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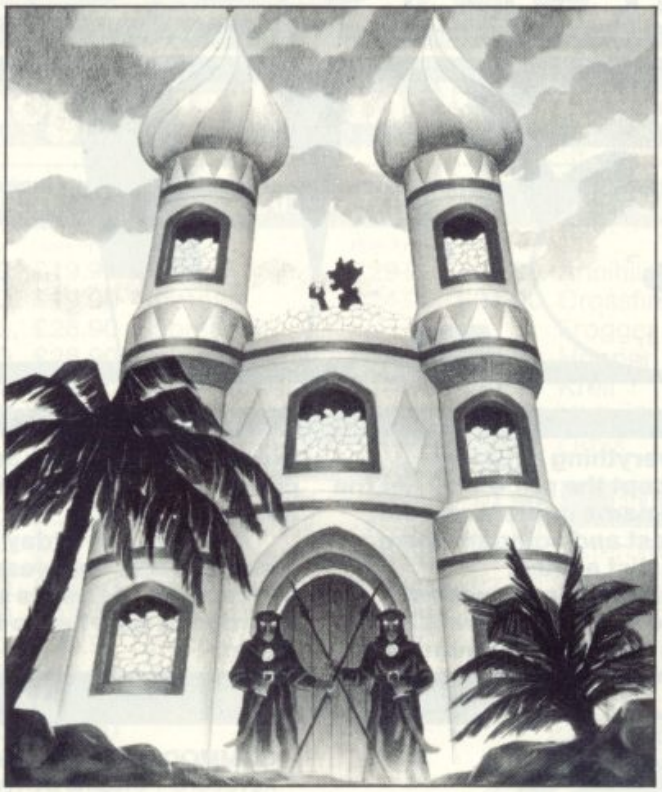

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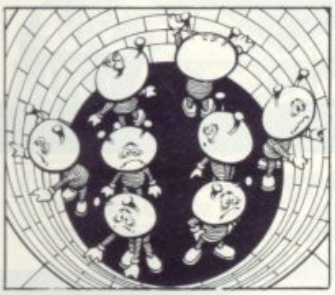

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QUICKDRAW TO MUSIC

Dear Sir,
Quickdraw in the June 1983 issue of *C&VG* was excellent. I typed it into my Apple computer and was immediately impressed by the graphics. But the Death March tune was awful! I have written a new Death March routine which other readers might like to try.

Change line 98 to read as follows: 98 DATA 245, 215, 200, 245, 205, 150, 245, 173, 50, 245, 205, 150, 230, 203, 100, 235, 175, 50, 235, 190, 150, 245, 185, 50, 245, 185, 150, 247, 190, 50, 245, 255, 500.

Mark Heather,
Sevenoaks,
Kent.

OVER THE STICKS!

Dear Sir,
I own a 16k ZX81 and have a motherboard and wish to attain a 1/0 port so that I can use my Atari joysticks. So please could you tell me if there is any such 1/0 port for Atari joysticks and who makes them.

Dean Clark,
Barking,
Essex.

Editor's reply: There are three main joystick controllers for the Sinclair machines. They are made by Kempston, Fuller and AGF. Kempston and AGF modules plug directly into the rear of the ZX computer. The Fuller system is part of its "box". These will all be reviewed in the near future.

Keith Archer, of Fuller, describes what happens when a joystick is used: The Fuller box has a joystick controller port or socket which works in a similar way to Kempston's.

Our joystick is sensed by the Spectrum using the 'IN' command. The eight-data bits of port 127 are usually high ie. Port 127 contains decimal 255 or binary 11111111. As the joystick is moved around or the fire button pressed, certain bits of the eight-bit, byte will be pulled low to logic 0.

Therefore the IN 127 command would return different decimal values according to which direction the joystick is being pushed.

```
7  6  5  4  3  2  1  0
BIT NO.

PORT 127
1  1  1  1  1  1  1  1
NORMALLY HIGH — LOGIC 1

F              R  L  D  U
I              I  E  O  P
CONTROL OF JOYSTICK

R              G  F  W
E              H  T  N
               T
```

As the joystick is pushed up, bit 0 is pulled low so the binary value becomes 1111111ϕ — decimal 254. When the fire key is pressed bit 7 goes low giving ϕ1111111 — decimal 127.

Any combination of direction or fire key; ie. diagonally up and left as

well as fire would give three bits low ie. ϕ1111ϕ1ϕ — decimal 122

So, in a Basic program, a statement of the form: IF INKEY$ = "5" THEN LET X=X+1 for action to the left could be replaced by IF IN 127 = BIN 11111ϕ11 THEN LET X = X+1 or IF IN 127 = 251 THEN LET X = X+1

Replacing the appropriate INKEY$ statement with the right IN 127 command, a game could be controlled by joysticks instead of cursor keys, or any other combination of keys.

One common question asked is "which keys does your joystick work on?" The answer is none.

Buying a joystick does not mean that you can control all your games without changes. I have found that people think that if they have a game which uses the cursor control keys — 5,6,7,8, with ϕ to fine or similar, and they find another game with the same keys to control the game but it also works on a joystick, then they assume that all games using these keys will be OK using a joystick and controller.

They don't realise that the game needs to be changed to suit the joystick being used.

THE LONG LOST BUG!

Dear Sir,
A word about the bugs. What has happened to Lost Memory (see May 82, issue No. 7)? I suppose he's forgotten which micro he was in and has just wandered off. By the way, who is the person behind the marvellous Bugs strips?

As an ardent fan of the Bugs (when in magazines and not in ROM's or in programs) I thought of a basic story line you might want to use: The micro has a synthesiser, and when it plays music (or "Pings", "Zaps" and "Brrr's" as the case may be) it's all thanks to the Bug's band. The micro-owner, however, buys a super-addictive 'shoot-em-down' game with "Zaps", "Boings", "Wagawooawag-awoo's" and everything else you can think of.

So as the micro-owner plays this game for hours on end the bugs soon collapse exhausted and all that's left of the game in the way of sound is "Blip!", "Crash!", "Aaargh!", "Omph!", "Phutt!"

Jeremy Youngman,
Old Catton,
Norwich.

Editors reply: Elphin Lloyd-Jones is the man behind the Bugs Jeremy, and he is always looking for new ideas for scripts — otherwise he has to rely on the feeble efforts of yours truly. So we'll consider your idea and if anyone else out there has a good idea for a Bugs' script please put it down on paper and write in.

A WOULD-BE SKY PILOT

Dear Sir,
I own a 32k Pet and as yet I have not found one flight simulation for it.

Please could you ask your readers if they know of any company which supplies this game?

P.S. What do you get if you cross a nuclear reactor with a computer? Fission Chips!

Barry Jones,
Knebworth,
Herts.

CONVERTING COMMANDS

Dear Sir,
At school we learn how to write programs and use a Pet computer, but I can only afford an ZX81 plus 16k RAM. Could you tell me if there is a piece of hardware or cassette to convert the INPUT command to READ/DATA?

Dean Moore,
Darwen,
Lancs.

Editor's reply: Most ZX81 programs use string arrays to overcome the lack of READ/DATA, RESTORE. They also use LET too.

You will have to do this conversion to get any software using these constructions to run on the ZX81. (Slice the string containing the information.)

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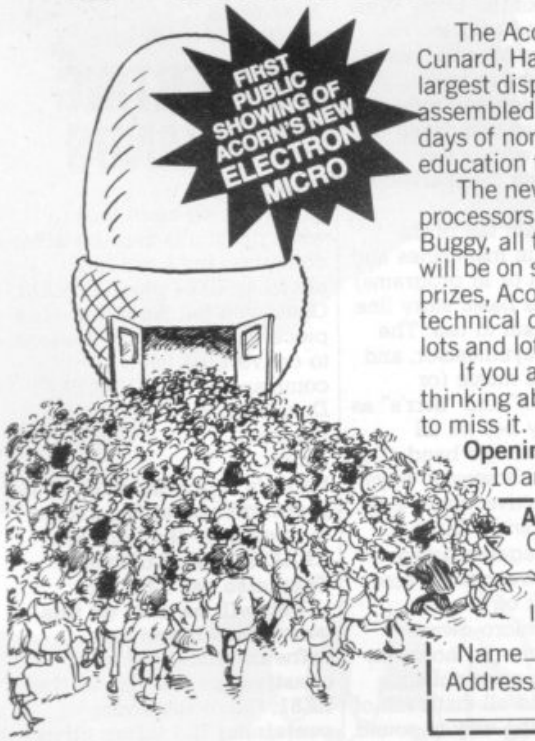

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MAILBAG

LONG LIVE THE PET

Dear Sir,
Is my Pet dead? I was introduced to computers about a year ago, and was fortunate to obtain a small keyboard 2001/8k Pet at a resonable price, on which to start. Up to that time there was a wealth of useful programs for the Pet in the magazines on the market.

With increased experience I now need more memory and would like to upgrade the ROM's. Correspondence with Commodore for help only produced an unsatisfactory reply after several letters and months, and the Commodore agents I contacted only wanted to upgrade as part of an expensive service, or sell me a Vic.

The Pet Users Club provided the most beneficial advice and consequently I have now installed one of Audio Computers' excellent 32k expansion RAM's but the ROM problem still remains.

The point of the letter is to ask in the light of CBM's general unhelpfulness, if the Pet has finally reached the end of its life.

It is also interesting to note that most magazines, including yours, now have very little of any consequence to offer for the Pet, we seem inundated with offerings for the Vic and ZX81!

In conclusion, I shall like to thank you for refreshing approach to computer programming in your articles, mainly 'Practical Programming', and 'Graphics'.
J. Wyatt,
March,
Cambridgeshire.

Editor's reply: The Pet, in its original form is most certainly 'dead' and has been for some years. It has, however, produced a number of offspring — the Vic, Commodore 64 etc. The model you have is difficult to upgrade to Basic 2.0 or Basic 4.0 and further discussion with the Pet Users Club should point you in the direction of other members who have overcome the problem.

As for the lack of software . . . the Pet was really developed as an engineering/commercial/ educational machine and so few games have recently been published as its derivatives do so much better. There is nothing to stop you converting Vic games into Pet ones.

CRACKING THE CODE

Dear Sir,
I own a ZX Spectrum and I am having a problem with saving writing and loading. I think it would be a good idea if readers who can successfully save, verify and load volumes could tell your readers the volume settings they use on their cassette recorders when carrying out these functions. It would also help if they tell us the make of recorder they use.

My own recorder is a Waltham W104MIA.
Nick Morgan,
Wolverhampton,
West Midlands.

Editor's reply: The Waltham cassette recorder is a fairly cheap model and is not really recommended for the Spectrum. Even similar models give different results — so your idea is not really on. We suggest that anybody buying a cassette recorder for *any* computer tries it out before paying for it!

KONG'S ODD BEHAVIOUR

Dear Sir,
I am writing on behalf of all the Donkey Kong players in Eastbourne, we have about four or five Donkey Kong machines in various arcades and pubs in Eastbourne, but every one appears to be faulty.

My present high score is 428,300 which I achieved several months ago and which you printed in your magazine, I achieved this score and had two lives left when the machine went faulty. Since then I have not found a single machine in or outside Eastbourne which will go above that score.

I know that some machines in the USA go up to 800,000 but they have a different type of machine.

I have also found other variations on the game in France and Spain in which extra gaps have been left in the beams so that Mario has to jump holes as well as barrels. Also in some versions (on the pie screen) Kong rolls around on skates and, on the plug screen, if you touch Kong you die. On others you can run behind Kong or in front.

On all of the different machines I have played on they all seem to go wrong as

I have explained. This is a great pity as I can now reach 400,000 with only one life then the machine goes wrong and I lose the other three lives. I am sure that if I played on a working machine I could attain a much higher score. Have any of your other readers experienced this?
J. Bull,
Eastbourne,
East Sussex.

PROCESSING VIDEO GAMES

Dear Sir,
Could you please advise me whether there are any video game programmes that are compatible to use with Spellbinder word processor.
Miss J. E. Ogilvie,
Ipswich,
Suffolk.

Editor's reply: Most word processors are not able to handle games. However, yours seems to be able to use Basic. What any game needs though, are decent graphics so it would be highly unlikely that any games are available.

DEFENDING THE ATARI

Dear Sir,
I felt I must write and voice my disagreement with a number of points raised in your May issue. First, I disagree that the standard of Atari games published is particularly high.

Secondly, Mr D. A. Johnson, I believe from an interested friend that T.I. sprites are only available if the extended Basic cartridge is bought.

Lastly, your Atari Defender reviewer cannot be an Atari owner. Put Preppie, Protector, Galactic Chase and 250 other games up against Acornsoft — the only real quality Beeb games — and Atari would win every time.
Marc Freebury,
Reading,
Berks.

NEW IDEAS, NEW GAMES

Dear Sir,
I have an idea for what I believe to be an original video game for home or maybe arcade use. However, my knowledge of programming is insufficient to enable me to produce more than an outline. Could you please tell me:

Which manufacturers might be interested and how might they be best approached? What detail would be required? How can I best protect my interests?
A. F. Hackett
Cramlington,
Northumberland.

Editor's reply: The best way to locate a manufacturer/ distributor of games is to look through, say, *C&VG* and find who seems to be marketing the best range for your machine. Just write a letter and say what you have. Do not send anything.

Outline the game and ask for details of any legal agreements they may use. Any reputable company has these things sewn up.

Your interests could best be looked after by going to a lawyer, and let him have a look through any agreement. Say 10% of any sales, or some money up front and a lower royalty.

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There's £5,000 in good honest cash going to the winner of our August competition to find Britain's brightest programming talents.

The prize comes from Calisto Software of Birmingham which is keen to expand the number of machines it covers and use home-grown programmers rather than ship in games from the US.

Calisto's Mike Woodroffe believes it takes three months to write a good games program and that's what you've got. If you're starting from scratch, your program must be finished by October 16th.

If you are going to polish up one of your previous efforts, then why not send it quickly and get started on another program. You can enter as many programs as you like as long as each comes with an entry form cut from the magazine — and we'll have more forms in our September and October issues.

But there's a chance for everyone to be a winner in this competition as Calisto will be giving out software contracts to the designers of games they want to market.

So even if you don't end up £5,000 richer straight away, you could still find the royalties rolling in if you become part of Calisto's team of software writers.

You can enter on any popular microcomputer and all cassettes will be tested by Calisto's team of judges. If your offering is picked as the winner, you'll be presented with a cheque for £5,000 at the brand new home computing show Brainwave '83 in the NEC Birmingham in the first week of November.

To enter, simply fill in the form below and attach it to a cassette of the game. Make sure you fill in all the details about yourself and your game on the form.

If the game instructions are not included on the cassette itself, then add them on a separate piece of paper but please ensure that your name and address are included on every part of your entry.

Perhaps you are a keen programmer who has not yet turned his hand to games, then you can enter any kind of program and Calisto will test it out.

The winner will be the reader who comes up with the best commercial program, and Calisto will also pay royalties on all copies sold. Remember all published entries will be given a software contract, possibly worth a lot of money.

The judging time is limited so get your entry in as quickly as possible but be sure that your program is properly polished first, to give yourself a good chance of coming away £5,000 richer.

The entries must be sent to: £5,000 Program, Calisto Software, 119 John Bright Street, Birmingham B1 1BE.

VOTE FOR THE GOLD STICKS

Do you have a favourite game that is worth its weight in gold? Or a software company you would like to reward for its high standards and prompt service?

Here at *C&VG*, we decided that the best of British software houses deserved the chance to win some recognition after a hard and competitive year which has seen games programming standards rising fast.

We are sponsoring five Golden Joystick Awards which we hope will become the UK Oscars of games programming.

This is your chance to nominate a company which has given good service or earn recognition for the game which has given the most pleasure in the last nine months (since November 1982).

Our five categories are:

- Best Arcade-style Game, which goes to the cassette or cartridge which proves itself the most addictive and thrilling.
- Best Strategy Game, is the title bestowed on the finest cassette or cartridge to test the mind rather than the trigger finger — like a favourite adventure.
- Best Original Game Idea goes to a company which has come up with a game of a completely new type, unlike any board, arcade or computer game seen before.
- Software House of the Year goes to the company which has earned the best reputation for quality games, good service and entertaining advertising.

Please enter this program in the £5,000 program competition

Program name: .....

Machine: ..... **Model:** .....

Number of K needed to run it: ..... **K**

Other equipment needed to run it: .....

Author's name: .....

Address: .....

.....

Telephone No: .....

All entries will be the property of Calisto Software and the entrants will assign all rights, patents and privileges of their game to Calisto.

No employees of *Computer & Video Games*, Calisto, or their relatives, will be eligible to enter the competition.

All entries must be sent in with an original coupon from *Computer & Video Games* — NOT A COPY.

The judge's decision is final and no correspondence can be entered into.

You can enter any number of programs as long as each is sent in with a form from *Computer & Video Games*. Winners will be notified before October 30th.

● Game of the Year is the most coveted Golden Joystick of all, awarded to the game which most impresses the judges in 83.

This game must first have won one of the previous games categories and where that has happened the second-place cassette is promoted to take that title.

Initially we are leaving the judging up to you and want you to tell us your nominations in any or all of the categories.

Just pick out your favourite games and fill in the form below.

The title Software House of the Year is open to distributors of overseas software, but for the rest, we are looking for British-based games programmers.

Cut out the form below and make your vote for gaming quality count. Send it to:

The Golden Joysticks, *Computer & Video Games,* Durrant House, Herbal Hill, London EC1R 5JB.

Please accept the following nominations for the Golden Joystick Awards.

(BLOCK CAPITALS PLEASE)

1) Best Arcade Type Game: .....

By (Software house): .....

2) Best Strategy Game: .....

By: .....

3) Best Original Game: .....

By: .....

4) Software House of the Year: .....

5) Game of the Year: .....

By: .....

Name: .....

Address: .....

.....

NAME	CHARACTER TYPE	SCORE	WORLDS	FLEETS	SHIPS	ARTIFACTS	= BONUS
ARKRAI	COLLECTOR	2490	16	11	124	16	0
CAPPEL	EMPIRE-BUILDER	1814	19	13	73	7	0
CATRIQ	COLLECTOR	1740	16	18	129	11	0
AUSTIN	PIRATE	1562	9	15	31	2	0
ITEMIZ	COLLECTOR	1500	16	14	82	8	0
THEOCR	APOSTLE	1330	23	19	137	6	0
ARACHN	EMPIRE-BUILDER	1144	12	16	93	1	0
BUSHCT	PIRATE	1142	14	9	55	7	0
SICAIR	APOSTLE	899	12	14	108	8	0
COTELL	APOSTLE	812	11	12	33	2	0
BINGAR	BERSERKER	488	20	14	50	9	0
GZINTI	BERSERKER	262	12	11	89	6	0
THEDOK	MERCHANT	208	11	15	104	6	0
KSIFF	MERCHANT	160	13	9	55	6	0
MEGALA	BERSERKER	111	13	13	60	2	0

VICTORY POINT LIMIT = 2,400 (MAX 10,000)

DID YOU TANGLE WITH THE STARWEB?—THEN READ ON

Our Starweb game is now over — but we hope that all of our readers who took part enjoyed the experience. Here's a message from one of the people who joined in, Mark Woolrich, and a rundown of the final positions.

"Overall Starweb has been an excellent game, becoming at times a time consuming hobby whilst still retaining the ability to be played quickly and with little thought should you find yourself busy with other things.

One of Starweb's best features is the interaction with "red" players, (rather than semi-predictable "computer" players), in whom you could find all the better and worse traits of human nature and who give the game a complexity impossible to get from the computer alone.

However, the game was not without its frustrations, the main one being the fate of all things of a lettery nature that are foolishly allowed to fall into the hands of the Post Office.

One thing though, that is a fault of the game is the obvious imbalance between character types. You can see at a glance from the score sheet the types that the game favours.

Us poor Berserkers must be the result of a Xenophobic game designer, and as for the Merchants, their wealth presumably relies upon trust and goodwill both of which are notably lacking in a game where there's only one winner. In the Starweb rule book there is a hint that a handicapping system might be introduced, but when?

Finally, although I'm full of ideas on how to conduct my next game of Starweb as a result of my experience, I'm afraid the cost is too much at £30 or more per game.

However, I'd love to play Starweb again and again until I found a way for the poor underdog Berserker to come out on top. And after that I'd have a go at the Merchant type. Life's no fun without a struggle."

Mark Woolrich,
Formerly Gzinti Fleet Controller

spectrum

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from SPECTRUM

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PRESTEL

See PRESTEL Page 600181 for up to date information from SPECTRUM

AFTER SALES CARE

SPECTRUM service centres will ensure that should your machine 'go down' **we will get it running again as quickly as possible.** We also offer **extended warranties** at reasonable prices too! - ask your **SPECTRUM HOME COMPUTER CENTRE** for full details.

COMPUTER DEALERS

The **SPECTRUM** dealer list is virtually closed. If your area is free and you'd like to join the waiting list, please write to **MIKE STERN, Spectrum (U.K.) Ltd, Burrowfields, Welwyn Garden City, Herts.**

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More power! More features!

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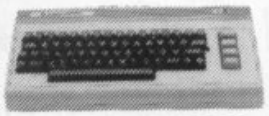

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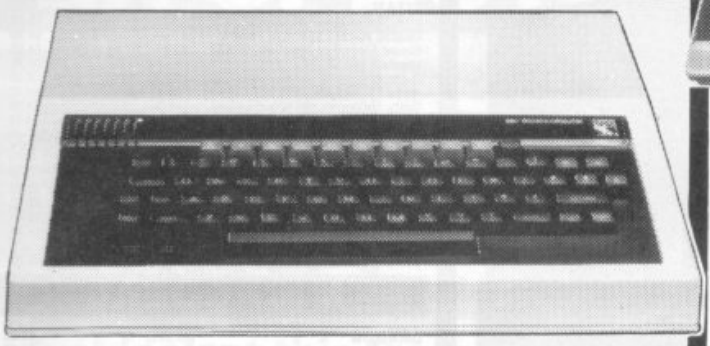

Yes, this **top selling Micro system** is now available from your local **SPECTRUM** dealer -the **BBC Model'B'** offering **32K RAM** plus a **full back-up** of **peripherals** & **software** too! It's an **infinitely expandable** machine, ideal for the **home or business** and is already widely used for **educational purposes in schools** - so the chances are **your** children may already be **well familiar with its operation**, which must make it the **ideal choice** for the **home** too!

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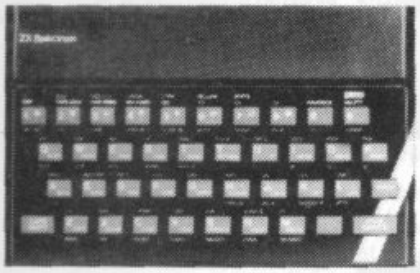
spectrum

SINCLAIR ZX SPECTRUM



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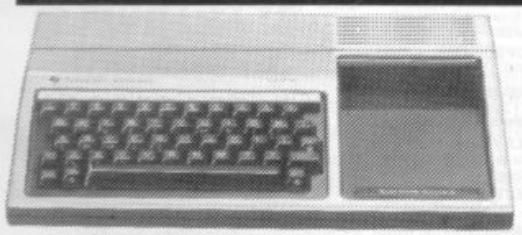

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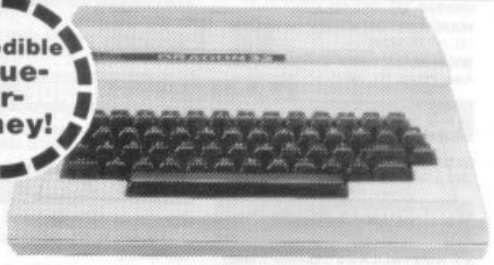

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Not all stores carry every advertised item, please phone before making a journey – Prices correct at time of going to press E. & O.E.

NEW PRODUCTS NEW PRODUCTS NEW PRODUCT

GAMES NEWS

DIAMONDS ARE MARIO'S DOWNFALL!

KONG 64

Diamonds are a girl's best friend — until they stop her being rescued from the clutches of a well-known ape.

In Krazy Kong 64, Mad Mario is once again faced with the task of rescuing his starlet girlfriend. But this time, he not only has to dodge the bouncing barrels, he must also gather up her scattered diamonds.

Should he miss a diamond, Mario has the risky job of backtracking his steps to collect it, at the same time dodging the ever-present barrels, before he can move on to the next level. The remaining levels offer further challenges with various objects to be collected.

Krazy Kong 64 is a one-player game and you'll need a joystick. It is available from Hampshire-based Interceptor Micros and all leading retailers at £7.00.

Also available for the Commodore 64 from Interceptor Micros this month, are Star Trek, an interstellar adventure game, Spriteman, based on the original arcade game Pacman and Scramble, all retailing at £7.00.

SIXTEEN SCREENS OF DANGER!

MANIC MINER

Manic Miner is a sixteen screen climbing game for the Sinclair Spectrum due out shortly from Bug Byte software of Liverpool.

Based on the hit American game Miner 2049'er the idea of the game is to get your little character up to the final screen — climbing ladders — hopping on lifts and jumping onto platforms.

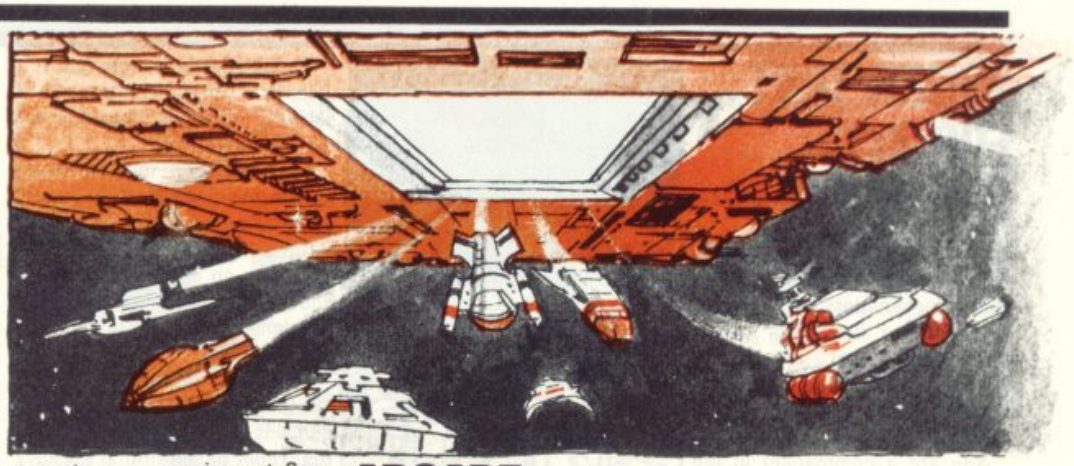
Various obstacles will have to be overcome if you are to successfully get your little man to the top.

Manic Miner will run on the 16 or 48k Spectrum and will be in the shops in July at £5.95.

The Liverpool-based firm have recently been celebrating their move to new premises at Canning Place beside the Mersey.

The new offices are a games programmers dream with an enormous room for computers — programers and the various tools of the software writers trade.

Above the programming department and offices is a computer tape duplicating plant which churns out all Bug Byte games.



ENJOY THE JET SET LIFE STYLE

DOMINIC

Fancy living the high life. Swanning around plush casinos in expensive clothing throwing away tens of thousands of pounds on a reckless gambling spree.

If the answer is yes, but Daddy doesn't own an oil well, then you may still be able to get a taste of the jet set with this latest game.

You are Dominic — a wheeler dealer tycoon who prefers grinding his opponents into bankruptcy on the roulette table in his spare time to putting his feet up in his luxury home.

Feel you can take on his personality for an afternoon on your Atari 400/800 — if so you'll need the latest cartridge from Bomb.

Two other titles in this new range of games from the former video games manufacturers are Funny Tadpcle and Indianapolys. The Tadpole game challenges you to save poor little lost Bobo from being swallowed by the big fish in the tank.

Indianapolys is a car racing game recreating the thrills and spills of the race track.

The games are imported into the UK by Pancom of Grimsby and sell for around the £15 mark.

ARCADE ALIENS INVADE!

GORF

That popular Bally Midway arcade game Gorf has now been licensed by Commodore and converted to cartridge for the Vic-20.

Four levels of attack are mounted on your laser base as you struggle to repel the Gorfian Empire's bid to take over Earth.

The first wave of attackers consist of Droid ships and UFO's controlled by a single Gorf from a safe distance. The purpose of this first attack is to test your defences.

The real battle begins on level two when a Gorf confronts you with Attack and Laser ships.

If you survive this level the Gorfs will know that they've got a fight on their hands and will send their toughest pilots — the Space Warp Fighters into the fray. They attack in spiral formation and are armed with torpedoes which track your ship with deadly precision.

The final conflict takes place when you confront the Gorfian Flagship. Only the most skilled pilots should apply for this mission as you will have to blast your way through a force-field and then launch a prolonged attack on the ship itself. It requires several direct hits on the Gorfian flagship to eliminate it.

At the end of the mission you will be given a rank based on your performance. Six grades are awarded from Space Cadet to Space Avenger.

Sign on for this challenge at your local Commodore stockist. You will need a Vic-20 and £24.95 to join the good fight.

Three other new games carts are launched this month from Commodore for the Vic-20.

Cosmic Jailbreak casts you as the keeper of the Cosmic Jail. Stop the bad guys from all over the universe making a bid for freedom.

More crime in Money Wars. This time you play the crook trying to get away the loot.

Menagerie provides your chance to be a flea for an afternoon. Guide the tiny microbe on a perilous journey through a spider swamp, desert, and on to the mystical wall — hitching rides on other animals as you go.

Money Wars, Menagerie, and Cosmic Jailbreak are available now at £19.95.

TREASURE HUNT IN THE DEEP

SHARK

Shark Treasure is one of the new batch of games from Dragon Data for this new machine.

The idea of the game is to get your diver safely down to the ocean bed pick, up the treasure scattered over the sea floor and get it to the surface without being devoured by the killer sharks which patrol the wreck.

Also new this month is a chopper rescue style game entitled Whirlybird Run. You have to rescue the hostages whilst avoiding the attack of jet fighters and ground tanks.

The games are due out in July and will be available from Dragon dealers at around £10.

GAMES NEWS

TOUGH TEST FOR ALL SPACE ACES

XENON

Fleet Commanders everywhere must prepare their pilots for the toughest test yet. The Aards, Pararatrons and the Zorgon Battle Star are massing on the outer reaches of Radon.

You are a commander in the Xenon Space Academy an organisation which protects affiliated planets from attack by pirates from other galaxies. The survival of Radon rests with your fleet.

The aliens attack in three waves — the Aards have the power to clone on destruction, defying your fleet to wipe them out for good and all.

Survive this onslaught and you must fly on through meteorites — skillfully refuelling until you arrive on Radon.

Once you have touched down on the besieged planet you will soon be attacked by the Zorgon Battle Star. This final challenge will draw on all your knowledge and skill acquired at the Academy if you are to repel its attack.

Xenon is a shoot 'em up for the 48k Oric from I.J.K. Software. The game is available now from the Blackpool based firm at £8.50.

Also new from IJK for the Oric is a two game cassette with 3D Maze and Breakout on it for £7.50. Candyfloss and Hangman are also available at £7.50 — both for the 48k machine.

C & VG's COMPUTER GAMES TOP TEN

ZX81

1. Flight Simulation (Psion)
2. 3D Monster Maze (New Generation)
3. Chess (Psion)
4. Space Raiders (Psion)
5. QS Scramble (Quicksilva)
6. Galaxians (Artic)
7. Alien Dropout (Silversoft)
8. Avenger (Abacus)
9. 10 games for 1K (J. K. Greye)
10. Night Gunner (Digital Integration)

Vic-20

1. Arcadia (Imagine)
2. Panic (Bug Byte)
3. Wacky Waiters (Imagine)
4. Cosmiads (Bug Byte)
5. Catch Snatcha (Imagine)
6. Asteroids (Bug Byte)
7. Golf (Commodore)
8. Amok (Audiogenic)
9. Alien Blitz (Audiogenic)
10. Choplifter (Creative Software)

Sinclair Spectrum

1. Flight Simulation (Psion)
2. Jet pac (Ultimate)
3. Penetrator (Melbourne House)
4. Horace goes Ski-ing (Psion)
5. Acardia (Imagine)
6. Transylvanian Tower (Richard Shepherd Software)
7. Ah, Diddums! (Imagine)
8. Hungry Horace (Psion)
9. The Hobbit (Melbourne House)
10. Space Raider (Psion)

Atari 400/800

1. Qix (Atari)
2. Galaxians (Atari)
3. Defender (Atari)
4. Zaxxon (Data Soft)
5. Pac-Man (Atari)
6. Star Raiders (Atari)
7. Miner 2049'er (Big Five)
8. Centipede (Atari)
9. Missile Command (Atari)
10. Space Invaders (Atari)

SWEET TOOTH IS AN ANT'S DOWNFALL

ROMOX

Ant-Eaters are a viscious breed of preditors sniffing out their prey with that sinister long snout.

The same snouts will be sniffing out Atari owners to play this latest game cartridge from Romox.

You take the part of an ant trying to dig your way to the surface to pick up sugar lumps and take them back to your lair.

The ant-eater marches up and down on the surface. As soon as you break the surface it can pursue you down the tunnels which you have already created in your bid to get the sugar lumps.

Ant Eater is based on the popular arcade game Dig Dug and should provide stiff competition for the official Atari Dig Dug which will go on sale next month.

On the first screen you face just one eater but these increase one by one as you move up through the screens until there are three of them pursuing you. There are also rocks which you can make fall on your pursuers and delayed-action bombs which you can detonate by remote control to blow up the ant eaters.

Three other new cartridges are on offer from this brand new Atari games firms — all in cartridge format.

Attack at CYG-4 is a scrolling shoot 'em up with various aliens and space sectors to be penetrated.

Princess and Frog is a Frogger type game and Fortune Hunter a classic treasure room adventure.

In Princess and Frog a busy jousting field takes the place of the usual Frogger motorway. Mounted knights rush back and forth across the screen — and the frog must avoid their deadly lances.

In the river you'll find snakes and serpents instead of logs and turtles. An interesting variation of an overworked theme.

The games are available from Atari dealers now or direct from Surrey based Romox at £29.99.

GAMES NEWS

RETURN OF THE WOOLLY JUMPERS!

VIRGIN GAMES

The first seven titles from Virgin Games, the new spin-off from their record producing empire, have just arrived.

Predictably there are several space shoot 'em ups with titles like Starfire, Mission Mercury, Space Adventure, and Landfall.

On a slightly more original note is a game called Sheepwalk for the 48k Spectrum. You control Rex the sheepdog as he rounds up the flock that have escaped from the pen. Being careful not to let Rex get too close to the sheep to scare them he must also be swift if he is to stop the sheep destroying Farmer Brown's prize radishes and beetroots. See the Reviews pages for our opinion on the game.

The second most original game in the batch is Bug Bomb for the BBC which challenges you to rid electronic grids which provide power for the cities of mutant bugs.

Other games in the range include Yomp — a Frogger type game in which you have to get your soldiers across a busy road.

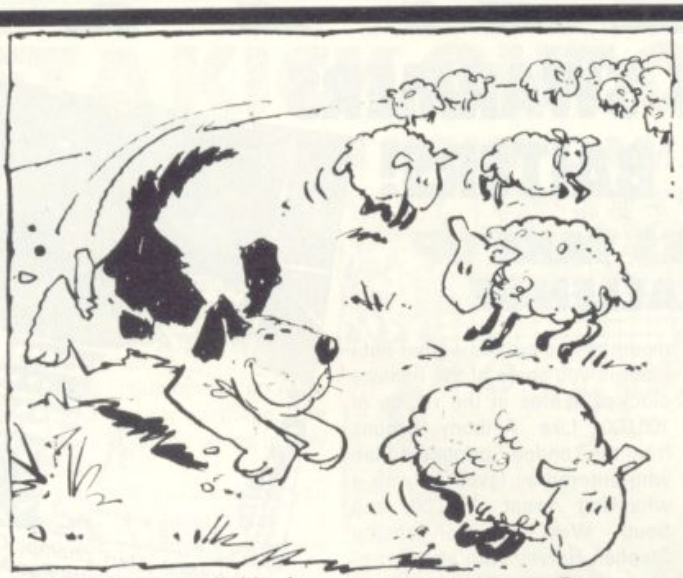
Golf fans can also play the game on their Spectrum with a simulation for the 16 or 48k machine. Virgin games are in the shops now at £7.95.

THE AWESOME ROBOTS AIM TO KILL!

ANDROIDS

If you think of cute characters like Metal Mickey when somebody mentions robots then forget it. Start thinking about homicidal laser-spitting death droids!

In Androids, the latest game from Sunshine Software of London, you are being pursued through a maze by the robots. You are armed with a gun — though this has limited fire power and will have to be replenished from time to time by walking over the coloured squares.



Androids is available from Sunshine at £4.95. The game will run on the Spectrum in 16 or 48K.

Also new from Sunshine this month for the Spectrum is space shoot 'em up called Galaxy Attack for the 48k machine. Your ship has crashed on a distant planet. It's a race against time to rebuild your craft in time before the alien Walkers reach it and blast your defenceless crew.

GIVE YOUR GAMES SOME STICK!

CONVERSION

If you have invested £20 in a joystick for your Spectrum and then when you got it home found that some of your favourite games are not joystick compatible then you will be pleased that a solution is at hand.

Kempsoft — the software division of the joystick manufacturers have written two conversion tapes.

The conversion tape is loaded into the Spectrum. A menu appears from which you select the game conversion you require. This is then loaded and you then load your chosen game in the normal way.

Tape one converts Hungry Horace, Horace Goes Skiing, Flight Simulation, Arcadia, Penetrator, Spectrum Spectres and Space Zombies.

The tapes cost £4.95 each and are available from Kempston Micro Electronics of Bedford.

GAMES TO LAST A LIFETIME!

JUMPING JACK

The next range of games will take "half a lifetime" to get through all their levels.

It is a range of three games due to be launched in early July, two of them on the Spectrum and one on the Commodore 64.

As we go to press the details are few and far between but we do know a little about Zzoom (previewed right), and the other two are Zip-Zap (Spectrum) and Arcadia (64). Both are arcade games featuring more levels than the average player will ever be able to accomplish.

We can reveal that the company is Imagine Software of Liverpool and the game is a 48k only cassette for the Spectrum.

Three games are to be previewed but according to Imagine the main reason for the trade preview is to show off the new 48k game.

Already in the shops from the Liverpool firm is a new game called Jumping Jack. This is the first Imagine game written by a freelance programmer but, like the majority of the firm's other games, is based on an original idea.

You control a little character who appears at the bottom of the screen. Above him are several parallel lines — moving platforms which he must hop on to. The key is to wait for just the right moment when the gap in the platform appears and then hop up at just the right moment.

Each time you get to the top of a screen you are given one line of a poem — providing an added incentive to get to the end of the game and discover the rest of the verse. Jumping Jack is available from most Sinclair software shops at £5.50.

We have 100 cassettes of Jumping Jack to give away this issue. See page 110 for details but be sure you're quick off the mark.

EVIL BIRDS ARE OUT TO GET YOU!

ZZOOM

Zzoom through the skies, blast your way through the enemy and try to save the last survivors of the human race.

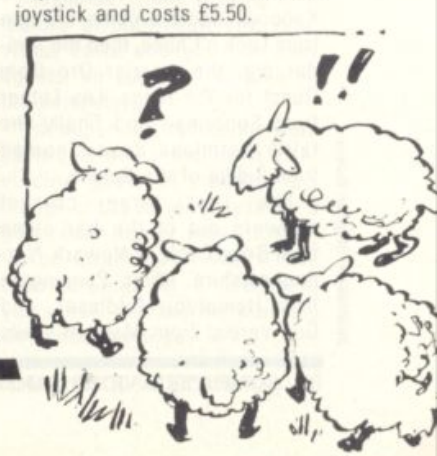
This tall order is the object of the latest 3D challenge from Liverpool-based Imagine Software.

The screen shows you a view from your ship's cockpit. You have to fly over different landscapes, rescuing the survivors and refuelling — this keeps your protective shields activated.

But watch out for waves of enemy aircraft, flocks of evil-minded birds and surface-to-air missiles are all chasing you, bent on your final destruction.

The more people you rescue, the higher your score. This involves some daring low-level flying. Use your bombs and machine guns to protect yourself from the deadly aliens and their weapons.

Zzoom runs on a 48k Spectrum, is controlled with the keyboard or a Kempston or Fuller joystick and costs £5.50.



VIDEO

PLAGUE OF SWARMERS PODS AND BAITERS!

DEFENDER ACES TAKE UP THE ATARI CHALLENGE

Last years' Atari champ, Craig Heap, from Manchester, who won his title playing Pac-Man.

Pop stars David Van Day and Gary Numan will be presenting prizes at the National Association of Boys Clubs Atari Defender Challenge.

Up and down the country members of the association have been blasting away at the Pods, Swarmers and baiters to clock up high scores in the hope of going through to the final at the Hilton Hotel on Saturday 25th June.

Of the 10,000 entrants just sixteen super skilled finalists will be firing away for the coveted title of Defender supremo.

You'll have to wait until next month to find out the winner but I can tell you some of the finalists clocked scores in the region of 100,000. Like Anthony Broons from the London Springfield Club who entered as favourite with a whacking great 113,000 and South West regional champ Stephen Harvey with alien-crunching 97,000.

Can you beat the Atari whizzkids? If you've topped 120,000 drop us a line and tell us about it.

The sixteen finalists will enjoy a no-expense spared weekend of fun courtesy of Atari UK including a trip to the Thorpe Entertainment Park and a visit to the cinema to see Return of the Jedi.

The highest scoring Defender player will also take home a video cassette recorder and win an Atari 800 for his club. Runners up will receive the latest Atari game releases.

VIDEO VILLAINS CONTEST WINNERS

Did you spot the Video Villains in our June issue's special supplement, The Book of Video Games? Are you one of our winners? Read on to find out!

They were an ugly bunch — that Mad Bomber from Activision, the nasty Amidar pig, and Superman's arch-enemy, the evil superbrain Lex Luthor. We asked you to place these tough characters, plus four other video villains in order of toughness. Here in the *C&VG* offices we worked out our own order — which you may or may not agree with — but we're running the contest, OK?

Top of our tough villains list, the one who would give you the most trouble on the video screens of the world is the Mad Bomber from Activision's Kaboom. Second came the cop from Lock n'Chase, then the Amidar pig, the warrior Orc from Quest for the Rings, Lex Luthor from Superman and finally the fairly harmless desert nomad from Riddle of the Sphinx.

The first three correct answers out of the hat came from Brian Cobb, of Newark, Nottinghamshire, Miles Pennington from Hampton, Middlesex, and Guy Verbist from Malvern Wells in Worcestershire. The lucky winners will receive five brand new cartridges of their choice courtesy of the new specialist video games shop in West Drayton — the Easy Video Games Centre.

Brian has chosen Demon Attack, Auto Racing, Atlantis, Donkey Kong and Gorf for his Intellivision. Miles has gone for a series of games including Turbo, Gorf, Zaxxon and Venture for his Colecovision system. We're not sure what Guy wants as he was at school when we called to tell him of his good fortune!

The ten runners-up will receive five book-binder style video game cartridge holders, specially designed by Easy Video.

Illustration: Stephen Gulbis

NEW GAMES FROM PHILIPS . . .

They are here at last — the first batch of independently produced games for the Philips G7000 System.

Versions of successful Imagic Games — Demon Attack and Atlantis — are now in the shops for this game-starved machine.

Demon Attack is one of the toughest shoot 'em ups available for the Atari VCS and should give a tough fight to Philips owners as well.

Its multi-wave aliens look good as well as giving a trigger burning challenge just like the versions already seen on the Atari system.

Atlantis has also sold well on the Atari and Intellivision machines and is therefore another obvious choice for Imagic to convert to the Philips.

The game challenges you to protect the beautiful lost city of Atlantis which is under attack from the surface.

You have three cannon installations from where you must attempt to blast the aliens. The games go on sale at the end of July at around the £25 mark.

The Philips range of games now makes Imagic the video games company with the widest number machines in its range. As well ay the Atari VCS, Intellivision and Philips they now produce games for Colecovision, Vic-20, and the Atari 400 and 800 home computers.

GAMING

I GET A KICK OUT OF YOU!

THE BIG MATCH ON YOUR GAMES SYSTEM

Atari United make a pretty strong team. They thrashed me 10.0, 15.3 and by a couple of margins which I've got no intention of repeating here.

Three international superstars have been bought at staggering transfer fees and set in silicone to make one of the hardest to beat soccer games you can buy.

The new Realsports game is at its best when two people play. Taking on the VCS itself is rather like Manchester United versus Stoke Poges All Stars on an off day.

You can select the length of the game and choose whether to play against the computer or a friend. The pitch scrolls horizontally. Possession of the ball is maintained by depressing the fire button on the joystick.

To pass the ball first select the player you wish to pass to by pressing the fire button.

This will make your three players glow white in sequence — when the chosen player is white move the joystick in his direction and press fire once more.

Mastering the pass procedure is the key to getting full enjoyment from this game. It'll take a lot of practice to get it right — but once you master it playability of the cartridge takes a quantum leap forward.

A nice touch on this soccer simulation are the sound effects. You get the cheer of the crowd and the referees whistle when a goal is scored.

A major improvement on Atari's earlier soccer cartridge. The game will be in the shops in July at £29.99.

If you look hard enough you may still find a Pele Soccer in a faded box amongst all the new games. Chances are it'll be at a knock down price and, at around £20, it'll give you an adequate game football match at £10 less than the premium priced Realsports cartridge.

The old Pele cartridge differs from the new one in that it shows you a vertical view of the pitch with the players scrolling up and down screen.

Again you control three players though passing is much more of a hit or miss affair than with the new version and the graphics are very basic in comparison. The footballers look more like little robots than live flesh and blood.

The computer makes a tough opponent — though not as tough as in the Realsports cartridge.

Pele Soccer has one really irritating frill.

Each time a goal is scored you are treated to a celebratory firework display.

This is quite pretty the first time around but when the VCS has knocked in its twelth goal to your nil it becomes quite simply annoying.

The third option for football fans wishing to play the game on their VCS comes from Mattel and is just one of the games in the new M Network range.

This will be the cheapest of the trio retailing at around the £15 mark.

Another vertically scrolling game through you have four players instead of three as in the Atari cartridges.

M Network International Soccer will provide the real competition for Atari Realsports Soccer when the few remaining Pele Soccer cartridges are withdrawn or snapped up.

C&VG verdict on the Soccer cartridges — the Realsports version is the superior game though if you buy the M Network game you may have enough spare cash to get another game or even a new joystick to help you score the winner!

CONQUERING CONVERSIONS

Activision recently showed off their new releases at a special press preview in London.

The titles seem to underline the leading games firm's commitment to developing original games rather than buying licences to convert hit arcade games like Atari and Parker Brothers.

