HOME COMPUTING WEEKLY

AN ARGUS SPECIALIST PUBLICATION

April 2-8, 1985 No. 106 45p

Exclusive: MSX Triton review

Latest addition to the MSX line-up is the Triton, a 64K computer which is being kept a close secret in the UK.

And the Triton is a British computer — with an international flavour. Designed and manufactured in Hong Kong by British company Radofin, the micro will be marketed by Eurohard, Spanish parent company of Dragon Data.

The Triton will hit the European scene very soon, according to Radofin sales director Mike Quelch. The machine is now ready for full production, although Radofin will not be marketing the Triton itself.

Ted Opyrchal of Dragon Data commented: "All we have heard so far is that there is a machine in the offing. We will gladly go for the MSX market when the time is right."

No firm release of dates or prices have been revealed yet.

First review

The Triton is impressive in both performance and design. Conforming to the MSX standard, it relies on visual and tactile appeal to set it apart from its competitors — and succeeds admirably.

Its cream livery and nicely raked keyboard suggest luxurious sophistication and the responsiveness of the keys is remarkable. Most of the competitors' machines are unsuitable for touchtype word-processing but this machine is eager to the touch, responding to the slightest pressure.

Inclusion of a RGB monitor output ranks this computer alongside the top-of-the-range Sony and JVC machines, but whether this will mean a similarly expensive price tag remains to be seen. If not then this is a machine with a big future. ***Eric Doyle, MSX User***

Triton MSX — your first glimpse

•Radofin is also producing a 2.8-inch drive for the Spectrum and Commodore 64.

The Quick Disc comes complete with a utility disc and tape-to-disc program examples.

HCW will be featuring a full review very soon.

Radofin's 2.8-inch disc drive

US cops foil hacker

Police in Silicon Valley, California are now being trained as hi-tech crimebusters.

And first to be nabbed was a 15-year-old hacker. Computer cops laid a trap within high-brow Stanford University's system, and the young student, who was trying to change his school grades, got nicked.

The Silicon Valley boys in blue attend a 40-hour course where they are taught how to fight computer crime. Illegal electronic devices now mean that you can avoid paying telephone bills, but Californian law prohibits such fraud.

Money is being poured into this area of crimefighting: the course is sponsored by California State at a cost of $238,000. And other police forces may soon follow suit.

Inside your bolder, brighter, better HCW...

Easter adventure for C64, C16 and VIC-20

Review — Merlin Database and Scribe

Killer rabbits — on the loose

Happy Easter from HCW!

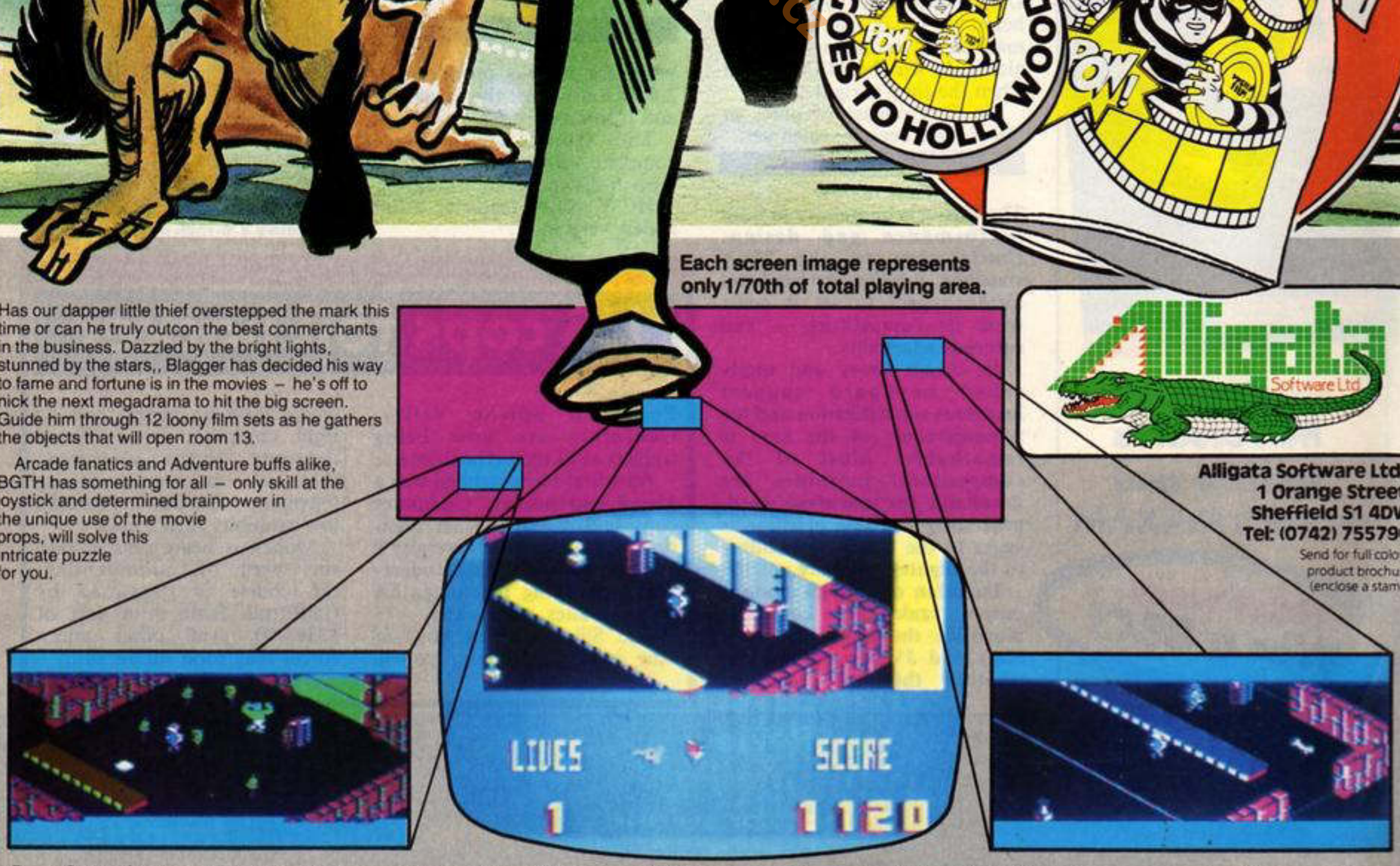
BLAGGER GOES TO HOLLYWOOD

TAPE ONLY £9.95 DISK £11.95
INCLUDING FREE 'T' SHIRT & BADGE OFFER!

Has our dapper little thief overstepped the mark this time or can he truly outcon the best conmerchants in the business. Dazzled by the bright lights, stunned by the stars,, Blagger has decided his way to fame and fortune is in the movies – he's off to nick the next megadrama to hit the big screen. Guide him through 12 loony film sets as he gathers the objects that will open room 13.

Arcade fanatics and Adventure buffs alike, BGTH has something for all – only skill at the joystick and determined brainpower in the unique use of the movie props, will solve this intricate puzzle for you.

Each screen image represents only 1/70th of total playing area.



Alligata Software Ltd.
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product brochur
(enclose a stamp

In classic movie tradition, simulated 3D and big sound soundtrack with 4 way scrolling action

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Soapbox

The launch of a spin-off from the television quiz show 3-2-1 is notable for its marketing strategy. 3-2-1 is being advertised on television and sold exclusively by mail order.

In a way this is a step backwards for the software industry. Mail order was initially used by many companies starting out in business. It makes distribution much easier — and cheaper — and cuts down on the number of in-between people who take cuts of the cover price. It also means that the manufacturing company can keep a tight hold on stocks and plan production with ease.

TV advertising has also been done before — with less than satisfactory results. K-Tel blitzed us all with a heavy promotional campaign — but admitted that it didn't work.

So why this move back in time? Micro Computers states: "It's a new and exciting area of growth and will set trends". Haven't we seen this all before? Where's the innovation? **Liz**

If you disagree with anything printed in the Soapbox column, write to us and tell us why. We give a prize for all the letters we print.

SPECIAL FEATURES

SPECTRUM

BBC

AMSTRAD CPC464

COMMODORE 64

ZX81

REGULARS

Coming Soon...

- Win a BBC computer in our Akhter competition
- Discovery 1 and Panda cassette interface peripheral reviews
- Amstrad sound feature and adventure program
- Light cycles on the VIC-20
- Don't miss your HCW! Make sure you have a regular order now.

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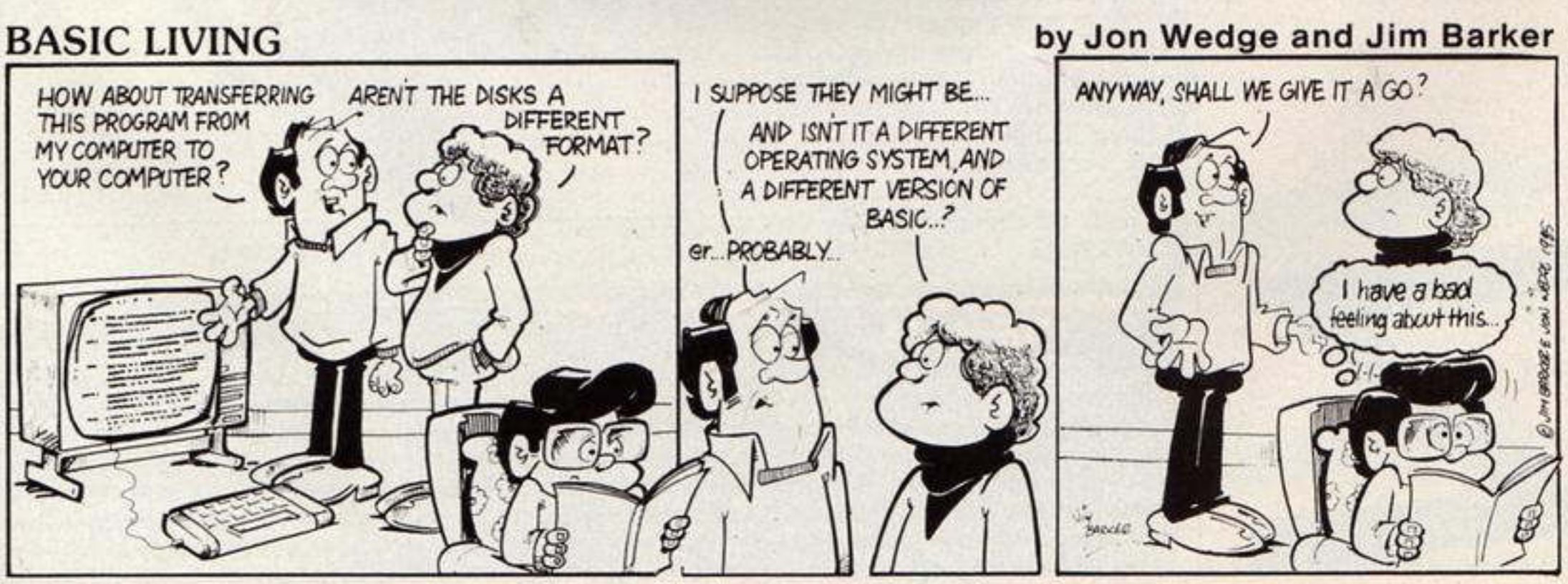
BASIC LIVING

by Jon Wedge and Jim Barker



NEWS

Watch this machine

Spot the Organiser could be the newest game for 1985. Psion's pocket computer will be appearing in the most interesting places.

Marks and Spencer is using the machine in an attempt to cut down on credit card fraud. The plan is for each cash till to have a modified Organiser attached to the credit card machine and as cards are passed over, the number is typed in. The memory is then consulted and if there are any queries about the card concerned the information is displayed.

There will be a distribution of new card numbers each day, which should reduce the time between the loss of a card and its withdrawal from the system.

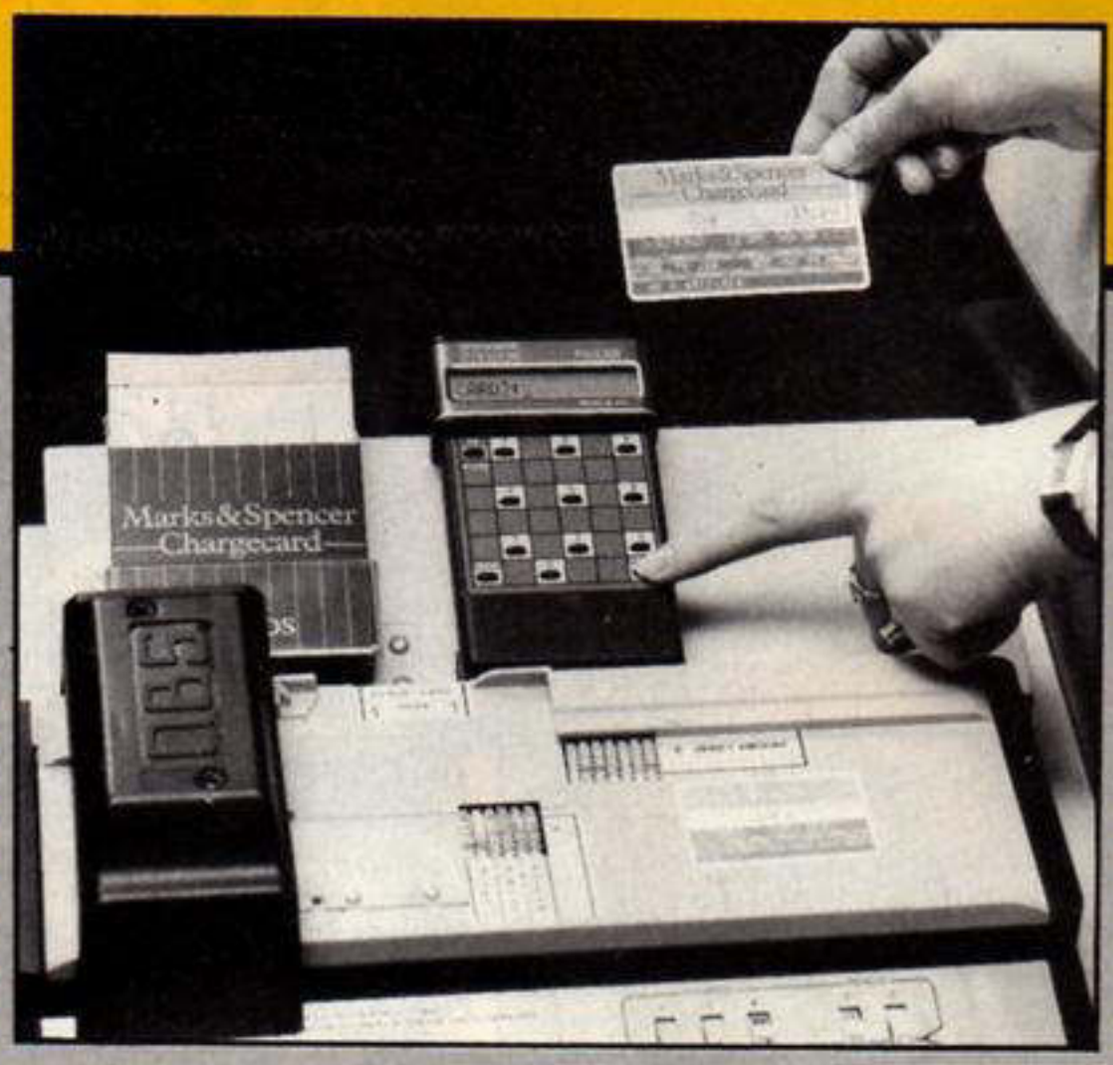
Another use for the machine has been found by the medical profession. The plug-in memory chips can hold a drug database with details of dosage and side-effects. All the doctor has to do is type in the drug name and the data is scrolled across the screen.

The building trade is using the machine to aid surveyors in their cost estimation on site. The program pack holds all the formulae needed for complex calculations and the internal clock automatically date stamps all the entries.

Lesser mortals will be more interested in a new range of add-ons for the device. The communicator package will enable it to be used to access Telecom Gold and other electronic mail systems. The RS232 connector is plugged into a modem and the communicator allows the setting of all the protocols required.

One probable use of such a small and simple device is for the profoundly deaf, who will be able to communicate with those at home by telephone in the very near future.

Psion, 22 Dorset Sq, London NW1 6QG



Psion's Organiser at M and S....

....Organiser on the building site....

....and G.P.'s Organiser

C16 + 16

Stonechip Electronics claims to have produced the first RAM pack for the C16, at £34.95.

The Vixen 16 will have 16K of RAM, all of which will be available for BASIC since it occupies the block 1 area of memory.

With the pack in place and the machine set into high resolution graphics, there will be over 17K of memory left for programs — compared with the unexpanded machine's miserly 2045 bytes.

It will be interesting to see if software houses start writing programs for an expanded C16 as they did for the VIC.

Stonechip Electronics, Unit 9, Brook Trading Est, Deadbrook Ln, Aldershot, Hants GU12 4XB

N E W S

Keyboard conflict

Keyboard makers were in disarray after the announcement of the withdrawal of the Spectrum 48K.

Saga, one such supplier, has announced that the Emperor keyboard is being slashed to £49.95.

The official reason for this change is that it has now sold 10,000 units, but one might be forgiven for suspecting that Sinclair's asking price of £30 for its own conversion is more likely to be the cause.

It looks like the "real" keyboard battle will rage on for a number of months.

Flashy Moves

Quicksilva is on the move! It seems 1985 is the year the self-styled game lords will try to conquer London.

The company is moving into the capital on April 1, and will be joing Argus Press Software in Liberty House, Regent Street.

Quicksilva believes that by moving to the city it will be able to communicate more easily with manufacturers, distributors and other contacts.

Quicksilva, Liberty Hse, 222 Regent St, London W1R 7DB

Free for the asking

Educational software house, ASK, has been chosen by Thames TV to provide 30 minutes of free software to be broadcast on 19 March at 10-10.30 am and 11-11.30 am on Channel 4.

ASK has put together a collection of screen shots and descriptions from its range of BBC programs for children aged 3-14. The transmission will also include a working sample from ASK's arcade style game, Number Painter.

ASK, London Hse, 68 Upper Richmond Rd, London SW15 2RP

Discs for Elks

Greater compatibility is one of the features of the new Electron disc interface from Cumana.

Sold without a drive, but with the option of attaching both 3½ and 5¼-inch units, it gives Electron owners the facility to write discs which can be read by standard BBC disc interfaces.

The system is double density and can give a capacity of 1.8 times the single density equivalent at twice the speed. A real time clock calendar can be used to date stamp the files as they are saved to the disc.

The unit plugs straight into the cartridge slots on the Plus One expansion and the drives are connected by a ribbon cable.

Cumana, Pine Trading Est, Broad St, Guildford, Surrey GU13 3BH

Clubbing up

Computer users in Kent could have a new club very soon.

J Fanning, leader of the Ashford Duncan Bowen Youth Wing is starting a monthly meeting for those interested in using the computers used by club members during the week.

The group aims to give hands-on experience for those new to computing as well as providing a meeting place for seasoned users. Prestel facilities will be available for a small charge.

J Fanning, Duncan Bowen Youth Wing, Kingsnorth Rd, Ashford, Kent TN23 2LY

Software update

Those who are interested in the workings of the human body will enjoy the new game from Quicksilva, Fantastic Voyage. You journey down the blood system of a sick scientist and try to recover parts of a miniaturised submarine in order to make your escape.

Based on the film of the same name, the game is "designed to be very hard to finish so players don't become bored too easily", according to Quicksilva.

The Wriggler from Romantic Robot is a novelty arcade/maze game and has a bonus game on the second side. At a price of £5.95 it looks good value — HCW's full review will follow soon.

If you fancy yourself as a "high stepping, high energy, dance to the music, construction man" then Rock 'n' Bolt should be just your cup of tea. The task is to build a 100-storey building to the blueprint provided.

Nuclear war comes to the micro, courtesty of PSS, in its Theatre Europe game. PSS claims that the game is based upon accurate information from NATO, the Ministry of Defence and Soviet military observers and it shows a situation that must never be allowed to occur.

Besides its Amstrad conversions, Ocean has also announced two new television-linked programs. Street Hawk is due out in May and is based on a programme to be shown here soon. Later in the year Ocean plans to release a game based on the series Knight Rider.

Not many educational releases this week, but Time Trucker from ASK looks interesting, as it is meant to teach the relationship between the 12 and 24 hour clocks. Versions are planned for Amstrad and MSX machines too.

Title	Machine	Price	Publisher
Wriggler	Spectrum	£5.95	Romantic Robot
Eiffel Tower	C64, BBC, Electron,		
	Spectrum	£7.95	Chalksoft
Rock 'n' Bolt	C64	£10.95	
Pete 'n' Barry	Spectrum	£6.90	Impact
Fantastic Voyage	Spectrum	£6.95	Quicksilva
Mighty Magnus	Spectrum	£6.95	Quicksilva
Time Trucker	BBC, Electron, Amstrad, MSX	£9.95	ASK
Super Pipeline II	C64	£8.90	Taskset
Extended BASIC	C64	£10.95	Micro Compnt
Daley Thompson's Dec	Amstrad	£8.95	Ocean
Kong Strikes Back	Amstrad	£8.95	Ocean
Hunchback II	Amstrad	£8.95	Ocean
French on the Run	BBC	£9.95	Silversoft
Index	BBC (disc)	£24.99	Silversoft
Talisman	Spectrum	£7.95	Games Workshp
Chaos	Spectrum	£7.95	Games Workshp
Theatre Europe	C64	£9.75	PSS
C5 Clive	Spectrum	£1.99	Scorpio
Boardello	Einstein	£12.95	Bubble Bus
3 2 1	Spectrum, C64	£9.99	Micro Computer Inc

NEWS

Gem of a prize

The winner of our £200 jewellery voucher, presented by Interceptor Micros, is David Jenkins of Douglas, Isle of Man. Mr Jenkins will be able to spend the voucher in any branch of H Samuel.

The 25 runner-up were: Alistair Brown, Huddersfield; Linda Cook, Lowestoft; Rakesh Patel, Crawley; Miss C L Reith, Birmingham; Richard Walker, Dudley; Craig Williams, BFPO 24; M. Starks, Weston-Super-Mare; Brian Buckley, Oldham; E. Wylie, Kirkwall; Don Ramsay, Bradford; Robert Patterson, Telford; Christopher Hirst, Huddersfield; N. Thornton, Preston; Mylers Richardson, Herne Bay; David Wilson, Ash Vale; Tim Prince, Ware; W K Tsang, Hednesford; C Thornton, Malton; Richard Couchman, St Ives; Michael Harman, Withetnsea; P A Read, Bracknell; T J Cotton, Peterborough; W J Gilks, Chelmsford; Tom Lynch, London.

By the way, there were 14 jewels, including the one on the competition page.

More joy

The quality of joysticks is a subject similar to beauty. It's all in the eye, or in this case the hand, of the beholder.

Euromax claims that it's new proportional/analogue series of sticks are as responsive and durable as normal switched sticks.

The range is available for BBC, Dragon and Einstein computers with the normal switched versions for the Atari, Commodore and Sinclair machines. The company also has a trackball for the Atari at £32.95.

Euromax Electronics, Pinfold Lane, Bridlington, North Humberside YO16 5XR

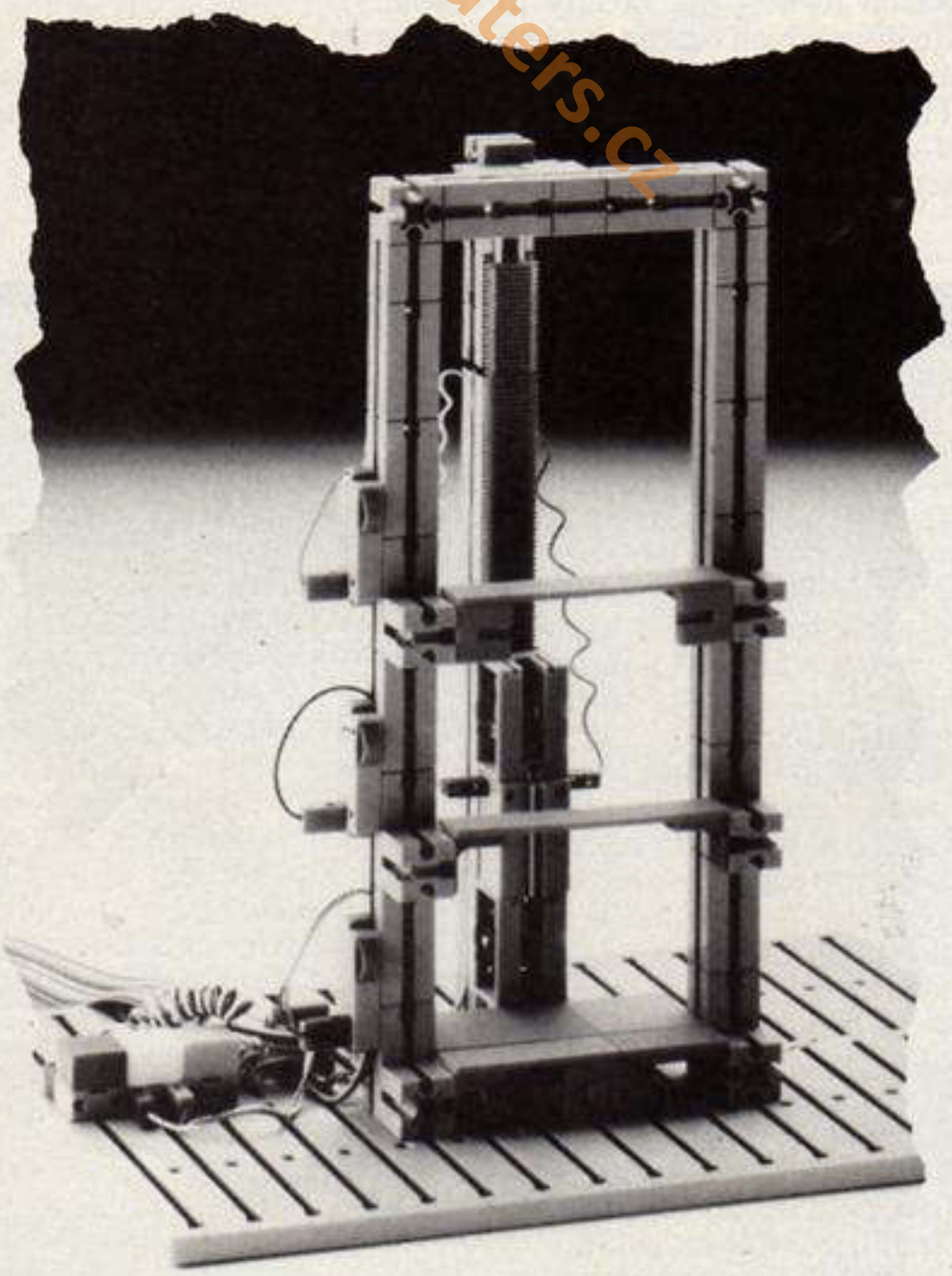
Jungle beat

If you like hunting for Elephants around the computer shops you could soon be on your way to Africa.

Ten-packs of Elephant floppy discs will include a puzzle card entry coupon for an African safari competition. There are four trips to be won before 30th June.

So if you fancy a safari, make you way at once to your nearest Elephant dealer and start beating about the bush.

Elephant, Dennison Mnfing, Colonial Way, Watford, Herts

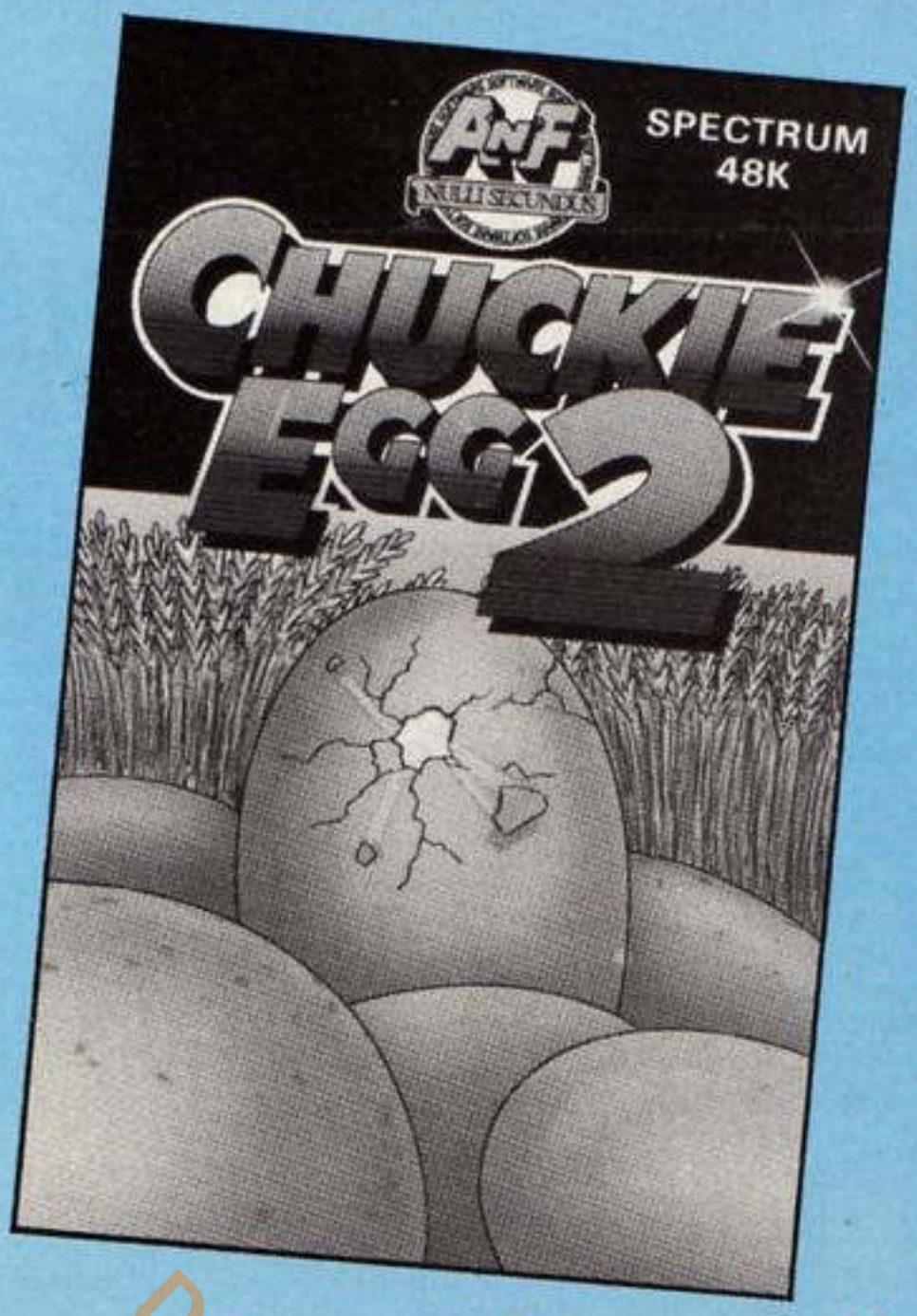


English prizes

There were 54 correct entries in our English Software competition. The answers to the anagrams were: **roast few** software; **shingle** English; **u rotten fib** fire button; **am coin pilot** compilation; **scrap hip** graphics. We apologise if some of you were led astray by the red herring **ten u read**, which should have been an anagram for adventure, but unfortunately the v was left out. We are giving prizes to those who spotten the deliberate mistake as well as those who left it off.

These are the names of the winners: Edward Pentland, Newcastle upon Tyne; Ken Piller, Saundersfoot; W K Tsang, Hednesford; M Cotton, Ipswich; C G Miller, Kingston Park; Mark Brewer, Chessington; Brian Steele, West Drayton; J Brooks, Weymouth; D Roebuck, Lymington; Paul Cambell, Hobart; David Black, Glasgow; A A Turner, Norwich; P Forbes, Birmingham; Joseph Toomey, London NW5; A Kauczok, Hengoed; Chris Eden, Wakefield' Michael Griffiths, Rochester; R B Miller, Briglinton; Karen Rolph, Heaton; S C Goodrum, Gt Yarmouth; E V Browning, Llanedeyrn; A R Perry, W Bromwich; Paul Serbert, Harrogate; Les Isbister, Biggleswade; Ian Robertson, Sunbury-on-Thames; A F Turner-Howe, Basingstoke; C H Reeves, Freemantle; Neil Tilt, London NW1; M Jones, Spilsby; T Kerr, Canning Town; R McClenaghan, Kirkby; Richard Barnes, Gillingham; Mrs J Froude, Shepperton; Brian Christie, Belfast; Andrew Bisby, Gorton; Graham Butler, Waterlooville; T O'Malley, Blackley; Jim Barton, Beverley; C Crane, Stoke-on-Trent; Mark Buckley, Huddersfield; Graham Pullen, Southwick; D L Wardman, Pudhoe; William Sinclair, Kirkwall; D Nisbett, Leicester; Daniel Goldsmith, Braintree; P N Grove, Bordon; L R Hambleton, Nottingham; J E Gibson, N Doncaster; A M McKenzie, RAF Bruggen; G White, Rainhill; Christopher Tolley, Basingstoke; A G Kluge, Rugby; M B Lee, Chesterfield; LCPL Gary Macdonald, BFPO 39.

