40p

Printout No 5

Fortnightly August 18—August 31 1983

LOAD RUNNER

THE GALAXY'S FIRST COMPUTER COMIC

LOAD RUNNER FINDS HIMSELF TRAPPED IN A FANTASTIC AND DANGEROUS GAME-PLAYING COMPUTER WORLD. ALL KNOWLEDGE OF HIS PREVIOUS LIFE LOST BEYOND RECALL. WHILE EXPLORING THE UNFAMILIAR TERRAIN, HE IS SUDDENLY AWARE OF BEING FOLLOWED...

TYRANNOSAURUS REX!

FOR A BRIEF MOMENT MAN AND BEAST ARE TRANSFIXED, SEPARATED BY A DISTANCE AS VAST AS HISTORY ITSELF...

WIN A VECTREX ARCADE SYSTEM

THE FORCE OF TIME PLAN 9

THE COMPUTER KEEPERS

...AND THEN THE GAME BEGINS.

CALCULATE SUBJECT'S CO-ORDINATES.

CO-ORDINATES CALCULATED. EXECUTE MOVEMENT ROUTINE.

EITHER I'M RUNNING AWAY FROM A 64 MILLION YEAR OLD *NIGHTMARE*...

OR SOMEBODY'S PLAYING *GAMES* WITH THE WORLD'S *UGLIEST ROBOT!*

IT'S *TOO FAST* FOR ME!

LOAD RUNNER MAKES A SURPRISE MOVE.

IF I CAN'T OUTRUN IT PERHAPS I CAN OUT*THINK* IT.

IT'S THE OLD *MONSTER IN THE MAZE GAME.* SOMEWHERE THERE MUST BE AN *EXIT*...

...BUT I'LL HAVE TO DISCOVER THE HIDDEN *LASER LANCE* TO CUT THROUGH IT!

FROM THE CLOUDED DEPTHS OF WHAT WAS ONCE *MIKE ROMAN*, MICRO MECHANIC FOR *LONDON REPAIRMEN*, A DIM MEMORY SURFACES...

IF THE *LANCE* IS BURIED IN THE TRAIL SOME-WHERE MY *CIRCUIT DETECTOR* MIGHT LOCATE IT.

SCRIPT:
PETER DENNIS

ARTWORK:
PETER DENNIS

LETTERS:
MICK HOLLINGWORTH

LOAD RUNNER'S FINGERS CLOSE AROUND HIS CRASH GUN, WHICH COULD MELT CIRCUITRY INTO A SCRAMBLE OF MOLTEN METAL...

ENRAGED BY THE BEAM'S HEAT, THE MONSTER CLOSES IN FOR THE KILL!

TIME PLAN
FAMOUS HISTORICAL CHARACTERS WERE MATERIALISING IN PAUL'S BEDROOM. PAUL AND HIS FRIENDS SUSPECTED THAT HIS AKRON 90 COMPUTER HAD SOMETHING TO DO WITH IT.
YOU'RE ISAMBARD KINGDOM BRUNEL?
THAT'S RIGHT, PLEASED TO MEET YOU.
YOU DESIGNED ALL THOSE SHIPS AND BRIDGES- AND THE GREAT WESTERN RAILWAY.
NO, SORRY, YOU'VE GOT THE WRONG MAN. I HAVEN'T DESIGNED A THING IN MY LIFE.
SCRIPT- F. HOPKINSON PHOTOS- H. ARDEN LETTERS- S. CRADDOCK
ALTHOUGH IT'S FUNNY YOU SHOULD SAY THAT, BECAUSE I'VE GOT SOME GOOD IDEAS FOR SHIPS AND BRIDGES. I'M ONLY YOUNG THOUGH, SO I'VE STILL GOT A BIT OF TIME LEFT TO DO IT, EH?
IT'S A HOME COMPUTER.
THIS IS AN INTERESTING BIT OF TINKERY, ISN'T IT?
FASCINATING. I WOULDN'T MIND HAVING A GO. THERE'S A FEW MECHANICAL EQUATIONS OF MY OWN I'D LIKE TO SORT OUT.
SOME SORT OF TABULATION INSTRUMENT, IS IT?
YOU COULD CALL IT THAT. IT CAN BE USED AS A DESIGN TOOL.