The most original of the trio is Oink which offers the best video pigs I've seen and certainly puts those pink blobs from Amidar in the shade.

The idea of the game is to protect your little porker from the big bad wolf who is huffing and puffing in his attempt to blow your wall down.

Every time he blows a brick out of the wall you've got to replace it to score points.

Intellivision owners have been included in the new Activision releases though still nothing for you G7000 gamesters.

Happy Trails is the name of the Intel game and you play the part of a crockety old prospector searching the hills of the old west for treasure.

The screen is made up of a spaghetti junction of trails. You don't move the old chap — but move the sections of trail, jigsaw fashion, to make a continuous track.

Happy Trails is the work of Carol Shaw of River Raid fame so the game has a lot to live up to. Don't miss next month's *C&VG* to read Joystick Jury's judgment on this new cartridge.

The third offering from Activision is for the Atari VCS — called Seaquest, and looked at first glance like the dullest of the bunch.

Your task is to rescue divers who are returning to the sub with treasures of the deep.

Seaquest is in the shops now at £29.95 as is Happy Trails at £24.95. Oink will be in the shops in August, also at £29.95.

ACTIVISION'S GAME SET AND MATCH

With the top tennis stars slugging it out on the centre court at Wimbledon many of you will be glued to the TV screen.

Should you decide to plug in your VCS between sets what better cartridge to choose from than Atari's new tennis challenge in the Realsports series.

Featuring a 3D perspective you are serving into the screen — facing your opponent — rather than the early horizontal pong-style tennis.

The new Atari cartridge is an improvement on the existing Activision Tennis cartridge.

It has a score board which enables you to write in your name and that of your opponent.

Authentic tennis scoring is a feature of both Atari and Activision carts and you can play against an opponent or take on the computer.

For superior graphics the Atari cartridge gives the most convincing game of video tennis though at £29.99 you may find it a good deal dearer than its Activision counterpart which has been around for a couple of years now and therefore selling at a reduced price.

Illustration: Jon Davis

Virgin
Games
A name to PLAY with
GOLF (Spectrum 16K & 48K)
CHAMPIONSHIP GOLF IN YOUR OWN HOME by David Thomson VGA 1004
MISSION MERCURY (VIC 20 UNEXP)
LAND YOUR CRAFT AND RESCUE THE SCIENTISTS . . . BUT BEWARE THE ASTEROID BIRDS by Steve Lee VGA 3001

YOMP (Spectrum 16K & 48K) **COMMAND THE PARAS AND TAKE ON THE IMPOSSIBLE**
by T. Murray & R. Poole **VGA 1001**

STARFIRE (Spectrum 48K) **RID THE GALAXY OF THE XTARDAN BATTLE CRUISERS – A GAME OF STRATEGY AND SKILL** by Martyn Davies **VGA 1002**

SHEEPWALK (Spectrum 48K) **A SHEEPDOG TRIAL IN YOUR LIVING ROOM! IT'S A ONE-MAN SHEEPDOG TRIAL** by Gregory Trezise **VGA 1003**

SPACE ADVENTURE (BBC B)
A GRAPHIC ADVENTURE SET ON A SEEMINGLY ABANDONED SHIP DRIFTING THROUGH SPACE
by R. Thomas & A. Thomas **VGA 2003**

BUG BOMB (BBC B)
A SKIN-TINGLING NEW ARCADE GAME
by Simon Birrell **VGA 2001**

LANDFALL (BBC B) **AN EXCITING AND REALISTIC SPACE SHIP LANDING SIMULATOR**
by Gregory Trezise **VGA 2002**

VIRGIN GAMES GANG

- **With each title you buy before the end of August you get:–**
- 1. An offer of **One Year's Free Membership** of **The Virgin Games Gang.**
- 2. **Free Entry** into **The Virgin Games Gang draw** on September 6th.
- **First Prize – £500 of computer hardware or software** of your choice
- **Second Prize – £100 of computer hardware or software** of your choice
- and **150 runner-up prizes** of **Virgin Games T-shirts or posters.**
- 3. A **Specially mixed** piece of **music by Steve Hillage** – to **play** while you **play.**

- If your local retailer is not yet stocking **Virgin Games** – tell him he should be – but, however, you can order direct from **"I've got no good local retailer" dept, Virgin Games Ltd, 61-63 Portobello Road, London W11.** enclose a cheque or postal order for **£7.95** for **each title** you want and don't forget to put your name and address – people do you know!
- **Allow up to 28 days for delivery before complaining.**
- **Don't forget,** if you want to make some money to buy some games from us or do whatever else you get up to and you have written an original games program, with good graphics for any of the popular home computers other than the ZX81, **send a cassette version to us – it could make you rich.**

£7.95
R.R.P.

Computer FUN . . . available NOW!

SKIP THE SKIPPER!

A brief flirtation with Nintendo's Sky Skipper in the arcades way back in autumn of 1982 whetted my appetite for the forthcoming Atari version. Unfortunately it has suffered much in its conversion.

The original boasted cute graphics which involved sharp joystick control to bomb gorillas over a city skyline and rescue animals.

The gorillas hurled coconuts skywards and were dizzied by being hit on the bonce by the pilot's bombs.

The VCS version has a maze taking the place of the skyline and although the plane is capable of the same instant manoeuvring, it is more difficult to end up facing the right direction on a VCS joystick — and this is a game where control is critical.

Upon bombing (and dizzying) the gorilla, the player releases a series of caged birds or animals which he must then rescue by flying into them.

It is a game of millimetre control and usually ended with me convinced that had I hit the joystick to change direction but it had not registered, very frustrating but not as addictive as it should be.

The monkies do not throw nuts although clouds cause problems on later screens and the game speeds up considerably on the fifth screen difficult to achieve with regularity. Four skill levels and the usual Parker packaging for £25.95.

THE VERDICT

A game which badly misses the sharp cute graphics of its predecessor and becomes dull all too quickly. There's better to be found in the Parker catalogue.

- **Action** 1 1
- **Graphics** 1
- **Addiction** 1
- **Theme** 1 1

Having gorged myself on dozens of turns at Mattel's Burgertime it was with great anticipation that I plugged in the next cartridge from this company. Alas, Vectron is not in the same league.

The idea of the game is to fill in each screen with power blocks and energise them. The blocks are made to appear by depressing the fire button on the side of the controller. Level a laser blast at it by manipulating the control disc. This energises the block. When the play area is completely filled with charged blocks you can then go on to the next screen.

All the time you are trying to fill the screen you are under constant attack from the aliens. These come in different varieties and the toughest ones are saved for the later screens.

Each new screen is a different shape to the previous one and will necessitate a modification of strategy.

To fire your laser gun you simply move the disc in the direction of the target and the gun will fire automatically. An original game — but a far from good one.

Everything on the screen appears to move except for your laser base which is a permanent fixture at the top of the screen.

You spew out laser fire in all directions without rhyme or reason as it is impossible to tell which is the main aim — killing the aliens or filling the blocks. The result of this is that achieving either giveslittle satisfaction. Vectron is in the shops now at £29.95.

For a far better investment check out Burgertime or Pitfall.

THE VERDICT

An original idea — but a very dull game.

- **Action** 1 1
- **Graphics** 1 1 1
- **Addiction** 1
- **Theme** 1 1

Smurf Rescue is the cutest cartridge ever to plug into a video games console. If anyone ever asks you how good are the graphics on Colecovision plug in the Smurfs and let them see for themselves.

The idea of the game is to rescue the Smurfette who is being held captive in Gargamel's castle.

As the gallant Smurf you must walk through fields, forests, caverns and finally into the spooky castle itself.

To thwart your rescue bid the evil Gargamel has trained bats, hawks and spiders who dive bomb you as you make your way to the castle. By pulling back on your controller you can duck down to avoid these.

As you walk along the path other obstacles must be hopped over such as mounds, tufts of grass, and fences. By timing your jump carefully you can land on just the right spot to pick up bonus points.

The graphics of Smurf Rescue are what make the game. The bright colours and plodding walking movement of the Smurf make it very similar to the actual character.

To enhance playability there is an energy level rating which goes up and down according to how quickly the Smurf moves through the various stages.

Just one gripe — with the joysticks rather than the game itself — it's really difficult to manipulate the disk to make the Smurf run into a jump without the controller slipping in your hand. Roll on the new improved Colecovision sticks — these should improve Smurf and most other Colecovision games.

THE VERDICT

Beautiful to look at, but not the toughest game you'll come up against.

- **Action** 1 1 1
- **Graphics** 1 1 1 1 1
- **Addiction** 1 1
- **Theme** 1 1 1 1

GAMING

TOP TEN

GAME	MANUFACTURER	GAME	MANUFACTURER
1 Phoenix	Atari	6 Donkey Kong	CBS
2 Pac-Man	Atari	7 Defender	Atari
3 Frogger	Parker	8 Ms Pacman	Atari
4 Vanguard	Atari	9 Demon Attack	Imagic
5 River Raid	Activision	10 Space Invaders	Atari

All the above cartridges are produced for the Atari VCS home video games centre.

PLUG INTO THE ARCADE

Atari keep the arcade conversions coming thick and fast with two new titles lined up for a September release.

Galaxians will need no introduction to the more seasoned videogamers as it was a monster hit in the arcades at the height of the post space invaders boom in the early 1980's.

It will be interesting to see how well it does on the VCS having been so long out of the arcades. My guess is that it may be just a little bit too late as there are already dozens of good shoot 'em ups already available for this machine — Demon Attack, River Raid and Defender to name but three.

Slightly more up to date is the Atari home version of Jungle Hunt — Taito's Tarzan and Jane style adventure. You must rescue the fair maiden from the cannibals who have carried her off — swing through trees — wrestle with crocodiles — all swashbuckling stuff for VCS owners.

On a more educational level come the first two Atari Sesame Street titles for youngsters. Cookey Monster and Sorcerers Castle will be in the shops soon with more educational titles on the way for Christmas.

The games licensing business is hotting up with several big arcade games being bought up by Atari, Colecovision and Mattel.

Atari have Pole Position, Pengo, Joust and Moon Patrol all poised to attack the Christmas market. Neither of Atari's main rivals on licensing — Parker Brothers and Coleco — are going to sit back and watch this new batch of games arrive in the shops unchallenged.

Parker have Tutankham, Q*Bert, and Super Cobra, all of which will be supported with the traditional Parker TV advertising blitz.

The Colecovision trump card games will be Buck Rogers, Donky Kong Junior, and the new Super Zaxxon — though the main thrust of Coleco's TV advertising campaign is likely to concentrate on selling the Colecovision itself.

Intellivision owners will share some of the action with three hot titles signed up from the Japanese arcade aces — Data East.

Burgertime and Mission X have already been converted for home use.

Also in the pipeline is a fantasy road-race game where your car can leap into the air.

One thing is certain — even when you are not using your TV set with your games consul you are going to see a lot of games on television over the next few months.

THINGS GO BETTER!

Coca Cola — that famous soft drink — is now available as a video game! Every time you by a can from an American made vending machine you get a game on a video machine.

The new vending machines have a built in screen measuring 6 by 4 inches which gives a free go every time you buy a coke.

The game is called Catch-a-Coke and you play the part of a hard-pressed delivery man who is being showered with coke cans by a mischevious monkey perched at the top of a palm tree. The more cans you catch the greater your score.

To stop long queues gathering at the coke machine the game has been made so tough that it will only last around 20 to 30 seconds. The owner of the machine can adjust the skill level to make it still tougher if necessary.

Coca Cola say the video game is as a sales tool and believe it will encourage America's army of games-mad teenagers to buy more coke! One of these exciting new machines will be coming to this country during the summer — but exactly where it will end up is still a mystery.

IT ALL LEADS TO A TOP PRIZE!

". . . And just as I was about to beat Derek's Laser Space Blast record, I jerked to the right, the joystick wire taughtened and went spinning from my hand. Helpless I watched as the aliens took my last life."

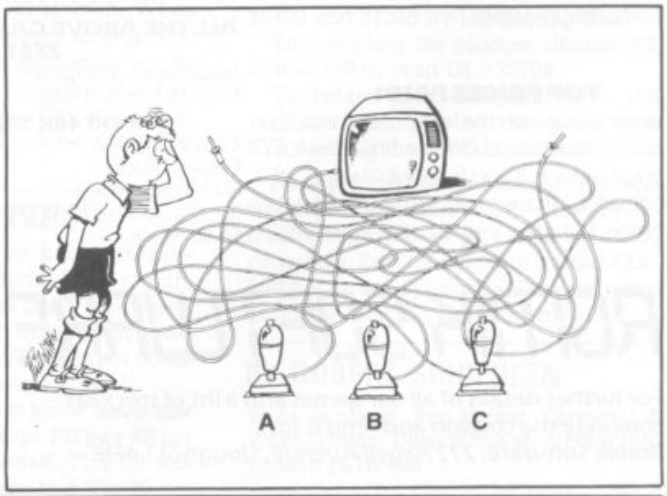
Every TV gamer has a story like this. A sorry tale of crossed wires, joystick plugs loosened at critical moments and fistfuls of flex.

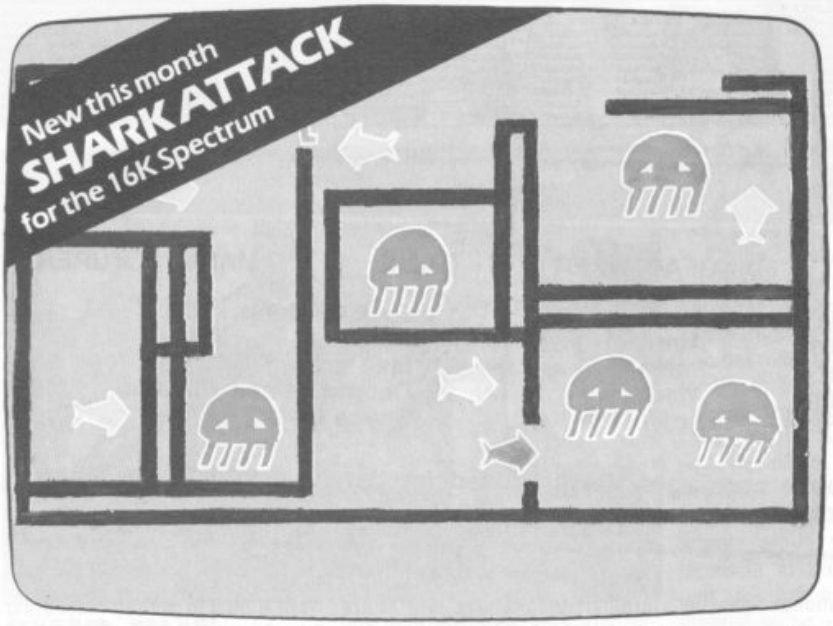
We're offering the chance for five of our readers to end joystick jerk forever. There are five Cynex Remote Control Joysticks to be won in our Crossed Wires competition.

Look at the picture of a confused games player (right) and see if you can work out which joystick he should use to play the game.

Unfortunately a weird tangle of wires has made the choice more difficult than it ought to be. If you can work out which joystick our gamer should pick up, send it in to Crossed Wires, *Computer & Video Games*, Durrant House, Herbal Hill, London EC1R 5JB.

We need to receive your entry before August 12th, then the first five correct entries out of the hat win a Cynex joystick worth £70. Usual *Computer and Video Games* competition rules apply.





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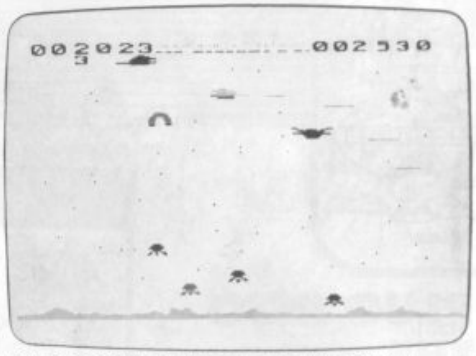
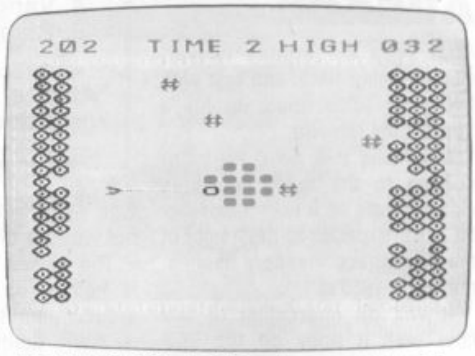
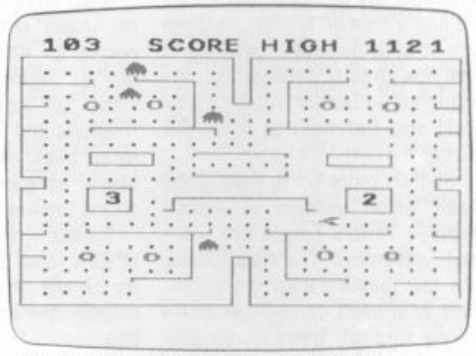


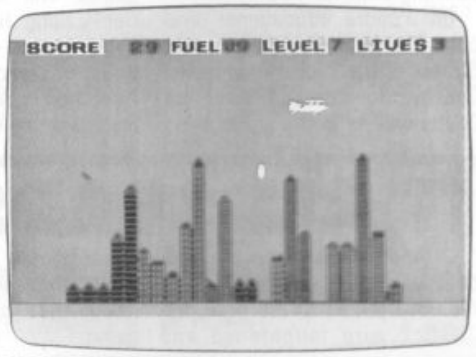
TIME DESTROYERS for the expanded Vic 20 (3K+)



ATOM SMASHER for the BBC and unexpanded Vic 20



POWER BLASTER for the unexpanded Vic 20



SPECTRA SMASH for the 16K Spectrum

ROMIK SOFTWARE

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ROMIK

Please send me further details of your games and a list of stockists.

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CVG/83

Age (If under 21)_____

I own a_____ computer

TOP SECRET . . . Robert to all readers . . . message begins . . . After a tough journey I've managed to get right into the C&VG office while remaining inconspicuous. With great difficulty I've erected a transmitter on the roof so that I can send my reports safely without them being intercepted.

It was awful! There were bugs everywhere. But not any more. The office is now completely free of bugs and I shall stay here for as long as it takes to ensure that this reign of terror can never return. I'll be reporting monthly on any infiltration of the magazine's pages, and will keep you informed . . . message ends.

BUG HUNTER

All bugs have now been banished, never to return, and the computer room has been pronounced bug free. All that remains to complete the clean up is to expose those bugs which were in residence before I arrived . . .

ATARI — TEN COMMANDMENTS

Firstly there was the Ten Commandments game for the Atari on page 54 of the June issue. Many of you were having problems with line 14093. I have now been assured by the author that this line is not necessary and may simply be deleted.

ORIC — SNAKES

Although Snakes for the Oric on page 53 of June's issue was bug free when it left our reviewer, Mal Function appears to have crept in while the printer's back was turned.

The small squiggle in line 30 is supposed to be a quotation mark, and the one after line 150 is, as most of you realised, the start of line 160.

Not content with interfering with the printing, Mal has also changed the keys which the instructions say are used to control the direction of the snake.

Despite the printed instructions the snake is controlled as follows: 7 up, 6 down, 8 left and 5 right. You can alter line 130 to use any keys you wish; I preferred Q and A for up and down and C and V for left and right.

If you wish to use the cursor keys as in the instructions, you will have to substitute the letter in quotes in line 130 to read CHR$(X) where X is 8, 9, 10 and 11 for left, right, down and up respectively.

Another tip for Oric owners comes to us courtesy of the Tangerine Users Group. If you intend to use a lot of string space in your program, you may find that the strings overwrite the character set in RAM. This can be cured by making the first line of your program HIMEM=#97FF.

VIC 20 — GHOST TRAP

Although the instructions say otherwise, use the Z and X keys to move left and right. If you'd rather use the cursor keys as printed, change lines 104 and 105 to IF X=31 and 23 respectively.

TI 99/4a — SKI-ING

Texas owners, I admit, have suffered badly at the hands of the bugs. Most recently there was the Ski-ing program, for which we sent out many hundreds of correction sheets with what we thought was the definitive version.

Well, it was . . . almost! The screen positions for the gates are held in DATA statements as screen coordinates but they appear to be the wrong way round in their pairs.

To correct this, alter the READ statements in lines 290 and 360. 290 should now read READ B,A,C and 360 should be READ B,A. The program will then work. I know — I've played it myself.

SPECTRUM — CANYON LANDER

Another attack on our instructions came in Canyon Lander for the Spectrum in the May issue on page 68. Although the instructions say that control is through the I and O keys, it should read 1 and 0. This is controlled by the IN statement in line 110 and can be changed if you wish. The relevant IN locations are in the Spectrum manual.

VIC-20 — PROTECTOR

Not really a bug this, but it puzzled quite a few of you struggling with Protector for the Vic on page 48 in June. When run, the program appears to stop and do nothing; it is in fact waiting for you to start the game by pressing the fire button on the joystick. This is accomplished in line 90 and can be altered or removed if you wish.

HINTS AND TIPS

As far as I know, the bugs are now extinct — at least until next month. Remember, this is the page which you help to write. So if you have any suggestions about how a *C&VG* program could be improved please send it in.

We would also like to know about any tips for micros in general. **I'll pay £5 for any which are published.** Tips for this month are for the Sharp and Vic-20.

For the Sharp comes a conversion of Mad Max, published for the MZ80K in May 83. To allow the program to work with disc Basic the program should be altered as follows:

Replace POKE 17828,0:GET A$ with USR(ST):A$=CHR$(PEEK(53247)) and install the machine code by adding these two lines:

```
6 LIMIT53239:ST=53240:FOR XT=0 TO
6: READ DA: POKE ST+XT,DA:NEXT
7 DATA 205,27,0,50,255,207,201
```

Also, says J. Leonard of Penzance, if the last variable on line 515 is changed to D$ then the right person will get the credit for the highest score.

Final tip is for Vic owners trying to use a 16k expansion to play Logger from the April issue. It comes courtesy of Mike Davies from Dyfed, Wales.

Before loading listing one, load the following program:

```
1 POKE 36869,PEEK(36869) OR 13
2 POKE 9216,0:POKE 9217,0:POKE
9218,0
3 FOR A=43 to 50:READ B: POKE A,B:
NEXT
4 NEW: DATA 1,36,3,36,3,36,3,36
```

Then change listing one: Line 5 becomes POKE 36879,25 and 65 starts: FOR I=5120 TO 5631 . . .

Finally change all values in listing two between 7680 and 8185 by subtracting 3584, then change all values between 38400 and 38905 by subtracting 512.

To complete the change, change CL in line 430 to read CL=33792.

To return your computer to a 16K machine after playing the game type SYS 64824 and all will be normal.

Finally, for those Sinclair owners who wondered why there were two Spectrum programs in July and no ZX81 programs, Zax's V is in fact for the ZX81 and not for the Spectrum. Crossed wires in our production department!

BY ROBERT SCHIFREEN

Write to me at: Bug Hunter, Computer & Video Games, Durrant House, Herbal Hill, London EC1R 5JB

MAL FUNCTION
T. HITCH
SNAG JNR
SCREAMING FOUL U=
OOER!!
RAM SUSPECTS THAT SOMETHING NASTY IS GOING TO HAPPEN!
R.A.M
WIBBOM!
HEE! HEE!
SCHOOL HOLIDAYS! I HATE IT WHEN HIS NEPHEW COMES ROUND!
YEAH! THE KID'S GOT INCREDIBLE EYESIGHT!
SINGE!
I'M SURE HE SUSPECTS US!
SEVERE SINGING TO PIXEL!
YIPES!
FUMED
HE'S A REAL PEST WITH THAT LIGHT PEN!
LET'S TEACH HIM A LESSON!
OH DEAR! I CAN'T AGREE TO ANY SORT OF RETALIATION. REMEMBER. I'M USER FRIENDLY..
..HE CAN'T HURT US OFF SCREEN. LET'S STAY OFF UNTIL HE'S GONE!
HOLD ON! HE'S GOING TO DO SOME PROGRAMMING!
10 FOR X=1 TO 65535
20 PRINT CHR$(PEEK(X))
30 NEXT X
SNIGGER!
OH NO! HE'S WRITTEN A PROGRAMME TO DUMP THE WHOLE OF THE MEMORY ONTO SCREEN!
THE LIGHT PEN GOES TO WORK!
ZAP!
SHRIEK!
MEANWHILE... ON SCREEN!
SINGE!
STILL FEELING USER FRIENDLY?
WHOOSH!

Announcing more exciting programs for the BBC.

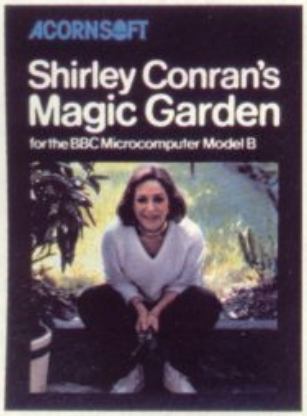
Acornsoft is the software division of Acorn Computers, the company that designed and built the BBC Microcomputer. Here are four more exciting programs, all designed to get the most from your BBC Micro.

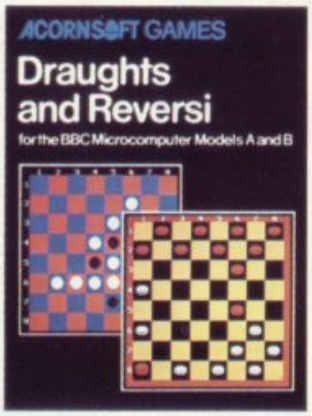
Magic Garden (£9.95) is a cassette based on Shirley Conran's successful book. It's a problem-solving program which provides the complete beginner with instant answers to the questions of what to plant and where. Simply tell the computer whether you prefer a shrub or a flower, the type of soil, light and shade conditions and required flowering time and the computer will come up with a selection of possible plants.

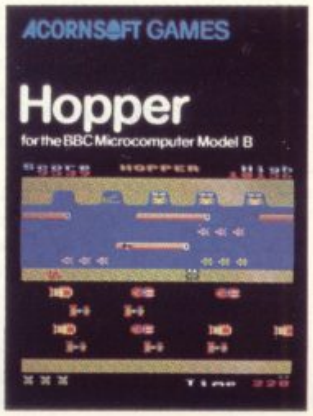
Draughts & Reversi (£9.95) is a cassette containing two traditional board games for you to play against the computer. Both give a graphic display of the board on the screen and you can enter your moves with either keyboard or joystick. The games can be played at varying levels of difficulty and on the higher levels you will find the computer to be a very worthy adversary.

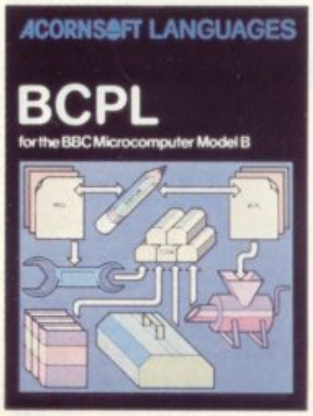
Hopper (£9.95) is a game on cassette which can be played with either keyboard or joysticks. Hop the frog across the busy motorway trying to avoid four lanes of fast-moving traffic. To get across the river to the frog's lair you must leap on to the logs and turtles' backs, but beware of the diving turtles, the crocodile and the snake.

BCPL (£99.65) is a flexible modern structured language that's very easy to learn. The package consists of a BCPL language ROM, a 40/80 disc and a 450 page User Guide. The disc contains the BCPL Computer, a Screen Editor and a 6502 Assembler. BCPL is particularly good at handling Input and Output and is ideal for writing utility programs and to develop games and commercial packages.









How to get Acornsoft programs.

If you're a credit card holder and would like to buy the programs shown in this advertisement, or if you would like to know the address of your nearest stockist, just phone 01-200 0200.

Alternatively, you can buy the programs directly by sending off the order form below to: Acornsoft, c/o Vector Marketing, Denington Estate, Wellingborough, Northants NN8 2RL.

Also use this form if you would like to receive the current free Acornsoft catalogue.

Please allow 28 days for delivery.

☎ Credit Card Holders. Telephone 01-200 0200.

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Hopper	£9.95			SBG23
BCPL	£99.65			SNL03
		TOTAL		

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ACORNSOFT

ARCADE ACTION

Fancy combining your interest in pinball with becoming a famous film director? That's the offer being made by the Pinball Owners Association.

The association is planning a 30-minute video about their favourite pastime — and it will be produced by a top video company based in London. All you have to do is come up with an original idea for a script.

If you want details of the competition, which was launched recently by the association, or if you reckon you have a good idea for the screenplay, write to the Pinball Owners Association at "Arcadia", 465 Cranbrook Road, Ilford, Essex IG2 6EW.

You can also help out the association by telling them where there's a good pub with some pintables! They have been forced to move from the pub used for monthly meetings because all the pintables have been taken away. So members are looking for a good pub in the Greater London area that has a couple of tables and would welcome their custom. Any ideas?

Things are quiet on the pinball front at the moment with few new machines hitting the market. However Gottlieb are bringing out a machine called Royal Flush. This is hardly a new table to pinball fans as it's a remake of an older electromechanical game. With Bally rehashing their classic Eight Ball Deluxe machine recently perhaps this shows a lack of new ideas among the manufacturers. But with innovations like the still mysterious Williams Joust double ended machine, perhaps we're talking too soon!

Good news from America is that the home of the pin is seeing a small revival in interest in pintables among arcade owners. They are finding that a reconditioned table often takes more cash than one of the older and less popular video games.

SPACED OUT LASERS

ASTRON BELT

Laser disc technology is in the British arcades with the exciting Astron Belt game.

As we write Arcade Action this month, still only two of the systems have found their way into the country and only one into an arcade-the Crystal Rooms arcade at Leicester Square in London.

In the search for ever-increasing realism, laser disc games-which use film rather than computer graphics-seem to be the future. And the arcade industry is keen to get to grips with it.

Importers, Taitel Electronics are selling containers full of Astron Belts before they ever reach these shores and the machine is being hailed as the saviour of arcade gaming.

But as in most pioneering ventures, Astron Belt has a few rough edges as a game and should be judged as a hint to what will be possible in arcades within the next year.

The game is set in space and features a Buck Rogers type craft, composed of computer graphics, superimposed on a "real life" background.

As the player controls the craft it swings across the screen, while behind it, the laser disc film features dark moons, arid planets, sunsets, a dreaded black hole and all the other scenes you might expect to find on a space odyssey.

The flight takes you over alien landscapes through Deathstar like space stations and up against the enemy craft.

The game reacts to your fire by exploding ships which it judges you have hit, and turning the screen into a blaze of fire.

The controls in the cockpit feature a futuristic steering wheel set in front of a large 26" colour monitor but the game also comes in a stand-up cabinet with a standard screen and joystick format.

Laser discs do not wear and are easily changed, so that a cabinet-once installed can be altered to provide the latest game. Rumour has it that the next laser disc game available for the Astron cabinet, will be a driving game composed of real race scenes and even cars driven by recognised grand prix stars.

So you could line up on a starting grid next to James Hunt!

Realism in the cockpit model is enhanced by a stereo sound system which emanates from just behind the player's ears and a vibra-seat which gives realistic vibrations which are supposed to tie in with the game. Actually it shudders and vibrates on the explosions for more than is comfortable.

On the monetary side, it's 40p a turn or £1 for three goes which shows the expense of producing these cabinets. But any arcade player who wants to have a future in gaming should try his hand at Astron Belt as soon as possible.

However, it remains to be seen if Astron Belt is the shape of games to come.

And if you want to see as much scenery as possible, put in plenty of money before you start as the game will let you continue from where you left off.

TIME TO TAKE YOUR PICT!

HADRIANS WALL

The Pictish invasion is over with the Romans victorious-which is pretty tough if you're a Pict on the wrong side of Hadrian's Wall.

That famous feat of Roman engineering is the setting for a new game which bears little resemblance to early A.D. history.

You play the part of a last survivor of the Tartan hordes, stuck behind enemy lines and wanting to get back to the glen.

Armed with a joystick and a jump button, you run along the battlements jumping over cracks in the wall and dodging fireballs and arrows flung at you by the pursuing legions.

A solitary Roman occasionally patrols the moat below the wall and will fire rocks and arrows up at you which have to be dodged. It is all set against a timer and if you can't complete each part of the wall in time, then you may face the dread Roman on the wall. He comes straight for you and there's little hope of escape.

If you do manage to get to the top of the wall then an ancient Roman escalator will take you the river and freedom. Jump into

your boat and away you sail — down the river Scramble fashion — until you are back in familiar territory.

Back in Loch Ness and who's there waiting for you? Nessie rears her head from the depths and before you can smooth your kilt, you have to rush over and send her packing — back to the primeval murk while you go back to the wall to bring the next Pict home . . . only this time the going gets harder, more arrows, less time.

CAPITAL OF THE VIDEO GAME WORLD

OTTUMWA

If you fancy yourself as an arcade champion then there's now a way to get your score register around the world.

A place in Iowa State in the US, going by the unlikely name of Ottumwa, has set itself up as the arcade games capital of the world.

The Video Game Manufacturers' Association has approved the Ottumwa set-up and the town now houses the only official international scoreboard for video games.

Players call in their scores by phone and have them registered after being verified by the local arcade owner. It is currently receiving 50 to 60 phone calls a day at 01-01 515-684-6421 (from Britain) and ask for Walter Day.

FUN WITH FIREBALLS...

MAD PLANETS

Asteroids were mean but at least they travelled in straight lines. In Mad Planets the rogue heavenly bodies having developed homing instincts will prove decidedly tricky for all space skippers!

A Buck Rogers joystick-complete with fire button-and a spinning paddle lie between your craft and collision course.

The planets wheel on to the screen as red fireballs, rapidly turning into Earth-like planets complete with orbiting moons. While in fireball stage the planets are vulnerable to your fire but otherwise they are invulnerable and their moons must be picked off first.

The moons sometimes fly out of orbit, turning into red dust and, if ignored, these too will turn into planets. If too many planets survive on the screen a rosy super planet will be spawned by one of the spinning moons.

In order to clear the screen, you must first blow up all a planet's moons — it then turns red and becomes vulnerable. It also hurtles around the screen as its orbit decays.

A cleared screen results in a fresh batch of yellow fireballs and then you move on to purple ones. If you succeed in clearing this third onslaught, then comes a bonus screen in which spacemen fly through the void.

These must be collected for bonus points and blowing up a rushing metero will increase the number of spacemen on screen.

Good graphics and speedy action in which you can never let your finger stray far from the fire button. One tip — don't get caught in the corners.

ALIENS IN STEREO

GYRUSS

From the outer reaches of the Solar System, you command the spaceship Gyruss on its journey to Earth.

You approach each planet in a circular orbit, starting with far-off Neptune. Each planet is the host to a horde of aliens eager to get out of the confines of their atmosphere to launch an attack against you.

Exarsions, Petarions, Terarions and Gigarions make up the alien fleets and your job is to attack them while they are still a distant blur in the distance.

An eight-way joystick and marvellous stereo background music help to lift this space game out of the ordinary. There are 23 stages as from Neptune you fly to Uranus, Saturn, Jupiter and Mars, on your way back to Earth.

Every four stages, you enter the chance stage where your craft is invulnerable to the attacks of the Zigmas and Dogmas. A good chance to boost the score.

An additional advantage of the Gyruss game, is that a successful commander can take over his vanquished enemies' fleets and (like Tacscan) move more than one fleet in formation.

The quest finishes before a good graphic representation of the Earth.

E.T. — ARMED AND VERY DANGEROUS!

KOSMICKROOZ'R

The story continues after this new extraterrestrial phones home in Kosmik Krooz'r.

In this video game, your mission is to guide Krooz'r back to his own galaxy light years away. The ugly little devil has far worse than FBI agents and scientists on his trail too.

The journey is beset with problems and obstacles are thrown up by the evil aliens who are out to get Krooz'r.

Luckily he is well-equipped with lasers and he can fire back. When the enemy gets too close, you have to look for the smart bomb button or the energy shield.

The smart bomb turns green and that's your signal to unleash it. As you wander homewards between the planets, it is sometimes necessary to drop in to the intergalactic garage and try to buy up a few spares to get a decent space craft together.

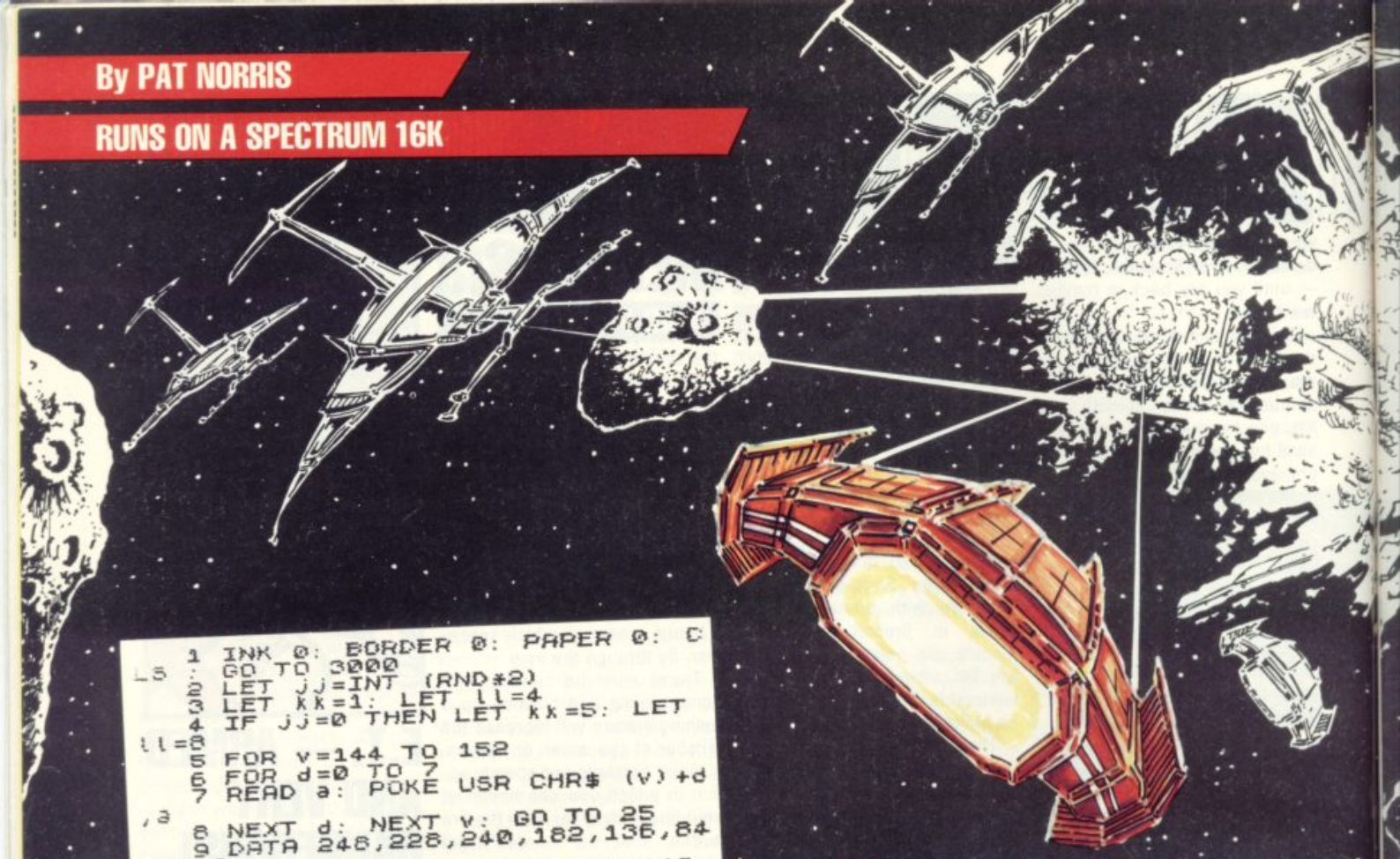
A few items like a fuel tank, a box of bullets or a motor and Krooz'r could soon have a ship worthy of another base.

Eventually the mothership comes onto the screen and when one of the three entry ports lights up Krooz'r can be guided into the onboard beam.

But take care, a slip on the timing here and its back to Earth and another handful of 5 pences.

By PAT NORRIS

RUNS ON A SPECTRUM 16K



SPACE WAR

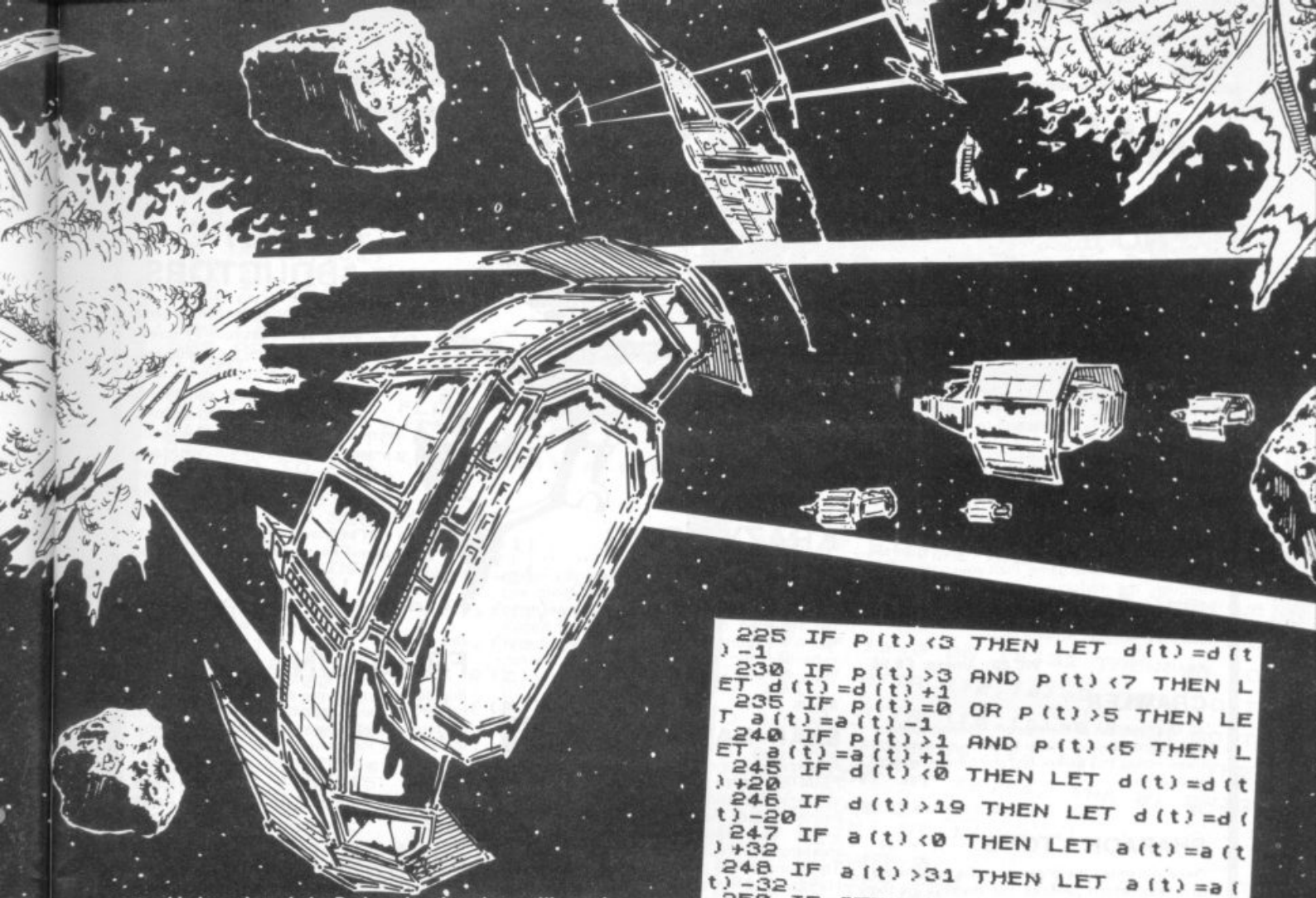
```
  1 INK 0: BORDER 0: PAPER 0: C
LS : GO TO 3000
  2 LET jj=INT (RND*2)
  3 LET kk=1: LET ll=4
  4 IF jj=0 THEN LET kk=5: LET
ll=8
  5 FOR v=144 TO 152
  6 FOR d=0 TO 7
  7 READ a: POKE USR CHR$ (v)+d
,a
  8 NEXT d: NEXT v: GO TO 25
  9 DATA 248,228,240,182,136,84
,16,0
 10 DATA 16,56,124,186,186,146,
56,84
 11 DATA 31,39,15,109,17,42,8,0
 12 DATA 0,56,132,94,255,94,132
,56
 13 DATA 0,8,42,17,109,15,39,31
 14 DATA 42,28,73,93,93,62,28,8
 15 DATA 0,16,84,136,182,240,22
8,248
 16 DATA 0,28,33,122,255,122,33
,28
 17 DATA 28,60,126,255,254,126,
62,36
 25 LET w=8: LET t=0: LET af=4:
 LET hf=4
 28 FOR b=1 TO 10: PRINT AT INT
 (RND*20),INT (RND*32); INK 5;".
": NEXT b
 30 DIM a(w): DIM d(w): DIM e(6
): DIM f(6): DIM h(w): DIM p(w):
 DIM s(w)
 35 FOR z=1 TO 8
 40 LET b=3
 41 IF z>4 THEN LET b=7
 45 LET p(z)=b: LET h(z)=0: LET
 s(z)=5
 50 NEXT z
 55 LET y=4
 60 FOR z=1 TO 4
 65 LET d(z)=y: LET d(z+4)=y: L
ET a(z)=0: LET a(z+4)=31
 70 LET y=y+4
 75 NEXT z
 80 LET y=4
 85 FOR z=1 TO 6
 90 IF z>2 AND z<5 THEN LET y=1
0
 95 IF z>4 THEN LET y=17
100 LET e(z)=y: NEXT z
105 LET y=8
110 FOR z=1 TO 2
115 LET f(z)=y: LET f(z+4)=y
120 LET y=23: NEXT z
125 LET f(3)=13: LET f(4)=19
130 FOR z=1 TO 4
135 PRINT AT d(z),a(z); INK 4;"
D";AT d(z+4),a(z+4); INK 6;"H"
140 NEXT z
142 FOR z=1 TO 6
143 PRINT AT e(z),f(z); INK 2;"
I"
145 NEXT z
146 FOR t=kk TO ll
147 LET i=4: IF t>4 THEN LET i=
8
148 IF h(t)>9 THEN GO TO 154
149 FOR c=1 TO 25
150 PRINT AT d(t),a(t); INK 7;
BRIGHT 1;CHR$ (p(t)+144)
151 IF INKEY$<>"" THEN GO TO 16
2
152 NEXT c
153 PRINT AT d(t),a(t); INK i;C
HR$ (p(t)+144)
154 NEXT t
155 GO TO 146
162 LET kk=5: LET ll=8
163 IF t>4 THEN LET kk=1: LET l
l=4
165 LET sh=0
170 INPUT ;"MODE? (x,m,f,h,t+c
t+c+m,t+c+f) ";m$
172 LET tm=0
```

Illustration: Dorian Cross

Earth is being threatened by aliens from a sinister galaxy who want to colonise our planet and enslave all the inhabitants. The aliens are driven to desperate and violent action as their home planet is gradually being dragged into a giant sun — and will soon become a cosmic cinder. So will their people — unless the alien warriors find a suitable new home.