COMPETIT



SCRAMBLED EGGS

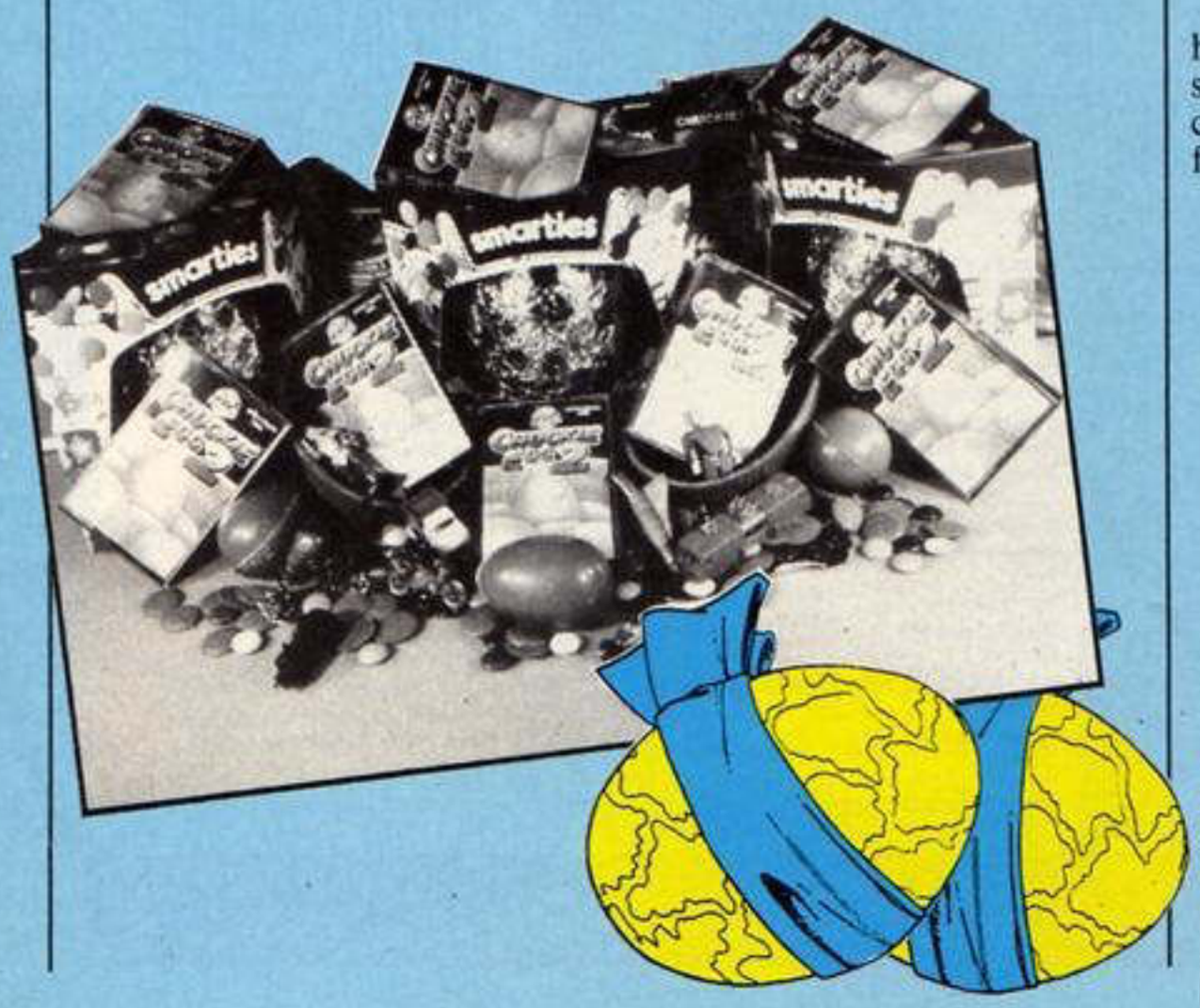
If you crack our code then you could soon be cracking an Easter egg — and A 'n' F's Chuckie Egg 2

Our competition this week has a real Easter flavour to it. If you aren't fed up with chocolate eggs yet then you'll really enjoy the prizes we're offering.

There will be 50 winners who will each receive a copy of A 'n' F's new program, Chuckie Egg 2 for the Spectrum (subtitled Choccy Egg) which costs £6.95. To add to the Easter flavour of the competition all the winners will also get a chocolate Easter egg and be eligible to enter A 'n' F's £1800 Chuckie Egg 2 competition.

Chucky Egg 2 features the hero Hen House Harry whose job is to get the Easter Egg factory running smoothly. He must mix together the ingredients for the eggs and find the parts for the little toys which go inside them. There are 120 screens and, according to A 'n' F, it is a true arcade/adventure. If you haven't got a Spectrum, enter anyway to get your egg.

You'll need to think quite hard to solve the puzzle we've set this week so, if you're not counting calories, read on to find out what you have to do!



How to enter

To have a chance of winning a prize you'll need to crack a code not an egg. Study the code sentence on this page and look carefully at the clue word we've deciphered for you. This should enable you to work out the meaning of the whole sentence.

Write your solution in the space provided on the entry coupon. Complete the coupon clearly and fully — if you are a winner it will be used as a label for your prize. Send the coupon to us.

Important: write your solution on the back of your envelope.

Send your entry to: Choccy Egg Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date is first post on Friday 12th April, 1985.

You may enter as many times as you wish, but each entry must be on an official entry coupon — not a copy — and sealed in a separate envelope.

Prizes will arrive from A 'n' F within 28 days of the publication of the issue containing the results of the competition.

Code breaker

FN BQZBJ Z BGTBJHD DFF

Here's your clue word: DZQRDP means Easter

The rules

Entries will not be accepted from employees of Argus Specialist Publications, A 'n' F Software, and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies.

The How to Enter section forms part of the rules.

Choccy Egg Competition

Entry Coupon

Name _____

Address _____

_____

_____

_____ **post code** _____

My solution to the code sentence is: _____

_____

Complete clearly and fully — if you are a winner this coupon will act as a label for your prize. Post to Choccy Egg Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date: first post, Friday 12th April, 1985. Don't forget to follow closely the advice in the How to Enter section and write your solution on the outside of your envelope.

TOP 20

Compiled by Gallup

SOFTWARE

Week Ending March 19, 1985

LAST WEEK	MOVE	THIS WEEK	TITLE	PUBLISHER	SPECTRUM	CBM 64	BBC	ELECTRON	VIC 20	AMSTRAD	ATARI	OTHERS
2	●	1	Soft Aid	Various	●	●						
3	▲	2	Bruce Lee	US Gold	●	●						●
9	▼	3	Football Manager	Addictive Games	●	●	●	●				●
2	▼	4	Raid over Moscow	US Gold	●	●						
NE	■	5	Moon Cresta	Incentive	●							
11	▲	6	Pole Position	Atari	●	●	●	●				●
8	▲	7	Impossible Mission	CBS		●						
4	▼	8	Ghostbusters	Activision	●	●						●
6	▼	9	Everyone's A Wally	Mikro-Gen	●							
10	●	10	Booty	Firebird	●	●						
34	▲	11	Air Wolf	Elite	●	●						
26	▲	12	Chiller	Mastertronic	●	●						
7	▼	13	Jet Set Willy	Software Projects	●	●					●	●
12	▼	14	Daley Thompson Decathlon	Ocean	●	●						
5	▼	15	Alien 8	Ultimate	●							
18	▲	16	Sorcery	Virgin	●	●					●	●
23	▲	17	Finders Keepers	Mastertronic	●							
15	▼	18	Zaxxon	US Gold	●	●	●				●	●
20	▲	19	Starstrike	Realtime	●							
13	▼	20	Combat Lynx	Durell	●	●	●	●			●	

Up and Coming

Still at number one — Soft Aid by various artists. US Gold is still maintaining a high profile with three games in the top 20.

There are two new entries from Mastertronic — Chiller and Finders Keepers. Chiller has been around for some time and this isn't the first time it's reached the top 20. Mastertronic has a total of five software games in the top 50 — not bad for low budget software.

At the top of the specialist charts, Soft Aid heads both Spectrum and C64, while Micro Power's Castle Quest is top of the BBC chart. Elite is still prominent at number three in the BBC chart. This is its 24th week in the chart.

Joint longest runners in the general chart are Addictive Game's Football Manager, Ocean's Daley Thompson's Decathlon, Anirog's Flight Path 737, and US Gold's Beach-Head. All clock in at 26 weeks.

Highest new entry is Incentive's Moon Cresta, which comes in at number five, and is available on the Spectrum.

SPECTRUM Top Ten

1	**Soft Aid**	Various
2	**Bruce Lee**	US Gold
3	**Moon Cresta**	Incentive
4	**Everyone's A Wally**	Mikro-Gen
5	**Raid over Moscow**	US Gold
6	**Alien 8**	Ultimate
7	**Air Wolf**	Elite
8	**Finders Keepers**	Mastertronic
9	**Starstrike**	Realtime
10	**Dukes of Hazzard**	Elite

BBC Top Ten

1	**Castle Quest**	Micro Power
2	**Combat Lynx**	Durell
3	**Elite**	Acornsoft
4	**Football Manager**	Addictive Games
5	**Manic Miner**	Software Projects
6	**Scrabble**	Leisure Genius/Psion
7	**Frak!**	Aardvark
8	**Blockbusters**	Macsen
9	**Eddie Kidd Jump Challenge**	Martech
10	**Hunchback**	Ocean

COMMODORE Top Ten

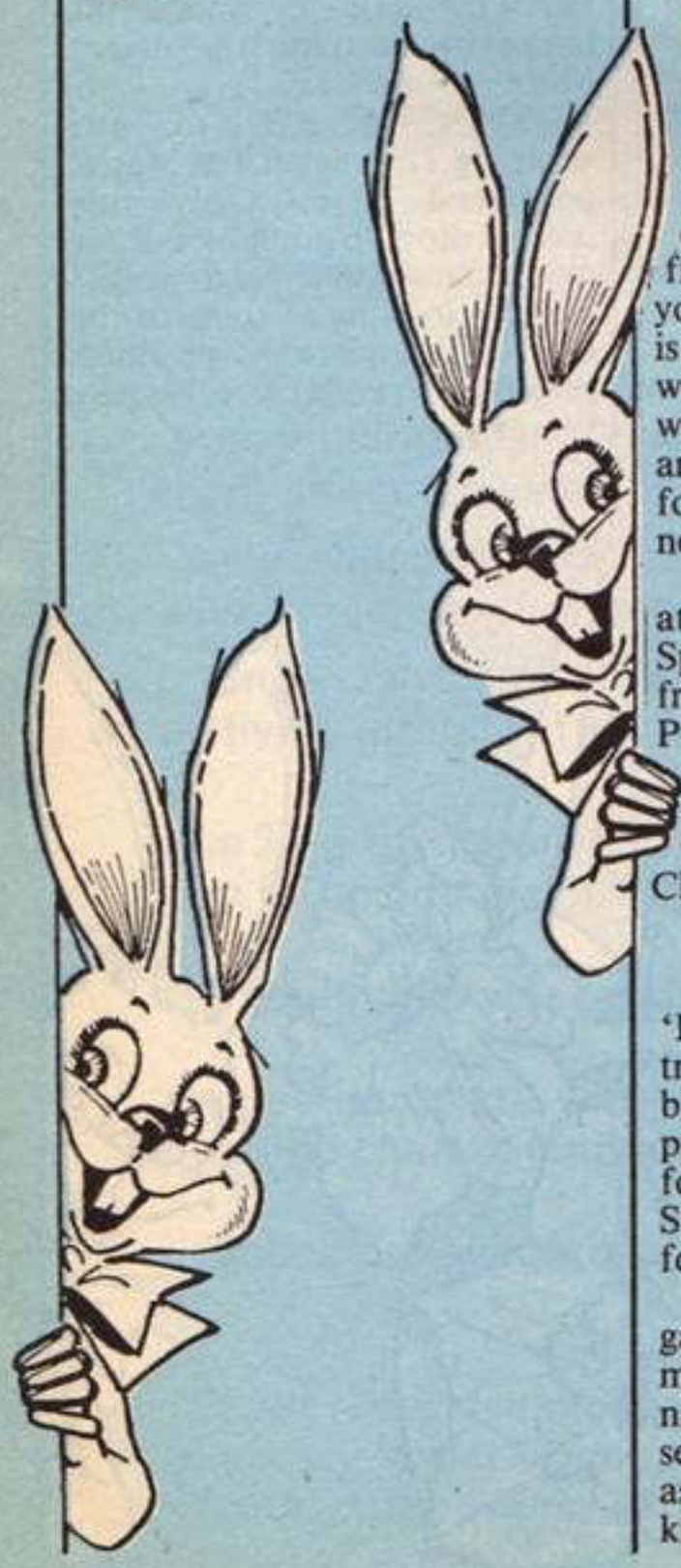
1	**Soft Aid**	Various
2	**Impossible Mission**	CBS
3	**Pole Position**	US Gold
4	**Ghostbusters**	Activision
5	**Rocket Ball**	Centresoft
6	**Football Manager**	Addictive Games
7	**Booty**	Firebird
8	**Chiller**	Mastertronic
9	**Buck Rogers**	US Gold
10	**Raid over Moscow**	US Gold

Compiled by Gallup for the industry's weekly trade magazine, Computer and Software Retailing
For details contact John Sorrenti, Computer and Software Retailing, No. 1 Golden Square, London W1R 3AB 01-437-0626

VENTURES

WALK THIS WAY

Delve into the murky depths of Macbeth, The Sandman Cometh and The Prince. Peter Sweasey muses on these three adventures



Enter, my dark, damp and dingy dungeons of your own free will... but be warned, for you may never return. The trap is set, by Ventures, HCW's weekly column dealing with the world of adventures and arcventures (arcade adventures, for those poor souls who have never read this before).

This week I shall be looking at Macbeth from Creative Sparks, The Sandman Cometh from Star Dreams and The Prince from CCs, and I'll be giving far too generous hints for Return To Eden and Danger Mouse in Black Forest Chateau, read on... if you dare!

Reviews

'Double, double, toil and trouble; fire burn, and cauldron bubble.' Culture meets computer in Macbeth, an adventure for the C64. This adaptation of Shakespeare's classic comes as four separate programs.

In the first, a text graphic game, you play Macbeth, and must face Scotland's enemies (a nasty lot they are too!). The second, text only game, has you as Lady Macbeth, arranging the king's death as he stays at her castle one night. She also faces domestic problems, such as preparing tea for the tired monarch, or arranging where people will sleep, all in a 60-minute time limit.

The third game is mainly graphics: you must help the three witches collect the ingredients to make the cauldron bubble. In adventure four, a mainly text game, you must protect your castle from the marauding hordes. You are alone, without even your wife to help you, and must avoid a spreading fire, in a time limit. If you complete the final game, and have worked out the correct code from the others, you can rewrite the original, and become king.

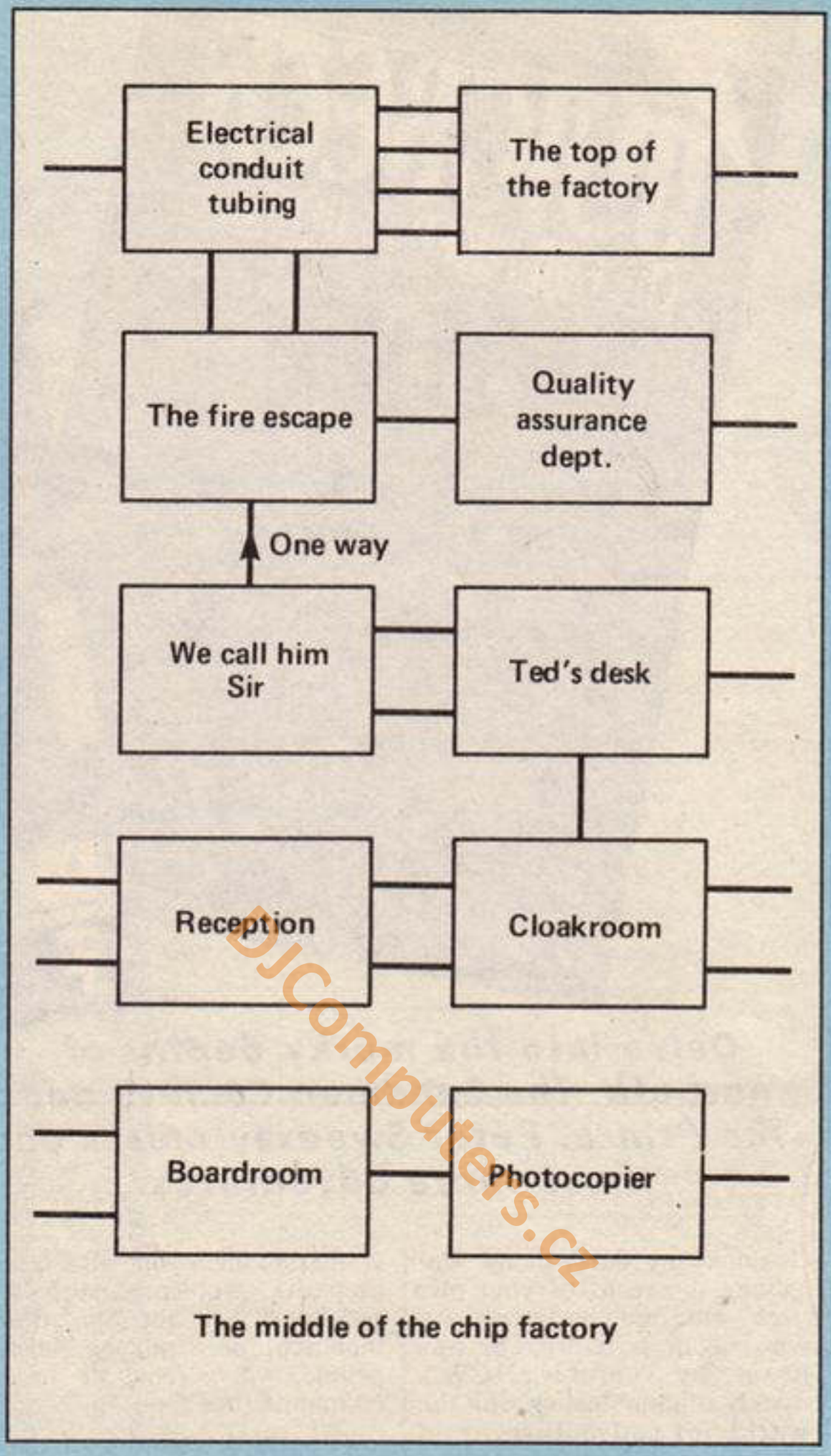
The authors are right: it is an excellent theme for an adventure. On the whole it is well developed, with plenty of puzzles to be pondered over, and many battles to be fought. Graphics are excellent throughout, very colourful, with limited animation. There are sound effects too, like a screeching cat or creaking door.

However, there is one major fault — the vocabulary. This program understands very little; for example, to pass through a certain door I tried forward, go, pass, through, in, enter, etc, until eventually discovering go forward. Annoyingly, the computer highlights the offending word in red, rather than telling you what it does not understand. The screen blanks when a command is typed in, making it necessary to type LOOK almost every other move. No abbreviations are accepted.

Despite these flaws, Macbeth is still a veyr good game. The text is packed with quotes, and a copy of the play is enclosed, which can help a lot in education. People taking English literature examinations may find it helpful — particularly the psychoanalyst programs at the end. Thus, a Ventures rating of ****. It costs £14.95 from Creative Sparks.

'To sleep, perchance to dream...' Why do computer programmers suddenly think they are so clever? The booklet to The Sandman Cometh implies that the game is a whole way of life, of thinking and learning. It also states that the game is 'very different from any other adventure you're ever likely to see'. Not a point I agree with, but more of that later.

VENTURES



The middle of the chip factory

The basic task is to answer a question which will be asked by the Sandman. He is a mysterious figure who wanders around the land of our dreams; a never-never world where nightmare is reality, and anything can happen. The player must find clues to the answer.

Unfortunately, a potentially very good and original scenario has not been well implemented. It is a graphical adventure with sparse and boring text. The graphics are slow to build and not very inspiring, also rather small. The different locations, which could be so varied, are dull and stereotyped: there's a fairground, a western town, the middle ages and a James Bond type. So much for being totally different. In it's favour, the game has good sound, but worse is to come.

The vocabulary is useless. There are 34 verbs! I spent a good half-hour trying to unlock a door. Unlock is not accepted, neither is insert brass key. The very is *use* — a real cop-out in any game. Response times are slow, and after each loading the player must sit through a film-style credit sequence — mind numbingly boring to all but the programmers.

The Sandman Cometh is a potentially brilliant idea, spoilt by incompetent development. It has an amateur feeling to it. Ventures rating ** — poor. The Sandman Cometh costs £9.95 for the Spectrum, from Star Dreams...

Finally this week, The Prince from CCS. This was winner of The Cambridge Award for 1984. I reviewed the dreadful 1942 Mission, the runner-up, some time ago. Happily, The Prince is better.

The lore master is dead. Four members of the royal court, Fernando, Porcus, Ambrose and Grasper, wish to take over the job. To do this they must find the tokens within the castle, then present them to the Prince. This involves, amongst traditional venturing skills: trading, bribery, blackmail, thuggery and stealing.

The unusual thing about this game is that it requires four players. Each player takes on one of the previously mentioned characters and relevant personality. The players take it in turn to use the keyboard. Whilst one is working there for a limited time, the other three can form alliances or perform the actions mentioned above, in true Dungeons and Dragons style. The computer acts as notebook, referee, and someone to describe your location. Each player has a computer-controlled henchman and spy, which can be told to hit other computer characters who may be working for other human characters. The humans also have a banker and trader at their disposal.

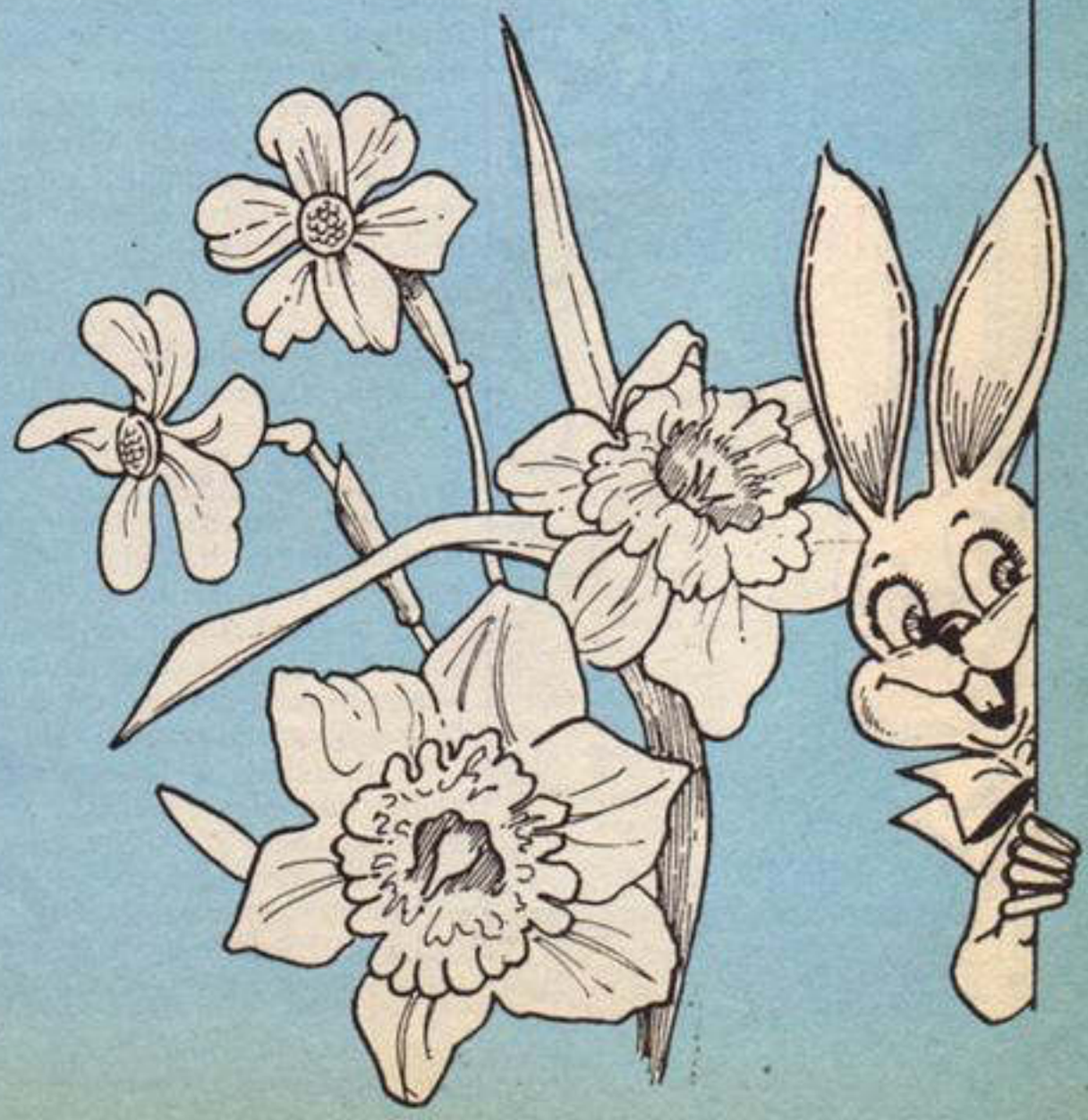
There are some excellent graphics of the characters, and sound and text are well thought out and atmospheric. The vocabulary is a bit small, but otherwise this is flawless. The game is incredibly complex. If you are a D&D fan, you will love this. Other people will too, if they can understand it fully, and can find four people with a day to spare. Ventures rating ***** — it costs £7.95 for Spectrum.

Helpline

Firstly, Dangermouse In Black Forest Chateau, a game I shall be reviewing fully next week. For people in part one, the following hints are courtesy of Nick Windsor, Surrey. Vampires bugging you? The cat likes coloured fish — then you can get the right liquid from the garden, providing you have the bucket. Gorillas are ticklish — and Venus mouse traps need a switch in temperature. The skeleton key unlocks the obvious — but are you barking up the *right* tree?

Now Return To Eden. If you don't want to cheat, stop reading now! Feeling weak? Eat the bean at the bend in the path. The peculiar shaped egg needs planting — use your spade. Can't cross the river? You need some tubers, and the stem. If the leviathan blocks your way, give it what you found in the houseplant. You will need the water log — squeeze it on the island, over the bulb. The shoot will come in handy. To climb a tree, sling a vine. But can you tame the ants, or amaze the maize by escaping the maze? More on that soon.

The third part of our stunning Technician Ted Map is published here. Only one section more to go: look out for more maps soon. Next week I shall be looking at some of the best — and worst — products released recently. Happy venturing...

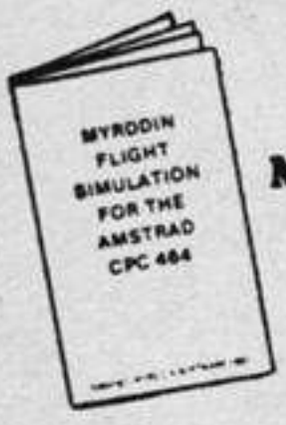


3D LANDMARKS YOU CAN FLY AROUND

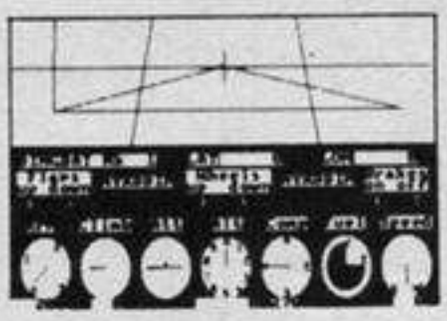
SUPERB REAL TIME SIMULATION

MYRDDIN FLIGHT SIMULATION

AMSTRAD CPC 464

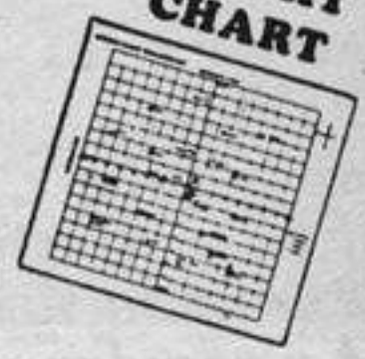


MANUAL

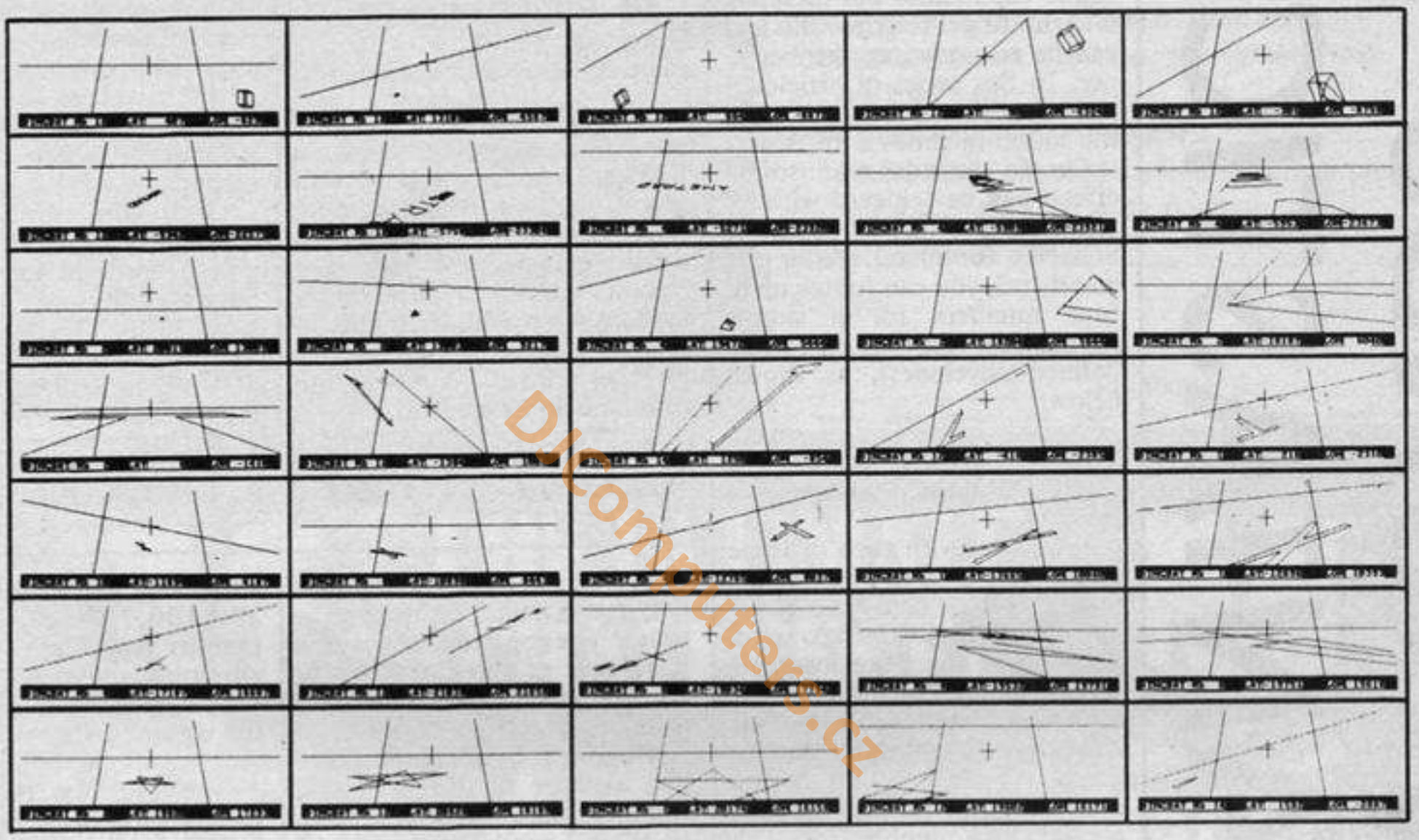


FULL SCREEN DISPLAY

FLIGHT CHART



Here are some screens from a typical flight showing the view from the cockpit (top half of screen) produced as printouts of the actual simulator.



