AN ARGUS SPECIALIST PUBLICATION

No. 91
Dec 4-10, 1984
45p

HOME Computing WEEKLY

Bonus

Buyers' guide
What's what in the world of micros
Read our analysis before you buy

Quicksilva
Quartets of quality games – yours for the winning!

BBC/Electron graphics feature
Make the most of your micro

Stacks of reviews for: Spectrum, Commodore 64, Electron, Amstrad CPC464, TI-99/4A, BBC

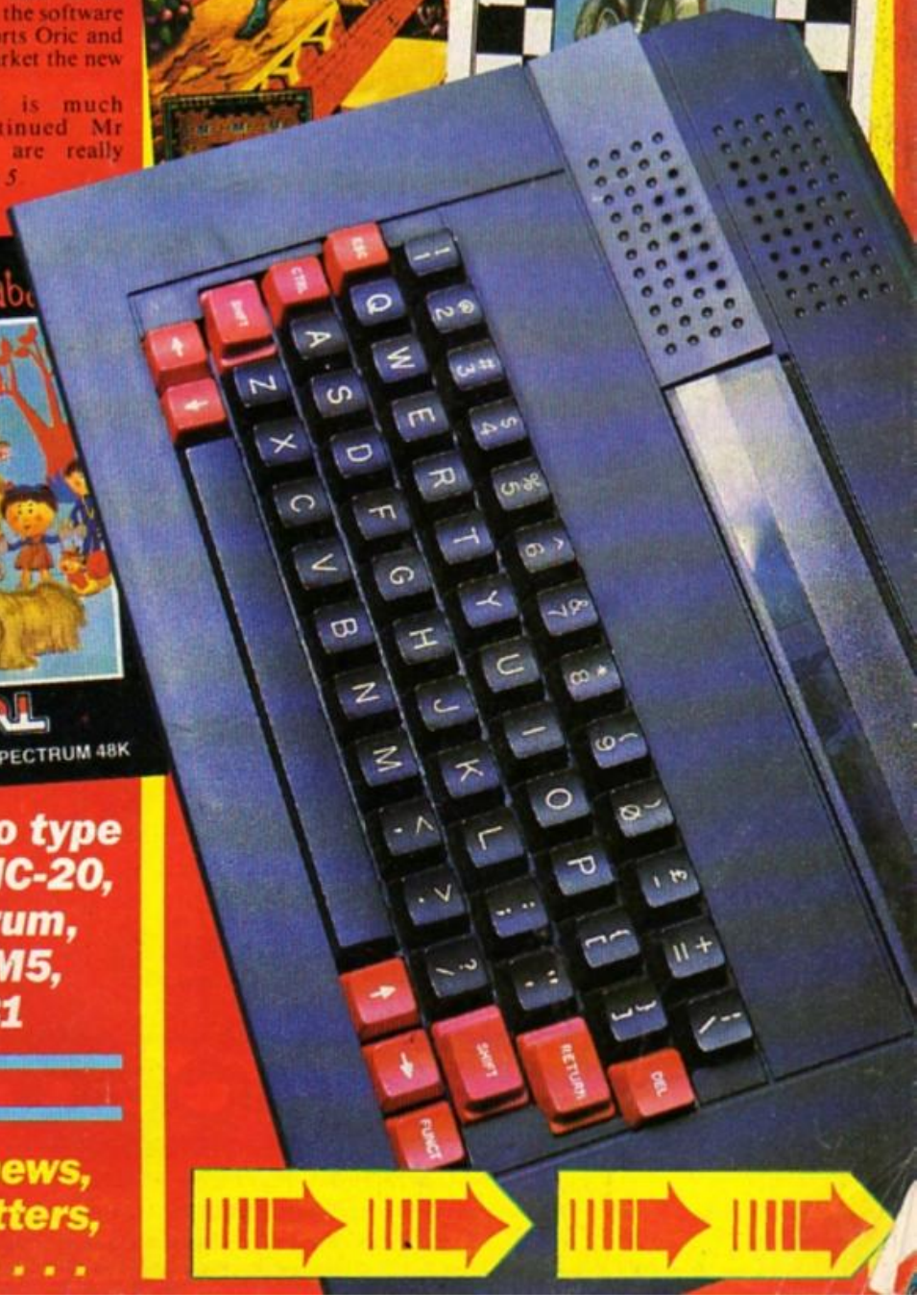
First new Oric pics

This is Oric's new computer, scheduled for launch in the UK in the first half of 1985. You read about it last week in Home Computing Weekly — now here it is.

"It outspecifies both the Commodore 64 and the BBC by a large margin," said Bruce Everiss of Tansoft, the software house which supports Oric and is contracted to market the new computer.

"The BASIC is much enhanced," continued Mr Everiss, "There are really

Continued on page 5



Games to type in for: VIC-20, Spectrum, Sord M5, ZX81

Plus: news, your letters, charts . . .

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his powerful half-volley rattles the cross-bar, the ball returns, floating menacingly above the penalty

area and your star striker seizes this half-chance

to head the ball decisively into the back of the net...

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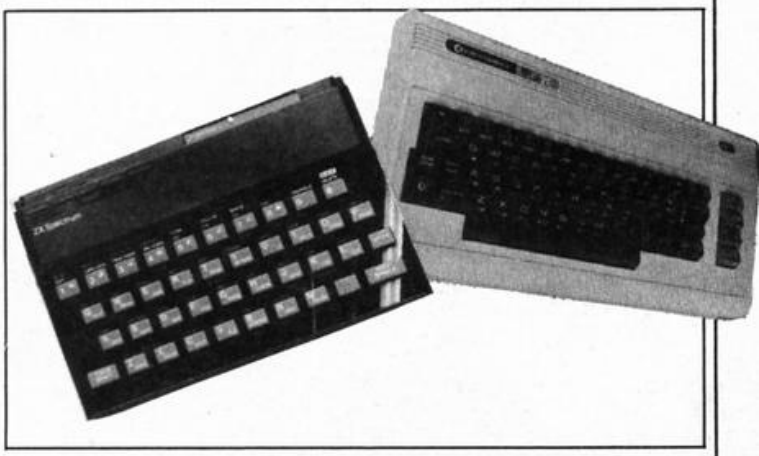
Take your pick — all have been assessed by our panel

Software houses: send your software for review to the editorial office at the address below. Contact us for competitions and other promotions, too.

HOME COMPUTING WEEKLY BRITAIN'S BRIGHTEST



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Hill MacGibbon

Games with a little bit more

King Arthur's Quest

Games with a little bit more

Aztec

Hunt for the sun god

48k SPECTRUM £7.95
COMMODORE 64 £9.95

After Midnight – two adventure games that herald a new dawn

A new concept – all graphics, 3D, and 360° scrolling

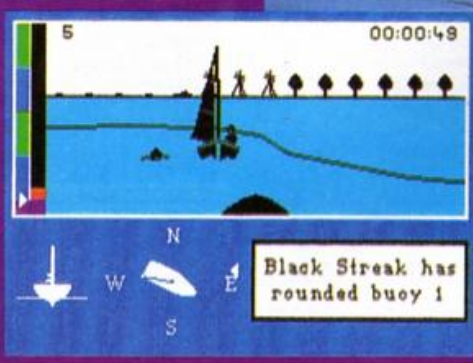
Sports simulations that leave the rest standing

Games to stretch the mind

Rally Driver

Games to stretch the mind

Yacht Race



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New Oric

From front page

excellent graphic commands which can give 3D effects. Oric has really gone to town on the graphics!"

Mr Everiss, formerly operations director at Imagine, explained how sound is also enhanced: "The Oric contains a GI sound chip, which was never used to the full. The new machine really uses the chip to its limit!"

The IQ 164, as the machine is currently known, has black and red plastic casing. "It's a 6502 machine uprated from the Atmos," said Mr Everiss. "There's room for two ROM cartridges, one of which will be the language, and one the application.

"One of these cartridges will hold 64K and the other 48K of ROM, and there'll be 64K RAM on board. We're really giving the user quite a lot of memory.

"It has an RS232 built-in, a disc controller and a built-in modem driver," he went on. "There's also two joystick ports.

The machine will be supplied with SuperBASIC and one ROM cartridge. As for software, here at Tansoft we have something very innovative and interesting up our sleeve, but I'm not prepared to divulge any details since I don't want our competitors to get in on the act!"

Mr Everiss explained why Oric hasn't fixed the price for the IQ 164 yet. "It all depends on what happens with the dollar, and what happens to chip prices. If the pound strengthens against the dollar and chip prices fall we will be able to bring the new computer out at the price we want!"

The IQ 164 will be launched first in France, where Oric holds over 50 per cent of the market. It will be marketed there as the Stratos — a name already registered by another company in the UK.

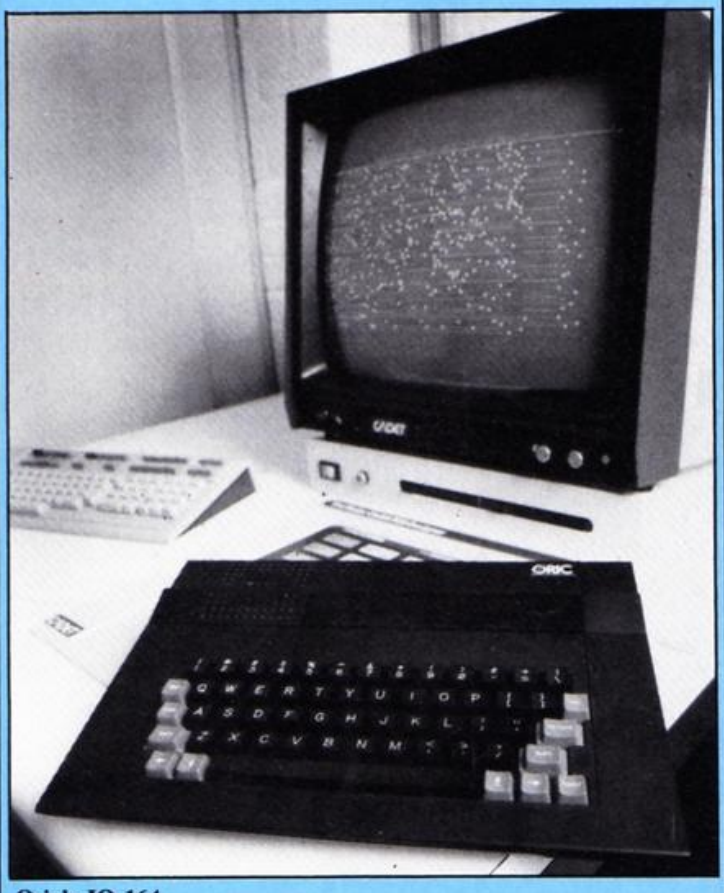
"Our advertising agency screwed up on the name," said Mr Everiss. "The Atmos was released as the first in a family of names, but what the advertising agency forgot to check was whether the other names were registered here!"

The words come from the Greek — atmosphere and stratosphere, etc. And Oric is now rather stuck for a new name.

"If any of your readers have any suggestions, I'd be pleased to hear," he joked.

Oric, Coworth Park, London Rd, Ascot, Berks SL5 7SE

Tansoft, Units 1 and 2, Techno Park, Newmarket Rd, Cambridge



Oric's IQ 164

Popeye, the sailor man

Popeye, dk'tronics' first licensed game, is now available, after 10 weeks of programming by a team of five.

The aim of the game is to build your "home sweet home", and you are cast in the role of Popeye — who else? Bluto is your arch enemy, and you must evade him while you gather up all your building materials from the building site.

Wimpy helps you by taking your items back to the start. However, you have to pay the price of his services by keeping him supplied with hamburgers.

Bluto is after you, and he wants to throw you off the scaffolding into the sea. Olive Oyl comes to the rescue by suppling you with the vital spinach which makes a man out of a mouse.

Cost of the game: £5.95.

dk'tronics, Unit 6, Shire Hill Ind Est, Saffron Walden, Essex CB11 3AQ

Prices slashed

Mastertronic, who brought you cut-price arcade games, is now launching budget-price adventures.

Master Adventurer is the label on which the low-cost adventure games will be released, and the games will cost £2.99 and £3.99.

Se-Kaa of Assiah is the first release on this label. Mastertronic had intended to release this adventure in September on the Mastervision label — formerly Carnell Software. However, the company decided to delay the launch of Se-Kaa until now, and cut the price from £7.50 to £2.99.

Se-Kaa is available for both Commodore and Spectrum, and contains 96K of graphics adventure, with more than 170 illustrated locations and full sentence analysis.

Pre-Christmas releases on the Master Adventurer label include Volcanic Dungeon and Black Crystal for the Spectrum, at £2.99 and £3.99 respectively. Black Crystal will be available for the Commodore in the New Year.

Mastervision will remain a separate label, at full-price. Large format packaging and extensive accompanying literature will continue to be the company's hallmark, according to Mastervision.

Martin Alper, Mastertronic managing director, said: "We intend to do the same with Master Adventurer in the field of adventure games as we have with Mastertronic in the field of arcade games — in other words, produce a series of good quality programs at a very realistic price.

"Master Adventurer games will combine text with full scrolling graphics. For £2.99 you can expect programs of a quality which would normally cost £8 at the very least!"

Mastertronic, Park Lorne, 111 Park Rd, London NW8 7JL

Venture on

Audiogenic has announced two new graphic adventures for the Commodore 64: Magic Stone and Time Traveller.

Here's the plot of Magic Stone in a nutshell: the stone in question is reported to turn lead into gold. You must find the stone and the experimental notes, as well as the magic word. The setting is a Transylvanian mansion.

In Time Traveller you must restore the balance of time, which has been disturbed by the evil Graf von Schwarzherzen. You have a few problems though — you don't know your identity or your destiny, and you must find that out first.

Easy English language commands, sound music, and a good plot are all claimed to be star features. And a Koala Pad will be awarded to each of three winners, who manage to solve each adventure in the shortest possible way.

Price: £5.95.

Audiogenic, 39 Suttons Ind Park, London Rd, Reading, Berks RG6 1AZ

QL monitor

Prism has announced the launch of a new 14-inch monitor for the QL. The QL14 costs £199.99 and comes with connecting cable, which plugs into the RGB port.

It is light-weight, and has a retractable handle, which means that it's very portable. The unit is all-black and has a detachable anti-glare tinted glass front.

Prism's monitor provides full A4-width on Quill, greater resolution for business graphics with Easel, larger record layouts with Archive and a greater number of columns visible on Abacus, according to Prism.

Prism, Prism Hse, 18/29 Mora St, City Rd, London EC1V 8BT

Quicksilva bonanza

32 packs of games to be won — worth over £25 each!

THIS WEEK we're giving away some great packs of Quicksilva games which will really enhance your collection.

The competition is open to both Commodore 64 and 48K Spectrum owners and each pack is worth over £25.

There will be 32 winners: 16 48K Spectrum owners and 16 Commodore 64 owners. The Commodore 64 prize pack will consist of Summer Games (a two-cassette pack worth £14.95), Strontium Dog — Death Gauntlet (£7.95), and Ant Attack (£8.95).

Spectrum winners will receive Zombie Zombie, Battlezone, Strontium Dog — The Killing and Snowman, all worth £6.95.

There's a real variety here. These are some of Quicksilva's best selling titles. You could find yourself playing the role of an Olympic athlete or fighting for your life in the ancient city of Antescher. You could experience the suspense of Zombie Zombie or the fast action of the great arcade game Battlezone.

There are weeks of fun for every winner. In fact these packs will probably keep you going for most of 1985!

So get started and search out the Quicksilva game titles in the word square. There are only 32 winners so make sure you're one of them.

Quicksilva titles

The Generators
Mined-Out
Strontium Dog
Battlezone
Fred
Doodle
Summer Games
Ant Attack
Purple Turtles
Snowman
Zombie Zombie

How to enter

Study the wordsquare and mark all the Quicksilva titles you find with a ball-point or semi-opaque felt tip pen. Complete the coupon clearly and fully — if you are a winner it will be used as a label. Send the wordsquare and coupon to us.

Important: write the number of titles you found on the back of the envelope.

Send your entry to: Quicksilva Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date is at first post on Friday December 14, 1984.

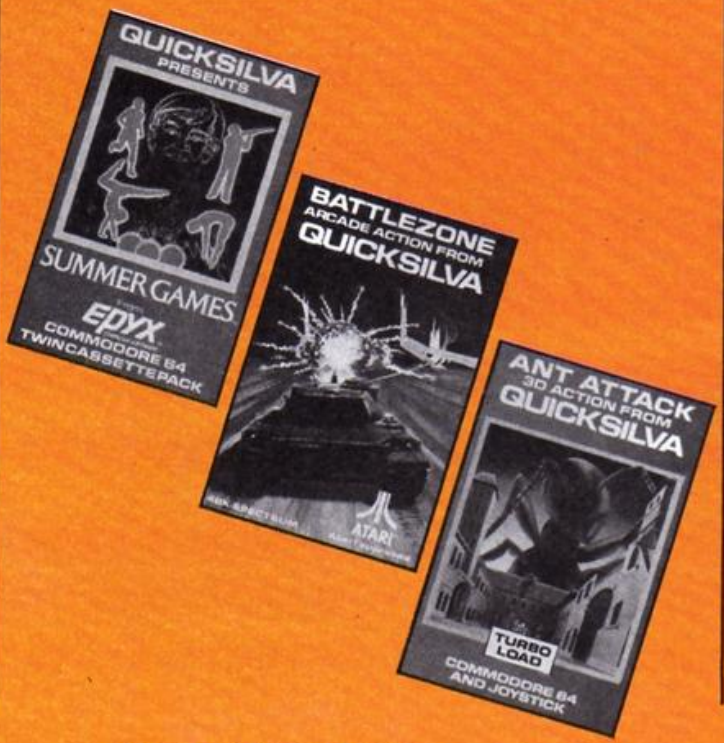
You may enter as many times as you wish but each entry must be on an official coupon — not a copy — and sealed in a separate envelope.

Prizes will arrive from Quicksilva within 28 days of the publication of the issue containing the results of the competition.

The rules

Entries will not be accepted from employees of Argus Specialist Publications, Quicksilva Ltd 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.



Quicksilva Competition

Entry Coupon

Name _____

Address _____

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_____ **post code** _____

Number of titles found _____

Type of computer _____

Complete clearly and fully — if you are a prizewinner this will act as a label. Post to Quicksilva Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date: first post, Friday December 14, 1984. Don't forget to follow closely the advice in the How to Enter section, including writing the number of titles found on the back of your envelope.