The alien and earth fleets are about to meet for the final conflict on the fringe of our galaxy. The future of earth rests on the outcome. The battle zone has been strewn with space mines — and large asteroids are also in the area. Thus the scene is set for this two player space battle . . .

The earth fleet is represented by yellow symbols, the alien fleet by green. Space mines are represented by blue dots, and



asteroids by red symbols. During play the mines will remain static, but the asteroids move around in a random fashion.

If any ship hits a mine, both will be destroyed, but if a spaceship hits an astereid only the ship vanishes permanently — the asteroid reappears in another part of the battlezone. If two ships collide both will be destroyed.

All ships are equipped with laser cannon. When a ship is hit by laser fire it will glow red and will receive a random damage factor. If the damage factor exceeds nine then the ship will be destroyed.

The movement of ships depends on the amount of damage they have suffered, as does their laser cannon energy. Damage is not repairable during the game, but cannon energy may improve.

Players take turns to control their fleets. Each ship flashes white when it is ready to be moved.

Various inputs control the ships. Move ship = m. Move ship and fire at end of move = x. Put ship into hyperspace = h. Fire only = f. Turn only = t + course. Turn and move t + course + m. Turn and fire = t + course + f. Course controls are 1 = up, 5 = down, 7 = left, 3 = right with 0, 2, 4 and 6 controlling diagonal movements. Key ENTER after input.

As an example, to turn and fire using a ship that is on course "3" input "t5f". This will change the ship's course so it is facing downscreen and the laser cannon will fire.

A ship may be turned to any one of the eight directions except a directly opposite one.

```
 175 IF LEN m$>3 THEN GO TO 170
 180 IF LEN m$=2 THEN GO TO 400
 181 IF LEN m$=3 THEN GO TO 202
 185 IF LEN m$<>1 THEN GO TO 170
 190 IF m$="f" THEN GO TO 950
 195 IF m$="h" THEN GO TO 365
 200 IF m$="m" OR m$="x" THEN GO
 TO 210
 201 IF LEN m$=1 THEN GO TO 170
 202 IF ABS (p(t)-VAL m$(2))=4 T
HEN GO TO 170
 203 IF m$(3)="m" THEN LET tm=1
 204 IF CODE m$(3)=102 THEN GO T
O 400
 206 IF m$(3)="m" THEN GO TO 400
 208 GO TO 170
 210 LET fp=0: LET tm=0
 215 IF m$="x" THEN LET fp=1
 220 FOR q=1 TO s(t)
 222 BRIGHT 0: PRINT AT d(t),a(t
);" "
```

```
 225 IF p(t)<3 THEN LET d(t)=d(t
)-1
 230 IF p(t)>3 AND p(t)<7 THEN L
ET d(t)=d(t)+1
 235 IF p(t)=0 OR p(t)>5 THEN LE
T a(t)=a(t)-1
 240 IF p(t)>1 AND p(t)<5 THEN L
ET a(t)=a(t)+1
 245 IF d(t)<0 THEN LET d(t)=d(t
)+20
 246 IF d(t)>19 THEN LET d(t)=d(
t)-20
 247 IF a(t)<0 THEN LET a(t)=a(t
)+32
 248 IF a(t)>31 THEN LET a(t)=a(
t)-32
 250 IF ATTR (d(t),a(t))=2 THEN
GO TO 500
 253 IF ATTR (d(t),a(t))=5 THEN
GO TO 2000
 255 IF SCREEN$ (d(t),a(t))<>" "
THEN GO TO 290
 256 IF t>4 THEN GO TO 262
 260 PRINT AT d(t),a(t); INK 4;C
HR$ (p(t)+144)
 261 GO TO 263
 262 PRINT AT d(t),a(t); INK 6;C
HR$ (p(t)+144)
 263 IF fh=1 THEN GO TO 146
 265 NEXT q
 267 IF fp=1 THEN GO TO 950
 270 GO SUB 600
 275 GO TO 146
 290 FOR l=1 TO 8
 295 IF l=t THEN GO TO 305
 300 IF d(l)=d(t) AND a(l)=a(t)
THEN GO TO 310
 305 NEXT l
 310 PRINT AT d(t),a(t); INK 2;
BRIGHT 1; FLASH 1;CHR$ (p(t)+144
)
 312 PAUSE 20: FLASH 0: BRIGHT 0
 315 PRINT AT d(t),a(t);" "
 320 LET h(t)=10: LET h(l)=10
 321 IF l<5 THEN LET af=af-1
 322 IF l>4 THEN LET af=af-1
 325 IF t<5 THEN LET af=af-1
 330 IF t>4 THEN LET hf=hf-1
 335 IF af=0 AND hf=0 THEN GO TO
 850
 345 IF af=0 THEN GO TO 800
 350 IF hf=0 THEN GO TO 825
 357 GO SUB 600
 360 GO TO 146
 365 PRINT AT d(t),a(t);" "
 370 LET d(t)=INT (RND*20): LET
a(t)=INT (RND*32): LET p(t)=INT
(RND*8)
 372 LET fh=1
 375 GO TO 250
 400 IF m$(1)<>"t" OR CODE m$(2)
<48 OR CODE m$(2)>55 THEN GO TO
170
 401 IF ABS (p(t)-VAL m$(2))=4 T
HEN GO TO 170
 402 LET fp=0
 403 IF LEN m$=2 THEN GO TO 405
```

ANIROG SOFTWARE

XENO II

An E-XPANDED-D screen presentation with superb action packed space thriller, written entirely in machine code with four action packed stages. To destroy the power source of Xeno II you have to fight off waves of robot attack, plasma bombing by the legions of the outer sanctum and finally attack the power source protected by a force field, continuous bombardment by guardians and blockading by wild whirling suicidal space ships. Truly a game for all arcadians.

JS VIC 20 16K £7.90

CAVERN FIGHTER

All M/C version of SCRAMBLE. Lasers, bombs, continuous scoring and sound effects give all the thrills of arcade game. Pilot your space ship through the tortuous tunnels and caverns destroying enemy missile launchers, fuel dumps and airborne fire saucers. Four ships to complete mission. 10 skill levels.

KB/JS VIC 20 Unexp. £5.95

CRAWLER

'All M/C version of Centipede. Homing spiders, mushroom laying fleas and multi-direction travel makes this game fast and furious, with 10 skill levels.

JS VIC 20 Unexp. £5.95

PHARAOH'S TOMB

Once you enter, the only way out is with the aid of a key which unlocks the mystery of the Pharaoh's tomb. Beware of the mantraps the ancient Egyptians so painstakingly built. One false move and you will meet the same fate as befell other tomb robbers over thousands of years. A multi-screen big graphical adventure with M/C movements.

KB VIC 20 16K £5.95

SEVEN PROGRAMS (VOL 1)

Hi-res games for the whole family. Board game Othello plus Bomber, Slalom, Bounce out, Lunar Docker, Memory and Snake.

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SEVEN PROGRAMS (VOL 2)

Another Hi-res games pack for the family Graphical Adventure, Goblins Gold, plus Dare Devil, Ghosts, Grand Prix, Breakout, Cobra and Minefield.

KB VIC 20 Unexp. £5.95

KRAZY KONG

An E-XPANDE-D screen, large graphics, rolling barrels, hammer, fireballs, lifts, handbags and umbrellas as you try to rescue the damsel Kong has abducted. Spectacular collapse of Kong's lair in the fourth screen. Uses all 21K of your expanded Vic for this 100% M/C thriller. Complete with high score table.

KB/JS VIC 20 16K £7.90

SLAP DAB

NEW

An exciting game based on the arcade game PAINTER which combines fast action with strategy. Giant insects hiding under the old paint surface are released by your paint brush. You require fast action and quick thinking to outwit them and finish the panel. The game is 100 percent machine code and HI-RES. graphics also includes HI-score and running score with brilliant sound effects.

KB/JS VIC 20 UNEXP £5.95

DOTMAN

Ghosts chase you as you try to eat the dots and collect points. You can turn the tables on them by eating the pills. Don't forget the ghosts have been given intelligence and will try to corner you. This feature makes Dotman exciting and challenging. All M/C game complete with running and highest scores and tunnels.

JS/KB VIC 20 Unexp. £5.95

ZOK'S KINGDOM

Your starcruiser badly damaged in a meteor storm is forced to crash land on the planet ruled by ZOK, a time space generated image of Dracula. You are challenged to a battle of wits and endurance as the battle for survival starts in earnest in this big multi-screen graphical adventure in hi-res graphics and M/C movements.

KB/JS VIC 20 16K £5.95

GALACTIC ABDUCTORS

A stunning action packed game which uses all of your TV screen for the superb large animated graphics. Giant Space Hawks whirl and weave in intricate patterns as they drop their deadly homing mines which will destroy your base on contact. While you are busy defending yourself, the Hawks will feed on your helpless population returning only their skulls. All M/C game complete with high score table that will blow your mind with its graphics and sound effects.

JS VIC 20 16K £7.90

FROGRUN

Popular arcade game. All machine code with brilliant colour graphics and sound effect. Features include snakes, crocodiles, lady frogs, turtles, cars, lorries and logs.

KB/JS VIC 20 Unexp. £5.95
KB/JS SPECTRUM 16K/48K £4.95
KB/JS COMMODORE 64 £5.95

DRACULA

Count Dracula is asleep somewhere in his castle. He rises at midnight and you must find him and drive a stake through his heart before he rises. A multi-screen graphic adventure.

KB VIC 20 3K £5.95

TINY TOT'S SEVEN

Super games pack for younger children with bright colour graphics and sound effects. Everybody's favourite Simon plus Super Snap, O's and X's, Word Jumble, Bomber, Duck Shoot and Mad Drivers.

KB SPECTRUM 16K/48K £4.95
KB VIC 20 Unexp. £5.95

3D TIME TREK

At last a 3D game for the VIC! Although badly wounded, you are determined to seek and destroy the marauding space pirates who have now dispersed around the galaxy in search of fresh prey. A brilliant Startrek game with a difference – spectacular 3D graphics and real arcade actions.

JS VIC 20 16K £5.95
JS COMMODORE 64 £5.95

SOFTWARE WRITERS

We are looking for top class writers to join our growing software team. If you have written a quality game for VIC 20, SPECTRUM, DRAGON 32, ORIC 1 or COMMODORE 64, then contact us. We pay top royalties for accepted programmes.

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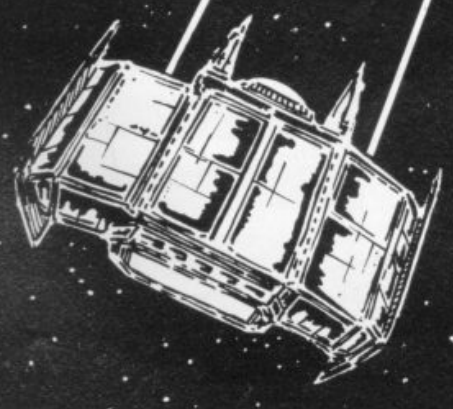
```
404 LET fp=1
405 LET p(t)=VAL m$(2)
410 IF t>4 THEN GO TO 425
415 PRINT AT d(t),a(t); INK 4;C
HR$ (p(t)+144)
416 IF tm=1 THEN GO TO 210
418 IF fp=1 THEN GO TO 950
419 GO SUB 600
420 GO TO 146
425 PRINT AT d(t),a(t); INK 6;C
HR$ (p(t)+144)
426 IF tm=1 THEN GO TO 210
428 IF fp=1 THEN GO TO 950
429 GO SUB 600
430 GO TO 146
500 LET h(t)=10: REM hit rock
505 PRINT AT d(t),a(t); INK 2;
BRIGHT 1; FLASH 1;CHR$ (p(t)+144
)
510 PAUSE 20: FLASH 0: BRIGHT 0
515 PRINT AT d(t),a(t);" "
516 FOR z=1 TO 6
517 IF d(t)=e(z) AND a(t)=f(z)
THEN GO TO 520
518 NEXT z
520 GO SUB 700
525 GO TO 325
600 LET z=INT (RND*6+1)
605 PRINT AT e(z),f(z);" "
610 LET n=INT (RND*3-1): LET o=
INT (RND*3-1)
615 IF ATTR (e(z)+n,f(z)+o)=2 T
HEN GO TO 610
617 IF ATTR (e(z)+n,f(z)+o)=5 T
HEN GO TO 610
620 IF e(z)+n<0 OR e(z)+n>19 TH
EN GO TO 700
625 IF f(z)+o<0 OR f(z)+o>31 TH
EN GO TO 700
630 LET e(z)=e(z)+n: LET f(z)=f
(z)+o
634 IF SCREEN$ (e(z),f(z))<>" "
THEN GO TO 645
635 PRINT AT e(z),f(z); INK 2;"
I"
641 RETURN
645 FOR g=1 TO 8
655 IF h(g)>9 THEN GO TO 665
660 IF d(g)=e(z) AND a(g)=f(z)
THEN GO TO 670
665 NEXT g
670 PRINT AT d(g),a(g); INK 2;
BRIGHT 1; FLASH 1;"I"
671 PAUSE 20: FLASH 0: BRIGHT 0
672 PRINT AT e(z),f(z);" "
675 LET h(g)=10
680 IF g<5 THEN LET af=af-1
681 IF g>4 THEN LET hf=hf-1
682 IF af=0 AND hf=0 THEN GO TO
850
683 IF hf=0 THEN GO TO 825
690 IF af=0 THEN GO TO 800
700 LET e(z)=INT (RND*15+1): LE
T f(z)=INT (RND*30+1)
710 GO TO 610
800 LET k$="An earth fleet win"
810 GO TO 875
825 LET k$="An alien win"
840 GO TO 875
850 LET k$="A draw, both fleets
destroyed "
875 PRINT AT 20,0; INK 5;k$; IN
K 7;" Another game? (y or n)"
880 IF INKEY$="" THEN GO TO 880
885 IF INKEY$="y" THEN RUN 1
890 IF INKEY$="n" THEN PRINT US
R 0
891 GO TO 880
950 PRINT AT d(t),a(t); INK i;
BRIGHT 0; CHR$ (p(t)+144)
952 LET fp=0: LET b=INT (RND*6+
2)
955 IF s(t)=5 THEN LET b=10
960 LET fd=d(t): LET fa=a(t)
965 FOR h=1 TO b
970 IF p(t)<3 THEN LET fd=fd-1
975 IF p(t)>3 AND p(t)<7 THEN L
ET fd=fd+1
980 IF p(t)>1 AND p(t)<5 THEN L
ET fa=fa+1
985 IF p(t)=0 OR p(t)>5 THEN LE
T fa=fa-1
986 IF fd<0 OR fd>19 THEN GO TO
146
987 IF fa<0 OR fa>31 THEN GO TO
146
990 IF ATTR (fd,fa)=2 THEN GO T
O 1015
991 IF ATTR (fd,fa)=5 THEN GO T
O 1015
995 IF SCREEN$ (fd,fa)<>" " THE
N GO TO 1020
1000 PRINT AT fd,fa; INK 2; BRIG
HT 1;"*"
1002 PAUSE 2
1005 PRINT AT fd,fa;" "
1010 NEXT h
1015 BRIGHT 0
1016 GO SUB 600
1017 GO TO 146
1020 FOR g=1 TO 8
1025 IF d(g)=fd AND a(g)=fa THEN
GO TO 1035
1030 NEXT g
1035 PRINT AT d(g),a(g); INK 2;
BRIGHT 1;CHR$ (p(g)+144)
1040 LET h(g)=h(g)+INT (RND*8+3)
1045 IF h(g)>9 THEN PRINT AT fd,
fa; BRIGHT 0;" "
1050 IF h(g)>3 AND h(g)<8 THEN L
ET s(g)=3
1055 IF h(g)>7 AND h(g)<10 THEN
LET s(g)=1
1056 IF h(g)>9 THEN GO TO 1070
1057 PAUSE 10
1058 LET i=6
1059 IF t>4 THEN LET i=4
1060 PRINT AT d(g),a(g); INK i;
BRIGHT 0;CHR$ (p(g)+144)
1065 GO TO 146
1070 IF g<5 THEN LET af=af-1
1075 IF g>4 THEN LET hf=hf-1
1076 IF af=0 AND hf=0 THEN GO TO
850
1080 IF af=0 THEN GO TO 800
1085 IF hf=0 THEN GO TO 825
1093 GO SUB 600
1095 GO TO 146
2000 PRINT AT d(t),a(t); BRIGHT
1; INK 5;"I"
2005 PAUSE 10
2010 PRINT AT d(t),a(t); BRIGHT
0;" "
2015 LET h(t)=10: LET g=t: GO TO
1070
3000 INK 7: PRINT AT 4,4;"
";AT 5,4;"
";AT 6,4;"
";AT 7,7;"
";AT 8,4;"
3001 PRINT AT 11,9;"
";AT 12,9;"
13,9;"
";AT 14,9;"
";AT 15,9;"
3002 PRINT AT 19,10;"© P.W.NORRI
S": PAUSE 200: INK 0: CLS : GO T
O 2
```

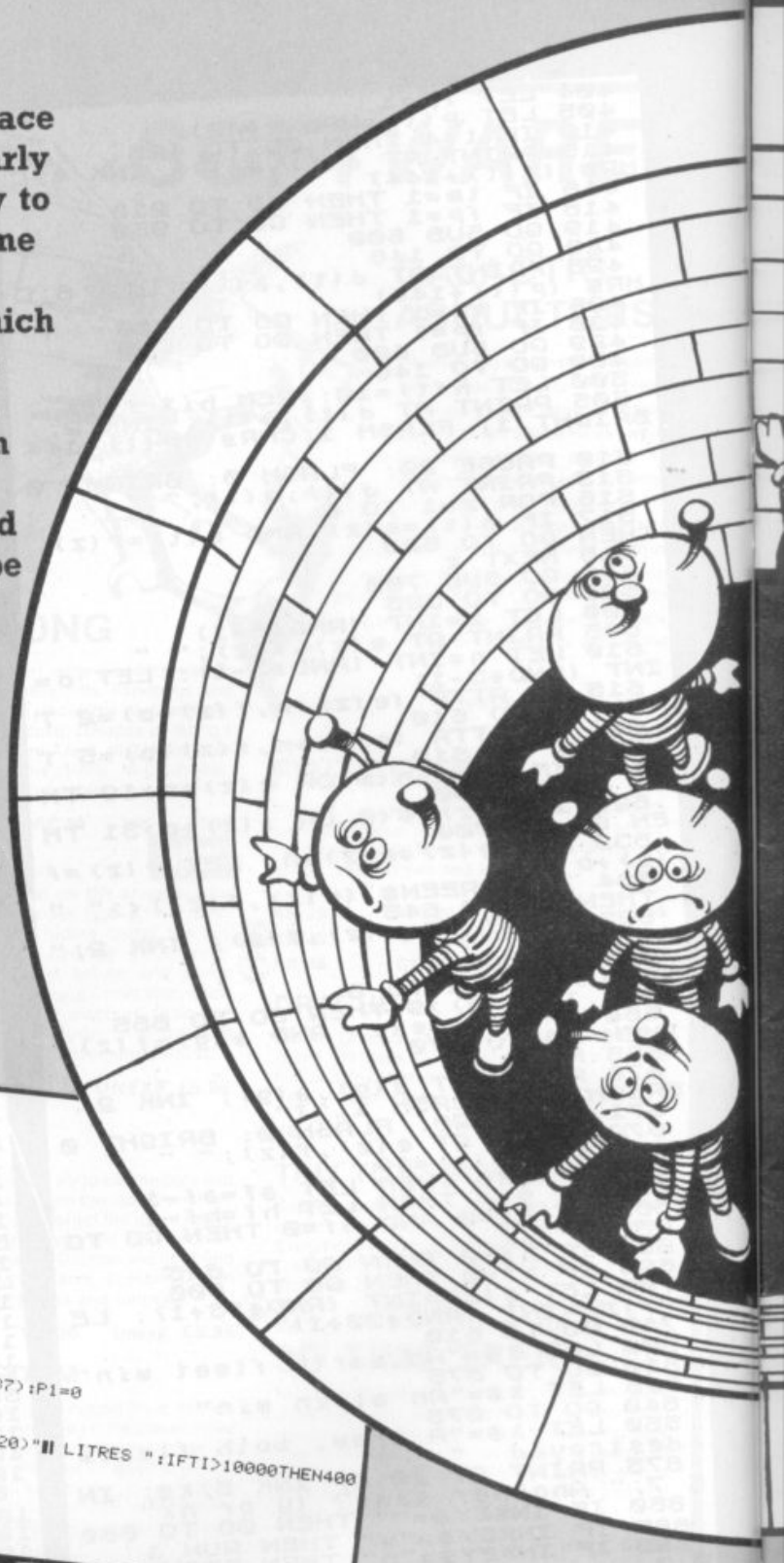


As a member of the intergalactic peace force you are making one of the yearly checks on the planet Weidoo — only to find that it has been attacked by some alien force.

As you search the outer dome, which has been badly damaged. You sense that you are being followed. After a quick radar scan you detect an alien being following you.

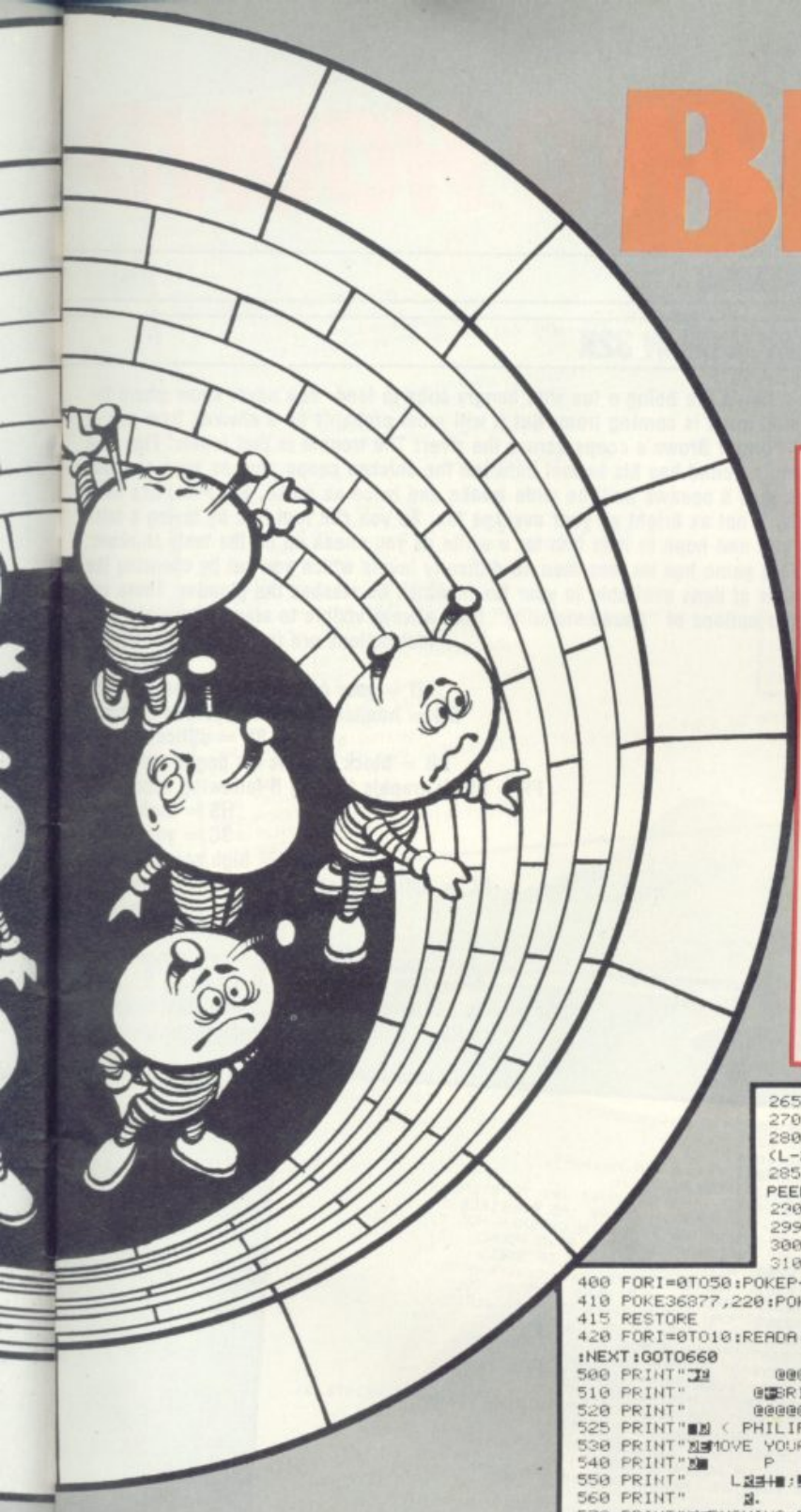
As you are on a peace mission and unarmed, your only chance to escape is to build a force wall around the alien so that you can capture and question him.

On the planet Weidoo the low gravity gives you great strength to move the portions of brick wall around. But you must watch out for your oxygen level, which is displayed at the bottom of the screen.



```
5 POKE46,26:POKE45,150:POKE56,28:POKE55,0:CLR
6 DEFFNY(XY)=INT((XY-7680)/22)
7 DEFFNX(XY)=XY-7680-22*FNY(XY)
8 D=9:POKE37139,0:POKE37154,127
10 POKE36869,255:POKE36879,90:POKE36878,15:OF=30720
15 GOSUB500
20 PRINTCHR$(8)"■■←↑↑↑
```

BRICK ~UP



VARIABLES:

FNX	**Finds X coordinate.**
FNY	**Finds Y coordinate.**
D	**Difficulty level.**
P	**Your position.**
L	**Aliens position.**
PI	**Number to add to P to give new position**
K	**Number corresponding to key held down.**
H	**Number corresponding to joystick position.**
Q	**Position to test for bricks.**
LI	**Number to add to L to give new alien position.**
TP	**Random number to add to L if blocked**
TL	**Time when finished.**
SC	**Score.**
HI	**High-score.**

BY PHILIP SMITH

RUNS ON

AN UNEXPANDED

VIC-20

JOYSTICK

OR KEYBOARD

```
265 IFPEEK(L+TP)=32THEN299
270 IFF=1THEN251
280 IFPEEK(L-1)=32ORPEEK(L+1)=32ORPEEK(L+22)=32ORPEEK
(L-22)=32THEN299
285 IFPEEK(L-21)=32ORPEEK(L+21)=32ORPEEK(L+23)=32OR
PEEK(L-23)=32THEN299
290 GOTO600
299 L1=L1+TP
300 IFPEEK(L+L1)<>32THENRETURN
310 GOTO230
400 FORI=0TO50:POKEP+OF,1:POKEP,38:POKEP,39
410 POKE36877,220:POKE36877,128:NEXT:POKE36877,0
415 RESTORE
420 FORI=0TO10:READA:POKE36875,A:READB:FORJ=0TOB*200:NEXT:POKE36875,0
:NEXT:GOTO660
500 PRINT"■■        @@@@@@@@@"
510 PRINT"        @■BRICKUP■@"
520 PRINT"        @@@@@@@@@"
525 PRINT"■■ ( PHILIP SMITH 1983"
530 PRINT"■■MOVE YOUR MAN ■[■ WITH        KEYS■:
540 PRINT"■■        P
550 PRINT"     L■■+■;■  ■OR JOYSTICK■"
560 PRINT"        ■.
570 PRINT"■■PUSHING BRICKS ■@■ IN      FRONT OF YOU■."
580 PRINT"■TRAP ALIEN ■£■ IN ONE        SPACE TO WIN"
590 PRINT"■PRESS ■)■ TO START■,■■*■ TO      CHANGE LEVEL■"
595 GETA$:IFA$="■"OR(PEEK(37137)AND4)=0THEND=D-1:IFD=0THEND=9
596 IF(PEEK(37137)AND4)=0THEN596
597 PRINT"■LEVEL"10-D"■"
598 IFA$<>"■"ANDNOT((PEEK(37137)AND32)=0)THEN595
599 RETURN
600 TL=TI:FORI=0TO50:POKEL+OF,7:POKEL,38:POKEL,39
610 POKE36877,220:POKE36877,128:NEXT:POKE36877,0
620 FORI=128TO240STEP10
630 FORJ=ITOI+15:POKE36876,J:NEXT:NEXT:POKE36876,0
635 SC=100*(10-D)+500-INT(TL/20)
640 PRINT"■■■■■■■■SCORE "SC
650 IFSC>HSTHENHS=SC:PRINT"■■■■■■■■BEST SCORE ■!":GOTO670
660 PRINT"■■■■■■■■■■■HIGH SCORE "HS
670 PRINT"■■■■PRESS ■)■ TO CONTINUE"
680 GETA$:IFA$<>"■"ANDNOT((PEEK(37137)AND32)=0)THEN680
685 IF(PEEK(37137)AND32)=0THEN685
690 GOTO15
1000 DATA195,3,195,2,195,1,195,2,203,2,201,1,201,2,195,1,
195,2,191,1,195,3
```

FOX AND HOUND

BY A. C. EDWARDS

RUNS ON A DRAGON IN 32K

It's a dog's life being a fox with hungry cubs to feed. You never know where the next meal is coming from. But it will most probably be a chicken from one of Farmer Brown's coops across the river! The trouble is that faithful Fido, the farmer's hound has his kennel between the chicken coops, and as soon as those birds give a squawk he'll be wide awake and twice as mean. But Fido, like most hounds, it not as bright as your average fox. So you can fool him by laying a false trail and hope to lose him for a while as you sneak up on the tasty chickens. This game has no less than 10 difficulty levels which you set by choosing the number of dens available to your fox in which he stashes the plunder. There are four options of "hound visibility" from always visible to always invisible. Full instructions are included in the listing.

Variables

U = your position in Screen memory.
DG = hounds position in screen memory.
SL = difficulty level.
BB = block graphic for dog if searching.
FF = block graphic for dog if following scent trail.
HS = high score.
SC = your score.
N$ = high scorers name.
DL = option chosen (determines BB and FF).
A,X = loop counters.
DM = dogs movement.
MU = your movement.
CF = flag variable (=1 if fox has a chicken).
SF = flag variable (=1 until you steal first chicken).
R$ = holds string characters for the river.

```
10 'fox and hound BY A.C.EDWARDS
20 DATA 32,-32,1,-1
30 'instructions
40 CLS3:PRINT@41,"-fox and hound-";
50 PRINT@96,STRING$(32,214);
60 PRINT@161,"YOU, THE FOX MUST TRY TO STEAL";
70 PRINT@193,"AS MANY CHICKENS AS POSSIBLE ";
80 PRINT@225,"FROM THE FARMER'S CHICKEN HUT ";
90 PRINT@257,"WHICH IS GUARDED BY A HOUND  ";
100 PRINT@289,"WITH A GOOD SENSE OF SMELL  ";
110 PRINT@321,"YOU MUST TAKE YOUR CHICKENS TO";
120 PRINT@353,"ONE OF YOUR DENS BEFORE YOU  ";
130 PRINT@385,"CAN GET ANOTHER CHICKEN BUT  ";
140 PRINT@417,"THE DOG IS ON YOUR SCENT
150 PRINT@485,"PRESS SPACE TO CONTINUE";
160 IF INKEY$<>" " THEN GOTO160
170 CLS6:PRINT@103,"FOX=";CHR$(191);
180 PRINT@135,"HOUND=";CHR$(191);:PRINT@199,"DEN=O";:PRINT@231,
190 PRINT@167,"YOUR SCENT=.";:PRINT@263,"TREE=^";
"CHICKEN=C";:PRINT@263,"TREE=^";
200 PRINT@384:INPUT"LEVEL(1-10)-1 IS HARDEST";SL
210 IF SL<1 OR SL>10 THEN200
220 CLS4:PRINT@8,"select option";:PRINT@96,"1-DOG ALWAYS
INVISIBLE"
230 PRINT"2-DOG ONLY VISIBLE WHEN ON YOUR SCENT"
240 PRINT"3-DOG ONLY VISIBLE WHEN OFF YOUR SCENT"
250 PRINT"4-DOG ALWAYS VISIBLE"
260 INPUT DL
270 IF DL<1 OR DL>4 THEN260
280 ON DL GOSUB 290,300,310,320:GOTO340
290 BB=143:FF=143:RETURN
300 BB=143:FF=191:RETURN
310 BB=191:FF=143:RETURN
320 BB=191:FF=191:RETURN
330 'variables
340 HS=5:N$="COMPUTER"
350 L$=STRING$(3,227):L1$=STRING$(3,236):BL$=STRING$(3,143)
360 CC$(1)=CHR$(225)+L$+BL$+L$+BL$+L$+CHR$(226)
370 CC$(2)=CHR$(229)+BL$+BL$+BL$+BL$+BL$+CHR$(234)
380 CC$(3)=CHR$(228)+L1$+BL$+L1$+BL$+L1$+CHR$(232)
390 R1$=STRING$(7,175):R2$=CHR$(143):RI$=R1$+R2$+R1$+R2$
+R1$+R2$+R1$
400 SC=0:SF=1:DM=-1:CF=0:DG=1449
410 'set up scenery
420 CLS1
430 FOR A=1TO50-SL:POKE RND(233)+1024,94:NEXT
440 FOR A=1055 TO 1535 STEP32:POKE A,128:NEXT
```

```
450 FOR A=1TO3
460 PRINT@(A*32)+353,CC$(A);
470 NEXT
480 POKE1442,67:POKE DG,191
490 PRINT@224,RI$;
500 FOR A=1TO SL
510 BU=RND(159)+1024:IF PEEK(BU-1) AND PEEK(BU+1)<>143
THEN 510
520 POKE BU,79
530 NEXT
540 PRINT@256,"RIVER";
550 PRINT@353,"HUTS     DOG";
560 FOR A=1TO1000:NEXTA
570 PRINT@256,BL$+BL$;
580 PRINT@353,BL$+BL$+BL$+BL$;
590 U=RND(511)+1024:IF PEEK(U)<>143 THEN 590 ELSE POKE U,159
600 'be91n 9ame
610 'move u
620 IF PEEK(341)=223 THEN MU=-32:GOTO670
630 IF PEEK(342)=223 THEN MU=32:GOTO670
640 IF PEEK(343)=223 THEN MU=-1:GOTO670
650 IF PEEK(344)=223 THEN MU=1:GOTO670
660 GOTO760
670 IF U+MU<1024 OR U+MU>1535 THEN 760
680 PP=PEEK(U+MU)
690 IF PP=143 OR PP=110 THEN740
700 IF U+MU=DG THEN GOTO1130
710 IF PP=67THEN GOSUB 960:GOTO760
720 IF PP=79 AND CF=1THEN GOSUB 1070:GOTO760
730 GOTO760
740 POKEU,110:U=U+MU:POKEU,159
750 'move do9 if searchin9
760 IF FL=1 THEN 860
770 IF DG+DM<1024 OR DG+DM>1535 THEN GOSUB 1020:GOTO620
780 IF RND(10)=7 THEN GOSUB1020
790 PP=PEEK(DG+DM)
800 IF PP=143 THEN 840
810 IF PP=110 THEN GOTO860
820 IF PP=159 THEN 1130
830  GOSUB1020:GOTO620
840 IF SF=1 THEN 620 ELSE POKE DG,143:DG=DG+DM:POKE DG,BB:
GOTO620
850 'move do9 if on scent
860 POKE&HFFD7,0:FL=1
870 PLAY"T25501L1;"+STR$(RND(11))
880 RESTORE
890 FOR X=1TO4:READ DM
900 PP=PEEK(DG+DM)
910 IF PP=110 THEN950
920 IF PP=159 THEN 1130
930 IF PP<>110 THEN NEXT
940 POKE&HFFD6,0:FL=0:GOTO620
950 POKE DG,143:POKEDG+DM,FF:DG=DG+DM:POKE &HFFD6,0:GOTO620
960 '9rab a chicken
970 SF=0
980 IF PEEK(1442)=67 THEN POKE 1442,143 ELSE POKE 1456,143
990 CF=1
1000 SOUND RND(255),1:RETURN
1010 'new course for do9
1020 V=RND(4):ON V GOTO1030,1040,1050,1060
1030 DM=-32:RETURN
1040 DM=32:RETURN
1050 DM=-1:RETURN
1060 DM=1:RETURN
1070 'put chicken in den
1080  SC=SC+1:CF=0:IF RND(2)=1 THEN POKE 1442,67ELSE
POKE1456,67
1090 PLAY"T25502V31ABCDEFGABCDEFGABCDEFG"
1100 PRINT@500,"score=";SC;
1110 RETURN
1120 'your dead
1130 POKE U,191:PLAY"O1T100V31ABCDEFG":FOR A=1TO500:NEXT:CLS6
1140 POKE&HFFD6,0
1150 PLAY"T5003V31GFEDCBAABCDEFGT255ABBBBAACEFDDGGG"
1160 PRINT@5,"YOU GOT ";SC;"CHICKENS";
1170 IF SC>HS THEN HS=SC:PRINT@97,"you have beaten the high
score":PRINT@171,"YUUR NAME";:INPUT N$
1180 PRINT@289,"hi score";HS;"held by-";N$;
1190 PRINT@355,"ON LEVEL ";SL;"OPTION"DL;
1200 PRINT@418,"PRESS SPACE KEY FOR NEW GAME";
1210 A$=INKEY$
1220 IF A$=" " THEN GOTO400
1230 GOTO1210
```

LANDERS

```
  10 REM
  20 REM ****************************
  30 REM *+++++++++++++++++++++++++*
  40 REM *+  LANDERS               +*
  50 REM *+ By Dominic Cobley,     +*
  60 REM *+ Daniel Cobley, and     +*
  70 REM *+ Christopher Mitchell. +*
  80 REM *+++++++++++++++++++++++++*
  90 REM ****************************
 100 REM
 110 ON ERROR GOTO 1500
 120 VDU 23,224,255,255,255,255,255,255,255,255
 130 VDU 23,225,1,7,15,27,63,97,99,240
 140 VDU 23,226,128,224,240,216,252,134,198,15
 150 L1$=CHR$(225)+CHR$(226)
 160 VDU 23,228,24,24,126,126,255,255,255,255
 170 VDU 23,229,34,2,89,231,45,23,2,3
 180 VDU 23,230,23,76,34,2,45,128,67,56
 190 VDU 23,231,116,68,70,119,69,68,116,0
 200 VDU 23,232,187,162,162,187,162,162,186,0
 210 VDU 23,233,29,161,161,32,172,164,156,0
 220 VDU 23,234,64,72,72,128,136,136,128,0
 230 VDU 23,235,230,136,136,232,40,40,230,0
 240 VDU 23,236,76,170,170,172,170,170,74,0
 250 VDU 23,237,224,132,132,224,132,132,224,0
 260 VDU 23,238,66,69,69,71,69,69,117,0
 270 VDU 23,239,75,74,106,122,90,74,75,0
 280 VDU 23,240,59,162,162,186,162,162,59,0
 290 VDU 23,241,0,144,144,128,144,144,0,0
 300 LA$=CHR$(238)+CHR$(239)+CHR$(240)+CHR$(241)
 310 SC$=CHR$(235)+CHR$(236)+CHR$(237)
 320 EN$=CHR$(231)+CHR$(232)+CHR$(233)+CHR$(234)
 330 B$=CHR$(228)
 340 H$=CHR$(229)+CHR$(230)
 350 G$=CHR$(230)+CHR$(229)
 360 O$=STRING$(2,CHR$(224))
 370 FU$=CHR$(224)
 380 SC%=0:SHIP%=3:MISS%=0:VOL%=-15:LD%=1:HIT%=0:EXTRA%=0
 390 SX%=0:SY%=0:B%=575
 400 MODE 7:PROCCO:PRINT TAB(0,2);"Cobleys software Brighton Presents:"
 410 FOR QQ%=11 TO 12:PRINT TAB(7,QQ%)CHR$(133)CHR$(141)"GALACTIC LANDERS":NEXT
 420 FOR T%=10 TO 13 STEP 3
 430 PRINT TAB(8,T%)CHR$(134)STRING$(16,"_")''''':NEXT
 440 PRINT TAB(1,20);CHR$(136);"Press the SPACE BAR to continue":A$=INKEY$(0):I
F A$=" " THEN 450 ELSE 440
 450 CLS:PRINTTAB(4,3)CHR$(131)"""Z"""CHR$(132)"ccc LEFT   RIGHT ]]]"CHR$(131)"
"""X"""
 460 PRINTTAB(7,7)CHR$(130)"""SPACE BAR"""CHR$(129)"^^^ FIRE"
 470 PRINT TAB(1,20);CHR$(136);"Press the SPACE BAR to continue":A$=INKEY$(0):I
F A$=" " THEN 480 ELSE 470
 480 *FX11,3
 490 *FX12,3
 500 *FX10,5
 510 MODE 2
 520 FU%=20:PROCSCORE
 530 PROCPRINT(B%,120,B$,5)
 540 GCOL 0,6:MOVE 0,990:DRAW 1300,990
 550 GCOL 0,6:MOVE 0,80:DRAW 1280,80
 560 GCOL 0,3:MOVE 0,80:DRAW 0,990
 570 MOVE 1200,80:DRAW 1200,990
 580 MOVE 1274,80:DRAW 1274,990
 590 FOR S%=1 TO 100:GCOL 0,RND(15):PLOT 69,RND(1100)+50,RND(850)+100:NEXT
 600 FOR S%=1 TO 20:PROCPRINT(1210,80+32*S%,FU$,5):NEXT
 610 IF SHIP%>1 THEN FOR S%=1 TO SHIP%-1:PROCPRINT(S%*100,60,B$,5):NEXT
 620 VDU4:COLOUR3:PRINT TAB(10,30);LA$;MISS%:VDU5
 630 I%=INKEY(0)
 640 *FX15,0
 650 IF I%=90 THEN B%=B%-75:IF B%<50THEN B%=50
 660 IF I%=90 THEN PROCPRINT(B%+75,120,B$,0):PROCPRINT(B%,120,B$,5):GOTO710
 670 IF I%=88 THEN B%=B%+75:IFB%>1100 THEN B%=1100
 680 IF I%=88 THEN PROCPRINT(B%-75,120,B$,0):PROCPRINT(B%,120,B$,5):GOTO710
 690 IF I%=32 OR I%=13 THEN FU%=FU%-1:PROCFIRE:GOTO 720
 700 PROCWAIT(5)
 710 GOTO730
 720 IF FU%<1 THEN SHIP%=SHIP%-1:LD%=1:GOTO920
 730 IF HIT%=1 OR LD%=1 THEN 740 ELSE 760
 740 SX%=RND(900)+20:SY%=950
 750 HIT%=0:LD%=0
 760 SOUND 17,VOL%,(1000-SY%)/5,2
 770 PROCPRINT(SX%,SY%,L1$,0)
 780 PROCPRINT(SX%,SY%,L1$,0)
 790 SY%=SY%+(RND(175)-(100+(SC%/50)))
 800 SX%=SX%+(RND(200)-100)
 810 IF SY%>950 THEN SY%=950
 820 IF SY%<150 THEN SY%=150
 830 IF SX%<20 THEN SX%=20
 840 IF SX%>900 THEN SX%=900
 850 PROCPRINT(SX%,SY%,L1$,2)
 860 SOUND 1,VOL%,(1000-SY%)/5,1
 870 IF SY%>170 THEN630
 880 LD%=1:PROCPRINT(SX%,SY%,L1$,0):PROCPRINT(SX%,120,L1$,2):SY%=120
 890 IF B%>SX%-60 AND B%<SX%+130 THEN SHIP%=SHIP%-1:SY%=900:GOTO920
 900 FOR S%=50TO150:SOUND17,VOL%,S%,2:NEXT:MISS%=MISS%+1:IF MISS%>1 THEN SHIP%=
SHIP%-1:GOTO 920
 910PROCPRINT(SX%,120,L1$,0):VDU4:COLOUR3:PRINT TAB(10,30);LA$;MISS%:VDU5:GOTO
630
 920 MISS%=0:FOR S%=50 TO 250:SOUND 17,VOL%,S%,1:NEXT:SOUND 0,VOL%,22,12
 930 FOR S%=1 TO 20:GCOL 0,RND(7):MOVE B%-75+RND(200),50+RND(150):DRAW B%+27,90
:NEXT
```

Illustration: Dorian Cross

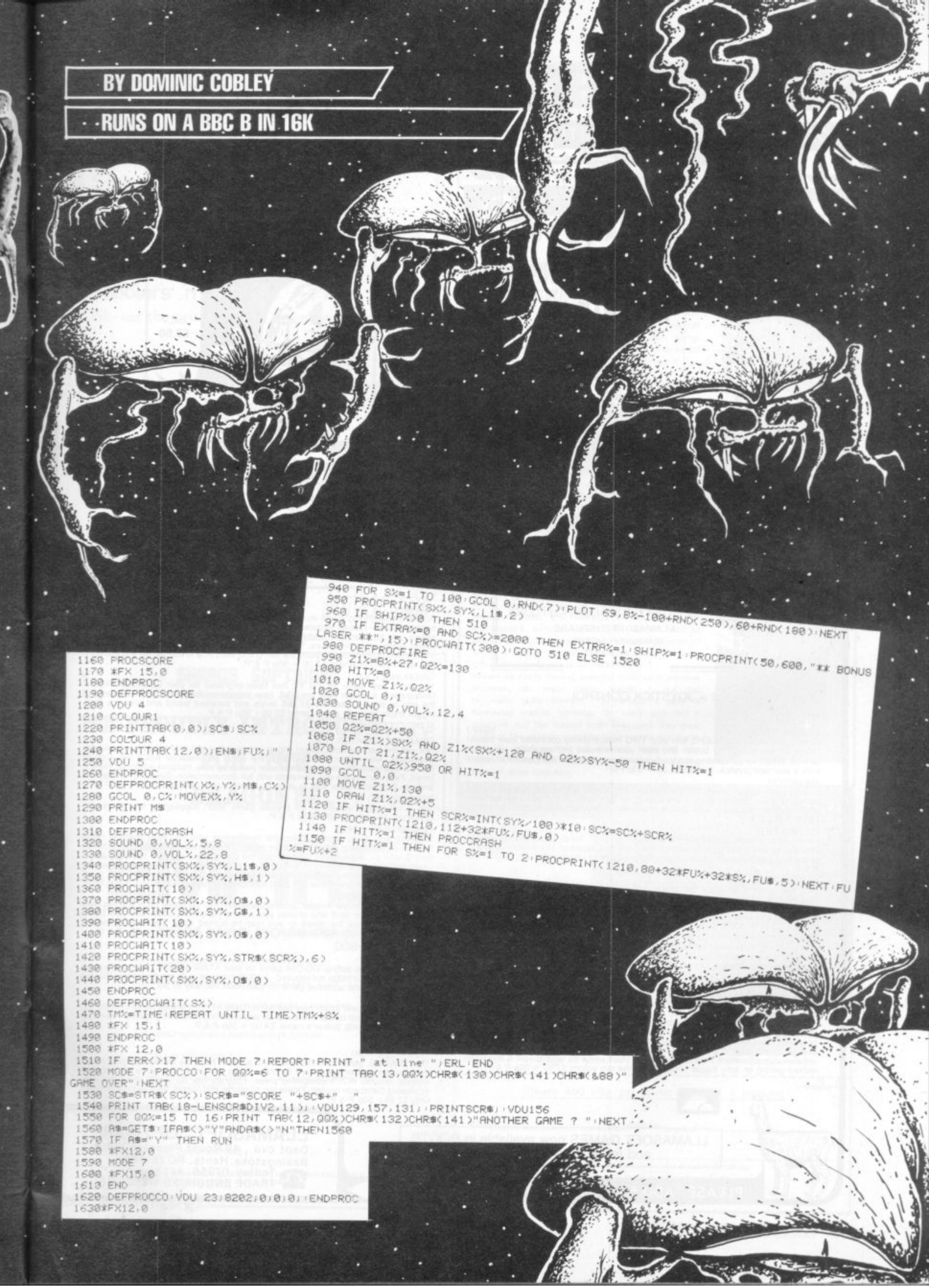
Remember the mutant Landers from Defender, the big-daddy of all video games? Well, they are back — and twice as mean! They are still out to attack all human life wherever they find it! Move your laser base and shoot down the swerving landers as they swarm down towards the planet's surface.