A real time simulation with 3D graphics uses a massive 64000 x 64000 longitude & latitude flying area, making each flight completely different. Developed under pilot instruction to give realistic flight effect. The view through the cockpit gives moving 3D graphics.

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OR Telephone through your Access Order.

HCW

Signed.....

SOUNDS FANTASTIC

Get to grips with the full capabilities of your Amstrad CPC464 in the first of a regular series written by Clive Gifford

The Amstrad has powerful sound capabilities but these are difficult to get to grips with and can be confusing to the beginner. In this series of articles, I hope to make your task of using the sound facilities a lot easier.

Simple sounds and sound effects can be achieved without any difficulty just by using the SOUND command. After the command, you can follow up to four numbers for a simple sound, (i.e. one that isn't using defined envelopes), as shown below:

SOUND Channel Number, Pitch, Duration, Volume

Let's deal with each of these parameters in turn. The channel number can be between 1 and 7 and allows the CPC464 to select just one of the three available sound channels or to play more than one simultaneously, thus creating the Amstrad's famous stereo sound. The pitch determines the tone of the note and can be a number from 1 to 4000, though for most purposes the range is between 50 and 1000.

The duration is the length of the note in one-hundredths of a second and the volume level is between 0 and 15. However, when dealing with simple sounds without envelopes, the volume range is restricted to between 0 and 7. When an envelope is used, there is a need for a greater volume range and then a number between 0 and 15 can be used.

A simple note would look something like this: SOUND 1,100,50,4. The example note being played on channel 1 is a high pitched note of medium volume lasting for half a second.

One can experiment with simple sound and get some interesting and worthwhile effects. By using a FOR/NEXT loop, it is possible to change the pitch of a note by one unit each pass of the loop. This gives the effect of a sweeping sound: the example below demonstrates this.

```
10 FOR T=400 TO 10 STEP-1
20 SOUND 1,T,1,7
30 NEXT
40 FOR T=10 TO 400
50 SOUND 1,T,1,7
60 NEXT
```

A simple siren or alarm can be created just by repeating two notes, the first of which is slightly higher than the second.

```
10 FOR T=1 TO 12
20 SOUND 1,90
30 SOUND 1,110
40 NEXT T
```

The different sound channels can be played together giving a 'thicker' note — a note with more depth to it. A far more interesting way of using the three channels is to have each channel playing a note simultaneously but with each note at a slightly different pitch. This gives a phased sound as the routine below demonstrates.

```
10 FOR T=300 TO 80 STEP-10
20 SOUND 1,T:SOUND 2,T+3:SOUND 3,T-3
30 NEXT
```

Try experimenting with varying differences between the notes. The routine above uses a difference of three: try five or six and also experiment with different durations of notes.

There is a limit on the range and realism of simple single channel sounds. To create more complex sounds from explosions to imitations of musical instruments, one needs to use tone and volume envelopes which shape the sound.

The Amstrad has two commands, ENT and ENV which stand for Tone Envelope and Volume Envelope respectively. Let's firstly deal with ENT.

ENT allows you to alter the tone of a sound throughout the playing of that sound. ENT is firstly followed by an envelope number. This is simply a numbered tag so that the sound command can specify which envelope it requires if a program contains a number of envelopes.

After this envelope number comes a group of parameters which determine the rise or fall in the pitch of the sound. This group consists of three figures: the number of steps in the tone change; the size of each step (this can be a positive or negative number corresponding to a fall or rise); the duration, in one-hundredths of a second, of each step.

If, for example, the ENT statement was ENT 1,20,3,5, then the result would be a fall in pitch of three for each of the 20 steps with the overall duration of the envelope being 20 steps times one-twentieth of a second, in other words, one second.

Once you have created an envelope, you must obviously give it a sound to work with. Several additions have to be made to the SOUND statement that we have used so far. A SOUND statement utilising a tone envelope would look something like this: SOUND 1, 200,100,7,0,1. The sixth number specifies which tone envelope is required while the fifth number is concerned with the volume envelope and at the moment should be set to nought as we are not dealing with volume envelopes.

There are two cautionary notes to mention when dealing with these commands. Firstly, make sure that your sound lasts long enough for the envelope to work (an envelope lasting a total of two seconds would be cut sharply if it was being used on a note lasting just one second). Secondly, when using ENT make sure that the change in pitch is within the capabilities of your SOUND statement. A change in pitch of -80 on a note with an original pitch of 60 won't result in the sound that you intended but instead a low-pitched raspberry.

ENT in this present form is very useful in replacing a FOR/NEXT loop for a constantly rising or falling tone. In addition, you have more control over the length of each note. The line below produces the same effect as the first three lines of the first routine in this article.

Next time, we'll continue the discussion on ENT and use ENV to create some useful sounds and effects to include within your own programs.

BLOCKBUSTERS

BLOCKBUSTERS

Blockbusters is the ratings-topping, button-popping, mind-stopping quiz game of the decade, and now it's been adapted for your micro computer!

Central TV's popular programme attracts around 12 million fans, and now it's all set to become number one in the personal computer charts as well! Blockbusters is 'edutainment' of the highest level for all the family, providing a perfect introduction to the home computer.

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If you've got a computer in the family you've got to get Blockbusters. And if you haven't, it's worth getting one just to play Blockbusters! Now available from High Street stockists or direct from Macsen Software – just fill in the coupon below and try to contain your excitement – we'll deliver within 14 days!

This is what the experts have to say . . . "A surprisingly addictive family game with considerable educational side-benefits" – CRASH MICRO MAGAZINE

Macsen Software, GBA Limited, 17 Nott Square, Carmarthen, Dyfed, SA3 1PQ.

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BLOCKBUSTERS

REVIEWS

Bug-Eyes

From beginning to end this is the best planned, designed and executed program yet to be seen by this reviewer. The introductory screen has instructions scrolling across the centre while lines scroll towards you in the bottom half. There are samples of each of the 10 screens — very good for reviewers! There are some similarities to Manic Miner, with good, smooth graphics, effective sound and steady scrolling. Each screen is totally different in design, though the basic idea is the same. You try to reach the Generating Room and destroy the power generator of the Xxabaneans' starship. The Xxabaneans — the Bug-Eyes — are trying to destroy all intelligent life in the Universe.

In your spacesuit, you enter Screen 1 and try to avoid the nine Stamping Stompers, which are pistons moving out of synchronisation and at different speeds. If you make it to the bottom the next, more difficult, screen is reached. It has Blinking Bouncers, that squash, and bridges that come and go. Each successive screen gets increasingly more difficult. There are Lazer Blazers, lasers and spiders, Whizzing Walkways, six moving bridges, Plummeting Platform and finally the Generating Room with moving portcullises, conveyor belt and Blinking Bouncers.

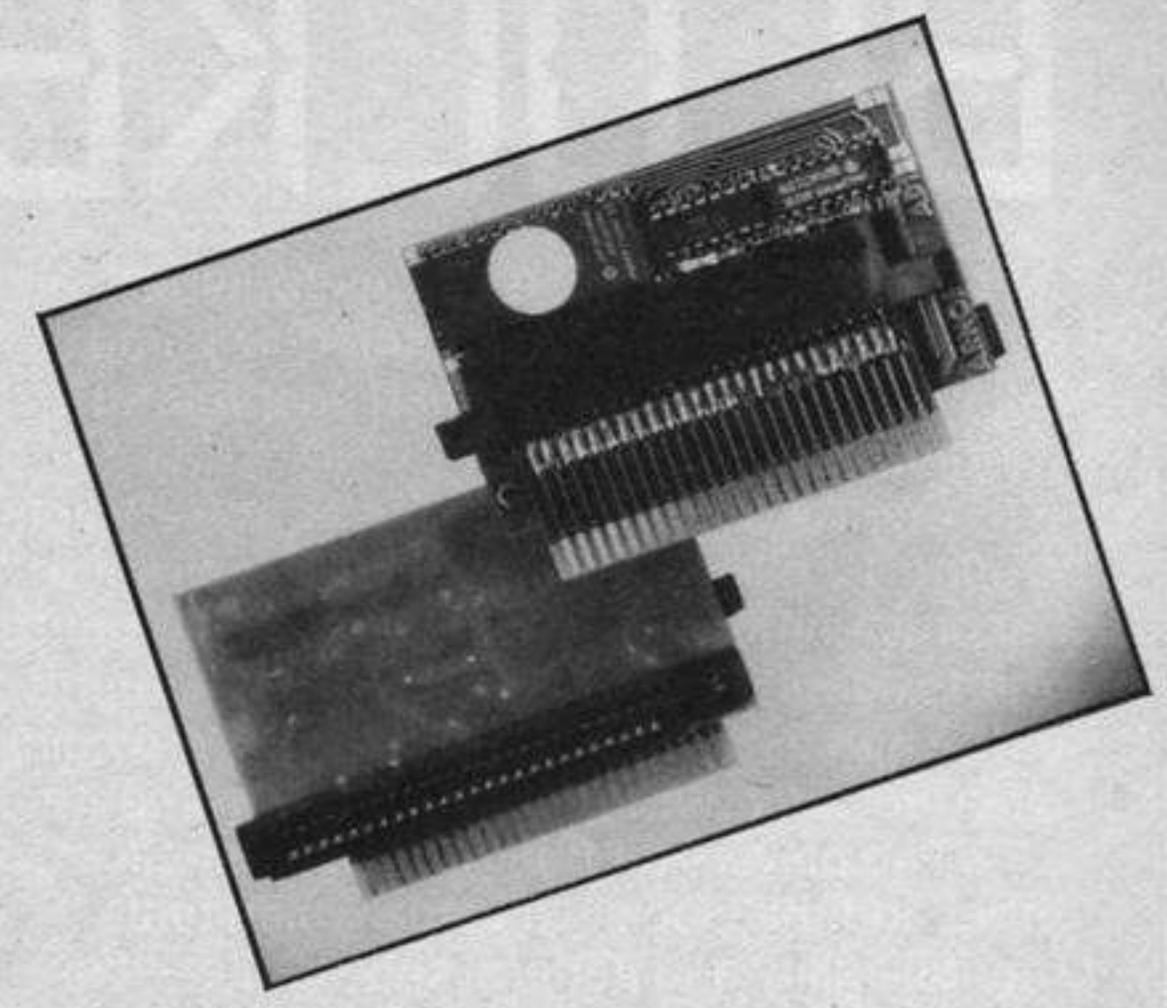
A colourful, enjoyable, addictive arcade adventure game that all games people should own. **T.W.**

Price: £6.95

Publisher: Icon Software

Address: 65 High Street, Gosforth, Tyne & Wear

SPECTRUM



Maxam

This Z80 development system is the first expansion ROM available for the Amstrad CPC464, and Arnor are to be congratulated on a superb job.

The 16K ROM comes on a small circuit board which plugs into the expansion port (most of the board goes *inside* the computer): a through-connector allows other boards and the disc drive to be fitted, and a third connector caters for future ROMs from Arnor.

MAXAM contains a versatile Z80 assembler, monitor and a simple but useful text editor. Between them, they provide all the tools you need to write, develop and debug machine code programs, either alone or mixed with BASIC.

Assembler source code may be typed in using the text editor (no line numbers are required), or you can mix assembler with BASIC in a similar way to BBC BASIC. In this case the source code must be in REM statements since extension ROMs cannot alter the way BASIC interprets the program, and syntax errors would occur if the source wasn't "hidden".

Extra assembly directives are provided to pass variable values and addresses between BASIC and assembler in mixed applications. All the other standard directives to be substituted — BYTE, WORD and TEXT for DEFB, DEFW and DEFM, for example.

The monitor allows any part of RAM and ROM (including expansion ROMs, but not MAXAM itself!) to be disassembled to screen or printer, or simply listed in hex or ASCII format. RAM contents can be altered just by overtyping on the screen display. Blocks of memory can be moved intelligently (i.e. partial overlaps are permissable), or relocated to run at new addresses.

One debugging tool not included is single-stepping through a machine code program, but there is a way round this. Breakpoints may be set freely in the code simply by typing BRK as a directive in the source listing (a breakpoint halts a machine code program and displays the registers on screen, continuing once you've examined the contents). To single-step, you could insert BRKs after every op-code in the block in question. String search facilities allow a check to ensure you'd taken them all out after debugging.

Useful external commands include !HELP to identify all expansion ROMs fitted, ROM numbers, and the external commands provided by a particular ROM. !ROMOFF resets the machine without initializing any expansion ROMs, which allows some fussy types of cassette software to be run without problems.

This is definitely the best editor/assembler for the Amstrad — I can highly recommend it. If the ROM version is too expensive for you, disc and cassette versions are also available at £13.50 and £26.90, with slightly fewer features.

Price: £59.90

Publisher: Arnor Ltd

Address: PO Box 619, London SE25 6JL

AMSTRAD

Spitfire '40

Real time flight simulators often require the skills of an ace and the appendages of an octopus. This is no exception to the rule but at least it gives you two practice modes to develop your skills and manual dexterity.

The scenario for this simulator takes you back to the Summer of 1940 and an airfield somewhere in the South East of England. You have just been assigned to fly with a Spitfire squadron and as your experience increases so will your flight log and decorations.

This is the nice part about this simulator, as you fly each mission to locate and defeat the enemy, your flight log can then be brought up to date and saved to disc ready for flight another day. Eventually, you may even achieve the rank of Group Captain with a coveted VC.

The program has three basic screens: the control panel, the view from the cockpit window and a plan view showing your plane, the enemy and your position over the South East Region.

The cockpit view is a very realistic representation of a Spitfire, with a few dials and lights added to compensate the lack of controls which would normally take the form of levers or pedals.

The cockpit view is unspectacular except when engaged in combat. Suddenly there are planes of all colours flying at you from every conceivable angle. The forward view is complemented by a small mirror which shows if the enemy are on your tail. Enemy bullets striking home are indicated by sound and the flickering of the border colour surrounding the screen.

In practice I found the Spitfire to be extremely responsive to the controls and spent much of my early flight practice in an inverted position due to an extremely steep climb which resulted in a loop, generally followed by panic as the ground started to loom up towards me. Eventually, thanks to the detailed instruction manual, I managed to iron out these problems.

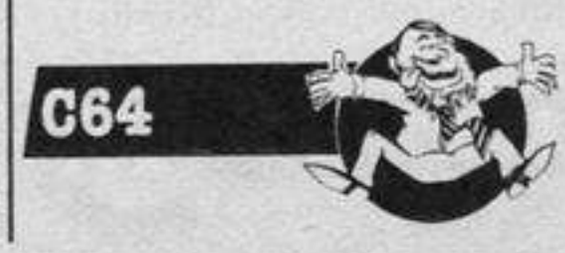
During combat practice I soon discovered how to avoid attackers but found that hitting them was very difficult and in the combat mode, which is the main program mode, I...well let me put it this way, if they had left the Battle of Britain to me we'd all be eating sauerkraut and wearing leiderhosen.

Bandits at one o'clock? Certainly not, it's a bargain at any price. Never have so few given so much to so many.

Price: £9.95 cassette, £12.95 disc

Publisher: Mirrorsoft

Address: Holborn Circus, London EC1P 1DQ



The Hacker

Have you ever wondered what computer designers dream about? Now is your chance to find out. Hacker must be based upon a computer designer's nightmare. The adventurer, Hacker, finds his way into a telephone network, through a modem and is lost inside the circuit of a computer.

After listening to an excellent and entertaining rendering of a tune played in the style of a steam organ, Hacker is launched into the first part of his journey. There are a total of 12 different screens and to pass from one to the other, he must retrieve five floppy discs whilst dodging tramping ICs and other moving "bits." One interesting feature allows a player to preview and try each of the 12 screens. This is a boon to me because I normally never get to see what the final stages of a game look like.

However, to play and obtain a score, you must progress through the game sequentially and collect each of the discs before moving on. There are only three controls for moving Hacker round the screen but it takes time to learn the different techniques necessary to make certain moves; rather like an adventure game. You shouldn't get bored, but remember that Hacker only has three lives to do battle with all the dangers.

There are no screen instructions, but there are high score and pause facilities. It's an interesting game as long as it doesn't give you nightmares.

J.D.

Price: £2.50

Publisher: Firebird Software

Address: Wellington Hse, Upper St Martin's Lane, London WC2H 9DL

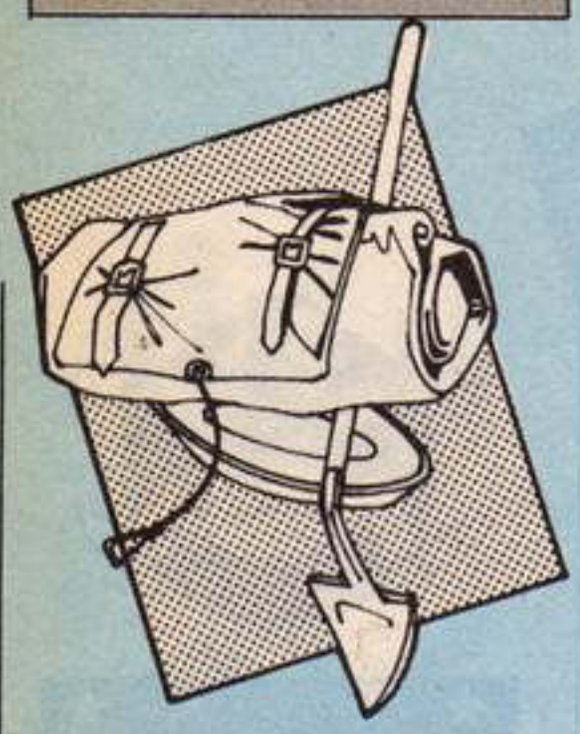
Flipped

Hooked

Keen

Yawning

Comatose



Island of Xaan

Sentenced to jail "until you rot" for the terrible crime of stealing the kings' water, you find yourself in a small dimly lit prison cell. Yes, Island of Xaan is an adventure game and in the classic style, text only.

Your object is to escape, amass treasure, find a disguise and leave the island on a convenient ship. All this is easier said than done, as one might expect.

The game follows the same format as the Level 9 and Acornsoft classics. However, there are one or two exceptions. Firstly, there is more violence than usual and strangling guards comes hard to someone more accustomed to the likes of Philosophers' Quest!

Secondly, there are one of two *Fatal* mistakes. For example if you neglect to search the dead guard before leaving the cell, the door slams shut and you then can't go through the maze since you haven't got a compass. This leaves you no option but to quit. I think games should be logical and never leave you in an impossible position.

At £7.95, Island of Xaan is cheaper than most and is supplied with an adventurers' notebook and SOS card.

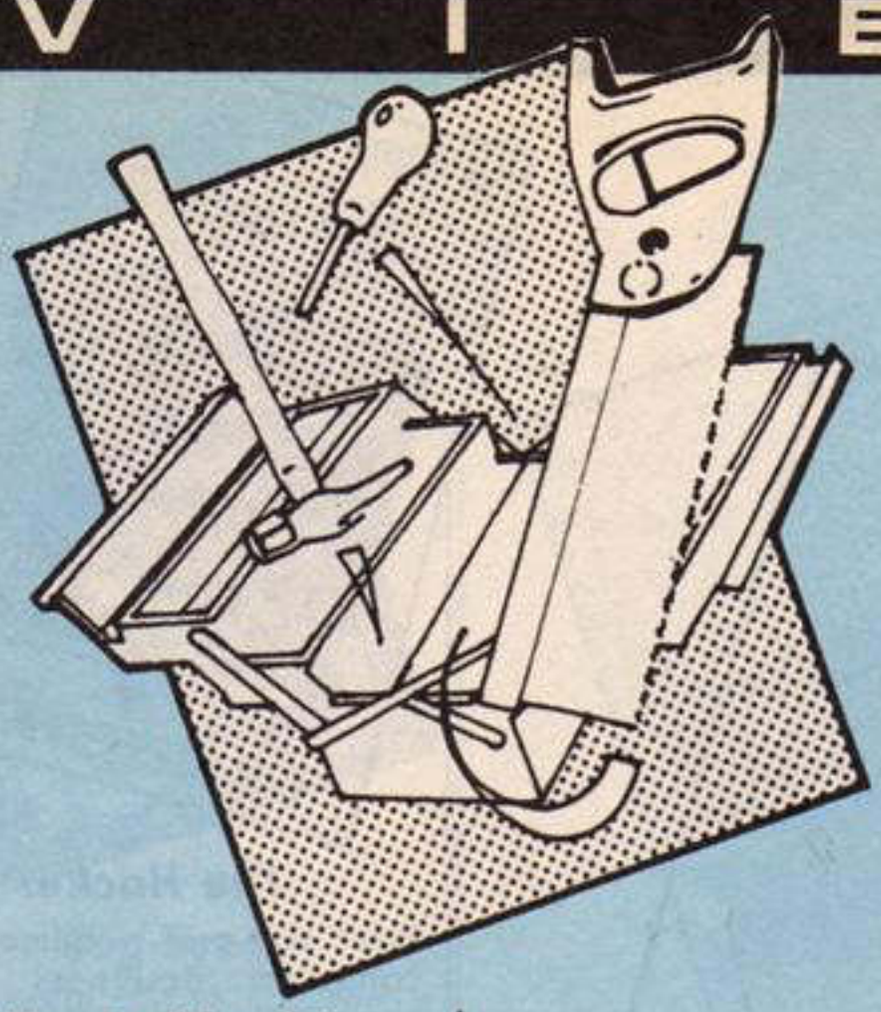
The instructions are short, but they only spoil the fun anyway, and everything you need is explained whilst the program loads.

As a first offering, Xaan is quite good but will someone please tell me how to pass the sleeping guard — the only help I get is "Write to Alice"! **J.G.D.**

Price: £7.95

Publisher: Robico

Address: 3 Fairland Cl, Llantrisant, Gwent



Masterfile 464

Masterfile 464 is a very clever piece of work. It consists of a tiny BASIC loader which precedes 10K of machine code and both are easily transferred to disc. When loaded, it allows you to wield immense power without having to understand a thing about computer programming. In effect, your 464 becomes an enormous filing system capable of handling anything you care to enter.

It could be names, addresses and phone numbers, a catalogue of parts, their locations, costs and suppliers' names and addresses, or your record collection. It might be sales information, product details, or a selection of recipes, together with suggested wines! In other words, anything which constitutes a sophisticated list of items.

Using a series of on-screen menus, you are taken gently through the stages of setting the system up. Before this, you should have worked out the structure you need, for example, each record of a name and address file will need a separate field for name, street number and name, area name, post town, post code. It's important to do this because later you will be able to sort you list by each of these fields.

Having set up this structure, you must then decide how you want it displayed or printed. You would probably want the above example in the form of a straightforward on-screen list, and also as address labels for your printer. If however, your list was more demanding, for example, details of products sold to the people on your list, you can then set up a series of "child" files, giving these details separately.

When all the information is entered, the power of the system is further revealed. You can now sort the data based on any of its attributes; either alphabetically or numerically, in ascending or descending order. You can select records by attribute, for example all the people in Staffordshire on your list, who have bought products A and B, in the twinkling of an eye.

The particular beauty of the system is its flexibility. If you want to add new criteria to existing files it is easily done. You don't have to start again. If you think of a new use for the program, then all you need to do is load it and configure a new series of files. The possibilities seem endless.

There are limitations, however. The whole file is held in RAM, thus the use of disc drive memory is not possible. This limits your address file to about 600 records. Similarly, you can only have two related generations of records, so you must design your structure to take this into account. Whilst the accompanying example files and manual are good, and very detailed, it would have been helpful to have step-by-step instructions in the manual showing how different file structures can be achieved. You'll need to study carefully.

By home computer standards, this isn't a cheap package. It is worth it? Undoubtedly yes!

If time is money, and you want to use your Amstrad with an easily interrogated database, Masterfile 464 is the package for you. **D.M.**

Price: £24.95

Publisher: Amsoft

Address: 169 Kings Rd, Brentwood, Essex CM14 4EF

Interdictor Pilot

In true Star Trek tradition, this program puts you in the pilot's seat of a super galactic spaceship.

Thankfully the handbook is one of the best I have seen for this sort of simulation; the complexities involved in flying this craft, your Interdictor Mk III, are considerable.

The time it takes to assimilate the 48 pages of information, depends on your learning ability.

Starting with a dummy run, using the slow motion option, and given enough practice, you may get to fly a successful mission, and achieve a perfect docking with the Starbase.

On the other hand, it may be just too complicated for you, unless you are determined to see some return for your considerable investment.

Superb graphics and sound add enormously to the reality of the project. The panoramic view through the cockpit window is realistic, with good 3-D implementation as the alien craft zoom towards you.

You can use 40 of the keys and the joystick to control the Interdictor, though thankfully, not all at the same time.

Here lies my one critisism: some of the keys are only effective under certain operating conditions. Although these parameters are all covered adequately in the handbook, it took a lot of effort to commit them to memory.

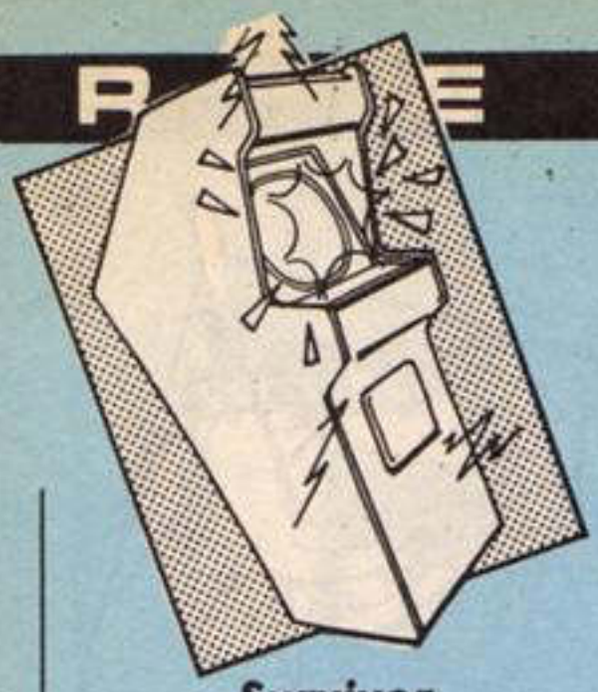
With this number of input channels, a keyboard overlay would make the learning process much less arduous.

Fastidious attention to detail in this well written program will provide aeons of entertainment for armchair astronauts. **D.H.**

Price: £17.95

Publisher: Supersoft

Address: 91 Manor Rd, Higham Hill, London E17 5RY



Survivor

This program has a bug in it.

According to the information on the cassette inlay, there are more than 1000 rooms for you to visit.

Survivor is a chase game in which you play the part of Angus. A variety of evil-looking ghouls chase you through a maze of rooms set on seven levels.

These nasties sap your energy whenever you bump into them. Retaliation is effected by shooting them or thowing a porcupine bomb at them.

The supply of bullets can be replenished by finding the arsenals depicted as small arms in the maze. You get energy by going over the necessary bottles containing varying amounts of elixir.

The challenge is to collect up all the bombs which are scattered throughout the maze. Each higher level contains more bombs.

Locating the occasional signpost gives some indication of the general direction to be taken.

The chunky graphics leave a lot to be desired and the impression is that a lot of this program is written in BASIC. This is just not fast enough to handle moving graphics adequately, making the game no real challenge to ardent joystick jostlers.

The aforementioned bug rears its ugly head to tell you that it has met an "unexpected return in 1000." Overcoming this means reloading the program, thus all you high-score features are lost.

The game can be played using either the keyboard or the joystick.

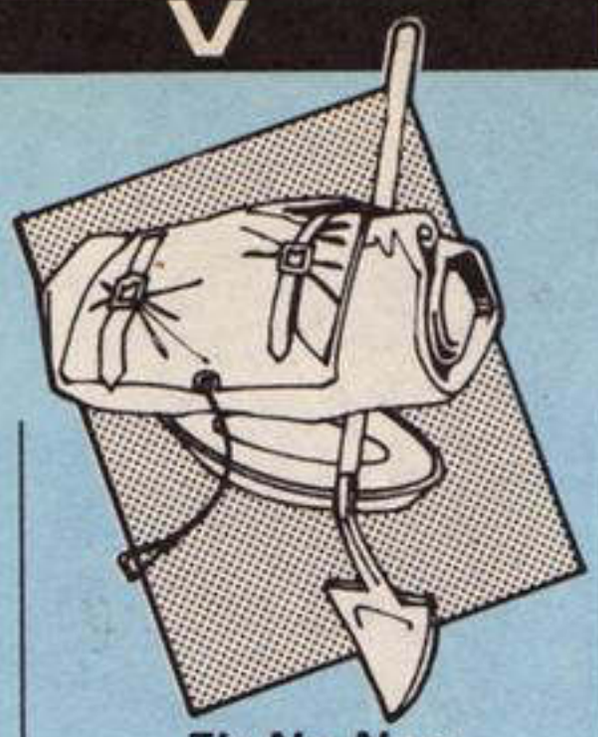
However, the bug makes it a waste of money at any price.

Price: £7.95

Publisher: Anirog Software Ltd.

Address: Unit 10, Victoria Ind Park, Victoria Rd, Dartford, Kent

AMSTRAD



Tir Na Nog

This game, up to now available on the Spectrum only, has now been converted for the C64. Whilst I have only seen static pictures of the original, this appears graphically to be a faithful reproduction. To use current jargon, this graphical adventure is a sort of computer movie. You play the role of the hero Cochulainn who is searching for the fragments of the seal of Calum.

To fulfil this quest you must search a huge area of land containing a number of different scenarios and problems. The size of the area is formidable and will take many hours to explore. From time to time objects and other characters are encountered, each having a role in the game.

On screen you have a constant view of our hero and his immediate surroundings. Pressing the relevant button moves him left or right with the background scrolling accordingly. Movement in the four cardinal directions is facilitated by altering the "camera" angle.

The strong point of this game is the animation of all characters. The main figure is huge and movement is intricate. The other characters are equally well drawn. Overall, the graphics are of the highest standard.

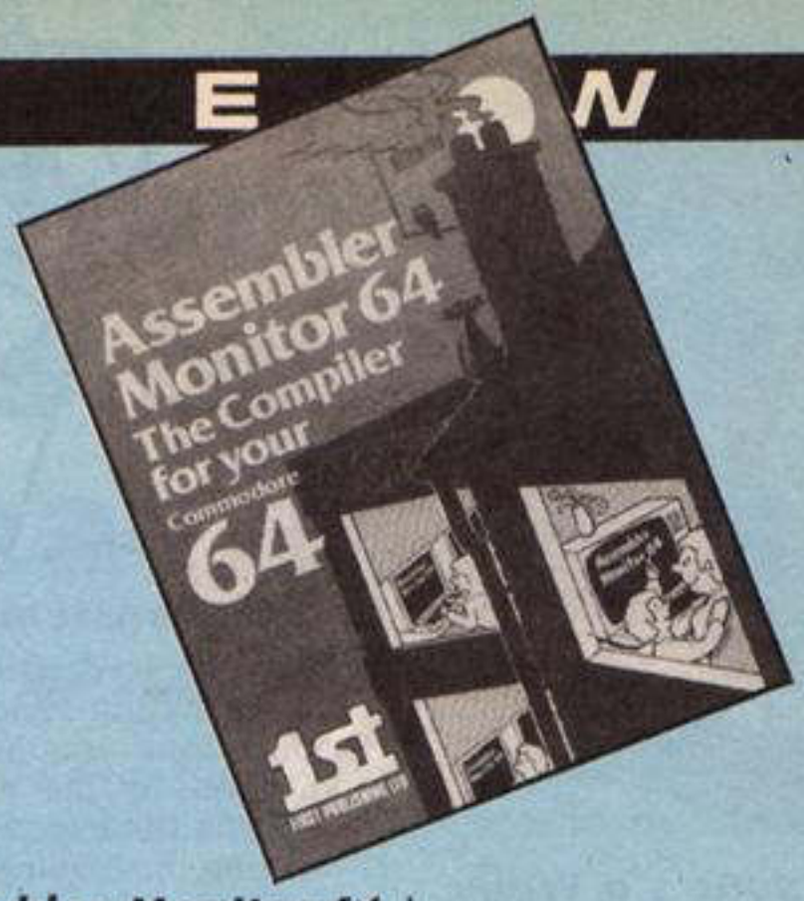
Overall this is a highly testing game which is a delight to play. The vastness and complexity of the scenario is sufficient to ensure that you don't become bored. The accompanying instructions are detailed and supplement the game well. At the price — the same as the Spectrum version — it's destined to be a winner. **A.W.**

Price: £9.95

Publisher: Gargoyle

Address: 74 King St, Dudley, West Midlands

C64



Assembler Monitor 64

For anyone wishing to undertake a significant piece of machine code, a good quality assembler is vital. This package is a newcomer aimed at this section of the market. This assembler/monitor package rejoices under the nameof a 6510 MACRO Assembler Development Package. I'm not quite sure what that means, but it sounds good.

For the uninitiated, an assembler is a program which will convert a source code make up of easily intelligible mnemonics into the numeric object code which the machine understands.