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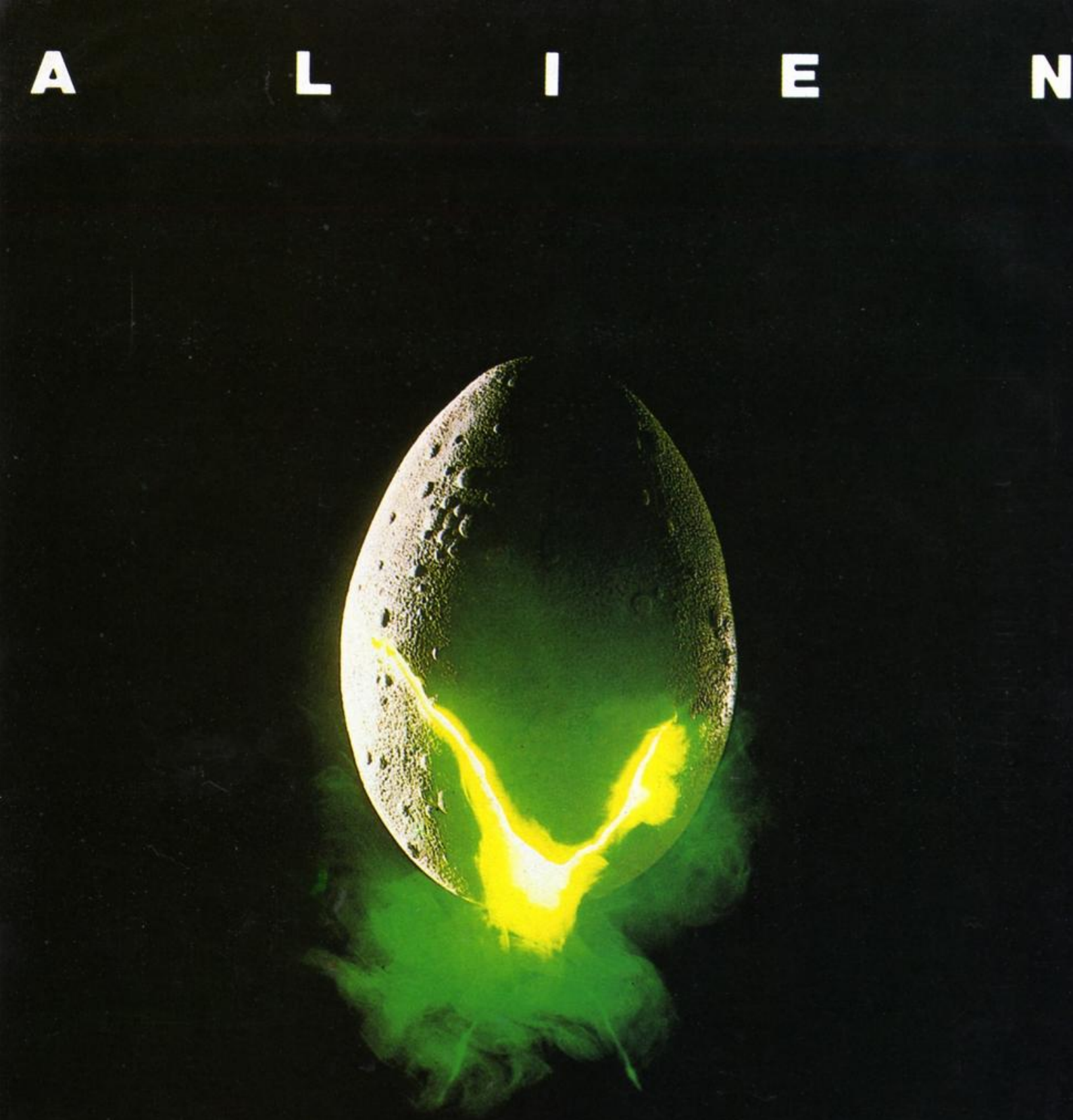

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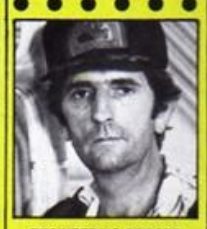

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C16 first

Tynesoft claims to be the first company to have Commodore C16 and Plus/4 software available.

The company is releasing a starter pack for the C16, which will cost £14.95 and contains four games.

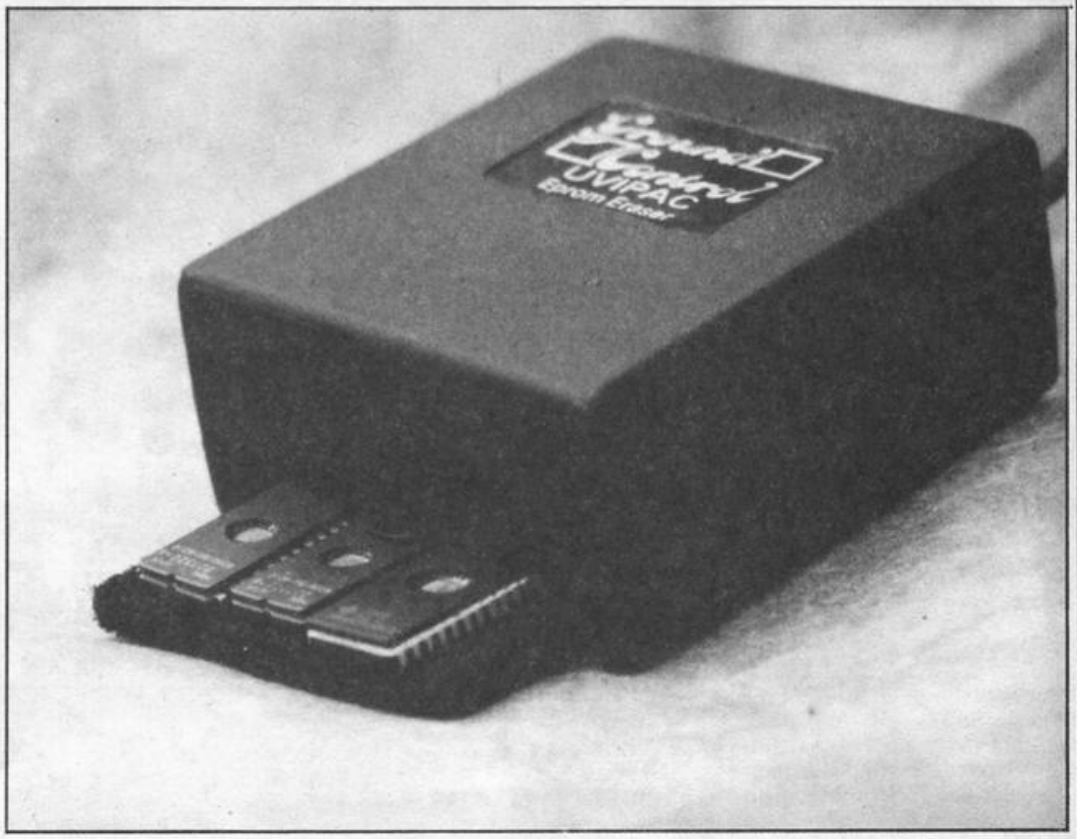
Tynesoft, Addiston Ind Est, Blaydon upon Tyne, Tyne and Wear NE21 42E

EPROM eraser

Ground Control has now announced the Uvipac EPROM eraser.

The Uvipac is housed in a 90 x 80 x 40 mm plastic case, and a special type of discharge tube is used to achieve such compact dimensions. According to Ground Controls, the 230 or 110 volt mains powered unit enables up to three EPROMs of any size, or 1 cpu with on-board EPROM to be erased in 15 minutes, usually.

Ground Control, Alfreda Ave, Hullbridge, Essex SS5 6LT



Ground Control's Uvipac

Late starter

Although announced months ago, it is only now that PSS has managed to release Hyper Biker.

According to PSS, the delays were due to the amount of data needed to ensure that the program was as complete as possible, yet with high quality graphics, therefore causing a shortage of memory.

PSS claims that the game was well worth the wait, and four players can act out the more sophisticated manoeuvres of BMX racing. Hyper Biker is available on cassette at £7.95.

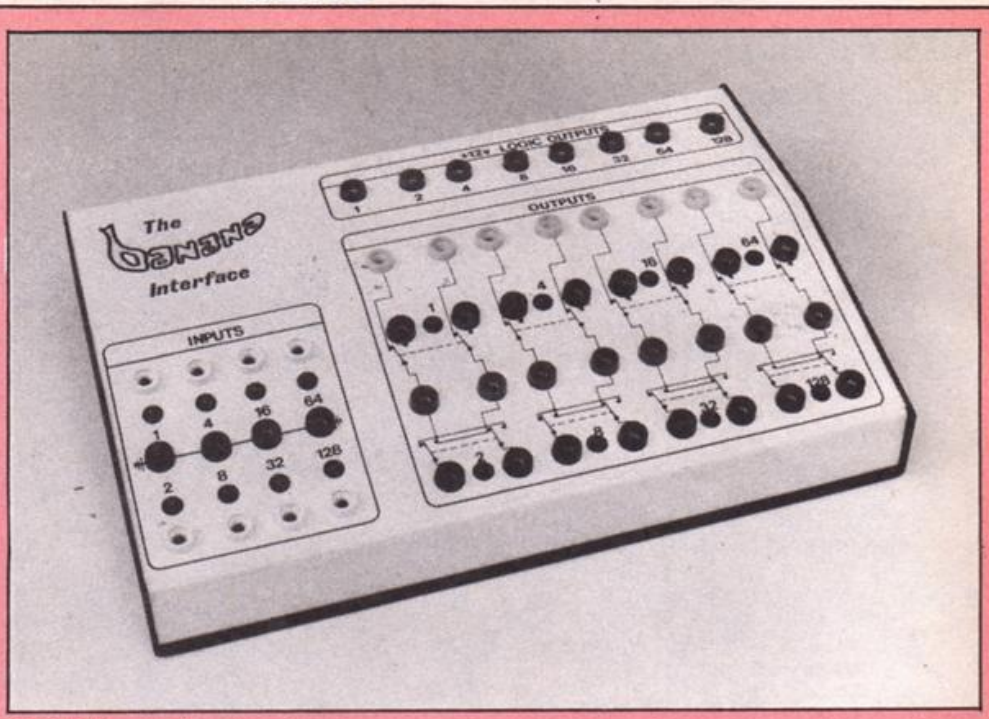
PSS, 452 Stoney Stanton Rd, Coventry CV6 5DG

Royal romp

Henry's House is the title of English Software's new game for the Commodore. As you may have guessed, the star character is a little prince, who takes you on a right royal romp through his new home. You go from the clothes cupboard to the dungeon, in "an entertaining extravaganza of domestic distractions", according to English Software.

The game is claimed to feature the highest standard of detailed hi-resolution animated graphics seen on any game on the Commodore 64. The game features Pavloda fast-load and costs £8.95. Pre-release publicity for the game states that Henry's house is "a saturatingly satisfying game for even the most insatiable of players! Tantalising and tormenting, but at the same time rivettingly rewarding!" No, it's not the Gold Old Days, either.

English Software, Box 43, Manchester M60 3AD



Castle's Banana interface

Yes we have no bananas

The Banana is the name of a new micro interface, from Castle Associates of Scarborough. The company claims it's so simple to use, even a monkey could operate it.

It is housed in a heavy duty metal case, to render it virtually unbreakable in the hands of students, and comes together with a comprehensive instruction book, which contains introductory programs and experiments. Also included in the purchase price — £175 — are interface cables for connecting the Banana to the BBC.

Features include eight independent outputs driving relays, and 8, +12 volt logic signals for controlling DC motors, Stepper motors and other devices.

According to Castle, "the Banana interface allows interactive control, adding a whole new dimension to computing."

Castle Associates, Salter Rd, Cayton Lower Rd Ind Est, Scarborouth, N Yorks YO11 3UZ

Best selling book

Frederick Forsyth's book The Fourth Protocol was a best-seller — and now the book has been adapted into a software game.

The company behind the project is Hutchinson Computer Publishing and the company claims that the game "will set new standards for electronic adventures. It brings to the world of computer games all the excitement of Forsyth's famous suspense, his mastery of chilling detail and a very clear insight into the workings of international espionage agencies."

You are in control of M15 operations and you must track down a deadly enemy at large in England. Available late spring, the game will run on the Spectrum and Commodore.

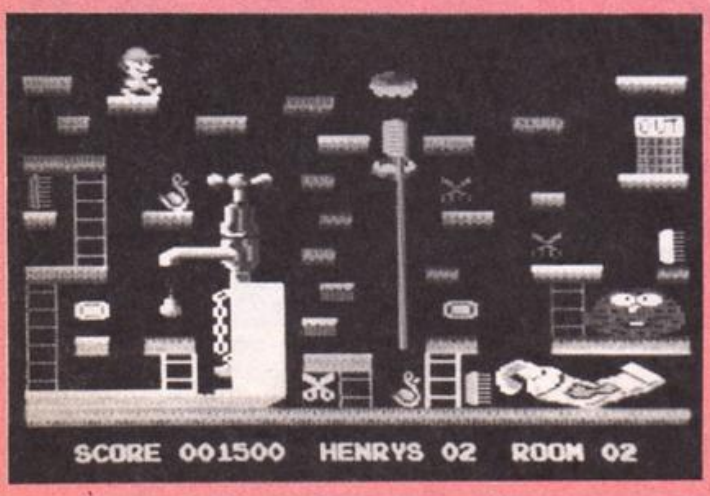
Hutchinson Computer Publishing, Hutchinson Hse, 17-21 Conway St, London W1P 6JD

Amstrad adventures

Interceptor Micros has announced its second adventure game for the Amstrad CPC464. Forest at World's End is a graphical adventure which costs £6.

Future titles from interceptor for the CPC464 are Jewels of Babylon and Heroes of Karn.

Interceptor Micros, Lindon Hse, The Green, Tadley, Hants



Arcade Hardware, 211 Horton Rd. Fallowfield, Manchester M14 7QE.
061-225 2248

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Catch 'em while you can

You must be deft and accurate in this game with excellent graphics by Paul Cockerton. You have to catch the pennies and stop them falling in the water

In this game you must catch the coins which are raining down on to the bridge. Every time you catch a coin you score 10 points.

When you see "score bonus" flash over the bridge, you must grab the chance of gaining an extra 100 points, by dropping a coin into the boat, which is moving backwards and forwards with the tide, under the bridge.

If you fail to catch a coin or drop a coin into the boat you lose one of your five lives.

Use the left arrow to move left, F1 to move right and F7 to drop your coin for the score bonus.

This program is in two parts. Part one contains the data for the bridge and your man, and automatically loads part two, which is the main game.

Use abbreviations for BASIC keywords and save and verify each part before attempting to run.

Variables

CO difference between colour and screen memory
G boat movement
G1 coins
P man
SC score
L lives

How it works

20-110 set up screen display
112 scroll screen
120 sets variables
145 score display
200 gets keyboard instruction
650-660 flash score bonus
750-770 add 100 to score
800 sound effect (echo)
1100-1130 end of game routine

Part 1

```
0 print"■":poke36869,240
1 data3,7,3,1,1,1,1,1
2 data0,0,0,1,1,3,3,2
3 data65,161,161,17,17,25,249,9
4 data1,2,2,4,4,24,31,16
5 data0,128,128,64,64,96,224,32
6 data15,8,8,11,10,10,10,10
7 data253,5,7,240,31,95,85,85
8 data223,80,112,7,252,253,165,165
9 data248,8,8,232,40,40,40,40
10 data10,10,10,10,10,10,10,10
11 data82,82,84,84,84,88,80,80
12 data69,69,37,21,21,13,5,5
13 data40,40,40,40,40,40,40,40
14 data63,32,47,47,40,40,40,40
15 data240,29,213,213,93,85,85,93
16 data7,220,85,85,221,213,213,213
17 data254,2,250,250,10,10,10,10
18 data40,45,42,40,40,40,40,40
19 data93,85,213,93,85,93,85,93
20 data221,85,85,213,213,221,85,213
21 data10,170,90,10,10,10,10,10
22 data40,45,42,40,40,40,47,40
23 data80,95,213,85,85,85,213,85
24 data5,253,85,85,85,85,85,85
25 data10,10,170,90,10,10,250,10
26 data47,40,40,41,46,40,40,40
27 data255,24,96,129,6,8,48,65
28 data255,12,3,128,96,24,6,129
29 data250,10,10,202,58,10,10,10
30 data254,130,186,170,170,170,170,170
31 data72,144,128,72,66,49,12,3
32 data33,8,8,33,1,143,28,112
33 data63,160,174,42,42,42,42,42
34 data128,128,128,128,128,128,128,128
35 data1,2,4,9,18,37,74,146
36 data128,132,160,144,200,164,147,137
37 data170,170,170,170,170,186,130,130
38 data168,168,168,168,168,168,168,168
39 data138,10,10,10,10,10,10,10
40 data170,170,170,170,170,174,160,160
41 data123,130,132,137,146,164,200,240
42 data36,100,168,168,164,164,162,161
43 data36,38,21,21,37,37,69,133
44 data128,64,32,144,72,36,18,15
45 data255,128,152,164,164,255,128,255
46 data255,0,24,36,36,255,0,0
47 data255,0,24,36,36,255,0,255
48 data255,1,25,37,37,255,1,255
49 data123,185,169,169,169,169,185,123
50 data1,2,4,4,12,12,20,20
51 data128,64,32,32,48,48,40,40
52 data128,142,138,138,138,138,142,128
53 data128,252,252,248,240,225,194,132
54 data3,4,24,104,138,168,216,136
55 data192,160,152,138,169,138,141,136
56 data0,31,31,15,135,131,193,160
57 data36,36,60,36,36,60,36,36
58 data132,140,140,148,164,164,167,164
59 data136,136,136,170,221,136,136,136
60 data160,144,144,152,148,148,244,148
61 data164,164,164,164,164,167,164,164
62 data148,148,148,148,148,244,148,148
63 data24,24,82,60,16,56,68,130
80 fori=7168to7439:reada:pokei,a:next
90 fori=7448to7679:readb:pokei,b:next
100 poke36879,93:print"■■■■■scorpio presents■"
105 print"■■■■■■■■■■■■■■■■■■■■■■■■■■■■P"
110 print"■■■ ■ a t c h ' e m ■ !"
115 print"■■■■■■■■■■■■■■■■■■■
```

```
120 print"■■■
```

VIC-20 PROGRAM

```
700 g1=p+22:pokeg1+co,0:pokeg1,47:pokeg1+22,209
703 ifl=0then1100
705 gosub130
710 g1=g1+22:pokeg1,228:pokeg1+22+co,0:pokeg1+22,209
715 gosub130:g1=g1+22:pokeg1,160:pokeg1+22+co,0:pokeg1+22,209
720 gosub130:g1=g1+22:pokeg1,160:pokeg1+22+co,0:pokeg1+22,209
730 ifpeek(g1+44)<>226theng1=g1+22:gosub1000:gosub900:g1=int(rnd(1)*8)+7731:goto
130
740 pokeg1+22+co,3:pokeg1+22,26:g1=int(rnd(1)*8)+7731:y=0
750 sc=sc+10:ifd=3thend=0:gosub800:goto130
760 fori=254to200step-1:pokev1,i:next:pokev1,0:d=d+1
770 print"■r■lives■";l"■■■score■";sc:goto750
800 fort=15to0step-1:pokev,t:forK=254to150step-5:pokev1+1,K:nextK,t:pokev1+1,0:p
okev,15
810 return
900 y=0:pokeg1+co,3:pokeg1,26:pokeg1-22,160:l=l-1:return
1000 g1=g1-22:pokeg1+co,0:pokeg1,221:pokeg1+1+co,0:pokeg1+1,206
1010 pokeg1-1+co,0:pokeg1-1,205:fori=245to200step-1:pokev1+1,i:next:pokev1+1,0
1015 pokeg1-1,160:pokeg1+1,160
1020 g1=g1+22:return
1100 gosub800:print"■■■■■■■■■■■■■ame over■■■■■■■■■■■try again■■■■■■■■■(y or
n)■"
1110 geta$:ifa$="y"thenclr:goto10
1115 y=1:fort=1to70:next:gosub130
1120 ifa$="n"thenprint"■■":poke36879,27:poke36869,240:end
1130 ifa$<>"y"ora$<>"n"then1110
```


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The Pettigrew Chronicles CBM 64 £9.95

Shards, Suite G, Roycraft Hse, Linton Rd, Barking, Essex

This is a four part adventure on two cassettes. There are two games on each cassette. You have to solve the first to obtain a code which allows you to load the second.

These are text adventures with the occasional diagram, such as the London Underground map. The text messages and background information are laid out neatly in coloured boxes on the screen.

I found the messages difficult to remember as they scrolled across rather like a neon sign. On some occasions I had to repeat certain sequences just to get a second glance at them.

Your required response consists of two words in the format of Action — Object. I found the vocabulary somewhat limited and was constantly faced with the messages 'Never heard of that object' and 'You can't do that'.

The adventure was realistic about the place settings, the university at Reading, the red light district of King's Cross etc. However it is advertised as a family game so I won't go into details.