I DON'T MEAN TO BE RUDE, BUT THIS ROOM IS A BIT ODD, ISN'T IT?
NO, IT'S MY BEDROOM.
YOU'LL HAVE TO BRACE YOURSELF FOR SOME REALLY BAD NEWS.
IS IT SOME FORM OF LABORATORY?
IS QUEEN VICTORIA DEAD?
YES, SHE DIED EIGHTY-TWO YEARS AGO IN 1901, THAT'S THE PROBLEM.
DON'T WORRY, WE'RE GOING TO GET YOU BACK WHERE YOU CAME FROM AS QUICKLY AS POSSIBLE.
THAT MEANS I'M IN THE TWENTIETH CENTURY.
'FRAID SO.
IF YOU COME DOWNSTAIRS IN A MINUTE, I'LL INTRODUCE YOU TO JULIUS CAESAR.
I'M VERY BUSY AT THE MOMENT, SO PERHAPS YOU'D LIKE TO READ ONE OF THESE MAGAZINES, THEY'RE ALL ABOUT COMPUTERS.
WHAT'S THE MATTER?
MARIE'S FRIGHTENED. SHE DOESN'T KNOW WHERE SHE IS AND I I DON'T KNOW ENOUGH FRENCH TO EXPLAIN.
THE NOBLEST ROMAN'S JUST SLID DOWNSTAIRS AGAIN, I COULDN'T HOLD HIM ON THE STAIRS FOREVER.
DUNCAN, MEET ISAMBARD KINGDOM BRUNEL AND MARIE ANTOINETTE.
ARE YOU SURE YOU DON'T WANT ME TO WAIT HERE FOR MORE?
TAKE THEM DOWNSTAIRS AND LET THEM WATCH T.V. ... THAT SHOULD KEEP THEM OCCUPIED. DON'T BOTHER WITH EXPLANATIONS.
AT THE RATE WE'RE GOING, WE'LL HAVE ATTILLA THE HUN, WILLIAM THE CONQUEROR AND DISRAELI BY TEA TIME.

OK. CAN YOU COME WITH ME PLEASE, CHER-CHEZ MOI, MARIE?
DUNCAN'S RIGHT. WHY ARE WE ONLY GETTING FAMOUS HISTORICAL FIGURES?
YOU'D THINK THAT IF IT WAS REACHING BACK IN TIME WE'D GET ORDINARY PEOPLE TOO.
AKRON 90
COULD IT BE SOMETHING TO DO WITH THIS?
THAT'S MY HISTORY DISC.
NOW IT ALL MAKES SENSE, DON'T YOU SEE?
ALL THE TIME IT'S BEEN LOADED INTO THE DISC DRIVE.
BECAUSE WE'RE IN A POSITION WHERE WE CAN REACH BACK IN TIME THROUGH THIS FOURTH DIMENSION OR WHATEVER IT IS...
YOUR HISTORY DISC HAS GIVEN THE COMPUTER THE EXACT DATES TO GET THEM FROM.
IT'S POSSIBLE...
IT'S MORE THAN POSS-IBLE, IT'S RIGHT.
THE COMPUTER'S MANAGED TO ENCODE ALL THE FORCES OF FOURTH DIMENSION INTO NUMBERS. I MEAN, THAT'S WHAT COMPUTER'S ARE GOOD AT.
SO INSTEAD OF JUST ACCESSING PAGES OF NOTES FROM A DISC WITH OUR COMPUTER, WE CAN ACCESS PEOPLE FROM ANYWHERE IN HISTORY!
JUST IMAGINE WHAT YOU COULD DO WITH IT.
NO, I DON'T WANT TO.
ALL I WANT IS TO GET THIS LOT BACK WHERE THEY CAME FROM BEFORE MY MUM WAKES UP.
I'LL HAVE A GO AT RUNNING ONE OF THE TIME PLAN PROGRAMS. YOU GO AND CHECK IF MUM'S STILL ASLEEP.

PAUL MUST HAVE A ROTTEN MUM TO BE SO SCARED OF HER.

DOWNSTAIRS IN THE LOUNGE...

HOW IS EVERYBODY?

SHHHH

THEY'VE BEEN WATCHING **BLUE PETER**...