The on-board editor is used to create the source code and all normal disc storage commands are available. The format is standard and easy to use. The main useful feature of this sort of package is the provision for pseudo op-codes and labelled variables and loops. To handle these, this assembler uses two passes.

In addition to the normal pseudo op-codes such as .BYTE, .ASC, .WORD and .AYM, there are some rather handy facilities. The output of the assembler is controlled by .OPT. This is a particularly powerful command which enables you to output the object code to disc or, if you're testing it, to RAM. This code also allows the output of the assembly listing to screen or printer.

If you want to store floating point constants in the usual five byte format, .FLP will do this. One of the more bizarre and, if you know the system well enough, useful commands is .SYS. This transfers control to your own machine code routine on each pass, allowing the use of custom output routines etc.

The best of the bunch has got to be the provision of macros via a .MAC and .MEND op-codes. A macro is a frequently used block of code which can be inserted at any point of the source code but need only be written once. It can be used with passed parameters — a bit like a procedure — and is powerful and helps to make the source code more intelligible.

Since the assembler resides in the machine, only 30K is available for source code. Long codes can be assembled, however, by using linked files on disc.

The second part of the package is a machine code monitor. This sits in the area between the ROMs and can therefore cohabitate with the assembler. The monitor is provided as a debugging tool and general utility. The format is nearly the same as most standard monitors and provides commands for SAVEing, LOADing, display memory, single step, break points, disassemble etc.

One nice touch is that the display register command gives the details of the individual bits of the status register. I noted peculiar behaviour if BRK was encountered. After entering the monitor, the single step command would not function correctly and it was necessary to leave the monitor and re-enter with a "CALL".

On the whole, I found this package both powerful and efficient. The need for special loaders has been avoided by ensuring that object code assembled to disc is directly loadable. This ensures a simple system. In terms of power, this package is comparable to others but costs less. The manual, translated from German was fair, although occasionally obscure. Overall, worth serious consideration. **A.W.**

Price: £19.99

Publisher: First Publishing

Address: Unit 20B, Horseshoe Rd, Horseshoe Park, Pangbourne, Berks

C64

REVIEWS

Everyone's a Wally

Whilst impresed with the graphics used in Pyjamarama, I found the plot far from original. Now here's a game worthy of them. It's a combination of arcade/adventure/strategy ploys featuring Wally, his friends Wilma, Tom, Dick and Harry in their quest to earn a not-too honest shekel!

Littered around the superbly depicted town are a number of things which need mending like a brick wall, a fountain, etc, together with the things to mend them. Controlling Wally, you must find the items you need. If, however, the task needs the skills of Harry the plumber, then you must find him, and take control of him instead.

When the job is complete, money is deposited in the safe in the bank. As you complete the tasks, you are able to acquire the combination to the safe and finally grab the loot. Don't be fooled, it's not easy! Herbert the baby gets in the way, your characters have to eat and drink, and all sorts of lunatic things launch themselves at the characters in the arcade sequences with the intention of killing them off. There's an awful lot to keep you quiet.

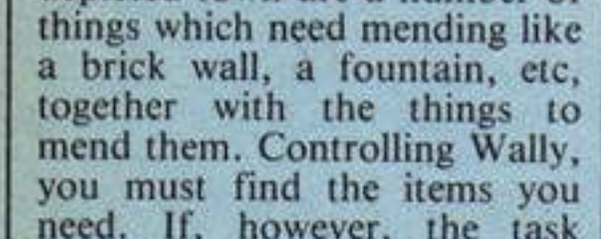
Animation, sound and graphics are outstanding. Mikro-Gen has decided to go for full colour. This causes background colour changes in a limited area of the screen, but it's not very distracting.

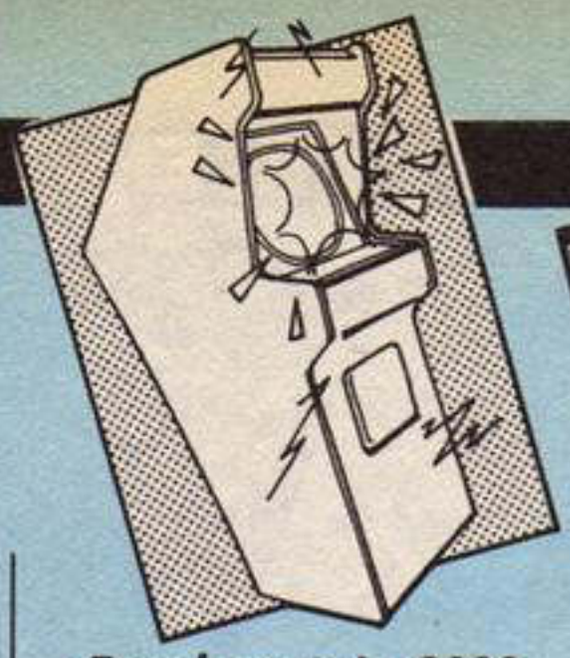
An excellent game, but expensive. Why not a standard cassette box, no free music track, and a £5.95 price tag? Any response, Mikro-Gen? **D.M.**

Price: £9.95

Publisher: Mikro-Gen

Address: 44 The Broadway, Bracknell, Berks





Frankenstein 2000

This game is described as an arcade adventure and from the loading time you have a fair indication of the amount of detail you can expect.

During the loading there is a nice gothic title which may lead you to expect something of the old Mary Shelley original. Not so. Whilst still loading you get an interesting split-screen picture of the human internal organs in full glorious technicolour. A couple of horizontal bars indicate oxygen and damage.

My pre-release copy did not contain any detailed instructions other than keyboard controls but it is hoped that some additional documenttation will be provided. There was no explanation of the objectie or description of the scene but you can work it out as you go.

When loading is complete the left-hand side of the screen has you in a mini-submarine travelling downwards through the trachea (that's the windpipe!). Coming upwards are some form of blobs which could be various antibodies and which you can destroy with torpedoes. Touch them or the sides of the trachea and you sustain damage.

Meanwhile your journey is recorded on the body to the right with a flashing cursor. If you complete a stage you move on into the lung, meeting white corpuscles and so on.

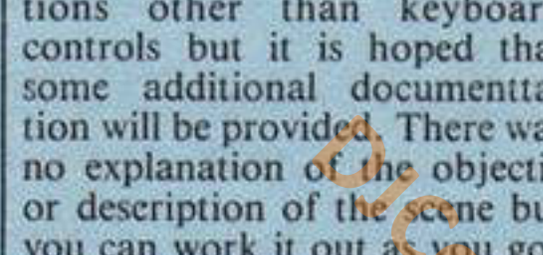
It was an interesting game initially, with well designed graphics, but failed to sustain that interest. I could find no way of repairing the damage — perhaps there's something I've missed — and never lasted further than the lung.

Incidentally if this sounds familiar then it's because it's remarkably like a film called Fantastic Voyage, made in 1966. Could this be a clue to the journey? A new twist to zapping aliens. **M.P.**

Price: £7.95

Publisher: Icon

Address: 65 High St, Gosforth, Tyne and Wear



Myrddin Flight Simulator

Dingbat is an American colloquialism for anything from a baseball to a Saturn rochet, just so long as it flies.

In this program your dingbat comes with 16 levels of difficulty for you to tackle. Strictly for fun, this is a flight simulation, but decidedly more down to earth than some.

No need to flap when you open the instruction booklet either. Prop up the map, open the throttles, release the brakes, raise the flaps and fly away.

The switches and dials built into this Y-model crate are clear and functional, without any luxury refinements, like radio or television.

Airborne contortionists just fly this thrilljerker from the feel of the controls. These are either partly keyboard and joystick, or if yours is the Mk 1 model then just use the keyboard.

As an aid to fledgling fliers a cheat key allows instand course changes of 180 degrees, letting you terminate your life in front of the loved ones which have just seen you off.

Should you actually make a safe landing, re-fueling is followed by another sortie and another chance to self-destruct.

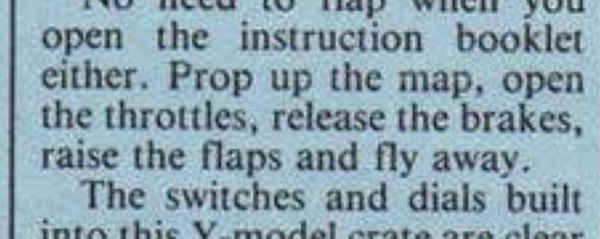
Back down to earth, it must be said that the landmarks viewed through the forward cockpit window are few and far between. The infantile graphics detract from an otherwise enjoyable trip.

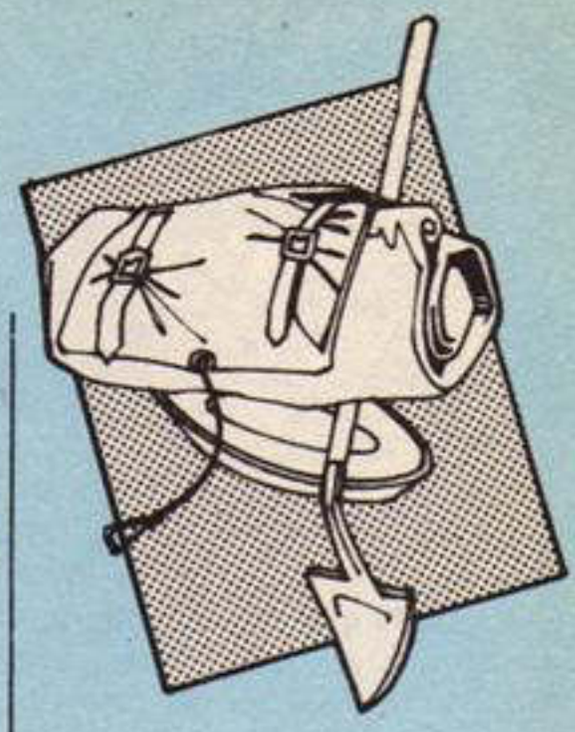
Though not to be confused with serious aeronautics, this program is a lot of fun and will keep you at it for hours. Not recommended for anyone with a serious heart condition. **D.H.**

Price: £11.95

Publisher: Myrddin

Address: PO Box 61, Swindon, Wilts





Brawn Free!

You might be forgiven for thinking that this had something to do with lions. It hasn't, but as no instructions were sent, I had to wait to find out that this is an all-text adventure, written in BASIC I suspect, which casts you as a none too bright relative of a Rochdale educated cavalry officer in the old west, with the task of finding a bottle of patent medicine for your granny!

Three on-screen windows give you descriptions, ask for instructions, and handle your input. Don't let the fact that it's in BASIC put you off, it's very quick. At various points, notably whilst reading the instructions, you are treated to a *tour de force* of sound — well almost. It's obviously an attempt at tin whistle and snare drum, which is quite good, with the exception of its timing. Rather Dave Brubeck!

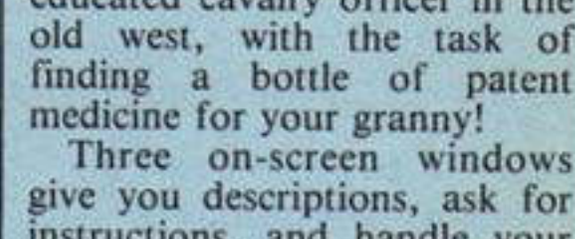
Aside from the price, the great attraction here is the humour. Being a corn-ball, I loved it! Example? "You see a group of 50 tin starred cats"! Examine cats: "Don't worry, they're harmless posse cats!", and more of the same. I also like the fact that I wasn't killed off in the first few seconds, though to tell the truth, after a considerable time, I still hadn't encountered another human being, though I did collect a few more John Wayne jokes, a plank and some other bits.

Probably not for the adventure nuts, but an amusing starter at an amazing price. **D.M.**

Price: £2

Publisher: Nemesis

Address: 10 Carlow Rd, Ringstead, Northants NN14 4DW



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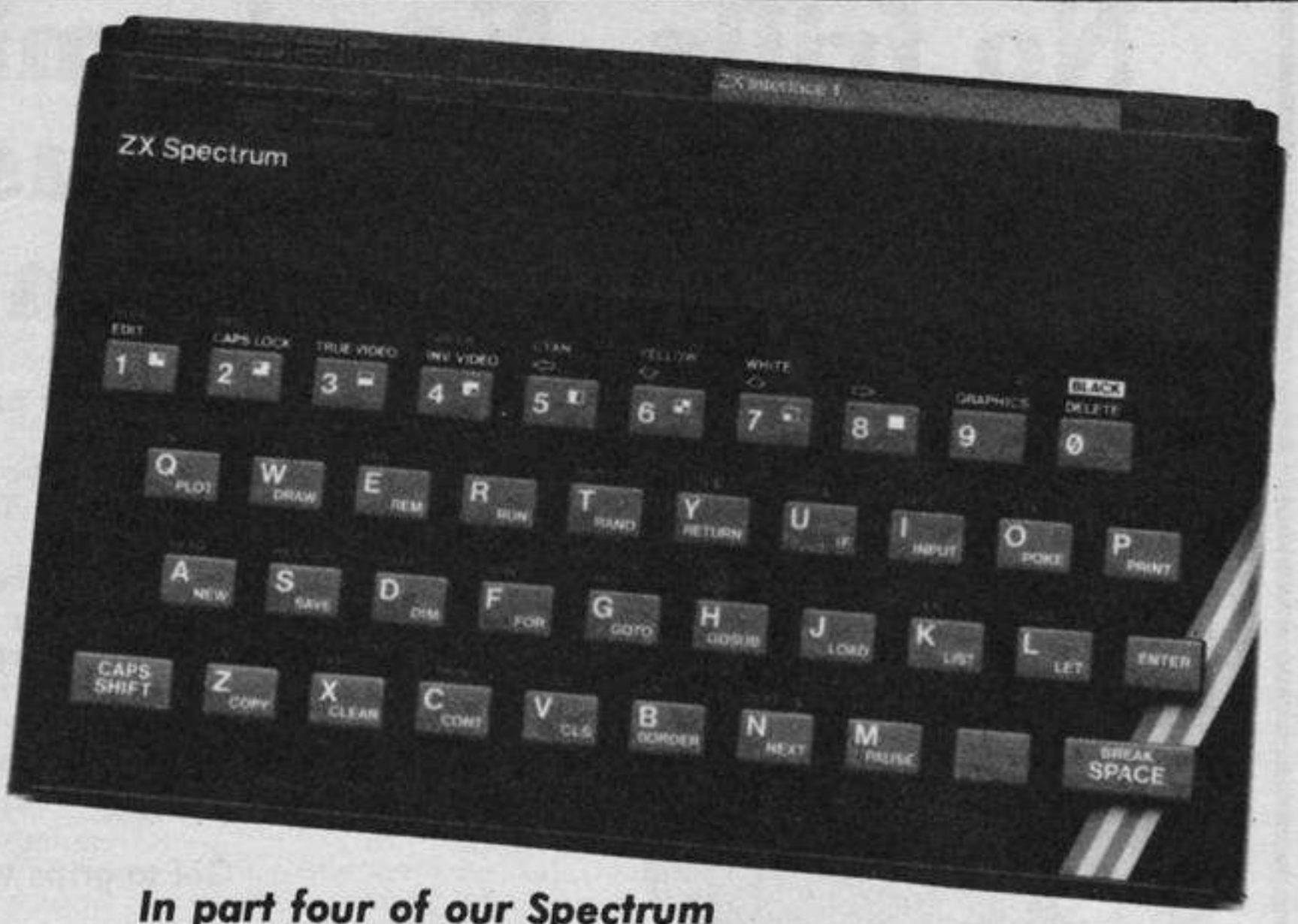
SPECTRUM

BACK TO BASICS



In part four of our Spectrum programming series Colin Wilton-Davies upgrades his Spectrum and explains the use of printing control characters

Since writing the third part of this series, I have spent £20 on a kit from Sinclair to upgrade my Spectrum to a Spectrum +. My machine was a Spectrum 3B, I discovered when I opened the case, and perhaps because of this, I only had two points to solder out of a possible four. I needn't really have done even that, but I thought it would be rather nice to have a reset switch.

Another model might have bad me soldering a resistor on to the board as well; the necessity or otherwise of this is found by testing the new keyboard before reassembling the case. No one with a fine soldering iron and a good light should be deterred by this. The new keyboard makes life much easier; I only envy the people who started on a SpectrumÖ and don't have bad habits to unlearn.

The instructions are clear and easy to follow. They're also rather charming; opening the case of your Spectrum invalidates the guarantee, but as soon as you have a working SpectrumÖ the guarantee is graciously restored again from the original date of purchase! I'll definitely have to stop telling you which keys to press now; no SN, just the comma.

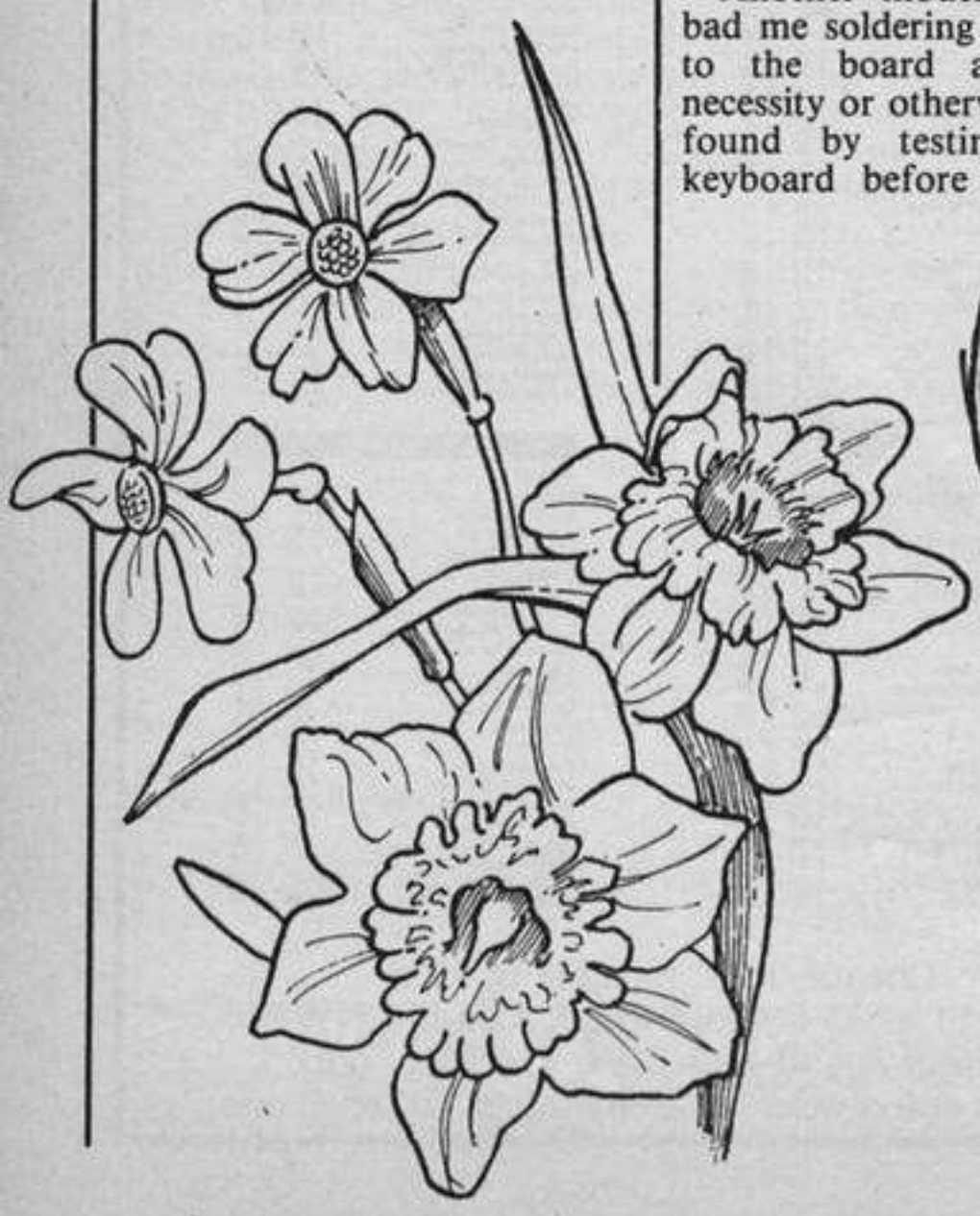
With the kit comes the "User Guide Companion Cassette" which has an excellent program to practice finding your way round the various Shift Keys and Modes of the SpectrumÖ. As they say, doing is a better teacher than listening.

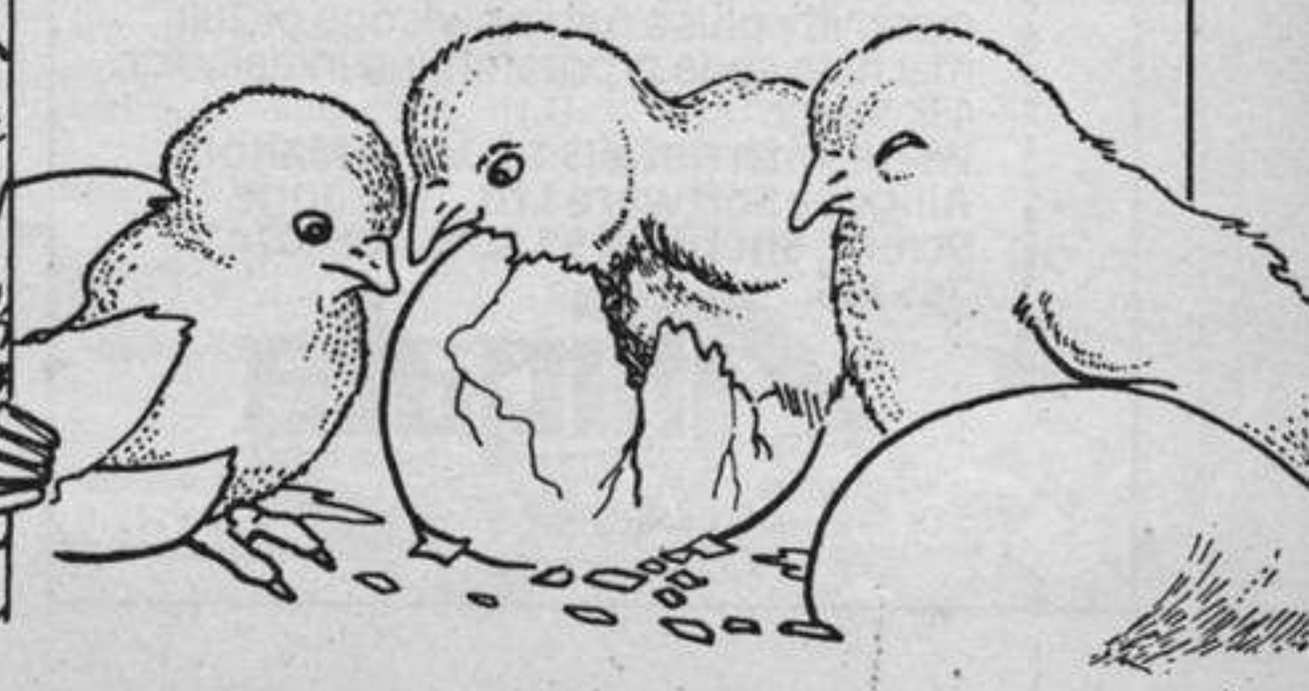
In part three we had a first look at the INK and PAPER statements, using them both to change the whole screen area by using a CLS statement after them and to change limited areas by using PRINT statements afterwards. We also had an example of multiple statements on line, with colons to separate them. This brings me to the use of semi-colons as separators in PRINT statements. These useful punctuation marks allow you to put INK and PAPER statements **into** PRINT statements.

Enter this little program and RUN it:

```
100 REM play with colours
110 PAPER 4:INK 0:CLS
120 PRINT "Hullo";
9000 STOP
```

The screen, not too suprisingly, goes green, and the word "Hullo" appears in black ink. You will have realised that the STOP statement in line 9000 is to stop you crashing straight through into lines 9998 and 9999. I gave you these last time to restore your INK and





PAPER for listing and to SAVE each stage of your programs painlessly. Old hat; now a new bit to add on:

```
140 PRINT PAPER 5;"";
```

RUN this, and, as you'd expect, a cyan space appears after "Hullo". After all, you have executed a PAPER statement. Now try to predict what will happen when you add the following and RUN again:

```
150 PRINT "Fred";
```

If you weren't surprised that the paper was green again, you're ahead of the class. INK and PAPER statements incorporated into PRINT statements with semicolons have only a temporary effect. EDIT line 150 to read:

```
150 PRINT PAPER 2; INK 6;
    "Fred";
```

and you can begin to see the possibilities. I say begin, because there are several other things you can do to modify PRINT statements in a temporary sort of way. One of these is to incorporate a FLASH statement:

```
150 PRINT FLASH 1; PAPER
    2; INK 6; "Fred";
160 PRINT PAPER 5;"";
```

and there is Fred flashing at you, if you'll pardon the expression. The number 1 after FLASH is eqiuvalent to saying "FLASHing is ON"; FLASH 0 means ""FLASHing is OFF". We'll develop that concept later in the series. In the meantime, let's move flashing Fred a little bit nearer centre on the screen. When you use a typewriter, you can start your text away from the left margin either by entering lots of spaces before the words or by using the TABulator key if your machine has one. You can do the same things with the Spectrum, and TAB is easier. Enter:

```
130 PRINT TAB 8;
```

and this will move the next printed character to column 8 on the screen. Notice that although it's incorporated in a PRINT statement with a semicolon, the effect of the TAB is not lost before the next statement as INK or PAPER would be. That is, if you placed the semicolon at the end of the line. You must have noticed by now how fussy the Spectrum is about getting the right characters; this is true of all the computers I have met. I once heard someone say that schools wouldn't have to teach spelling and punctuation any more, as all communication would be via computers in the near future. I wouldn't employ him as a programmer, would you?

All this isn't as gimmicky as you might think. You can use this sort of thing to highlight different sorts of information, for example to distinguish your words from the computer's. This can make a screen full of information much easier to read, and can draw attention to particular items. Let's demonstrate that, and talk a little bit about words as opposed to numbers. If line 130 is overwritten by

```
130 INPUT "Are you Male or
    Female (M/F) ";s$
```

the $ sign shows that the Spectrum wants us to put in something that doesn't have to be a number, but can be a word or a letter — in computer jargon a "string". The variable s$ is a "string variable". Obviously, the expected answer is "M" or "F", but there is nothing to stop someone putting in a wrong letter, and a program should allow for this sort of thing. Conditional statements were touched on last week, and we need them for this:

```
140 IF s$="M" THEN
    PAPER 5: GOTO 170
150 IF s$="F" THEN PAPER
    3: GOTO 170
160 GO TO 110
170 PRINT "";
```

See how these work. In line 140, if the condition (s$ is the letter "M") is true, then the rest of the line is executed and PAPER becomes cyan and control transferred to line 170, which prints a space. If the condition is not true, the rest of the line is ignored, and control goes to line 150, where if s$ is "F", then PAPER becomes magenta and control goes to line 170 again. If s$ is neither "M" nor "F" then we find ourselves at line 160 and go straight back to line 110. The program would be more "user-friendly" if we allowed for lower case as well as capital letters to be input. EDIT:

```
140 IF s$="M" OR s$="m"
    THEN PAPER 5: GO TO
    170
150 IF s$="F" OR s$="f"
    THEN PAPER 3: GO TO
    170
```

and add:

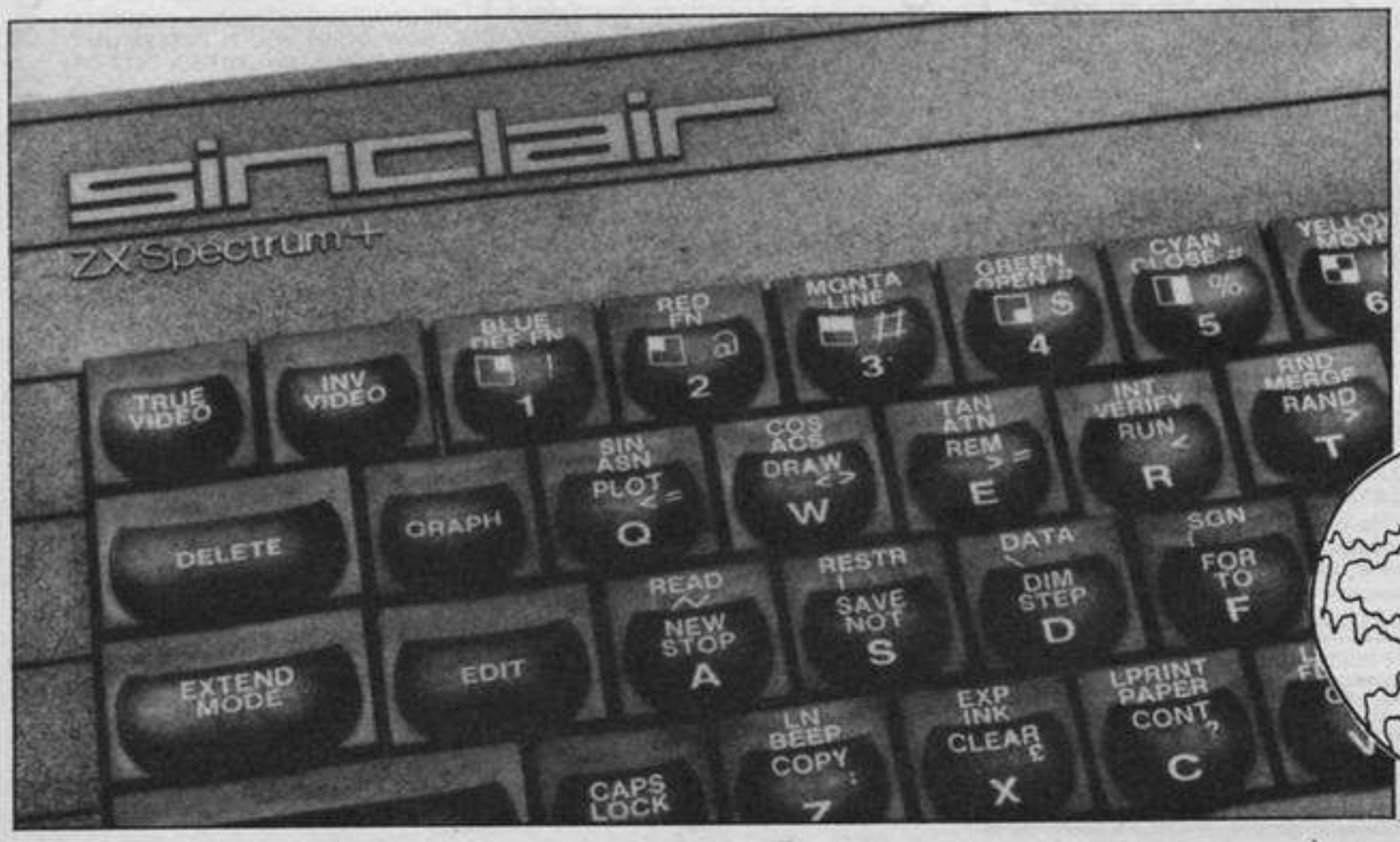
```
180 INPUT "What is your
    name ";in$
190 PRINT n$;""
```

and the program will print a name on paper that is blue(ish) for a boy and pink(ish) for a girl as long as the user understands that only a single letter input is needed to answer questions about sex. If you don't believe that, try answering "male" when you RUN the program.

To get round that one, we have to constrain the computer to look at only the first character of the string s$. This should lead on to "string slicing", and there is time to do it but not to explain it this week:

```
135 s$=s$(1)
```

Well, you haven't seen those graphics I promised last time, because I wanted to tell you about my upgrade kit, but cross my heart, we'll draw things next time.



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BBC PROGRAM

BAD EGG

Gus Gilch is out to smash everyone's Easter eggs and you're going to help him. Watch out for the yolks in John Donovan's game

Gus Gilch, the HCW program bug, has decided to ruin another program. Someone has printed Easter eggs all over the screen and Gus is determined to smash them all.

In this special Easter game you must guide Gus around the screen to smash the eggs. Be careful not to fall off the edge and watch out for the egg yolks.

Just to make it more difficult, Gus won't stop and he keeps getting faster and faster.