The higher the lander is when you shoot it the more points you score. You lose energy each time you fire — but regain it if you manage to hit a lander.

If you run out of energy, crash into a lander, or let two alien craft land you'll lose a life. The game ends when you lose all three lives, and you get an extra life at 2,000 points.

BY DOMINIC COBLEY

RUNS ON A BBC B IN 16K



```
940 FOR S%=1 TO 100:GCOL 0,RND(7):PLOT 69,B%-100+RND(250),60+RND(100):NEXT
950 PROCPRINT(SX%,SY%,L1$,2)
960 IF SHIP%>0 THEN 510
970 IF EXTRA%=0 AND SC%>=2000 THEN EXTRA%=1:SHIP%=1:PROCPRINT(50,600,"** BONUS
LASER **",15):PROCWAIT(300):GOTO 510 ELSE 1520
980 DEFPROCFIRE
990 Z1%=B%+27:Q2%=130
1000 HIT%=0
1010 MOVE Z1%,Q2%
1020 GCOL 0,1
1030 SOUND 0,VOL%,12,4
1040 REPEAT
1050 Q2%=Q2%+50
1060 IF Z1%>SX% AND Z1%<SX%+120 AND Q2%>SY%-50 THEN HIT%=1
1070 PLOT 21,Z1%,Q2%
1080 UNTIL Q2%>950 OR HIT%=1
1090 GCOL 0,0
1100 MOVE Z1%,130
1110 DRAW Z1%,Q2%+5
1120 IF HIT%=1 THEN SCR%=INT(SY%/100)*10:SC%=SC%+SCR%
1130 PROCPRINT(1210,112+32*FU%,FU$,0)
1140 IF HIT%=1 THEN PROCCRASH
1150 IF HIT%=1 THEN FOR S%=1 TO 2:PROCPRINT(1210,80+32*FU%+32*S%,FU$,5):NEXT:FU
%=FU%+2
```

```
1160 PROCSCORE
1170 *FX 15,0
1180 ENDPROC
1190 DEFPROCSCORE
1200 VDU 4
1210 COLOUR1
1220 PRINTTAB(0,0);SC$;SC%
1230 COLOUR 4
1240 PRINTTAB(12,0);EN$;FU%;"
1250 VDU 5
1260 ENDPROC
1270 DEFPROCPRINT(X%,Y%,M$,C%)
1280 GCOL 0,C%:MOVEX%,Y%
1290 PRINT M$
1300 ENDPROC
1310 DEFPROCCRASH
1320 SOUND 0,VOL%,5,8
1330 SOUND 0,VOL%,22,8
1340 PROCPRINT(SX%,SY%,L1$,0)
1350 PROCPRINT(SX%,SY%,H$,1)
1360 PROCWAIT(10)
1370 PROCPRINT(SX%,SY%,O$,0)
1380 PROCPRINT(SX%,SY%,G$,1)
1390 PROCWAIT(10)
1400 PROCPRINT(SX%,SY%,O$,0)
1410 PROCWAIT(10)
1420 PROCPRINT(SX%,SY%,STR$(SCR%),6)
1430 PROCWAIT(20)
1440 PROCPRINT(SX%,SY%,O$,0)
1450 ENDPROC
1460 DEFPROCWAIT(S%)
1470 TM%=TIME:REPEAT UNTIL TIME>TM%+S%
1480 *FX 15,1
1490 ENDPROC
1500 *FX 12,0
1510 IF ERR<>17 THEN MODE 7:REPORT:PRINT " at line ";ERL:END
1520 MODE 7:PROCCO:FOR QQ%=6 TO 7:PRINT TAB(13,QQ%)CHR$(130)CHR$(141)CHR$(&88)"
GAME OVER":NEXT
1530 SC$=STR$(SC%):SCR$="SCORE "+SC$+"  "
1540 PRINT TAB(18-LENSCR$DIV2,11);:VDU129,157,131:PRINTSCR$:VDU156
1550 FOR QQ%=15 TO 16:PRINT TAB(12,QQ%)CHR$(132)CHR$(141)"ANOTHER GAME ? ":NEXT
1560 A$=GET$:IFA$<>"Y"ANDA$<>"N"THEN1560
1570 IF A$="Y" THEN RUN
1580 *FX12,0
1590 MODE 7
1600 *FX15,0
1610 END
1620 DEFPROCCO:VDU 23;8202;0;0;0;:ENDPROC
1630*FX12,0
```

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ANDES ATTACK (8K) J
Your spacecraft must attack the descending aliens and frustrate their evil intent. Fly your Ramjet fighter over the Andes mountain range and protect your llamas from kidnap by hostile UFOS. Features 5 kinds of UFO, controls include up, down, reverse, fire, thrust and smart bomb. Entirely in machine code. Requires 8K expansion and joystick. £5.00 + 50p P & P.

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Return to Earth Having escaped from your previous dilemmas, you reach Earth Station 1, but fail to make radio contact. You effect a safe if harrowing manual ducking. On entry you find it deserted, and the control room destroyed. You must explore the station and find some way to alert Earth of your predicament, but beware, many of the rooms are identical, there is extensive damage, and signs of alien intruders.

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MAD MARTHA £6,95

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LADDER MAZE

The tortuous twists and turns of this 3D maze will intrigue even the most jaded Pacman player! You'll find yourself within the walls of a graphically stunning maze — even more baffling than the one at Hampton Court. But before you start be warned — there are monsters stalking the corridors and deadly pits which must be avoided at all costs during your quest for the way out. To help you get out there is a map located somewhere in the curious corridors. Once you have found that all you have to do is avoid the lurking monsters and find ladders to help you deal with the pits! An added attraction are the transporter rooms, located behind a set of sliding doors which you'll find dotted around the maze. These transporters will help take you to different parts of the maze — but offer no real chance of escape! If you see a pair of ladders on your journey through the corridors, pick them up. You'll need them to cross the pits. If you fall into one of these holes in the maze floor the game ends. Ladders unfortunately cannot be transported — so you'll have to drop them if you want to enter a transporter room. Monsters in the maze are extremely intelligent beings and will follow you — the best tactic is to run away! If you suddenly vanish for no apparent reason a monster has leaped on you from behind!

The map is the key to your freedom. It is represented by a black square and is located in one of the many corridors. If you find it pick it up using the fire button on your joystick and then press "M" on the keyboard. You will see a plan view of the maze and the all-important transmat beam which will take you to freedom. This is marked by a cross. The map also shows your position and the direction you are facing. You must use the information to work out the best route out of the maze. There are four skill levels — if you manage to escape the first time round!

Movement is carried out entirely by the joystick. The fire button is used to open doors and pick up items.

The key to the Map is as follows: D=a door; T=a transporter; L=ladders; CIRCLE=a pit; @ a monster.

The random number generator in line 1440 determines whether or not the monsters move or not at the moment it is set to a 40% chance. But it can be lowered or increased to make the game more or less challenging. No matter what skill level you will always be able to reach a pair of ladders or a transporter when first starting.

```
10 GRAPHICS 0:POKE 752,1:CLR :RESTORE :S
ETCOLOR 2,0,0:POSITION 13,11:? "SKILL LE
VEL ";:INPUT LEV:IF LEV>4 THEN 10
20 POSITION 12,11:? "    HANG ON!    "
30 DIM M(15,15):DIM J(4):DIM K(4):DIM L(
4):DIM X2(4):DIM Y2(4):DIM A$(1):DIM M$(
10):DIM R$(4)
40 M$="  DLCT@X":R$="NESW":ST=1:LA=1:CH
=1:LD=0:IN=10
50 FOR D=0 TO 15:READ I:M(D,C)=I:NEXT D:
C=C+1:IF C=16 THEN 70
60 GOTO 50
70 FOR D=1 TO 4:READ A,B,C:J(D)=A:K(D)=B
:L(D)=C:NEXT D
80 RA=INT(RND(0)*2+1):IF RA=1 THEN M(8,1
)=7:M(14,6)=5:GOTO 100
90 M(8,1)=5:M(14,6)=7
100 B=8:GOSUB 130:B=5:GOSUB 130:B=5:GOSU
B 130
110 B=4:FOR A=1 TO LEV*2+5:GOSUB 130:NEX
T A
120 C=0:GOTO 150
130 X=INT(RND(0)*13+1):Y=INT(RND(0)*13+1
):IF X<9 AND Y<4 OR M(X,Y)<>2 THEN 130
135 IF M(X+1,Y)=4 OR M(X-1,Y)=4 OR M(X,Y
+1)=4 OR M(X,Y-1)=4 THEN 130
140 M(X,Y)=B:RETURN
150 FOR A=1 TO LEV
160 X=INT(RND(0)*5+9):Y=INT(RND(0)*5+9):
IF M(X,Y)<>2 THEN 160
170 X2(A)=X:Y2(A)=Y:NEXT A
180 GRAPHICS 6:POKE 752,1:SETCOLOR 1,0,0
:SETCOLOR 2,LEV*3,14:SETCOLOR 4,LEV*3,14
:? "    LADDER MAZE BY P.B.JOHNSON"
250 X=1:Y=1:R=3:GOTO 270
260 X=X-F*U:Y=Y-F*V:DR=0:POKE 77,0:POKE
764,255:IF TA=1 THEN X=X+U:Y=Y+V:TA=0
270 FOR A=1 TO R:READ U,V,W,Z,O,P:NEXT A
280 Q=42:S=0:G=25:H=0:F=0
290 Q=INT(Q/1.445):G=INT(G/1.41):F=F+1
300 X=X+U:Y=Y+V:D=M(X,Y):IF D=1 OR D>=3
THEN 330
310 D=M(X+W,Y+Z):ON D GOSUB 450,470,500,
470,470,470,470,470,470
320 D=M(X+O,Y+P):ON D GOSUB 530,560,590,
560,560,560,560,560,560:GOTO 290
330 ON D GOSUB 620,1,650,670,690,1,720,7
30,740,770:IF D>3 THEN 310
340 SETCOLOR 0,LEV*3,0:SETCOLOR 4,LEV*3,
14:RESTORE 970
345 X1=X-F*U:Y1=Y-F*V:D1=M(X1,Y1):D2=M(X
1+U,Y1+V):GOSUB 1600
350 N=STICK(0):IF CH=1 THEN 360
355 IF PEEK(764)=37 THEN 1100
360 IF N=13 THEN R=J(R)
365 IF N=11 THEN R=K(R)
370 IF N=7 THEN R=L(R):IF N=14 AND F=1 A
ND D=1 THEN 350
375 IF N=14 AND F=1 AND D=1 THEN 350
380 IF N=14 AND F=1 AND D=3 AND DR=0 THE
N 350
385 IF D1=4 AND LA=0 THEN LD=1
390 IF N=14 AND F>1 THEN TA=1
400 IF D=3 AND F=1 AND DR=0 AND STRIG(0)
=0 THEN GOSUB 430
405 IF N=14 AND DR=1 THEN TA=1
410 TI=TI+1:IF N=15 THEN 350
420 GRAPHICS 6+16:SETCOLOR 0,LEV*3,14:SE
```

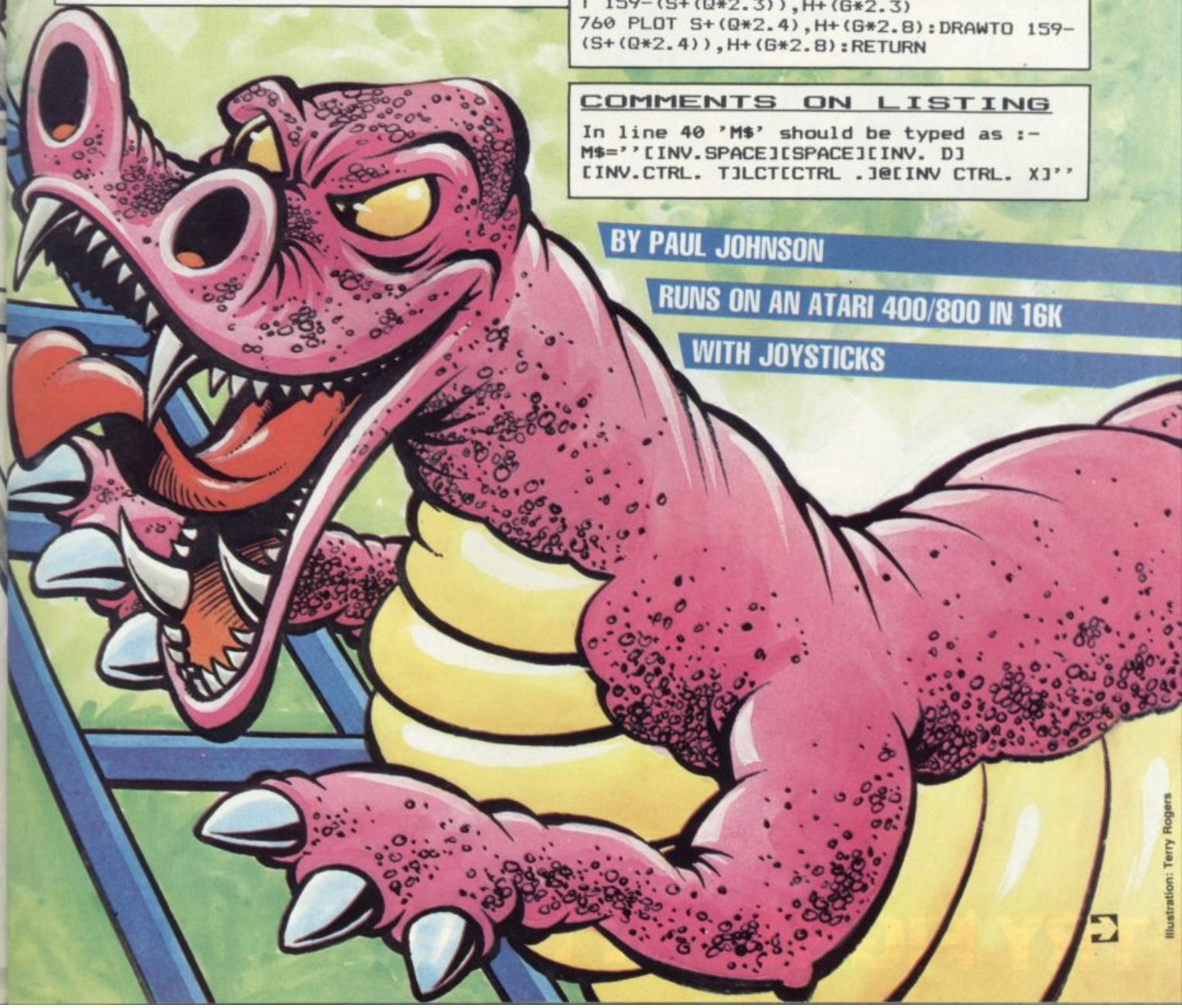
```
TCOLOR 4,LEV*3,14:GOTO 260
430 FOR OP=80 TO 120 STEP ST:COLOR 1:PLO
T OP,18:DRAWTO OP,95:PLOT 160-OP,18:DRAW
TO 160-OP,95
440 SOUND 0,66,12,4:NEXT OP:SOUND 0,0,0,
0:DR=1:RETURN
450 COLOR 1:PLOT 159-S,H:DRAWTO 159-(S+Q
),H+G:DRAWTO 159-(S+Q),95-(H+G):DRAWTO 1
59-S,95-H:RETURN
470 COLOR 1:PLOT 159-S,H+G:DRAWTO 159-(S
+Q),H+G:DRAWTO 159-(S+Q),95-(H+G):DRAWTO
 159-S,95-(H+G):RETURN
500 COLOR 1:PLOT 159-(S+(Q/5)),95-H-(G/5
):DRAWTO 159-(S+(Q/5)),H+G:DRAWTO 159-(S
+Q-(Q/5)),H+(G*1.4)
515 DRAWTO 159-(S+Q-(Q/5)),95-H-(G*0.8):
PLOT 159-(S+(Q/2)),H+G*1.3
520 DRAWTO 159-(S+(Q/2)),95-H-(G/2):GOSU
B 450:RETURN
530 COLOR 1:PLOT S,H:DRAWTO S+Q,H+G:DRAW
TO S+Q,95-(H+G):DRAWTO S,95-H
540 S=Q+S:H=G+H:RETURN
560 COLOR 1:PLOT S,H+G:DRAWTO S+Q,H+G:DR
AWTO S+Q,95-(H+G):DRAWTO S,95-(H+G)
570 GOSUB 540:RETURN
590 COLOR 1:PLOT S+(Q/5),95-H-(G/5):DRAW
TO S+(Q/5),H+G:DRAWTO S+Q-(Q/5),H+(G*1.4
)
600 DRAWTO S+Q-(Q/5),95-H-(G*0.8):PLOT S
+(Q/2),H+(G*1.3):DRAWTO S+(Q/2),95-H-(G/
2):GOSUB 530:RETURN
```

```
620 COLOR 1:PLOT S,H:DRAWTO 159-S,H:DRAW
TO 159-S,95-H:DRAWTO S,95-H:DRAWTO S,H:R
ETURN
650 COLOR 1:PLOT S+Q,95-H:DRAWTO S+Q,H+G
:DRAWTO 159-(S+Q),H+G:DRAWTO 159-(S+Q),9
5-H
660 PLOT 80,H+G:DRAWTO 80,95-H:GOSUB 620
:RETURN
670 COLOR 1:PLOT S+Q,95-H:DRAWTO S+Q,95-
(H+G):DRAWTO 159-(S+Q),95-(H+G):DRAWTO 1
59-(S+Q),95-H
680 PLOT S,95-H:DRAWTO 159-S,95-H:RETURN

690 COLOR LA:PLOT S+(Q*1.2),95-(H+G/3):D
RAWTO 159-(S+(Q*1.2)),95-(H+G/3):PLOT S+
(Q*1.2),95-(H+(G/1.4))
700 DRAWTO 159-(S+(Q*1.2)),95-(H+(G/1.4)
):FOR A=S+(Q*1.2) TO 159-(S+(Q*1.2)) STE
P (159-(S+(Q*1.2))-(S+(Q*1.2)))/5
710 PLOT A,95-(H+G/3):DRAWTO A,95-(H+(G/
1.4)):NEXT A:RETURN
720 COLOR 1:PLOT S+Q+40,H+G+20:DRAWTO 12
0-(S+Q),H+G+20:PLOT 80,H+G+20:DRAWTO 80,
75-(H+G):GOSUB 620:RETURN
730 COLOR CH:PLOT 80,95-(H+G/3):RETURN
740 COLOR 1:FOR A=S+(Q*2.1) TO 159-(S+(Q
*2.1)) STEP 1:PLOT A,H+(G*2):DRAWTO A,95
-(H+(G*2)):NEXT A
745 IF F>2 THEN RETURN
750 COLOR 0:PLOT S+(Q*2.3),H+(G*2.3):PLO
T 159-(S+(Q*2.3)),H+(G*2.3)
760 PLOT S+(Q*2.4),H+(G*2.8):DRAWTO 159-
(S+(Q*2.4)),H+(G*2.8):RETURN
```

COMMENTS ON LISTING

In line 40 'M$' should be typed as :-
M$=''[INV.SPACE][SPACE][INV. D]
[INV.CTRL. T]LCT[CTRL .]@[INV CTRL. X]''



BY PAUL JOHNSON

RUNS ON AN ATARI 400/800 IN 16K

WITH JOYSTICKS

Illustration: Terry Rogers

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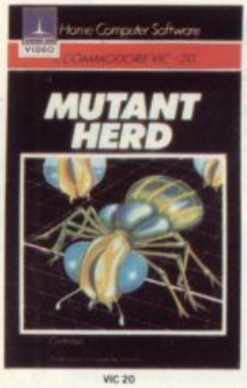
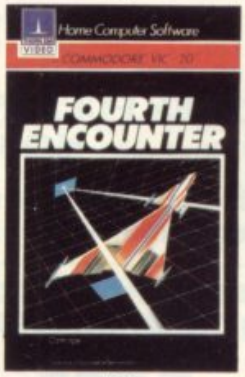
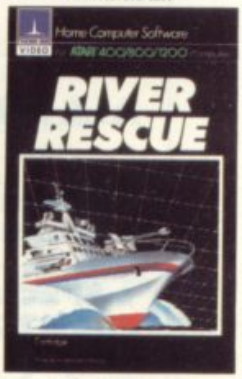


VIC 20

ATARI 400/800/1200



VIC 20



VIC 20/ATARI 400/800/1200

VIC 20/ATARI 400/800/1200

VIC 20

ATARI 400/800/1200

ATARI 400/800/1200

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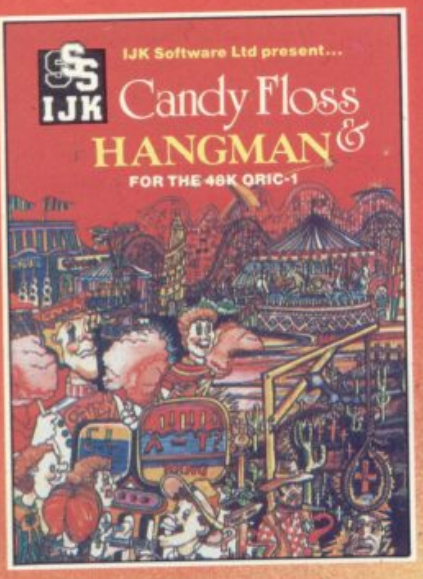

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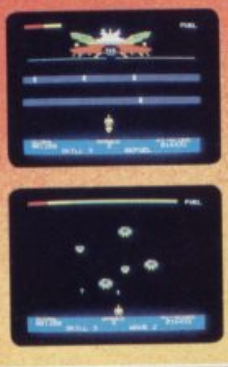

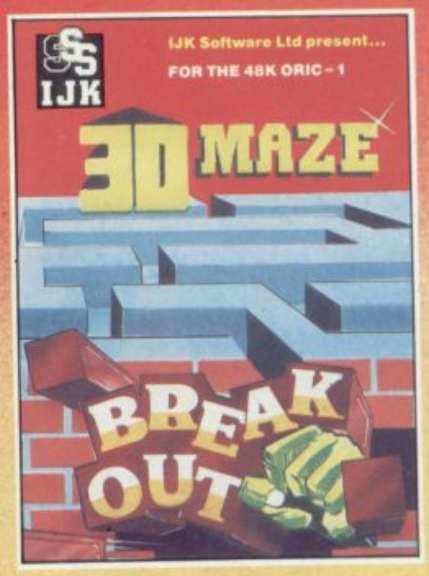

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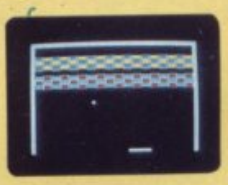

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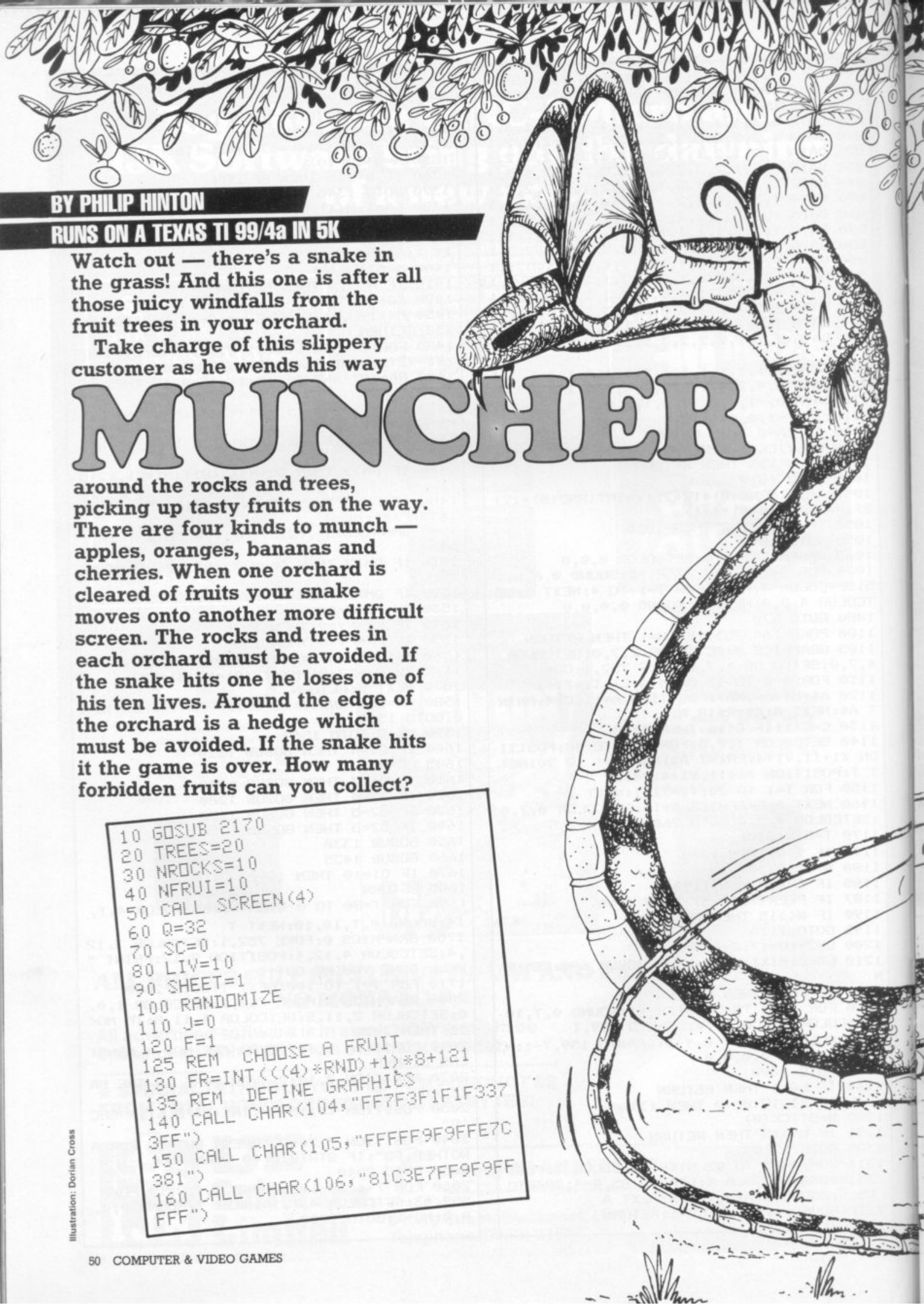
```
770 COLOR 1:PLOT S,95-H:DRAWTO 159-(S+Q)
,95-(H+G):PLOT S+Q,95-(H+G):DRAWTO 159-S
,95-H:RETURN
800 DATA 1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1
810 DATA 1,2,2,2,2,3,2,1,2,1,2,2,2,2,2,1
820 DATA 1,2,1,2,1,1,2,1,3,1,2,1,2,1,2,1
830 DATA 1,2,1,2,3,2,2,2,2,2,2,3,2,1,3,1
840 DATA 1,2,2,2,1,3,1,3,1,2,1,1,2,2,2,1
850 DATA 1,3,1,1,1,2,1,2,1,3,1,1,3,1,1,1
860 DATA 1,2,3,2,2,2,1,2,2,2,2,3,2,3,2,1
870 DATA 1,3,1,1,1,1,1,3,1,1,1,1,3,1,1,1
880 DATA 1,2,2,2,2,3,2,2,2,2,3,2,2,2,2,1
890 DATA 1,3,1,1,3,1,3,1,3,1,1,3,1,3,1,1
900 DATA 1,2,3,2,2,1,2,2,2,1,2,2,1,2,1,1
910 DATA 1,1,1,3,1,1,1,1,2,1,2,1,1,2,1,1
920 DATA 1,2,3,2,3,2,2,2,2,3,2,2,3,2,2,1
930 DATA 1,3,1,2,1,2,1,2,1,1,2,1,1,1,2,1
940 DATA 1,7,1,2,2,2,3,2,2,3,2,2,2,3,10,
1
950 DATA 1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1
960 DATA 3,4,2,4,1,3,1,2,4,2,3,1
970 DATA 0,-1,1,0,-1,0,1,0,0,1,0,-1,0,1,
-1,0,1,0,-1,0,0,-1,0,1
1000 IF LA=0 THEN RETURN
1010 N=STICK(0):IF STRIG(0)=0 THEN 1040
1020 IF N<>15 THEN RETURN
1030 GOTO 1010
1040 X=INT(RND(0)*12+2):Y=INT(RND(0)*12+
2):R=INT(RND(0)*4+1)
1050 IF M(X,Y)=2 THEN 1060
1055 GOTO 1040
1060 GRAPHICS 6+16:SETCOLOR 0,0,0
1070 FOR A=30 TO 0 STEP -2:SOUND 0,A,8,1
5:SETCOLOR 4,A,14:FOR T=1 TO 4:NEXT T:SE
TCOLOR 4,0,0:NEXT A:SOUND 0,0,0,0
1080 GOTO 270
1100 POKE 764,255:IF CH=1 THEN RETURN
1105 GRAPHICS 0:SETCOLOR 2,7,0:SETCOLOR
4,7,0:SETCOLOR 1,7,0:POKE 752,1:C=0
1110 FOR A=0 TO 15:MA=M(A,C):TI=TI+1
1120 A$=M$(MA,MA):POSITION A+11,C+4:PRIN
T A$:NEXT A:A$=R$(R,R)
1130 C=C+1:IF C<16 THEN 1110
1140 SETCOLOR 1,7,8:FOR A=1 TO 40:POSITI
ON X1+11,Y1+4:PRINT A$:FOR T=1 TO 20:NEX
T T:POSITION X1+11,Y1+4:PRINT " "
1150 FOR T=1 TO 20:TI=TI+1:NEXT T
1160 NEXT A:GRAPHICS 6+16:SETCOLOR 0,7,0
:SETCOLOR 4,7,0:GOTO 260
1170 T=STRIG(0)
1175 IF T=0 THEN 1200
1180 N=STICK(0)
1185 IF CH=1 THEN 1190
1187 IF PEEK(764)=37 THEN 1100
1190 IF N<>15 THEN RETURN
1195 GOTO 1170
1200 Q=29:G=17:S=0:H=0
1210 LA=0:M(X1+U,Y1+V)=2:GOSUB 690:RETUR
N
1220 IF LD=1 THEN RETURN
1230 FOR T=95 TO 35 STEP -1:SOUND 0,T,10
,15:COLOR 0:PLOT 0,T:DRAWTO 159,T
1240 COLOR 1:PLOT 0,T-1:DRAWTO 159,T-1:N
EXT T:SOUND 0,0,0,0
1250 GOTO 2000
1260 IF LA=1 THEN RETURN
1270 IF STRIG(0)=0 THEN 1310
1280 N=STICK(0)
1290 IF N<>15 THEN RETURN
1300 GOTO 1270
1310 FOR A=94 TO 82 STEP -4:COLOR 1:PLOT
 75,A:DRAWTO 75,A-4:DRAWTO 85,A-4:DRAWTO
 85,A:SOUND 0,A*2,10,15:NEXT A
1320 SOUND 0,0,0,0:LD=1:RETURN
1330 IF M(X1+U,Y1+V)<>2 OR LA=1 THEN RET
URN
1340 IF STRIG(0)=0 THEN 1380
1345 IF CH=1 THEN 1350
1347 IF PEEK(764)=37 THEN 1100
1350 N=STICK(0)
1360 IF N<>15 THEN RETURN
1370 GOTO 1340
1380 LA=1:M(X1+U,Y1+V)=5:Q=29:G=17:S=0:H
=0:GOSUB 690:GOTO 1170
1390 IF STRIG(0)=0 THEN FOR T=1 TO 20:NE
XT T:GOTO 1430
1400 N=STICK(0)
1410 IF N<>15 THEN RETURN
1420 GOTO 1390
1430 M(X1+U,Y1+V)=2:CH=0:G=17:H=0:GOSUB
730:RETURN
1435 FOR B=1 TO LEV:TI=TI+1:FX=0:FY=0:IF
 X1=X2(B) AND Y1=Y2(B) THEN 2060
1440 RA=INT(RND(0)*10+1):IF RA<5 THEN RE
TURN
1450 X3=X1-X2(B):Y3=Y1-Y2(B):MX=SGN(X3):
MY=SGN(Y3)
1460 DM=M(X2(B)+MX,Y2(B)):IF DM=2 THEN 1
500
1470 IF DM>2 THEN DM=M(X2(B)+(MX*2),Y2(B
))
1480 IF DM=2 THEN MX=MX*2:GOTO 1500
1490 FX=1:MX=0
1500 DM=M(X2(B),Y2(B)+MY):IF DM=2 THEN 1
540
1510 IF DM>2 THEN DM=M(X2(B),Y2(B)+(MY*2
))
1520 IF DM=2 THEN MY=MY*2:GOTO 1540
1530 FY=1:MY=0
1540 IF FX+FY=2 THEN 1570
1550 IF FX+FY=0 THEN 1580
1560 M(X2(B)+MX,Y2(B)+MY)=9:M(X2(B),Y2(B
))=2:X2(B)=X2(B)+MX:Y2(B)=Y2(B)+MY
1570 NEXT B:RETURN
1580 RA=INT(RND(0)*2+1):IF RA=1 THEN MX=
0:GOTO 1560
1590 MY=0:GOTO 1560
1600 IF D1=4 THEN GOSUB 1220
1605 LD=0
1610 IF D1=7 THEN GOSUB 1000
1620 IF D2=4 THEN GOSUB 1260
1630 IF D2=5 THEN GOSUB 1170
1640 IF D2=8 THEN GOSUB 1390
1650 GOSUB 1330
1660 GOSUB 1435
1670 IF D1=10 THEN 1690
1680 RETURN
1690 FOR T=80 TO 0 STEP -1:SETCOLOR 4,T,
14:SOUND 0,T,10,10:NEXT T
1700 GRAPHICS 0:POKE 752,1:SETCOLOR 2,12
,4:SETCOLOR 4,12,4:POSITION 9,12:PRINT "
WELL DONE YOU'RE OUT!"
1710 FOR T=1 TO 100:NEXT T:GOTO 2000
2000 GRAPHICS 0:POKE 752,1:SETCOLOR 1,0,
0:SETCOLOR 2,11,8:SETCOLOR 4,11,8:IF MO<
>1 THEN 2020
2010 POSITION 5,4:? "YOU ARE NOW A MONST
ERS DINNER !"
2020 POSITION 7,10:? "YOU WERE IN THE MA
ZE FOR..."
2030 POSITION 16,15:? ;INT(TI/8.6);" SEC
'S"
2040 POSITION 7,20:? "PRESS BUTTON FOR A
NOTHER GO":IF STRIG(0)=0 THEN RUN
2050 GOTO 2040
2060 FOR T=1 TO 100:SOUND 0,T,2,15:POKE
559,43:SETCOLOR 4,T,14:NEXT T:SOUND 0,0,
0,0:MO=1:GOTO 2000
```



BY PHILIP HINTON

RUNS ON A TEXAS TI 99/4a IN 5K

Watch out — there's a snake in the grass! And this one is after all those juicy windfalls from the fruit trees in your orchard.

Take charge of this slippery customer as he wends his way

MUNCHER

around the rocks and trees, picking up tasty fruits on the way. There are four kinds to munch — apples, oranges, bananas and cherries. When one orchard is cleared of fruits your snake moves onto another more difficult screen. The rocks and trees in each orchard must be avoided. If the snake hits one he loses one of his ten lives. Around the edge of the orchard is a hedge which must be avoided. If the snake hits it the game is over. How many forbidden fruits can you collect?

```
10 GOSUB 2170
20 TREES=20
30 NROCKS=10
40 NFRUI=10
50 CALL SCREEN(4)
60 Q=32
70 SC=0
80 LIV=10
90 SHEET=1
100 RANDOMIZE
110 J=0
120 F=1
125 REM  CHOOSE A FRUIT
130 FR=INT((4)*RND)+1)*8+121
135 REM  DEFINE GRAPHICS
140 CALL CHAR(104,"FF7F3F1F1F337
3FF")
150 CALL CHAR(105,"FFFFF9F9FFE7C
381")
160 CALL CHAR(106,"81C3E7FF9F9FF
FFF")
```

Illustration: Dorian Cross

```
170 CALL CHAR(107,"FFCECCF8F8FCF
EFF")
180 CALL CHAR(108,"18183C7EFFFF7
E7E")
190 CALL CHAR(145,"080406030306O
408")
200 CALL CHAR(153,"3C7EFFFFFFFF
F7E")
210 CALL CHAR(137,"10182442E6F7F
762")
220 CALL CHAR(129,"30087EFFFFFF
F7E")
230 CALL CHAR(112,"AA55AA55AA55A
A55")
240 CALL CHAR(96,"307CFEFFFE7C78
3")
250 CALL CHAR(97,"55AA55AA55AA55
AA")
260 CALL CHAR(120,"78FCFEFEFE7C3
8")
270 CALL HCHAR(1,1,32,768)
280 A=12
290 B=4
300 D=1
310 P=0
320 FRUI=1
330 CHAR=105
340 CALL COLOR(10,14,1)
350 CALL COLOR(11,14,16)
360 CALL COLOR(13,7,1)
370 CALL COLOR(14,9,1)
380 CALL COLOR(15,12,1)
390 CALL COLOR(16,10,1)
400 CALL COLOR(9,13,1)
410 CALL COLOR(12,2,1)
420 CALL COLOR(2,3,3)
430 CALL HCHAR(3,3,97,28)
440 CALL VCHAR(3,3,97,20)
450 CALL HCHAR(22,3,97,28)
460 CALL VCHAR(3,30,97,20)
470 A$="SCORE:"&STR$(SC)
480 Z=2
490 RT=3
500 GOSUB 2020
510 CALL HCHAR(2,16,108,LIV)
520 A$="GARDEN:"&STR$(SHEET)
530 Z=23
540 RT=3
550 GOSUB 2020
```

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by Jean Frost

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Address .....
.....

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JABBERWOCKY

```
560 CALL HCHAR(23,14,FR,NFRUI)
565 REM  PLACE TREES,ROCKS AND F
RUITS ON THE SCREEN
570 FOR YT=1 TO TREES
580 AD=INT((18)*RND)+4
590 BD=INT((24)*RND)+6
600 CALL HCHAR(AD,BD,96)
610 NEXT YT
620 FOR ROC=1 TO NROCKS
630 ROCK=INT((18)*RND)+4
640 ROCK2=INT((24)*RND)+6
650 CALL GCHAR(ROCK,ROCK2,RO)
660 IF RO<>32 THEN 630
670 CALL HCHAR(ROCK,ROCK2,120)
680 NEXT ROC
690 FOR K=1 TO NFRUI
700 E=INT((18)*RND)+4
710 R=INT((24)*RND)+6
720 CALL GCHAR(E,R,RFL)
730 IF RFL<>32 THEN 700
740 CALL HCHAR(E,R,FR)
750 NEXT K
755 REM  MAIN LOOP
760 CALL HCHAR(A,B,CHAR)
770 CALL HCHAR(A-F,B-J,112)
780 IF Q<>32 THEN 1230
790 CALL KEY(0,X,Y)
800 IF Y=0 THEN 1170
810 IF X=83 THEN 850
820 IF X=68 THEN 930
830 IF X=69 THEN 1010
840 IF X=88 THEN 1090 ELSE 760
850 B=B-1
860 F=0
870 J=-1
880 P=-1
890 O=0
900 CHAR=104
910 CALL GCHAR(A,B,Q)
920 GOTO 760
930 B=B+1
940 F=0
950 J=1
960 P=1
970 O=0
980 CHAR=107
990 CALL GCHAR(A,B,Q)
1000 GOTO 760
1010 A=A-1
1020 F=-1
1030 J=0
1040 P=0
1050 O=-1
1060 CHAR=106
1070 CALL GCHAR(A,B,Q)
1080 GOTO 760
1090 A=A+1
1100 F=1
1110 J=0
1120 P=0
1130 O=1
1140 CHAR=105
1150 CALL GCHAR(A,B,Q)
1160 GOTO 760
1170 B=B+P
1180 A=A+O
1190 CALL GCHAR(A,B,Q)
1200 IF Q<>32 THEN 1210 ELSE 760
1210 CALL HCHAR(A,B,CHAR)
1220 CALL HCHAR(A-F,B-J,112)
1230 IF (Q=96)+(Q=112)+(Q=120)TH
EN 1260
1240 IF (Q=129)+(Q=137)+(Q=145)+
(Q=153)THEN 1360
1250 IF Q=97 THEN 2060
1255 REM  CRASH ROUTINE
1260 FOR SOU=500 TO 480 STEP -1
1270 CALL SOUND(-100,SOU,VP)
1280 NEXT SOU
1290 CALL SOUND(1000,110,30,110,
30,500,30,-8,0)
1300 FOR NU=1 TO 10
1310 CALL COLOR(10,16,1)
1320 CALL COLOR(10,14,1)
1330 NEXT NU
1340 LIV=LIV-1
1350 GOTO 1760
1355 REM  ATE FRUIT
1360 CALL SOUND(500,500,0,800,5,
330,10)
1370 SC=SC+100
1380 FRUI=FRUI+1
1390 Q=32
1400 CALL HCHAR(23,14,32,NFRUI-F
RUI+2)
1410 CALL HCHAR(23,14,FR,NFRUI-F
RUI+1)
1420 A$=STR$(SC)
1430 Z=2
1440 RT=9
1450 GOSUB 2020
1460 IF FRUI=NFRUI+1 THEN 1470 E
LSE 760
1465 REM  GARDEN CLEARED OF  FRU
ITS
1470 CALL SOUND(100,110,0,220,0,
330,0)
1480 CALL SOUND(100,440,0,550,0,
660,0)
1490 CALL SOUND(100,800,0,880,0,
950,0)
1500 CALL SOUND(400,1000,0,1100,
0,1200,0)
1510 A$="CONGRATULATIONS"
1520 Z=10
1530 RT=7
1540 GOSUB 2020
```

```
1550 A$="GARDEN "&STR$(SHEET)&"
COMPLETED"
1560 Z=11
1570 RT=6
1580 GOSUB 2020
1590 A$="BONUS "&STR$(SHEET*LIV*
100)
1600 Z=12
1610 RT=10
1620 GOSUB 2020
1630 SC=SC+(SHEET*LIV*100)
1640 A$=STR$(SC)
1650 Z=2
1660 RT=9
1670 GOSUB 2020
1680 SHEET=SHEET+1
1690 IF NFRUI=16 THEN 1710
1700 NFRUI=9+SHEET
1710 TREES=TREES+1
1720 NROCKS=NROCKS+1
1730 FOR WAIT=1 TO 300
1740 NEXT WAIT
1750 GOTO 100
1755 REM  LOST LIFE
1760 CALL HCHAR(2,16,32,LIV+2)
1770 IF LIV<1 THEN 1860
1780 CALL HCHAR(2,16,108,LIV)
1790 O=0
1800 P=0
1810 Q=32
1820 CALL HCHAR(A,B,CHAR)
1830 CALL HCHAR(A-F,B-J,112)
1840 CALL KEY(0,XU,YU)
1850 IF YU=0 THEN 1840 ELSE 760
1855 REM  GAME OVER
1860 FOR SOUN=150 TO 110 STEP -1
1870 CALL SOUND(100,SOUN,0)
1880 NEXT SOUN
1890 A$="GAME OVER"
1900 Z=10
1910 RT=10
1920 GOSUB 2020
1930 A$="SCORE:"&STR$(SC)
1940 Z=11
1950 RT=11
1960 GOSUB 2020
1970 PRINT "ANOTHER GAME?"
1980 CALL KEY(0,K,S)
1990 IF K=89 THEN 20
2000 IF K=78 THEN 2010 ELSE 1980
2010 END
2020 FOR KL=1 TO LEN(A$)
2030 CALL HCHAR(Z,RT+KL,ASC(SEG$
(A$,KL,1)))
2040 NEXT KL
2050 RETURN
2055 REM  RAN INTO HEDGE
2060 FOR VOLU=30 TO 0 STEP -1
2070 CALL SOUND(-250,-2,VOLU)
2080 NEXT VOLU
2090 FOR VOLU=0 TO 30
2100 CALL SOUND(-500,-2,VOLU)
2110 NEXT VOLU
2120 A$="YOU WENT OUT OF THE GAR
DEN"
2130 Z=9
2140 RT=3
2150 GOSUB 2020
2160 GOTO 1890
2165 REM  INSTRUCTIONS
2170 CALL CLEAR
2180 CALL SCREEN(16)
2190 PRINT "       M U N C H E R
"
2200 PRINT :"  THE OBJECT OF THE
 GAME IS":"TO COTROL A SNAKE WHI
CH IS":"MOVING AROUND A GARDEN."
2210 PRINT "THE SNAKE IS GROWING
 ALL THE":"TIME."
2220 PRINT "  YOU MUST MAKE THE
SNAKE":"RUN INTO THE FRUITS WHIC
H":"HAVE FALLEN ONTO THE GROUND.
"
2230 PRINT "BUT BEWARE,THERE ARE
 TREES":"IN THE GARDEN AND ROCKS
":"LYING ABOUT."
2240 PRINT "IF YOUR SNAKE RUNS I
NTO":"EITHER OF THESE.ANOTHER"
2250 PRINT "TAKES ITS PLACE UNTI
L ALL":"TEN SNAKES HAVE BEEN USE
D."
2260 PRINT "  IF YOU EAT ALL THE
 FRUITS":"IN A GARDEN YOU ARE MO
VED":"TO ANOTHER ONE."
2270 GOSUB 2350
2280 CALL CLEAR
2290 PRINT "AT THE END OF EACH G
ARDEN":"YOU ARE GIVEN A BONUS WH
ICH":"IS ADDED TO YOUR SCORE."
2300 PRINT "YOUR SCORE,SNAKES RE
MAINING":"GARDEN AND FRUITS":"RE
MAINING ARE SHOWN ON THE":"SCREE
N."
2310 PRINT "WATCH OUT FOR YOUR T
RAIL AS":"A SNAKE IS LOST IF IT"
:"COLLIDES INTO THE ITS TRAIL."
2320 PRINT "ALSO BEWARE OF THE S
IDE OF":"THE GARDEN.IF YOU RUN I
NTO":"IT YOU HAVE LEFT THE GARDE
N"
2330 PRINT "AND YOUR GAME IS OVE
R."
2340 PRINT "ENSURE THE ALPHA LOC
K KEY":"IS IN THE 'ON' POSITION.
"
2345 PRINT "USE THE CURSOR KEYS(
E,D,X,S)":"TO CONTROL YOUR SNAKE
."
2350 PRINT :"PRESS ANY KEY TO CO
NTINUE"
2360 CALL KEY(0,K,S)
2370 IF S=0 THEN 2360 ELSE 2380
2380 RETURN
```

sinclair special 1

Inside...
Latest prices round-up...
Latest software...
Order form...