As four games in effect for the price of one, it is good value but the games did not appeal to me. **L.C.**

instructions	70%
playability	60%
graphics	60%
value for money	60%

★★★

Erik The Viking CBM 64 £9.95

John Wiley, Baffins La, Chichester, Sussex PO19 1UD

This fully illustrated adventure is in fact written by Level 9, and is a very impressive text and graphics game based on The Saga Of Erik The Viking by Terry Jones.

The game itself is set in the time of the Vikings, and our hero Erik — played by yourself — is the sole survivor of a raid on his home village in Norway by a tribe of evil creatures. As the story unfolds you may wander round his farm, which is depicted in authentic Norse style, to gather equipment for his search for his missing family.

As usual, any command may be typed in English, and a clever command parser evaluates your instructions, responding with various prompts to aid understanding. Help facilities are available through a postal service by Mosaic Publishing.

This adventure is very enjoyable to play, the illustrations are well done and the range of possible situations makes it absorbing. It is not however easy to play, and I must confess I have still to board the Golden Dragon and begin the quest proper. Thoroughly recommended for all adventure players. **D.A.**

instructions	75%
playability	95%
graphics	90%
value for money	67%

★★★★

Tomb Of Akhenaten 48K Spectrum £2.99

Charlie Charlie Sugar, 14 Langton Way, London SE3 7TL

This game deserves an award for worst computer game of the year!

You play an explorer who has stumbled across a tomb filled with fabulous treasure. Screen display shows a crude maze plus your strength and treasure ratings. This is not an arcade game; you move your one character sized man around at deathly slow pace, trying to find the key and door to the next maze.

Hazards come in the form of spiders, asps and spirits, which appear at random and can be fought or occasionally bribed (rather pointless). It's all really thrilling stuff, with four different mazes to get through.

Graphics are provided by the User Defined Graphics, which jerk along with uninspired animation and definition. Sound considerably slows the game down although the tunes, played at such exciting times as reaching a magic place (saps or adds to your strength), are good. The game is written in inefficent BASIC, and is unplayable without cheating. There is a hall of fame, but who would play it more than once?

This really is total rubbish, even at the cheap price. Avoid it like the plague. **P.S.**

instructions	35%
playability	5%
graphics	2%
value for money	0%

The Staff Of Zaranol 48K Spectrum £5.95

C.C.S., 14 Langton Way, London SE3 7TL

This text only adventure was produced by Quill and as such I feel that in today's climate of falling software prices, it is a little over priced.

You are the apprentice of Zaranol, a mighty sorcerer and while he's away at a convention, you summon up a demon, who curses you. Your objective is to remove the curse and banish the demon. You have a friend called Lan to help with your quest. Although, I discovered that during really sticky patches, when I called for Lan, he appeared, laughed at me and disappeared. With friends like that who needs demons?

On my first attempt, I managed to score a measly 12% before having my neck chewed by a vampire bat. Caught in the catacombs, as usual.

All the adventure features are present, plus a SAVE option, which is most helpful for those without vast tracts of time to devote in one go.

On the whole, it's quite a subtle puzzle which should appeal to adventure purists. However, appeal to other users might be limited by lack of graphics and innovation. **M.B.**

instructions	80%
playability	80%
graphics	N/A
value for money	50%

★★★

Cuthbert Enters the Tombs of Doom CBM 64 £6.95

Microdeal, 41 Truro Rd, St Austell, Cornwall

The Cuthbert cult continues with colossal capers in the latest escapade from Microdeal. It's a five star game all the way.

The challenge consists of over 200 chambers! How do they do it? Chambers are littered with keys, locks, ghostly ghouls, beastly bats, sadistic saxaphones — yes, saxaphones — sworded spheres, stekevab fiends, transportation chambers and various treasures.

Then there are lamps to be filled to give temporary immunity from the nasties and extra lives to be won and lost. It is quite mind-boggling.

With the cassette comes a join the Cuthbert Club registration, a 16 page instruction booklet — sorry manuscript — autographed poster application with a meet-Cuthbert competition and a key fob. It's superb packaging to go with an excellent piece of software.

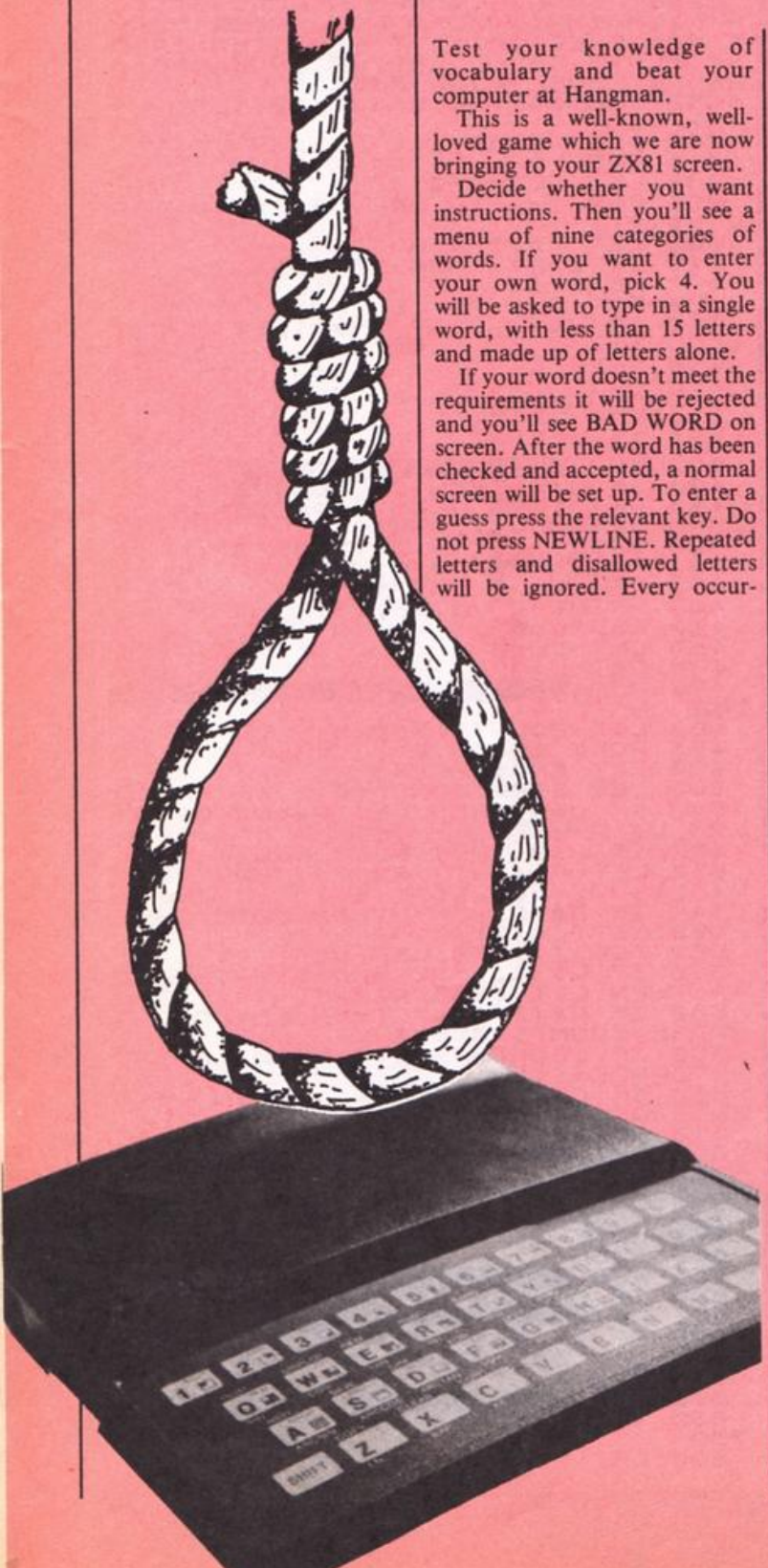
The early stages start easily, but the going soon starts to get tough as Oxygen shortages begin to penalise any delay. What's more, negotiating a room once might not be enough, you may have to go back more than once to pick up more keys. But that's enough from me, you'll discover the rest when you buy it. **B.J.**

instructions	92%
playability	95%
graphics	92%
value for money	96%

★★★★★

Rack your brains to come up with the right word. Otherwise you die. Hangman conversion for the ZX81 by Timothy Pearce

Find the word or hang by the neck



Test your knowledge of vocabulary and beat your computer at Hangman.

This is a well-known, well-loved game which we are now bringing to your ZX81 screen.

Decide whether you want instructions. Then you'll see a menu of nine categories of words. If you want to enter your own word, pick 4. You will be asked to type in a single word, with less than 15 letters and made up of letters alone.

If your word doesn't meet the requirements it will be rejected and you'll see BAD WORD on screen. After the word has been checked and accepted, a normal screen will be set up. To enter a guess press the relevant key. Do not press NEWLINE. Repeated letters and disallowed letters will be ignored. Every occurrence of a letter in a word will be shown if correct.

If you can't solve the puzzle and need help, press NEWLINE. The screen will clear and revert to normal, but an extra letter will have been inserted in the correct place. All occurrences of the letter will have been inserted.

Be warned: when prompted with the question Another go? Y/N, if you type N the program will be lost.

Variables

M$ title of category in use
C$() check value to see if word has been picked before
A$() check value to see if letter has been picked before
**Q$** word selected from W$
**G$** value returned by INKEY$
RA random value for clue letter
W$ DATA strings
SC score word being guessed
TS total score
I control variable in loops
J number of category being used
P number of word selected from W$
V number of mistake (used to select correct gibbet drawing subroutine)

How to improve it

Add extra categories.

Speed up word selection process by making smaller groups of words in W$ or finding a quicker way of sorting the string, or speed it up by not selecting randomly.

Conversion

The string handling functions used could be replaced by READ ... DATA routines or MID$ function could be used in place of the ZX81's unusual string handling method.

Colour could be added to the screen display and sound could also be added.

How it works

21-26 ask if instructions are required, act on reply
27-150 print menu, input and verify reply
160-240 put appropriate value into M$, select word, set
250-260 dimension arrays
280-320 put appropriate values into check arrays
330-350 count words in word-set
370-380 reset score, redimension check array
391-440 set up screen display
450-480 initialise count and score variables
481 POKE 16418,0 makes bottom two lines of screen usable
490-500 initialise extra count variables
510-620 select word
630-650 print appropriate number of dashes
670-674 input guess, remove READY signal
680-720 validate, check input
730 blank out letter at top of screen
740-790 check if letter appears in word
800-850 act on result
860-1370 subroutines to draw gibbet
1380-1440 print You lose message and whole word, reset count values, print new score, GOTO repeat routine
1450-1520 do you want another go?
1530-1550 win routine
1570-1740 subroutine corresponding to selecting 9 from menu
1750-1910 work out clue
2000-2150 print out instructions, return to line 26

```
10 REM "HANGMAN"
11 REM BY T.S.PEARCE 22/4/84
20 SAVE "HANGMA"
21 PRINT "INSTRUCTIONS Y/N"
22 IF INKEY$="Y" THEN GOTO 26
23 IF INKEY$="N" THEN GOTO 27
24 GOTO 22
```

```
  26 GOSUB 2000
  27 CLS
  30 LET T5=0
  40 PRINT "    ****OPTIONS****"
  50 PRINT ,,"1 AIRCRAFT NAMES"
  60 PRINT ,,"2 HOUSEHOLD TERMS"
  70 PRINT ,,"3 COMPUTING TERMS"
  80 PRINT ,,"4 RELIGION"
  90 PRINT ,,"5 ANY WORD"
 100 PRINT ,,"6 NEEDLEWORK"
 110 PRINT ,,"7 CARS AND DRIVING

 120 PRINT ,,"8 ANIMALS"
 130 PRINT ,,"9 TYPE YOUR OWN WO
RD"
 140 IF INKEY$="" THEN GOTO 140
 141 LET J$=INKEY$
 142 IF CODE J$<29 OR CODE J$>37
 THEN GOTO 140
 143 LET J=VAL J$
 150 IF J=9 THEN GOSUB 1560
 159 REM INITIALISE VARIABLES
 160 FAST
 161 IF J=8 THEN LET M$="ANIMALS

 162 IF J=7 THEN LET M$="CARS AN
D DRIVING"
 163 IF J=6 THEN LET M$="NEEDLEW
ORK"
 164 IF J=5 THEN LET M$="ANY WOR
D"
 165 IF J=3 THEN LET M$="COMPUTI
NG TERMS"
 166 IF J=4 THEN LET M$="RELIGIO
N"
 167 IF J=2 THEN LET M$="HOUSEHO
LD TERMS"
 168 IF J=1 THEN LET M$="AIRCRAF
T NAMES"
 169 IF J=9 THEN LET M$="YOUR OW
N WORD"
 170 IF J=8 THEN LET W$="35 COD
MAMBA LEOPARD CHEETAH COW PIRANA
H BEAR ELEPHANT DOG CAT FLEA BUT
TERFLY GOAT RABBIT PYTHON ANACON
DA PIG MOUSE FLY FOX JAGUAR MONK
EY TURKEY DONKEY HORSE SPIDER SN
AIL WOLF HUSKEY TIGER COBRA HUMA
N BULL CHICKEN TUNA PARROT"
 180 IF J=7 THEN LET W$="35 VOLV
O VAUXHALL FORD OPEL GRANADA AVE
NGER FIAT UNO VIVA MAXI CAPRI FI
ESTA BRAKES LIGHTS CLUTCH PEDALS
 ENGINE BOOT BONNET INDICATORS D
ASHBOARD HIGHWAY ROUNDABOUT JUNC
TION ROAD BYPASS MOTORWAY PETROL
 GARAGE ROADSIGN OVERTAKE WINDOW
 WHEELS ESTATE SALOON"
 190 IF J=6 THEN LET W$="25 ZIP
BOBBIN TACKING UPHOLSTERY DRESSM
AKING  EMBROIDERY SATIN SILK MAT
ERIAL OVERSEWING HEM NEEDLE THRE
AD COTTON SEWING STITCH VELVET D
UPION SPOOL HEMING BUTTON BASKET
 ZIGZAG PINING COVER"
 200 IF J=1 THEN LET W$="57 STAR
LIFTER GAZELLE IROQUIS SCOUT WHI
RLWIND PEACEMAKER HURRICANE SPIT
FIRE GREIF COMET VAMPIRE SUPERFO
RTRESS MUSTANG LANCASTER STIRLIN
G WELLINGTON KITTYHAWK SEAFIRE L
IBERATOR HERCULES CANBERRA STRAT
OFORTRESS MARUT MOSS BEAR BACFIR
E HAWKEYE BADGER BLACKBIRD ATLAN
TIC ORION HAWK HARRIER BUCCANEER
 METEOR BRONCO TOMCAT MIRAGE HUN
TER FOXBAT DRAKEN JAGUAR BADGER
VULCAN MOHAWK NIMROD VIKING VIGG
EN FISHBED TIGER ETENDARD PHANTO
M EAGLE KFIR LIGHTNING GALAXY BE
AGLE HORNET"
 210 IF J=2 THEN LET W$="26 FRID
GE FREEZER CUTLERY KNIFE FORK SP
OON FRESHNER SAUCEPAN AJAX SOAP
BLEACH BROOM TABLE DUSTER HOOVER
 POLISH CARPET COOKER BUCKET FIL
THY KETTLE POWDER TEAPOT FRIDGE
COFFEE PEPPER"
 220 IF J=3 THEN LET W$="35 BBC
ACORN ATOM ELECTRON MODEM COREST
ORE LINEPRINTER LASERPRINTER DIS
C TAPE PUNCHCARD SPECTRUM KILOBY
TE BIT BYTE WORD KEYWORD FUNCTIO
N MAINFRAME MICRO COMPUTER PARIT
Y RANDOM BINARY CHARACTER SYSTEM
 MEMORY OUTPUT SERIAL DRYRUN REC
ORD FLOPPY SIGNAL UNIVAC DEVICE"
 230 IF J=4 THEN LET W$="30 JONA
H FONT PEW BIBLE VICAR RECTOR SA
INT ANGEL CHURCH JOSEPH CHRIST T
HOMAS EXODUS PRIEST VERGER CHOIR
 CAROLS SUNDAY BISHOP ROMANS JES
US CATHOLIC PROTESTANT BUDHIST B
APTISM CHRISTMAS EASTER JUDAS LA
STSUPPER HEAVEN"
 240 IF J=5 THEN LET W$="35 TAPE
RECORDER ARMCHAIR VIDEORECORDER
INVADE BOX HOUSE PHOTO CHEESE BU
TTER GALORE SAVING YACHT FILLED
GIBBET STUPID BOARD RECORD STITC
H FISH CHAIR SOFA NEWSPAPER PLAN
T GAS ELECTICITY TYPEWRITER CARP
ET FLUTE CELLO LETTER ENVELOPE C
ANDLE LEVEL FIRE BOOK"
 250 DIM C$(VAL W$(1)*10+(VAL W$
(2)),1)
 260 DIM A$(26,1)
 270 CLS
 280 LET COUNT=0
 290 FOR I=1 TO VAL W$(1)*10+(VA
L W$(2))
 300 LET C$(I)="N"
 310 IF I<27 THEN LET A$(I)=" "
 320 NEXT I
 330 FOR I=3 TO LEN W$
 340 IF W$(I)=" " THEN LET COUNT
=COUNT+1
 350 NEXT I
 360 CLS
 370 DIM A$(26,1)
 380 LET SC=11
 390 FAST
 391 REM PRINT BASIC SCREEN
 400 IF J=9 THEN GOSUB 1710
 410 PRINT AT 0,0;"  ABCDEFGHIJK
LMNOPQRSTUVWXYZ"
 420 PRINT ,,TAB 24;"SCORE"
 421 PRINT AT 20,6;M$
 430 LET WC=0
 440 PRINT AT 3,26;T5;"  "
 450 LET V=0
 460 LET CU=0
 470 LET L=0
 471 REM WORK OUT WORD FROM SECT
ION
 480 LET COUNTSPACE=0
 481 POKE 16418,0
 490 LET ENDSPACE=0
 500 LET STARTSPACE=0
 510 IF J=9 THEN LET Q$=W$(3 TO
LEN W$)
 520 IF J=9 THEN GOTO 630
 530 LET P=(INT (RND*(((VAL W$(1
)*10)+VAL W$(2)))+1.)
 540 IF C$(P)="Y" THEN GOTO 530
 550 LET C$(P)="Y"
 560 FOR I=7 TO LEN W$
 570 IF W$(I)=" " AND STARTSPACE
=P THEN LET ENDSPACE=I
 580 IF W$(I)=" " THEN LET COUNT
SPACE=COUNTSPACE+1
 590 IF COUNTSPACE=P THEN LET ST
ARTSPACE=I
 600 IF COUNTSPACE=P+1 THEN LET
ENDSPACE=I
 610 NEXT I
 620 LET Q$=W$(STARTSPACE+2 TO E
NDSPACE)
 630 FOR I=1 TO LEN Q$
 640 PRINT AT 23,I*2;"_"
 650 NEXT I
 660 SLOW
 661 REM INPUT GUESS
 670 IF CU=LEN Q$ THEN GOTO 1530
 671 PRINT AT 12,26;"READY"
 672 IF INKEY$="" THEN GOTO 672
 673 LET G$=INKEY$
 674 PRINT AT 12,26;"  "
 675 REM CHECK INPUT
 680 IF CODE G$=118 THEN GOSUB 1
750
 690 LET X=(CODE G$)-37
```

```
 700 IF X>27 OR X<1 OR (LEN G$)>
1 THEN GOTO 670
 710 IF A$(X)=G$ THEN GOTO 670
 720 LET A$(X)=G$
 721 REM DEAL WITH INPUT
 730 PRINT AT 0,1+(CODE G$-37);"
■"
 740 LET R=CU
 750 FOR I=1 TO LEN Q$
 760 LET B$=Q$(I)
 770 IF B$=G$ THEN LET CU=CU+1
 780 IF B$=G$ THEN PRINT AT 22,I
*2;G$
 790 NEXT I
 800 IF R=CU THEN LET U=U+1
 810 IF R=CU THEN LET SC=SC-1
 820 IF R=CU THEN GOSUB U*50+810
 830 IF L=100 THEN GOSUB 1380
 840 IF CU=LEN Q$ THEN GOSUB 153
0
 850 GOTO 670
 851 REM DRAW HANGMAN
 860 PRINT AT 18,11;"■■■■■■■■■■
"
 870 RETURN
 910 FOR I=2 TO 17
 920 PRINT AT I,16;"■"
 930 NEXT I
 940 RETURN
 960 FOR I=1 TO 4
 970 PRINT AT 18-I,11+I;"■"
 980 NEXT I
 990 RETURN
1010 FOR I=4 TO 1 STEP -1
1020 PRINT AT 13+I,16+I;"■"
1030 NEXT I
1040 RETURN
1060 PRINT AT 2,8;"■■■■■■■■■■"
1070 RETURN
1110 PRINT AT 3,8;"■";AT 4,8;"■"
;AT 5,5;"■■■■■■■";AT 6,7;"▒▒▒▒▒"
1120 RETURN
1160 PRINT AT 7,7;"■■■";AT 8,7;"
■■■";AT 9,7;"■■■■"
1170 RETURN
1210 PRINT AT 7,6;"■■■■■";AT 8,5
;"■";AT 9,5;"■";AT 10,5;"▒"
1220 RETURN
1260 PRINT AT 8,11;"■";AT 9,11;"
■";AT 10,11;"▒";
1270 RETURN
1310 PRINT AT 10,7;"▒▒▒▒▒";AT 11,7
;"■";AT 12,7;"■";AT 13,7;"■",AT
14,6;"■■"
1320 RETURN
1360 PRINT AT 11,9;"■";AT 12,9;"
■";AT 13,9;"■";AT 14,9;"■■"
1370 LET L=100
1371 REM YOU LOSE ROUTINE
1380 PRINT AT 16,0;"      HANGMAN"
1390 LET SC=-5
1400 PRINT AT 22,0;"YOU LOSE..TH
E WORD WAS
                    ";AT 22,23;Q
$
1410 LET SC=SC+1
1420 LET TS=TS+SC
1430 PRINT AT 3,26;TS
1440 PAUSE 200
1450 CLS
1451 REM REPEAT?
1460 PRINT "ANOTHER GO (Y/N)"
1470 PRINT "IF YOU WANT A DIFFER
ENT WORD SETPRESS NEWLINE"
1480 IF INKEY$="Y" AND U<>9 THEN
 GOTO 360
1490 IF CODE INKEY$=118 THEN GOT
O 40
1500 IF INKEY$="Y" AND U=9 THEN
GOTO 150
1510 IF INKEY$="N" THEN NEW
1520 GOTO 1480
1521 REM YOU WIN ROUTINE
1530 PAUSE 25
1531 PRINT AT 22,0;"
                    "
1540 PRINT AT 23,0;"
                    WELL
DONE YOU WIN
1550 GOTO 1410
1560 CLS
1570 REM ONLY WORD SORT
1571 POKE 16418,2
1572 PRINT "TYPE IN A SINGLE WOR
D WITH UP TO15 LETTERS AND CONTA
INING        LETTERS ONLY"
1580 GOTO 1610
1590 PRINT "BAD WORD"
1600 IF PEEK 16442<3 THEN SCROLL
1610 INPUT W$
1620 IF W$="" THEN GOTO 1590
1630 IF LEN W$>15 THEN GOTO 1590
1640 FOR I=1 TO LEN W$
1650 IF CODE W$(I)<38 OR CODE W$
>63 THEN GOTO 1590
1660 NEXT I
1670 LET U=9
1680 LET W$="01"+W$
1690 CLS
1700 RETURN
1710 FOR I=1 TO 26
1720 LET A$(I)=" "
1730 NEXT I
1740 RETURN
1750 REM WORK OUT CLUE
1751 FAST
1760 LET RA=(INT (RND*26)+1.)
1770 IF CODE A$(RA)-37=RA THEN G
OTO 1760
1780 LET LC=0
1790 FOR I=1 TO LEN Q$
1800 IF CODE Q$(I)=37+RA THEN LE
T LC=LC+1
1810 NEXT I
1820 IF LC=0 THEN GOTO 1760
1830 FOR I=1 TO LEN Q$
1840 IF CODE Q$(I)=RA+37 THEN LE
T CU=CU+1
1850 IF CODE Q$(I)=RA+37 THEN PR
INT AT 22,I*2;CHR$ (RA+37)
1860 NEXT I
1870 LET SC=SC-2
1880 LET A$(RA)=CHR$ (RA+37)
1890 PRINT AT 0,1+RA;"▒"
1900 SLOW
1910 RETURN
2000 REM INSTRUCTIONS
2001 CLS
2010 PRINT "      ****INSTRUCTIO
NS****"
2020 PRINT ,," FIRST YOU MUST SE
LECT THE      CATEGORY THAT YOU
WANT TO HAVE  A WORD PICKED FROM
.IF YOU WANT  TO GIVE YOUR OWN W
ORD THEN      SELECT NO.9.THIS M
EANS THAT YOU"
2030 PRINT "MAY TYPE ANY SINGLE
WORD          CONTAINING LETTERS O
NLY (IF THE WORD IS LONGER THAN
15 LETTERS   OR HAS NON ALPHABETI
C ITEMS IN    IT,IT WILL BE REJECT
ED,THE SIGN BAD WORD WILL APPEAR
 AND YOU"
2040 PRINT "MUST RETYPE YOUR WOR
D.IF IT IS   THEN CORRECT,THE SCR
EEN WILL BE THEN SET UP FOR IT"
2050 PRINT ,,,,"ANY KEY TO CONTI
NUE"
2060 PAUSE 4E4
2070 CLS
2080 PRINT " IF YOU SELECT ANY O
F THE OTHERSTHE SCREEN WILL CLEA
R FOR A       SHORT TIME AND THE S
CREEN WILL    THEN BE SET UP USING
 A RANDOMLY SELECTED WORD FROM T
HAT CATEGORY"
2090 PRINT ,," TO INPUT A LETTER
 JUST PRESS IT(NO NEED TO PRESS
NEWLINE).BAD  LETTERS WILL BE IG
NORED AS WILL REPEATED LETTERS."
2100 PRINT ,," IF YOU NEED A CLU
E THEN PRESS  NEWLINE AND ALL TH
E OCCURENCES  OF ONE LETTER INTH
E WORD WILL BEDISPLAYED"
2110 PRINT ,,"WARNING AFTER EACH
 WORD IF YOU  TYPE ""N"" AFTER T
HE QUESTION      ""ANOTHER GO Y/N
"" THE PROGRAM     WILL BE LOST"
2120 PRINT "   ANY KEY TO CONTINU
E"
2130 PAUSE 4E4
2140 CLS
2150 RETURN
```