Variables

XPS% x cord
YPS% y cord
SM(X,Y) screen map array
T% total eggs left
DELAY% controls speed — decreases slowly
SMASH% set if Gus hits something

How it works

180-220 set variables, draw screen
240-300 scan keyboard for input moves Gus whether input or not
310-360 detects if egg if splatted
750-810 prints ending message, reruns

```
   10REM BAD EGG (C)JGD FOR HCW
   20MODE7:PRINTTAB(10,2);CHR$(141);"BADD EGG":PRI
NTTAB(10,3);CHR$(141);"BADD EGG"
   30PRINTTAB(2,6)"Gus Glich,the HCW program bug h
as       decided to ruin another program!"
   40 PRINTTAB(2,9)"Somone has printed Easter eggs
 all"'"  over the screen and Gus is going to"'"  s
mash them all!"
   50 PRINTTAB(2,13)"Guide Gus using the Z,X,*,/ k
eys but"'"  don't fall off the edge of the screen"
'"  and watch out for the egg yokes!"
   55PRINTTAB(2,18)"Just to make things harder Gus
 won't"'"  stop and he also gets faster and"'"  fa
ster!"
   60 PRINTTAB(8,22)"Press any key":A=GET
   70VDU 23,240,28,28,8,127,8,20,34,65,23,241,24,6
0,126,126,126,124,124,56,23,242,16,56,124,124,124,
56,0,0
  100MODE 5
  110 VDU 19,129,2,0,0,0,19,0,4,0,0,0,19,3,1,0,0,0
,23;8202;0;0;0
  140 COLOUR 129
  150CLS
  170DIM SM(20,31)
  180PROCSETUP
  190 REPEAT
  200PROCMOVES
  210 UNTIL T%=0
  220PROCEND
  230 PRINTTAB(8,12):INPUT"          AGAIN",YN$:IF YN
$="Y" RUN ELSE END
  240DEFPROCMOVES
  250A=INKEY(2)
  260IF INKEY(-73) THEN DIR=1
  270IF INKEY(-105) THEN DIR=2
  280IF INKEY(-98) THEN DIR=3
  290IF INKEY(-67) THEN DIR=4
  300ON DIR GOSUB 370,380,390,400
  310 PROCSMASH
  320 FOR DEL=1 TO DELAY%:NEXT
  330 PROCSPLAT
  340 PROCDRAW
  350 DELAY%=DELAY%-5
  360 ENDPROC
  370YPS%=YPS%-1:RETURN
  380YPS%=YPS%+1:RETURN
  390XPS%=XPS%-1:RETURN
  400XPS%=XPS%+1:RETURN
  420DEFPROCDRAW
  430 IF SM(SX%,SY%)<>2PRINT TAB(SX%,SY%)" "
  440 SX%=XPS%:SY%=YPS%
  450 COLOUR 2
  460PRINT TAB(XPS%,YPS%);CHR$(240):REM BADDIE!
  470IF SMASH%:COLOUR 4:PRINT TAB(XPS%,YPS%);CHR$(
241):SM(XPS%,YPS%)=2:SOUND 1,-12,50,5
  480ENDPROC
  500DEFPROCSMASH
  510 IF SM(XPS%,YPS%)=1 THEN SMASH%=1 ELSE SMASH%
=0
  520IF SMASH% THEN T%=T%-1
  530 IF XPS%=0 OR XPS%=20 THEN T%=0:KF%=1
  540IF YPS%=0 OR YPS%=31 THEN T%=0:KF%=1
  550 ENDPROC
  570DEFPROCSPLAT
  580 IF SM(XPS%,YPS%)=2 THEN T%=0:KF%=2
  590 ENDPROC
  610 DEFPROCSETUP
  620 LOCAL X,Y,Z
  630 COLOUR 3
  640 FOR Z=0 TO 19
  650X=RND(19):Y=RND(30)
  660SM(X,Y)=1
  670PRINT TAB(X,Y);CHR$(242)
  680NEXT
  690XPS%=10:YPS%=16:SX%=XPS%:SY%=YPS%
  700SMASH%=0:DELAY%=1000:DIR=2:T%=20:KF%=0
  710 VDU 19,4,3,0,0,0
  720 VDU 19,2,4,0,0,0
  730ENDPROC
  750DEFPROCEND
  760CLS
  770 *FX 15,1
  780IF KF%=1 THEN PRINT TAB(5,6)" A R R G !!"
  790IF KF%=2 THEN PRINT TAB(5,6)"S P L A T !"
  800IF KF%=0 THEN PRINT TAB(6,6)"Well done!-"'"I
Thought that was "'"    impossible!"
  810 ENDPROC
```

C64,C16,VIC 20Y16K ADVENTURE

EASTER ADVENTURE

Your Easter egg has been stolen by the killer bunnies. You must risk death to recover it in this program by Mike Roberts

Easter time. In this adventure for the C16, C64, or VIC 20+16K you must try and recover your egg from the lair of the killer bunnies.

Standard two-word commands are used with about 30 words understood (if you look through the program you will see some of them, but there are more).

The program comes in two parts, a file generator and the run time code. To get the program to work you need to type in program 1 and save it somewhere safe. Then you need to type in program 2 and save it to the beginning of a tape. Next, RUN program 1 and write the data it generates immediately after program 2, then RUN program 2 which will load in the data and use it for the adventure.

Good luck . . . . .

```
10 rem*****easter time part 1*****
20 open1,1,1,"easter"!ck=0!l1=1000
30 fori=0to9!reada!print#1,chr$(a);
35 ck=ck+val(chr$(a))!next!readc
40 ifc<>ckthenprint"mistake in line"l1"retype"!end
50 l1=l1+10!ifl1<>3420thenck=0!goto30
60 close1
70 end
1000 data32,49,50,32,13,32,56,32,13,32, 11
1010 data52,32,13,32,57,32,13,217,79,85, 13
1020 data32,65,82,69,32,73,78,32,84,72, 0
1030 data69,32,76,73,86,73,78,71,32,82, 0
1040 data79,79,77,32,79,70,32,89,79,85, 0
1050 data82,32,72,79,85,83,69,17,32,193, 0
1060 data76,76,32,89,79,85,32,67,65,78, 0
1070 data32,83,69,69,32,73,83,32,65,32, 0
1080 data66,82,79,75,69,78,32,212,46,214, 0
1090 data32,83,69,84,32,65,78,68,17,65, 0
1100 data78,32,79,86,69,82,32,83,84,85, 0
1110 data70,70,69,68,32,83,79,70,65,46, 0
1120 data17,32,212,79,32,84,72,69,32,69, 0
1130 data65,83,84,32,73,83,32,65,32,67, 0
1140 data76,79,83,69,68,32,68,79,79,82, 0
1150 data46,13,193,76,76,32,89,79,85,32, 0
1160 data72,65,86,69,32,84,79,32,68,79, 0
1170 data32,73,83,32,70,73,78,68,32,84, 0
1180 data72,69,17,69,71,71,46,13,32,48, 0
1190 data32,13,32,54,32,13,32,48,32,13, 6
1200 data32,50,32,13,32,51,32,13,32,48, 5
1210 data32,13,32,51,32,13,32,53,32,13, 8
1220 data217,79,85,32,65,82,69,32,73,78, 0
1230 data32,84,72,69,32,75,73,84,67,72, 0
1240 data69,78,44,32,66,69,70,79,82,69, 0
1250 data32,89,79,85,17,73,83,32,77,79, 0
1260 data85,76,68,89,32,71,82,69,69,78, 0
1270 data32,83,65,78,68,87,73,67,72,46, 0
1280 data13,13,32,48,32,13,32,48,32,13, 0
1290 data32,49,32,13,32,48,32,13,32,48, 1
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1310 data32,48,32,13,217,79,85,32,65,82, 0
1320 data69,32,73,78,32,84,72,69,32,66, 0
1330 data69,68,82,78,79,77,44,32,84,72, 0
1340 data69,82,69,32,73,83,17,65,32,82, 0
1350 data65,84,72,69,82,32,72,65,82,68, 0
1360 data32,66,85,78,75,32,66,69,68,32, 0
1370 data73,78,32,84,72,69,17,67,79,82, 0
1380 data78,69,82,46,13,13,32,48,32,13, 0
1390 data32,48,32,13,32,52,32,13,32,48, 4
1400 data32,13,32,48,32,13,32,49,32,13, 1
1410 data32,48,32,13,32,48,32,13,217,79, 0
1420 data65,85,32,65,82,69,32,73,78,32, 0
1430 data84,72,69,32,66,65,84,72,82,79, 0
1440 data79,77,46,32,201,84,32,73,83,17, 0
1450 data82,65,84,72,69,82,32,68,65,77, 0
1460 data80,32,65,78,68,32,77,85,82,75, 0
1470 data69,89,46,17,32,199,82,69,69,78, 0
1480 data32,83,76,73,77,69,32,68,82,73, 0
1490 data80,83,32,68,79,87,78,32,84,72, 0
1500 data69,32,87,65,76,76,83,46,13,13, 0
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1520 data32,13,32,51,32,13,32,48,32,13, 3
1530 data32,48,32,13,32,48,32,13,32,48, 0
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1550 data73,78,32,84,72,69,32,65,78,67, 0
1560 data73,69,78,84,32,75,73,84,67,72, 0
1570 data69,78,32,79,70,17,88,79,85,82, 0
1580 data32,72,79,85,83,69,46,17,32,212, 0
1590 data72,69,32,79,86,69,78,32,72,65, 0
1600 data83,32,66,69,69,78,32,82,69,67, 0
1610 data69,78,84,76,89,32,85,83,69,68, 0
1620 data46,13,13,32,48,32,13,32,48,32, 0
1630 data13,32,48,32,13,32,49,32,13,32, 1
1640 data48,32,13,32,48,32,13,32,48,32, 0
1650 data13,32,48,32,13,217,79,85,32,65, 0
1660 data82,69,32,73,78,32,84,72,69,32, 0
1670 data89,65,82,68,32,79,70,32,89,79, 0
1680 data85,82,32,72,79,85,83,69,44,17, 0
1690 data65,84,32,79,78,69,32,69,78,68, 0
1700 data32,84,72,69,82,69,32,73,83,32, 0
1710 data65,32,82,73,67,75,69,84,89,32, 0
1720 data71,65,84,69,44,17,84,72,69,32, 0
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1730 data71,65,84,69,32,73,83,32,76,79, 0
1740 data67,75,69,68,46,17,32,217,79,85, 0
1750 data32,67,65,78,32,74,85,83,84,32, 0
1760 data72,69,65,82,32,67,76,85,67,75, 0
1770 data73,78,71,32,78,79,73,83,69,83, 0
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1840 data32,69,78,84,82,65,78,67,69,32, 0
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1870 data83,32,79,70,32,84,72,69,32,75, 0
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2110 data79,85,32,65,82,69,32,73,78,32, 0
2120 data65,32,66,85,82,82,79,87,46,13, 0
2130 data13,32,48,32,13,32,57,32,13,32, 9
2140 data56,32,13,32,57,32,13,32,49,50, 20
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2160 data32,48,32,13,217,79,85,32,65,82, 0
2170 data69,32,76,79,79,75,73,78,71,32, 0
2180 data65,84,32,65,32,67,72,73,67,75, 0
2190 data69,78,32,67,79,79,80,17,70,85, 0
2200 data76,76,32,79,70,32,83,67,82,69, 0
2210 data65,77,73,78,71,32,66,73,82,68, 0
2220 data83,46,17,32,212,72,69,82,69,32, 0
2230 data65,82,69,32,78,79,32,69,71,71, 0
2240 data83,32,73,78,32,69,86,73,68,69, 0
2250 data78,67,69,17,68,85,69,32,84,79, 0
2260 data32,65,32,82,65,73,68,32,66,89, 0
2270 data32,75,73,76,76,69,82,32,82,65, 0
2280 data66,73,84,83,33,17,40,84,72,73, 0
2290 data83,32,73,83,32,69,65,83,84,69, 0
2300 data82,32,65,70,84,69,82,32,65,76, 0
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2370 data89,79,85,32,72,65,86,69,32,69, 0
2380 data83,67,65,80,69,68,32,70,82,79, 0
2390 data77,32,84,72,69,32,75,73,76,76, 0
2400 data69,82,17,66,85,78,78,73,69,83, 0
2410 data44,32,65,78,68,32,73,70,32,89, 0
2420 data79,85,32,72,65,86,78,39,84,32, 0
2430 data71,79,84,32,89,79,85,82,17,69, 0
2440 data71,71,32,89,69,84,32,89,79,85, 0
2450 data32,65,82,69,32,82,65,84,72,69, 0
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2770 data76,65,80,83,69,83,32,73,78,84, 0
2780 data79,32,70,73,82,69,87,79,79,68, 0
2790 data32,83,73,90,69,68,32,67,72,85, 0
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2840 data76,73,75,69,32,77,65,68,32,65, 0
2850 data78,68,32,65,82,69,32,82,69,87, 0
2860 data65,82,68,69,68,17,66,89,32,70, 0
2870 data65,76,76,73,78,71,32,73,78,84, 0
2880 data79,32,65,32,77,85,67,72,32,76, 0
2890 data65,82,71,69,82,32,72,79,76,69, 0
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2910 data79,82,73,71,73,78,65,76,76,89, 0
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2960 data32,48,32,13,13,32,48,32,13,13, 0
2970 data32,48,32,13,13,32,48,32,13,13, 0
2980 data32,48,32,13,13,32,48,32,13,13, 0
2990 data32,48,32,13,69,65,84,32,66,82, 0
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3050 data82,83,84,46,13,32,48,32,13,13, 0
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3070 data32,48,32,13,13,32,48,32,13,13, 0
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3090 data32,48,32,13,13,32,48,32,13,13, 0
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3140 data32,48,32,13,13,32,48,32,13,13, 0
3150 data32,48,32,13,13,75,69,89,13,83, 0
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3170 data65,74,65,77,65,83,13,69,71,71, 0
3180 data32,67,85,80,13,66,82,69,65,68, 0
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3280 data32,13,32,48,32,13,32,49,32,13, 1
3290 data32,53,32,13,32,48,32,13,32,48, 5
3300 data32,13,32,56,32,13,32,48,32,13, 8
3310 data32,48,32,13,32,48,32,13,32,48, 0
3320 data32,13,32,48,32,13,32,48,32,13, 0
3330 data32,48,32,13,32,48,32,13,32,48, 0
3340 data32,13,32,48,32,13,32,48,32,13, 0
```

```
3350 data32,48,32,13,32,48,32,13,32,48, 0
3360 data32,13,32,48,32,13,32,51,32,13, 3
3370 data32,48,32,13,32,48,32,13,32,48, 0
3380 data32,13,32,50,32,13,32,48,32,13, 2
3390 data32,48,32,13,32,48,32,13,32,51, 3
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3410 data32,48,32,13,13,13,13,13,13,13, 0
```
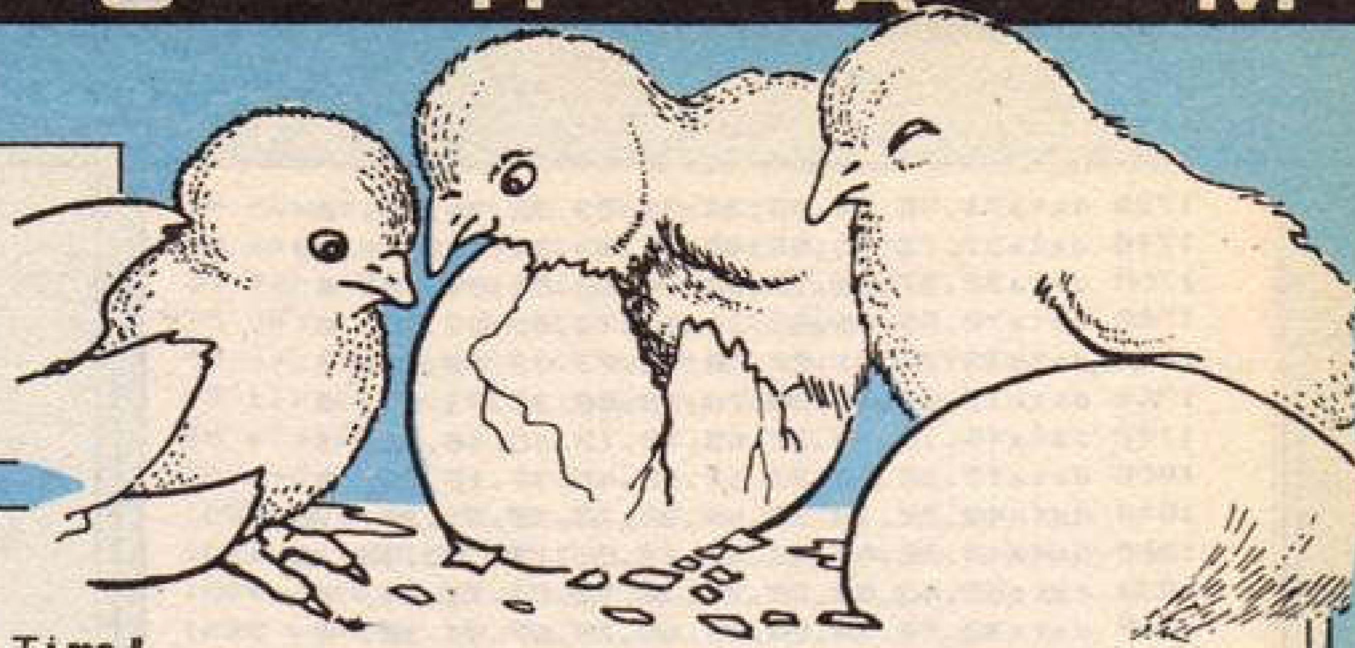
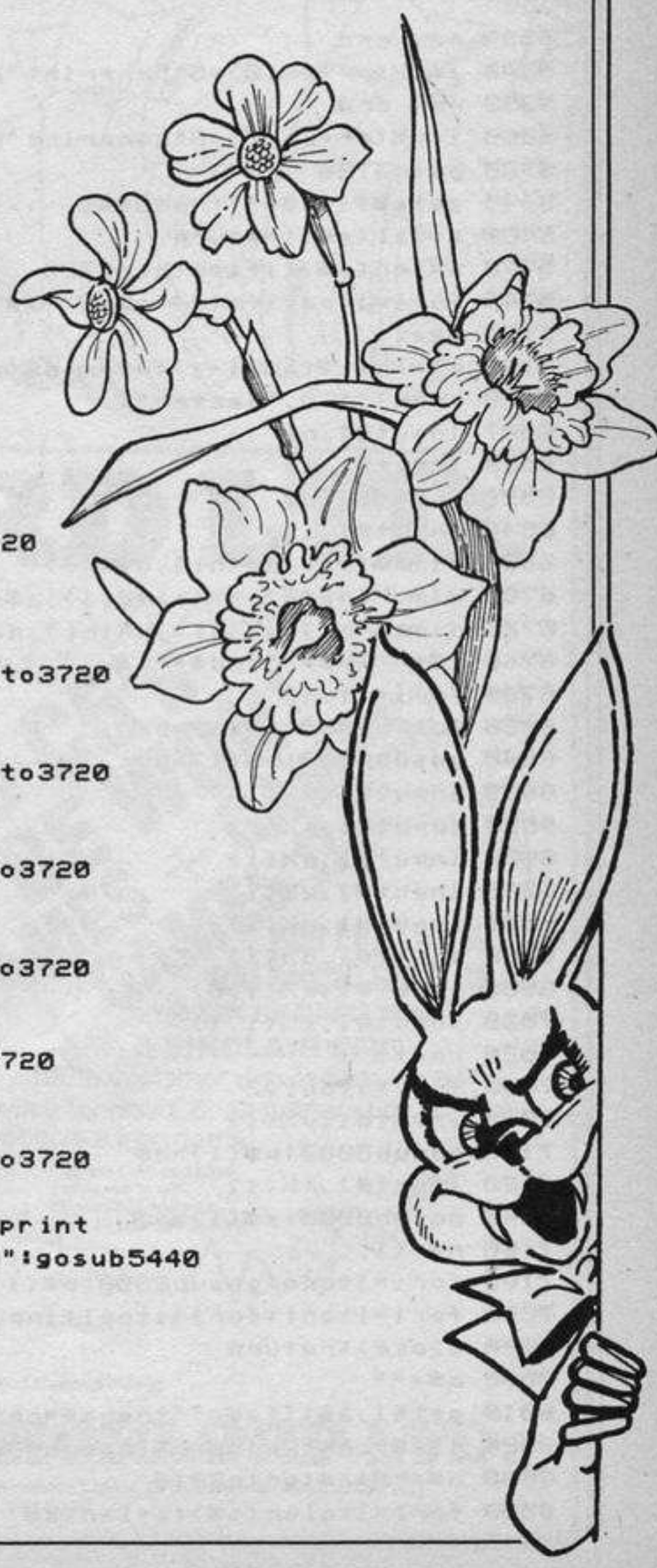



```
10 rem*****easter time part2*****
999 rem clr-txt-cth-  2*crd
1000 print"                   Easter Time"
1009 rem crd
1010 print"                Data  Loading"
1019 rem crd
1020 print"                 Please Wait"
1030 gosub6420
3459 rem clr-  8*crd
3460 print"":input"What is your name ?";n$
3470 pr=1
3479 rem clr-crd
3480 print"";a$(pr):ifpr=nlthen5000
3499 rem crd
3500 print"Visible exits are:"
3520 ifn%(pr)<>0thenprint"North"
3540 ifs%(pr)<>0thenprint"South"
3560 ife%(pr)<>0thenprint"East"
3580 ifw%(pr)<>0thenprint"West"
3600 ifu%(pr)<>0thenprint"Up"
3620 ifd%(pr)<>0thenprint"Down"
3639 rem crd
3640 fory=1tool:ifl%(pr,y)<>0thenprint"There is also:":goto3680
3660 nexty:goto3720
3680 fory=1tool:ifl%(pr,y)<>0thenprint:printo$(l%(pr,y))
3700 nexty
3720 print:print"What now ";n$;:inputa$:gosub5720:a=len(s$):v=len(v$)
3740 ifs$=left$("look",a)then3480
3759 rem clr-crd
3760 ifs$=left$("help",a)thenprint"";h$(pr):goto3720
3780 ifs$=left$("inventory",a)then4120
3800 ifs$=left$("north",a)then4760
3820 ifs$=left$("south",a)then4800
3840 ifs$=left$("east",a)then4840
3860 ifs$=left$("west",a)then4880
3880 ifs$=left$("down",a)then4960
3900 ifs$=left$("up",a)then4920
3920 ifs$=left$("take",a)then4500
3940 ifs$=left$("get",a)then4500
3960 ifs$=left$("drop",a)then4200
3979 rem crd
3980 ifs$=left$("score",a)thenprint"You have scored"int((pr/nl)*100)"%":goto372
0
4040 ifa$=p$(pr)then5100
4060 ifa$=p$(pr+nl)then5100
4079 rem crd
4080 print"Pardon, I didn't quite get that"
4100 goto3720
4119 rem clr-crd crd
4120 print"You are carrying:"
4140 fl=0:fori=1to5:ifc%(i)<>0thenprinto$(c%(i)):fl=1
4160 nexti:iffl=0thenprint"Nothing"
4180 goto3720
4200 forj=1tool
4220 ifl%(pr,j)=0then4280
4240 nextj
```

```
4259 rem crd
4260 print"■I cannot drop anything because there is already junK everywhere!"!go
to3720
4280 fory=1tono
4300 ifv$=o$(y)then4400
4320 nexty
4339 rem crd
4340 print"■No such object!"!goto3720
4360 ifv$=o$(y)then4400
4380 nexty
4400 fora=1to5
4420 ifc%(a)=ythen4480
4440 nexta
4459 rem crd
4460 print"■How do you expect to drop it when you'renot even carrying it!"!goto3
720
4479 rem crd
4480 c%(a)=0!1%(pr,j)=y!print"■OK."!goto3720
4500 forj=1to5
4520 ifc%(j)=0then4580
4540 nextj
4559 rem crd
4560 print"■You cannot carry any more!"!goto3720
4580 fory=1tono
4600 ifv$=o$(y)then4660
4620 nexty
4639 rem crd
4640 print"■No such object!"!goto3720
4660 fora=1tool
4680 if1%(pr,a)=ythen4740
4700 nexta
4719 rem crd
4720 print"■Whatever it is, it's not here!"!goto3720
4739 rem crd
4740 c%(j)=y!print"■OK."!1%(pr,a)=0!goto3720
4759 rem crd
4760 ifn%(pr)=0thenprint"■You cannot go north."!goto3720
4780 pr=n%(pr)!goto3480
4799 rem crd
4800 ifs%(pr)=0thenprint"■You cannot go south."!goto3720
4820 pr=s%(pr)!goto3480
4839 rem crd
4840 ife%(pr)=0thenprint"■You cannot go east."!goto3720
4860 pr=e%(pr)!goto3480
4879 rem crd
4880 ifw%(pr)=0thenprint"■You cannot go west."!goto3720
4900 pr=w%(pr)!goto3480
4919 rem crd
4920 ifu%(pr)=0thenprint"■You cannot go up."!goto3720
4940 pr=u%(pr)!goto3480
4959 rem crd
4960 ifd%(pr)=0thenprint"■You cannot go down."!goto3720
4980 pr=d%(pr)!goto3480
5000 print"                    End of adventure"!print!print
5020 print"Press Space to restart or Return to end"!gosub5440
5040 ifa$=" "then3470
5060 ifa$=chr$(13)thenend
5080 goto5020
5100 ifa$=p$(pr)thenzn=0
5120 ifa$=p$(pr+nl)thenzn=nl
5140 ifi%(pr+nz)=0then5220
5160 fora=1to5!ifc%(a)=i%(pr+zn)then5220
5180 nexta
```

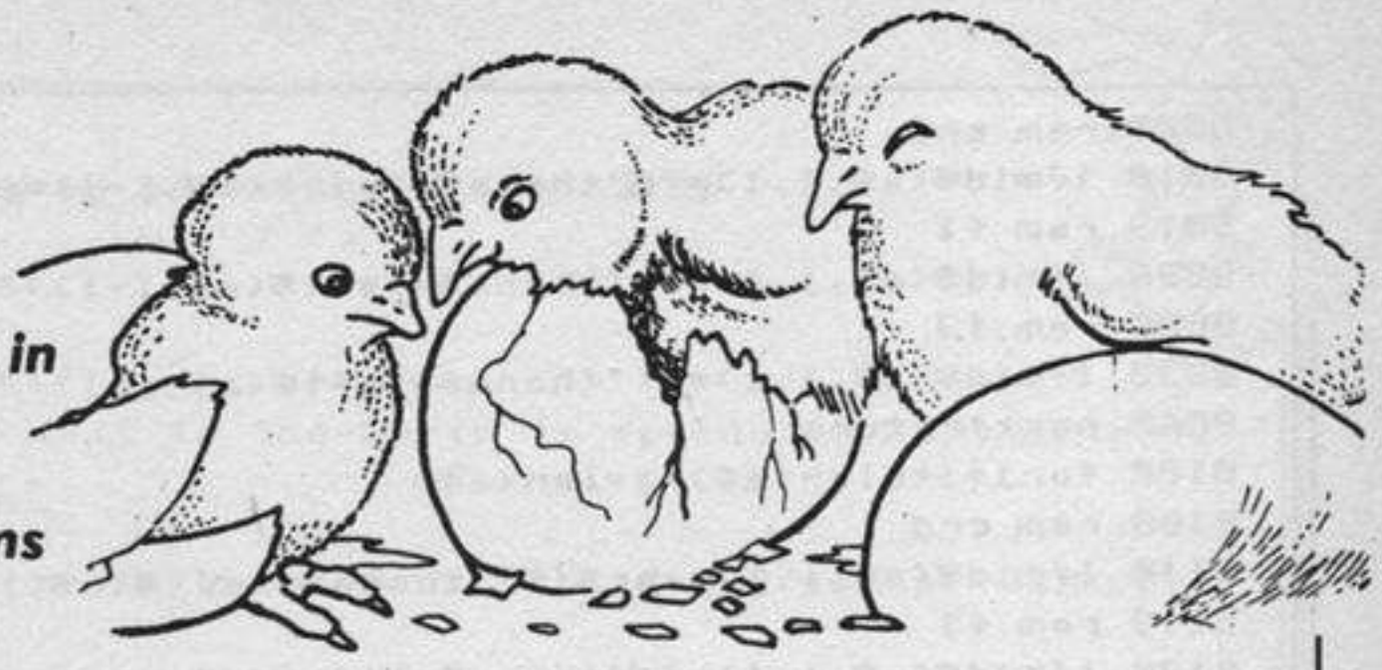


```
5189 rem crd
5200 print"■A good try, perhaps you need something ?"!goto3720
5219 rem clr-crd
5220 print!print"■■■";x$(pr+zn)
5240 ifv%(pr+zn)=1then5400
5259 rem crd
5260 ifx%(pr+zn,0)=1thenprint"■A new exit to the North is formed"!n%(pr)=x%(pr+z
n,1)
5279 rem crd
5280 ifx%(pr+zn,0)=2thenprint"■A new exit to the South is formed"!s%(pr)=x%(pr+z
n,1)
5299 rem crd
5300 ifx%(pr+zn,0)=3thenprint"■A new exit to the East is formed"!e%(pr)=x%(pr+zn
,1)
5319 rem crd
5320 ifx%(pr+zn,0)=4thenprint"■A new exit to the West is formed"!e%(pr)=x%(pr+zn
,1)
5339 rem crd
5340 ifx%(pr+zn,0)=5thenprint"■A new exit Up is formed"!u%(pr)=x%(pr+zn,1)
5359 rem crd
5360 ifx%(pr+zn,0)=6thenprint"■A new exit down is formed"!d%(pr)=x%(pr+zn,1)
5380 goto3720
5440 geta$!ifa$=""then5440
5460 a=val(a$)!return
5720 a=len(a$)!ifa=0then3720
5740 fori=1toa!ifmid$(a$,i,1)=" "then5780
5760 nexti
5780 s$=left$(a$,i-1)!v$=mid$(a$,i+1)!return
6420 open1,1,0,"easter"
6527 input#1,nl
6528 input#1,no
6529 input#1,ol
6530 input#1,it
6680 dima$(nl),h$(nl),o$(no)
6700 dimv%(nl*2),x%(nl*2,1),p$(nl*2),i%(nl*2),x$(nl*2),n%(nl),s%(nl)
6720 dime%(nl),w%(nl),u%(nl),d%(nl),l%(nl,ol),c%(5)
6740 t$="":y$="":pd$="                                    ":cr$=chr$(13):ir=fre(0)
6780 fori=1tonl
6820 gosub8000:a$(i)=b$
6840 gosub8000:h$(i)=b$
6860 input#1,n%(i)
6880 input#1,s%(i)
6900 input#1,e%(i)
6920 input#1,w%(i)
6940 input#1,u%(i)
6960 input#1,d%(i)
6980 input#1,x%(i,0)
7000 input#1,x%(i,1)
7020 nexti
7040 fori=1tonl*2
7080 input#1,v%(i)
7100 gosub8000:p$(i)=b$
7120 input#1,i%(i)
7140 gosub8000:x$(i)=b$
7160 nexti
7180 fori=1tono:gosub8000:o$(i)=b$:nexti
7200 fori=1tonl:forj=1tool:input#1,l%(i,j):nextj,i
7220 close1:return
8000 b$=""
8010 get#1,a$:ifa$=""thena$=chr$(0)
8020 ifa$=cr$thena$=b$:gosub9000:b$=a$:return
8030 b$=b$+a$:goto8010
9000 forj=1tolen(a$):a=len(a$)
```

```
9009 rem crd
9010 ifmid$(a$,j,1)="■"thena$=left$(a$,j-1)+chr$(13)+mid$(a$,j+1)
9019 rem f1
9020 ifmid$(a$,j,1)=","thena$=left$(a$,j-1)+"■"+mid$(a$,j+1)
9029 rem f3
9030 ifmid$(a$,j,1)=":"thena$=left$(a$,j-1)+"■"+mid$(a$,j+1)
9040 next:return
9100 forj=1tolen(a$):a=len(a$)
9109 rem crd
9110 ifmid$(a$,j,1)=chr$(13)thena$=left$(a$,j-1)+"■"+mid$(a$,j+1)
9119 rem f1
9120 ifmid$(a$,j,1)="■"thena$=left$(a$,j-1)+","+mid$(a$,j+1)
9129 rem f3
9130 ifmid$(a$,j,1)="■"thena$=left$(a$,j-1)+":"+mid$(a$,j+1)
9140 next:return
10000 open1,8,15:input#1,a$,b$,c$,d$:printa$,b$,c$;d$:close1:return
10100 a$="easter 2"
10110 open1,8,15,"s0:"+a$:print#1,"s1:"+a$+".baK"
10120 save"0:"+a$,8:verify"0:"+a$,8
10130 print#1,"c1:"+a$+".baK=0:"+a$:close1:end
```

AMSTRAD PROGRAM

CHOCKY CHICK



Chocky Chick is in trouble. He's hungry — but the worms are becoming radioactive. By Jon Revis

Here is an ideal opportunity to hand up your laser, give the bug-eyed aliens a rest and try your hand at another pastime, eating worms! In this story you play Chocky, a common or garden chicken, scratching a living down on the farm. By eating the worms which wriggle their way up to the surface, Chocky can increase the size of its family. Eat five out of 10 worms and you get a new Chocky.