Introduction

One thing's certain about the Sinclair world – there's never a dull moment.

Every month sees new software and new hardware, produced by Sinclair enthusiasts, or produced by Sinclair itself.

The magazines do a fantastic job of keeping you up to date with the input of enthusiasts. We want to keep you in touch with Sinclair's own developments.

Every month, there'll be a Sinclair Special in this magazine.

Sometimes, inevitably, there won't be anything new to say – we want to break away from the breathless announcements of hardware and software you just can't buy.

But when something new *is* available, we want you to have accurate information – fast. You'll find it here.

This month, we're giving you the latest information on the recommended retail prices of Sinclair equipment. They're *our* prices, and you may well find things cheaper (or dearer) in the shops. If they're cheaper – terrific! Snap them up. Note, however, that from us the ZX81 is down to £39.95.

We're also announcing six superb new Sinclair cassettes for the Spectrum, and three more which make full use of the ZX81. There's an order form at the back of this Special.

Next month... but there, next month is another story! Watch (as they say) this space.

Nigel Searle

Nigel Searle.
Managing Director,
Sinclair Research Ltd.

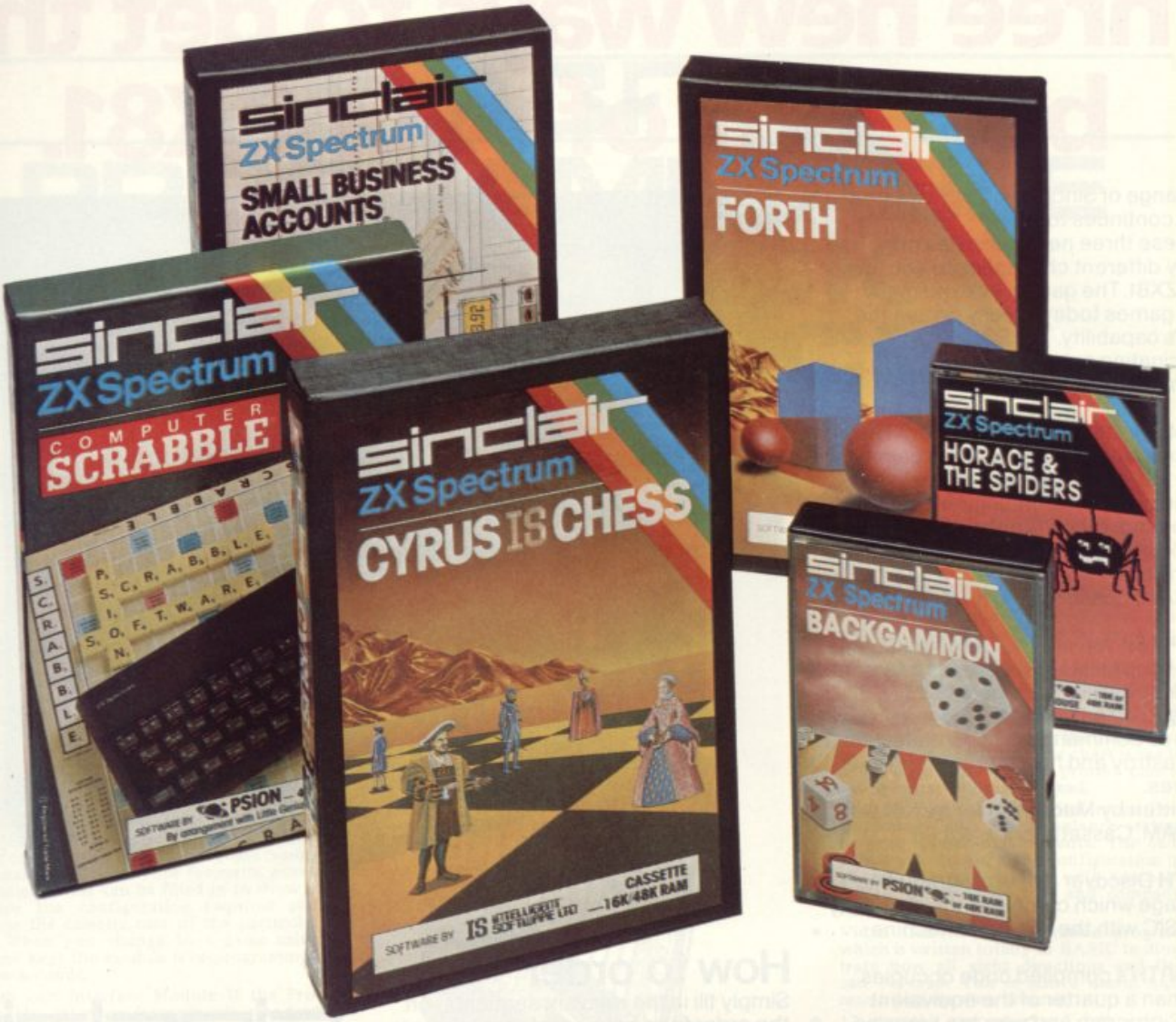
Spectrum – latest recommended retail prices.

16K was £125.00
16K now £99.95

48K was £175.00
48K now £129.95

ZX Printer was £59.95 — ZX Printer now £39.95

ZX81 was £49.95 — ZX81 now £39.95



Six new ways to make more of your Spectrum.

Take a look at these brand-new titles. Each is an outstanding new program using the full potential of the Spectrum, for games with stunningly animated graphics, for strategies of fiendish cunning, for masterly applications of computing capability...

Cyrus-IS-Chess Based on the Cyrus Program, which won the 2nd European Microcomputer Chess Championship *and* trounced the previously unbeaten Cray Blitz machine. With 8 playing levels, cursor piece-movement, replay and 'take-back' facilities, plus two-player option. The 48K version has many additional features including an extensive library of chess openings. For 16K or 48K RAM Spectrum.

Horace and the Spiders Make your way with Horace to the House of Spiders, armed only with a limited supply of anti-spider-bite serum. In the house, destroy the webs before the spiders can repair them. Then destroy the spiders, before *they* destroy Horace! Undoubtedly the creepiest Horace program ever produced! For 16K or 48K RAM Spectrum.

Computer Scrabble The famous board game, on-screen – with the whole board on view! A huge vocabulary of over 11,000 words. Full-size letter tiles, four skill levels – the highest of which is virtually unbeatable. For 1 to 4 players. For 48K RAM Spectrum.
(SCRABBLE trademark and copyright licensed by Scrabble Schutzrechte und Handels GmbH – a J.W. Spear and Sons PLC subsidiary.)

Backgammon A fast, exciting program, with traditional board display, rolling dice and doubling cube. Four skill levels. For experts – or beginners. (Rules are included – it's the quickest way to learn the game.) For 16K or 48K RAM Spectrum.

FORTH Learn a new programming language, as simple as BASIC, but with the speed of machine code. Complete with Editor and User manual. For 48K RAM Spectrum.

Small Business Accounts Speeds and simplifies accounting work, produces Balance Sheets, Profit and Loss information *and* VAT returns. Complete with User manual. For 48K RAM Spectrum.

Overleaf–your Sinclair order form.

Three new ways to get the best out of your ZX81.

The range of Sinclair software for the ZX81 continues to grow.

These three new cassettes offer two totally different challenges to you and your ZX81. The games – like so many ZX81 games today – really do use the ZX81's capability. The FORTH program is a fascinating extension of your own computer understanding.

Sabotage Defender or attacker? The choice is yours in this exciting game.

Be the Guard and defend the randomly placed boxes of ammunition inside the compound – or be the Sabateur and attack the ammunition!

Written by Macronics for a ZX81 with 16K RAM. Cassette price: £4.95.

City Patrol You are the Commander of a laser-firing ship. Your task is to intercept and destroy alien suicide ships descending on your city. Judge your rating as Commander by how many aliens you destroy and how much of your city survives.

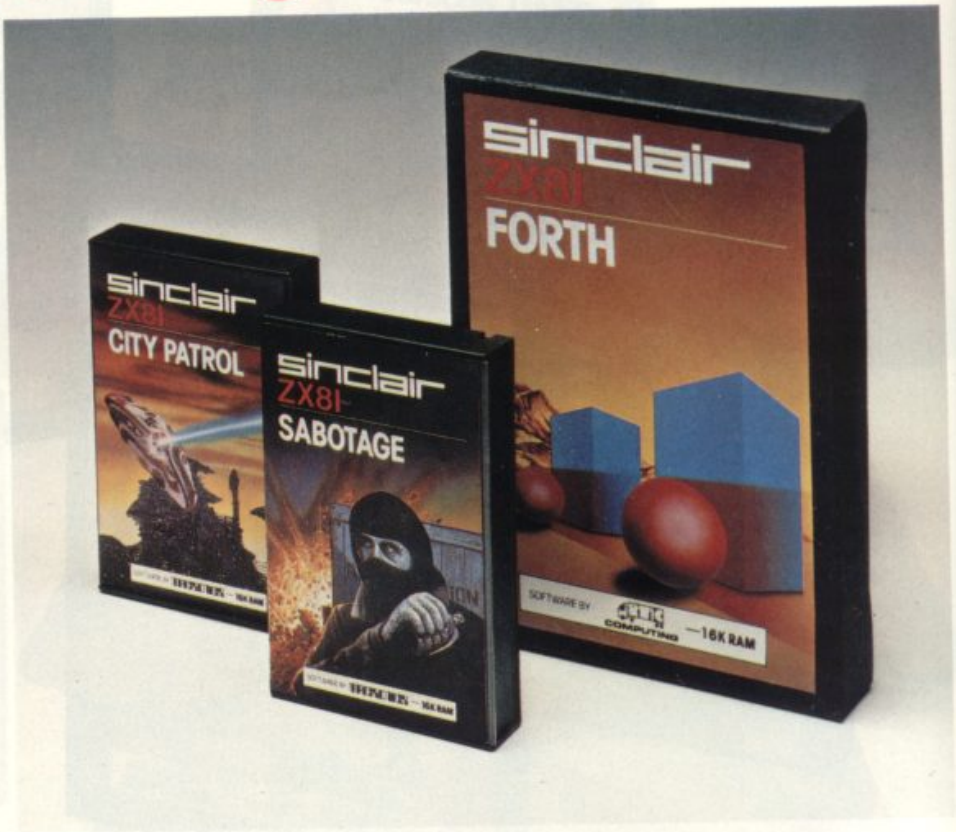
Written by Macronics for a ZX81 with 16K RAM. Cassette price: £4.95.

FORTH Discover a new programming language which combines the simplicity of BASIC with the speed of machine code.

FORTH's compiled code occupies less than a quarter of the equivalent BASIC program and runs ten times as fast. It is fully extendable by the addition of user-defined commands.

Free User-Manual and Editor Manual with each cassette.

Written by Artic for a ZX81 with 16K RAM. Cassette price: £14.95.



How to order

Simply fill in the relevant section(s) on the order form below. Note that there is no postage or packing payable on Section B. Please allow 28 days for delivery. Orders may be sent FREEPOST (no stamp required). Credit-card holders may order by phone, calling 01-200 0200 24 hours a day. 14-day money-back option.

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ORDER FORM

To: Sinclair Research Ltd, FREEPOST, Camberley, Surrey, GU15 3BR.

Section A: hardware purchase

Qty	Item	Code	Item Price £	Total £
	ZX Spectrum – 48K	3000	129.95	
	ZX Spectrum – 16K	3002	99.95	
	ZX 81 (including 1.2A Mains Adaptor)	1003	39.95	
	16K RAM pack for ZX81	1010	29.95	
	ZX Printer	1014	39.95	
	1.2A Mains Adaptor, for use with ZX81 computer/ZX Printer combination (only required if you have an early ZX81 with 0.7A Adaptor)	1002	7.95	
	Printer paper (pack of 5 rolls)	1008	11.95	
	Postage and packing: orders under £90	0028	2.95	
	orders over £90	0029	4.95	
			TOTAL £	

Section B: software purchase

Qty	Cassette	Code	Item Price £	Total £
	FOR SPECTRUM			
	G22/S:Backgammon	4021	5.95	
	G23/S:Cyrus-IS-Chess	4023	9.95	
	G24/S:Horace & the Spiders	4022	5.95	
	G25/S:Scrabble	4024	15.95	
	L1 /S:FORTH	4400	14.95	
	B6 /S:Small Business Accounts	4605	12.95	
	FOR ZX81			
	G25: Sabotage	2124	4.95	
	G24: City Patrol	2123	4.95	
	L1: FORTH	2400	14.95	
			TOTAL £	

*I enclose a cheque/postal order made payable to Sinclair Research Ltd for £

*Please charge to my Access/Barclaycard/Trustcard account no:

*Delete/complete as applicable.

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Signature

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AGF

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for

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The Interface plugs on to the rear connector of your ZX81 or ZX Spectrum.

Quick clip-on connections, which are configured from a reference card supplied, allow you to define which of the forty keys are simulated by which action of the Joystick. A pack of ten Quick Reference Programming Cards makes setting for your favourite games even easier. These can be filled in to show at a glance the configuration required and stored in the cassette case of the particular game. When you change to a game using different keys the module is re-programmed in a few seconds.

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The unique AGF key simulation principle makes it extremely easy to incorporate Joystick action in your own programs. All eight directions and fire are read by simple BASIC.

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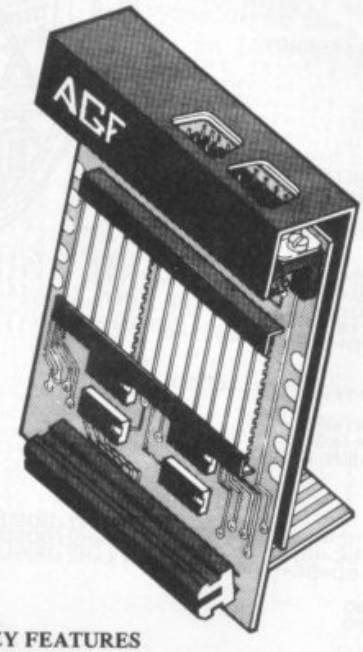

KEY FEATURES

- ★ Programmable design gives TOTAL software support.
- ★ Accepts Atari, Competition Pro, Wico, Starfighter, Quick Shot, Le Stick etc.
- ★ Rear extension connector for all other add-ons.
- ★ Free demo program and instructions.

PACKAGE CONTENTS SUPPLIED

- Programmable Interface Module as illustrated, complete with clip-on programming leads.
- Self adhesive programming chart detailing how to define which key is simulated by UP, DOWN, LEFT, RIGHT, and FIRE. This can be fixed on to the case of your computer or if preferred the protective backing can be left on. The chart is made of a very durable reverse printed plastic and is extremely easy to read.
- One pack of ten Quick Reference Programming Cards for at-a-glance setting to your games requirements. The card allows you to mark the configuration in an easy to read fashion with space to record the software title and company name.
- Video Graffiti demonstration program which is written totally in BASIC to illustrate how all eight directions and fire can be read. This is also a useful high resolution drawing program.
- 12 months guarantee and full written instructions.

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ZX81 ☐ ZX SPECTRUM ☐ Please tick		FINAL TOTAL	

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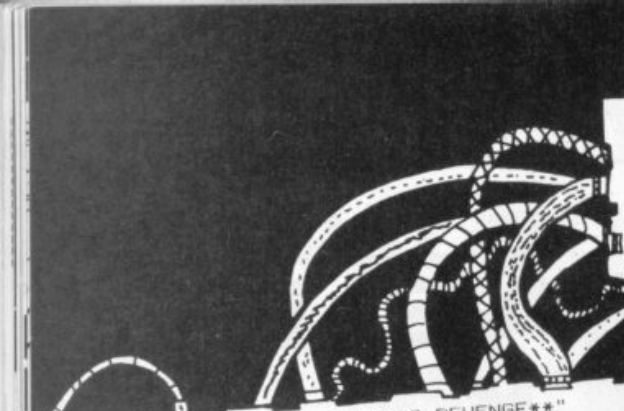
REPAIRMAN'S



Fred the repairman has been given a tough task. Miniaturised so he can fit inside a computer chip, poor old Fred has been told to pick up energy bytes from the chip's energy wall and transfer them to the numbered output ports.

What a rotten job! And life is made more difficult by a mutant Sparx which roams the chip and just hates repairmen. The Sparx has only one aim in life and that's to frazzle poor

```
1 X$="  **REPAIRMAN'S REVENGE**"
2 GOTO 9500
3 GOTO 300
10 PRINT"■  SCORE";SC
15 PRINT"                                                    "
16 PRINT"   HI-SCORE ";X$;"   ";HS
20 PRINT"                                                    "
30 PRINT"                                                    "
40 PRINT"                                                    "
50 FOR X=1 TO 14
60 PRINT"                                                    "
76 PRINT"                                                    "
78 PRINT"                                                    "
80 PRINT"                                                    "
81 PRINT"■"
82 PRINT"■■■■■■■■■"
83 PRINTTAB(36);"■E"
84 PRINTTAB(36);"■N"
85 PRINTTAB(36);"■E"
86 PRINTTAB(36);"■R"
87 PRINTTAB(36);"■G"
88 PRINTTAB(36);"■Y"
95 RETURN
100 REM SET UP VARIABLES
101 PRINT"■■■■■■■■■■■■■■";:PRINTTAB(16);"READY!"
110 M1=206:M2=207:DIM Z(3):Z(2)=107
120 X=24:Y=12:XX=M2
130 MX=1:MY=4
140 EN=163
150 POKE 10167,1
160 UP=55:DO=74:LF=89:RT=73:PI=102
170 PO=53248:PE=17828
171 FOR VF=1 TO 100:POKE 4514,VF:USR(68):NEXT VF
175 PRINT"■■■■■■■■■■■■■■";:PRINTTAB(16);"
190 RETURN
300 GOSUB 10:GOSUB 100
1000 POKE(PO+X+(Y*40)),0
1020 GET A$:Z=0
1030 IF PEEK(PE)=UP THEN IF PEEK(PO+X+(Y*40)-40)=0 THEN Y=Y-1:Z=1
1040 IF PEEK(PE)=DO THEN IF PEEK(PO+X+(Y*40)+40)=0 THEN Y=Y+1:Z=1
1060 IF PEEK(PE)=LF THEN IF PEEK(PO+X-1+(Y*40))=0 THEN X=X-1:Z=1
1061 IF Z=1 THEN POKE 4514,255:USR(68)
1080 IF PEEK(PE)=RT THEN IF PEEK(PO+X+1+(Y*40))=0 THEN X=X+1:Z=1
1085 IF F=1 THEN GOTO 6000
1086 IF ZA=5 THEN GOTO 1100
1090 IF PEEK(PE)=102 THEN FX=X:FY=Y:ZA=ZA+1:GOTO 6000
1100 POKE(PO+X+(Y*40)),XX
1101 IF Z=1 THEN POKE 4514,255:USR(68)
1102 IF Z=1 THEN POKE 4514,255:USR(68)
1120 IF PEEK(PO+X+1+(Y*40))=208 THEN GOSUB 2000
1125 IF XX=M2 THEN GOTO 1180
1130 SS=PEEK(PO+X+(Y*40)+40)
1131 USR(71)
1140 TT=PEEK(PO+X+(Y*40)-40)
1150 IF SS>32 THEN IF SS<41 THEN SC=SC+(SS-32)*10:XX=M2:GOSUB 3000
1160 IF TT>32 THEN IF TT<41 THEN SC=SC+(TT-32)*10:XX=M2:GOSUB 3000
1170 IF BN>32 THEN IF BN<41 THEN SC=SC+(BN-32)*10:XX=M2:GOSUB 3000
1175 IF SC>500 GOSUB 4010
1176 IF SC>300 THEN CX=3:GOTO 1180
1177 IF SC>150 THEN CX=4:GOTO 1180
1178 IF SC=>0 THEN CX=5
1180 VV=INT(CX*RND(1))+1
1182 USR(71)
1185 IF VV<3 THEN GOSUB 4010
1190 POKE 4465,30:POKE 4466,0:PRINT"      "
1500 GOTO 1000
2000 IF XX=M1 THEN RETURN
2005 FOR ZZ=50 TO 0 STEP-1:POKE 4514,ZZ:USR(68):NEXT
2010 FOR ZZ=0 TO 50:POKE 4514,ZZ:USR(68):NEXT
2020 XX=M1
2030 RETURN
3000 FOR AZ=1 TO 20
3005 POKE 4514,AZ:USR(68)
3010 NEXT
3011 PRINT"■": PRINTTAB(8);"■";SC
3015 FOR AZ=50 TO 1-STEP -1
3020 POKE 4514,AZ:USR(68)
3025 NEXT
3030 FOR AZ=1 TO 30
3035 POKE 4514,AZ:USR(68)
3040 NEXT:RETURN
4010 POKE(PO+MX+(MY*40)),0
4015 IF MX<X THEN MX=MX+1
4020 IF MX>X THEN MX=MX-1
4030 IF MY<Y THEN MY=MY+1
4040 IF MY>Y THEN MY=MY-1
4045 POKE(PO+MX+(MY*40)),Z(2)
4050 IF MX=X THEN IF MY=Y THEN GOTO 8000
5000 RETURN
6000 POKE(PO+FX+(FY*40)),0:F=1
6002 POKE 4514,51:USR(68):PW=PW-10
6005 IF FX=MX THEN IF FY=MY THEN F=0:GOTO 7000
6010 IF PEEK(PO+FX-1+(FY*40))=164 THEN F=0:GOTO 1090
6020 FX=FX-1
6030 IF FX=MX THEN IF FY=MY THEN F=0:GOTO 7000
6040 POKE(PO+FX+(FY*40)),69
6050 GOTO 1100
```

RUNS ON A

SHARP MZ80K

IN 5.5K

N'S REVENGE

old Fred with 10 billion volts!

Fortunately for Fred his toolkit comes complete with an energy gun to ward off the sinister Sparx.

The higher the number of the output port Fred takes his energy bytes to the greater number of points are scored.

Movement is controlled by using the keys "7" for up, "Y" for left, "I" for right and "J" for down. The gun is fired by the "CR" key.

BY STUART WIDER

```
6945 USR(71)
7000 POKE(PO+X+(Y*40)),XX
7001 FOR BB=1 TO 10
7002 POKE 4514,BB:USR(68)
7005 POKE(PO+MX+(MY*40)),109
7010 FOR CC=1 TO 10:NEXT CC
7020 POKE(PO+MX+(MY*40)),107
7030 NEXT BB
7040 POKE(PO+MX+(MY*40)),0
7050 MX= 1:MY=4
7060 GOTO 1100
8000 FOR BC=30 TO 1 STEP-1
8001 POKE 59555,1
8010 POKE(PO+X+(Y*40)),207
8020 POKE 4514,BC:USR(68)
8030 FOR BD=1 TO 10:NEXT BD
8040 POKE 4514,BC+10:USR(68)
8055 FOR BE=1 TO 10:NEXT BE
8056 POKE 59555,0:FOR VP=1 TO 20:NEXT VP
8060 NEXT BC
8061 FOR VB=1 TO 100:POKE 4514,VB:USR(68):NEXT VB
8070 USR(71):POKE 59555,1
8080 POKE(PO+X+(Y*40)),0
8081 FOR RR=1 TO 300:NEXT RR
8090 MX=1:MY=4:X=24:Y=12:XX=M2:ZA=0:FX=X:FY=Y:F=0
8100 IF SC>HS THEN HS=SC:GOTO 8900
8110 PRINT"&YOUR SCORE WAS";SC
8120 PRINT"                    "
8130 SC=0
8140 PRINT:PRINT"ANOTHER GAME ?"
8150 GET A$:IF A$="Y" THEN 300
8160 IF A$="N" THEN PRINT"&":END
8170 GOTO 8150
8900 FOR EX=-255 TO 0 STEP 10
8910 BX=ABS(EX):POKE 4514,1:POKE 4513,BX:USR(68):NEXT
EX:USR(71)
8920 FOR EX=-255 TO 255 STEP 8
8930 BX=ABS(EX):POKE 4514,1:POKE 4513,BX:USR(68):NEXT
EX:USR(71)
9000 PRINT"&WELL DONE,PLEASE ENTER YOUR NAME"
9010 PRINT"(NOT MORE THAN 20 CHARACTERS)"
9020 INPUT X$:SC=0
9030 IF LEN(X$)>20 THEN 9010
9040 GOTO 8140
9500 PRINT"&"
9510 PRINT"
9520 PRINT"
9530 PRINT"
9540 PRINT"
9550 PRINT
9560 PRINT"
9570 PRINT"
9580 PRINT"
9590 PRINT"
9600 PRINT:PRINT:PRINT
9610 PRINT"
9620 PRINT"
9630 PRINT"
9640 PRINT"
9650 PRINT"
9660 PRINT"
9679 PRINT"
9700 PRINT" DO YOU NEED INSTRUCTIONS?(TYPE Y OR N)"
9710 GET A$
9720 POKE 59555,1
9730 IF A$="Y" THEN GOTO 9800
9740 IF A$="N" THEN GOTO 3
9745 FOR CB=1 TO100:NEXT CB
9750 POKE 59555,0
9755 FOR CB=1 TO100:NEXT CB
9760 GOTO 9710
9800 PRINT"&"
9810 PRINT"**REPAIRMANS REVENGE**"
9820 PRINT"
9830 PRINT"SEQUEL TO **short circuit**"
9840 PRINT"
9850 PRINT"YOUR MISSION IS TO TRANSFER BITS OF
9860 PRINT"ENERGY FROM THE SERIAL INPUT"
9870 PRINT"(ENERGY WALL) TO THE OUTPUT OF THE CHIP"
9880 PRINT"THE HIGHER THE OUTPUT PORT TOUCHED
9890 PRINT"WHEN THE REPAIRMAN IS CHARGED WITH
9900 PRINT"ENERGY THEN THE HIGHER SCORE YOU CAN
9910 PRINT"GAIN.BUT BEWARE,A MUTANT SPARX IS ON
9920 PRINT"THE LOOSE,AVOID IT AT ALL COSTS."
9930 PRINT"IT CAN BE DESTROYED BY SHOOTING BOLTS
9940 PRINT"OF ENERGY AT IT.YOU POSESS ENOUGH
9950 PRINT"ENERGY TO KILL 5 SPARXS.THE ENERGY
9960 PRINT"BOLTS CAN ONLY FIRE IN ONE DIRECTION."
9970 PRINT"YOU HAVE ONLY ONE LIFE.....
9980 PRINT"THE CONTROLS ARE 7(↑),I(→),J(↓),Y(←)
9990 PRINT"CR TO FIRE.....GOOD LUCK....."
10000 PRINT:PRINT"PRESS(S)TO START"
10010 GET A$
10020 IF A$="S" THEN GOTO 3
10030 GOTO 10010
```

Illustration: Dorian Cross

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BY KEVIN LIDLEY

RUNS ON A ZX81

IN 16K

GLADIATOR

Illustration: Jon Davis

Gladiators takes you back to those bloodstained days of ancient Rome when everyone's idea of a good time was to go and watch two men hack bits off each other! These days we're much more civilised about these things. We only do it on video screens!

You can either fight it out against a computer controlled opponent or take on a friend in mortal combat.

To move Gladiator 'K' use keys Z and X. To move Gladiator 'L' use keys N and M.

The program works as listed but suffers from the speed limitations of ZX81 Basic. It can be speeded up slightly by moving the mass of LET statements to the end of the program.

To do this, change line 2 to GOTO 7000 and add 7000 to all line numbers between 3 and 186. Then delete lines 3 to 186.

```
 1 REM SET ALL VALUES
 2 GOTO 8000
 3 LET Z=20
 4 LET Y=5
 5 LET U=9
 6 LET J=9
 9 REM DIM ALL ARRAYS
10 DIM A$(8,5)
12 LET A$(1)="
14 LET A$(2)="
16 LET A$(3)="
18 LET A$(4)="
20 LET A$(5)="
22 LET A$(6)="
24 LET A$(7)="
26 LET A$(8)="
```

```
 30 DIM B$(8,6)
 32 LET B$(1)="
 34 LET B$(2)="
 36 LET B$(3)="
 38 LET B$(4)="
 40 LET B$(5)="
 42 LET B$(6)="
 44 LET B$(7)="
 46 LET B$(8)="
 50 DIM C$(6,6)
 56 LET C$(4)="
 58 LET C$(5)="
 60 LET C$(6)="
 70 DIM D$(6,6)
 72 LET D$(4)="
 74 LET D$(5)="
 76 LET D$(6)="
 80 REM HERO MOVES
 90 DIM E$(8,6)
 95 LET E$(4)="
 97 LET E$(5)="
 98 LET E$(6)="
100 LET E$(7)="
102 LET E$(8)="
120 DIM F$(8,6)
122 LET F$(4)="
124 LET F$(5)="
126 LET F$(6)="
128 LET F$(7)="
130 LET F$(8)="
140 REM HERO MOVES
150 DIM G$(8,6)
152 LET G$(1)="
154 LET G$(2)="
156 LET G$(3)="
158 LET G$(4)="
160 LET G$(5)="
162 LET G$(6)="
164 LET G$(7)="
166 LET G$(8)="
170 DIM H$(8,6)
172 LET H$(1)="
174 LET H$(2)="
176 LET H$(3)="
178 LET H$(4)="
180 LET H$(5)="
182 LET H$(6)="
184 LET H$(7)="
186 LET H$(8)="
450 REM SCREEN SET UP
500 PRINT AT 0,0;"
510 FOR N=1 TO 20
520 PRINT "
530 NEXT N
540 PRINT "
550 PRINT AT 20,1;" KEYS: (Z)-(X
)   KEYS: (N)-(M)"
600 PRINT AT 3,0;"
610 PRINT AT 1,15;"";AT 2,15;"
"
650 PRINT AT 1,4;"PLAYER 1";AT
1,20;"PLAYER 2";AT 2,4;"HITS= ";
U;AT 2,20;"HITS= ";J
900 PRINT AT 19,0;"
911 PRINT AT 5,0;"
912 PRINT AT 6,0;"
LADIATOR
913 PRINT AT 7,0;"
914 PRINT AT 8,0;"
915 PRINT AT 9,0;"
999 REM START OF GAME
1000 FOR I=1 TO 8
1010 PRINT AT 10+I,Y;A$(I);AT 10
+I,Z;B$(I)
1012 NEXT I
1030 REM MOVEMENT
1040 IF INKEY$="X" THEN LET Y=Y+
1
1045 IF INKEY$="Z" THEN LET Y=Y-
1
1050 IF INKEY$="M" THEN LET Z=Z+
1
1055 IF INKEY$="N" THEN LET Z=Z-
1
```

```
1100 REM MOVEMENT CHECK
1200 IF Y<1 THEN LET Y=1
1220 IF Y>19 THEN LET Y=19
1240 IF Y=Z-6 THEN GOSUB 2000
1250 IF Z<1 THEN LET Z=1
1260 IF Z>24 THEN LET Z=24
1300 GOTO 1000
1900 REM ATTACK START
2000 FOR I=1 TO 6
2010 PRINT AT 10+I,Y;C$(I);AT 10
+I,Z;D$(I)
2020 NEXT I
2021 REM SEE IF HIT
2022 LET K=INT ((RND*10)+1)
2023 IF K>5 THEN LET U=U-1
2024 PRINT AT 2,10;U
2026 IF U=0 THEN GOTO 5000
2100 LET N=INT ((RND*10)+1)
2109 IF N>5 THEN LET J=J-1
2110 PRINT AT 2,26;J
2120 IF J=0 THEN GOTO 3000
2500 GOTO 1030
3000 REM PLAYER 2 DIES
3094 FOR I=1 TO 8
3960 PRINT AT 10+I,Z;E$(I);AT 10
+I,Y;G$(I)
3980 NEXT I
3985 FOR N=1 TO 40
3990 PRINT AT 20,2;"  PLAYER 1 H
AS KILLED YOU
3994 PRINT AT 20,2;"  PLAYER 1 H
AS KILLED YOU
3998 NEXT N
4000 GOTO 8000
4999 REM PLAYER 1 DIES
5000 FOR I=1 TO 8
5010 PRINT AT 10+I,Y;F$(I);AT 10
+I,Z;H$(I)
5030 NEXT I
5040 FOR N=1 TO 40
5050 PRINT AT 20,2;"  PLAYER 2 H
AS KILLED YOU
5060 PRINT AT 20,2;"  PLAYER 2 H
AS KILLED YOU
5070 NEXT N
5100 GOTO 8000
8000 FOR N=1 TO 22
8010 SCROLL
8020 NEXT N
8025 FAST
8030 PRINT AT 0,0;"
8040 PRINT AT 1,0;"
8050 FOR N=1 TO 18
8060 PRINT "
8070 NEXT N
8080 PRINT AT 20,0;"
8090 PRINT AT 21,0;"
8100 SLOW
8110 PRINT AT 3,10;"*WELCOME TO*
";AT 5,10;"*GLADIATORS*"
8120 PRINT AT 7,2;"THIS IS A GRA
PHICAL GAME OF ";AT 8,2;"      CO
MBAT BETWEEN TWO
8130 PRINT AT 9,2;"GLADIATORS IT
 CAN BE PLAYED ";AT 10,2;"IN TWO
 DIFFERENT WAYS EITHER"
8140 PRINT AT 11,2;"1) YOU AGAIN
ST THE COMPUTER ";AT 12,2;"2) YO
U AGAINST A FRIEND
8150 PRINT AT 13,2;"NOTE YOU CAN
 CHANGE SIDES AT";AT 14,2;"AT AN
Y TIME
8160 PRINT AT 15,2;"TO MOVE GLAD
IATOR ""K"" USE ";AT 16,2;"KEY
S (Z)-(X)
8170 PRINT AT 17,2;"TO MOVE GLAD
IATOR ""L"" USE
8180 PRINT AT 18,2;"KEYS (N)-(M)
8190 PRINT AT 20,3;"PRESS ANY KE
Y TO CONTINUE"
9192 IF INKEY$="" THEN GOTO 9192
9195 GOTO 3
9996 STOP
9997 REM SAVE ROUTINE
9998 SAVE "GLADIATOR"
9999 GOTO 1
```

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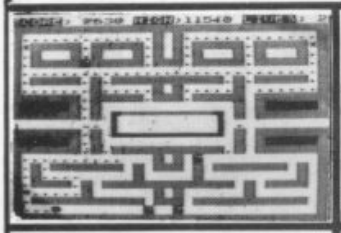

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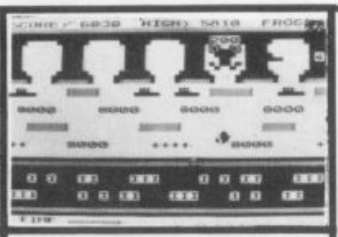

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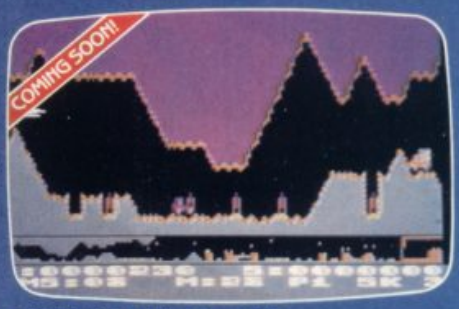

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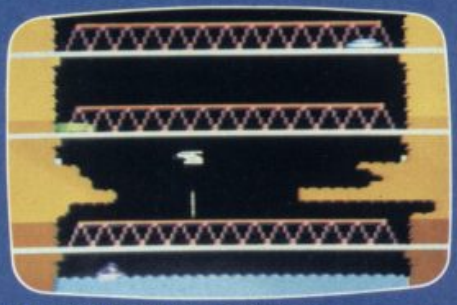

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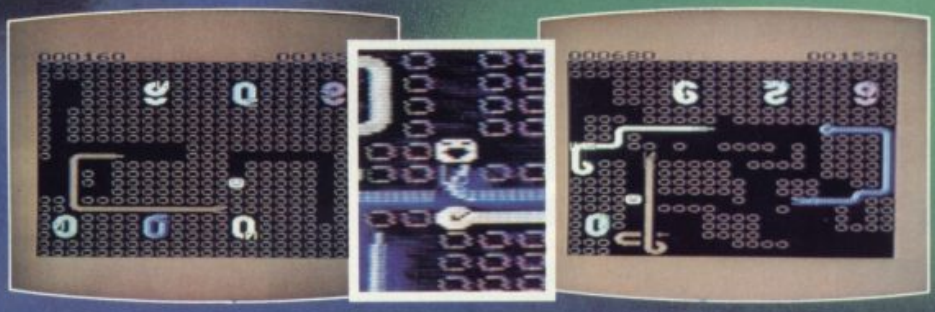
Luke's comment: "Better than Pacman. It's a reely fun game! 12570* eggs to gobble if you want to beat my best. Get it?"



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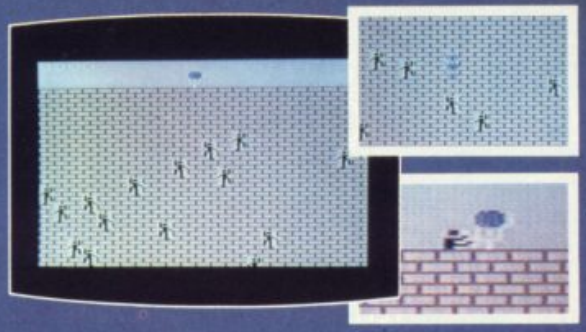
Watchfulness and skill protect your castle from the encircling marauders in this **Siege.** Drop rocks to dislodge them, and their anger makes them faster ... and faster! Are you fast enough to hold them back from the top of the wall? Speed your reflexes.

Luke says — "Bet you can't keep the Glooms away as long as I did?" 4360* to beat! That's difficult.



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GREAT SOFTWARE DISASTERS

Cheques cashed and programs not delivered seems to be the biggest problem area in the home computer industry's reputation. The second of our Great Software Disaster columns wrote itself after a deluge of letters about disappointed youngsters who had waited months for a cassette which was still to arrive. We've printed a small cross section of the letters below and phoned up several software companies to find out why delays may occur, how long it is reasonable to wait before assuming that something has gone wrong and how to go about complaining.

LOSTA SNATCHA

One afternoon in March, having saved up all my money to splash out on a program for my Vic-20, I wrote to Imagine Software requesting a Catcha Snatcha for £5.50.

I waited for three days for it to come, the date by which their advert claimed I would have it. Living in London, I couldn't go to Liverpool to complain and I was at school whenever I might have been able to phone.

Christopher Morgan,
Chartton Place,
London SW1

Eugene Evans of Imagine came back positively on this one. "As of now there are no delays. And we do have a complaints procedure for dealing with customers who are suffering from postal delays.

"Part of the problem in the past was that magazines need copy for adverts a long time before the issues actually come out. We would book the advert at the same time we started work on the game so we could have it ready at the same time the magazine hit the streets. But to do this, meant there could not be the slightest delay in production.

"Now there are no problems in timing as we have all our latest titles in stock before we launch them. Our claim of 48 hour delivery time is definitely now in action."

On Imagine's behalf, I would like to add, Christopher, that *C&VG* phoned their offices at 5.45pm, so don't be afraid to phone when you come home from school.

CLUB LETDOWN

In February this year my son joined, through your magazine, the Microcomputer Software Club and, shortly afterwards, he received the newsletter advertising various cassettes.

He decided to purchase the game tape Golf, completed the form and posted it with a cheque for the correct amount. The cheque has been cashed but as of late May, the tape had still not arrived.

Would you please investigate and let me know why the tape has not been sent.

A. R. Gardiner,
Bishopbriggs,
Glasgow.

John Durrant of Microcomputer Software Club replies: "We usually promise a 24 hour turn-around on receiving an order. The club keeps an average 50-100 tapes of each title in stock and this is put up to 3-500 on the biggest sellers.

"Occasionally when a manufacturer is having production problems, club members can wait as long as a week. But this is rare and the reason for using the club rather than going direct to the manufacturers is the fast reliable turn-around.

"Our policy on complaints of non-delivery, or the occasional bad loader, is to send it out again and ask the purchaser to send one tape back if two arrive."

He added that Mr Gardiner need only write to the club or phone membership secretary Mrs King on Oxford 730275 and a new tape will be despatched.

No black marks against Quicksilva's mail-order department so we decided to ask how they keep their customers happy.

Mark Tilson of Quicksilva's production department explained: "We aim to turn around a cassette in seven days between receiving the order and the game actually landing on the customer's mat.

"We do have our problems though and, like most software houses, we are in the hands of the tape duplicating companies and sometimes hold-ups do occur. The reason being that when stocks run down we order new copies, say 5,000 tapes, and we occasionally have to wait a long time — in extreme cases as long as a month."

Legally mail-order customers are not on secure ground. The Office of Fair Trading spokeswoman, Lindsay Keith said: "The biggest problem with mail order is that people are asked to pay in advance. The company can go bust. They may not send off your goods or they may send faulty goods.

"The Advertising Standards Authority lays down 28 days for delivery of mail order goods but it helps to know as much about the company you're dealing with as possible before ordering from them.

"There is nothing to stop a company from cashing a cheque as soon as it arrives even if the goods have been held up."

ANGRY ADVENTURER

For seven months now I have been waiting for five games from C.P.S. Limited which were advertised as follows: The Fourth Kind, The Doomed City, Wizard of Shan, The Ghost of Radun and Convoy.

I sent for these on November 9th 1982 and included a cheque for £47.50 and after repeated 'phone calls and numerous letters, I still have not received the games, or any money back. I understand that C.P.S. now call themselves Chameleon Computer Games.

D. K. Ditchburn,
Nunthorpe,
Middlesbrough

Let us put you right on one point Mr Ditchburn, Chameleon Computer Games are not the same company as C.P.S. Chameleon did have an agreement to market three C.P.S. games, but have since withdrawn that agreement and impounded royalties to C.P.S.

Great Software Disasters is our watchdog on the industry. If there's anything which has angered you, software, hardware or computer company, please write in and tell us and we'll look into it and publish your views.

We only insist that companies must be given a chance to answer their critics before we publish. Write to: Great Software Disasters, Computer & Video Games, Durrant House, Herbal Hill, London EC1R 5JB.

PAGE 6 An ATARI™ Users Magazine

30000

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PAGE 6 — 100% ATARI COMPUTING — PAGE 6

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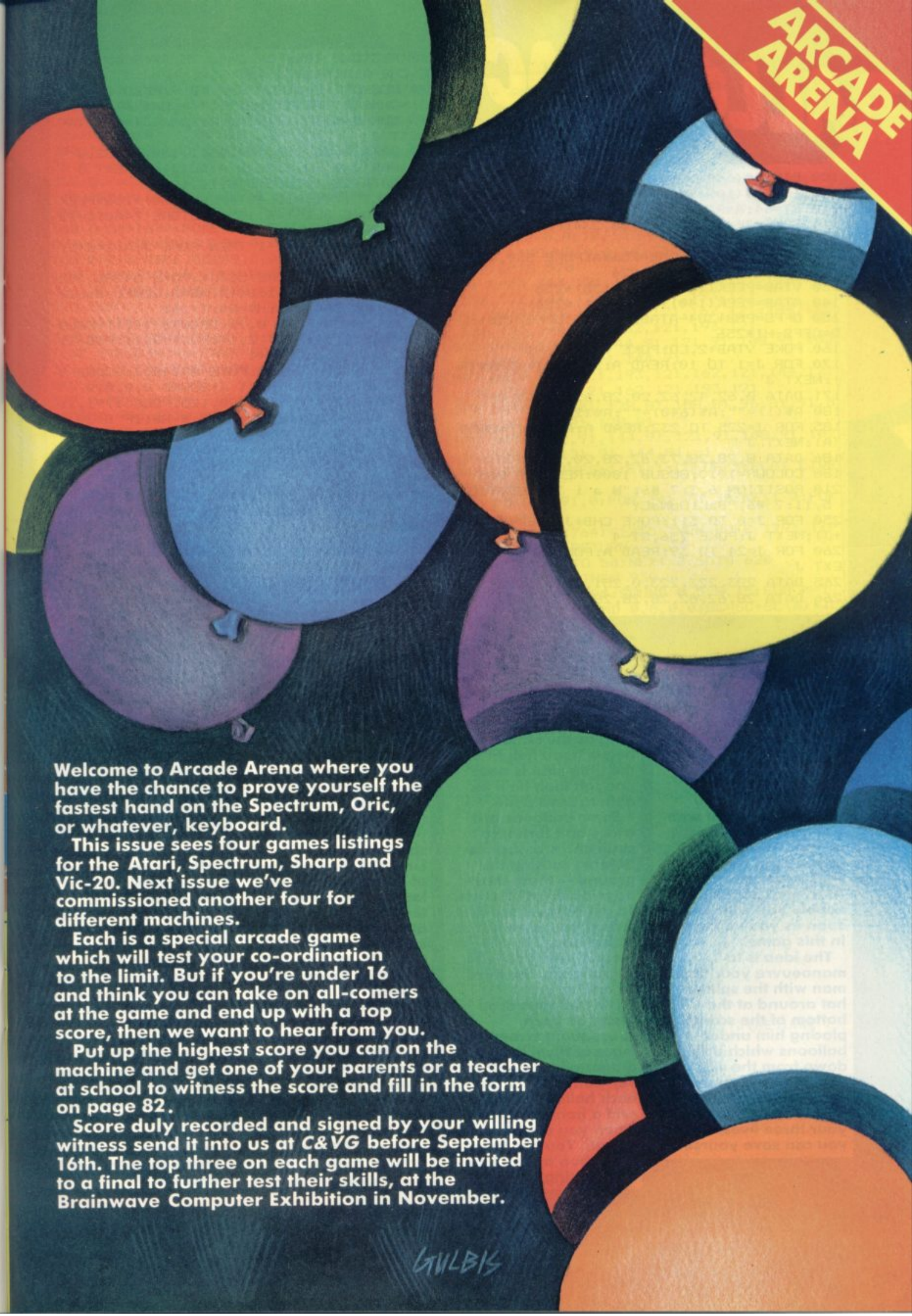


Welcome to Arcade Arena where you have the chance to prove yourself the fastest hand on the Spectrum, Oric, or whatever, keyboard.