Racing cars

Speed is the essence of this game. Overtake cars, but avoid crashing with them. You'll be surprised just what can be done using 4K and sprite graphics. By HCW regular Shingo Sugiura

This is a simple racing game for the unexpanded Sord M5 with BASIC-I or BASIC-G. You control a racing car in the middle of the screen. You must avoid the cars you overtake, using the left and right cursor keys to move left and right respectively.

This program shows what can be done in just 4K using sprite graphics. If you do have BASIC-G you can probably make it much more exciting by putting in a demo or some instructions, as you have an extra 4K to play with.

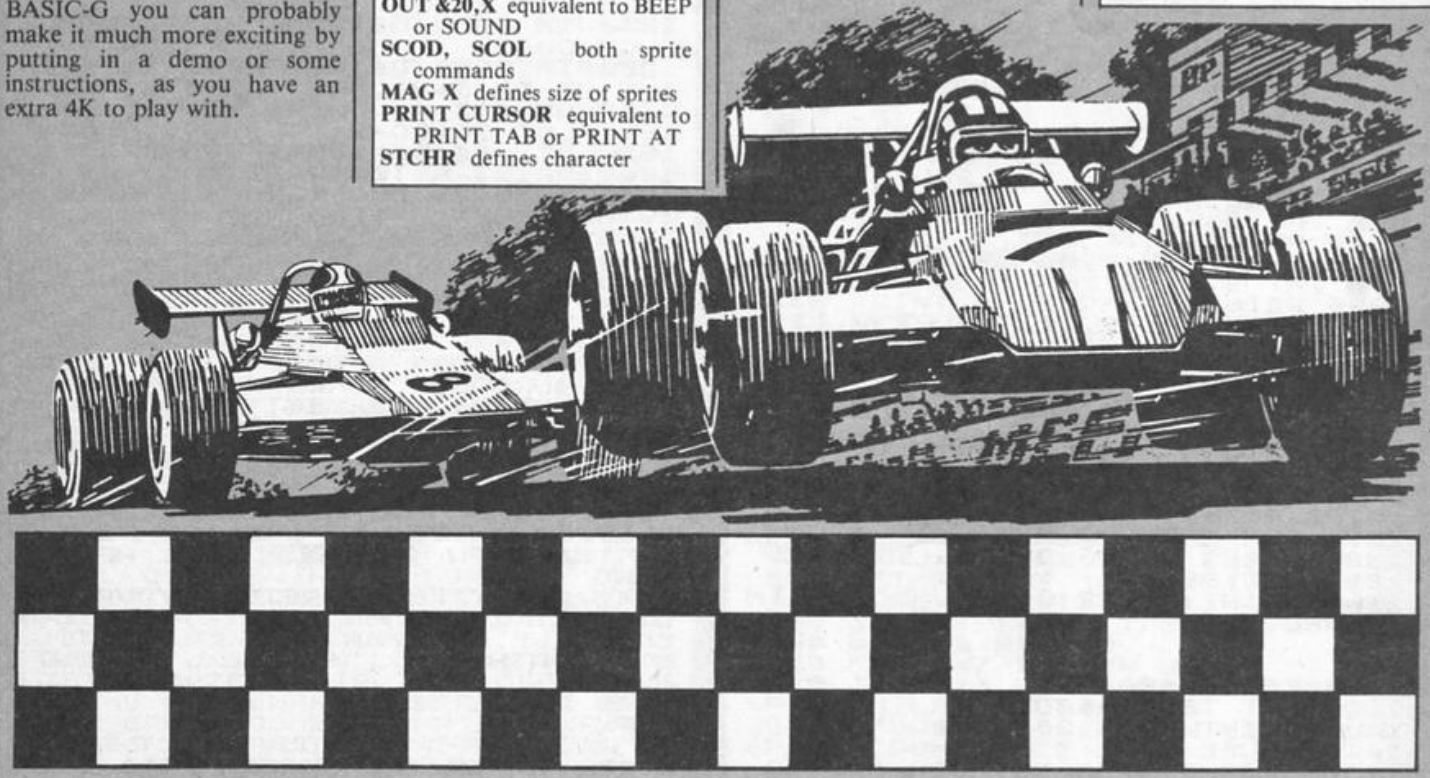
Hints on conversion

This program's main features are downward scrolling and sprite graphics, and if your machine does not have either feature, it would be fairly difficult to convert it. However, here are a few hints.

PEEK (&702B) scans keyboard
S value of key pressed
LOC Z TO X,Y place sprite No. Z at X,Y
OUT &20,X equivalent to BEEP or SOUND
SCOD, SCOL both sprite commands
MAG X defines size of sprites
PRINT CURSOR equivalent to PRINT TAB or PRINT AT
STCHR defines character

How it works

10 call procedure to define characters
20 call procedure to initalise variables
30 home cursor and scroll screen one line down
40 print keyboard, take appropriate action
50-60 scan keyboard, take appropriate action
70 print your racing car
80-170 move other cars
180 check if your car has crashed
190 if it hasn't, go back to beginning
200 call procedure to indicate crash
210 another game
220-280 initialise variables, screen
290-420 procedure to print explosion and score
430-720 define various characters



```
10 gosub $DEFINE
20 gosub $INIT
30 print "CK"
40 if T=1 then let T=0:print "■■■■■■■■■■■■■■■○          ○■■■■■■■■■■■■■■
■■";else print "■■■■■■■■■■■■■■■♠          ♠■■■■■■■■■■■■■■■":let T=1
50 let S=peek(&702B):if S=54 then let X=X+(X>88)*8
60 if S=55 then let X=X-(X<152)*8
70 loc 0 to X,140
80 for II=0 to 1
90 loc II+2 to X1(II),Y1(II)
100 let Y1(II)=Y1(II)+SP(II):if Y1(II)>190 then let Y1(II)=-
20
110 if(rnd(5)=0)*(KU>100)then let SP(II)=(rnd(2)+1)*16:if SP
(II)>16 then let SP(II)=20
```

```
120 let X1(II)=X1(II)+B(II):if X1(II)>152 then let B(II)=rnd
(7)-9
130 if X1(II)<88 then let B(II)=rnd(7)+3
140 if((Y1(II)=156)+(Y1(II)=140))*(X1(II)<X+16)*(X1(II)>X-16
)then let KR=1
150 let KU=KU+1:if KU=65 then let SP(II)=16:out &20,&E1
160 if KU=120 then let SP(II)=20:out &20,&E0
170 next II
180 loc 4 to XK,K1:let K1=K1+40:if K1>200 then if XK=60 then
 let K1=-50:let XK=181 else let K1=-100:let XK=60
190 if KR=0 then goto 30
200 gosub $CRASH
210 goto 20
220$INIT
230 let SC=0
240 print "■":let X=120:let X1(0)=90:let Y1(0)=-20:let B(0)=
6:let KU=0:let K1=-500
250 let X1(1)=200:let Y1(1)=-116:let B(1)=8:let SP(1)=8:let
XK=60:let KR=0
260 out &20,&FF:out &20,&F0:out &20,&EF:out &20,&E3
270 for I=1 to 11
280 print "■■■■■■■■■■■■■♠                ♠■■■■■■■■■■■■■■■■■■■■■■■■■○
    ○■■■■■■■■■■■■■";:next:return
290$CRASH
300 scod 1,&44:scol 1,6:out &20,&FF:out &20,&EF:out &20,&F0
310 loc 1 to X,150:loc 0 to-40,150
320 for I=2 to 4:loc I to-40,150:next
330 for I=1 to 800:next
340 mag 3:loc 1 to X-8,140
350 for I=1 to 800:next
360 mag 2:loc 1 to-40,150
370 let SP=8:let SC=(SC+KU)*10:let KU=0
380 print cursor(11,8);"Your score";
390 print cursor(13,10);SC;
400 print cursor(11,16);"R to play";:out &20,&FF
410 if peek(&702B)<>20 then goto 410
420 return
430$DEFINE
440 dim X1(1),Y1(1),B(1),SP(1)
450 print "■":mag 2
460 stchr "03191b07070e1d1d" to &40,0
470 stchr "1d1f037b7b7a7b07" to &41,0
480 stchr "c098d8e0e070b8b8" to &42,0
490 stchr "b8f8c0dede5edee0" to &43,0
500 stchr "0040012e5241064c" to &44,0
510 stchr "524a241817283040" to &45,0
520 stchr "40a040a449d4a890" to &46,0
530 stchr "5058a8d40a000100" to &47,0
540 stchr "07191b1b030e0d1d" to &48,0
550 stchr "1d1f037b7b7a7f07" to &49,0
560 stchr "e098d8d8c070b0b8" to &4A,0
570 stchr "b8f8c0dede5efee0" to &4B,0
580 stchr "007f4b555555557f" to &50,0
590 stchr "7f7f7f7f10181810" to &51,0
600 stchr "00fee2e2ee363afa" to &52,0
610 stchr "f6cefefe000c0c08" to &53,0
620 for I=1 to 3
630 stchr "3030303030303030" to &80,I+3
640 stchr "8080808080808080" to &81,I+3
650 stchr "f0f0f0f0f0f0f0f0" to &82,I+3
660 stchr "ffffffffffffffff" to &81,I
670 stchr "ffffffffffffffff" to &82,I:next
680 scod 0,&41:scol 0,9
690 scod 2,&48:scol 2,&05
700 scod 3,&48:scol 3,&05
710 scod 4,&50:scol 4,&0D
720 return
```

It's your choice

Take your pick from this high-quality selection. Our reviewers give you their advice

The Magic Roundabout 48K Spectrum £6.95

CRL, CRL Hse, 9 Kings Yard, Carpenters Rd, London E15 2HD

Dougal, Florence, Zebedee and the gang are here in the Magic Garden, with Dougal, guided by you, trying to collect sugar lumps to build a house.

Fail to find the sugar lumps and push them to the toadstool, and the demented hound falls asleep. The train can transport 12 lumps, but only when met at the station. The snag to all this is that if Dougal runs into the other characters, his nose is damaged and he is unable to find sugar.

What a great idea! And what a great disappointment in terms of graphics and control. Although said to be Kempston compatible, my joystick would not respond properly. When I used the keys, I found that Dougal went left and right OK. When I wanted him to go up and down, instead of re-orienting himself north-south and then moving off, he moved sideways up and down the screen!

Add to this the crude definition of the graphics, and monochrome renditions of the other characters, and the result just isn't up to the latest standards. Not as good as some £1.99 games. **D.M.**

instructions	100%
playability	60%
graphics	50%
value for money	30%

★ ★

Xaviour 48K Spectrum £5.95

PSS, 452 Stoney Stanton Rd, Coventry CV6 5DG

Superbly packed, and with excellent instructions, Xaviour features your control of a lizard Silurian of the same name. A long and detailed story sets the scene of your recovery of DNA fragments to enable Xaviour, the sole survivor, to rebuild his race.

To do so requires energy, supplied by orbs strewn about the underground complex. Energy is required to repel aliens found in each of the 4096 rooms. These are interlinked by hexagonal doors, each bearing a co-ordinate symbol, if only you can work out the code.

Featuring Currah Micro Speech, and joystick control, hi-score and demo mode in superb large scale, smoothly animated graphics of the highest standard, Xavious is truly of genuine arcade standard.

Number One tester viewed the pack with anticipation, and was excited by the story. After I had my go, I left him to it. Ten minutes later he came in with a long face. "It's just the same as Atic Atac", he said. When you strip away the trappings, he's right. Excellent if you don't object to the similarity. **D.M.**

instructions	100%
playability	100%
graphics	100%
value for money	100%

★ ★ ★ ★ ★

Astronut 48K Spectrum £5.95

Software Projects, Bear Brand Complex, Allerton Rd, Woolton, Liverpool L25 7SF

Is it up to the standard of Manic Miner? Yes! Is it attractive? Yes again!

A meteor storm has shattered your space freighter, and spread cargo all over the planet CS. You guide your astronaut in collecting these resource blocks, delivering them to the matter transporter pads at the base of each screen, then on to the next screen. Aliens in many various forms assail you. The only weapons you have are some delayed action bombs.

This is a platform type game. The difference is that you cannot jump or boost upward, you must time your arrival over an erupting volcano in order to reach the heights. Several moving platforms help or hinder you at various stages. Timing and planning are more critical than usual.

Demo mode, hi-score, excruciating sound and joystick control are all here, together with the facility to jump into any screen.

The smoothness and detail of the graphics is superb; more and better aliens than ever. The differences in control and the execution of the concept, in addition to unusual layouts make this a must. **D.M.**

instructions	90%
playability	100%
graphics	100%
value for money	100%

★ ★ ★ ★ ★

Quango CBM 64 £7

Interceptor, Lindon Hse, The Green, Tadley, Hants

Interceptor has definitely got another winner.

The game consists of a large maze of which only part is displayed on the screen at any time. The tunnels are filled with soil and boulders, in some places there are mushrooms or weeds.