Chocky lived happily until the day the meteorite hit the coop. Fragments of the rock embedded themselves in the ground. Next day Chocky went out to get breakfast. One particularly juicy worm was making its way up through the ground to become part of Chocky's next meal. By chance it bumped into part of the buried meteorite and was immediately transformed into a bolt of pure energy. This blast shot up through the ground and vaporised a rather surprised Chocky.

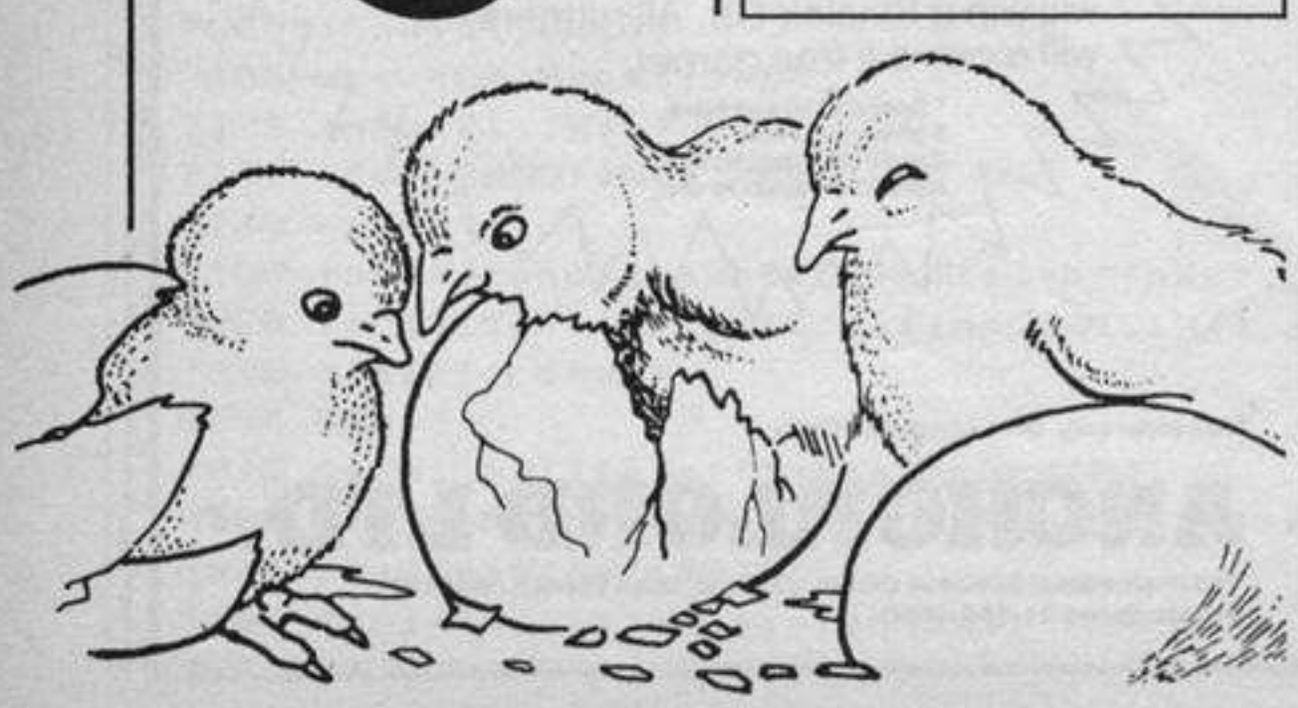
The aim of the game is to eat as many worms as possible without taking that trip to the great hen house in the sky.

Variables

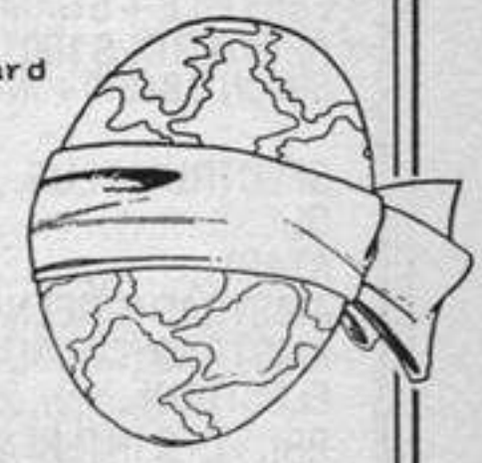
x,y Chocky's present x, y co-ordinates
ox,oy Chocky's previous x, y co-ordinates
wf flag indicating which of two worm characters to print
chick number of Chockys
worm number of worms
eaten number of worms eaten (from batch of 10)
tot total number of worms eaten
wx,wy worm's present co-ordinates
owx,owy worm's previous co-ordinates
worm$(1) string array holding two different worm characters
rx(2),ry(2) numeric array holding co-ordinates of pieces of meteorite
n% general purpose counter

How it works

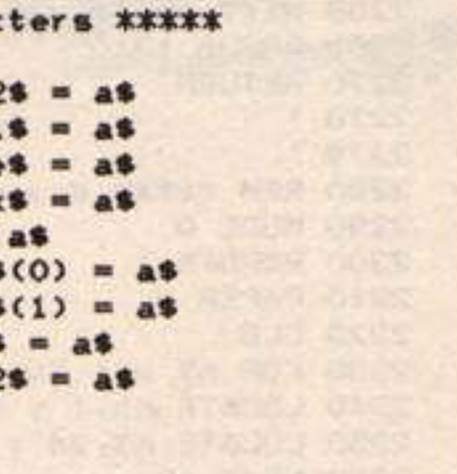
The program is fully REMed therefore it should be easy to follow its workings from the remarks.



```
1 REM ************************************
2 REM *                                  *
3 REM *          Chocky Chick            *
4 REM *                by                *
5 REM *             Jon Revis            *
6 REM *                for               *
7 REM *       Home Computing Weekly      *
8 REM *    Based on an original idea     *
9 REM * By Dave Carlos and Jon Revis     *
10 REM*                                  *
11 REM************************************
12 '
13 '
20 MODE 0
30 GOSUB 180 : REM characters
40 GOSUB 970 : REM initialise
50 GOSUB 760 : REM build characters
60 GOSUB 2290 : REM border
70 GOSUB 2430 : REM intro
80 GOSUB 1310 : REM background
90 EVERY 25,3 GOSUB 1610
98 '
99 '
100 WHILE chick > -1
110 GOSUB 880 : REM read keyboard
120 WEND
130 WHILE INKEY$ <> "" : WEND
135 '
136 '
140 DI
150 GOSUB 2290 : REM border
160 GOSUB 2520 : REM outro
170 END
178 '
179 '
180 REM **** Characters ****
190 SYMBOL AFTER 220
200 SYMBOL 221,0,0,0,0,7,15,31,29
210 SYMBOL 222,62,63,95,95,120,112,0,0
220 SYMBOL 223,0,0,0,0,192,224,224,240
230 SYMBOL 224,184,112,240,224,0,0,0,0
240 SYMBOL 225,0,0,0,0,0,32,32,32
250 SYMBOL 226,64,64,0,0,0,0,224,161
260 SYMBOL 227,48,56,12,24,48,24,12,4
270 SYMBOL 228,0,0,0,0,176,152,136,220
280 SYMBOL 229,0,0,0,0,0,0,0,2
290 SYMBOL 230,1,0,32,32,0,0,0,0
300 SYMBOL 231,12,28,48,24,12,24,48,32
310 SYMBOL 232,64,128,0,0,0,0,0,0
320 SYMBOL 233,0,0,28,54,55,63,63,29
330 SYMBOL 234,14,15,7,3,0,0,0,0
340 SYMBOL 235,20,28,0,0,0,64,192,192
350 SYMBOL 236,0,0,0,0,0,0,0,3
360 SYMBOL 237,0,0,0,0,160,160,160,240
370 SYMBOL 238,0,0,0,8,8,0,0,2
380 SYMBOL 239,1,0,0,0,0,0,0,0
```

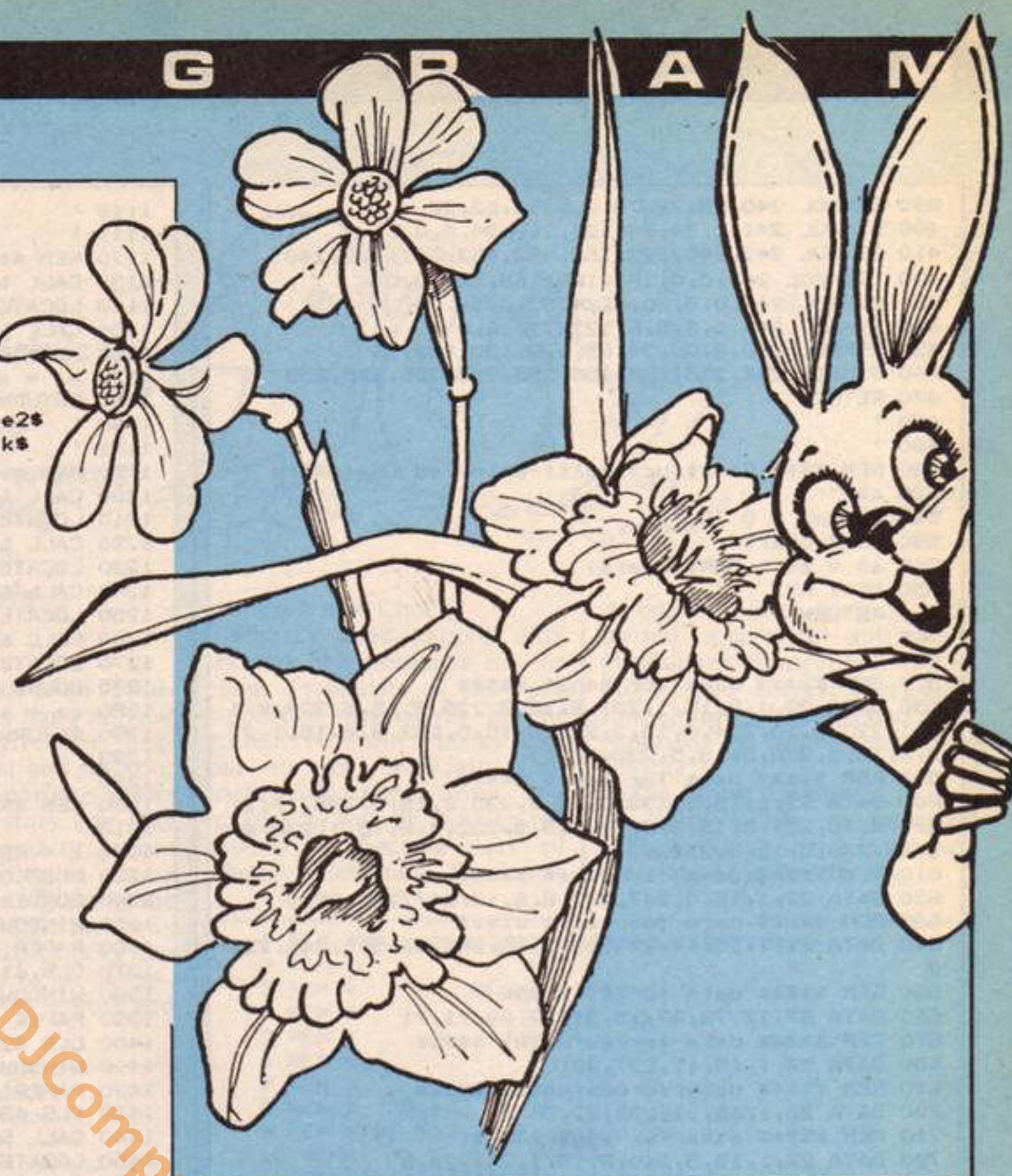


```
390 SYMBOL 240,28,28,73,0,8,93,62,28
400 SYMBOL 241,0,34,54,127,119,34,0,0
410 SYMBOL 242,240,128,162,162,162,187,128,240
420  SYMBOL 243,0,0,181,166,165,181,0,0
430 SYMBOL 244,0,0,20,56,4,52,0,0
440 SYMBOL 245,0,8,8,6,122,72,16,0
450 SYMBOL 246,8,20,34,65,129,130,108,16
460 SYMBOL 247,255,255,255,255,255,255,255,255
470 RETURN
480 '
490 '
500 REM **** Construct Multi-Coloured Characers
510 a$=""
520 FOR n% = 0 TO z%
530 READ char%
540 a$ = a$ + CHR$(char%)
550 NEXT n%
560 RETURN
568 '
569 '
570 REM ***** data for hen2$ *****
580 DATA 22,1,9,15,1,221,8,15,3,225,8,15,5,229,8,1
5,1,223,8,10,224,8,15,3,228,8,15,5,232,8,8,15,1,22
2,8,15,3,226,8,15,5,230,22,0
590 REM ***** data for hen1$ *****
600 DATA 22,1,15,1,233,8,15,3,235,8,15,5,238,15,1,
223,8,10,224,8,15,3,237,8,15,5,232,8,8,15,1,234,8,
15,3,236,8,15,5,239,22,0
610 REM ***** data for wipe$ *****
620 DATA 22,1,15,0,247,247,8,8,10,247,247,22,0
630 REM ***** data for rock$ *****
640 DATA 22,1,15,14,244,8,15,15,245,8,15,5,246,22,
0
650 REM ***** data for t$ *****
660 DATA 67,72,79,67,75,89,32,69,71,71
670 REM ***** data for worm$(0) *****
680 DATA 22,1,15,11,227,22,0
690 REM ***** data for worm$(1) *****
700 DATA 22,1,15,11,231,22,0
710 REM ***** data for egg$ *****
720 DATA 22,1,15,3,240,8,15,1,241,22,0
730 REM ***** data for worm wipe$ *****
740 DATA 15,12,247
748 '
749 '
750 REM ***** construct characters *****
760 RESTORE 580
770 z% = 43 : GOSUB 500 : hen2$ = a$
780 z% = 41 : GOSUB 500 : hen1$ = a$
790 z% = 12 : GOSUB 500 : wipe$ = a$
800 z% = 14 : GOSUB 500 : rock$ = a$
810 z% = 9 : GOSUB 500 : t$ = a$
820 z% = 6 : GOSUB 500 : worm$(0) = a$
830 z% = 6 : GOSUB 500 : worm$(1) = a$
840 z% = 10 : GOSUB 500 : egg$ = a$
850 z% = 2 : GOSUB 500 : wipe2$ = a$
860 RETURN
868 '
869 '
870 REM ***** read keyboard *****
880 flag = 0
890 IF NOT INKEY(71) THEN x = x - 1 : flag = 1
900 IF x < 1 THEN x = 1
910 IF NOT INKEY(63) THEN x = x + 1 : flag = 1
920 IF x > 14 THEN x = 14
930 IF NOT INKEY(18) THEN GOSUB 1200
940 IF flag = 1 THEN GOSUB 1130
950 RETURN
958 '
959 '
960 REM ***** initialise variables *****
970 x = 10 : y = 10
980 ox = x : oy = y
990 wf = 0
1000 DIM worm$(1)
1010 chick = 2 : worm = 9
1020 tot = 0 : eaten = 0
1030 wx = 10 : wy = 24
1040 owx = wx : owy = wy
1050 DIM rx(2),ry(2)
1060 RESTORE 1100
1070 FOR n% = 0 TO 2
1080 READ rx(n%),ry(n%)
1090 NEXT n%
1100 DATA 3,16,6,20,12,16
1105 ENV 1,5,3,1,2,-3,1,1,0,10,3,-3,1
1110 RETURN
```

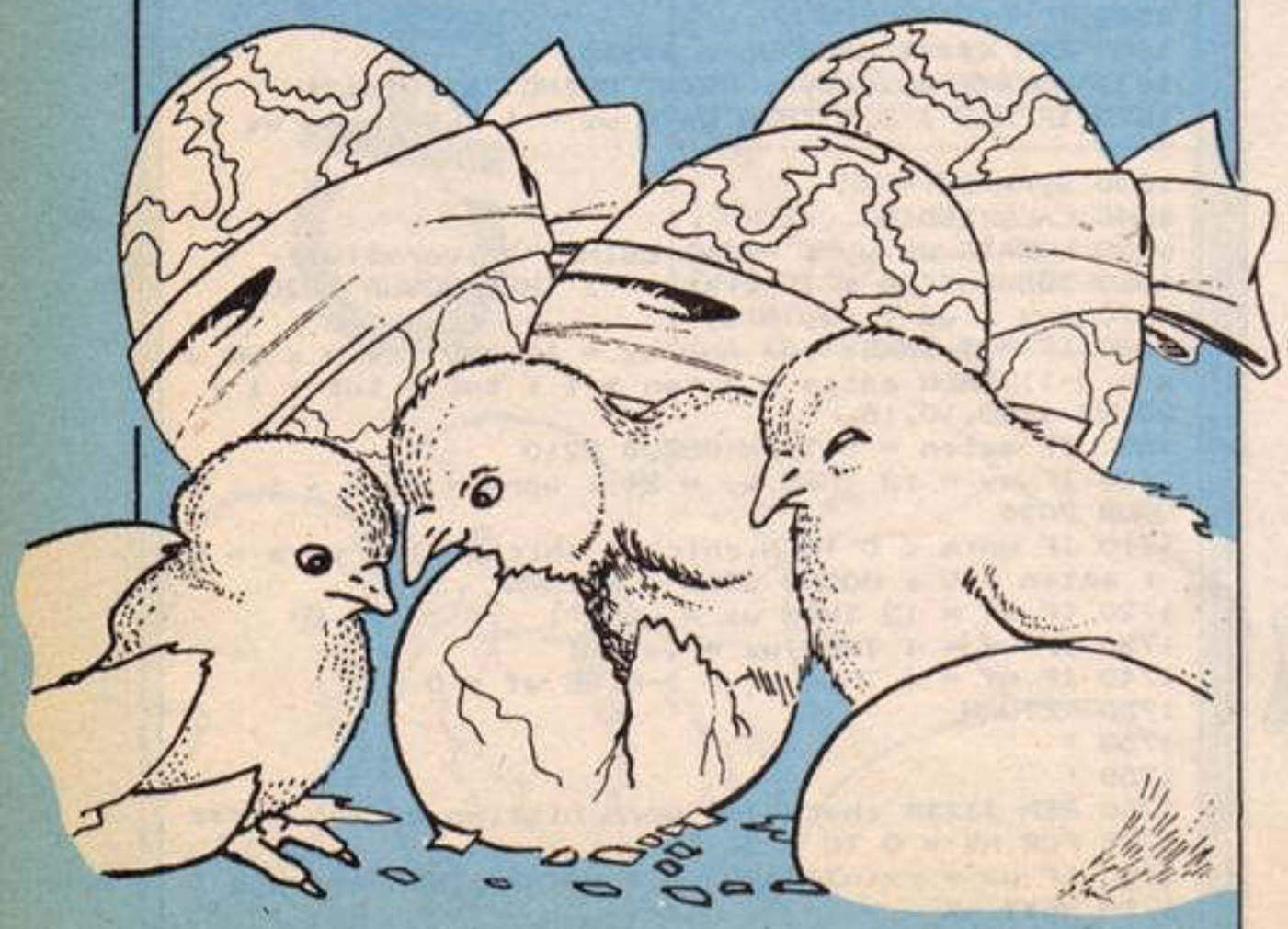


```
1118 '
1119 '
1120 REM ***** print hen *****
1130 CALL &BD19
1140 LOCATE ox,oy : PRINT USING "&";wipe$
1150 CALL &BD19
1160 LOCATE x,y : PRINT USING "&";hen1$
1170 ox = x : oy = y
1180 RETURN
1188 '
1189 '
1190 REM ***** pecking hen *****
1200 CALL &BD19
1210 LOCATE ox,oy : PRINT USING "&";wipe$
1220 CALL &BD19
1230 LOCATE x,y : PRINT USING "&";hen2$
1240 CALL &BD19
1250 LOCATE x,y : PRINT USING "&";wipe$
1260 CALL &BD19
1270 LOCATE x,y : PRINT USING "&";hen1$
1275 SOUND 1,800,10,15,1
1280 ox = x : oy = y
1290 RETURN
1298 '
1299 '
1300 REM ***** background *****
1310 '
1320 z = REMAIN(3)
1330 MODE 0
1340 BORDER 0
1350 WINDOW £1,1,20,12,25
1360 PAPER £1,12
1370 CLS £1
1380 WINDOW £2,16,19,4,11
1390 PAPER £2,8
1400 CLS £2
1410 WINDOW £3,17,18,6,8
1420 PAPER £3,2
1430 CLS £3
1440 CALL &BD19
1450 LOCATE 17,7 : PRINT USING "&";hen1$
1460 CALL &BD19
1470 LOCATE x,y : PRINT USING "&";wipe$
1480 x = 10 : ox = x
1490 CALL &BD19
1500 LOCATE x,y : PRINT USING "&";hen1$
1510 FOR n% = 0 TO 2
1520 LOCATE rx(n%),ry(n%) : PRINT USING "&";rock$
1530 NEXT n%
1540 GOSUB 2090
1550 FOR n% = 10 TO 10 + (chick-1)
1560 IF chick > -1 THEN LOCATE n%+2,1 : PRINT USIN
G "&";hen1$ ELSE LOCATE n%+2,1 : PRINT USING "&";w
ipe$
1570 NEXT n%
1580 EVERY 25,3 GOSUB 1610
1590 RETURN
1598 '
1599 '
1600 REM ***** move worm *****
1610 LOCATE owx,owy : PRINT USING "&";wipe2$
1620 IF RND > 0.5 THEN wx = wx - 1 ELSE wx = wx +
1
1630 wy = wy - 1
1640 CALL &BD19
1650 LOCATE wx,wy : PRINT USING "&";worm$(wf)
1660 GOSUB 1770 : IF crash = 1 THEN GOSUB 1820
1670 owx = wx : owy = wy
1680 IF NOT INKEY(18) AND wy = 12 AND (wx = x OR w
x = x-1) THEN eaten = eaten + 1 : tot = tot + 1 :
SOUND 1,50,10,15
1690 IF eaten = 5 THEN GOSUB 2210
1700 IF wy = 12 THEN wy = 24 : worm = worm - 1 : G
OSUB 2090
1710 IF worm < 0 THEN chick = chick - 1 : worm = 9
 : eaten = 0 : GOSUB 1310 : RETURN
1720 IF wx = 13 THEN wx = wx - 1
1730 IF wx = 1 THEN wx = wx + 1
1740 IF wf = 0 THEN wf = 1 ELSE wf = 0
1750 RETURN
1758 '
1759 '
1760 REM ***** check for worm hitting a rock *****
1770 FOR n% = 0 TO 2
1780 IF wx = rx(n%) AND wy = ry(n%) THEN crash = 1
1790 NEXT n%
1800 RETURN
```

PROGRAM



```
1808 '
1809 '
1810 REM ***** radioactive worm *****
1820 '
1830 MOVE (wx*32)-16,(24-wy)*20
1840 DRAW (wx*32)-16,220,3
1850 FOR n% = 1 TO 500 : NEXT n%
1860 MOVE (wx*32)-16,(24-wy)*20
1870 DRAW (wx*32)-16,220,12
1880 LOCATE wx,wy : PRINT USING "&";wipe2$
1890 LOCATE wx,wy : PRINT USING "&";rock$
1895 SOUND 1,30,10,15,1,1
1900 crash = 0 : wy = 24
1910 GOSUB 2090
1920 IF wx = x THEN GOSUB 1950
1930 RETURN
1938 '
1939 '
1940 REM ***** explode chicken *****
1950 z = REMAIN(3)
1960 FOR n% = 1 TO 50
1970 c = INT(RND(1)*16)
1980 a = INT(RND(1)*600)
1990 b = INT(RND(1)*150)
2000 MOVE (wx*32)-16,220
2010 DRAW a,b+220,c
2020 SOUND 1,b,5,15
2030 NEXT n%
2040 chick = chick - 1
2050 worm = 9 : eaten = 0 : x = 10
2060 GOSUB 1310
2070 RETURN
2078 '
2079 '
2080 REM ***** scores *****
2090 PAPER 12
2100 PEN 5
2110 LOCATE 15,14 : PRINT "Worms"
2120 LOCATE 15,15 : PRINT "Eaten"
2130 LOCATE 16,16 : PRINT ;eaten
2140 LOCATE 15,18 : PRINT "Worms"
2150 LOCATE 15,19 : PRINT "Left"
2160 LOCATE 16,20 : PRINT ;worm
2170 LOCATE 15,22 : PRINT "Total"
2180 LOCATE 16,23 : PRINT ;tot
2190 RETURN
2198 '
2199 '
2200 REM ***** Lay Egg *****
2210 worm = 9 : eaten = 0 : chick = chick + 1
2220 CALL &BD19
2230 LOCATE x,y : PRINT USING "&";hen1$
```



```
2240 LOCATE x+2,y+1 : PRINT USING "&";egg$
2250 FOR n% = 1000 TO 50 STEP -50
2255 SOUND 1,n%,5,15
2258 NEXT n%
2260 GOSUB 1310
2270 RETURN
2278 '
2279 '
2280 REM ***** draw border *****
2290 MODE 0
2300 BORDER 1
2310 PAPER 0
2320 CLS
2330 FOR n% = 1 TO 18 STEP 2
2340 LOCATE n%,1 : PRINT USING "&";hen1$
2350 LOCATE n%,24 : PRINT USING "&";hen1$
2360 NEXT n%
2370 FOR n% = 4 TO 22 STEP 2
2380 LOCATE 1,n% : PRINT USING "&";hen1$
2390 LOCATE 18,n% : PRINT USING "&";hen1$
2400 NEXT n%
2410 RETURN
2418 '
2419 '
2420 REM ***** intro *****
2430 LOCATE 4,5 : PRINT "Chocky Chick"
2440 LOCATE 6,9 : PRINT "Z : Left"
2450 LOCATE 6,11 : PRINT "X : Right"
2460 LOCATE 4,13 : PRINT "Enter : Peck"
2470 LOCATE 4,19 : PRINT "Press Any Key"
2480 LOCATE 4,21 : PRINT "To Start Game"
2490 WHILE INKEY$ = "" : WEND
2500 RETURN
2508 '
2509 '
2510 REM ***** outro *****
2520 '
2530 LOCATE 4,5 : PRINT "Chocky Chick"
2540 LOCATE 3,10 : PRINT "Your Score Was"
2550 LOCATE 9,12 : PRINT tot
2560 LOCATE 4,19 : PRINT "Press Any Key"
2570 LOCATE 4,21 : PRINT "To Start Game"
2580 WHILE INKEY$ = "" : WEND
2590 RUN
2600 RETURN
```

ZX81 PROGRAM

TICKING BOMB

Save the world by defusing the bomb! By Stephen and Mark Howlett

This short little routine is a simple but entertaining game for the ZX81. You must defuse a bomb which threatens to blow up the earth.

To find the code, choose a letter in the alphabet. As you guess, the computer will tell you whether you're close or not.

Get going, then — you only have a limited time to save the universe!

```
  1 REM "TICKING BOMB"
 10 PRINT AT 3,0;"                TICK
ING BOMB"
 11 PAUSE 100
 12 CLS
 20 PRINT
 30 PRINT "TYPE THE CORRET CODE
"
 40 PRINT "LETTER (A-Z) TO"
 50 PRINT "DEFUSE THE TICKING B
OMB"
 60 PRINT "YOU HAVE 4 CHANCES"
 70 PRINT
 80 LET C$=CHR$ (37+INT (RND*26
-1))
 90 FOR G=1 TO 5
100 INPUT G$
110 IF G$=C$ THEN GOTO 210
120 IF G$<C$ THEN PRINT "LATER"
;
130 IF G$>C$ THEN PRINT "EARLIE
R";
140 PRINT "  THAN  ";G$
150 NEXT G
160 PRINT
170 PRINT "BOOOOOOOOOMM..." ;
180 PRINT "YOU BLEW IT."
190 PRINT "THE CORRECT CODE WAS
" ;C$
200 PAUSE 100
201 RUN
210 PRINT "TICK...FZZZZ...CLICK
..."
220 PRINT "YOU DID IT"
230 PAUSE 100
240 RUN
```

EASTER BUNNY RAID

Here's a real tearjerker! The bunnies are in danger, their burrow is flooding and you must save them. By Allen and Margaret Webb

Easter is here again and the Easter bunnies are frolicking in the fields. But all is not well. The wicked witch has sent an unusually heavy April shower. The water is flooding the field and the bunnies must reach the safety of their burrows. Can you help guide them to safety? For every bunny you save, the good fairy will give you an Easter egg.

On the screen you will see a bunny and its burrow. Using the keyboard or a joystick you must guide the bunny to the burrow. When it reaches the burrow, both will vanish and a new bunny will appear. The blue market on the left of the screen indicates the depth of flooding. When it reaches its top limit, the game is over.

Three levels of difficulty are available. At the easy level, the burrow remains stationary. At higher levels, the wicked witch takes a hand and moves the burrow, making life more difficult. Easy level is best for the very young whilst the higher levels inject a little irritation.

If you use the keyboard, the following keys operate:

A moves bunny up
Z moves bunny down
Cursor **up/down** moves bunny left
Cursor **left/right** moves bunny right

You can alter the keys by simply changing lines 550 to 580.

If you want to use a joystick, use port 2. So joystick users don't have an advantage, the rabbit can only be moved up, down, left and right.

Entering the game is quite simple. Just type in and SAVE the two listings. The loader contains the machine code and sprite and character definitions. To ease the task of entering the data, the listing is split into seven blocks. Each block has a check sum to spot any errors. The procedure is to LOAD and RUN the data loader and then LOAD and RUN the main section.

Machine code routines

For those of you who are interested, I'll describe some of the machine code routines.

Block 1 contains the raster interrupt code and allows you to split the screen up into five zones. The zones are numbered 0 to 4 starting at the top of the screen. To activate the interupts you simply use the command:

SYS 12*4096

To change a zone use the command:

SYS 49313,Z,CS,CB,A,B,C

where:

Z = zone number (0-4)
CS = screen colour (0-15)
CB = border colour (0-15)
A = 0 for normal characters
1 for extended mode
2 for bit map
B = 0 for normal mode
1 for multicolour mode
C = position for character set
i.e.
C Character Posn
4 $1000 (normal upper case)
6 $1800 (normal lower case)
8 $2000
10 $2800
12 $3000
14 $3800

You should not that:
i) The routine will only function correctly with the screen at the normal position
ii) To use bit map mode, you must move the start of BASIC to $4000 and use bit map at $2000.

Some example parameter values are:

	A	B	C
multicolour upper case	0	1	4
extended lower case	1	0	6
hi-res bit map @$2000	2	0	8
user defined chars at $2800	0	0	10

block 3 gives machine code to locate a sprite on screen. The syntax is:

SYS 49920,SN,X,Y

where:

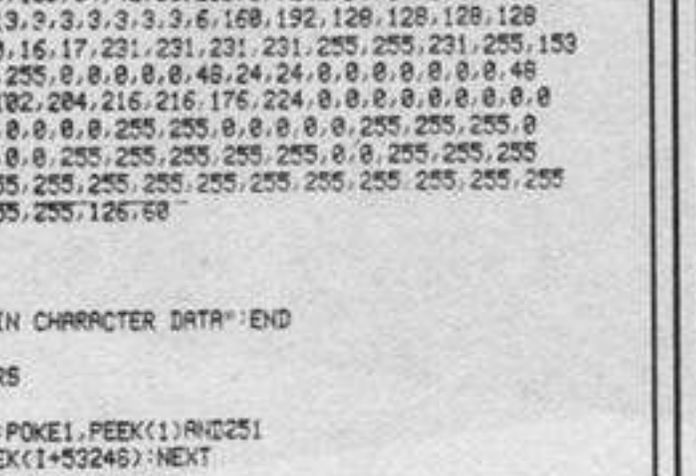
SN = sprite number (0-7)
X = horizontal position
Y = vertical position

These two pieces of code have the widest range of general use and can make life a little easier.