This issue sees four games listings for the Atari, Spectrum, Sharp and Vic-20. Next issue we've commissioned another four for different machines.

Each is a special arcade game which will test your co-ordination to the limit. But if you're under 16 and think you can take on all-comers at the game and end up with a top score, then we want to hear from you.

Put up the highest score you can on the machine and get one of your parents or a teacher at school to witness the score and fill in the form on page 82.

Score duly recorded and signed by your willing witness send it into us at *C&VG* before September 16th. The top three on each game will be invited to a final to further test their skills, at the Brainwave Computer Exhibition in November.

GILBIS

BALLOONACY

```
100 DIM A$(640),B$(10),C(7),P$(10),CV(7)
,H$(10),N$(10),SK$(10),SC(7)
110 RT=64:A=RT-8:POKE 106,A:GRAPHICS 18
114 POKE 704,56:POKE 708,234:POKE 710,15
2
120 POKE 54279,A:PMB=256*A:POKE 559,46:P
OKE 53277,3:CHB=PMB+1024
130 VTAB=PEEK(134)+PEEK(135)*256
140 ATAB=PEEK(140)+PEEK(141)*256
150 OFFS=PMB+384-ATAB:HI=INT(OFFS/256):L
O=OFFS-HI*256
160 POKE VTAB+2,LO:POKE VTAB+3,HI
170 FOR J=1 TO 10:READ A:SK$(J,J)=CHR$(A
):NEXT J
171 DATA 0,62,42,62,20,28,65,62,65,0
180 A$(1)="":A$(640)="":A$(2)=A$
185 FOR J=225 TO 232:READ A:A$(J,J)=CHR$
(A):NEXT J
186 DATA 8,28,28,73,62,28,20,20
188 COLOUR=1010:GOSUB 1000:RESTORE 265
210 POSITION 6,3:? #6;"W a i T":POSITION
 5,11:? #6;"BaLlOoNaCY"
250 FOR J=0 TO 511:POKE CHB+J,PEEK(57344
+J):NEXT J:POKE 756,RT-4
260 FOR J=24 TO 39:READ A:POKE CHB+J,A:N
EXT J
265 DATA 223,223,223,0,251,251,251,0
266 DATA 28,62,62,28,28,28,8,0
268 RESTORE 186:FOR J=40 TO 47:READ A:PO
KE CHB+J,A:NEXT J
270 RESTORE 266:FOR J=2 TO 9:READ A:B$(J
,J)=CHR$(A):NEXT J:B$(1,1)=CHR$(0)
275 FOR J=1 TO 10:READ A:P$(J,J)=CHR$(A)
:NEXT J
276 DATA 0,86,169,130,65,1,130,92,32,0
280 FOR J=0 TO 7:READ A:SC(J)=A:NEXT J
281 DATA 12,10,8,6,6,8,10,12
290 POKE 1791,0:DLIST=PEEK(560)+256*PEEK
(561):POKE DLIST+6,135:RESTORE 1400:J=15
36
291 READ A:IF A<>-1 THEN POKE J,A:J=J+1:
GOTO 291
292 POKE 512,0:POKE 513,6:POKE 54286,192
293 SC=0:DL=8:LV=1:B=10:HB=B:LEVEL=0:LIV
ES=3:POKE 764,255:H$=B$:T=100
295 COLOR 35:PLOT 0,11:DRAWTO 19,11:COLO
R 5:PLOT 1,11:PLOT 2,11:PLOT 3,11:POSITI
ON 9,11:? #6;LEVEL+1
300 FOR J=30 TO 120:POKE 53248,J:SOUND 0
,100+T,8,15:T=-T:NEXT J:SOUND 0,0,0,0
305 POKE 77,0:POKE 1790,120:POKE 1791,1:
DL=DL-1:LV=(LV=0):HB=HB+2:B=HB:IF B>30 T
HEN B=30
310 RESTORE 1500+100*LV:GOSUB 1500+100*L
V:FOR J=0 TO 7:READ A:C(J)=A:NEXT J:IF D
L<0 THEN DL=0
320 FOR J=1 TO 5:SOUND 0,82,10,10:FOR K=
1 TO 10:NEXT K:SOUND 0,0,0,0:FOR K=1 TO
```

RUNS ON AN ATARI 400/800 IN 16K

BY SIMON GOODWIN

Can you become Top of the Poppers? No, not yet another bunch of pretty musicians. This Popper aims to become number one in the balloon bursting charts! And all you need is a silly hat with a sharp pointed spike on top. What, you haven't got one! Oh well, never mind the Atari mad hatter will supply you with one as soon as you've keyed in this game.

The idea is to manoeuvre your little man with the spiked hat around at the bottom of the screen, placing him under balloons which drift down from the sky above him. If you miss and a balloon hits the ground you lose one of your three lives. But you can save yourself by booting the balloon back into the sky with a well aimed kick. As long as the balloon is below head height and the little man is near enough then he'll be able to save a life.

Some balloons are tricky and turn into skull and crossbones before reaching the ground — these must be avoided at all costs. To get beyond the first screen you must burst 12 balloons. The second tests you with 14 balloons, the third 16 and so on.

The balloons drop faster on each subsequent screen and more of them drop diagonally instead of vertically. You score for each balloon popped and a bonus is given when you complete a screen. You can freeze the action at any time by pressing any key.

Program Notes:

Line 180. The string assignments are to "CONTROL COMMA" (the heart shape). The printer prints this as a space.

Line 210. Any mixture of inverse, upper and lower case will do in the title, just to make it attractive.

Line 383. As line 180.

Line 435. As line 180.

Line 550. The word "START" is in inverse.

Line 576. As line 180.

To make it easier to kick a balloon, alter line 400 so that the tests on "P" are greater than 4.

To make it easier to pop a balloon, alter line 372 so that the tests on "P" are greater than 2.

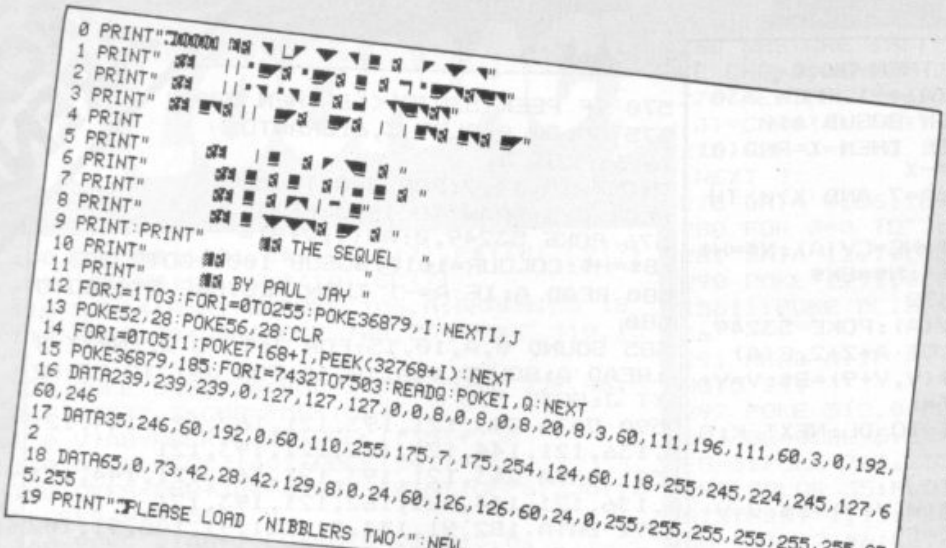
Hints on Play:

After popping a ballon, immediately return to the centre of the screen. This is critical on the higher levels of play.

It is safe to pass through the skull and crossbones once it has missed your head; but don't kick it.

Don't panic trying to get exactly lined up. It is often easier to accept that you are off centre for the baloon, and wait and kick it up again, than to keep pulling on the stick trying to move just that little bit.

```
20:NEXT K:NEXT J:IF DL<0 THEN DL=0
330 A=INT(RND(0)*8):IF C(A)=-1 THEN 330
335 IF PEEK(764)<>255 THEN GOSUB 610
340 X=0:IF RND(0)*12<LEVEL THEN X=RND(0)
/2:IF RND(0)>0.25 THEN X=-X
350 IF (A=0 AND X<0) OR (A=7 AND X>0) TH
EN X=-X
352 SKP=336-LEVEL/2:B$=H$:NC=CV(A):N$=H$
:IF RND(0)<0.15 THEN NC=14:N$=SK$
355 IF SKP<332 THEN SKP=332
360 D=64+16*A:POKE 705,CV(A):POKE 53249,
D:V=C(A)*8+272:COLOR 0:PLOT A*2+2,C(A)
365 D=D+X:POKE 53249,D:A$(V,V+9)=B$:V=V+
1:IF STRIG(0)=0 THEN BOOT=1
366 IF V<SKP THEN FOR K=1 TO DL:NEXT K:G
OTO 365
367 B$=N$:POKE 705,NC
370 D=D+X:POKE 53249,D:A$(V,V+9)=B$:V=V+
1:IF STRIG(0)=0 THEN BOOT=1
371 IF V<346 THEN FOR K=1 TO DL:NEXT K:G
OTO 370
372 P=PEEK(1790):IF P>D-2 AND P<D+2 THEN
 GOSUB 900:GOTO 380
374 D=D+X:POKE 53249,D:A$(V,V+9)=B$:V=V+
1:IF STRIG(0)=0 AND BOOT=0 THEN 400
375 IF V<354 THEN FOR K=1 TO DL:NEXT K:G
OTO 374
376 DR=1
380 C(A)=C(A)-1:B=B-1:IF DR=1 THEN DR=0:
GOSUB 420
383 A$(V,V+B)="":IF B>0 THEN FOR J=1 TO
150:NEXT J:BOOT=0:GOTO 330
390 POKE 1791,0:FOR J=0 TO LEVEL:POSITIO
N 8,8:? #6;"bonus":SOUND 0,150,10,15:SC=
SC+10*(LEVEL+1)*LIVES
392 POSITION 14,11:? #6;SC:FOR K=1 TO 10
0:NEXT K:POSITION 8,8:? #6;"      "
395 SOUND 0,0,0,0:FOR K=1 TO 100:NEXT K:
NEXT J:IF SC>4999 AND EX=0 THEN GOSUB 60
0
396 LEVEL=LEVEL+1:COLOR 0:FOR J=0 TO 5:P
LOT 0,J:DRAWTO 19,J:NEXT J:GOSUB 1000:PO
SITION 9,11:? #6;LEVEL+1:GOTO 300
400 BOOT=1:P=PEEK(1790):IF P<D-4 OR P>D+
4 THEN GOTO 374
405 FOR K=12 TO 15:SOUND 1,100,10,K:NEXT
 K:FOR K=15 TO 0 STEP -5:SOUND 1,100,10,
K:NEXT K
407 IF NC<>14 THEN 410
408 NC=0:GOTO 376
410 V=V-2:X=ABS(P-D)/12:IF D>125 THEN X=
-X
412 GOTO 500
420 IF NC=14 THEN 450
421 COLOR 35:PLOT LIVES,11
425 POKE 1791,0:FOR J=15 TO 0 STEP -0.75
:FOR K=2 TO 10 STEP 2:POKE 704,K*J:SOUND
 0,J*K,2,J:NEXT K:NEXT J
430 LIVES=LIVES-1:POKE 704,56:IF LIVES=0
 THEN B=0:GOTO 550
435 A$(V,V+8)="":FOR J=30 TO 120:POKE 53
248,J:SOUND 0,100+T,8,15:T=-T:NEXT J:SOU
ND 0,0,0,0
440 POKE 1790,120:POKE 1791,1:RETURN
450 FOR J=8 TO 15:FOR K=15 TO 1 STEP -3:
SOUND 0,J*K,14,15:POKE 705,J*K:NEXT K:NE
XT J:SOUND 0,0,0,0:RETURN
500 D=D+X:POKE 53249,D:A$(V,V+9)=B$:V=V-
1:IF V>312 THEN FOR K=1 TO DL:NEXT K:GOT
O 500
510 V=V+1:BOOT=0:GOTO 370
550 RESTORE 590:POSITION 3,6:? #6;"PRESS
 START TO":POSITION 5,7:? #6;"play again
"
570 IF PEEK(53279)<>6 THEN 580
575 COLOR 0:PLOT 3,6:DRAWTO
16,6:PLOT 5,
7:DRAWTO 14,7:FOR J=0 TO 5:
PLOT 0,J:DRAW TO 19,J:NEXT J
576 POKE 53249,0:A$(V,V+8)=""
:B$=H$:COLOUR=1010:GOSUB 1000:GOTO 293
580 READ A:IF A=-1 THEN RESTORE 590:GOTO
580
585 SOUND 0,A,10,15:FOR J=1 TO 22:NEXT J
:READ A:SOUND 0,A,10,10:FOR J=1 TO 32:NE
XT J:GOTO 570
590 DATA 243,121,193,121,162,121,144,121
,136,121,144,121,162,121,193,121
591 DATA 243,121,193,121,162,121,144,121
,136,121,144,121,162,121,193,121
592 DATA 182,91,144,91,121,91,108,91,102
,91,108,91,121,91,144,91
593 DATA 243,121,193,121,162,121,144,121
,136,121,144,121,162,121,193,121
594 DATA 162,81,128,81,108,81,96,81,91,8
1,96,81,108,81,128,81
595 DATA 182,91,144,91,121,91,108,91,102
,91,108,91,121,91,144,91,-1
600 LIVES=LIVES+1:EX=1:COLOR 5:PLOT LIVE
S,11:RETURN
610 POKE 1791,0:FOR J=1 TO 50:NEXT J:POK
E 764,255
620 IF PEEK(764)<>255 THEN POKE 1791,1:P
OKE 764,255:RETURN
630 FOR J=1 TO 50:NEXT J:GOTO 620
900 IF NC=14 THEN 930
910 A$(V,V+9)=P$:SOUND 0,5,8,15:FOR K=1
TO 5:NEXT K:SOUND 0,0,0,0:SC=SC+SC(A)*(L
EVEL+1)
920 POSITION 14,11:? #6;SC:RETURN
930 NC=0:POP :GOTO 376
1000 RESTORE COLOUR:FOR J=0 TO 3:READ A:
CV(J)=A:NEXT J:COLOUR=COLOUR+10:IF COLOU
R=1070 THEN COLOUR=1010
1004 CV(4)=CV(0):CV(5)=CV(3):CV(6)=CV(1)
:CV(7)=CV(2)
1005 POKE 708,CV(2):POKE 709,CV(1):POKE
710,CV(3):POKE 711,CV(0):RETURN
1010 DATA 70,186,234,152
1020 DATA 166,26,72,102
1030 DATA 202,26,8,122
1040 DATA 182,246,218,86
1050 DATA 28,184,120,246
1060 DATA 24,54,252,168
1400 DATA 72,173,255,6,240,25,173,0,211,
106,106,106,176,5,206,254,6,144,6,106,17
6,3,238,254,6,173,254,6,141,0,208
1402 DATA 104,64,-1
1500 FOR J=0 TO 5
1510 COLOR 4:PLOT 4,J
1520 COLOR 36:PLOT 6,J
1530 COLOR 164:PLOT 8,J
1540 COLOR 132:PLOT 10,J
1550 COLOR 164:PLOT 12,J
1560 COLOR 4:PLOT 14,J:NEXT J:RETURN
1570 RETURN
1599 DATA -1,5,5,5,5,5,5,-1
1600 FOR J=0 TO 4
1605 COLOR 132:PLOT 2,J
1610 COLOR 4:PLOT 4,J
1620 COLOR 36:PLOT 6,J
1630 COLOR 164:PLOT 8,J
1640 COLOR 132:PLOT 10,J
1650 COLOR 164:PLOT 12,J
1660 COLOR 4:PLOT 14,J
1670 COLOR 36:PLOT 16,J:NEXT J:RETURN
1699 DATA 4,4,4,4,4,4,4,4
```



```
10 PRINT"  THE SEQUEL  "
12 FORJ=1TO3:FORI=0TO255:POKE36879,I:NEXTI,J
13 POKE52,28:POKE56,28:CLR
14 FORI=0TO511:POKE7168+I,PEEK(32768+I):NEXT
15 POKE36879,185:FORI=7432TO7503:READQ:POKEI,Q:NEXT
16 DATA239,239,239,0,127,127,127,0,0,8,0,8,0,8,20,8,3,60,111,196,111,60,3,0,192,
60,246
17 DATA35,246,60,192,0,60,110,255,175,7,175,254,124,60,118,255,245,224,245,127,6
2
18 DATA65,0,73,42,28,42,129,8,0,24,60,126,126,60,24,0,255,255,255,255,255,255,25
5,255
19 PRINT"PLEASE LOAD 'NIBBLERS TWO'":NEW
```

```
0 POKE36869,255:GOSUB47:H=36864:V=36865:T=36866:U=36867:F=36877:G=36879:GOTO7
1 FORI=1TODE:NEXT:RETURN
2 FORJ=1TO100:ZZ=INT(RND(1)*2+10):VV=INT(RND(1)*8+32):POKEV,VV:POKEH,ZZ
3 GOSUB1:NEXTJ:POKEH,12:POKEV,38:RETURN
4 PRINTCHR$(147):POKEG,236:POKEG-1,15:FORI=0TO22:GOSUB6:NEXT
5 FORI=22TO0STEP-1:GOSUB6:NEXT:POKEF,0:RETURN
6 POKEH,12+I:POKEV,38+I:POKET,150-I:POKEU,174-I*2:POKEF,230+I:RETURN
7 AM=1:OK=1:NO=0:DE=100:SC=0:LE=1:B=34:INC=10:W=203:M=40:BR=33:C=30720
8 GOSUB4:GOSUB37
9 X=INT(RND(0)*42)+1:IFX>21THENX=X-21:D=-1:A=7701:N=37:GOTO11
10 D=1:A=7680:N=38
11 NP=A+(X*22)
12 POKENP,N:POKENP+C,0:GOSUB1:GOTO16
13 POKENP,32:NP=NP+D:IFPEEK(NP)=MTHENDE=5:GOSUB2:DE=100:GOTO42
14 IFPEEK(NP)=BRTHENPOKENP,32:AM=OK:POKE846,222:GOTO9
15 GOTO12
16 IFPEEK(W)=8ANDAM=OKTHENPP=7686:P=35:E=7679:OS=-1:AM=NO:GOTO19
17 IFPEEK(W)=39ANDAM=OKTHENPP=7695:P=36:E=7702:OS=1:AM=NO:GOTO19
18 GOTO13
19 IFPP=ETHEN13
20 POKEPP,P:POKEPP+C,1
21 IFPEEK(W)=64THEN24
22 GOSUB1:POKEPP,32:PP=PP+OS
23 GOTO19
24 IFPEEK(PP+22)=NTHENBP=PP+22:GOTO29
25 BP=PP+22
26 POKEBP,B:IFPEEK(BP+22)=NTHEN29
27 IFBP>8141THENPOKEBP,32:POKEPP,32:GOTO13
28 POKEBP,32:BP=BP+22:GOTO26
29 POKE849,222
30 POKEBP+22,39:POKEBP+22+C,2:POKEBP,32:POKEPP,32:GOSUB1:POKEBP+22,32
31 SC=SC+INC:IFSC>HITHENHI=SC
32 IFSC>10000ANDLE=3THENLE=4:DE=25:GOSUB39:GOTO35
33 IFSC>4000ANDLE=2THENLE=3:GOSUB39:INC=50:DE=50:GOTO35
34 IFSC>1000ANDLE=1THENLE=2:GOSUB38:DE=75:INC=20
35 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■SCORE";SC;
36 AM=OK:GOTO9
37 GOSUB4:IFLE=1THENA$="■!!■K(■!!":GOTO40
38 GOSUB4:IFLE=2THENA$=" ■!!■K(■!! ":GOTO40
39 GOSUB4:IFLE=3THENA$="  ■!■K(■!  "
40 PRINT"■":PRINT"■■■■■■■■■■■■■■■■■■■
```

SUPER NIBBLERS

ARCADE ARENA

altered visage and made him King. But, Twonko realising the taste of the lemon would soon wear off knew his sour face would not last for ever unless he had a regular supply of lemons.

So he got the people of Pippa to build two massive towers to keep a vast supply of lemons in — enough to keep his face sour for centuries to come. And they all lived miserably ever after . . .

But where, I hear you say, do the Nibblers come in to all this? Well, they are attacking Twonko's Towers and threatening to reveal his secret.

The object of the game is to bomb the Nibblers. To do this hold down the "." key for Nibblers on the left and the "f1" key for Nibblers on the right. When one of these keys is pressed a missile appears and moves across the screen for as long as the key is held down. When the key is released so is the bomb.

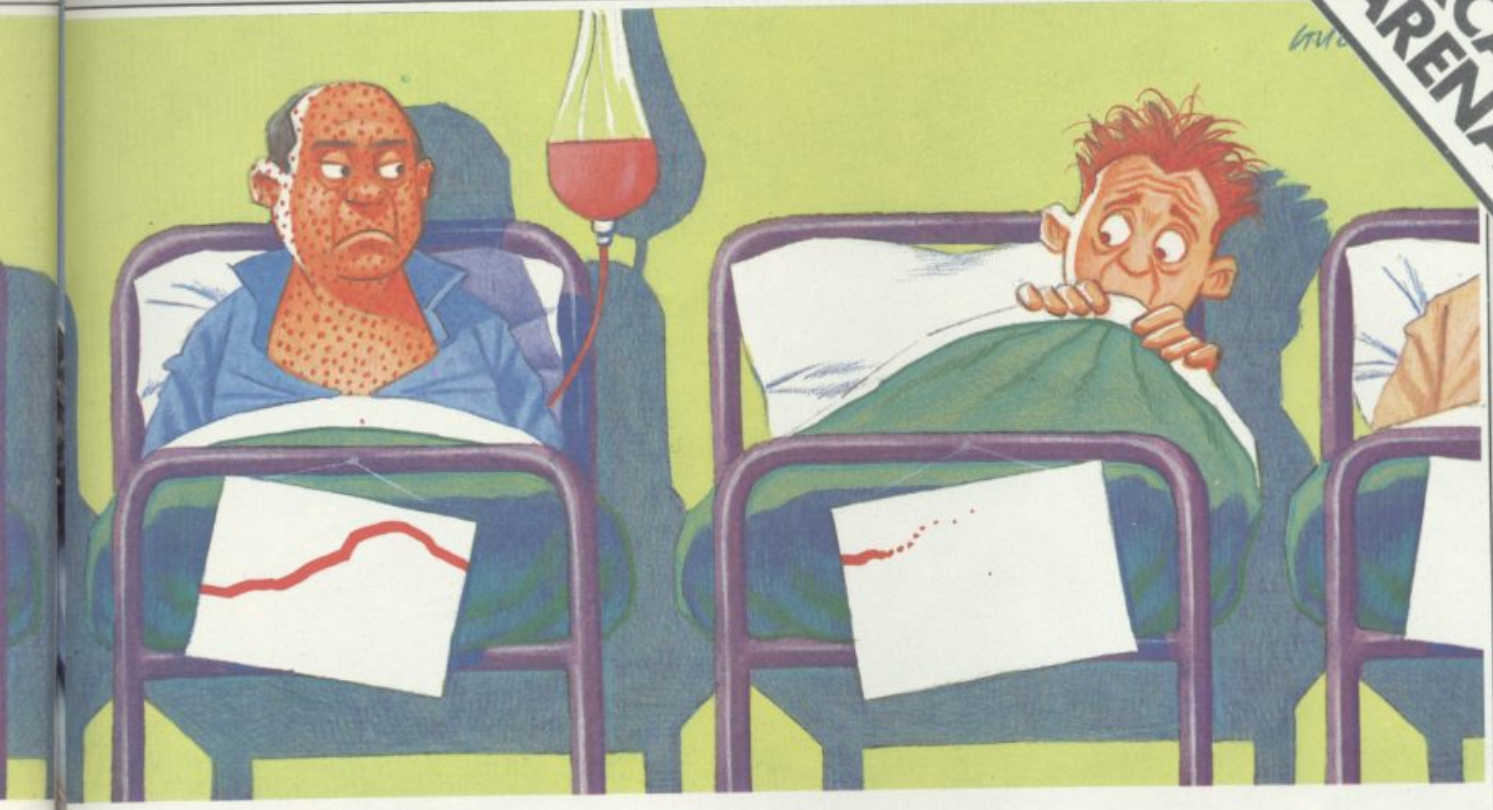
There are four levels of play and these change automatically depending on your score. You get only one life — so beware the Nibblers. If they reach the lemons you've had it!

Program notes:
Make sure you load the first part of this program before you run it because it deletes itself. Then load "Nibblers Two".

GULBIS

```
MODIFICATIONS FOR MZ-80A
120 GETM$:IFM$=""THEN70
130 M=ASC(M$):IF(M<J)+(M>K)THEN70
860 J=49:K=57
950 DATA7,-41,8,-40,9,-39,4,-1,6,1,1,39,2,40,3,41
1050 PRINT" )":POKE53323,A
1100 PRINT"7 8 9■■■■■■\+/■■■■■4←  →6■■■■■/+\■■■■■1 2 3":POKE53626,A
```

```
10 REM
20 REM |   E P I D E M I C   |
30 REM | Frank Rooney - 5,83 |
40 REM
50 GOTO850
60 Q=0:GOSUB280:POKEW,A:T=0:TI$="000000"
70 IFQ=0THEN180
80 IFD>5+5*DTHEN570
90 IFVAL(TI$)-T<4-DTHEN120
100 B=INT(RND(1)*894+S):IFPEEK(B)<>0THEN100
110 POKEB,Y:MUSIC"A0_A":POKEB,P:Q=Q+1:T=VAL(TI$)
120 GETM$:M=PEEK(17828)
130 IF(M<J)+(M>K)THEN70
140 M=M-J+1:IFPEEK(W+V(M))=0THEN170
150 IFPEEK(W+V(M))=PTHENMUSIC"A0_A":Q=Q-1:GOTO170
160 GOTO70
170 POKEW,0:W=W+V(M):POKEW,A:GOTO70
180 MUSIC"A3_C_EA_C_E_A6":PRINT"■CONGRATULATIONS -"
190 PRINT"■You have cured Stanley of his disease!"
200 SC=INT((1/VAL(TI$))*100*10↑D)
210 PRINT"■■■■■                YOU SCORED";SC
220 IFSC>HSTHENPRINT"■■          THE HIGHEST SCORE !!!":HS=SC:GOTO240
230 PRINT"■■          Highest score =";HS
240 POKE4466,24:PRINT"  Do you want to try again ? (Y or N)■"
250 GETX$:IFX$="N"THENPRINT"■":END
260 IFX$="Y"THENPRINT"■":GOTO990
270 GOTO250
280 PRINT"■";
290 PRINT":::::::::::::/‾‾‾
```



EMIC

80K AND MZ80A

Explanation of PEEKS & POKES
POKE53258 to POKE54247 = video RAM.
POKE4466, X prints X lines down from the top of the screen.
POKE4465, X prints X columns across from the left of the screen.
POKE10167,1 removes the PEEK protect in SP-5025 basic to allow — PEEK(17828) which returns the ASC value of any key held down (NOT required on MZ-80A).

Main variables
D = skill level (1-3).
M$ = antibody movement key.
M = ASC code of movement key.
V(M) = increment of antibody movement.
W = current antibody position.
B = germ position.
Q = number of germs.

```
610 POKE4466,9
620 PRINT"
630 PRINT"
640 PRINT"
650 PRINT"
660 PRINT"
670 PRINT"
680 PRINT"
690 PRINT"
700 PRINT"
710 PRINT"
720 PRINT"
730 PRINT"
740 PRINT"
750 PRINT"
760 PRINT"
770 S$="
780 S$=S$+"
790 FORI=24TO13STEP-1:FORH=1TO100:NEXTH:POKE4466,10:POKE4465,I:PRINTS$
800 NEXTI
810 FORH=1TO30:POKE53661,118:POKE53781,119:POKE53661,0:POKE53781,0:NEXTH
820 FORI=22TO18STEP-1:POKE4466,11:POKE4465,I:FORH=1TO100:NEXTH
830 PRINT"                                    ":NEXTI
840 FORI=1TO1000:NEXTI:GOTO240
850 TEMPO7:S=53301:A=206:P=219:Y=107
860 J=65:K=90:A$=CHR$(103):POKE10167,1
870 PRINT"
880 PRINT"
890 PRINT"
900 PRINT"
910 PRINT"
920 PRINT"
930 PRINTTAB(10);"  Frank Rooney, 1983"
940 DIMV(K-J+1):FORI=1TO8:READM,V(M):NEXTI
950 DATA17,-41,23,-40,5,-39,1,-1,4,1,26,39,24,40,3,41
960 FORH=1TO5
970 FORI=1TO300:NEXTI:READU:POKES+U,Y:MUSIC"_A0A#A":POKES+U,74:NEXTH
980 DATA200,330,175,272,284
990 POKE4466,18:PRINT"    Do you want instructions ? (Y or N)"
1000 GETX$:IFX$="Y"THEN1030
1010 IFX$="N"THEN1220
1020 GOTO1000
1030 PRINT"Poor Stanley is about to catch a disease"
1040 PRINT"and it is up to you, the Antibody (";
1050 PRINTA$;"),"
1060 PRINT"to stamp out the germs before they reach"
1070 PRINT"epidemic proportions."
1080 PRINT"The Antibody can be moved using the"
1090 PRINT"following keys:":PRINTTAB(16);
1100 PRINT"Q W E      \ /      A+";A$;"D      / + \      Z X C"
1110 PRINT"There are 3 skill levels which determine"
1120 PRINT"the type of disease to be combatted. The"
1130 PRINT"nastier the disease, the faster the"
1140 PRINT"germs multiply! The score is based on"
1150 PRINT"the time taken and the skill level."
1160 PRINT"Your mission will have failed should"
1170 PRINT"the disease get out of control, in which"
1180 PRINT"case poor old Stanley will have to"
1190 PRINT"resort to penicillin!"
1200 PRINT"          < Press any key to continue >"
1210 GETX$:IFX$=""THEN1210
1220 PRINT"Select SKILL LEVEL:"
1230 PRINT"     <1> Staphylococcus aureus infection"
1240 PRINT"           (a nasty germ)"
1250 PRINT"     <2> Escherichia coli infection"
1260 PRINT"           (a nastier germ)"
1270 PRINT"     <3> Leptospira canicola infection"
1280 PRINT"           (a really nasty germ)"
1290 PRINT"                  < Press 1 - 3 >"
1300 GETD:IF(D=0)+(D>3)THEN1300
1310 GOTO60
```

Can you grab the treasure filled jars hidden in the attic of the haunted house before a ghastly ghost grabs you?

You control a cat-burlar out to remove the jars from their hiding place at the top of the house with many floors. You must find your way up a maze of ladders to the attic — avoiding the ghost which will chase you single-mindedly throughout your mission. You can briefly capture the ghost by using a snare and luring the phantom crime preventor into it — but the snares only last a few seconds and the ghost will soon be back on your trail.

Once you reach the jars you must carry them — one by one — back to your van parked outside the house.

You'll find a hammer on your travels through the house — this can be picked up and used to deal with the skeleton you'll find in the attic. If you run underneath it holding the hammer you'll score bonus points.

The ghost can render the hammer useless by rushing up to it and turning it red. So trap the ghost before it hits the hammer. When all the jars are in your van the next screen is displayed — and you start all over again, but with less time to beat the ghost!

You get three lives to start with and these can be lost if you get caught by the ghost.

Variables:

a,b: co-ordinates of man.
c,d: co-ordinates of ghost.
s: score.
hs: high score.
h$: high-scorers initials.
j: number of jars left.
j$: jar string (visual indication of jars left).
t: time left.
t$: visual indication of time left.
m$: visual indication of lives left.
u,g,h: general purpose flags.

BY ANDREW MURGATROYD

HAUNTED HOUSE

RUNS ON A SPECTRUM IN 48K

```
  1 REM      HAUNTED  HOUSE
  2 REM (C) A.J.MURGATROYD 1983
  3 REM          G 6 R O G
  4 CLEAR 34999: LET hs=0: LET
h$="AJM": PRINT AT 10,5; FLASH 1
;"PLEASE WAIT A MOMENT": GO TO 1
000
  5 IF ATTR (a+1,b)=6 THEN PRIN
T AT a+1,b; INK 4;"M"
  6 RETURN
 50 PRINT OVER 1; INK 2; PAPER
8;AT a,b;"A"
 51 IF a=4 AND b=15 AND h=1 THE
N BEEP .1,10: LET t=t+5: IF t>=2
0 THEN LET t=20: PRINT AT 2,0;"
": LET h=0: LET s=s+100: PRINT A
T 3,15; INK 6;" "
 52 LET a=a+(INKEY$="a" AND ATT
R (a+1,b)=2)-(INKEY$="q" AND ATT
R (a-1,b)=2)
 53 IF a=12 AND b=26 AND ATTR (
a,b+1)=5 THEN BEEP .1,20: PRINT
AT 12,27; INK 7;" ": PRINT AT 2,
0;"G": LET h=1
 54 LET b=b+(INKEY$="p" AND b<=
29 AND ATTR (a,b+1)<>6)-(INKEY$=
"o" AND b>=2 AND ATTR (a,b-1)<>6
)
 55 PRINT OVER 1;AT a,b; INK 9;
"A"
 56 IF INKEY$="z" THEN GO SUB 5
 57 PRINT AT 0,10-LEN STR$ s; I
NK 6;s
 59 LET t=t-.015: IF t<=0 THEN
GO SUB 800
 60 PRINT AT 21,6; INK 6; PAPER
 2;t$( TO t); PAPER 0;" "
 62 PRINT AT c,d; OVER 1; INK 2
;"C"
 63 IF ATTR (c+1,d)=4 THEN POKE
 35006,5: POKE 35025,28: RANDOMI
ZE USR 35000: PRINT AT c+1,d; IN
K 5; BRIGHT 1;"N": POKE 35025,29
: RANDOMIZE USR 35000: PRINT AT
c+1,d; INK 6;"F": LET c=4: RANDO
MIZE : LET d=(RND*10)+1: LET s=s
+25
 64 LET d=d+(d<=b AND ATTR (c,d
+1)<>6)-(d>=b)
 65 LET c=c-(c>=a AND ATTR (c-1
,d)<>6 AND ATTR (c-1,d)<>4)+(c<=
a AND ATTR (c+1,d)<>6 AND ATTR (
c+1,d)<>4)
 69 PRINT OVER 1;AT c,d; INK 5;
"C"
 80 IF a=4 AND b=26 AND g=0 THE
N LET j=j-1: LET g=1: PRINT AT 4
,28; INK 7;j$( TO j);" ": BEEP .
1,50: LET u=1
 85 IF a=19 AND b=3 AND u=1 THE
N LET s=s+275: POKE 35056,5: RAN
DOMIZE USR 35000: LET u=0: LET g
=0: IF j=0 THEN GO TO 200
 99 IF a=INT c AND b=INT d THEN
 GO TO 800
100 GO TO 50
200 LET s=s+INT (t*50)
210 PRINT AT a,b;" ";AT c,d;" "
215 PRINT AT 20,1; BRIGHT 1; FL
ASH 1;"          B  O  N  U  S
220 POKE 35006,100: RANDOMIZE U
SR 35000
240 LET a=19: LET b=3: LET c=4:
LET d=26: LET h=h+1: LET j=3
250 LET t=20-h: IF t<=10 THEN L
ET t=10
260 PRINT OVER 1;AT c,d;"C"
270 PRINT AT 4,28;j$( TO j)
280 PRINT AT 20,1; FLASH 0;"
                           "
290 GO TO 51
800 PRINT AT a,b; OVER 1;"A";AT
c,d; OVER 1;"C"
801 PRINT AT 21,27;" "
810 FOR n=10 TO 2 STEP -2: BEEP
.1,n: PAUSE 1: NEXT n
815 PAUSE 7: BEEP .075,8: PAUSE
1: PRINT AT a,b;"N": BEEP .075,
8
820 PRINT AT a,b;" "
831 LET m=m-1: IF m<=0 THEN GO
TO 900
840 PRINT AT 21,28; INK 4;m$( T
O m);" "
850 LET a=19: LET b=3: LET c=4:
LET d=26: LET g=0: PRINT AT 4,2
8;j$( TO j)
860 PRINT AT c,d; OVER 1;"C"
890 GO TO 51
899 REM Game over
900 IF s>=hs THEN LET hs=s: PRI
NT AT 5,0; INK 7; PAPER 2;"NEW H
IGH SCORE !! ENTER INITIALS"
901 IF s=hs THEN FOR n=-50 TO 5
0 STEP 5: BEEP .1,n: NEXT n
902 IF s=hs THEN INPUT h$: IF L
EN h$>3 THEN GO TO 902
903 PRINT AT 21,28;" ": PRINT A
T 21,27;"
931 PRINT AT 11,0; INK 6; PAPER 1; FLASH 1;
          GAME OVER
"
932 PRINT AT 15,0; INK 0; PAPER
5;"      ANOTHER GAME          Y /
N    "
933 IF INKEY$="y" THEN RESTORE
9927: GO SUB 9900: GO SUB 9920:
GO TO 51
934 IF INKEY$="n" THEN PRINT US
R 0
940 GO TO 920
1000 GO SUB 9990: REM SOUND
1010 GO SUB 9900: REM VARIABLES
1020 GO SUB 9800: REM GRAPHICS
1030 GO SUB 9700: REM INFO
1040 GO SUB 9920: REM SCREEN
1050 GO TO 51   : REM THE GAME
9699 REM      Instructions
9700 BORDER 1: PAPER 1: INK 7: C
LS
9710 LET i$="  Welcome to Haunte
d House.....You must travel aro
und the houseto collect the jars
 which are  under the chimney p
ot. When you collect a jar you m
ust take it  back to your van,th
en collect  another jar.
              The spooks you wi
ll find are..  C  Ghost
              E  Skeleton
              The ghost can be
disposed of  by laying a snare a
nd the  skeleton by collect
ing the  hammer and running
underneath."
9715 LET i$=i$+"
                          CONTR
OLS                  (A) Up      (A
) Down               (O) Left    (P
) Right              (Z) Lay a snar
e."
9717 PRINT "   H A U N T E D
H O U S E "
9718 PRINT "   = = = = = = = =
= = = = = "
9719 PRINT PAPER 2; INK 6; BRIGH
T 1;"  © 1983  A.J.Murgatroyd  G
6ROG "
9720 FOR n=1 TO LEN i$: BEEP .00
5,5: PRINT i$(n);: NEXT n
9725 POKE 35004,255: POKE 35006,
```

HAUNTED HOUSE CONTINUED

```
50: RANDOMIZE USR 35000
9730 PRINT #0; FLASH 1;"
55 ANY KEY TO BEGIN      "      PRE
9740 PAUSE 0
9750 POKE 35025,29: RANDOMIZE US
R 35000
9760 RETURN
9799 REM          U,D,G,S
9800 FOR y=65368 TO 65479
9810 READ z: POKE y,z: NEXT y
9819 REM      Data for U,D,G,S
9820 DATA 56,40,146,124,56,56,40
,108,129,255,129,255,129,255,129
,255
9830 DATA 62,127,73,73,127,127,8
5,85,127,34,65,65,65,65,65,62
9840 DATA 8,93,73,62,8,20,34,34,
247,247,247,0,0,0,0,0
9850 DATA 0,24,56,112,104,4,2,0,
51,51,51,51,51,51,51,51
9860 DATA 0,0,0,0,15,7,7,31,0,0,
0,0,255,254,254,254,39,71,127,12
7,127,255,40,16,254,254,254,254,
254,255,20,8
9870 DATA 129,195,129,195,129,19
5,129,126,0,73,42,0,99,0,42,73
9890 RETURN
9899 REM          Variables
9900 LET t=20: LET t$="HHHHHHHHHH
HHHHHHHHHHHHHHHHHHHHHH"
9902 LET j=3: LET j$="DDD"
9903 LET a=19: LET b=3: LET c=4:
 LET d=26
9904 LET m$="AAA": LET m=3
9905 LET u=0: LET g=0
9907 LET h=0
9910 LET s=0
9918 RETURN
9919 REM          Screen
9920 BORDER 0: PAPER 0: INK 7: C
LS : FOR n=5 TO 17 STEP 2: PRINT
 AT n,0; INK 6;"FFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFF": NEXT n
9925 FOR n=1 TO 14: READ y,x: PR
INT AT y,x; INK 2;"B";AT y+1,x;
INK 2;"B";AT y-1,x; INK 2;"B": N
EXT n
9927 DATA 5,6,5,22,7,2,7,17,7,29
,9,15,11,5,11,24,13,3,13,17,15,1
3,15,30,17,7,18,7
9930 FOR n=1 TO 11: READ y,x: DR
AW INK 6;y,x: NEXT n
9932 DATA 0,144,127,31,1,0,127,-
31,0,-144,-254,0,0,144,127,31,12
6,-32,0,-142,-254,0
9933 PLOT 0,0
9934 PLOT 250,146: FOR n=1 TO 3:
READ x,y: DRAW INK
6;x,y: NEXT n
9935 DATA 0,8,-18,0,0,-4
9937 PLOT 246,154: FOR
n=1 TO 7:
 READ x,y: DRAW INK 6;x,y: NEXT
n
9939 DATA 0,3,2,0,-5,10,-4,0,-5,
-10,2,0,0,-3
9940 PRINT AT 18,1; INK 2;"IJ";A
T 19,1; INK 2;"KL"
9942 PRINT AT 12,27; INK 5;"G"
9945 PRINT AT 4,28;j$( TO j)
9947 PRINT AT 21,1; INK 7;"TIME
"; INK 6; PAPER 2;t$( TO t); PAP
ER 0;" "; INK 4;m$( TO m)
9949 PRINT AT 21,30;"  "
9950 PRINT #0; INK 7;"HAUNTED HO
USE  © A.J.MURGATROYD"
9952 PRINT AT 0,0; INK 4;"1 UP "
; INK 6;"00000";AT 0,21; INK 5;h
$; INK 7;" 00000"
9953 PRINT AT 3,0; OVER 1; INK 6
;"
 "
9954 PRINT AT 4,26; OVER 1; INK
2;"C"
9955 PRINT AT 0,30-LEN STR$ hs;
INK 7;hs
9960 PRINT AT 3,15; INK 6; PAPER
 0;"E"
9970 PRINT ; INK 6;AT 18,6;" ";A
T 18,8; INK 6;" "
9980 RETURN
9988 REM      Sound enhancer
9989 REM  (siren style sound )
9990 DEF FN a(n)=(CODE a$(n)-48
AND CODE a$(n)<58)+(CODE a$(n)-5
5 AND CODE a$(n)>64)
9991 LET a$="F31110D0260A3A485C1
F1F1F0EFEEE10ED794310FE2520F41C1
520E8FBC9"
9992 FOR j=1 TO LEN a$ STEP 2
9993 POKE 35000+j/2,16*FN a(j)+F
N a(j+1): NEXT j
9994 RETURN
9995 REM A B C D E F G H I J K
9996 REM A B C D E F G H I J K
9997 REM
9998 REM L M N
9999 REM L M N
```

Please enter the following score in your Arcade Arena Competition.

I scored ..... on the following game:

BALLOONACY ☐

SUPER NIBBLERS ☐

HAUNTED HOUSE ☐

EPIDEMIC ☐

THE SCORE WAS WITNESSED BY: .....

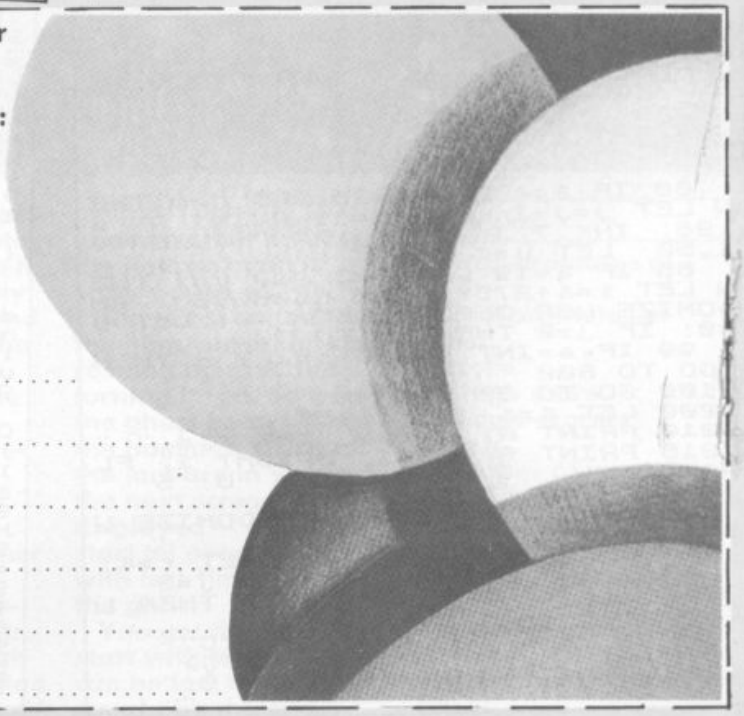
WITNESS' SIGNATURE: .....

MY NAME IS: .....

ADDRESS: .....

.....

.....**TEL:** .....



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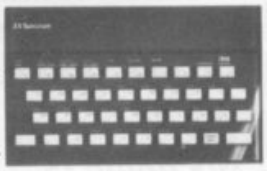

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THE SEVEN

PLUNDERING FOR A PROFIT

Welcome back to the Galaxy of the Seven Empires where space tribes strive, struggle and connive to make an honest megabuck.

Some 3,400 of you took part in the first turn of our second Seventh Empire run and once again the galaxy is a hotbed of sneaky attacks, double dealing and back-stabbing.

Our top space commander for the first turn was D. Bell of Simonside Terrace, Heaton, Newcastle-upon-Tyne, who was the schemer behind many a daring act of piracy on the Gateway routes, on his way to 2,690.

