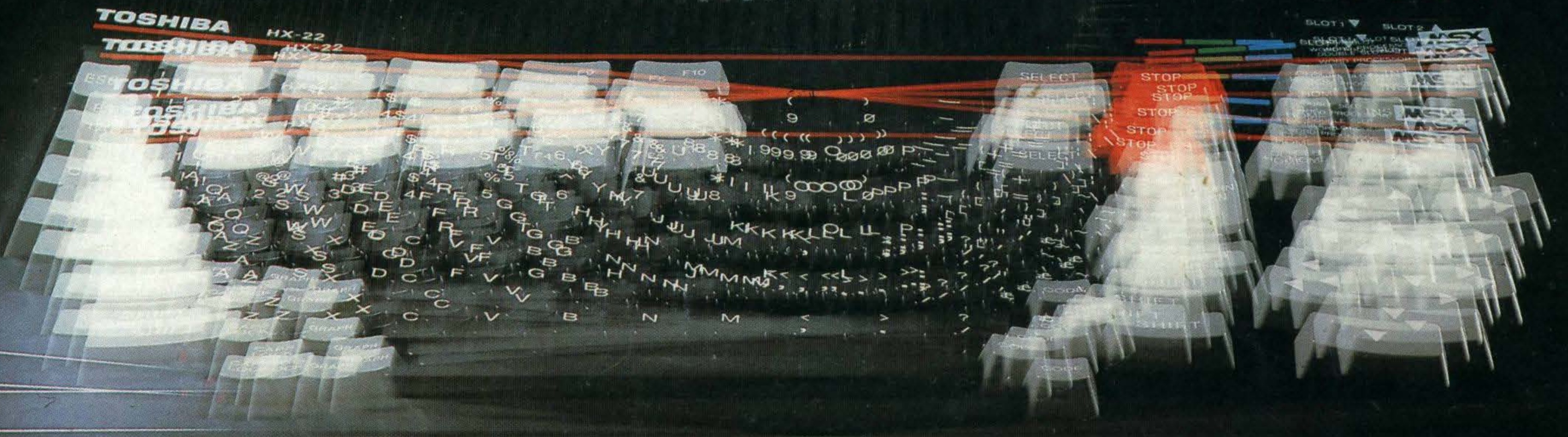
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MSX/12/86

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# YOUR MSX IS GETTING EXCITED



## AT LAST YOU CAN GET TOP QUALITY GAMES AND EXCITEMENT FOR YOUR MACHINE

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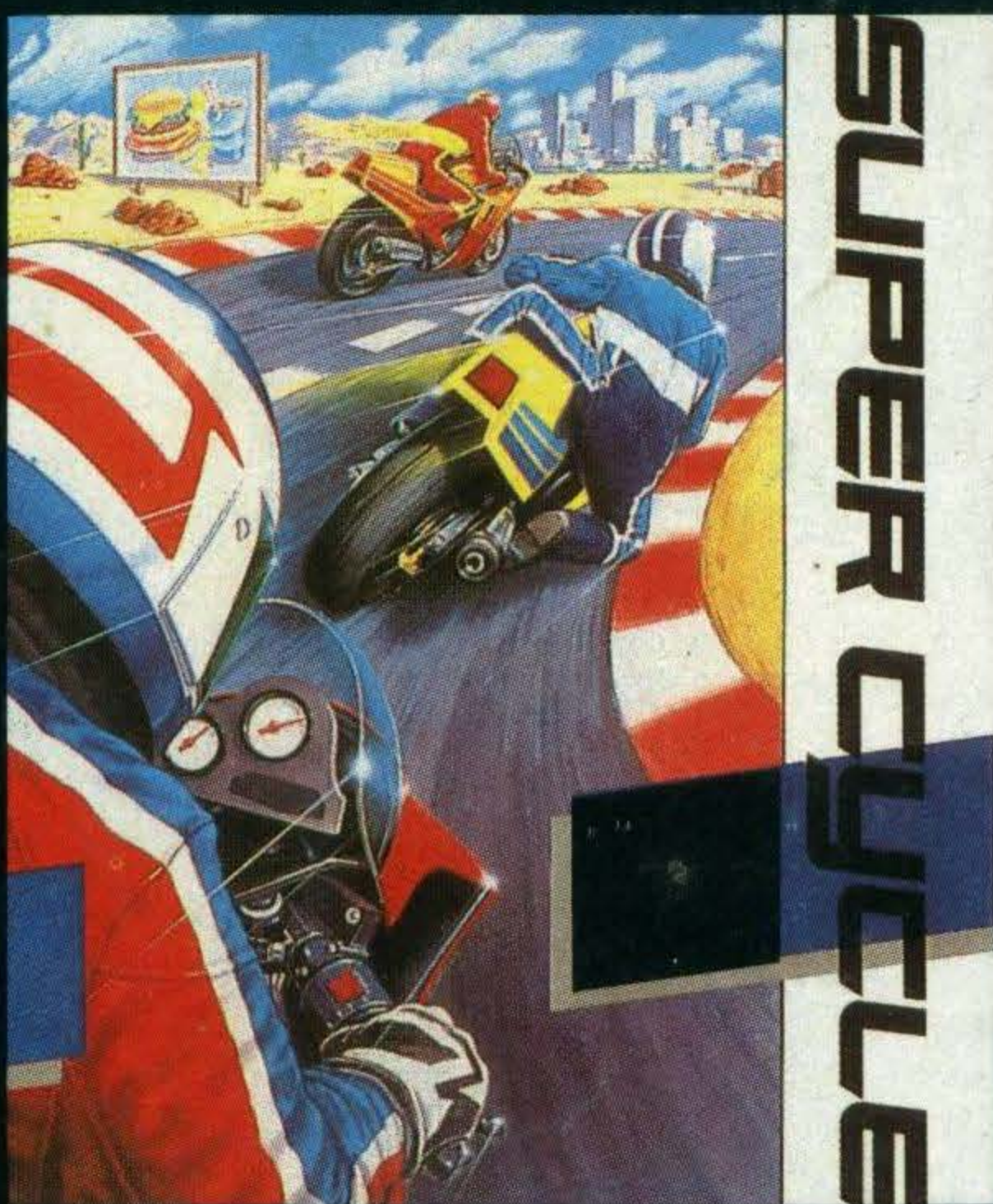
You're sitting on 750 cc's of screaming machine and it's you and your cycle against the road, the curves the other motorcycles and the clock. It takes guts and skill - racing was never so fast and furious.