The object is to dig through the soil and collect the mushrooms. At the same time the Wrightoid Robots are hunting you out.

If you move below a boulder it will become dislodged and start to fall. If you happen to be below it then you lose a life.

The weeds always grow into any gap left when you move soil. This creates an impassable barrier.

To help you get past all the nasties, you are armed with a limited number of time bombs. If you don't get out of range before they explode then you go up with them.

The quality of the game is high and keeps the player interested. **K.I.**

instructions	40%
playability	90%
graphics	80%
value for money	90%

★ ★ ★ ★

Grand Prix Manager 48K Spectrum £6.95

Silicon Joy, 7A Richmond Hill, Bournemouth BH2 6HE

This is more a simulation than a game. Essentially BASIC, with some machine code to drive the graphics, you approach a sponsor for money, buy a driver, the more skillfull, the more he costs, hire mechanics, purchase or refurbish your car, invest inresearch and development, then go to the race!

Before you get there, you set up the car's aerofoil angle and choose the correct type of tyres according to the prevailing conditions. You may then choose to see race highlights, including straight racing, pit stops, and news. If you got the combination right, you'll win, and your team will start to feature in the championship table, your sponsor will be likely to grant you more money, and you'll be able to invest it for the next race. Lose, and eventually, you'll go bust!

Most of the game is menu driven, with tables to choose various factors. The presentation is attractive. By comparison with arcade games the graphics are crude, amusing even. I found the challenge of balancing the various factors irresistable. A bit pricey. **D.M.**

instructions	100%
playability	100%
graphics	60%
value for money	70%

★ ★ ★

Home Computing Weekly brings you Mike Robert's detailed guide to home computers. Whether you're about to splash out on your first micro or you're moving up and on, you'll find it invaluable

Urgent: Read before you buy!

Christmas is coming, the goose is getting fat, and no prisoners are being taken in the micro manufacturing war.

To help the poor buyer overwhelmed in the confusing world of magazine ads, boxing elephants and other promotional devices aimed at persuading you to buy their wares, let alone shops where the assistants can be the blind leading the blind, we present the buyers' guide to the world of home computers under £400.

Each machine has all the important details as a heading and a detailed discussion of its main points under specification headings. Here is an explanation of what they are:

Keyboard: Specification and opinion of the keyboard.
Screen: General details of the display. Resolution or graphics refers to the number of dots across and down the screen, the more the better. The colour explanation should be obvious. Sprites refers to advanced graphic shape manipulation in hardware which a few machines have.
Sound: Audio ability.
Speed: Overall running speed.
Languages: Description of the operating language of the computer (usually BASIC) and a list of any others which may be available.
Processor: Brain of the computer. The best and most common processor for home use is the 6502 — in one of its many versions. The Z80 is also popular, but mainly in the older type of business machine.
I/O: This is a computer's means of talking to the outside world. It can mean joystick ports, printer interfaces or any other inter-device communications system.
Software: A brief word on what kind of software is available for the machine and in what quantities.
Opinion: This is what I think of the machine after using it and comparing it to all the others in the test.

If you are buying a second computer or upgrading, the list of specifications should help you in choosing a machine which isn't too far away from what you've been used to. I wish you luck, and rather you than me!

AMSTRAD CPC464

Price: £229, £349
Memory: 64K RAM 32K ROM (42K usable)

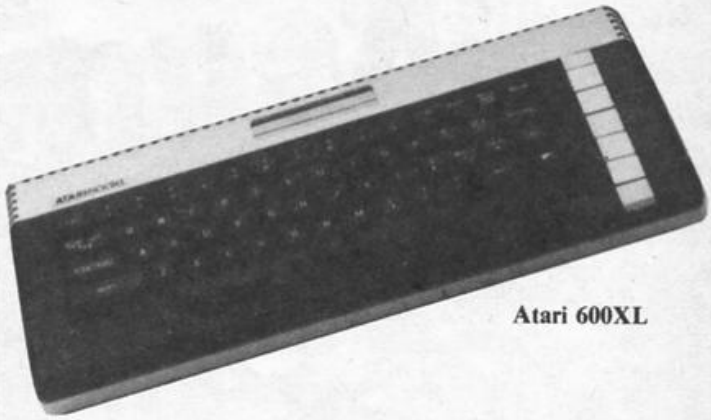
Keyboard: Comprehensive typewriter style, 12 user-definable keys already defined as a numeric keypad. Dedicated cursor control keys, real space bar.
Screen: Three modes, 640 x 200, 320 x 200, 160 x 200 in 2, 4 or 16 colours selected from a palette of 27 and 80, 40, or 20 characters per line. Changing modes does not increase memory consumption.
Sound: Three sound and one noise channel through internal speaker.
Languages: Locomotive BASIC included. Very good at certain functions like graphics, sound and structuring but needs spaces everywhere which is very awkward. The editor is also rather crude. BASIC has some bugs in it.
Processor: Z80A.
Speed: Fast.
Software: Amsoft, the software arm of Amstrad, is commissioning as big a range of software as it can get together. There should be lots of games out in the very near future. The games currently out are very poor quality but should improve.
Opinion: Good value with the inclusion of a monitor and a tape recorder. Reliability may be a problem as Amstrad has a bad reputation for this. Tape recorders can be incompatible with each other in fast mode.

Amstrad CPC464

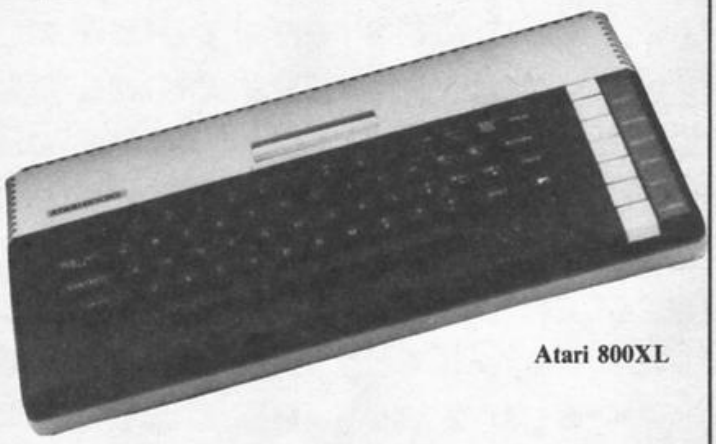
ATARI 600XL/800XL

Price: £99/£199
Memory: 16K/64K RAM (amount usable varies with graphics mode used) 26K ROM

Keyboard: Full typewriter style keyboard, 58 keys, four function keys, space bar but no dedicated cursor control keys.
Screen: 16 screen modes comprising five text modes and 11 graphics modes. Text is 40 columns by 24 lines in up to 256 colours. The graphics have a maximum resolution of 320 by 192 in the biggest hi-res mode. All characters are user definable and come in predefined shapes to start with. Player/missile graphics — like sprites — are also available.
Sound: Four channel sound generator with full software support.
Languages: Atari BASIC included and these are available: Forth, Pilot, Logo, WSSM, Pascal, Microsoft BASIC. Two types of assembler editor are also available.
Processor: 6502A.
Speed: Medium to fast.
I/O: Serial input/output port along with two connectors for two joysticks or paddles. Other interfaces may be added via interface bus. Slot for ROM cartridges. Cassette port will only allow connection of Atari cassette recorder at £44.99, so this must be taken into account when considering costs.
Software: The XL series of software is compatible with older models so lots of software is on sale from both Atari — which has a library of 500 titles — and from independents, including US imports.



Atari 600XL



Atari 800XL

ATMOS

Price: £99-179
Memory: 64K RAM (47K usable in text mode, 39K in graphics mode) 16K ROM

Keyboard: Full typewriter, 57 keys, space bar, dedicated cursor control keys, no definable function keys, two functions per key.
Screen: 40 columns by 28 rows Teletext compatible text display, two user definable character sets, eight foreground and eight background colours, double height, flashing and inverted attributes available for each character. Graphics screen gives 240 by 200 resolution, colours and attributes are definable on a grid of 40 by 200. In each of these areas the foreground and background can be defined in eight colours. Flashing and inverted output is also supported. In graphics mode three lines at the bottom

of the screen also appear, and these are the same as the text mode lines.
Sound: Sound generator with three channels and noise generator. There is a certain amount of envelope control. Pre-programmed sounds to produce pings and zaps, etc. Sound is produced through an internal speaker although hi-fi output is available through a DIN socket.
Languages: Extended Microsoft BASIC built-in, available, BBC-like BASIC planned.
Processor: 6502A.
Speed: Fast.
I/O: Centronics parallel printer port, user port, monitor port, expansion connector.
Software: Badly supported from day one. Range growing smaller.
Opinion: This computer was originally compared to the Spectrum, and this was justified as they were outwardly similar and look the same. The BASIC is easier and is a structured form of the *de facto* standard Microsoft BASIC. The keyboard is better, the graphics are better, and it has real sound which is lacking in the Sinclair machine. Interfaces are built in which would normally cost extra. The edge that the Spectrum has is more software. The more recent Spectrums will not run some of the available software due to internal design differences.

BBC B

Price: £399
Memory: 32K RAM (28K to 9K usable depending on graphics mode used) 32K ROM

Keyboard: Typewriter style, 73 keys, 10 user definable function keys, dedicated cursor control keys. Space bar.
Screen: Very complex. The simplest mode is Teletext compatible and gives eight colours, flashing characters, double height, and block graphics. Text is 40 columns by 25 lines. There are seven other modes of screen operation ranging from 640 by 256 hi-res in two colours with 80 by 32 text to 160 by 256 hi-res in eight colours with 20 by 32 text. All 256 characters are user definable in all but the Teletext mode.
Sound: Three channel music with a noise channel through internal speaker. Full envelope control is available from BASIC.
Languages: BBC BASIC is included — a very comprehensive implementation. As assembler is also built in for machine code access. Forth, Lisp and BCPL are also available.
Processor: 6502A.
Speed: Fast.
I/O: RS 432 and Centronics printer ports. Four analogue to digital converters for joysticks etc, eight bit programmable user port. The tube allows connection of processors and so on to disc interface. Econet networking, speech synthesizer can be added.
Add-ons: A great deal available both from independents and Acorn.
Software: A very large and well-written range available, including a lot from Acornsoft, the maker's software arm. Many educational programs of varying quality.
Opinion: The BBC is an excellent machine if you ignore the high price. Support from independent suppliers is superb, but Acorn has been slow on the hardware side. The keyboard is very good and there is a useful set of function keys. The screen uses split cursor screen editing which is the next best thing to full screen editing but not quite as easy to use.
The BASIC is excellent and makes good use of all the hardware features. This computer is used by about 75 per cent of all secondary schools, so it is good for education as well as games. It also makes a good business computer, particularly with networking available.

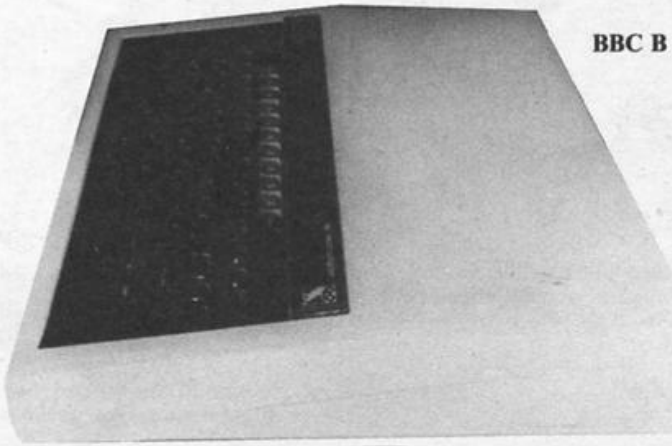
Atmos

COMMODORE C16

Price: £139
Memory: 16K RAM (12K or 4K usable depending on graphics mode used)

Keyboard: Same as Commodore 64 except that function keys can be defined from BASIC and the layout is different. Separate dedicated function keys and space bar.
Screen: Three modes from BASIC, 320 x 200 and 160 x 200 graphics, 320 x 160 and 160 x 160 with five lines of text, and 40 x 25 text. There are 121 colours and flashing all available at the same time. The BASIC's graphic handling is superb and unsurpassed. Outside BASIC there are another three modes and UDGs which need to be accessed by POKEing.
Sound: Two channels of sound or one sound and one noise channel.
Languages: Commodore BASIC 3.5. A full implementation of BASIC with structuring and the most comprehensive set of graphis commands on any micro. Assembler/monitor also included. The screen editor is superb and supports full screen editing and windows.
Processor: 7801 (6502 compatible).
Speed: Fast to medium.
Software: Four software packages supplied as standard — chess, two games, and a drawing program. More software should appear as lots of these should be sold up to Christmas.
Opinion: This is a real Spectrum beater. The best value computer on the market, comes complete with software and a tape recorder.

Commodore C16



BBC B

COMMODORE PLUS/4

Price: £299
Memory: 64K RAM 32K ROM (60K or 50K usable depending on graphics)

Keyboard: Similar to the SX64 in feel. Function keys can be defined from BASIC. Cursor keys set in a cross shape.

Screen: Same as C16.
Sound: Same as C16.
Languages: 7801 (6502 compatible).
Processor: 7801 (6502 compatible).
Speed: Fast to medium.
Software: Four home/business packages built in — spreadsheet, word-processor, database, graphics. Games software should appear as this machine is compatible with the C16.
Opinion: As this computer can run all C16 software, games should be widely available after Christmas.

COMMODORE 64

Price: £199
Memory: 64K RAM (40K usable) 20K ROM

Keyboard: Typewriter quality, 67 keys, space bar, dedicated function keys although full use of these can only be had through an expansion program.
Screen: 40 columns by 25 rows, 16 colours, all characters user definable, lower case, inverted output, two character sets. There are four different text modes but the format is the same for all. The only difference is in the handling of the colour.

There are two graphics modes, 320 by 200 and 160 by 200 resolutions in 16 colours. The difference is to do with colour: one mode uses the attribute system, similar to the Spectrum, while the other uses a palette system where each dot is its own individual colour, similar to the BBC or Dragon computers.

Unfortunately the BASIC does not support the graphics so you must write your own routines or buy a BASIC extension. Modes may also be mixed. Eight sprites are available and although the BASIC does not support these directly, instructions are given in the manual on how to achieve them.
Sound: Three channel music synthesizer. Full envelope control and waveform selection. BASIC does not support sound directly although, like the sprites, instruction is given in the manual on how to use sound.
Languages: Commodore BASIC supplied. Simon's BASIC, Forth, Pilot, LOGO, Pascal available from Commodore along with BASIC compiler.
Processor: 6510 (6502 compatible with memory banking), Z80 available as option.

Commodore 64

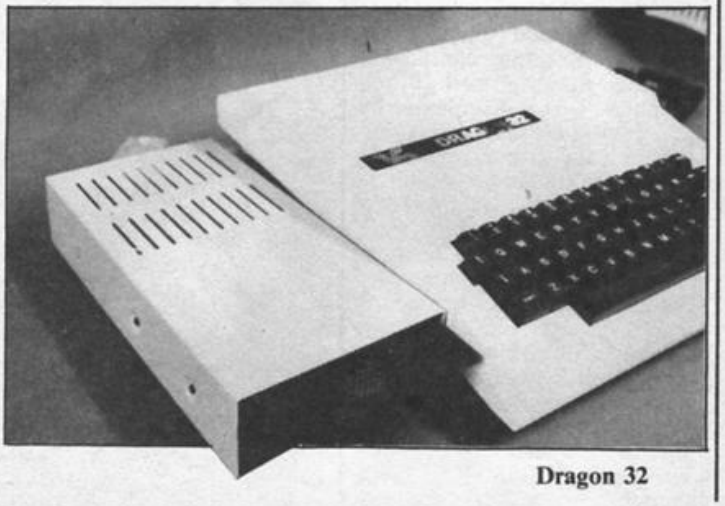
Speed: medium.
I/O: IEEE 488 serial BUS, RS232, user port, cartridge port, two Atari-type joystick ports, four analogue to digital converters for paddles or proportional joysticks.
Add-ons: Most of the VIC-20 add-ons produced by Commodore will fit. Others are exclusive to the 64 involve the cartridge port, like the Z80 second processor with CP/M. There is also a speech synthesizer and several other options, including 32 megabyte hard discs and daisy-wheel printers. Many add-ons available from independents.
Software: There is now quite a lot of software around, both for games and other applications. With business software and the vast amount of decent peripherals, the Commodore 64 is one of the few computers which can be seriously considered as an effective business micro as well as a home computer.
Opinion: An excellent computer and the available commercial software makes good use of its features. The big disadvantage is that the BASIC is simple, making it hard to write your own programs using the sophisticated features. Simon's BASIC, on cartridge, goes some way towards curing this.

On the other hand, it is easy to use and memory space is not used to provide fashionable features at the expense of the functions you really need. It is almost totally compatible with the PET series of computers and the massive base of software that provides. Commodore's own cassette recorder must be bought at extra cost. Although interfaces to domestic recorders do exist, it is wise to go for Commodore's reliable recorder.

DRAGON 32

Price: Less than £100
Memory: 32K RAM (30K to 24K RAM usable depending upon graphics mode used) 16K ROM

Keyboard: 52-key typewriter style, space bar, no user definable cursor control keys. Keyboard quality could be improved.
Screen: Text mode 32 columns by 24 rows, text in one colour, no lower case or user definable graphics in colour, but there is an inverted output option. Text mode does have block graphics in colour though. Graphics mode: ranges from 256 by 192 in one colour to 128 to 192 in four colours. Text is not supported in this mode.
Sound: One channel music generator covering five octaves, good software control.
Languages: Microsoft Extended Colour BASIC included. Identical to Tandy colour computer BASIC. Other languages from independents.
Processor: 6809E.
Software: Quite a lot available from Dragon and independents and Tandy (but check).
Opinion: This micro is limited by its very basic sound system and its horrible text mode with very limiting formats. The BASIC is very good at manipulating screen graphics although



Dragon 32

it does not allow structuring. An altogether much better buy than the Tandy computer to which it is so similar because it already has much of the expansion which comes at extra cost for the Tandy machine and at a price that is lower than the basic initial price of the Tandy machine.

Also a point to consider is the continuing availability of this machine since the bankruptcy of Dragon.

DRAGON 64

Price: Varies £200 + Memory: 64K RAM (up to 48K usable) 16K ROM

Dragon's big model offers three modes of operation: an emulation of the Dragon 32, Extended BASIC with 48K of usable RAM or what the company calls a 'soft machine'. In this mode the BASIC is switched out for machine code programs or to add languages like Pascal. An RS232 interface is standard and the OS/9 multi-user operating system can be added. A small amount of disc-based software, including business applications is available at present.

ELECTRON

Price: £199 Memory: 32K RAM (9K to 12K usable depending on graphics mode used) 32K ROM

Keyboard: Typewriter style, 56 keys, space bar, no dedicated cursor control keys, no dedicated user definable keys, though the numeric keys double with the use of a function key.
Screen: Similar to the BBC micro, except for the lack of Teletext mode, sound and speed.
Sound: One channel through internal speaker, otherwise as BBC.
Languages: BBC BASIC is built in, FORTH and LISP are available.
Processor: 6502A.
Speed: Medium.
I/O: None on basic machine though there is an expansion slot into which an expansion board can be plugged giving the same sort of interfacing options as the BBC but at extra cost.
Software: A growing range as software houses convert BBC programs.
Opinion: As this computer is very similar to the BBC with only some differences most of my views on the BBC are true here, except for the references to price.