The other top scorers in the first turn were:—

A. Conner of Woodmill Lane, Bitterne Park, Southampton with 2430;

P. Russell, West View Cottage, Mainstreet, Cotebach with 2138;

J. Briscoe, Upper West Drive, Ferring in Sussex with 1984;

D. Bisset, High Street, Laurencekirk, Scotland with 1939;

A. Makepeace, Thirlestane Crescent, Northampton with 1859;

C. Bergin, Austin Road, Hunstanton, Norfolk with 1783;

M. Fiddlay, Queens Road, Aberdeen with 1753;

M. Frary, Toftwood, Dareham with 1702;

N. Shawcross, Kearsley Close, Kirkdale, Liverpool with 1691.

We're currently looking out some software cassettes for Mr Bell. More on offer next month.

	As	Ba	Ca	Du	Er	Fa	Ga	He	Ix	Ji	Ko	Li	Mu	Nu	Op	Pu	Qa	Ri	So	Tu	Us	Va	Wi	Xu	Yu
Asol					500			111						250	250	500	1000		1000		250				500
Barov				500	250		166		500		1000			250	1000	111						1000		166	250
Cazuv	500			1000				1000		1000					1000	500		1000	333			1000	111	1000	1000	500
Dusup		500						1000	1000				500			1000	250			500			333		1000
Erak				1000		250	500	500		1000	500			333	1000	500		250				1000		250	
Fadis	500			1000	111			1000	1000				1000		1000	500			250		500				250
Gazor	500	500													1000	500		500		1000	1000	500			500
Hezod	250						250					1000		1000	166			250		250	333				1000
Ixip		1000		1000	500	1000							500			500		166				1000		1000	1000
Jinis		333			500			333	1000		1000		500			1000					500	250			
Kolol	250	1000	1000					1000								166		1000	1000					333	
Lizag	1000	1000	500			1000		333								1000	125	1000	333			1000			
Mupip	1000				166	1000		1000	500		500	1000		1000		250	500		1000	1000		1000	500		
Nuzet				500				500	1000	250	250					83 : 1000			250		333			1000	
Opod				500	1000	1000		500				1000						250		250	500		1000		
Pulud					500	250	1000	1000	250	1000	1000	1000	500					1000		1000		1000	1000		500
Qavuv		1000	1000				1000		1000	250		333	1000			1000		500	250					500	333
Rivev	250			1000		1000		500					1000	1000	1000		1000					1000	250		1000
Soner					1000			1000	250	1000	1000		500		333	250				1000		500			
Tubox	1000			500		111	500	1000					1000	250	66	500			500				1000		
Usugx				1000			1000		250	500						500	1000	1000							
Vasux			500	250		250			1000		333					1000									500
Widan		111			250			1000	1000	333						250		250	1000		1000	125			
Xugod				1000			1000			1000		500				500	1000	1000							500
Yuses			1000	1000	1000		1000	333					1000			500						500		1000	

THE GATEWAY ROUTE TABLE

HIGH SPACE SURVIVAL RATE

You're certainly improving in sending in Seventh Empire orders. Very few fleets were lost in space on this first turn of the second run.

But just in case, check through your orders carefully to ensure that any stray fleets are picked up before the second turn.

All orders for that turn must be with us by **July 22nd**. First prize for the top scorer is three software cassettes for his or her microcomputer but remember a grand prize of a Colecovision TV games centre goes to the highest scorer over the first six turns.

This turn the scoring was spread out as follows: 500+ **157 players**; 400-499 **25 players**; 300-399 **23 players**; 200-299 **44 players**; 100-199 **55 players**; 0-99 **505 players**; Under 0 **1664 players.**

To work out where you came in this batch of scorers, study the galactic map on the opposite page and for Gateway Jumps the table above gives the Cargo profits in black on white and the Plunder profits in white on black.

This month the Imperial Ships should be moved by the following players:— **Dead,** R. Harris of Worthing; **Amethyst,** S. Reid of Edmonton; **Water,** R. Harding of Prestwich; **D'Taan's,** B. Dackombe of Hampstead; **Sun,** A. Capaldi of Tynemouth and **Bloodline** by D. Bell. No takers for the **Pirate Empire.**

ANOTHER CHANCE TO ENTER

If the Seventh Empire appeals to you we still have a batch of rulebooks ready to send out. No guarantees I'm afraid but we'll put you ready should any of the 25,000 fleets currently on the map, drop out. Send in the form below.

Please include me in the Seventh Empire Competition.
I name my tribe:
. . . . . .
My name is: . . . . . .
Address . . . . . .
. . . . . .
Telephone . . . . . .

DON'T TURN THAT PAGE

If you're new to the Seventh Empire then don't turn over the page just yet.

One of the key elements in many of the empire's equations is the Trade Index of any given star. The brightly coloured Galactic Map opposite, shows two different figures under each star name.

The left-hand figures refer to the number of players' fleets visiting any particular star system, while the right-hand figure refers to the Trade Index.

The Trade Index is calculated by the computer monitoring the number of merchant fleets arriving at and leaving a star system.

Traders coming to the star system are the sellers, traders leaving the system are the buyers. Each star also has a Trade Value which comes into the equation. Hearts are Elixir Stars (worth 200 points), Diamonds are Gem Stars (worth 150 points), Asterisks are Energy Stars (worth 100 points); and circles are Gateway Stars (50).

The crucial equation bringing all these elements together is: Trade Index = Trade Value × Buyers/Sellers. So a system which has seen a mass exodus of traders tends to have the best Trade Index.

So if 50 Buyers leave a Gem Star and 30 Sellers arrive the Trade Index = 250 (250 = 150 × 50/30).

Spotting the best systems to trade with is one of the surest ways of making a killing at the Seventh Empire. If you can predict which system will have the highest Trade Index next turn we'll provide you with a cassette for your microcomputer. If more than five of you get the right answer we may have to draw the line at five prizes.

Send entries in to the Trading Competition, Computer & Video Games, Durrant House, Herbal Hill, London EC1R 5JB.

TH EMPIRE

BATTLE REPORTS

Some 53 battles were fought out in the galaxy this month as tribes struggled to claim certain stars for their emperor.

Defenders came out on top again but there were some close run things — notably at Apel where Bloodline and Amethyst fleets stormed in against the Sun empire defenders.

In the most one-sided conflict, 315 defending Sun Empire fleets rounded on two lone attackers from the Dead Empire.

There were no positive battle bonuses though as all the attackers took trading losses into war with them.

Notes of all the bonuses are included below:

Xokeg defenders suffered a loss of −; Rivev defenders won but only at the expense of a −1 loss; Rurus defenders, −1; Jadeg defenders, −1; Yuses defenders, −1; Hakub defenders, −2; Apel defenders, −1; Meden defenders, 12; Uleb defenders, −1.

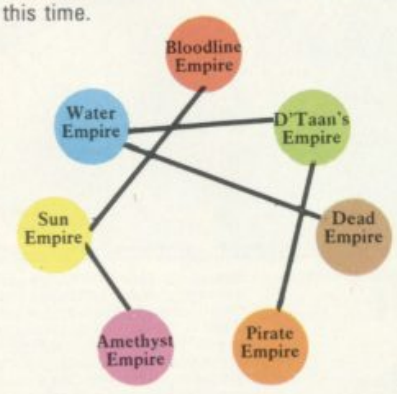
For the first time in Seventh Empire history, the galaxy's diplomats have negotiated no-changes on the peace-treaty front. The Diplomatic Diagram seen below is the same as last issue which means that Sun Empire defenders could face another hard time in Apel.

Remember, where there's a rule the two empires are at war for this game turn and no rule means that the two empires are at peace.

The **Raid Penalty** is once again **1**. The Imperial ships this turn finished up on the following systems: Vepoz, Yanok, Rivev, Soner and Elar. Amethyst and Pirate empire ships were not placed on the map this time.

FOZUZ ○ 245 175	LARUB ♦ 219 86	YIBET ♦ 252 248	XOLIP ♥ 256 84	ITIL ♥ 214 102	FUNUS ♥ 223 157	LULIP ♦ 223 161	YANOK ♥ 254 51	XOKEG ♦ 203 175	ISOX ○ 199 190
VIZAX ○ 213 175	QIRUS ♥ 215 121	HAZAN ♦ 228 225	ABOB ○ 214 250	SONER * 344 77	VEPOZ ♥ 205 165	QATOT ○ 220 293	HEZOD * 350 56	ASOL * 353 59	SUXEK ♥ 216 103
BAROV * 247 50	WIDAN * 280 80	RURUS ○ 237 96	MUPIP * 286 46	NAXIG ○ 212 85	BETID ♦ 208 169	WAVAB ○ 214 186	RIVEV * 328 47	MEGUD ○ 215 208	NABOK ○ 213 190
DALIX ♥ 218 218	OLEX ♥ 248 105	TASAT ♥ 231 114	CAZUV * 254 53	GOVAX ♥ 229 97	DITUG ♦ 242 180	OKAP ♥ 278 64	TOXAZ ♦ 197 165	CIXAN ♦ 239 126	GOTEG ♥ 211 176
ERAK * 230 110	KOVEP ♦ 211 221	USUG * 333 43	PEBOB ♥ 282 55	JADEG ♦ 214 288	ENAK ○ 238 239	KEPAR ♥ 221 168	UGON ♦ 237 181	POROV ♦ 212 220	JINIS * 261 46
FADIS * 238 62	LOKIK ♥ 232 137	YUSES * 281 51	XAPUS ○ 200 170	IXIP * 317 72	FAGIL ♥ 245 80	LIZAG * 263 70	YODAZ ♦ 218 131	XUGOD * 326 81	IBED ♥ 235 109
VASUX * 282 58	QUXIN ○ 204 142	HIPEB ♦ 243 147	ASOR ○ 219 276	SIDAL ♥ 229 184	VIZET ♦ 253 120	QAVUV * 355 42	HAKUB ○ 224 130	APEL ♦ 233 436	SABAG ♥ 252 60
BUREP ♥ 219 85	WAGAP ♥ 210 169	ROLEK ♥ 258 101	MINEP ○ 215 135	NUVEX ♥ 269 49	BAZIX ○ 207 203	WUPIV ♥ 211 212	RORUL ♥ 257 85	MEDEN ♦ 214 183	NUZET * 261 82
DUSUP * 253 150	OPOD * 277 117	TUBOX * 256 70	CIGER ○ 207 195	GAZOR * 395 76	DABAG ♥ 244 93	OTAN ♦ 218 192	TUXUX ○ 192 326	CESER ♥ 222 105	GIRIX ♦ 201 318
ELAR ○ 204 225	KERUP ♦ 264 173	ULEB ♥ 215 100	PIRAD ♥ 225 108	JAXEL ○ 249 145	EDIB ♦ 204 242	KOLOL * 267 52	UKOP ○ 213 104	PULUD * 288 84	JUVAK ♦ 205 180

The Galactic Map



The Diplomatic Diagram

Orders in Block Caps please

Name: .....

Code No: ..... Telephone No: .....

		1st Movement phase		2nd Movement phase	
	AT	ACTION	STAR	ACTION	STAR
FLEET 1					
FLEET 2					
FLEET 3					
FLEET 4					
FLEET 5					
FLEET 6					
FLEET 7					

I wish to move the ..... Empire's Imperial Ship from ..... to .....

Please notify us separately of any change of address.

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ZIP ZAP
for any
48k ZX Spectrum

CATCHA SNATCHA
for any Commodore Vic-20

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..the name of the game

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for any Commodore Vic-20

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AH DIDDUMS
for any ZX Spectrum

WACKY WAITERS
for any Commodore Vic-20

MOLAR MAUL

for any ZX Spectrum

Zip-Zap – You're the only droid left, your circuits are damaged, you can't switch off your motors, you must survive to warn the colonists, your energy is running low, you must get more fuel cells and stock up power by travelling in the teleportal. You'll encounter more aliens than you've ever seen before in this desperate attempt to survive, as you progress your droid through the various domains of ever increasingly intelligent and vicious attackers. Heart stopping tension and supersmooth animation and sound. 100% maching code. Zip-Zap requires a 48k Sinclair Spectrum.

Jumping Jack – poor old Jack has to jump up through eight moving layers to reach the top before he can recite the first two lines of his secret rhyme. On his way up sudden hazzards plague our hero, a snake, a dinosaur, a spider, a ghost and many many more. Its up to you to guide jack up to reveal the rest of his secret rhyme. Jumping Jack is an experience that will have you laughing with delight and crying with frustration, and with supersmooth hi-res graphics and sound effects adding to the fun it has to be the most addictive game since Arcadia. 100% machine code. For use on any Sinclair Spectrum.

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BEATING THE DEADLINES!

BY KEITH CAMPBELL

The difficult part about writing this Adventure page is that I have to operate to a deadline. That is not a problem until a game begging a review "sticks" at an early stage, leaving much work to be done before my "copy" can be written.

So there I am, typing away on my micro. I'm tired, it is late — oh no — not another one of those *difficult* Adventures! Having just reviewed eight games for a recent supplement, I went to bed and forgot it.

Of course, that was not the end of it — I knew that sooner or later I would have to come back to it!

So when a bank-holiday weekend came along, I booted up the system, and resigned myself for a long haul.

STRANGER BEWARE . . .

The rest of the screen is blank. I press a key, the disc starts to whirl in its drive, and I am suddenly on a desert highway near an abandoned gasoline station some way from a small desert town.

Thus starts Xenos, the latest offering on disc from Tandy.

After wandering around the gas station I decided that for now it would have to be considered a red-herring apart from the crowbar, and moseyed into town.

Although comprising only six buildings, I found it surprisingly difficult to find my way around.

Losing my bearings, I strolled up a side alley only to lose my way in the desert, nearly dying of thirst, and really dying of poison in some flesh wounds caused by something very strange and nasty out there.

Reboot, and try again. This time I will not be beaten! Why is the gas station and town deserted? Is the jeep really a red-herring?

If so, then the Jack-o-Matic 333 is a very elaborate hoax. What does the old prospector out in the desert know about a "magnetic anomaly"?

Questions begin pouring through my mind, and I am away, oblivious to calls for meals, missing the TV program I had meant to watch. . . .

That is the other trouble with writing this page. Occasionally I come across an Adventure so intriguing, that I am unable to stop, driven on by a craving for the solution — to hell with the deadline! And Xenos is one of those few! When I have finished writing this I intend to blow up that safe if it takes me all night! (Wait a minute — could the dynamite be for another purpose?)

Xenos runs from disc only on TRS-80 Model 1/3 compatible machines. Requiring a rudimentary knowledge of the American language, if a command isn't recognised you will be very cleverly told what word might be missing.

For instance, if you type "UNLOCK DOOR" the line may be altered to read: "UNLOCK DOOR WITH what?", the "what" flashing for a while, eventually clearing to let you add further words. An unknown verb will lead to the insertion of a flashing VERB? at the start of your input.

The plot of Xenos is somewhat reminiscent of Ghost Town, in that everywhere is deserted. But similarity of setting and plot end there.

The score is announced in percentage of mission fulfilled. The first 50% is not too hard to achieve, but the going begins to get rough from there on.

Are there many red-herrings in the game, or will things all fall into place? Is Screaming Foul-Up responsible for the fact that I can put my hands in the aquarium and apparently leave them there, or am I possibly a strange being?

Xenos is big, but does not appear limitless. Not a long term project like Zork, but one that you will go mad about until finally you have unfolded the riddle of Purgatory City!

'X' ADVENTURE ON TAPE . . .

Occasionally I describe a particular Adventure as different. That is not a suitable description for Xanadu Adventure which requires a BBC Model B computer to run, and takes you into a world of underground caverns, inhabited by dwarfs and monsters.

These are dangerous creatures, and cannot be relied on to turn up in the same place in each game! Some of the situations are similar to those encountered in other games, but with a difference.

With some hard thinking the Adventurer will progress gradually towards his goal, the depositing of all treasures in the treasure store.

When this point is reached (says the blurb — for I haven't reached that point!) "something will happen".

On his travels the Adventurer will find objects not often encountered in Adventure games, the usefulness or otherwise

HOW TO DEFEA MOST CUNNIN

I received recently a letter from reader Alex Shipp, who has been beavering away writing an adventure for his Dragon-32.

Upon completing it he found one major problem: how to stop his little brother pressing the BREAK key, then listing the whole program?

"As you can imagine," he wrote, "some of the messages rather give the game away!" Even worse, what was to stop him getting a listing before he even started to run the game?

He assured me that his brother would be quite willing to adopt such underhand methods.

This is a problem that besets every Adventure writer. If, of course, Alex's brother is as little as he sounds, then

NEVER FEAR, HELP IS AT HAND!

Last month I reported that Richard Jones and Simon Clarke both had problems with Bedlam. Simon sent a tip to Richard, Richard was able to complete the game, and thus help Simon out with his problem.

Because different people can bend their minds to differing problems, through these pages — if we at *C&VG* don't know the answers, we can help you to help each other!

For those similarly stuck in Bedlam, printed upside-down you will find how to get past the guard dog!

Letters are still arriving with pleas of HELP! for *Pyramid of Doom*. To find out where to store the treasure, how to pass the rats, and how (most importantly!) to get past the iron statue — again you will find the answers printed upside down to protect the innocent!

Can anyone help Jonathan Evans of Blackburn find the treasure chest in the *Tandy Pyramid* maze? Please write if you know how to get to it! P. Coppins of Stanford-le-Hope is having trouble with tablets in *Golden Voyage*.

He currently wants to throw them simultaneously into the fountain. He is sure he is on the right track — unless *you* know different!

of which is not obvious. Has the pentangle some secret sinister purpose?

Will the soothing music of the dulcimer send a dwarf to sleep as well as the player?

The game has over 100 locations, and the scrolling replies, often four lines or more of text, are not only amusing, they appear quickly, and have nearly the verbosity of a disc-based game.

OK, it's an impressive game — but unique? What I've not yet mentioned is that this game has a two player option. If that is selected the game takes on a whole new dimension.

The players decide how many moves they will make each turn, and as the game proceeds, a blue message at the top of the screen indicates which player is in command.

If one player arrives in the same location as the other, the reply will include "There is another Adventurer here".

An object taken by one player cannot be taken by the other, except for purchases made in the shop.

The two players start off as rivals, and if a fight develops the loser's objects drop to the ground, available for plundering by the winner!

When playing as rivals it is recommended that only the player whose turn it is watches the screen.

But wait — there's more! By typing ALLY, an alliance is made, the top message on the screen now displays in white, and weapon power is aggregated against the monsters in a common struggle to obtain the treasures. Perhaps this is the best way to solve an Adventure in company — no arguing about whose suggestion is the next command to be entered!

And there is always someone else to blame if things go wrong!

Unless, of course, when the goal is in sight, one player decides to rat on the agreement, type BREAK ALLIANCE, and rush home with all the goodies!

I can only describe Xanadu as unique, at least at the time of writing! No doubt this will not remain the only one of its kind for very long!

Xanadu Adventure is a fascinating game that I can thoroughly recommend at a price of £7.75 from Hopesoft of Newbury.

MIND OVER MATTER . . .

I got it wrong again Dad! I know, and I despair! *Empire of the Overmind* players R. Gillman from Birmingham, and Steven Essery from Orpington have both told me I don't need to drop other objects to use the one of my choice.

They tactfully explain that although I might be carrying something, I am not necessarily HOLDING it. What I should do is to HOLD the object before trying to use it!

So I reloaded *Overmind*, and sure enough, found I was told what I was holding separately from what I was carrying! A fine point — one I have not come across before in an Adventure! I shall have to read the small more carefully next time!

I take back all I said! Another slip like this and I stand to have my licence to Go North revoked!

It all goes to show that even *C&VG*'s expert Adventurer is not infallable — there's hope for all of you yet!

Seriously, Keith Campbell is always interested in hearing from you the readers, even if it is a *criticism* . . .

T EVEN THE G DRAGON

the easy answer is to give the BREAK key a good POKE where it will hurt most — i.e. disable it!

Unfortunately, that won't prevent the program from being listed before the game has been run, and it won't be long, by the sound of it, before Alex's little brother catches on!

However, I suspect that little brother is really only symbolic of all those low-down cunning and devious people whose main purpose in life is to find a way to prove that our excellent programs contain errors, have omitted the logic for an obscure command, or can otherwise be proved faulty. Let him look at the listing, and see whether, even with plain English staring him in the face he can untangle the program code to solve the game faster than trying the fair way! If he does, then he will have spoiled only his own enjoyment of the game.

Even after using a reset button which when pressed prevents a program from listing or running, it is still possible to look at the English text.

One has only to PRINT CHR$(PEEK(video ram)); successively from the command mode (see Adventure page in the first issue of *C&VG*).

Cheating can only be made difficult by encoding the text, and include a decoding routine in the program, but at the cost of response time and memory.

All this reminds me of my desperate attempts to solve Savage Island Part 1, by peeking RAM. (Yes — even I am not above that sort of thing!) I gained some vocabulary, and saw some extremely surprising things that seemed quite out of character with the game I thought I was playing.

ADVENTURENET HELPLINE

Pyramid of Doom:

The bit of stones with heirogliphics merges with the stone altar to give a complete message "store treasures here". The oyster route is an alternative to the rats — feed the oyster with camel jerky. Throw the Ruby into the acid — go on — trust me!

Bedlam

To get past the guard dog, if you can find the window hook, you can get the blue pill from the cabinet. Put the pill in the hamburger meat from the fridge, and it will dissolve. Feed this to the dog and it will die. (Thanks to Simon Clarke of Harpenden).

MACHINE CODE

DEALING WITH LOGICAL VALUES

So far in this series we have been looking at programming in terms of arithmetic and interpreting the 0s and 1s in the computer as having numerical values.

However, there are instructions that allow us to treat the 0s and 1s as having *logical* or *Boolean* values, with 0 meaning false and 1 meaning true. The simplest logical operations are:

NOT: Invert a single bit, so 0 (false) becomes 1 (true), and vice versa.

AND: Takes two bits and returns 1 (true) if both the bits are 1 (true) and returns 0 (false) otherwise

INCLUSIVE OR (usually just OR): Takes two bits and returns 1 (true) if at least one of the bits is 1 (true) and returns 0 (false) if both the bits are 0 (false)

EXCLUSIVE OR (usually abbreviated EOR or XOR): Takes two bits and returns 1 (true) if exactly one of the bits is 1 (true) and returns 0 (false) otherwise.

NOT and AND reflect the use of these words in ordinary English. We have two types of OR because OR in ordinary English is ambiguous — sometimes meaning INCLUSIVE OR and sometimes meaning EXCLUSIVE OR.

POSSIBILITY OF CONFUSION . . .

There are symbolic forms for these operations, NOT being indicated by writing a bar above a symbol, so NOT P would be written as P, and two commonly used sets of symbols for AND, OR, XOR are , V, V and ., +, + , so we write P Q for P AND Q, PVQ for P OR Q, PVQ for P XOR Q, or P.Q for P AND Q, P+Q for P OR Q, P + Q for P XOR Q.

It is best to use the first set of symbols. With the second set there is a possibility of confusion with the arithmetic symbols for multiplication and addition. The second set is more often used in electronics where this confusion is less likely.

Logical operations can be combined to build up expressions, for example (P Q) meaning NOT and (P AND Q) or (P Q) (Q R) meaning (P AND Q) OR (Q AND R).

The branch of mathematical logic called *Boolean Algebra* deals with methods of evaluating and simplifying expressions like these.

The 6502, 6809 and Z80 microprocessors all have instructions for AND, INCLUSIVE OR and EXCLUSIVE OR, which all work in a similar way.

The 6502 opcode mnemonics are AND, ORA, and EOR, and can be used with immediate, absolute, zero page, indirect X, indirect Y, zero page X, absolute X, and absolute Y addressing modes.

The 6809 opcode mnemonics are ANDA, ANDB, ORA, ORB, EORA, EORB, the A or B indicating the accumulator the instruction operates on.

Like most 6809 instructions, these opcodes can be used with all meaningful addressing modes.

The Z80 opcode mnemonics are AND, OR, and XOR, and these can be used with 8-bit immediate data, a register — A,B,C,D,E,H, or L, or an indirect memory reference — (HL), (IX + displacement), (IY + displacement).

The machine code instructions work on bytes, performing the logical operation simultaneously on the eight pairs of corresponding bits in the accumulator and the operand, and leaving the result in the accumulator.

For example, if we have:

```
6502
LDA  %00110011
AND  %01010101
6809
LDA  %00110011
ANDA %01010101
Z80
LD A,00110011B
AND 01010101B
```

In 6502 and 6809 assembly language a binary number is indicated by writing a % sign in front of it, and in Z80 assembly language by writing a B after the number.

The result will be to leave 00010001 binary in the accumulator.. Similarly, using OR instead of AND would leave 01110111 binary in the accumulator, and using EXCLUSIVE OR would leave 01100110 in the accumulator.

These logical instructions are frequently used when we want to work with some of the bits in a byte and ignore others or leave them unchanged.

For example, suppose we are working with ASCII codes for letters of the alphabet and it does not matter whether we have upper case or lower case letters.

The ASCII codes for upper case letters are the binary numbers from 01000001 to 01011010 (65 to 90 decimal) and the codes for lower case letters are the binary numbers from 0110001 to 01011010 (97 to 122 decimal).

The difference between the code for an upper case letter and the code for the corresponding lower case letter is that the upper case letter has 0 in bit 5 while the lower case letter has 1 in bit 5.

We can use the logical instructions to affect bit 5 only and leave the other seven bits unchanged.

If we start with the ASCII code for a letter, AND with 11011111 will always leave an upper case letter, OR with 00100000 will always leave a lower case letter, and XOR with 00100000 will change an upper case letter to a lower case letter and vice-versa.

LOOKING BEHIND THE MASK . . .

A bit pattern used with a logical instruction in this way is called a *mask*. We can work out the type of instruction and the mask we need in any particular case with the following relations, where B represents any bit value (0 or 1):

```
B  1 = B
B  0 = 0

B  1 = 1
B  0 = B

B  1 = B
B  0 = B
```

BY TED BALL

In general, we use AND with a mask to set some bits to 0 while leaving others unchanged, OR with a mask to set some bits to 1 while leaving others unchanged, and XOR with a mask to complement some bits while leaving others unchanged.

AN ADDITIONAL INSTRUCTION

The 6502 has one other instruction related to these logical instructions — BIT, which can be used with zero page and absolute addressing modes.

BIT only effects the flags, bits 7 and 6 of the memory location specified in the operand going into the sign and overflow flags respectively, and the zero flag being set according to the result of an AND operation between the accumulator and the memory location (this AND does not affect the accumulator, only the zero flag).

Related instructions on the Z80 are CPL, and the BIT, SET, RES groups.

CPL complements the contents of the accumulator, changing 0s to 1s and 1s to 0s.

BIT, SET and RES are used in the form BIT b, register; BIT b, (HL); BIT b, (IX+d); BIT b, (IY+d); and similarly for SET and RES, where b is the bit number, from 0 to 7 that the instruction works on.

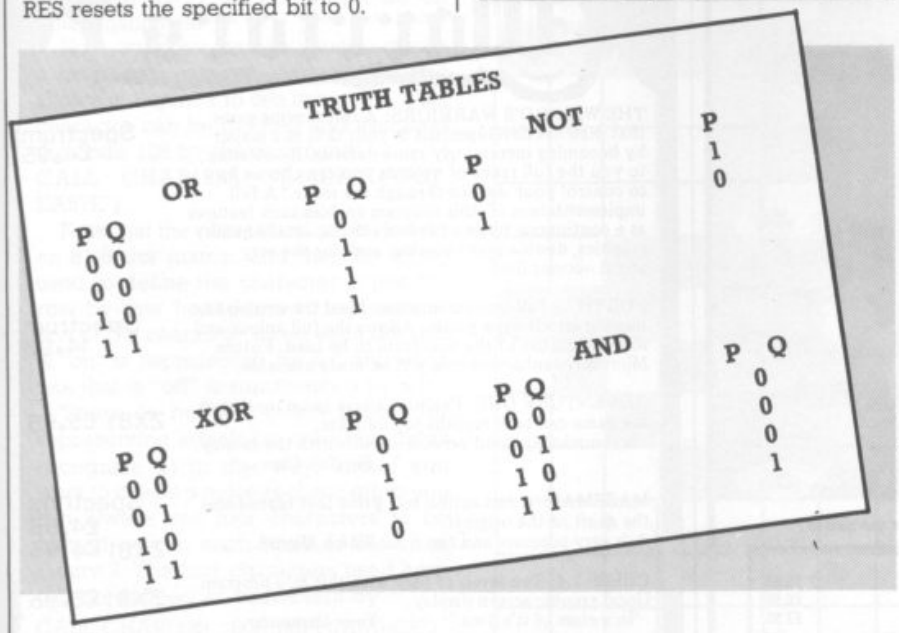
BIT puts the complement of the specified bit into the Z flag, setting the Z flag so it will reflect the value of the bit.

SET sets the specified bit to 1, and RES resets the specified bit to 0.

If you have any problems relating to Ted Ball's Machine Code articles, questions about machine code programming or assembly language, then please don't hesitate to drop us a line and we'll pass on your questions to our expert.

Remember, the address to write to is Machine Code, c/o Computer and Video Games, Durrant House, 8 Herbal Hill, London EC1R 5JB.

In the meantime if there is any aspect of machine code programming you feel needs more attention why not tell us.



CONTINUED NEXT MONTH

In the 6809, related instructions are COMA, COMB, COM, ANDCC, ORCC, CWAI.

COMA and COMB complement the A and B accumulators respectively. COM can be used with direct, extended and indirect/indexed addressing modes, and complements the contents of the memory location specified by the operand.

ANDCC, ORCC and CWAI can be used with immediate addressing only. ANDCC ANDs the operand with the Condition Code register, leaving the result in the Condition Code register, ORCC ORs the operand with the CC register leaving the result in CC, CWAI ANDs the operand with the CC register, leaving the result in CC, and stops and waits for an interrupt.

FLAGS WITH CLEAR VALUES

ANDCC and ORCC are used to put specific values into the flags.

For example, the Carry flag is bit 0 of the Condition Code register.

So to set the carry to 1 we use the instruction ORCC #%00000001, and to clear the carry to 0 we use the instruction ANDCC #%11111110.

The 6809 assembly language contains the mnemonics CLC (Clear Carry), SEC, (Set Carry), CLI (Clear Interrupt Mask), SEI (Set Interrupt Mask), CLV (Clear Overflow), SEV (Set Overflow).

These are included to make 6809 source code compatible with 6800 source code.

The instructions are assembled into the machine code for the corresponding ANDCC or ORCC indstructions.

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GRAPHICS

By Garry Marshall

The Texas Instruments TI-99/4a has some highly individual features for graphics.

The graphics commands that are provided by TI Basic, which is the version of Basic that is built into the computer, include CHAR, HCHAR, VCHAR and GCHAR.

These commands have the following purposes. CHAR permits a graphics character to be defined so that you can establish say, your own kind of Space Invader. With HCHAR and VCHAR characters can be placed on the screen, and GCHAR allows you to examine the screen.

Although commands and facilities comparable to these are available on other machines, very few provide them in such a consistent and easily used form. In particular, the commands for

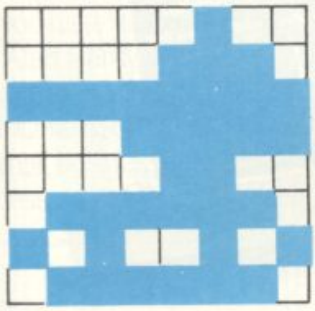

Fig 1.

placing characters on the screen and for examining the screen work in terms of the screen's row and column positions. Thus, they provide the same capability as POKE and PEEK do on other machines.

Now, suppose that we want to create a graphics character such as the one shown in Figure 1 to use in a game. This character can be defined and assigned the code 128 by the command:

```
CALL CHAR(128, "040EFF1FOC7
EA57E")
```

Note that the characters are based on an 8×8 dot matrix, and that the string used to define the character is just the row-by-row hexadecimal representation of the character when each dot that is "on" is represented by a 1 and each one that is "off" is represented by a 0.

There is not too much scope for representing a tank (in case you didn't recognise it) in this way, and if you want to create a more realistic effort you can always use four characters to be plotted next to each other as shown in Figure 2. The four characters used here can be defined as characters by

```
CALL CHAR(129, "000103FF0707033F")
CALL CHAR(130, "C0E0F8FAFAF8
E0FA")
CALL CHAR(131, "ED522D1F")
CALL CHAR(132, "76AB76F8")
```

Note that any trailing zeros need not be included in the string describing a character.

The small tank can be plotted at column 5 of row 7, for example, by:

```
CALL HCHAR(7,5,128)
```

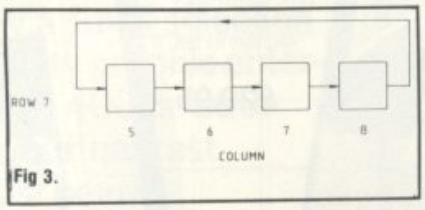

Fig 3.

The larger tank can be plotted with its top left part at column 8 of row 7 by:

```
CALL HCHAR(7,8,129)
CALL HCHAR(7,9,130)
CALL HCHAR(8,8,131)
CALL HCHAR(8,9,132)
```

With the computer's commands it is particularly easy to create movement. For instance, to make the small tank cycle through the positions shown in figure 3 the following program segment will suffice. It works by blanking out the tank (with a space character code 32) just before it is plotted in the next position.

```
100 DIM NEXT(8)
110 NEXT (5)=6
120 NEXT(6)=7
130 NEXT(7)=8
140 NEXT(8)=5
150 ROW=7
160 COLUMN=5
170 CALL HCHAR(ROW, COLUMN,
128)
180 CALL, HCHAR(ROW, COLUMN, 32)
190 COLUMN=NEXT(COLUMN)
200 GOTO 170
```

The movement can be slowed down by introducing a delay into the loop, say, between lines 170 and 180.

If the path to be followed by the tank already contains plotted characters that should be replaced as the tank passes, then lines 170 to 200 can be replaced with the following lines. The variable TEMP holds the code of the character to be replaced after the tank has passed.

```
170 CALL GCHAR(ROW, COLUMN,
TEMP)
180 CALL HCHAR(ROW, COLUMN,
128)
190 CALL HCHAR(ROW, COLUMN,
TEMP)
200 COLUMN=NEXT(COLUMN)
210 GOTO 170
```

Paths other than a straight line can be created by allowing the row position to change as well as the column position.

With SCREEN the colour of the screen can be established, while with COLOR the colours of the characters can be established independently.

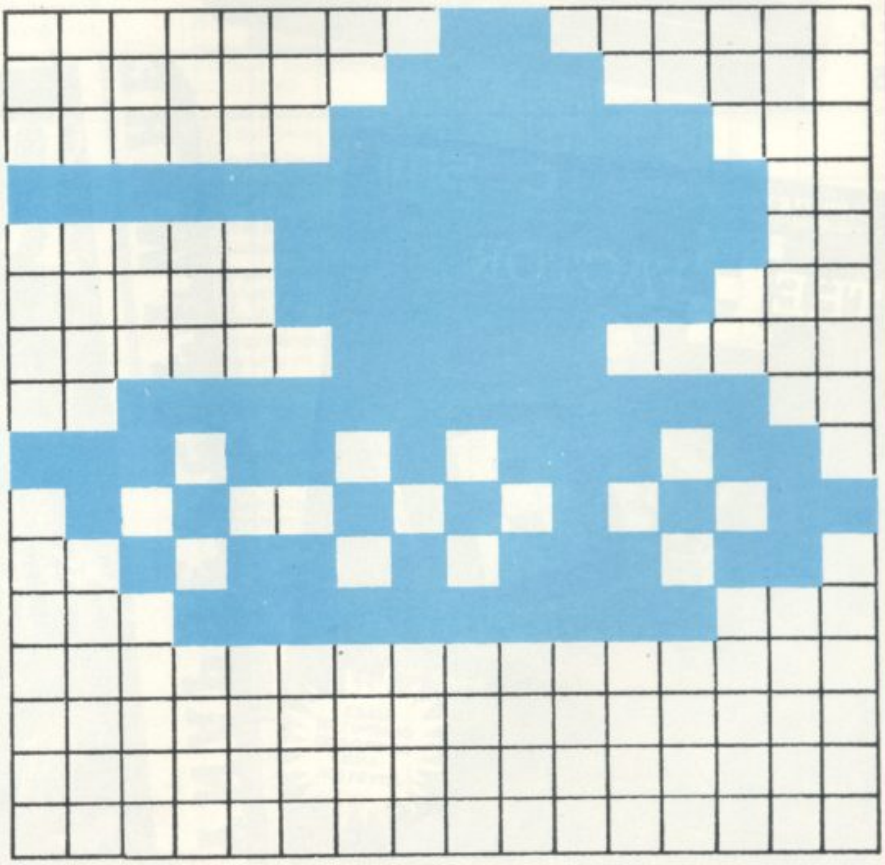
Fig 2.

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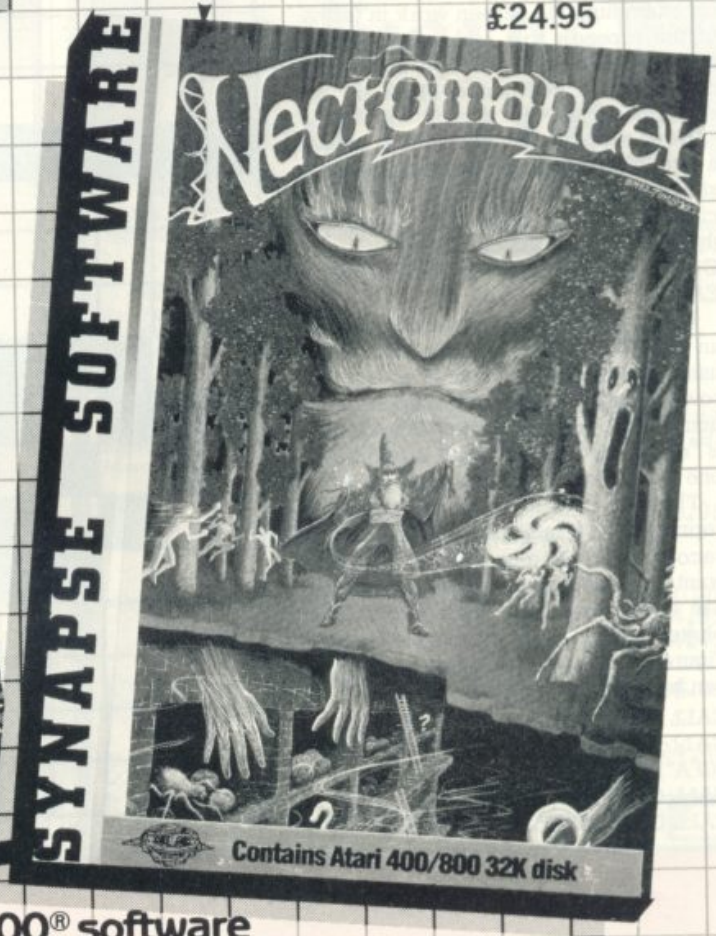

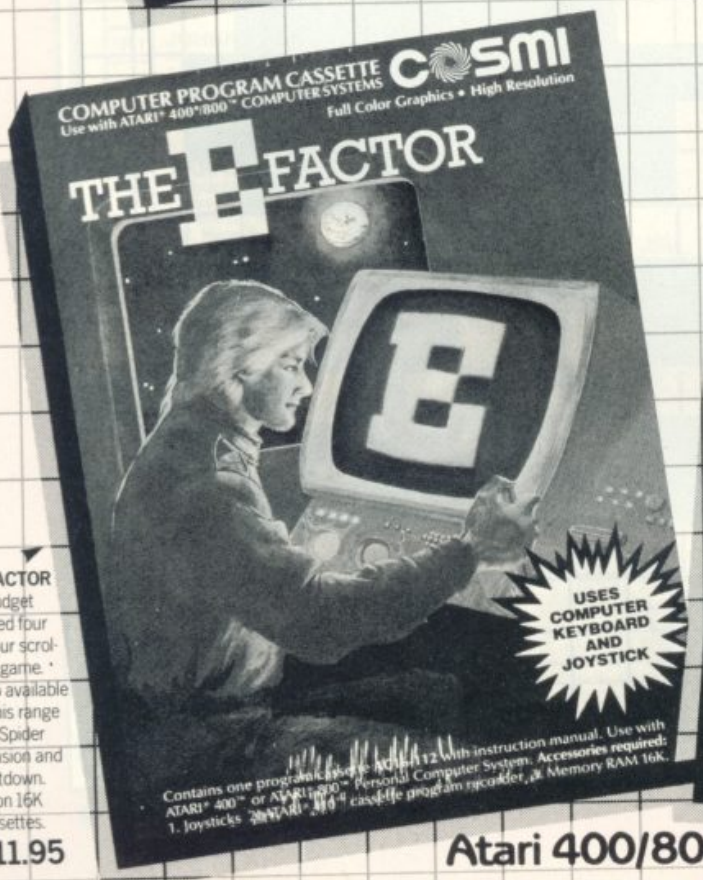

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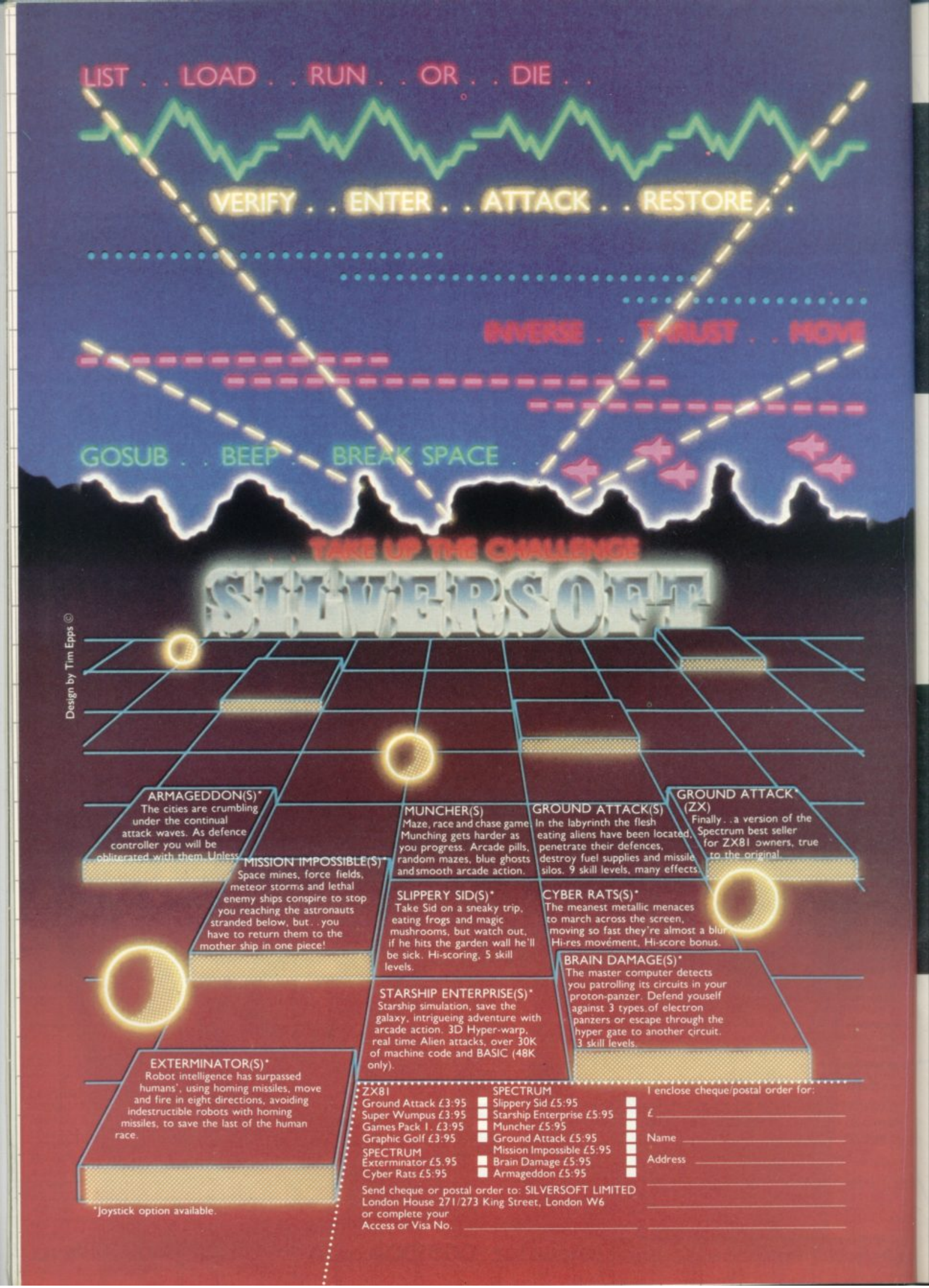

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CHESS

The fourth World Computer Chess championship is due to be held at the annual meeting of the ACM (Association for Computing Machinery) in New York from October 22nd-25th this year.

It is difficult at this stage to see the reigning world champion, BELLE, failing to retain the championship it won three years ago at the last championship, at Linz in Austria.

BELLE's opening book of 350,000 positions and ability to evaluate up to 150,000 positions per second are both huge advantages over all its foreseeable rivals. On the other hand, Kaissa the winner in 1974 and Chess 4.6, winner in 1977, also seemed favourites to retain the championship three years later, but failed to do so. Will the title change hands again?

WARNING FOR BELLE

A good indicator for the world championship is the annual series of North American computer chess championships also sponsored by the ACM.

The "Chess" series of programs by David Slate and Larry Atkin dominated the early years of this tournament with 7 wins in the first 8 years (1970-1977). From 1978 onwards, however, BELLE has been the dominant program, with wins in 1978, 1980, 1981 and 1982, and second place in 1979 (behind Chess 4.9).

The only program apart from BELLE and the various versions of "Chess" ever to win the North American championship was Ribbit, back in 1974. The "Chess" series no longer appears to take part in tournament play, leaving BELLE in an apparently supreme position.

Nevertheless, the manner of its victory in the 1982 championship in Dallas sounds a slight warning note for BELLE.

DRAW DANGER

In the four-round tournament, the program won two games and drew two to finish in a four-way tie for first place with 3 out of 4.

BELLE gained first place on tie-breaking, a deserved result since it had played each of the three others concerned, drawing with Cray Blitz and beating Nuchess and Chaos.

The greatest danger to the strongest program in a short tournament is too many drawn games. In a four-round event, it may be impossible to recover from even one draw — such a small number of rounds would not be seriously considered for a human event at any remotely comparable level.

BELLE's victory over Nuchess in round 3 at Dallas was a remarkable one.

It is interesting to note that Nuchess provides a link with the past glories of the "Chess" series, since one of its co-designers is David Slate, co-designer of the original version of "Chess", over a decade before.