It takes split second timing, fine judgement, and nerves of steel. Hesitate, and there's no way you'll win. Act rashly, and you'll crash.

You race through progressively harder courses. Finish successfully, and you get to try the next one. But don't push your machine too far.

**SUPER CYCLE**, the challenge - have you got what it takes to win it all?

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### CYBERUN

In the dark reaches of the Amobeus Nebula stands the isolated series of stars and planets, the Beta Gamma System. Once the Cybertron is free from the Antiplasmic Lattice, and becomes exposed to positive matter Space, it crystallises to form Cybernite, the hardest substance in the known Universe, resistant to all forms of heat and energy, allowing the wielders to mine the greatest form of energy ever, the Stars. Those who control the Zebarema, can control the Galaxy.

The command module is ready and awaits only the pre-launch computer checks to secure Lift Off. And so begins the greatest journey of all time, the race through Space for command of the Universe, **THE CYBERUN...**

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## THE BIGGEST GAMES EVER ON MSX

### WINTER GAMES

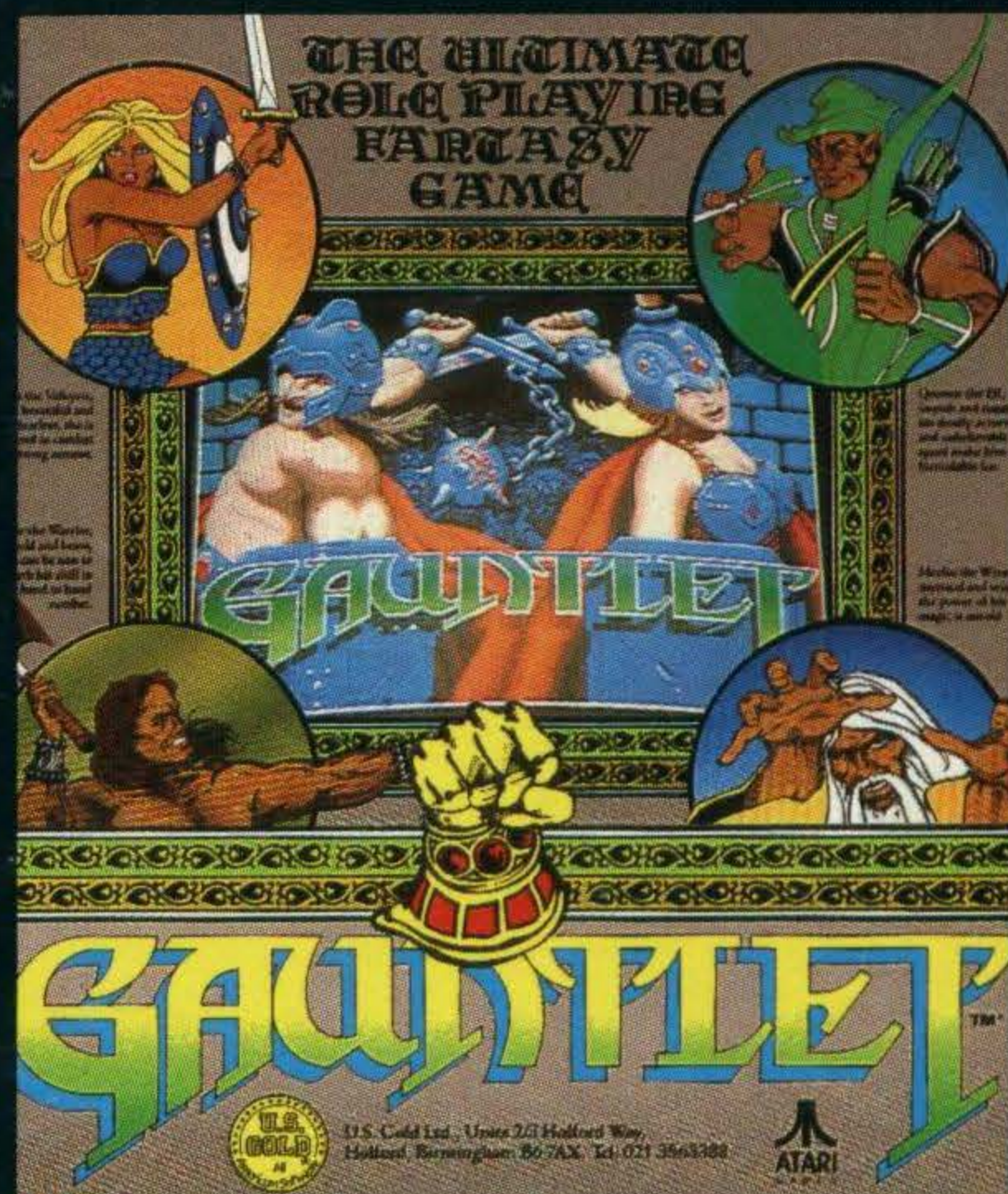
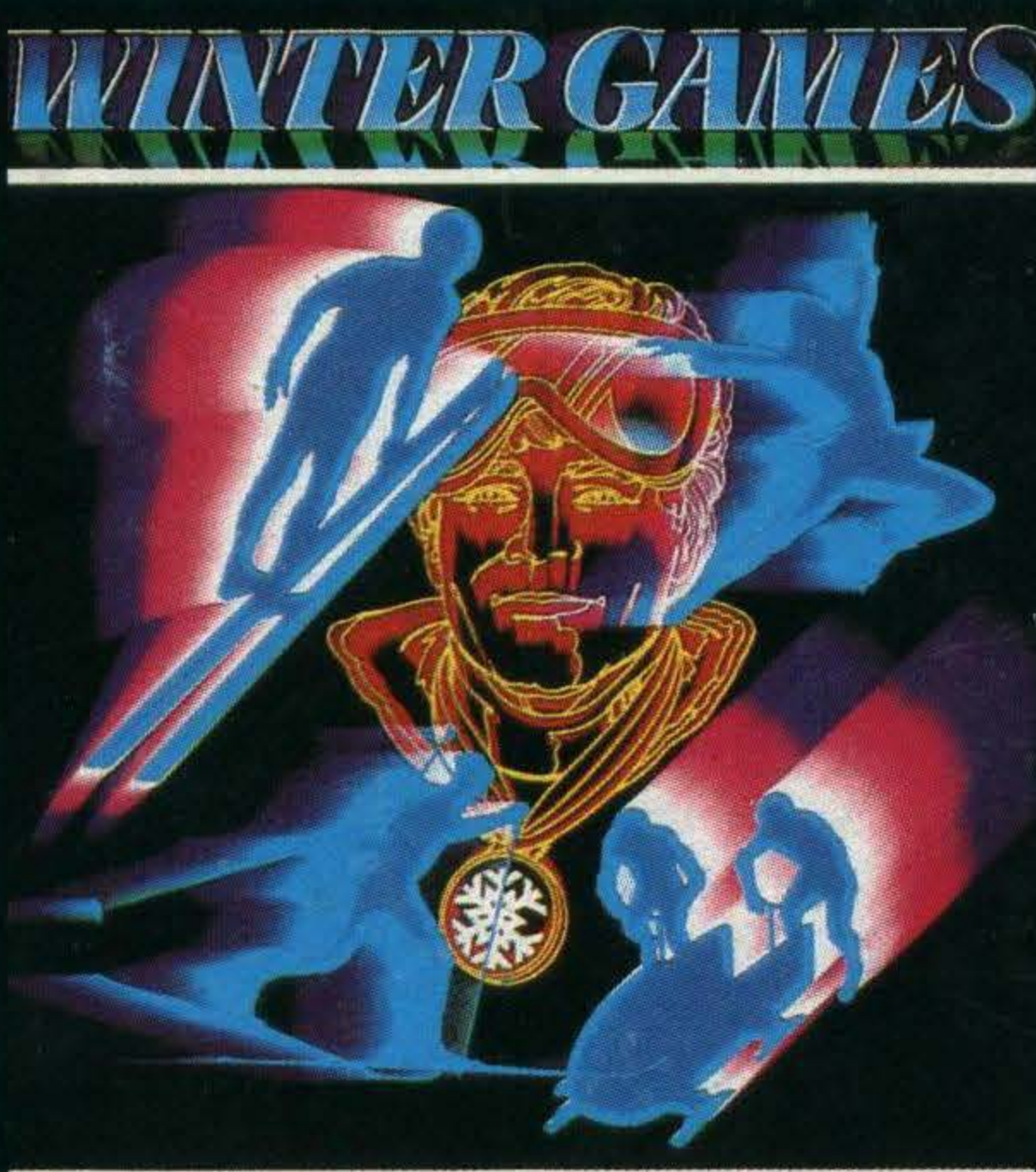
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