Dragon 64

Electron

MSX

Price: Varies, around £250-£300 Memory: Usually 64K RAM (24K usable) 32K ROM

Keyboard: Just about the only thing that varies from machine to machine. They can be quite good but I have used some awful ones. Seventy-three keys including five function keys and dedicated cursor control keys, but this can vary.
Screen: Up to 40 x 24 text with 256 x 192 graphics in 15 colours. All characters user definable.
Sound: Three channels plus noise.
Languages: Microsoft MSX BASIC built in, Pascal and Forth may be available.
Speed: Medium.
Software: Very little at present although it may pick up as software houses start converting their existing games to fit MSX.
Opinion: MSX is not a single computer, rather a single design of computer made by different Japanese and Far Eastern electronics companies. The only difference between models is the keyboard and external styling, although some machines such as the Yamaha and the Sony are notable exceptions having music synthesizer and light pen options, respectively.

This has the advantage that all of the machines should be able to run the same software (although in practice this is not so) and, to a greater or lesser extent, hardware.

The resulting compromise between many Japanese companies has resulted in a very mediocre computer. Software support, marketing, and price will determine whether these machines become successful.

Sanyo's MSX

SINCLAIR QL

Price: £399 Memory: 128K RAM 44K ROM (96K usable)

Keyboard: Plastic caps on rubber membrane. Early machines had some problems but latest models are OK. 65 keys including function and cursor keys.
Screen: 512 x 256 in four colours and 256 x 256 in eight colours. This gives it the highest resolution available but means that games which need the screen to scroll are difficult to write.
Sound: Beep.
Languages: SuperBASIC in ROM. A very advanced BASIC with many data structures only found in much more advanced languages. Limited editor. There is a large range of languages available, including BCPL, Lisp, Forth and Pascal.
Processor: 68008.
Speed: Fast, but not fast enough.
I/O: Large edge connector and two RS232 ports (not fully implemented).
Opinion: This should have been the major machine of 1984/85 but due to being launched before it was ready and software houses' reluctance to duplicate Microdrive-based software, it has failed to live up to expectations. The 68008 processor is one of the favoured chips among machine code

programmers. Rumours of a revamped machine abound and with a tape interface this computer could still be a major machine.

QL

SINCLAIR ZX SPECTRUM

Price: £99£129
Memory: 16K48K RAM (7.5K39.5K usable) 16K ROM

Keyboard: Rubber mat type, 40 keys, no space bar, definable function keys or dedicated cursor control keys, five or six functions per key.
Screen: 32 colours by 24 rows, but only 22 rows are available to the user. 256 by 176 high resolution graphics supported by BASIC, two colours from a palette of eight are available in 704 areas on the screen. Foreground and background colours for each of these areas can be selected as well as whether the contents of the area are flashing or not. Two levels of intensity are also supported. Twenty-one user defined character are available.
Sound: Internal beeper.
Languages: Sinclair BASIC. This version is an extended form of the type used in the ZX80. The extensions do not cover structured programming or aid functions and only deal with the graphics and file handling. This BASIC is very non-standard.
Software: A lot of software is available for almost all applications, particularly games.
Opinion: When the Spectrum first appeared it was an innovation as the lowest priced colour computer. But newer designs have arrived recently with better technical specifications and more usable memory at similar prices.

The colour display is not good and a colour display cannot be produced on a few colour TVs. With the Spectrum there are a lot of keywords to be fitted on a small keyboard. Sound is through a beeper only. the range of software is enormous.

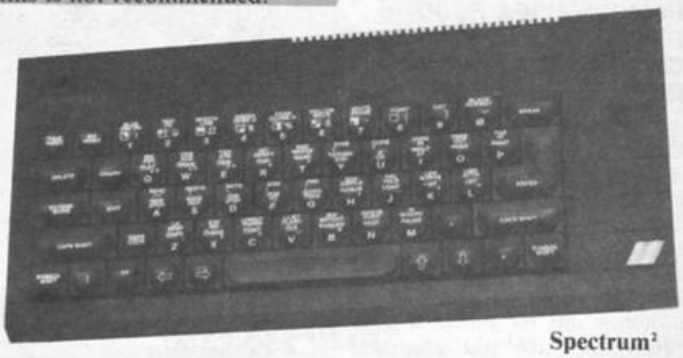
The 16K version is no longer made.

Spectrum

SINCLAIR ZX SPECTRUM +

Price: £179
Memory: 48K RAM (39.5K usable) 16K ROM

Keyboard: Membrane keyboard with hard plastic uppers. Very poor quality. Similar layout to the ZX Spectrum but with long space bar, dedicated cursor control keys, and 14 other extra keys. Key layout means that it is difficult to play certain games and control instructions may be meaningless (e.g. press arrow keys on Spectrum translates to press 5678 on the Spectrum ²). Keys tend to fall off at regular intervale and wear out within days.
Screen: Same as ZX Spectrum.
Languages: Same as ZX Spectrum.
Processor: Same as ZX Spectrum.
Speed: Same as ZX Spectrum.
I/O: Similar expansion port to the ZX Spectrum but the physical shape of the back of the machine prevents most independent add-ons fitting perfectly although nearly all can be bent to fit the back, although this is not recommended.
Software: Same as ZX Spectrum although there are some problems with key scanning, layout, and labelling as detailed above.
Opinion: When you consider that a Spectrum ² is J40 more than a C16 with tape recorder included; a Spectrum ² and a joystick interface costs more than a Commodore 64, and a Spectrum ², joystick interface and a decent joystick cost as much as an Amstrad it looks very bad value. It would be reasonable value for money at about half its current price.



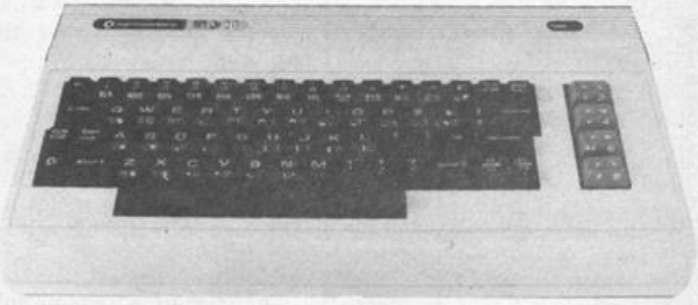
Spectrum²

VIC-20

Price: £129
Memory: 6K RAM (3.5K usable) 20K ROM

Keyboard: Typewriter quality, 67 keys, space bar, dedicated cursor controls, four user definable function keys.
Screen: 22 column by 23 lines, eight colours for text, 16 for background, border and graphics. All characters user definable, lower case, inverted output, two character sets. Hi-res possible with expansion cartridge or with extra programming but BASIC does not support this. Two modes, 160 by 128 in eight colours and 80 by 128 in 16 colours.
Sound: Three channels and one noise channel covering nine octaves through TV speaker.
Languages: Commodore BASIC supplied, compatible with PET and Commodore 64. Extended BASIC, at extra cost gives access to the hi-res, sound and user definable function keys. Forth, Comal and Pilot are available.
Processor: 6502A.
Speed: Medium.
I/O: IEEE 488 serial bus, RS232, user port, cartridge port, joystick port, two paddle port (two analogue to digital converters).
Software: Many cassette tapes and cartridges from independents and Commodore.
Opinion: This is a good machine to get started on and it comes as a package containing a computer, a cassette recorder, a beginners' guide to BASIC and a games tape, so the initial high price for a 3.5K machine is somewhat offset. The BASIC is very easy to learn and is Microsoft-compatible. This type of BASIC was first used by Commodore on the first widely available micro in 1977 so there is a lot of compatible software around.

The C16 is intended to replace the VIC-20. No more VIC-20s are being made.



VIC-20

Sci-fi selection

If you feel like going to the moon or battling your way through the depths of hostile space, there could be something here for you

Loony Lander 48K Spectrum £2.99

Software Supersave

The cassette insert gives only very brief instructions on how to play, no loading instructions or game objectives. Once loaded, there is a display of the scenes, and from that the user is left to guess the objective.

There are 11 scenes to work through to finish the game. At first you seem to be getting a lot for your money, but the objectives and playing style in each scene become boringly repetitive very quickly.

The game isn't particularly original. You control a lunar lander which you have to guide down to a landing strip, avoiding objects which are moving horizontally across the screen. You get scenes like a research station, subway, oasis, and a worm's hideout. They all begin to look and feel the same after a few minutes.

At the end of my disasterous first attempt earning the magnificent high score of zero, a message appeared to congratulate me on achieving the highest score of the day!

This piece of software deserves its low price, any more and it could justifyably be called a rip-off! **D.N.**

instructions	20%
playability	30%
graphics	40%
value for money	50%

★ ★

Tank Atak TI-99/4A £5

This is another of those 'you won't talk to me so I gotta kill you' anti-alien games. Stranded on an alien planet you are under attack from a variety of alien vessels.

It is never quite clear why all aliens are so aggressive, but either way it gives you a chance to shoot them down and maybe get something out of your system.

From time to time you must refuel, and the docking procedure requires some skill as it demands pixel accuracy. Reading between the lines a suspicious mind might think that poor sprite control has been turned into a feature.

Bombs have proximity fuses and explode when near the alien or you, and could also fail. The documentation is sparse but adequate as there is little to this game. The graphics and use of sound are good.

It is unlikely that the game will have much appeal to any but the most hardened alien-zapper, and although the aliens are fast you are not, which tends to make the fight a little too one-sided for satisfaction. This needs Extended BASIC and joysticks. **P.B.**

instructions	70%
playability	70%
graphics	75%
value for money	65%

★ ★ ★

Star Avenger Amstrad CPC464

Kuma Computers, Pangbourne, Berks

It's up to you how deeply involved with Star Avenger you wish to become, for involved you will be.

Your mission is to accomplish the ultimate achievement of flying through all ten scenarios at each skill level, avoiding nine different fast moving targets.

Marked down on playability through no joystick option, this is my only critisism of an otherwise excellent game.

Owing more to artistic licence than to scientific accuracy, your thirsty rocket motors are sustained only by your success in hitting the fuel dumps scattered along the way.

The five skill levels allow you to gradually improve.

Imaginative use has been made of Amstrad's powerful sound commands, whilst Sean Wallis the author has developed the all important moving graphics almost to an art form. The cheque book alphanumerics on the opening screens create a real feeling of anticipation for the futuristic atmosphere of the main program. Excellent indeed.

Opening with a demonstration that shows the whole challenge of this game, it is certain to provide hours of entertainment for anyone quick enough on the trigger. **D.H.**

instructions	85%
playability	90%
graphics	100%
value for money	90%

★ ★ ★ ★ ★

Robactive TI-99/4A

Absolute, 8 Chapel La, Houghton, Cambs PE17 2AY

The review copy contained no inlay card or instructions, and while firms may be eager to put their products out for review, it is vital that reviewers receive exactly what any customer will buy, especially since we have to access the instructions.

This game took some time to review for exactly these reasons. The location is a disused uranium mine, in which you are controlling a robot in an attempt to retrieve barrels of valuable ore left behind after an unspecified accident.

The radiation in the mine is such that it has mutated the insects there so that they resemble Pacmen, a fate worse than death. This radiation also affects your robot so you must be quick about it.

You have three robots and thus three attempts. Points are awarded for barrels retrieved, and as the game progresses so the radiation effect increases as do the points awarded.

The robots, by the way, bear a remarkable resemblance to those which appeared in an American science fiction film a few years ago. **P.B.**

instructions	0%
playability	75%
graphics	70%
value for money	90%

★ ★ ★

Gauntlet 32K Electron £6.95

Micro Power, Sheepscar Hse, Sheepscar St Sough, Leeds LS5 1AD

Once again you are assigned to fight the hostile aliens known as Landers. You pilot the X15 fighter plane, your sole mission is to protect valuable cannisters scattered on a desolate landscape.

If the aliens capture a cannister and take it to the top of the screen it will turn into a mutant. To prevent this you have to zap the aliens and catch the cannister before it hits the ground and disintegrates.

If all the cannisters are captured, the aliens will turn into mutants and will not rest until they have destroyed you. As you progress to higher levels different ships will attack and the rescue will become difficult. You are awarded points from 10 to 80 and every 100 points earn an extra life and ammunition.

The games from this stable are always interesting and Gauntlet is no exception. The graphics are excellent as is the sound. The score table uses two modes at the same time which produces a stunning effect. With an appropriate interface, joystick can also be used with this programme. **M.B.**

instructions	80%
playability	90%
graphics	90%
value for money	90%

★ ★ ★ ★ ★

Mystery and drama

Here are a few adventures to stretch your mental abilities. Read what our reviewers have to say

Ziggurat 48K Spectrum £2.99

Software Supersavers

Ziggurat is an adventure game — and that's about the limit of the instructions! Your mission is to escape and collect the gold coins littered around a monotonous collection of rooms. Each room is described by just one or two adjectives and the graphics at each location are almost identical, apart from colour. Colour is also added to the text and the character set has been redefined to give a bolder appearance.

There is a help command but you are only allowed to use it four times. You may save a partially completed game to continue later.

The input routine is good but you must experiment to find acceptable commands.

Ziggurat seems to be based around a five by five grid with puzzles limited to a few locked doors, although one does require you to get the better of a particularly ravenous tiger.

Alas, the lift to the surface defeats me. As a ziggurat is a pyramidical temple this could lead to more levels, but unless this is correct, and they are an improvement on the first, Ziggurat is unlikely to retain interest for long.

S.J.E.

instructions	10%
playability	35%
graphics	30%
value for money	38%

★ ★

The Wrath of Magra 48K Spectrum £

Carnell, 4 Staunton Rd, Slough, Berks SL2 1NT

Long before the dawn of audible communication there must have been thinking beings. Ancestors who gazed up at the vastness of the night sky, and wondered about the nature of the universe.

Since then the quest for knowledge has taken many paths, which in turn have converged into just two paths.

The Book of Shadows, which accompanies the two tapes making up this game, points out those two paths. If you want to play this pictorial adventure game, then you must read the book.

The game is divided into three levels, but you can't progress into a higher level until you have the key, which is the usual way of things. Written in BASIC, some of the responses are slow, as is the setting of the variables. But patience is a virtue as the saying goes, and is rewarded. If I were a keeper of knowledge, instead of a mere reviewer, I would limit this game only to those who are firmly on the path. Go then, and play the game, and may enlightenment be yours. **B.B.**

instructions	100%
playability	100%
graphics	100%
value for money	100%

★ ★ ★ ★ ★

First and Last TI-99/4A £5

Stainless Software, 10 Alstone Rd, Stockport

This program demonstrates what can be achieved using graphics, and surpasses descriptions of excellence.

Careful use of colour and design has produced a polished chrome effect which is highly appealing.

The game has an anti-war theme, with such gems as "After each war there is a little less democracy to save" and "The quickest way of ending a war is to lose it".

The main character is Zebediah, a wandering hippy who has had the good fortune to discover an alien machine in the desert which he uses to venture into the violent past. Zeb, not possessing a violent nature, has to be guided in jumping over signs, holes, weapons, and avoiding the low-flying clouds. Joysticks are optional.

Each screen is completed when the weapon has traversed from one side to the other, and you have three lives.

There is a Hall of Fame in which all of the entries are by someone called Frankie, for some reason. Zeb has a slow response, so skill is necessary in judging the right moment. All in all, a game which is really best suited to the younger user. This program needs Extended BASIC. **P.B.**

instructions	75%
playability	80%
graphics	95%
value for money	85%

★ ★ ★ ★ ★

The Prince 48K Spectrum £7.95

C.C.S., 14 Langton Way, London SE3 7T1

This is an adventure game which virtually demands that four people play it. No provision is made for the computer to take over any of the roles, and players taking on more than one role each defeats one of the objects of the game, which is intrigue.

Each player has to approach the screen in turn to choose helpers, and to buy objects which they think may help them. Set in the environs of an old castle, each player in turn has to try to find an object, and a word. Possession of the right object, and the right word, should win the game. Even allowing for the fact that I took on all four roles, and therefore knew what was going on, I found the game slow. My personal verdict has to be — nothing very spectacular in the way of adventure games. **B.B.**

instructions	100%
playability	65%
graphics	95%
value for money	75%

★ ★ ★

Escape From The Planet Brontitor TI-99/4A £4.95

BP Software, 5 Saville Pl, Newcastle NE1 8DQ

This is a text-based adventure, supplied as two programs. On side one is the graphics title program, which does not have to be run in order to load the main adventure program on side two. In the title, good use is made of sprites, and I have seen games with less thought put into them than this.

When you load and run the adventure program, you must remember to depress the alphalock key because all commands are given in lower-case letters. Help is available by sending an SAE to BP Software.

One fault: if you obey the loading instructions given in the title program you will simply reload that program. You must turn the cassette over and rewind it to its start before you can load the game itself. This is not made clear, and could cause confusion to someone new to computing.

Bad spelling detracts from an otherwise good adventure, which involves finding your way off the planet before it explodes within 100 T states, where each instruction takes .5 T states so you cannot afford to make any errors. This program needs Extended BASIC. **P.B.**

instructions	75%
playability	75%
graphics	80%
value for money	90%

★ ★ ★

If you think that you can survive the rat race then try this original game by Andrew Bird. You'll need fast reactions

Situation vacant

This game takes you into the competitive world of the job-hunter and gives you a taste of the rat race.

You have applied for the post of shorthand typist and think that you stand a pretty good chance of getting the job. That is, until you meet the other contenders for the position. Hazel and Sandra are extremely fast typists and they're both very keen to get the job.

Your prospective boss has set all three of you a typing test and you must beat Hazel and Sandra.

This game tests your skill on the keyboard, pressing letter after letter in an attempt to finish the test before the other applicants.

Speed is the essence if you want a nice fat wage packet every week.