Here is the game between BELLE and Nuchess.

STRANGE PLAY

White BELLE v *Black* Nuchess

1. P-K4, P-K4; 2. P-QB3, N-KB3; 3. P-Q4, NxP; 4. PxP, B-B4; 5. Q-N4, NxBP; 6. QxNP

Extremely strange play and a most unusual position after 6 moves — already the game seems to be won for white!

If now 6. ...., NxR; 7. QxRch, K-K2; 8. B-N5ch wins so black continues 6. ...R-KB1; 7. B-KN5, QxB; 8. QxQ, NxR;

Now Black must try to extricate his knight.

9. N-B3, N-B3; 10. B-Q3, P-KR3, 11. QxP, R-KN1; 12. P-KN3, N-B7; 13. Q-R7, NxBch; 14. QxN, R-R1; 15. QN-Q2, R-R4; 16. O-O-O, NxP; 17. R-K1, P-Q3; and Black resigned.

After 18. NxN, PxN or 18.... RxN; 19. RxRch, PxR; White wins another piece by Q-N5ch.

GOODBYE TO ALL THIS . .

This is my final article in a series which began 21 months ago, in the first issue of *Computer and Video Games*, when I described Von Kempelen's Turk, an automatic chess player built over 200 years ago.

In the series, I have tried to combine articles about tournament play with ones on detailed analysis of end games such as King and Rook against King and Knight or on topics such as retrograde analysis or finding forced checkmates.

Computer chess is unusual in attracting two different kinds of followers, the tournament competitor and the academic researcher.

It is notable that even BELLE incorporates very few ideas which were not in use 15 or more years ago. Its success is very largely due to its large speed advantage over its rivals. The Artificial Intelligence researcher would argue that its lack of any deep understanding of the positional themes of the game will prevent it ever advancing much beyond its current level.

Others would claim that a further increase in speed of analysis is all that is required to improve performance and that this will apply indefinitely, as long as hardware speeds increase.

Thus, a World Champion program is attainable as soon as fast enough hardware becomes available without any additional "intelligence". Which side is right? Only time will tell.

BY MAX BRAMER

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GO

WELL, DO YOU KNOW SHICHO?

You can learn to play Go in minutes because the rules are very simple. But it can take many years to learn how to play the game well. The number and the novelty of the tactics that arise is quite startling.

One of the first discoveries that everyone makes is a zig-zag capturing sequence resembling a staircase, but nevertheless referred to in this part of the world as a ladder. The Japanese use the word shicho, (with the accent on the second syllable). Thus the saying *"No know shicho, no play Go!"*

Figure 1 shows why understanding ladders is so vital. White plays the cut at 1, separating the black stones marked. Unfortunately for white, this is a mistake! Black has two ways of putting the cutting white stone into *atari* (under immediate threat of capture).

If black plays at white 3, white would naturally play at black 2 obtaining three liberties for his group and thus escaping immediate danger.

So black plays as shown and white extends but now his group has only two liberties. Black can thus put white into *atari* again.

By choosing the correct sequence to create the zig-zag course, black drives white clear across the board. At the edge white finally runs out of liberties and thus inevitably loses his now quite large group.

Of course as soon as white discovers that he is in a ladder, he should cut his losses. Having carried on to the bitter end, the only sensible move left for white is resignation.

However, the game situation is rarely this simple. Not all ladders succeed. Figure 2 shows a similar situation but with the presence of a "ladder breaker".

The stone marked was in place before the ladder sequence. Thus after white 17, white's group has three liberties and black has no good move. Indeed the situation is now disastrous for black! He has numerous cutting points (marked with crosses) and can expect many of his stones to be captured and his entire position to crumble.

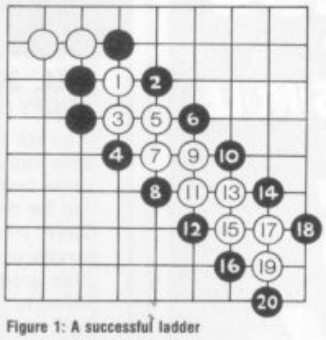

Figure 1: A successful ladder

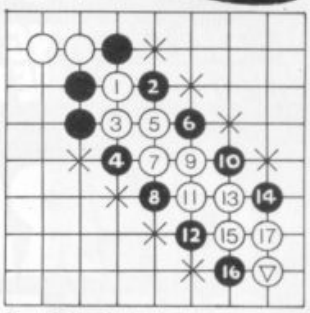

Figure 2: A ladder breaker

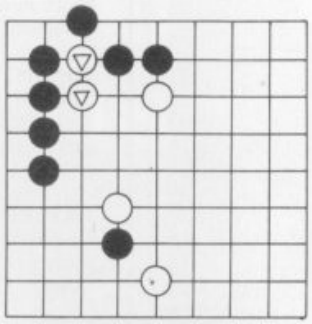

Figure 3: Can white be laddered?

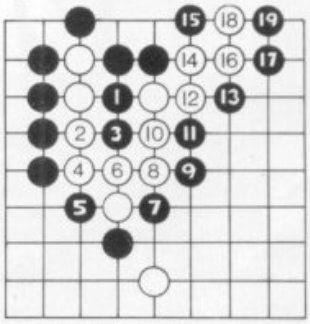

Figure 4: Ladders can bend

Black should have checked for white stones **anywhere** along the path of the ladder including where the black stones are played.

A common tactic is to play a stone that not only threatens to rescue one or more stones in a ladder, but also threatens some other dire consequence at the same time.

The idea is that the opponent can only answer one of the threats. For example, where the paths of two ladders intersect it is possible to play one stone breaking two ladders, thus ensuring the rescue of at least some stones.

In advanced play, on a full-sized board (19×19 grid), whole sequences of moves will be selected in anticipation of the effects of ladders.

It is very difficult to imagine that any computer program could play Go even moderately well without taking ladders into account. Indeed, the simple Go playing program described in previous articles can be severely thrashed by a human exponent of ladder tactics. Happily, however, it is relatively easy to extend such a program.

The most important amendment is to ensure that the correct *atari* is chosen. The program must try both ways of putting a group into *atari* and choose the way which, if the attacked group extends, minimises its number of liberties.

If this gives rise to exactly two liberties the program must look further ahead, resuming the sequence of moves until the group "escapes" or dies.

If the group eventually escapes and if the original stone making the *atari* has only two liberties itself, the *atari* must be rejected otherwise the program can go ahead. Where both options produce two liberties the lookahead must branch. If one branch ends in death for the laddered stones the *atari* is OK.

The method is fairly quick because only when an *atari* is selected for further consideration does the lookahead occur. Also the lookahead will examine very few moves, since the sequence in a ladder is usually forced.

The method has good results in complicated situations where the human player tends to "boggle"!

For instance, look at figure 3. Can black capture the marked stones? The computer program says yes — the sequence is shown in figure 4 where we discover that ladders can bend!

BY ALLAN SCARFF

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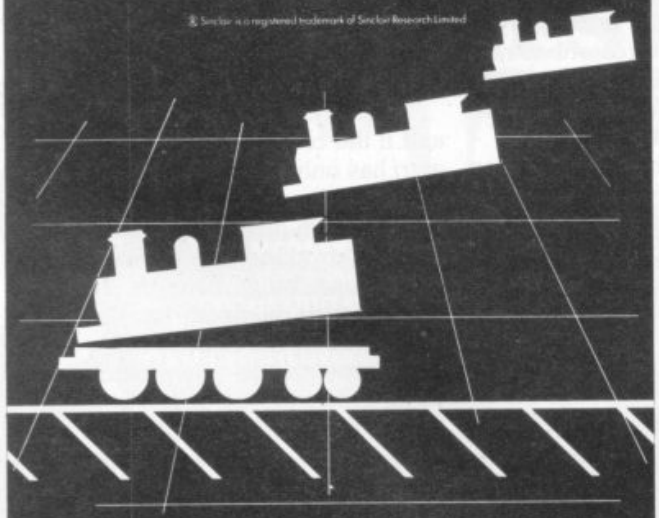

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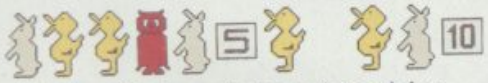

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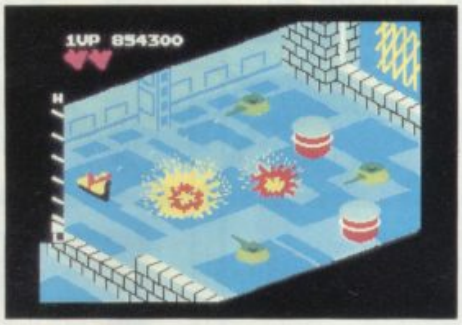

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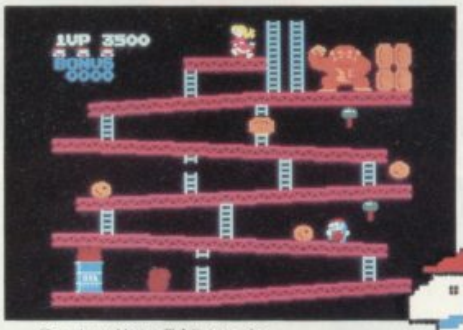

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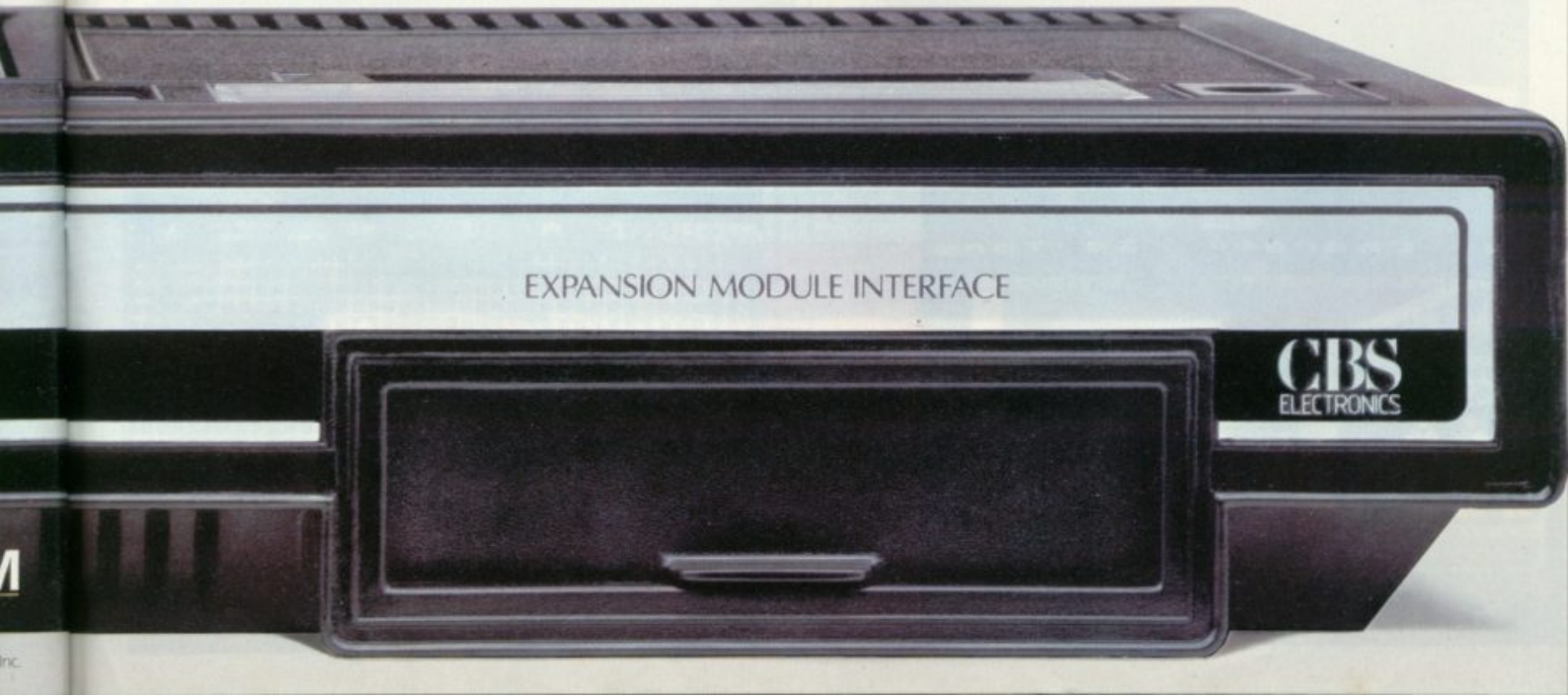
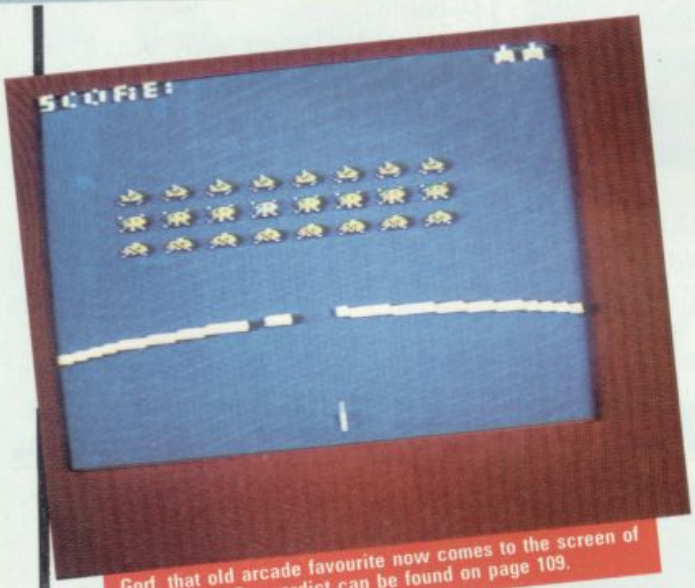


Psion's new Scrabble program (left) can test human opponents. (Page 107)

Micropower's version of Donkey kong (right) for the BBC micro is a real killer! (Page 108)



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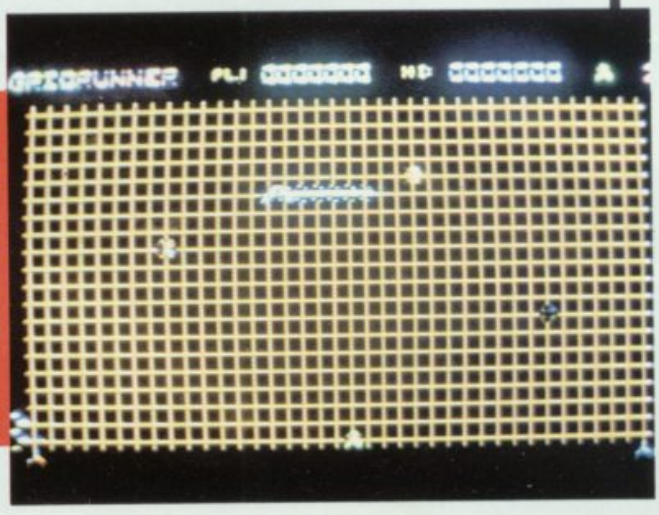
The trials of a sheepdog feature on Virgin's new tape. Our review on page 106.

Down the mine with Bounty Bob. Calisto's challenge to the active ape. See page 108.

Gridrunner takes up a theme from the movie Tron and expands it into a challenging new game. (Page 107)



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WILL YOU FLOCK TO BUY THIS VIRGIN GAME?

SHEEPWALK

Sheepwalk is one of the much publicised new titles from Virgin Games — a spin-off from the Virgin record and publishing company.

If this is the standard of their games then I would respectfully suggest that Mr Branson stick to records. At £7.95 it has got to be the rip-off of the year and a dead cert for our Great Software Disasters page.

The idea of the game is to round up all the sheep which have strayed from their pen. You play the part of the sheep-dog — although you could be forgiven for not realising this as the hound is nothing more than a tiny black speck on the scrren. The animal must also have a gammy leg as it moves with the speed of a farmyard ox rather than a scampering dog!

Points are awarded according to the speed at which the sheep have been rounded up and the amount of crops saved from the rampaging flock in the vegetable patch.

The idea for the game is a good one though not entirely original. It falls down on its execution. Written in Basic it's just far too slow. I can't think of any other professional software house who would bring out a game of this type and at this price without first improving its graphics and then speeding it up with machine code.

Perhaps this is the point. Do Virgin see themselves as a software house at all, or is this just another example of the gold-rush mentality which is killing the computer games business with poor quality products.

The idea behind this approach to the business seems to be grab any program you can, and publish as quickly as possible to make a quick killing. Never mind the quality, just look at the full colour cassette inlay.

You have probably gathered by now that I'm not going to rush out and hand over almost £8 for Sheepwalk. Despite this there is something good about the game which I think is worthy of mention.

The author of the game is fully credited on the cassette inlay. We are given a picture of Gregory Trezise as well as a short biography. Software, like records and books, has to be thought of, programmed, and put forward for publishing by the author. The programmers therefore deserve our recognition for their efforts.

- **Getting started** 7
- **Graphics** 3
- **Playability** 3
- **Value** 0

JOYSTICKS SPOIL THE FUN

TOMBSTONE CITY

Tombstone City is one of those games from the official list of cartridges manufactured by Texas Instruments which are given an amount of shelf space disproportionate to the quality of the game.

In fairness to Texas it is an old game and some of the newer ones are of a much higher standard.

It's the buyers in the multiple electrical shops who really deserve the criticism for inducing people to buy these crummy old games. It is time they gave more thought to their software buying — particularly for the TI where there isn't a great deal to choose from.

The idea of the game is to blast all the Morgs that are dotted around the screen. Each time you hit one it turns into a giant desert cactus.

Using the buildings at the centre of the screen for shelter the best strategy is to dart in and out before the Morgs can get you. But don't block your escape routes from the township by blasting the morgs as they move across the roads out of town. You could end up trapped!

As with many TI games the useless joysticks are one of the main factors which spoil the fun.

It's a game which requires quick hand-eye co-ordination and therefore extremely frustrating when your gun will not move as instructed.

When you have cleared one screen a new day in Tombstone City begins.

If you do venture beyond the walls of the town to take on the Morgs in the desert you may need to use the panic button-space bar which repositions you at random somewhere else on the screen.

Not the best cartridge available for the TI and for my money Parsec and Chisolm Trail are much better games. Tombstone City is in the shops at around £25.

- **Getting started** 6
- **Graphics** 5
- **Value** 3
- **Playability** 4

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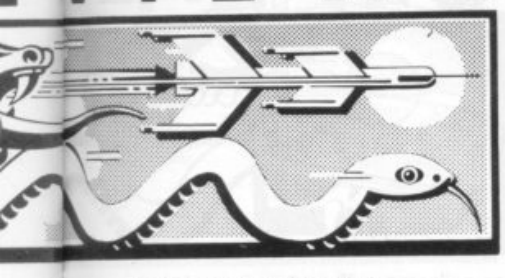

PSION WIN THE WAR OF WORDS

SCRABBLE

Psion's Scrabble program has jumped straight to a standard which chess machines haven't achieved in 20 years — it can test top human opponents.

Charles Davies of Psion is worried about the 11,000 word vocabularly: "We could have had 20,000 but we went for a fast response time." He needn't be, the game seems to have words aplenty for its own moves and is certainly not guilty of over-challenging the human player's efforts.

The presentation bears witness to the thought that went into it and the 16 page booklet which goes with the game is backed by on-screen prompts and reminders.

On black and white TVs the coloured squares are changed into symbols so triple-word scores can still be spotted even if they remain elusive targets.

In play the computer makes good use of the double and triple squares and is programmed to hold onto an "S" which doesn't give it a significant increase in the score.

It also plays quickly and responds well within the two minute time limit demanded by Scrabble tournaments.

It is hard to criticise this game except on price. Nicely packaged as it is, the £26.95 price tag means that it is only going to find its way into the dedicated Scrabbler's library. A pity because a lot of non-Scrabblers would enjoy it, if given the chance. For the playability mark we tested it out on two top Scrabblers.

- **Graphics** 9
- **Getting started** 8
- **Value** 7

EXPERT VIEW

With 11,000 recognised words crammed into 48K, Spectrum Scrabble is a marvel of modern programming techniques but how close can it run the serious Lexicographer.

Scrabble is a competitive game for over 700 members of Scrabble leagues and clubs and the national finals are keenly fought by wordsmiths capable of scoring 6-700 points in each game.

We asked two regular entrants into the national finals, Heather Twidle and Jose Cope of Ware Scrabble Club to test out the Spectrum as an opponent and stood by to take notes.

They were very impressed with the clarity of the board and the presentation of the screen, liked being able to see the Spectrum think through its moves and were pleased it totted up your score before asking you to commit a word. It also keeps score of the game and (important for the series Scrabbler) keeps a note of how many tablets are left in play.

The program received top marks for its combinations of words and its game standard was generally rated as high. After a few practices, they took the machine on at the top level and after a mighty struggle which included three seven letter words, finally beat it by just four points — 397 to 393.

The computer did not have to challenge often. It questioned Jos (Scottish sweethearts) but accepted Qua and it earned good marks for its vocabulary.

While it was voted extremely user friendly it was a fierce competitor.

And both would like to own the game to practice against. Which gave us the idea of running a competition to give Scrabblers the chance to win a Spectrum and this program. Read the September issue for your chance to enter our wordy competition for top Scrabblers.

- **Playability** 10

FRENETIC FUN AMONG THOSE DEADLY DROIDS

GRIDRUNNER

Commodore 64 owners are in for an enormous number of new games to chose from as many of the leading software houses have decided that this is one of the machines that they are going to concentrate on.

In this review one of the first 64 games to be launched in the UK is taken through its paces.

Gridrunner is an adaptation of the popular arcade game Centipede in which you had to fight it out with the insects in a mushroom field.

In Gridrunner the insects and spiders are replaced with Pods, Droids and Leader Droids.

It is the year 2190 and the mutants are thriving on the energy generated in the Earth's lunar power station.

As the last protector of the Grid you must blast the alien Droids before they can mass in sufficient numbers to launch an attack on Earth.

You will need all the manoeuvrability of the combat ship if you are to avoid the Grid Search Squads who are made up of a conga-line of Droids. These are

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like the worm in Centipede and must be split up as quickly as possible. Hit the leader Droid to earn 400 points.

One original addition to the basic Atari design are the X/Y Zappers who move up and down the left hand perimeter of the grid and along the bottom of the grid. Every so often they pause to shoot a plasma-beam up screen towards you. The Zappers are your main opponents in this game and the knack is to constantly move away from them when ever they are close.

Every time you clear a grid you receive a bonus combat ship. Your cannon is capable of rapid-fire which you will need as those Droids keep on coming with 31 attack waves.

This may not be the most original game for the 64 but it is one of those frenetic shoot 'em ups that keep you coming back for more. Gridrunner is available from Llamasoft of Hampshire at £5.

- **Getting started** 6
- **Graphics** 6
- **Value** 7
- **Playability** 7

BOUNTY BOB BEATS THE ACTIVE APE!

MINER 2049'er

Bounty Bob is the hero of top selling Miner 2049'er. The ten-screened climbing game which has rocketed to the top of the American best sellers charts is now available on 16k cartridge in the UK.

While Atari drag their feet on bringing out the official Nintendo Donkey Kong the Miner will capitalise as the best available climbing game for the Californian micro. Chances are it will prove a better game than D'Kong anyhow.

Its' ten screens and multifarious challenges will take some beating. Game play is very Kong-esque. Our hero can be made to run right and left, climb up and down ladders and jump by depressing the fire button to hop over the nasties.

There is also a touch of Pacman as some of the nasties change shape after Bob collects a certain artifact enabling him to eat his adversaries to score bonus points. Just as in Pacman you must be quick as the nasties can change back at any second. Once Bob has collected all the spanners, pickaxes and gold nuggets, found his way to the top of the screen Bob has staked his claim and can move on to the next mine.

Now a word on the screens — there are ten of them so I won't describe them all in detail. Some of the highlights are slides, lifts, transporters and even a cannon on the final screen which fires Bob up to the top of the screen when he has collected sufficient gun powder.

The key to negotiating most of these screens is to carefully time your leaps. Many peaks and ledges have to be successfully leaped on to, some of which are patrolled by the mutants — so you must be careful to land on these when they are in digestible form. Also be careful not to fall off the edge as Bob can only fall a certain distance without killing himself.

For seasoned gamers the first few screens will provide little or no challenge. To prevent the tedium of climbing through these levels, the game does allow you to start preliminary on any of the ten levels.

To do this simply run Bob up to the top of the first ramp — out of the way of the mutants — and type in 2137826861 and then shift 1 to 10 — depending on which screen you wish to start.

Big Five Software do not print the above information on any of the documentation which comes with the game so you would be well advised to hang on to this review or make a note of the code number. If, on the other hand, you want to be sure of working your way up through the screens on your own merits burn this *C&VG* now.

A splendid game — very addictive and every bit as good as anything to come out of the Atari stable.

Available from Calisto Computers at £29.95 for the Atari 400/800.

- **Getting started** 8
- **Playability** 8
- **Graphics** 7
- **Value** 7

KILLER KONG COMES UP TRUMPS ON BBC

KILLER GORILLA

Donkey Kong has been a long time converting to the BBC microcomputer —probably because the software writers wanted to be quite sure of the quality of their game before trying to tap the enormous potential sales of this popular game.

After a lengthy thumb blistering session I can report that this Micropower version is well up to the standards expected by your good self — the discerning *C&VG* reader.

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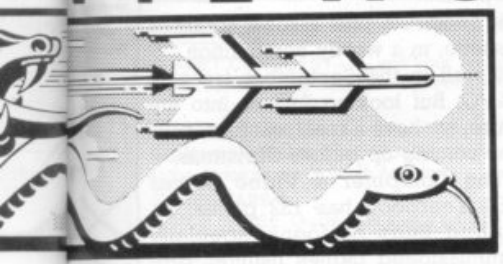

COMMODORE ALIENS BACK TO BASICS . . .

GORF

Gorf managed a moderate success in the arcades and with its helicopter style joystick will be familiar to most of you.

Four levels of shoot 'em up action await your intrepid laser base in this new cartridge game from Commodore for the Vic-20.

The first wave is nothing more than a fleet of archaic Invaders — which you shoot at through an arc of protective force field. This protects both you and the aliens — you have to find a gap to blast through!

Once these have been dismissed you fight it out with a much tougher breed of laser spitting aliens who flap — bird-like — all over the screen. Tough — but not too tough.

Far harder — is the third wave which has the aliens spinning out of deep space 3D style. If you can get beyond this wave you are a better space pilot than me!

If you can battle your way through to the fourth wave you get to take on the Gorf's on their home territory. This is the toughest test of all with fireballs to be dodged. Finally the flagship appears. You must penetrate the craft's neutronium hull if you are to destroy the power reactor.

As an added incentive to work your way up through the ranks you are given a rank based on your performance at the end of each mission. Starting with Space Cadet the supreme challenge is to become a Space Avenger.

Gorf is one of four new cartridges from Commodore — in the shops now at £25 for the unexpanded Vic. Although it is a reasonable conversion of the arcade game you would get much better value for your money by investing in five different cassette based games which you could get for the same price.

- **Getting started** 9
- **Graphics** 6
- **Value** 3
- **Playability** 5

Four screens of Gorilla frenzy are waiting to be enjoyed in this game — just as in the Nintendo arcade version.

The plot — for those of you who have been in hibernation for the last two years, owes a lot to the Hollywood classic — King Kong. Gorilla grabs girl and takes her to top of scaffolding. Gallant Italian carpenter comes to rescue. Gorilla attempts to thwart the rescue bid by showering our hero with barrels.

Screen one is easily mastered and the skilled gamester will get to the top of the screen each time every time as a mere formality.

Number two is a little tougher introducing fire balls and deadly custard pies sailing along a moving conveyor belt which is trying to take your little mans legs away from him before he can get up the ladders.

For most of you though the real test is to be found on the third screen.

The ladders are few and far between at this level so you will need to make precise runs and leaps in order to work your way up the platforms to the top of the screen. Also watch out for the falling dumb-bell which can land on your head just before you make the final heroic leap to the fourth screen.

I did spot a bug on screen three — very occasionally Mario will fall down dead for no apparent reason when he is on his way up the ladder in the centre platform.

Other gripes were with the graphics which had a tendency to flicker and much of the on screen movement seemed shaky.

Having said this it must also be said that Killer Gorilla is the best version of Donkey Kong yet for a home computer.

The game is available from Program Power of Leeds at £6.95.

I played the game using the keyboard but it must be immeasurably improved with the addition of a joystick.

One other improvement could have been included in the program itself — a level selecter. After a great deal of practice it became tedious having to jump through the first and second screens just to get to the third screen — which was as far as I managed to get.

- **Getting started** 7
- **Graphics** 8
- **Playability** 8
- **Value** 10

NEXT ISSUE

Vic owners are in for a treat next month as our resident Donkey Kong expert tests all the versions on the market for this popular micro.

New arcade conversions from Atari in the shape of Dig Dug and Donkey Kong and a review of an exciting new game from the English Software House with a real diamond as a prize.

Also reviews for Commodore 64, ZX81, Texas Instruments and the BBC. Don't miss our no holds barred reviews section next month — written by experts for experts.

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N·E·X·T · M·O·N·T·H

VIOLENT SPACE

Next month the Quest is on to find the living room champions who are taking computer games to the limits.

We are starting a Hall of Fame high score chart on a range of selected games which we will add to each month.

First up will be Violent Universe from Quest of Cheltenham. The game puts you in a spacecraft in charge of a canister of deadly stellar gas-clouds.

As alien craft float through space the player sends out gas clouds which destroy any alien unlucky enough to enter into them.

The game can be played on a keyboard or a joystick. You have 40 seconds to conquer each level and must score more than 1,000 points to move on to the next level.

Quest have developed a system for checking high scores against a code and instantly validating them. This system has already worked well on Quest's previous game, Black Hole and the current top scorer is Russell Capel with 2530.

Scores on Violent Universe should be sent into Quest on the address shown on the cassette inlay and we will start publishing our Hall of Fame next month. If there are other cassettes you think we should include in a Hall of Fame please let us know by dropping us a line.

Violent Universe costs £5.50.

DIZZY SPELLS

Two sorcerers locked in spell-binding battle in an enchanted forest provide the action in a thrilling game Stones of Wrath, next month.

As your opponent sends a deadly Swarm spell down upon you, you throw a hasty Shield Spell and reply by conjuring up a Demon to despatch off through the forest to try and defeat the other wizard.

It's a game of atmosphere and cunning strategy as you try to outwit one-another and it features on the front cover of our September issue.

There's Star Trek in 32k; Vic Quest; Turtle Hop, a fascinating new computer game called Turtle Hop which bears no resemblance to Frogger; Caterpiller and Assault, plus a whole lot more in a thrilling summer edition.

We also have a run down on just how Psion managed to teach their Spectrum 11,000 words and the fascinating history of Scrabble-playing computers. This is backed up by a chance for keen Scrabblers to win a 48k Spectrum plus Psion's Scrabble cassette, in a wordy competition.

It's all in the September issue of *C&VG*. But looking further into the future, we have a real treat for *C&VG* fans coming up before Christmas.

The *Computer & Video Games* 1984 Yearbook has 132 pages, including Bugs cartoons, specially commissioned games listings, professional hints to help beginners present their games and much much more. We'll let you into further secrets of our 1984 Yearbook next month.

There's just no room left for Arcade Arena next month — but it will be back in October with four arcade-style games for your favourite micros!

JUMPING JACK

Imagine's Jumping Jack is the latest addition to the company's range of Spectrum games and should soon be leaping up our best-sellers chart.

And the Liverpool software house has given us 100 Jumping Jack cassettes to give away this month.

The first 100 coupons we receive from readers will earn a copy of Jumping Jack for their 16 or 48K Spectrum.

Just fill in the coupon below and send it to us care of: Jumping Jack, Computer & Video Games, Durrant House, Herbal Hill, London EC1R 5JB.

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Next month we have 300 tapes to give away. There is 100 of each of Imagine's (currently secret) new launches. Two games are aimed at Spectrum owners, and the third is for Commodore 64 owners. We are basing this competition around Manchester and the first 300 letters or postcards we receive next month with a Manchester postmark will receive a cassette.

So if you live in or around Manchester, make sure you're at your newsagents bright and early around the 15th of the month and we'll return the cassette of your choice to you if you're among the first 300 to write in.

N·E·X·T · M·O·N·T·H

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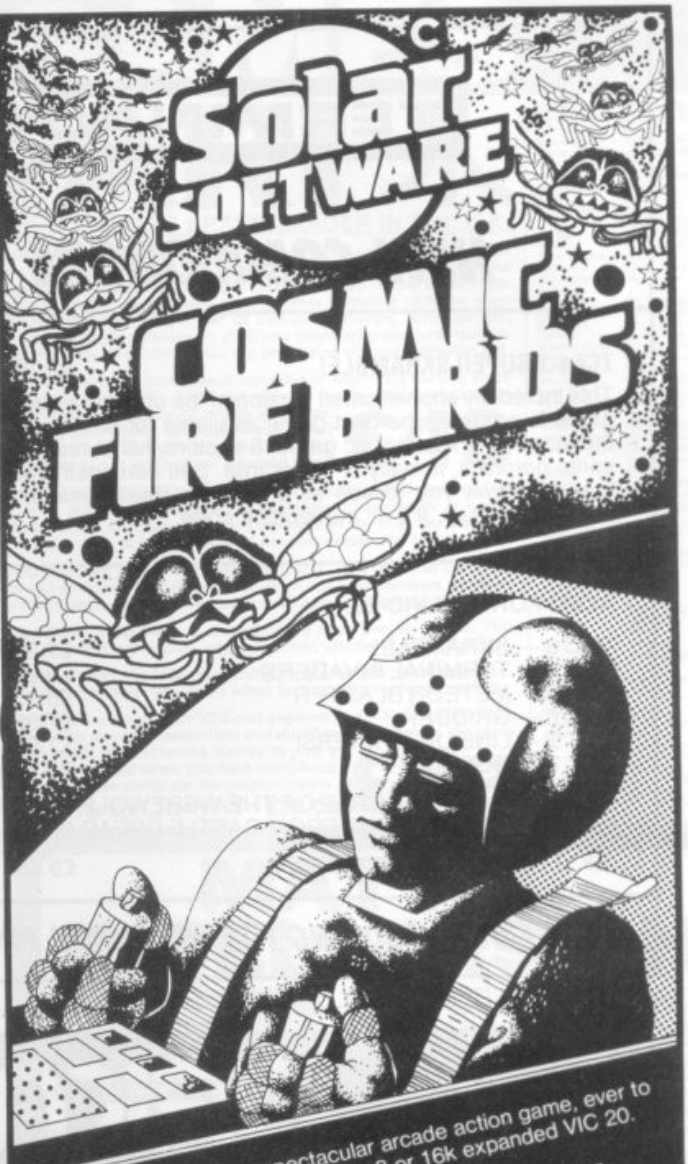

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ATARI

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ATARI: The Atari Video Computer System known as the Atari VCS or the 2600 has now become the T.V. game brand leader. In the U.K. there are over 700,000 owners of the VCS with access to a range of over 200 different plug in cartridges, each having a multitude of different variations and difficulty levels. Every system comes complete with the main console, two individual joystick controllers, a pair of paddle controllers, aerial splitter, mains adaptor and a 27 game Combat cartridge. It gives you bright crisp graphics, realistic sound effects and even specially designed circuits for the protection of your Television Set.

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SILICA ATARI CLUB: Silica Shop has over 20,000 Atari VCS club members registered on our computer. As a specialist company we are able to obtain advance information about new developments and send detailed catalogues to all of our club members, enabling them to evaluate new products before they buy. This is a totally FREE service, to receive your copies complete the coupon below.

SERVICE CENTRE: Atari International (UK) Inc has recently appointed Silica Shop as an authorised Atari Service Centre. This means that we can now service your Atari VCS or 400/800 (under guarantee if applicable), whether or not you purchased it from us.

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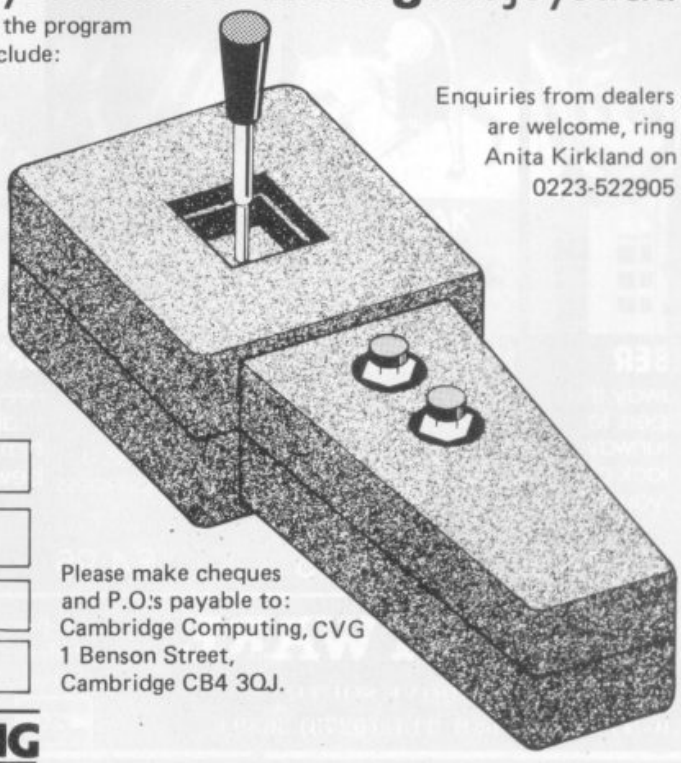

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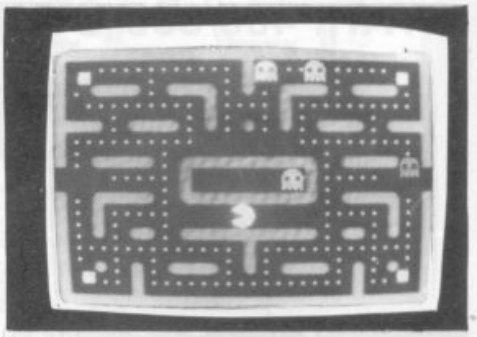

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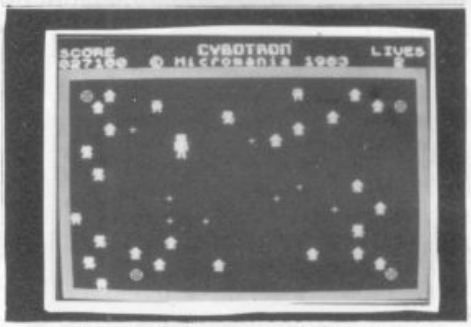

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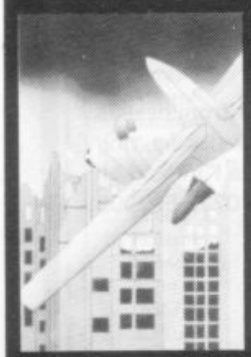

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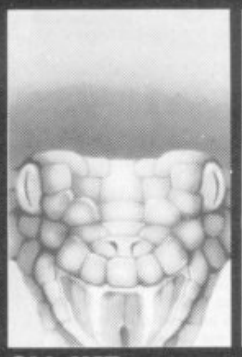

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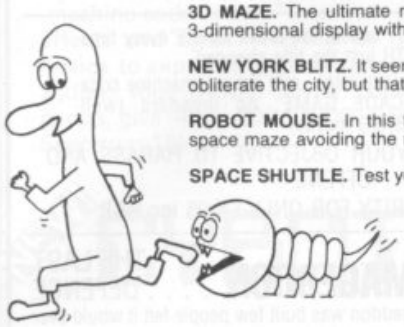

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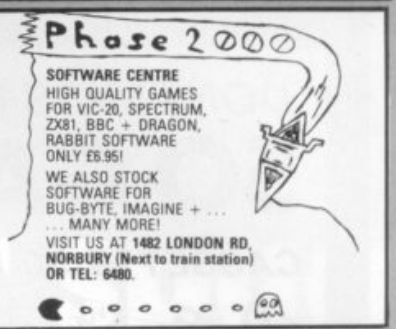

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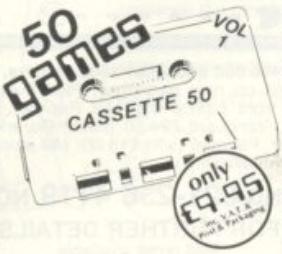

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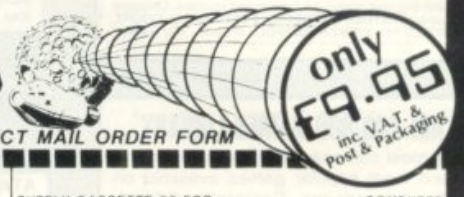

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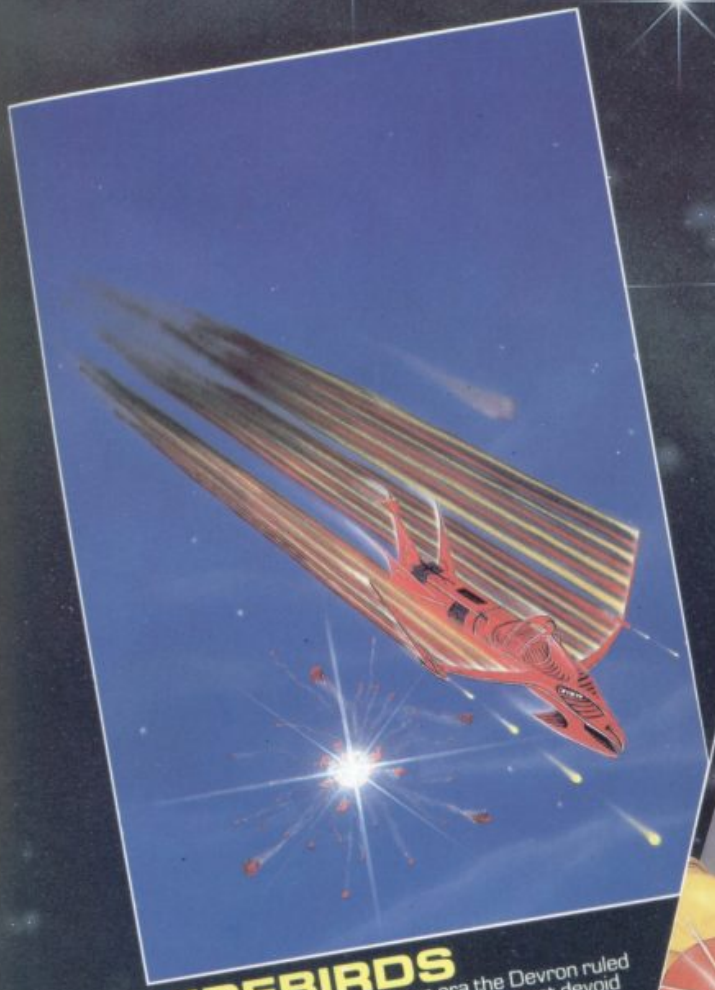

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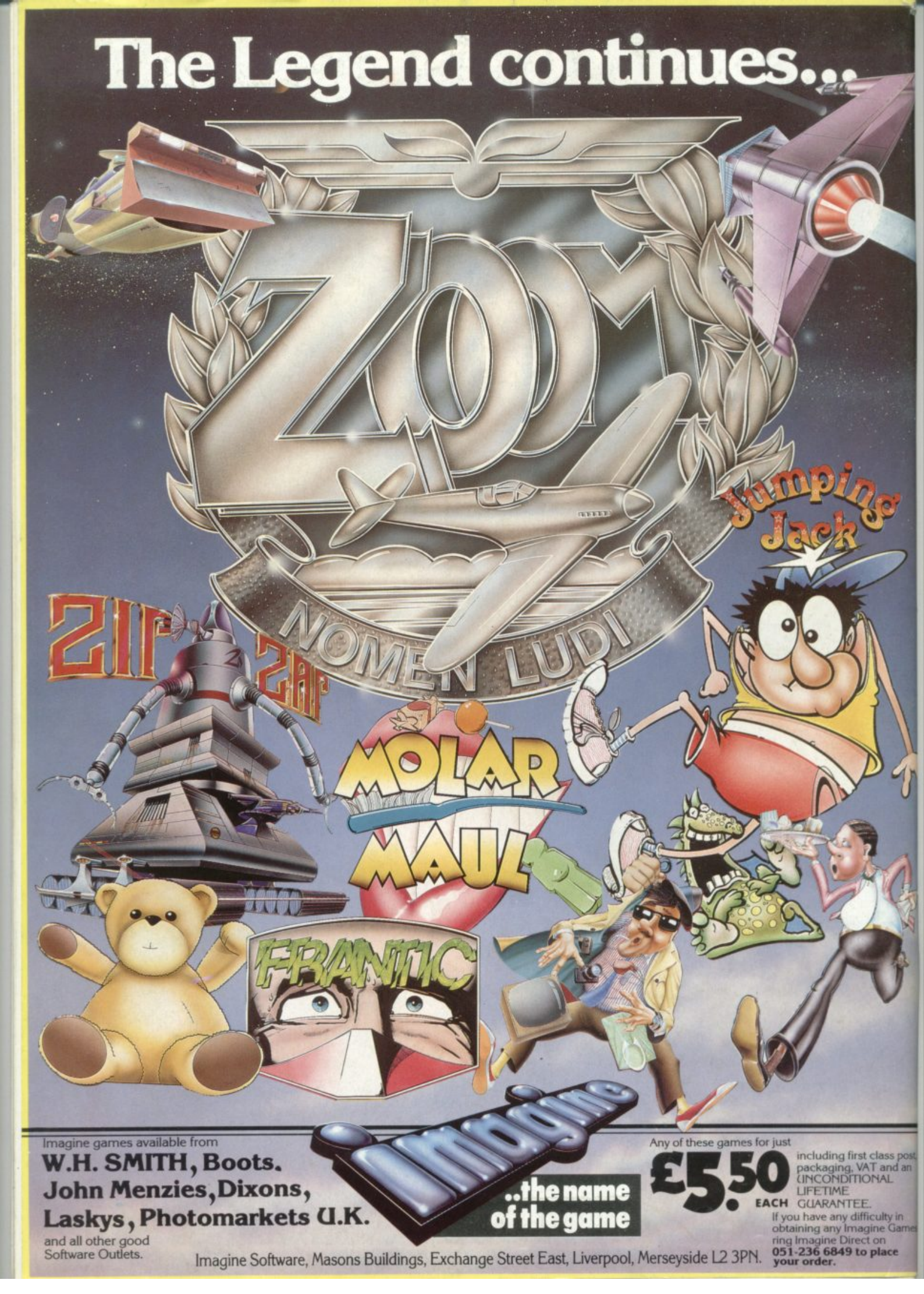
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