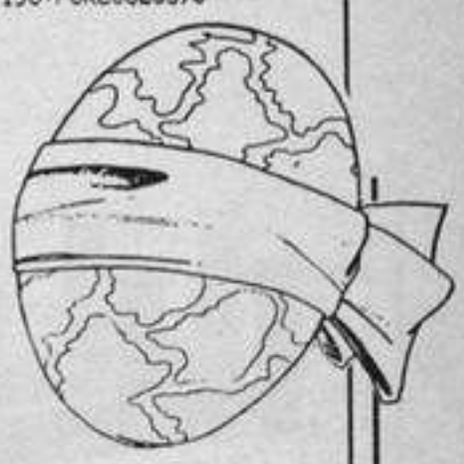
```
10 REM MC DATA
20 REM
30 REM BLOCK 1
40 REM
50 DATA76,3,192,120,169,127,141,13,220,169,1,141,26,208,173,160,192,133
60 DATA170,173,130,192,141,18,208,169,24,141,17,208,173,20,3,141,60,3,173
70 DATA21,3,141,61,3,169,59,141,20,3,169,192,141,21,3,88,169,16,141,67
80 DATA3,96,173,25,208,141,25,208,41,1,240,52,198,170,16,7,173,160,192
90 DATA133,170,198,170,166,170,189,140,192,141,32,208,189,135,192,141,33
100 DATA208,189,145,192,141,17,208,189,150,192,141,22,208,189,155,192,141
110 DATA24,208,189,130,192,141,18,208,138,240,6,104,168,104,170,104,64,76
120 DATA49,234,1,173,137,100,77,13,5,3,14,6,13,5,3,14,6,27,27,27,27,27,8
130 DATA0,8,8,8,20,20,20,20,20,5,32,30,193,165,20,201,5,144,2,169,4,141
140 DATA66,3,169,4,56,237,66,3,141,66,3,32,30,193,165,20,141,61,3,32,30
150 DATA193,165,20,141,62,3,32,30,193,165,20,201,3,144,2,169,0,141,63,3
160 DATA32,30,193,165,20,201,2,144,2,169,0,141,64,3,32,30,193,165,20,141
170 DATA65,3,172,66,3,120,173,61,3,153,135,192,173,62,3,153,140,192,174
180 DATA63,3,189,25,193,153,145,192,174,64,3,189,28,193,153,150,192,173
190 DATA67,3,13,65,3,153,155,192,88,96,27,91,59,8,24,32,253,174,32,138,173
200 DATA32,247,183,96
210 REM
220 REM BLOCK 2
230 REM
240 FOR I=49152TO49447
250 READX: POKEI,X
260 T=T+X:NEXT
270 IFT<>29733 THENPRINT"ERROR IN DATA BLOCK 1":END
280 DATA169,0,133,180,169,45,133,181,160,0,177,180,153,132,3,200,192,8,208
290 DATA246,160,6,185,132,3,200,145,180,136,136,16,246,160,7,185,132,3,160
300 DATA0,145,180,96
310 T=0:FOR I=49664TO49705
320 READ X: POKEI,X
330 T=T+X:NEXT
340 IFT<>5282 THENPRINT"ERROR IN DATA BLOCK 2":END
350 REM
360 REM BLOCK 3
370 REM
380 DATA32,93,195,165,20,141,183,195,32,93,195,165,20,141,184,195,165,21
390 DATA141,185,195,32,93,195,165,20,141,186,195,173,183,195,24,10,170,173
400 DATA184,195,157,0,208,173,186,195,157,1,208,172,183,195,173,185,195
410 DATA240,12,173,16,208,25,77,195,141,16,208,76,76,195,173,16,208,57,85
420 DATA195,141,16,208,96,1,2,4,8,16,32,64,128,254,253,251,247,239,223,191
430 DATA127,32,253,174,32,138,173,32,247,183,96,0,0,0,0
440 T=0:FOR I=49920TO50026
450 READ X: POKEI,X
460 T=T+X:NEXT
470 IFT<>13011THENPRINT"ERROR IN DATA BLOCK 3":END
480 REM
```

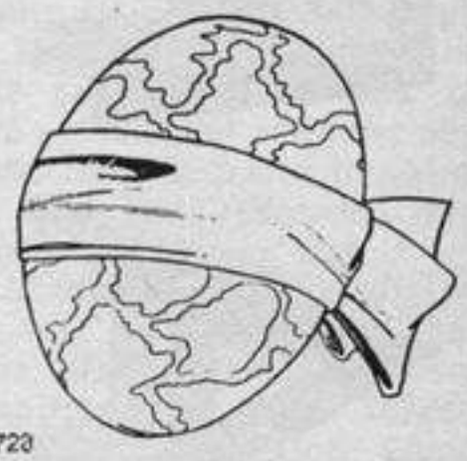
```
490 REM BLOCK 4
500 REM
510 DATA32,79,196,165,20,133,172,165,21,133,173,32,79,196,165,20,133,174
520 DATA160,0,32,89,196,165,174,201,8,48,30,233,8,133,174,169,175,145,172
530 DATA169,6,145,182,24,165,172,233,39,133,172,165,173,233,0,133,173,208
540 DATA220,32,89,196,170,189,70,196,145,172,169,6,145,182,96,167,168,169
550 DATA170,171,172,173,174,175,32,253,174,32,138,173,32,247,183,96,165
560 DATA172,133,182,24,165,173,105,212,133,183,96
570 T=0: FOR I=50176 TO 50276
580 READX: POKEI,X
590 T=T+X:NEXT
600 IF T<>13644 THENPRINT"DATA ERROR IN BLOCK 4":END
610 REM
620 REM SPRITE DATA
630 REM
640 DATA0,0,0,0,0,0,31,195,240,127,231,254,255,255,255,255,255,255,255,255
650 DATA255,255,255,255,255,255,254,255,255,254,127,255,252,63,207,192,15
660 DATA3,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,64,0,0,0,0,0
670 DATA0,0,97,128,0,225,192,0,225,192,0,97,128,0,127,128,0,255,192,0,255
680 DATA192,0,127,128,0,63,0,0,255,192,1,255,224,3,255,240,3,255,240,7,255
690 DATA248,7,255,248,7,255,248,3,255,240,3,255,240,1,255,224,255,0,97,128
700 DATA0,225,192,0,225,192,0,97,128,0,127,128,0,255,192,0,255,192,0,127
710 DATA128,0,63,0,0,255,192,1,255,224,3,255,240,3,255,240,7,255,240,7,255
720 DATA248,7,255,248,3,255,248,3,255,240,0,225,192,0,225,192,0,225,192
730 DATA63,2,170,128,10,170,160,42,170,168,42,170,168,42,191,169,42,255
740 DATA234,43,255,250,43,255,250,43,255,250,43,255,250,43,255,250,43,255
750 DATA250,43,255,250,43,255,250,42,255,234,42,191,170,10,170,168,2,170
760 DATA160,0,170,128,0,0,0,0,0,0,64,0,0,0,0,0,0,0,0,0,0,42,0,0,170,128
770 DATA0,170,128,2,170,160,2,170,160,2,174,160,2,151,160,2,191,160,2,191
780 DATA160,2,174,160,2,170,160,0,170,160,0,42,128,0,0,0,0,0,0,0,0,0,0,0,0
790 DATA0,0,0,0,192,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,48,48,0,48,48,32,32
800 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
810 DATA0,32,128,2,0,0,0,0,48,0,0,0,48,0,0,0,0,0,0,0,128,128,2,0,32,10,0,48,10,0
820 DATA48,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,255,0,3,0,0,3,0,0,243,0,0,51,0,0,51,0
830 DATA0,63,0,0,127,128,0,127,128,0,127,128,0,63,0,0,63,0,1,255,224,1,255
840 DATA224,3,255,240,3,255,240,3,255,240,3,255,240,3,255,240,1,255,224
850 DATA0,255,192,0,12,0,63,0,0,0,0,0,12,0,0,204,0,0,108,0,0,60,0,0,15,192
860 DATA0,15,240,0,15,240,0,31,224,0,63,192,0,127,128,0,127,128,0,255,128
870 DATA0,255,128,1,255,128,1,255,128,1,255,0,1,255,0,7,255,0,7,255,0,1
880 DATA243,128,192,0,0,0,0,48,0,0,51,0,0,54,0,0,60,0,3,240,0,15,240,0,15
890 DATA240,0,7,248,0,3,252,0,1,254,0,1,254,0,1,255,0,1,255,0,1,255,128
900 DATA1,255,128,0,255,128,0,255,128,0,255,224,0,255,224,1,207,128,192
910 DATA0
920 T=0:FOR I= 12288 TO 12864
930 READ X: POKEI,X
940 T=T+X: NEXT
950 IF T<>53715 THEN PRINT"ERROR IN SPRITE DATA":END
960 REM
970 REM CHARACTERS
980 REM
990 DATA255,255,255,255,255,255,255,255,254,254,254,254,252,252,252,252
1000 DATA248,240,240,224,224,192,128,0,255,255,255,255,255,255,252,192,254
1010 DATA252,248,240,192,0,0,0,0,1,3,15,31,127,127,255,0,128,192,240,248
1020 DATA254,254,255,139,223,255,255,255,255,255,255,0,0,0,2,7,31,63,255
1030 DATA0,0,60,127,255,255,255,255,0,0,0,192,240,252,254,255,0,0,0,0,0,0
1040 DATA0,118,0,0,0,0,0,0,118,255,0,0,0,0,0,100,254,255,21,10,4,0,16,146
1050 DATA84,56,0,42,20,136,0,32,37,30,0,0,255,255,240,14,224,0,0,0,255,122
1060 DATA14,240,0,0,1,0,255,0,255,0,0,255,0,255,0,255,0,0,255,0,0,0,0,0,0
1070 DATA0,0,255,0,0,0,0,0,0,255,0,0,0,0,198,48,16,0,0,24,255,255,24,24,24
1080 DATA24,24,0,192,240,60,15,51,48,96,0,0,0,0,0,128,192,64,0,0,0,18,90
1090 DATA52,209,59,0,0,0,72,90,44,139,84,42,30,203,57,242,90,53,222,84,219
1100 DATA172,218,79,156,213,234,13,3,3,3,3,3,3,6,160,192,128,128,128,128
1110 DATA192,64,1,64,68,4,130,130,16,17,231,231,231,231,255,255,231,255,153
1120 DATA153,153,255,255,255,255,255,0,0,0,0,0,48,24,24,0,0,0,0,0,0,0,48
1130 DATA24,24,12,12,103,63,3,0,102,204,216,216,176,224,0,0,0,0,0,0,0,0,0
1140 DATA0,0,0,0,0,0,0,0,255,0,0,0,0,0,0,255,255,0,0,0,0,0,255,255,255,0
1150 DATA0,0,0,255,255,255,255,0,0,0,255,255,255,255,255,255,0,0,255,255,255
1160 DATA255,255,255,0,255,255,255,255,255,255,255,255,255,255,255,255,255
1170 DATA255,255,24,60,126,255,255,255,126,60
1180 T=0: FORI=11264 TO 11655
1190 READ X:  POKEI,X
1200 T=T+X:NEXT
1210 IFT<>43164 THENPRINT"ERROR IN CHARACTER DATA":END
1220 REM
1230 REM COPY DOWN SOME CHARACTERS
1240 REM
1250 POKE56334,PEEK(56334)AND254:POKE1,PEEK(1)AND251
1260 FORI=0TO1023:POKEI+10240,PEEK(I+53248):NEXT
1270 POKE1,PEEK(1)OR4
1280 POKE56334,PEEK(56334)OR1
1290 REM
1300 REM MC DATA BLOCK 5
1310 REM
1320 DATA169,0,141,4,212,141,11,212,141,18,212,169,15,141,24,212,169,8,141
1330 DATA23,212,169,0,141,5,212,169,240,141,6,212,32,138,173,32,247,183,165
1340 DATA20,72,165,21,72,32,253,174,32,138,173,32,247,183,104,133,96,104
1350 DATA133,95,5,96,240,33,165,20,166,21,141,0,212,142,1,212,169,17,141
1360 DATA4,212,32,179,238,165,95,198,95,170,208,246,198,96,165,96,201,255
1370 DATA208,238,169,0,141,4,212,96,255
1380 T=0:FOR I=50432 TO 50532
1390 READ X: POKEI,X
1400 T=T+X: NEXT
1410 IF T<>12621 THEN PRINT"ERROR IN DATA BLOCK 5"
```

```
10 REM
20 REM RABBYTES
30 REM (C)1985 A + M ASSOCIATES
40 REM
50 REM WRITTEN SPECIALLY FOR HCW
60 REM
70 POKE 56,48:CLR:GOSUB 870
80 DATA 105,32,116
90 FORI=0TO2:READCH(I):NEXT
100 POKE 650,128
110 DATA 0,1,8,9,15
120 FORI=1TO5:READ CO(I):NEXT
130 SYS 49313,0,6,6,0,0,10
140 SYS 49313,1,14,14,0,0,10
150 SYS 49313,2,3,3,0,0,10
160 SYS 49313,3,5,5,0,0,10
170 SYS 49313,4,13,13,0,0,10
180 GOSUB800
```



```
190 POKE 2040,192: POKE 2041,192: POKE2042,193:POKE2043,195:POKE53286,0
200 POKE53287,1: POKE 53288,1: POKE 53290,9
210 SYS49520,0,96,56:SYS49920,1,248,65
220 POKE53269,15
230 POKE 53277,3:POKE53271,3:POKE53276,8
240 PRINT"
250 PRINT"
260 PRINT"
270 PRINT"
280 PRINT"
290 PRINT"
300 PRINT"
310 PRINT"
320 PRINT"
330 PRINT"
340 I$="
350 FOR I=1TO9
360 X=RND(1)*48:Y=4*RND(1)+11:GOSUB1090:PRINT""I$:NEXT
370 FOR I=1TO6:X=RND(1)*34+5:Y=RND(1)*8:GOSUB1090:PRINT"
380 PRINT"
390 FORI=1TO12:X=RND(1)*34:Y=RND(1)*8+15:GOSUB1090:PRINT"
400 PRINT"
410 GOSUB1120
420 FORSA=1624TO1984STEP40:FORI=0TO2:POKESA+I,CH(I):POKESA+54272+I,0:NEXTI,SA
430 TI$="000000"
440 Z=TI/60 :SYS 50176,1985,Z:IFZ>79THEN630
450 IFRND(1)<LV THEN GOSUB1150
460 SYS12*4096+2*256
470 IFJF=0THEN540
480 JV=PEEK(56320):JV=15-(JVAND15)
490 IFJV=8ANDRX<320THENRX=RX+5
500 IFJV=4ANDRX>44 THENRX=RX-5
510 IFJV=2ANDRY<210THENRY=RY+5
520 IFJV=1ANDRY>175 THENRY=RY-5
530 GOTO590
540 GETI$:IFI$=""THENFORI=1TO100:NEXT:GOTO440
550 IFI$="
560 IFI$="
570 IFI$="Z"ANDRY<210THENRY=RY+5
580 IFI$="A"ANDRY>175 THENRY=RY-5
590 POKE2042,194
600 SYS 49920,2,RX,RY:SYS(50432)10,30000
610 POKE2042,193:IF PEEK(53278)AND 8 =8 THEN 720
620 GOTO440
630 GOSUB1160:POKE198,0:PRINT"
640 C=INT(RND(1)*15):IFC=3ORC=13THEN640
650 POKE53287+I,C:NEXT
660 PRINT"
670 PRINT"
680 FORI=1TO15:SYS(50432)110,20000+RND(1)*10000:NEXT
690 FORII=1TO300:POKE198,0:NEXT
700 GETI$:IFI$=""THEN700
710 Z=0:NE=0:PRINT"
720 POKE53278,0
730 IF((RX)<(HX-10))AND(RX<(HX+10)))AND((RY<(HY+10))AND(RY)<(HY-10)))THEN750
740 GOTO440
750 POKE53269,11:REM FORJ=195TO197:POKE2043,J:FORK=1TO60:NEXT:NEXT:POKE53269,3
760 FORI=1TO3:SYS(50432)100,30000+I*1000:POKE2043,194+I:NEXT:FORD=1TO50:NEXT
770 POKE53269,3
780 POKE2043,195
790 GOSUB800:NE=NE+1:POKE1024+NE,176:POKE55306+NE,7:GOTO440
800 HX=44+RND(1)*200:HY=175+RND(1)*50
810 RX=44+RND(1)*200:RY=195+RND(1)*30
820 IF ABS(RX-HX)<70THEN810
830 POKE 53269,CO(RND(1)*5+1)
840 SYS 49920,3,HX,HY:SYS 49920,2,RX,RY:POKE53269,15
850 RETURN
860 GOTO440
870 SYS12*4096:GOSUB1100
880 PRINT"
890 PRINT"
900 PRINT"  
910 PRINT"
920 PRINT"
930 PRINT"
940 PRINT"
950 PRINT"
960 PRINT"
970 FORI=0TO7:POKE2040+I,RND(1)*3+198:NEXT
980 FORI=0TO7
990 C=INT(RND(1)*15):IFC=3ORC=13THEN990
1000 POKE53287+I,C:SYS(50432)1,RND(1)*10000+30000:NEXT
1010 GETI$:IFI$=""THEN970
1020 PRINT"
1030 GETI$:IFI$<>"J"AND I$<>"K"THEN1030
1040 JF=0:IFI$="J"THENJF=1
1050 PRINT"
1060 GETI$:IFI$<>"E"AND I$<>"H"ANDI$<>"T"THEN1060
1070 LV=ABS((I$="E")*0+(I$="T")*.05+(I$="H")*.1)
1080 PRINT"
1090 POKE781,Y:POKE782,X:POKE783,0:SYS65520:RETURN
1100 FORI=0TO4:  SYS49313,I,1 ,15,0,0,10:NEXT:POKE53269,0:RETURN
1110 FORI=0TO4:  SYS49313,I,15,15,0,0,10:NEXT:POKE53269,0:RETURN
1120 X=9:FORY=2TO6:GOSUB1090:PRINT"
1130 X=29:FORY=4TO7:GOSUB1090:PRINT"
1140 RETURN
1150 HX=44+RND(1)*200:HY=195+RND(1)*30
1160 IF ABS(RX-HX)<70THEN1150
1170 SYS49920,3,HX,HY:      RETURN
1180 GOSUB1110:SYS49313,3,I,1,0,0,10:SYS49313,4,1,I,0,0,10
1190 PRINT"
1200 FORI=0TO7:SYS49920,I,76+I*30,100:NEXT
1210 FORI=0TO7:POKE2040+I,RND(1)*3+198:NEXT
1220 POKE2045,200
1230 FORI=0TO7:POKE53287+I,9:NEXT
1240 POKE 53269,255:POKE53277,0:POKE53271,0:POKE53276,0:RETURN
```





MERLIN

Mel Paszkowski reviews the Merlin Database and Scribe. Read on to find out why he was impressed

This sort of package is a serious offering which, for the price, offers quite a lot of sophisticated features. You should ask yourself, therefore, whether you would use them. The money alone should make you think pretty carefully.

The minimum requirements, apart from your BBC computer, are a disc drive and a printer. For some of the word-processing work a 'proper' monitor is recommended because there is an option to work with 80 characters across. I used one drive and found it tedious transferring from system disc to datadisc whilst working on the database — not quite so bad with Scribe, the word processor.

The big question is, what do you get for your money? An impressive, elongated, video style box containing two systems discs, a Data/Scribe chip and fitting instructions, two manuals and a function key strip. My review copy didn't contain two program options but a covering letter explained these were not essential and would be sent in a few weeks time!

No problem fitting the chip. The instruction sheet showed a diagram with step-by-step notes. Time taken was about ten minutes mostly searching for a Philip's screwdriver!

Starting in familiar territory I chose the word processor. It's accessed by the shift/break keys and immediately gives the main menu. Once the program has an idea of the size of your proposed document it creates space on the disc and tells you how many pages are available. If you're re-writing War and Peace, you would be expected to write in sections and merge the documents later.

Once on the edit page it becomes plain sailing. A status line at the top keeps you informed as to where you are in the document and how much space is left. A prompt line is left blank for occasional instructions and messages. A third line corresponding to the humber of characters chosen in dashes shows tabs or margins set.

Editing seemed straight-forward and on-screen

formatting is through function keys. You can set tabs, underline, centre and adjust both margins at any stage!

A particularly useful function is Search and Replace, enabling you to define a string, which can be a word or phrase, and replace it with something else.

Printing is arranged via another menu which supports serial or parallel types. If serial, you have the option to change the baud rate. Here, amongst the list of options, you can set automatic page numbering, the printing of a header and footer or re-define characters by inserting printer codes. All of these can be saved with the document.

Back at the main menu, a utilities option will allow system calls, a word count, extract and expand pages of the document and much more.

I found Scribe easy to use. A credit to the user friendliness of the system and the well explained manual.

The Database was not quite so easy and I depended very much on the manual which after two days of reading began to fall apart!

The essential point is that this program loads an index into RAM each time a database is accessed which makes sorting and searching virtually instantaneous. On creating your database you therefore have the option of defining up to eight conditional indexes and altering them at any time. When you initiate a search you choose your index and view the results.

Some careful thought must go into planning and defining the Key Fields. These will affect the sorting routines and their positioning on the original layout will determine priorities. Size is another important factor as you are limited by disc space. When your database has been defined you learn how many records you will be able to create on the allocated disc. There is always a trade-off between record size and record number but a record can be up to four pages in length each containing 920 characters.

Time spent on small scale experiments is well worth it before embarking on major projects. I found I had created too many key fields and sorting was somewhat chaotic using indexes. R disc sort is to be provided but that was one of the utilities to be sent later.

There are two ways of getting printed information from the database. The first is by the Report Writer which allows you to compile a program to create a document, a relatively complex procedure. The manual excuses itself by saying it is "Provisional" and therefore only gives a brief outline. For this reason it is far simpler to use Scribe through the Mail Merge facility. This, quite simply, allows you to write a document and have any of the fields included by using the field label preceded and followed by the '⅔' sign.

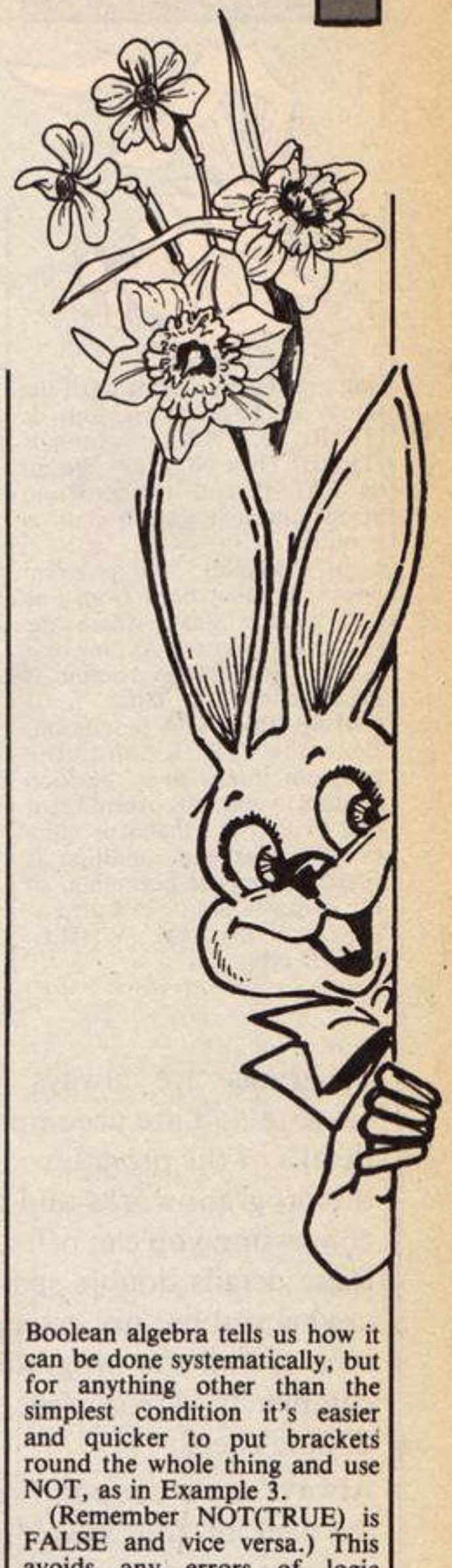
I liked the system. It offered the sort of integration that made life easy. Menus were complimentary and screen prompts easy to follow. Good value for the serious user both for writing and storing information. Its many features allow you to compare it with virtually any commercial standards.

Price: £95

Publisher: Merlin Computer Products (Bucon Ltd)

Address: 35/36 Singleton St, Swansea SR1 3QN

LOOPING THE LOOP



This week Peter Green shows how to implement various loop structures, in Part 2 of our series on converting programs between different BASICs

For a long time most computers had a BASIC which was either written by Microsoft, or followed their lead in the conventions for keywords. Standard Microsoft BASIC was a fairly conservative language, and the only implicit looping structure was the FOR-NEXT-STEP construction. With the BBC machine and the Oric-1 came the more exotic REPEAT-UNTIL loop, and now Amstrad has arrived with the even more useful WHILE-WEND loop. Yet with a bit of self-restraint in the use of GOTO and some thought, even the earliest BASIC computer could have had these useful features even though the actual keywords weren't present. We'll see how later on.

FOR the NEXT time

The FOR-NEXT loop is pretty standard and should work unaltered on any machine. However, Amstrad BASIC has a slight peculiarity. Consider Examle 1. This is a loop in which some operation has to be performed on all five items in an array, say, *except* for the third.

Normally it is very bad practice to have more than one NEXT for a given FOR, because you can't know which NEXT would end the loop and so program flow is unknown — never a good idea! In this case the 'internal' NEXT of line 20 cannot end the loop (it changes i from 3 to 4 which is less than the end value of 5) so you can get away with it.

However, Amstrad BASIC will give an 'Unexpected NEXT' error because it pairs up FOR-NEXT keywords and allows no extras. The solution is easy: change line 20 to "IF i=3 THEN GOTO 40".

One other aside is the use of FOR-NEXT delay loops. You'll have to experiment with the values in the loop to duplicate the same timing period, since all BASICs run at different speeds.

Play it again, Sam

REPEAT-UNTIL and WHILE-WEND have two basic differences. First, WHILE tests the condition at the start of the loop and REPEAT tests it at the end. So a REPEAT loop is *always* executed at least once, but a WHILE loop can be bypassed if the condition isn't true.

Example 1

```
10 FOR i=1 TO 5
20 IF i=3 THEN NEXT
30 REM ** Some routine
40 NEXT
50 PRINT"finished"
```

Example 2

```
1000 REPEAT
1010 routine
1020 . . .
1100 UNTIL x>5
1110 rest of program
```

```
1000 WHILE x<=5
1010 routine
1020 . . .
1100 WEND
1110 rest of program
```

Second, a WHILE loop is executed as long as the condition is TRUE: a REPEAT loop is executed as long as the condition is FALSE. So you can swap from one type to the other (i.e. REPEAT-UNTIL on the Beeb or Oric to WHILE-WEND on the Amstrad, or vice-verse) provided you are certain that the always-once/sometimes-never difference doesn't matter or can't arise (this may not be easy to decide from an examination of the source listing).

How? Simply use the other type of loop and invert the condition — see Example 2, which shows exactly equivalent loops, provided x is always less than or equal to 5 on loop entry. If x is sometimes greater than 5 on entry, the REPEAT loop still runs once but the WHILE loop is skipped. here you need to use the GOTO constructions explained below.

Condition inversion is simple in the examle given, and Boolean algebra tells us how it can be done systematically, but for anything other than the simplest condition it's easier and quicker to put brackets round the whole thing and use NOT, as in Example 3.

(Remember NOT(TRUE) is FALSE and vice versa.) This avoids any errors of logic (particularly easy with mixed ANDs and ORs), and anyway, why shouldn't the computer do all the hard work?

Examples 4, 5 and 6 show how GOTO can be used to duplicate *exactly* the action of WHILE and REPEAT: and consequently how these types of loop can be used on *any* computer which runs BASIC. they hardly require any explanation from me: in Example 4 the program keeps

Example 3

```
1000 WHILE x>10 AND x<20 AND (b=3 OR a<>97)

1000 UNTIL NOT (x>10 AND x<20 AND (b=3 OR a<>97))
```

CONVERSION

jumping back to the start of the loop if NOT (condition) is TRUE, i.e. UNTIL condition is TRUE. Then NOT (condition) is FALSE and the program drops through to line 110 as required.

In Example 5 the program keeps jumping back from line 110 to the start, where the condition is tested. As long as it is TRUE the loop routine is executed again. Once it is FALSE, then NOT (condition) becomes TRUE and the program jumps over the loop routine to continue execution at line 1110. Note that it is quite possible that the condition is FALSE from the beginning, so the loop will not be executed at all, just like the WHILE-WEND type.

GOTO jail?

Example 6 shows how computers like the Spectrum, which allows computed GOTOs (i.e. GOTO expression), can use the facility as a reminder as to what's going on. Beware, though — if you have nested loops (one inside another) you need to use different variables for each loop (e.g. repeat1, repeat2 a so on). Otherwise the program will 'forget' where the outer loop is because the inner one will change the variable value. Also, renumbering is out (Beeb owners please note) because the jumps will now be to the wrong lines.

Oops — run out of space again. We'll have to look at strings next time.

Example 4

```
1000 REPEAT
1010 routine
1020 . . .
1100 UNTIL condition
1110 rest of program
```

```
1000 REM ** this line unnecessary
1010 routine
1020 . . .
1100 IF NOT (condition) THEN GOTO 1010
1110 rest of program
```

Example 5

```
1000 WHILE condition
1010 routine
1020 . . .
1100 WEND
1110 rest of program
```

```
1000 IF NOT (condition) THEN GOTO 1110
1010 routine
1020 . . .
1100 GOTO 1000
1110 rest of program
```

Example 6

```
1000 repeat=1000
1010 routine
1020 . . .
1100 IF NOT condition THEN GOTO repeat
1110 rest of program
```

```
1000 wend=1110:IF NOT condition THEN GOTO wend
1010 routine
1020 . . .
1100 GOTO 1000
1110 rest of program
```

Programs are always supplied on cassette and are accompanied by full details of the program variables, how the program works and any hints on conversion you can offer. Please type these details double spaced. Listings are helpful but not essential. What is vital is that the programs should be completely error free, so please double check.

Always use a coupon firmly fixed to the back of your envelope, and fully complete and enclose the cassette inlay card.

We are particularly interested in programs with less than 100 actual lines of BASIC. All submissions are acknowledged.

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CREATING LARGER GRAPHICS

This week Shingo Suigura shows you how to combine characters to increase detail

As you have probably realised, a single character is pretty small and in order to get any detail, you need to join several together. For example, take a look at the van in fig.1 and define the front half as character 224 and the back as character 225 in the usual fashion. If you type: PRINT CHR$224CHR$225 ‹ RETURN ›, you find the van is in the correct form. Therefore, in order to move the van from right to left on row 10, we can modify the program given in part 3 to:

```
10MODE1
20FOR X=38 TO 2 STEP-1
30PRINT TAB (X,10)
  CHR$224CHR$225
40FOR A=0 TO 100:NEXT
50PRINT TAB(X,10)" "
60NEXT
```

As you would expect, the van moves correctly. However, it isn't exactly very meaningful to have a van as CHR$224CHR$225. If only you could give characters meaningful names as you can variables. In fact, you can! If we want to call the van something devastatingly original like "van". type:

```
van$=CHR$224+CHR$225
```

Now, type:

```
PRINT van$
```

The above method works well for characters which are in a horizontal line, but lots of them consist of characters on top of each other. Take the space shuttle in fig.2 for example. You can make it out of two characters. First define characters 224 as the top half of the shuttle and the bottom half as character 225 in the usual way. Now type PRINT CHR$224;CHR$225 ‹ RETURN ›. The top and bottom are next to each other, which isn't particularly good. You might think that you could have the X and Y coordinates for the top character and calculate the X and Y co-ordinates of the bottom character by adding one to the Y co-ordinate.

This works but means you must always print the characters with a TAB statement. How do we use the labelling technique we used for the van? We can make use of some of the control codes (characters from 0 to 31). There are several which allow you to move the cursor about relative to its position rather than TAB which allows you to move it to an absolute position. What we want to do is print the top half (by now the cursor has advanced to the next character on the same line), move the cursor down one line and move it back one character and then finally print the bottom half. The control codes are CHR$8 and CHR$10 respectively. Now, to label the whole space shuttle as "shuttle", type:

```
shuttle$=CHR$224+CHR$8
    +CHR$10+CHR$225
```

Now type:

```
PRINT shuttle$
```



```
                    =0
*.......    =128
***.....    =224
****....    =240
**.*....    =208
*****...    =248
*****...    =248
*.***...    =184
*.***...    =184
*.***...    =184
*.****..    =188
*.*****.    =190
********    =191
*****...    =248
.**.....    =96
........    =0
```

WELCOME TO BASIC

In the first of a series Brian Jones deals with the basics of BASIC

Welcome to the wonder-world of BASIC. BASIC is the most commonly used computer language in the world, not because it's a specially good language; it isn't quick, it doesn't use the computer efficiently, it's not a language that encourages good programming style. So, why is it so popular?

There are two main reasons; it's easy to learn the basics and you get results quickly: it was the first of its type, or at least the first to get established.

Back in the days of value computers, the language FORTRAN (formula translation language) was all the rage. It was a language for mathematicians and scientists, specialised in solving complicated equations and doing longwinded calculations. It could take hours, sometimes days, to give all the answers, but that was due to the speed of the computers not the language.