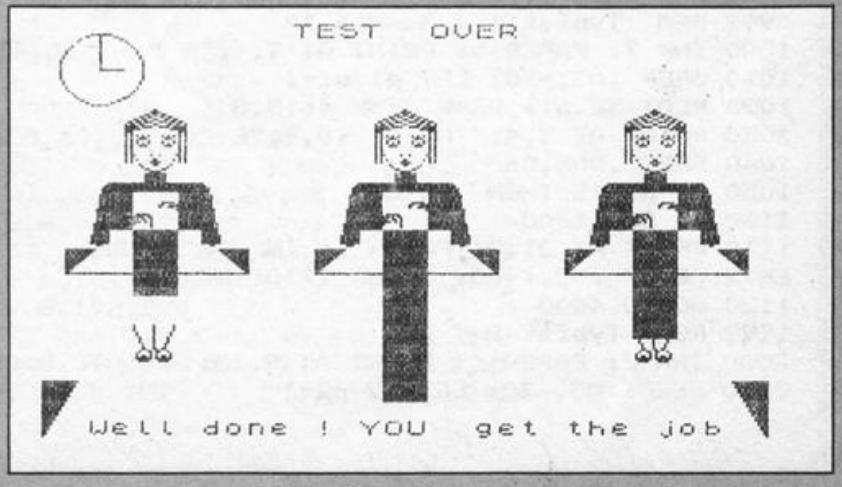
How it Works

1-10 variables, set caps lock, keyboard beep, etc
20-290 draw game
300-350 main loop
1000-1120 typist 1 routine: Sandra
2000-2120 typist 2 routine: you
3000-3110 typist 3 routine: Hazel
4000-4080 print results of test
5000-5010 random letter generator
6000-6030 test over message
7000-7050 instructions

Variables

n$ name input
m$ compares last name with next
i$ instructions
p1,p2,p3 position of paper length
sandra, hazel random number to decide speed of typist
letter actual random letter to be pressed
l detects if letter generated
s sum to calculate typist's speed
ty number of lines to type
f general purpose loops

Screen dump



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Listing

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    1 REM  Typist  required                    By A.G.Bird 1984
    2 PRINT AT 10,10;"Please Wait": GO SUB 9000
    3 POKE 23609,30: POKE 23658,8: LET m$=""
    4 BORDER 7: PAPER 7: CLS
    5 PRINT AT 20,0; INVERSE 1; INK 2;" Typist Required  "; INK 3;" By A.G.Bird.
"
    6 INPUT "name ? ";n$: IF n$=m$ THEN  GO TO 10
    7 LET m$=n$: GO SUB 7000
   10 LET l=0: LET ty=0: LET s=1: LET p1=88: LET p2=88: LET p3=88
   19 REM  Draw game
   20 CLS : FOR f=19 TO 21: PRINT AT f,0; PAPER 1;"
   ": NEXT f
   30 FOR f=1 TO 23 STEP 11: FOR n=12 TO 14: PRINT  PAPER 2;AT n,f;"         ": NE
XT n: NEXT f
   40 FOR f=15 TO 17: PRINT  PAPER 2;AT f,1;" ";AT f,8;" ";AT f,12;" ";AT f,19;"
";AT f,23;" ";AT f,30;" ": NEXT f
   50 FOR f=11 TO 12: PRINT  PAPER 3;AT f,3;"    ";AT f,14;"    ";AT f,25;"    ":
 NEXT f
   60 INK 0: FOR f=29 TO 205 STEP 88
   70 PLOT f,116: DRAW 0,13: PLOT f+2,116: DRAW 0,13: FOR n=1 TO 4: PLOT f,128+n:
 DRAW 11,n+2: NEXT n
   80 PLOT f+19,116: DRAW 0,13: PLOT f+21,116: DRAW 0,13: FOR n=1 TO 4: PLOT f+21
,128+n: DRAW -11,n+2: NEXT n: NEXT f
   90 FOR f=4 TO 26 STEP 11: PRINT AT 6,f; INK 1;"AB";AT 7,f; INK 2;"CD": NEXT f
  100 FOR f=2 TO 24 STEP 11
  110 PRINT AT 8,f; INK 0;"M  N";AT 9,f;"O  P";AT 10,f;"Q  R";AT 11,f;"
S";A
T 11,f+5;"T"
  120 PRINT AT 15,f+1; PAPER 0;"    ";AT 10,f+2; INK 7;"EF";AT 16,f+2; PAPER 7; I
NK 2;"IJ";AT 17,f+2;"KL": NEXT f
  130 INK 7: FOR f=8 TO 184 STEP 88: FOR n=0 TO 10: PLOT f,69: DRAW n,10: PLOT f+
64,69: DRAW -n,10: NEXT n: PLOT f,69: DRAW 64,0: NEXT f
  140 FOR f=0 TO 12: PLOT 0,0: DRAW f,23: PLOT 255,0: DRAW -f,23: NEXT f
  150 INK 1: CIRCLE 20,155,15
  160 PLOT 20,155: DRAW 8,0: PLOT 20,155: DRAW -11,6: BEEP .5,0
  170 FOR f=0 TO 1: OVER f: PLOT 20,155: DRAW -11,6: BEEP .1,-30: NEXT f
  180 FOR f=0 TO 1: OVER f: PLOT 20,155: DRAW -9,11: BEEP .1,-25: NEXT f
  190 FOR f=0 TO 1: OVER f: PLOT 20,155: DRAW -6,13: BEEP .1,-20: NEXT f
  200 OVER 0: PLOT 20,155: DRAW 0,14: BEEP .05,50
  250 INK 5: CIRCLE 132,146,2
  260 CIRCLE 138,155,4
  270 CIRCLE 155,164,10
  280 LET sandra=(INT (RND*4)+6)/10: LET hazel=(INT (RND*4)+6)/10
  290 RANDOMIZE
  299 REM  Main loop
  300 IF l=0 THEN  GO SUB 5000
  310 IF RND>sandra THEN  GO SUB 1000
  320 IF RND>hazel THEN  GO SUB 3000
  330 IF ty>0 THEN  GO SUB 2000
  340 IF PEEK 23560=letter THEN  LET ty=ty+3: LET l=0
  350 LET s=s-.001: GO TO 300
  999 REM  Typist 1 ( Sandra )
 1000 INK 7: PAPER 0: PRINT AT 9,4;"G ";AT 10,4;" F"
 1010 BEEP .03,-20: LET p1=p1-1
 1020 PLOT 32,p1: DRAW  INK 4;15,0
 1030 PRINT AT 9,4;" H";AT 10,4;"E "
 1040 BEEP .005,56
 1050 IF p1>15 THEN  RETURN
 1100 GO SUB 6000
 1110 PRINT AT 21,2; PAPER 1; INK 7;"SANDRA      gets the job": FOR f=10 TO 60 ST
EP 2: BEEP .02,f-10: PAUSE f/10: NEXT f
 1120 GO TO 4000
 1999 REM  Typist 2 ( you )
 2000 INK 7: PAPER 0: PRINT AT 9,15;"G ";AT 10,15;" F"
 2010 BEEP .03,-20: LET p2=p2-1
```

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2020 PLOT 120,p2: DRAW  INK 6;15,0
2030 PRINT AT 9,15;" H";AT 10,15;"E "
2040 BEEP .005,60
2050 LET ty=ty-1
2060 IF p2>15 THEN  RETURN
2100 GO SUB 6000
2110 PRINT AT 21,2; PAPER 1; INK 7;"Well done ! YOU  get the job": FOR f=1 TO 40
: BEEP .01,f: PAUSE 5-f/10: BEEP .01,f+20: NEXT f
2120 GO TO 4000
2999 REM  Typist 3 ( Hazel )
3000 INK 7: PAPER 0: PRINT AT 9,26;"G ";AT 10,26;" F"
3010 BEEP .03,-20: LET p3=p3-1
3020 PLOT 208,p3: DRAW  INK 5;15,0
3030 PRINT AT 9,26;" H";AT 10,26;"E "
3040 BEEP .005,58
3050 IF p3>15 THEN  RETURN
3100 GO SUB 6000
3110 PRINT AT 21,2; PAPER 1; INK 7;"the job goes to ..... HAZEL": FOR f=10 TO 6
0 STEP 2: BEEP .02,f-10: PAUSE f/10: NEXT f
3999 REM  Results of test
4000 FOR f=1 TO 500: NEXT f
4010 FOR f=1 TO 100: OUT 254,f: OUT 254,100-f: NEXT f
4020 BORDER 3: PAPER 3: CLS
4030 PRINT AT 0,9; PAPER 4; INK 0;" TEST RESULTS "
4040 PAPER 5: INK 0: PRINT AT 6,0; PAPER 5;" SANDRA      ";INT ((88-p1)*s);" wor
ds per minute"
4050 PRINT AT 10,0;" ";n$;"            ";AT 10,13;INT ((88-p2)*s);" words per mi
nute"
4060 PRINT AT 14,0;" HAZEL       ";INT ((88-p3)*s);" words per minute"
4070 FOR f=0 TO 20 STEP 2: BEEP .01,f: BEEP .02,f+10: BEEP .03,f+20: BEEP .04,f+
30: NEXT f
4080 PRINT AT 21,0; PAPER 6;" Press any key for another test ": PAUSE 0: GO TO 4
4999 REM  Random letter
5000 LET letter=INT (RND*26)+65
5010 PRINT AT 1,19; PAPER 7; INK 1;CHR$ letter: LET l=1: RETURN
5999 REM  Test over routine
6000 FOR f=0 TO 3: PRINT  PAPER 7;AT f,15;"       ": NEXT f
6010 PRINT AT 0,10; PAPER 2; INK 7;" TEST  OVER "
6020 FOR f=60 TO -30 STEP -5: BEEP .02,f: BEEP .01,f-1: BEEP .005,f-2: NEXT f
6030 RETURN
6999 REM  Instructions
7000 LET i$="      Following your applicationfor the job of shorthand/typist,you
 are now at the interview andthe Personnel manager requires  you to take a typin
g test at 3  o'clock to see how good you are."
7010 LET i$=i$+"  You will sit in the middle  ofthe other 2 girls and you must
finish the test before them if  you are to get the job."
7020 INK 1: PRINT : PRINT "   Dear ";n$: BEEP .01,50: PRINT
7030 FOR f=1 TO LEN i$: PRINT i$(f);
7040 IF i$(f)<>CHR$ 32 THEN  BEEP .02,10: BEEP .01,40: PAUSE 2
7050 IF f=32 OR f=64 OR f=96 OR f=128 OR f=160 OR f=192 OR f=224 OR f=256 OR f=2
88 THEN  PRINT : PRINT
7060 NEXT f
7070 PAUSE 400: RETURN
8999 REM  Graphics
9000 FOR g=65368 TO 65527: READ r: POKE g,r: NEXT g: RETURN
9010 DATA 84,56,68,84,56,0,0,0,42,28,34,42,28,0,0,0
9020 DATA 130,0,65,3,33,16,12,3,65,0,130,192,132,8,48,192
9030 DATA 0,124,246,218,234,130,2,0,0,30,110,91,87,65,64,0
9040 DATA 0,0,0,0,124,230,242,128,0,0,0,0,62,103,79,1
9050 DATA 129,129,129,65,65,33,33,33,2,2,2,4,4,8,8,8
9060 DATA 17,17,25,38,66,90,126,60,16,16,176,200,132,180,252,120
9070 DATA 0,0,0,0,1,3,7,7,0,0,0,0,128,192,224,224
9080 DATA 7,15,15,15,15,15,15,31,224,240,240,240,240,240,240,248
9090 DATA 31,31,31,31,31,63,63,63,248,248,248,248,248,252,252,252
9100 DATA 63,63,127,127,127,127,28,0,252,252,254,254,254,254,24,0
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Family fun

I am writing in reply to Graham Busfield's letter in HCW 88 in which he pleads with software producers to produce more games with the family in mind.

From the first week in December 1984 Chibur is launching 5 brand new programs which have been carefully prepared duing 1984. One of them at least has the family firmly in mind and is called Take Over for the 48K Spectrum.

It is a completely original game, which might be compared with Monopoly, but we use modern computer names and invite the users to compete with the computer. The price is £5.95 including p&p.

As a specialist software producer my team of programmers and I would like to say that we have to keep our eye on all the computer literature and always read HCW, which gives us a good spread of essential news and which gives a good spread of essential news and technical information programs etc, all of which is necessary in this exciting new age of computers.

Apart from providing entertainment, computers are now well grounded in the country's educational establishments, and that is why Chibur strives to produce interesting utilities as well as arcade and adventure games.

Chibur, 3 Lonsdale St, Leicester LE2 1BP

Chess Freak

To all chess playing HCW readers: How good is your computer chess program? How far can it see ahead? Can it solve mate in two move problems?

If any reader sends me an sae plus a 20p coin I will send them 12 diagramed chess positions with solutions. There are nine problems with two-moves, two three-move problems and one four-move problem

John Rundle, 26 Western Rd, Aldershot, Hants GU11 3PL

Thanks HCW

I am the proud owner of an Oric Atmos. I bought the Atmos after my Spectrum went wrong for the third time.

I find that the BASIC is much better than the Spectrum's and much more user friendly.

I want to thank HCW for printing programs for the Oric Atmos as software is almost non-existent and I am very much in need of some games. You first printed something about the Atmos in issue 45.

Although HCW does not back the Atmos like it does the Spectrum and TI-99/4A the programs that are printed always work and are very enjoyable.

Ian Vutram, Strood

Quick service

I felt I had to write and let HCW readers know about the good fast service I have just received from a particular software house.

Recently I had an unfortunate mishap with a cassette program, it was totally my fault. I sent the tape (Rock Storm II) back to Harlequin Software on Saturday 10 November. I expected it to be returned about a month later with an invoice. I was very surprised when it returned on Tuesday 13 November, and very pleased when I found a note inside saying "Free of charge".

If this letter gets published it will make a nice change to the usual moans and groans about the software houses. By the way the program is for the TI-99/4A and is very good.

Mark Lee, Maltby TI-99/4A Users Club

Help wanted

I am writing in reply to Graham Busfield's letter in HCW 88 in which he complains about the lack of software for families to enjoy.

My family recently bought a computer, a Commodore 64 in fact, and we have had hours of fun using it in the short time since we obtained it.

I am 15 years old and my school does not yet have computing facilities so I was very pleased when my dad decided to buy the Commodore.

I was beginning to feel rather left out because many of my friends have computers and enjoy using them very much. When I went out with them they always used to go on and on about the new games they had. Now I am able to join in and we have great fun discussing new tactics.

Anyway, to turn back to the original reason for writing this letter. Graham is absolutely right when he says that there is hardly anything available. We have been searching for good games to buy for Christmas and we are almost at a loss as to what to get.

I wonder if any reader could give us some advice on the subject as we are very anxious not to waste money since games are so expensive and yet we would like to buy one or two new ones for the Christmas holiday.

Peter Manning, Rotherham

Eureka: it's good

I read with interest the HCW review of Eureka as I bought a copy of the game on the day of release.

It's an adventure I have rather mixed feelings about. On the one hand are good grapics, excellent use of sound and some neat touches of humour, on the other is the irritating lack of a save facility.

There is nothing more annoying than to complete over half an adventure and have to begin again.

On the whole I enjoy playing Eureka but tend to play less than I would if I could save my state of play.

Also may I heartily recommend Level 9 adventures, surely some of the best ever.

Liz Tomlinson, Havant

Vote of confidence

Not given to writing letters to magazines, (until now), I felt obliged to reply to Cyril Bezant's recent letter on Amstrad/Amsoft.

I have now had my CPC464 for some two months and am delighted with it. I have written two or three letters to both Amstrad and Amsoft and have had very prompt replies and advice. I have a printer on order so I cannot yet comment on package orders as such but in their last magazine Amstrad did say that initial order processing problems (main-frame computer) had been overcome.

In any event many of my local agents have had Codename Matt in for months, so what's the problem?

An ardent adventurer, may I thank Level 9 for so promptly converting for the CPC464. I just hope Beyond do Lords of Midnight and Doom Dark's Revenge as soon as possible. Gilsoft is also converting the Quill and this should really help 464 owners.

I am looking forward to better software for Christmas. Already one sees software houses taking advantage of the machine's capabilities.

I am delighted with the 464 and the prompt help and assistance received so far. I hope that this letter will provide a balance.

R W H Dasent, Guildford

Come on girls!

I am writing in reply to Mrs McCarthy of Southampton whose letter was published in HCW 88.

I am very pleased to see that more and more older people and women are becoming interested in computers. I think that it is a real shame that girls are not encouraged more in the technical subjects when they are at school but are expected to like things like needlework and cookery.

The best jobs for school leavers are in the industries where the new technology has had the most impact and it is a real shame that girls often lose out on the possibility of a very good career in these fields because they are put off when they are at school.

So come on girls, make yourselves heard and be a bit more assertive. I work as a computer programmer and really enjoy my job. It is great fun and very very interesting. But I find that women are a very small minority of the people who work in my field so I am especially pleased when I see letters from women in HCW who have discovered the interest from women in HCW who have discovered the interest and possibilities of the home micro and are putting their brains to good use.

Judith Watson, Cardiff

School comment

Having read a letter in a recent issue of HCW about computers in schools, I feel that I must state my views on the subject.

My school has been teaching computer studies for a year now and I have learnt an enormous amount about all kinds of new technology.

Pupils should be given every opportunity to use computers at school and they should start as young as possible. Once you have reached a certain age you begin to worry that all these new ideas are too difficult for you to understand and that you would be no good if you tried.

I was very wary of computers when I had no hands-on experience but now with many hours of programming behind me I feel very confident in this subject.

I understand computers now and I realise that they are just lumps of machinery that need people to control them. This may sound obvious but there are many adults (including my mum) who find them difficult to understand and are very worried by them. My mum will never question anything which looks as if it comes from a computer, she automatically believes it. I expect there are many other middle-aged people like her.

I think it's really good when I read letters from older people on the HCW letters page. I was especially pleased to see the one from Mrs McCarthy of Southampton.

Boys always think that girls will be useless at any technical subject and I find this extremely irritating. Many of the girls in my class are better than the boys at very many subjects, including computer studies.

Anyway thanks HCW for printing this letter (I hope!) and keep up the good work.

Mary Steele, Hull

Send your letters to Letters, Home Computing Weekly, No.1 Golden Square, London W1R 3AB. Don't forget to name your computer — the best letter could win £5-worth of software. Got a problem with your micro? We'll soon be starting a queries page, so send your technical questions to Queries at the above address.

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How to create multi-coloured UDCs

In this article John Revis demonstrates how you can take full advantage of the outstanding graphic capabilities of the BBC/Electron

As has been stated upon numerous occasions, the graphic capapilities of the BBC micro computer are outstanding. It is therefore the aim of this article to prove to you that the multi-coloured user defined characters so frequently used by the commercial software houses are readily available to both you and me for use in our humble programs.

Before plunging in at the deep end I feel we should re-cap on the basics of user defined character (UDC) definition on the BBC. The BBC's VDU command is the command used when the programmer wants to send instructions to the "VDU drivers", the part of the machine operating system responsible for the printing and manipulation of graphics on the screen.

When wishing to produce UDC's we use the VDU23,n,n,n,n,n,n,n,n version of the command. n represents the identification number you have assigned to the character, followed by eight values which inform the computer of the shape to be drawn. Although this may appear to be quite a daunting task, the values required to produce a character in the shape of a man can be calculated quite simply.

Firstly draw an 8 x 8 grid on a piece of paper. Next, number the columns from right to left as shown in Fig.1. Using a pencil, shade the appropriate squares until you have produced the required shape. All that is left to do now is to total up the values of the shaded squares in each row, the value of each square being indicated at the top of its column.

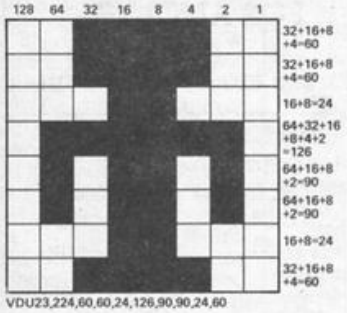


Figure 1

The VDU23 statement is then constructed by typing VDU23 followed by the identification number (any number between 224 and 255) and the eight values calculated using the grid. The VDU command calculated from our diagram of the man is shown in Fig.1.

To print the character, type the following lines;

```
1 REM Program 1
20 VDU23,224,60,60,24,126,90,
   90,24,60
30 PRINT CHR$(224)
40 END
```

Having RUN the program a man should have appeared in the top left-hand corner of the screen. To colour the character amend the program by adding the following:

```
25 COLOUR 1
```

Running this program will colour the man red. The man can be printed in various sizes by altering the value following the MODE command, but please ensure that the mode selected is a graphic mode, e.g. 0,1,2,4 or 5 otherwise the character will not be printed.

As you noticed, by adding the COLOUR statement at line 25 we could print a coloured character. You have probably also noticed that the character was only one colour. To get around the limitations of the commands as used so far, we must look again at the 8 x 8 grid and our little man.

In Fig.2 we have decided which colours are to be used in our character and divided him into sections of similar colour.

As an example we shall take the colour black as used for his hair and shoes (Fig.3). These give us the character definition VDU23,225,60,36,0,0,0,0,0,60.

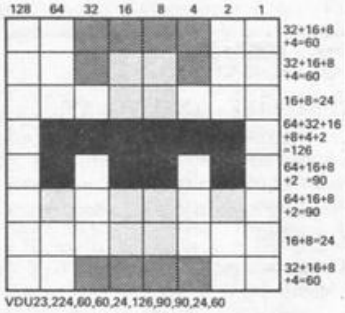


Figure 2

We now repeat this procedure for each of the other three colours giving us a total of four UDC's which should hopefully, when superimposed, produce our original character.

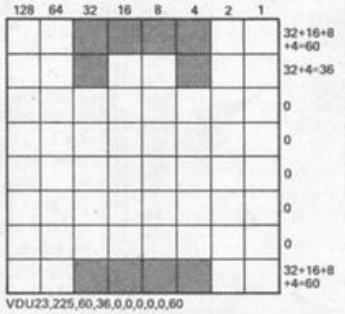


Figure 3

The BBC computer uses two types of cursor: text cursor and graphics cursor. So far we have been using the text cursor, which allows you to print a character, ASCII or user defined, at any character position on the screen. In the case of mode 2 this is a 20 x 32 grid. If we attempt to superimpose our four characters using the text cursor, as shown in Program 2, you will see that the only visible character after running the program is the last character printed. In this case it's the man's trousers.

```
1 REM Program 2
10 MODE 2
20  VDU23,225,60,36,0,0,0,0,
   0,60 : REM Hair + Shoes
30 VDU23,0,24,24,0,0,66,0,0, :
   REM Face + Hands
40  VDU23,227,0,0,0,126,90,0,
   0,0, : REM Shirt
50 VDU23,228,0,0,0,0,0,24,24,
   0, : REM Trousers
60  PRINT : PRINT
70  FOR N% = 225 TO 228
80  PRINT CHR$(N%);CHR
   $(N%(8)
90  NEXT N%
100  PRINT : PRINT
110  END
```

Immediately following the statement which prints the character on line 80 there is the statement CHR$(8); this is required because having printed the first character the computer automatically steps one character space to the right waiting to print the next character. CHR$(8) is the code to move the cursor one space to the left and the next character is therefore printed directly on top of the first one.

The graphics cursor is much more flexible than the text cursor. It allows graphics to be printed anywhere on the screen using a 1280 x 1024 grid for its co-ordinates. It also allows characters to be superimposed. By using the command VDU 5, the text and graphics cursors become one, everything being printed at the graphics cursor.

Having combined the two cursors you will find that you can no longer print at a specified point on the screen using the statement PRINT TAB(X,Y); man$; the computer must now be given specified co-ordinates before using the PRINT statement, e.g. MOVE 640512 : PRINT man$. This prints a man in the centre of the screen. By adding the following lines to program 2 you will see the effect of using the graphics cursor:

```
15 VDU 5
60 MOVE 640,512
```

Upon running the program the separate parts of our man are recombined to produce a complete character and not just his trousers. Now we have the power to create a whole man

from his constituent parts (Dr Frankenstein eat your heart out!). It is now only a short step to give each part a separate colour. As we are printing at the graphics cursor we must use the graphic colour statement GCOL to give colour to a printed character.

To avoid any confusion I must explain that the statement GCOL 0,1 (print graphics in red) can also be written as PRINT CHR$(18);CHR$(0); CHR$(1). Once the CHR$(18) statement has been used the computer expects the next two values entered to be the mode of plotting to be used (User Guide p.262) followed by the number of the colour in which the graphics are to be printed. By issuing this statement before printing each character, as in Program 3, we can create a multi-coloured man.

```
1 REM Program 3
10 MODE 2
20 VDU 5
30  VDU23,225,60,36,0,0,0,0,
   0,60 : REM Hair + Shoes
40 VDU23,226,0,24,24,0,0,66,
   0,0, : REM Face + Hands
50 VDU23,227,0,0,0,126,90,0,
   0,0, : REM Shirt
60 VDU23,228,0,0,0,0,0,24,24,
   0 : REM Trousers
70 GCOL 0,131 : CLS : REM
   Colour background white
80 MOVE 640,512
90 REM Print multi-coloured
   man
100 PRINT CHR$(18); CHR$
   (0);CHR$(0);CHR$(225);
   CHR$(8);CHR$(18); CHR$
   (0); CHR$(5);CHR$(226);
   CHR$(8);CHR$(18);CHR$
   (0);CHR$(2);CHR$(227);
   CHR$(8);CHR$(18);CHR$
   (0);CHR$(4);CHR$(228)
110 PRINT : PRINT
120 END
```

Program 3 certainly works but is not exactly elegant. It also uses a great deal of memory when line 100 has to be repeated eachtime you want to print a man during the game.

Once again the ever flexible VDU command comes to our rescue: VDU 225 is identical to PRINT CHR$(225). Line 100 can therefore be replaced with;

```
100 VDU 18,0,0,225,8,18,0,5,
    226,8,18,0,2,227,8,18,0,4,
    228
```

This new version is an improvement but the whole VDU statement must still be typed whenever you wish to print a man. Program 4 was written to enable all the code to be contained in a string variable. In this example we named it man$. The data required to construct the character is held in a DATA statement and is READ into the variable only once, at the start of the program. From that point onwards the multi-coloured character of the man can be printed at any time in the program by merely typing PRINT man$

In Program 4 it is the Procedure, PROCdefine character, called at line 90, which is responsible for assigning the data, necessary to produce the multi-coloured character of a man, to the variable man$. The technique of string concentration (User Guide p.64) is used to combine all the CHR$ statements used in program 3 line 100 to produce one long string, man$. This string, when printed, contains all the information required to carry out the colour changes and cursor movements necessary to produce our multi-coloured man.

One of the major problems facing the BASIC programmer is the disconcerting rate at which animated characters slow down once the number of animated characters being used is increased. By clever use of the techniques you now have at your disposal it is quite possible to print characters and give them the illusion of movement without constantly instructing the computer to re-draw the character in two different poses, thereby creating the movement.

This technique, which I have always considered as being 'animation without animation', makes use of the BBC's flashing colours. If you, like me, have ever wondered why the BBC computer wasted one of its colours by having both flashing green-magenta and magenta-green, then ponder no more. They are the very secret of the technique.

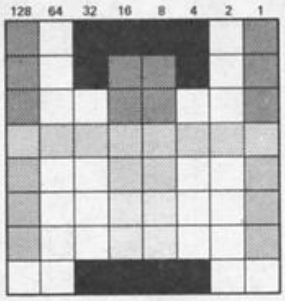


Figure 4

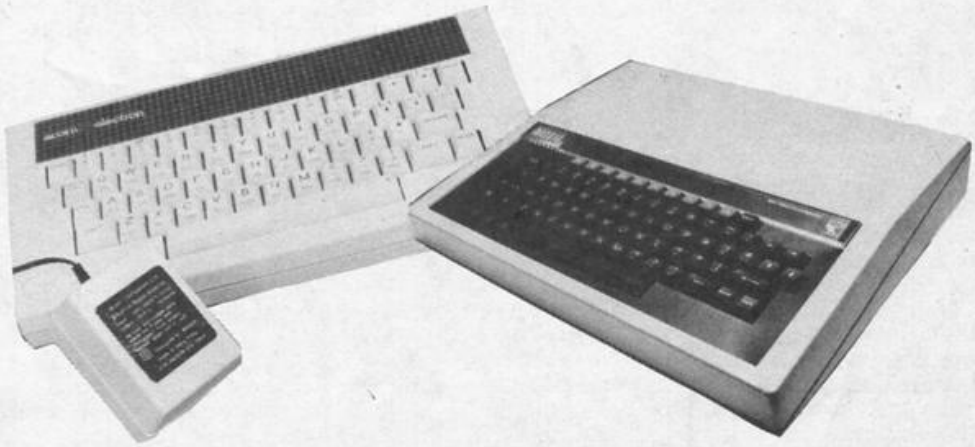
Returning once more to our little man on his 8 x 8 grid (Fig.4) even the less observant of you cannot fail to notice that he now has four arms, one pair pointing upwards, the other pointing down. This time we will colour his shirt and arms to the elbow in magenta. For the forearms pointing upwards we will use colour 10, flashing green-magenta; for the forearms pointing downwards we will use colour 13, flashing magenta-green.

```
1 REM Program 5
10 MODE 2
20 VDU 5
30  VDU23,225,60,36,0,0,0,0,
   0,60 : REM Hair and shoes
40  VDU23,226,0,24,24,0,0,0,
   0,0 : REM Face (no hands)
50 VDU23,227,0,0,0,255,24,0,
   0,0 : REM New shirt definition i.e. no forearms
60 VDU23,228,0,0,0,0,0,24,24,
   0, : REM Trousers
70  VDU23,229,129,129,0,0,0,
   0,0 : REM Arms up
80 VDU23,230,0,0,0,0,129,129,
   0 : REM Arms down
90 PROCdefine character
100 man$ = a$ : REM assign
   the contents of a$ to man$
110 GCOL 0,131 : REM Colour
   background white
120 MOVE 640,512
130 REM Print multi-coloured
   man
140 PRINT man$
150 PRINT : PRINT
160 END
170 DEP PROCdefine charac-
   ter
180 RESTORE 260
190 a$ = "" : REM ensure the
   temporary string a$ is empty
200 FOR N% = 0 TO 34 :
   REM number of items of
   data
210 READ char%
220 a$ = a$ + CHR$(char%)
   REM concatonate the
   individual values into a$
230 NEXT N%
240 ENDPROC
250  REM character data for
   man
260  DATA 18,0,0,225,8,18,0,
   1,226,8,18,0,5,227,8,18,0,
   10,229,8,18,0,13,230,8,18,0,
   4,228
```

Upon running program 5 you will see the weird effect of a man with four arms, all flashing different colours, You may think at this point that the whole experiment has been a failure. If you have faith for just a little longer, and replace line 80 with the following, all will be revealed.

```
80 GCOL 0,130 : CLS : REM
   Colour background green
```

Now when you RUN the program you will see that our little character waves away quite happily even though the program has stopped running. With a little imagination this technique can be used for innumerable applications, e.g. rotating the blades of a helicopter or turning the wheels of a car, and all without wasting the computer's valuable time instructing it to re-draw the characters to produce the desired effects.



Mix and match

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Auto Sound Utility TI-99/4A £4

Stainless Software, 10 Alstone Rd, Stockport

This is not for the squeamish or those unfamiliar with what a DSR is or does. It concerns a powerful facility, only recently come to light, which is interrupt-driven to provide continuous music while a program executes, in much the same way that sprites are set in motion and continue to move while the program continues. It is a sort of 'music while it works'.

The review copy was a bit confusing. The documentation and cassette mentioned a second version for the Mini-Memory, but I could locate only the Extended BASIC version. The documentation is sparse and user-friendly. I've been an owner since early 1980 and I had headaches trying to follow the explanations.

The program was easy to crash, so you need to be careful, but if operated correctly it will provide all the necessary values to be LOADed into memory in order to produce a tune for your more sophisticated programs.

A sample program is included in the documentation which demonstrates how the resulting values can be inserted into memory by your program. This needs Extended BASIC and 32K RAM Expansion. **P.B.**

instructions	74%
ease of use	85%
display	80%
value for money	100%

★ ★ ★ ★ ★

Grasp Amstrad CPC464 £8.50

Camel Micros, 33a Commercial Rd, Weymouth, Dorset

Despite its unusual title this is a serious program to help you to draw graphs. They can also be plotted on your printer if it is an Epson compatible type.

The range of charts is impressive. You can have over nine sets of data in memory at one time and by setting windows, from within the program, you can have a number of these on screen at any one time. Scaling of axes is automatic and data entry and editing is very simple indeed.

The basic options are bar charts, line graphs and pie charts but these can even be combined on the same graph if you require. The command page has a whole galaxy of options giving you almost complete control over the final result.

The manual is well written and fairly chatty but a little short in some of the details. One minor niggle is that the program hangs up if you try printing the page without a printer attached. Overall this is a good, simple to use yet powerful package at a reasonable price. **D.C.**

instructions	85%
ease of use	95%
graphics	100%
value for money	90%

★ ★ ★ ★ ★

Penguin Study Software CBM 64 £7.95 each

Penguin Books, Harmondsworth Middlesex

This is not a new range of programs, it has been available on the Spectrum and BBC for some time. Now Penguin have made their six Shakespeare study aids available for the CBM 64. They are: Twelfth Night, Romeo and Juliet, Macbeth, Henry IV Part 1, Julius Caesar and The Merchant of Venice. Many people justify their purchase of a home computer partly on educational grounds, so the market is there.

Don't expect to load up the program, sit back, and be transformed from an O Level/CSE fail to a pass. These are study aids, not magic knowledge pills.

What you get after a fast Nova load, is essentially a database of comments, pieces of insight and thought provoking questions referenced by character, theme and act. You specify a reference, such as in Twelfth Night, "Malvolio, Sir Toby, Act 2", and it will tell you how many relevant comments it has and list them with act, scene and line number.

There is nothing here that couldn't be put in a notebook, it is the convenience that you pay for. Anything that makes work easier and more interesting can't be bad. **B.J.**

instructions	90%
ease of use	80%
graphics	80%
value for money	78%

★ ★ ★ ★

Combat Lynx 48K Spectrum £8.95

Combat Lynx is a real-time battle simulation, in which you arm your Lynx helicopter and fly off to protect your bases with mines. You also support those under attack with air cover, back-up troops and intercept and destroy enemy vehicles.

At each base you can arm the helicopter with up to six types of weapon, and select the number of troops to be carried. Any injured troops can be treated at Base 0, which is the only base at the start to have fuel or ammunition.

The display is in 3D, showing the landscape smoothly scrolling beneath you. The only disappointment is that a cockpit view isn't shown — the helicopter is viewed from behind in one of four directions.

Sections from a vast map can be viewed which show the location of the enemy vehicles and your bases.

All the keys for the 25 different commands can be redefined.

Even on the easiest of the four levels your task is extremely difficult, which can make Combat Lynx very frustrating. If you want a challenging, complex strategy game then this is a must. **S.J.E.**

instructions	90%
playability	70%
graphics	90%
value for money	100%

★ ★ ★ ★ ★

Castle Assault Electron £5.70

MRM, 17 Cross Coates Rd, Grimsby DN34 4QH

Here's an entertaining game for all arcade fanatics, but to avoid hours of frustration, be warned, you really do need to be an expert to succeed.

Using the keyboard, you control a man in his quest for gold. He must scale all five levels of a castle wall to complete a sheet and claim his bag of riches. Ladders lead to each level, but a menacing menagerie lies in wait. On three levels you hop over a series of crabs that try to grab your man with their pincers. On the second and fourth levels are moving platforms — which I found difficult to negotiate. At the end of each level is a fruit to collect for bonus points.

Further hazards include flying ducks, fallng rocks, snakes, lobsters and creepy crawlies that make their appearance in later sheets.

The action is accompanied by appropriate sound effects but, fortunately, when this eventually grates on your nerves, there is an option to turn it off.

With superb graphics and high score feature at the end of each game, this is certainly competitively prices. **J.W.**

instructions	80%
playability	75%
graphics	85%
value for money	90%

★ ★ ★ ★

Turbo joystick interface

David Martin takes a close look at RAM's new Turbo joystick interface. Read what he thinks

RAM Turbo Joystick Interface Sinclair Spectrum/ Spectrum + £22.95

RAM Electronics, 106 Fleet Rd, Fleet, Hampshire GU13 9PA

You can't have failed to notice the full page, full colour adverts for this interface in the computer press; and you can't have failed to notice the price. It's £3 more than Sinclair's own Interface 2. What do you get for the extra money, and is it worth?

The Turbo is contained in a sturdily moulded case, very similar to the Spectrum itself. A sleek, low lying unit, there's no problem of it failing to mate with the Spectrum [2] as is the case with some other units. Also moulded in is a large tab with a hold in it, through which your power supply lead fits. In other words, you have to disconnect the power supply to fit it, which is a good thing! It will prevent you from blowing your Spectrum's innards. Quite ingenious!

The whole of the Spectrum's expansion port is repeated at the rear of the Turbo, so you can connect other add-ons quite easily without having to remove the joystick port every time, which doesn't do the edge connector any good at all. This is another plus point over Interface 2, which only provides the lines for the now discontinued ZX Printer. Atop the unit is a ROM cartridge port with a hatch, for all those cartridge games from Star Wars which we were promised, but which have never materialised. It would seem to be a great way to give us other languages, BBC BASIC even, but it looks like no-one is doing it.

Just behind the ROM hatch lurk two standard nine-pin D sockets for the joysticks, and this is the really clever bit. In normal use the left hand port simulates Interface 2's joystick 1, that is keys 6, 7, 8, 9, and 0 to fire, whilst the right hand port is joystick 2, keys 1, 2, 3, 4, and 5. If, however, the Turbo detects that a game is compatible with the Kempston protocol (IN 31), then the right hand port automatically switches to this, without your having to do anything! Quite magical!!

And that's not all! If your game uses the cursor keys instead, then switch off your Spectrum, connect the Turbo, then, holding the fire button on your joystick down, switch on again. Your Turbo is now configured with the correct keys. In other words, whatever joystick protocol your game is designed for, the Turbo can cope. This is really very handy.

The whole thing came very soundly packed, and is accompanied by a thorough manual which features some useful do's and don'ts, and tips for writing joystick control into your own programs.

In use, the Turbo is very straightforward. You should never need to disconnect it. I say should, because although RAM says the Turbo is completely Microdrive-compatible and also compatible with Centronics printer interfaces which can be hung on the back, in practice mine seems to have produced some peculiar Microdrive failures when used in conjunction with the Tasman Printer Interface. I hoped to avoid all the connecting and disconnecting problems associated with joystick interfaces with no through ports. As it is, I've paid a lot of money to face exactly the same problem. In addition, some games didn't seem to like the automatic switching to Kempston facility, notably Braxx Bluff from Micromega; I had to use the Sinclair protocol, or the game crashed.

Overall then, a noble attempt to provide more facilities than anyone else within the confines of one box, and that's what you pay the extra for. I would like to recommend it wholeheartedly, but, in view of the upredictable quirks noted above, I can't. You will have to decide for yourself whether it will meet all your requirements, and whether the extra facilities it offers merit the extra cash. It would be interesting to compare it with the latest offerings from dk'tronics and Kempston.

D.M.

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Compiled by W. H. Smith and Websters. Figures in brackets are last week's positions.

VIC-20

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9	Challenger	ronic (-)
10	Return to Eden	Level 9 (-)

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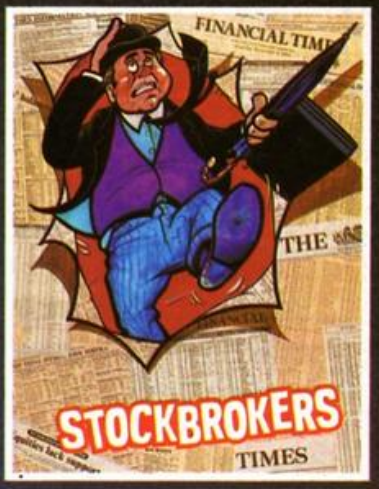

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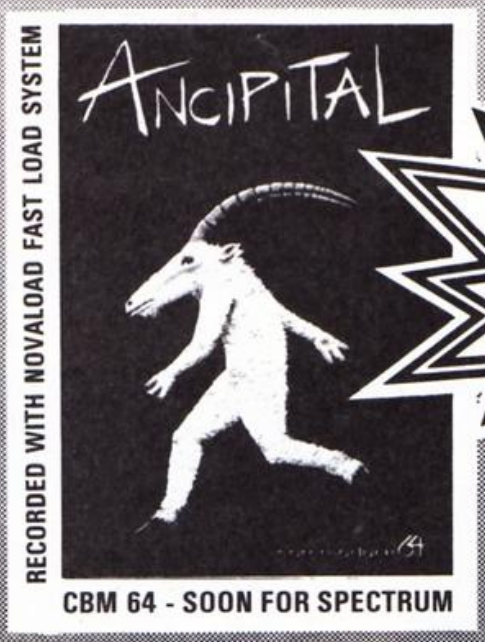

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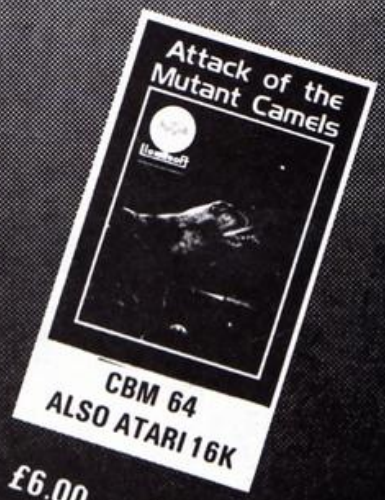

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