Sometimes it was obvious from the first few answers that there was either an error in the data, or the logic in the program was wrong, or something was going to make the rest of the answers a waste of time. Of course, if the person who supplied the data had seen those first answers he or she would probably have been able to say abandon the run, but usually only computer operators were allowed near computers, and they weren't to know.

Clearly, a system where the computer gave some answers then waited to be fed more data would have advantages. As computers got faster this idea became practical and at Dartmouth College in the United States, Thomas Kurtz and John Kemeny designed a language able to do just that. Enter BASIC — Beginners All-purpose Symbolic Instruction Code. Do you get the feeling that they decided on the initials BASIC first, then worked out what it could stand for? Actually their main concern was to produce a language which was very easy to learn and get programs working very quickly. The two-way communication between computer and user was a bonus. The ability of a language to stop in the middle of a program and await further instructions or data is known as being interactive.

This first version of BASIC was fairly basic! People soon realised the potential and started adding the features they thought were missing. The result is that there are many versions of the language. I'll be primarily concerned with the version Commodore used for the 84 (and VIO-20). However, since this version is not among the most sophisticated, most of the information will be applicable to other micro-computers. In the case of the Commodore 16, all the programming commands will work. There are just a lot of other commands which won't be mentioned. The information will differ most between machines where the keyboard and entering and editing programs are concerned so I will deal with this first.

First a tour of the keyboard. Most of the keys are laid out exactly like a typewriter keyboard. However, unlike a typewriter, they normally produce capitals not lower case. Turn on and try it. Would you prefer lower case? Look at the two keys at the bottom left corner of the keyboard. There's a key with the Commodore logo on it — referred to as the Commodore Key. Next to it is a "shift" key. Press both at once and see the effect — magic! Press them together a few more times and you see the display flip from lower case mode to capitals mode and back, that's the Commodore flip!

Individually these keys enable you to display the Commodore graphics characters which appear on the front of each key. This does assume that you are in capitals mode but hold down one or the other and press a few keys and see what you get. Now do the Commodore flip a few times again. I love the way the letters look as though they are doing press-ups!

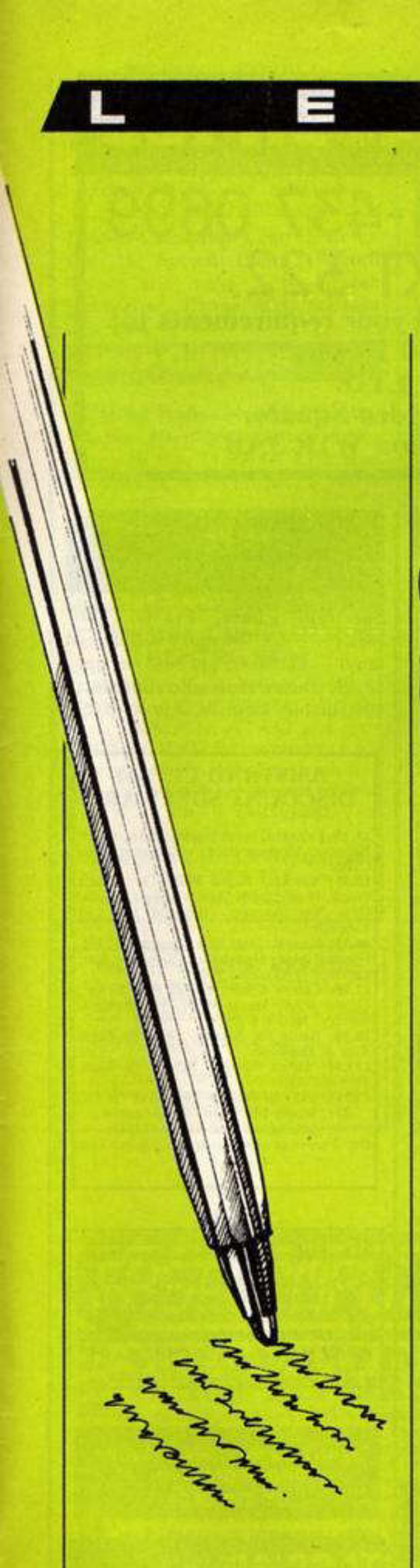
Make sure you've got graphics characters from both the Commodore key and the shift key and watch the Commodore flip carefully. Notice something? While the characters generated by the shift key swop from capitals to graphics and back, those from the Commodore key don't. Well, there are a couple of exceptions; can you find them?

The other keys you'll be using quite a bit are the cursor keys. They're at the bottom right of the main keyboard. The cursor is that little flashing square which indicates where your typing will appear. You can move it around with the two cursor keys. When the shift key is held down it goes up or left, depending on which key you press. Without the shift it goes down or right. Note — if instead of moving, the cursor leaves strange characters, don't panic — I'll explain what's happening next week. Just hold down a shift key and press the key labelled "RETURN". Now it will move as promised.

The screen probably looks a mess by now, so let's clear it. Hold down a shift key and press the key marked "CLR HOME". There you are a clean sheet. If you hadn't held down the shift key, the cursor would have popped to the top left corner of the screen, where it is now, without clearing anything. This position is called "home". Right, that's prepared the ground, but let me leave you with a couple of bits of homework.

Use the graphics and cursor keys to produce a continuous line from the home position diagonally to where it touches the bottom of the screen and then draw a big noughts and crosses board in the middle of the screen.

LETTERS



Channel 5? That's odd!

I was recently playing Tony Crowther's new game Gryphon, from Quicksilva. I had played it about five times and each time I checked the hi-score chart.

When I pressed the function keys a strange thing happened. It looked as if my TV set was tuning itself in to Channel 5. But there is no channel 5, I hear you say. Exactly, there isn't; it's Tony Crowther's joke. Not very funny because twice I turned my computer off and reloaded the game before I realised!

It looks very realistic with lines flashing across the screen which then turn into a testcard of channel 5. If you ever have the misfortune to suffer this all you have to do is press the N key and the title screen will start again.

David Morton, Wolverhampton

Whoops!

The machine code listings for right and up were left out of David Ellis's Amstrad feature, How to Draw, published in HCW 104. Here we reprint the missing codes. Our apologies to all.

Listing 1. Machine code listing for right and up

Right

Address	Mnemonic	Op Codes	Comment
&832E	CALL 838C	CD 8C 83	; subject to set plotting colour
&8331	CP 2	FE 2	; Are there 2 parameters?
&8333	JR NZ &833A	20 5	; No colour specified
&8335	CALL &8295	CD 95 82	; HL = Colour. DE = no. of pixels
&8338	JR &833F	18 5	; miss the next part
&833A	CALL &829B	CD 9B 82	; HL = no. of pixels
&833D	LD D,H	54	; transfer contents of
&833E	LD E,L	5D	; HL to DE
&833F	LD HL,0	21 0 0	; HL = vertical movement i.e. 0
&8342	CALL BBF9	CD F9 BB	; subroutine to draw a line
&8345	RET	C9	; done

Up

&8346	CALL 838C	CD 8C 83	; subject to set plotting colour
&8349	CP 2	FE 2	; Are there 2 parameters?
&834B	JR NZ &8354	20 7	; No colour specified
&834D	CALL 8295	CD 95 82	; HL = colour. DE = no. of pixels
&8350	PUSH DE	D5	; another method of transferring
&8351	POP HL	E1	; registers. DE to HL
&8352	JR &8357	18 3	; miss the next instruction
&8354	CALL &829B	CD 9B 82	; HL = no. of pixels
&8357	LD DE,0	11 0 0	; DE = horizontal movement i.e. 0
&835A	CALL BBF9	CD F9 BB	; subroutine to draw a line
&835D	RET	C9	; done

Amswer back

I must say that we read the letters from D Harman, R Kavanagh and D Black (HCW 101) with incredulity. As reviewers for HCW we feel that some facts should be explained. When we receive a game for review, we are asked to play it and to assess our opinion of it. We are not expected to compare it to other versions on other machines (in fact it would be grossly unfair to do so).

Inevitably, we mentally compare it to other software for the same computer, but then again, don't we all? You can't assess any piece of softwae in total isolation, but on the other hand, you can't compare versions for two different machines.

Consider an alternative scenario. Imagine that a reviewer gives a solid gold rave review of a game and you go out and buy it. After playing it for 30 seconds you realise that you loathe it. Is it fair to slag off a reviewer who liked it?

We suggest that you take reviews as they are meant — the opinion of an everyday punter. In the long term the only sensible way to buy software is to play it *before* buying. Use our reviews for guidance by all means, but use your own judgement too.

We accept that not everybody will share out views, but then again life would be pretty tedious if we all agreed all the time.

A.W. and M.W.
HCW software reviewers

Take-over bid

I have written to your magazine before complaining of how thin it was and its poor quality. I was happy to find that the magazine has improved no end and judging by the issue dated March 5-11, HCW 102, the magazine cannot get much better.

However, halfway through the magazine I was disappointed to find that Quicksilva had taken over the magazine. The advertisement lasted 16 pages. 16 pages which could have been used for informative reading, which after all is what a magazine should contain.

The reviews are better and although maybe not so informative are certainly more amusing. Obviously your magazine has become brighter instead of lighter.

Sorry you objected to the advertising. However, advertising provides a substantial income for magazines, and without the advertising HCW would be much thinner. HCW has a high editorial content anyway, in contrast to other magazines.

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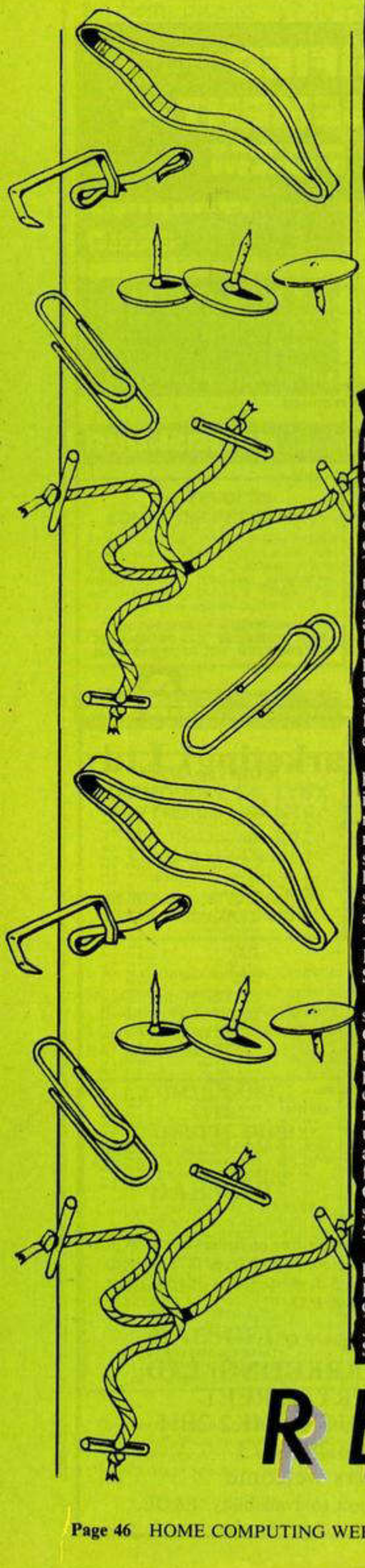

Helpline

Mr J Hughes of Manchester has two tips for keeping your Spectrum and its transformer cool. Glue two pieces of school eraser to the rear rubber pads on the base of your Spectrum. This will lift the back and give the keyboard a more comfortable working position and will allow more air space for cooling. A metal weight placed on top of the transformer will act as a heat sink so the Spectrum can run for five or six hours with no excessive heat problems.

J J Gamble of Southampton has come up with an interesting idea. He suggests that it can be much easier to learn programming with a friend who is at the same level as you. He would like to get in touch with someone in the Southampton area who owns a C64. Write to — 30 Copenhagen Towers, International Way, Weston, Southampton SO9 9NU.

Anyone interested in writing software for the Amstrad CPC464 may like to know that there is now an amateur programmers postal user group called A.P.Ex. A bi-monthly newsletter includes reviews of utilities, hardware, software and much more and is available from Nick Godwin, 4 Hurkur Crescent, Eyemouth, Berwickshire TD14 5AP at a cost of 50p.

Mr G Jackson would like to know where he can obtain Extended BASIC for the TI-99/4A. Contact him at — 997 Jarrat Lane, Tooting, London SW17.

Readers' hi-score table

Name	Game	Machine	Score
Mike Roberts	Pole Position	Atari	108,950
Mark Fosters	Beneath the Stars	TI-99/4A	37,300
Jon Chatten	Munch Mania	C64	60,205
Neil Rennie	Pyjamarama	C64	69%
Stuart Rodgers	Tapper	C64	100,738
	Munchman	TI-99/4A	123,911
Paul Crawley	Impossible Mission	TI-99/4A	16,850
Peter Devine	Chuckie Egg	Spectrum	1,750,820

Scrambled dominoes

This picture is typical of what happens when I type in programs from magazine listings — bits of the picture appear but the rest is lost in error messages! You should now be gazing at a set of dominoes (with the usual spots replaced by numbers to avoid thememory of school sago pudding) but the lines separating the dominoes have failed to appear.

Knowing, as you do, that a set contains all the pairs of numbers from 0,0 to 6,6, can you put the dividing lines back in?

6	4	3	0	0	1	1	2
0	3	2	2	2	2	4	5
6	5	4	1	5	1	6	6
2	3	5	5	0	0	5	2
4	4	5	4	3	6	0	6
0	1	3	6	4	6	1	2
5	4	1	3	0	1	3	3

Solution to last week's puzzle

READERS PAGE

See Micronet 800 in action!

AVON

Bath. Boots, 1 Marchants Passage, Southgate. Tel: 0225 64402.
Bristol. Avon Computer Rentals, 16 West Street, Old Market. Tel: 0272 550600.
Bristol. Boots, 59 Broadmead. Tel: 0272 293631.
Bristol. Laskys, 16-20 Penn Street. Tel: 0272 20421.
Clevedon. Computer Centre, 12A Old Street, Clevedon. Tel: 0272 879514.

BEDFORDSHIRE

Bedford. Boots, The Harpur Centre, Harpur Street. Tel: 0234 56231.
Dunstable. Dormans, 7-11 Broad Walk. Tel: 0582 38302.
Leighton Buzzard. Datasine, 59 North Street. Tel: 0525 374200.
Leighton Buzzard. Milton Keynes Music & Computers, 17 Bridge Street. Tel: 0525 382504.
Luton. Hobbyte, Unit 16, The Arndale Centre. Tel: 0582 457195.
Luton. Terry More, 49 George Street. Tel: 0582 23391.

BERKSHIRE

Slough. MV Games, 245 High Street. Tel: 75 21594.

BUCKINGHAMSHIRE

Bletchley. RAMS Computer Centre, 117 Queensway. Tel: 0908 647744.
Chesham. Reed Photo & Computers, 113 High Street. Tel: 0494 783373.

CAMBRIDGESHIRE

Cambridge. Boots, 65-67 Sidney Street and 28 Petty Curry Street. Tel: 0223 350213
Cambridge. Cambridge Computer Store, 4 Emmanuel Street. Tel: 0223 358264
Cambridge. Logic Sales, Unit 6, Midgate Parade, Peterborough. Tel: 0733 49696.
Peterborough. Boots, 40-42 Bridge Street, Queensgate. Tel: 0733 65352.

CHESHIRE

Chester. Boots, 47-55 Foregate Street. Tel: 0244 28421
Chester. Computer Link, 21 St. Werburgh Street. Tel: 0244 316516.
Chester. Laskys, 7 The Forum, Northgate Street. Tel: 0244 317667.
Crewe. Midshires Computer Centre, 68-78 Nantwich Road. Tel: 0270 211086
Ellesmere Port. RFR TV & Audio, 1 Pooltown Road, Whitby. Tel: 051-356 4150.
Hyde. C Tech Computers, 184 Market Street. Tel: 061-366 8223.
Macclesfield. Camera Computer Centre, 118 Mill Street. Tel: 0625 27468
Macclesfield. Computer Centre, 68 Chestergate. Tel: 0625 618827.
Marple. Marple Computer Centre, 30-32 Market Street. Tel: 061-427 4328
Stockport. National Micro Centres, 36 St Petersgate. Tel: 061-429 8080
Widnes. Computer City, 78 Victoria Road. Tel: 051-420 3333.
Wilmslow. Wilmslow Micro Centre, 62 Grove Street. Tel: 0625 530890.

CLEVELAND

Middlesbrough. Boots, 88-90 Linthorpe Road, The Cleveland Centre. Tel: 0642 249616.

CUMBRIA

Kendal. The Kendal Computer Centre, Stramongate. Tel: 0539 22559.
Penrith. Penrith Communications, 14 Castlegate. Tel: 0768 67146.
Whitehaven. P D Hendren, 15 King Street. Tel: 0946 2063.
Workington. Technology Store, 12 Finkle Street. Tel: 0900 66972.

DERBYSHIRE

Alfreton. Gordon Harwood, 67-71 High Street. Tel: 0733 836781.
Chesterfield. Boots, 35-37 Low Pavement, Market Place. Tel: 0246 203591.
Chesterfield. Computer Stores, 14 Stephenson Place. Tel: 0246 208802.
Derby. Boots, 1 Devonshire Walk. Tel: 0322 45886.

DEVON

Exeter. Boots, 251 High Street, Tel: 0392 32244.
Exeter. Open Channel, Central Station, Queen Street. Tel: 0392 218187.
Paignton. Computer Systems Ltd, 35 Hyde Road. Tel: 0803 524284.
Plymouth. Syntax, 76 Cornwall Street. Tel: 0752 28705.
Seaton. Curtis Computer Services, Seaton Computer Shop, 51c Harbour Road. Tel: 0297 22347.
Tiverton. Actron Microcomputers, 37 Bampton Street. Tel: 0884 252854.

DORSET

Bournemouth. Lansdowne Computer Centre, 1 Lansdowne Crescent, Lansdowne. Tel: 0202 20165.
Dorchester. The Paper Shop, Kings Road. Tel: 0305 64564.
Poole. Lansdowne Computer Centre, 14 Arndale Centre. Tel: 0202 670901.

ESSEX

Basildon. Basildon Software Centre, 78-80 Liberty Shopping Hall, East Square. Tel: 0268 27922.
Braintree. Mirage Microcomputers Ltd, 24 Bank Street. Tel: 0376 48321.
Chelmsford. Maxton Hayman, 5 Bromfield Road. Tel: 0245 354595.
Chelmsford. Way In Computers, 7 Village Square, Chelmer Village. Tel: 0245 467858.
Colchester. Boots, 5-6 Lion Walk. Tel: 0206 577303.
Colchester. Colchester Computer Centre, 3a Short Wyre Street. Tel: 0206 47242.
Grays. H. Reynolds, 28a Southend Road. Tel: 0375 31641.
Harlow. Harlow Computer Centre, 17 Staple Tye. Tel: 0279 22846.
Hornchurch. Comptel Computer Systems, 112a North Street. Tel: 0402 446741.
Ilford. Boots, 177-185 High Road. Tel: 01-553 2116.
Romford. Software Plus, 72 North Street. Tel: 70 65271.
Southend-on-Sea. Computerama, 88 London Road. Tel: 0702 335443.
Southend-on-Sea. Computer Centre, 336 London Road. Tel: 0702 337161.
Southend-on-Sea. Estuary Personal Computers, 318 Chartwell North, Victoria Circus Shopping Centre. Tel: 0702 614131.

GLOUCESTER

Cheltenham. Laskys, 206 High Street. Tel: 0242 570282.
Cheltenham. Screen Scene, 144 St. Georges Road. Tel: 0242 528979.
Gloucester. Boots, 38-46 Eastgate Street. Tel: 0452 423501.

HAMPSHIRE

Basingstoke. Fishers, 2-3 Market Place. Tel: 0256 22079.
Southampton. Business Electronics, Micromagic At Atkins, 7 Civic Centre Road. Tel: 0703 25903.
Waterlooville. GB Microland, 7 Queens Parade, London Road. Tel: 0705 259911.

HERTFORD

Hitchin. County Computers, 13 Bucklesbury. Tel: 0462 36757.
Potters Bar. the Computer Shop, 107 High Street. Tel: 0707 44417.
Stevenage. DJ Computers, 11 Town Square. Tel: 0438 65501.
Watford. SRS Microsystems, 94 The Parade, High Street. Tel: 0923 26602.
Watford. Watford Electronics, Cardiff Road. Tel: 0923 405588.
Welwyn Garden City. DJ Computers, 40 Fretherne Road. Tel: 96 28444.

HUMBERSIDE

Beverley. Computing World, 10 Swabys Yard, Dyer Lane. Tel: 0482 881831.

KENT

Ashford. DGH, 10 North Street. Tel: 0233 32597.
Ashford. Geerings of Ashford, 80 High Street. Tel: 0233 33366.
Bromley. Boots, 148-154 High Street. Tel: 01-460 6688.
Bromley. Computers Today, 31 Market Square. Tel: 01-290 5652.
Bromley. Walters Computers, Army & Navy, 64 High Street. Tel: 01-460 9991.
Chatham. Boots, 30-34 Wilmott Square, Pentagon Centre. Tel: 0634 405471.
Gravesend. Gravesend Home Computers, 39 The Terrace. Tel: 0474 23871.
Gillingham. Regal Software Supplies, 49 High Street. Tel: 0634 579634.
Maidstone. Kent Micros, 51 Union Street. Tel: 0622 52784.
Rainham. Microway Computers, 39 High Street. Tel: 0634 376702.
Sevenoaks. Ernest Fielder Computers, Dorset Street. Tel: 0732 456800.
Shortlands. The Village House of Computers, 87 Beckenham Lane. Tel: 01-460 7122.
Sittingbourne. Computer Plus, 65 High Street. Tel: 0795 25677.
Tunbridge Wells. Modata Computer Centre, 28-30 St. Johns Road. Tel: 0892 41555.

LANCASHIRE

Blackburn. Tempo Computers, 9 Railway Road. Tel: 0254 691333.
Blackpool. Blackpool Computers Store, 179 Church Street. Tel: 0253 20239.
Burnley. IMO Business Systems, 39-43 Standish Street. Tel: 0282 54299.
Preston. 4Mat Computing, 67 Friargate. tel: 0772 561952.
Preston. Laskys, 1-4 Guildhall Arcade. Tel: 0772 59264.
Wigan. Wildings Computer Centre, 11 Mesnes Street. Tel: 0942 22382.

LEICESTERSHIRE

Leicester. Boots, 30-36 Gallowtree Gate. Tel: 0533 21641.
Market Harborough. Harborough Home Computers, 7 Church Street. Tel: 0858 63056.

LONDON

W1. Computers of Wigmore Street, 104 Wigmore Street. Tel: 01 486 0373.
W1. Laskys, 42 Tottenham Court Road. Tel: 01-636 0845.
W1. Lion House, 227 Tottenham Court Road. Tel: 01-637 1601.
W1. Sonic Foto Micro Center, 256 Tottenham Court Road. Tel: 01-580 5826.
W1. Tomorrows World Today, 27 Oxford Street. Tel: 01-439 7799.
W1. Walters Computers, DH Evans, Oxford Street. Tel: 01-629 8800.
WC1. Transam Micro Systems, 59-61 Theobalds Road. Tel: 01-405 5240.
W5. Laskys, 18-19 Ealing Broadway Shopping Centre. Tel: 01-567 4717.
W8. Walters Computers, Barkers, Kensington High Street. Tel: 01-937 5432.
SE7. Vic Oddens Micros, 5 London Bridge Walk. Tel: 01-403 1988.
SE9. Square Deal, 373-375 Footscray Road, New Eltham. Tel: 01-859 1516.
SE15. Castlehurst Ltd, 152 Rye Lane, Peckham. Tel: 01-639 2205.
EC2. Devron Computer Centre, 155 Moorgate. tel: 01-638 3339.
N14. Logic Sales, 19 The Bourne, The Broadway, Southgate. Tel: 01-882 4942.
N22. Boots, 38-40 High Road, Wood Green. Tel: 01-881 0101.
NW3. Maycraft Micros, 58 Rosslyn Hill, Hampstead. Tel: 01-431 1300.
NW4. Davinci Computer Store, 112 Brent Street, Hendon. Tel: 01-202 2272.
NW7. Computers Inc, 86 Golders Green. Tel: 01- 209 0401.
NW10. Technomatic, 17 Burnley Road, Wembley. Tel: 01-208 1177.

MANCHESTER

Bolton. Computer World UK Ltd, 208 Chorley Old Road. Tel: 0204 494304.
Manchester. Boots, 32 Market Street. Tel: 061-832 6533.
Manchester. Laskys, 12-14 St. Marys Gate. Tel: 061-833 0268.
Manchester. Mighty Micro, Sherwood Centre, 268 Wilmslow Road, Fallowfield. Tel: 061-224 8117.
Manchester. NSC Computer Shops, 29 Hanging Ditch. Tel: 061-832 2269.
Manchester. Walters Computers, Kendal Milne, Deansgate. Tel: 061-832 3414.
Oldham. Home & Business Computers, 54 Yorkshire Street. Tel: 061-633 1608.
Swinton. Mr Micro, 69 Partington Lane. Tel: 061-728 2282.

MERSEYSIDE

Heswall. Thornguard Computer Systems, 46 Pensby Road. Tel: 051-342 7516.
Liverpool. Hargreaves, 31-37 Warbreck Moor, Walton. Tel: 051-525 1782.
Liverpool. Laskys, Dale Street. Tel: 051-236 3298.
St. Helens. Microman Computers, Rainford Industrial Estate, Mill Lane Rainford. Tel: 0744 885242.
Southport. Central Studios, 38 Eastbank Street. Tel: 0704 31881.

MIDDLESEX

Enfield. Laskys, 44-48 Palace Garden Shopping Centre. Tel: 01-363 6627.
Harrow. Camera Arts, 42 St. Anns Road. Tel: 01-427 5469.
Harrow. Harrow Micro, 24 Springfield Road. Tel: 01-427 0098.
Hounslow. Boots, 193-199 High Street. Tel: 01-570 0156.
Southall. Twillstar Computers Ltd, 7 Regina Road. Tel: 01-574 5271.
Teddington. Andrews, Broad Street. Tel: 01-997 4716.
Twickenham. Twickenham Computer Centre, 72 Heath Road. Tel: 01-892 7896.
Uxbridge. JKL Computers, 7 Windsor Street. Tel: 0895 51815.

NORFOLK

Norwich. Adams, 125-129 King Street. Tel: 0603 22129.

NOTTINGHAMSHIRE

Sutton in Ashfield. HN & L Fisher, 87 Outram Street. Tel: 0623 54734.

OXFORDSHIRE

Abingdon. Ivor Fields Computers, 21 Stern Street. tel: 0235 21207.
Banbury. Computer Plus, 2 Church lane. Tel: 0295 55890.
Oxford. Absolute Sound & Video, 19 Old High Street, Headington. Tel: 0865 65661.
Oxford. Science Studio, 7 Little Clarendon Street. Tel: 0865 54022.

SCOTLAND

Aberdeen. Boots, 133-141 Union Street. Tel: 0224 585349.
Edinburgh. Boots, 101-103 Princes Street. Tel: 031-225 8331.
Glasgow. Boots, 200 Sauchiehall Street. Tel: 041-332 1925.
Glasgow. Boots, Union Street and Argyle Street. Tel: 041-248 7387.
Glasgow. Tom Dixon Cameras, 15-17 Queen Street. Tel: 041-204 0826.

SHROPSHIRE

Shrewsbury. Clairmont Enterprises, Hills Lane. Tel: 3647 52949.
Shrewsbury. Computerama, 13 Castlegate. Tel: 0743 60528.
Telford. Computer Village Ltd, 2-3 Hazeldine House, Central Square. Tel: 0952 506771.
Telford. Telford Electronics, 38 Mall 4. Tel: 0952 504911.

STAFFORDSHIRE

Newcastle-under-Lyme. Computer Cabin, 24 The Parade, Silverdale. Tel: 0782 636911.
Stafford. Computerama, 59 Foregate Street. Tel: 0785 41899.
Stoke-on-Trent. Computerama, 11 Market Square Arcade, Hanley. Tel: 0782 268524.

SUFFOLK

Bury St. Edmunds. Boots, 11-13 Cornhill. Tel: 0284 701516.
Bury St. Edmunds. Suffolk Computer Centre, 1-3 Garland Street. Tel: 0284 705503.

SURREY

Bagshot. P & H Electronics, 22-24 Guildford Road. Tel: 0276 73078.
Croydon. Laskys, 77-81 North End. Tel: 01-681 8443.
Croydon. The Vision Store, 53-59 High Street. Tel: 01-686 6362.
Croydon. The Vision Store, 96-98 North End. Tel: 01-681 7539.
South Croydon. Concise Computer Consultants, 1 Carlton Road. Tel: 01-681 6842.
Epsom. The Micro Workshop, 12 Station Approach. Tel: 0372 721533.
Guildford. Walters Computers, Army & Navy, 105-111 High Street. Tel: 0483 68171.
Wallington. Surrey Micro Systems, 53 Woodcote Road. Tel: 01-647 5636.
Woking. Harpers, 71-73 Commercial Way. Tel: 0486 225657.

SUSSEX

Bexhill-on-Sea. Computerware, 22 St. Leonards Road. Tel: 0424 223340.
Brighton. Boots, 129 North Street. Tel: 0273 27088.
Brighton. Gamer, 71 East Street. Tel: 0273 728681.
Brighton. Laskys, 151-152 Western Road. Tel: 0273 725625.
Crawley. Gatwick Computers, 62 The Boulevard. Tel: 0293 37842.
Crawley. Laskys, 6-8 Queensway. Tel: 0293 544622.
Eastbourne. Boots, 15 Eastbourne Arndale Centre. Tel: 03232 7742.

TYNE & WEAR

Newcastle-upon-Tyne. Boots, Eldon Square. Tel: 0632 329844.
Newcastle-upon-Tyne. Laskys, 6 Northumberland Street. Tel: 0632 617224.
Newcastle-upon-Tyne. RE Computing, 12 Jesmond Road. Tel: 0632 815580.

WALES

Aberdare. Inkey Computer Services, 70 Mill Street, The Square, Trecynon. Tel: 0685 881828.
Aberystwyth. Aberdata at Galloways, 23 Pier Street. Tel: 0970 615522.
Cardiff. Boots, 26 Queens Street & 105 Frederick Street. Tel: 0222 31291.
Cardiff. Cardiff Microcomputers, 46 Charles Street. Tel: 0222 373072.
Cardiff. The Computer Shop, 41 The Hayes. Tel: 0222 26666.
Cardiff. Laskys, 32-36 Town Wall, St. Davids Centre. Tel: 0222 41619.
Cardiff. P & P Computers, 41 The Hayes. Tel: 0222 26666.
Cardiff. Randall Cox, 18-22 High Street Arcade. Tel: 0222 397162.
Mold. Clwyd Personal Computers, Unit 19, Daniel Owen Precinct. Tel: 0352 56842.
Newport. Gwent Computers, 92 Chepstow Road. Tel: 0633 841760.
Swansea. Boots, 17 St. Marys Arcade, The Quadrant Shopping Centre. Tel: 0792 43461.
Swansea. The Microstore, 35-36 Singleton Street. Tel: 0792 467980.

WARWICKSHIRE

Coventry. Coventry Micro Centre, 33 Far Gosford Street. Tel: 0203 58942.
Coventry. Impulse Computer World, 60 Hertford Street Precinct. Tel: 0203 553701.
Coventry. JBC Micro Services, 200 Earlsdon Avenue, North Earlsdon. Tel: 0203 73813.
Coventry. Laskys, Lower Precinct. Tel: 0203 27712.
Leamington Spa. IC Computers, 43 Russell Street. Tel: 0926 36244.
Leamington Spa. Leamington Hobby Centre, 121 Regent Street. Tel: 0926 29211.
Nuneaton. Micro City, 1a Queens Road. Tel: 0203 382049.
Rugby. O.E.M., 9-11 Regent Street. Tel: 0788 70522.

WEST MIDLANDS

Birmingham. Boots, City Centre House, 16-17 New Street. Tel: 021-643 7582.
Birmingham. Laskys, 19-21 Corporation Street. Tel: 021-632 6303.
Dudley. Central Computers, 35 Churchill Precinct. Tel: 0384 238169.
Stourbridge. Walters Computer Systems, 12 Hagley Road. Tel: 0384 370811.
Walsall. New Horizon, 1 Goodall Street. Tel: 0922 24821.
West Bromwich. DS Peakman, 7 Queens Square. Tel: 021-525 7910.

YORKSHIRE

Bradford. Boots, 11 Darley Street. Tel: 0274 390891.
Leeds. Boots, 19 Albion Arcade, Bond Street Centre. Tel: 0532 33551.
Sheffield. Laskys, 58 Leopold Street. Tel: 0742 750971.
York. York Computer Centre, 7 Stonegate Arcade. Tel: 0904 641862.

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