...AND THEY'VE NEVER SEEN ANYTHING LIKE IT BEFORE.

TIME PLAN 1 - THE 4TH DIMENSION

PAUL WORKED FURIOUSLY AT THE KEYBOARD, TAPPING IN THE NUMBERS FOR EACH TIME PLAN.

...THAT PROBABLY NEEDS TO GO ON A NEW LINE.

TIME PLAN 6 - THE 4TH DIMENSION

2434 77 77564

TIME PLAN 9 - THE 4TH DIMENSION

546 87 88

222 65 7

878 9 9 9 9
233 546 7777

768 009 876
765 654 67888

765 121 0098

456 66 66 6

WHEN HE GOT TO **TIME PLAN 9**, THE FIGURES BEGAN TO CLICK.

ALL I NEED IS TO PUNCH IN THE **DATE** AND **PLACE**...

NOW, PROVIDING I'VE GOT MY PROGRAM RIGHT, I SHOULD BE ABLE TO SEND THIS CUP BACK OVER **200 YEARS**.

IF IT WORKS, I MIGHT CHANGE THE COURSE OF HISTORY. HERE **GOES**...

CONTINUED NEXT PRINTOUT.

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	CANNONBALL BATTLE	EXCHANGE	PLANETS
		OVERTAKE	

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A LARGE BANK computer works 24 hours a day. It performs three tasks during Saturday when the bank staff is absent. The tasks are:
1. Update customer files.
2. Do a security check of main branches.
3. Print-out update of customer data.

The computer starts with task 1 at midnight, does number 2 at 1am and 3 at 2am. That continues for every hour of the day and the operations are repeated. Which operations will be performed at 5pm?

THE SQUARE below represents an adventure game grid. Each square represents one move which can either be north, south, east or west. Degrees such as north-east can also be taken. Starting from one of the letter Gs on the grid, you must follow the Secret Path which is detailed. The moves will make you land on squares which, when put together, will form a computer word. To do it you must first find the correct letter G.

Key: N = north, S = south, E = east, NE = north-east, NW = north-west.

Secret Path: SE, S, S, E, NE, SE, E, N, N, NW, NW.

A	B	O	A	R	D	N	D
C	R	D	F	C	R	A	R
C	O	G	N	L	R	E	N
O	C	T	R	A	U	D	T
R	A	S	A	P	P	M	T
D	B	E	P	H	A	L	O
I	G	B	U	C	G	W	A
N	I	N	A	L	C	U	M

ANSWERS to the puzzles in last printout: The word square included the words: HEAT, PLOTTER, ROBOT, PRINTER, ALARM, LIGHT.

Finius will take seven minutes to cross the road.

Free copies of Wargames for Decoders

MEMBERSHIP APPLICATIONS for the Load Runner Decoders have been flooding in to my installation base, and in the near future my operators will be sending out security passes and code books to all members.

In the meantime, I am giving away 45 copies of the terrific Penguin paperback 'Wargames' — the chilling novel by David Bischoff based on the feature film which opens in London on August 18th (for more details see Load Runner printout No 4). Each of the lucky members whose names are selected will receive a copy.

Those unenlightened readers of Load Runner who have not yet joined the Decoders can do so on payment of £3. Fill in the form below and send your cheques, together with TWO passport-size photographs (black and white or colour) with your names and address on the backs, to The Controller, 196–200 Balls Pond Road, London N1 4AQ.

I am happy to announce the following winners in our Bugsy Malone Competition:
1st Darron Ferguson, 16, Billingham
2nd Ian McIntosh, 17, Streatham SW16
3rd Angela Meyers, 12, Hornchurch
4th Sean Monk, 15, Preston, Lancs
5th D. Ludlam, 12, Surrey
6th John Stevens, 11, North Humberside

The following are the winners of the Camp Beaumont Competition:
Neil M. Coe, 12, Hertford
Namit Katharia, 12, Surrey
Elizabeth Farbey, 14, London NW7
Robert Hood, 11, Northampton
David Matthews, 15, Birmingham
Nicholas Stannah, Dorset
Congratulations.

The Controller

List below the story/programs and fact routines that you like best in Load Runner.

1. .....
2. .....
3. .....

What do you dislike most in Load Runner?

.....

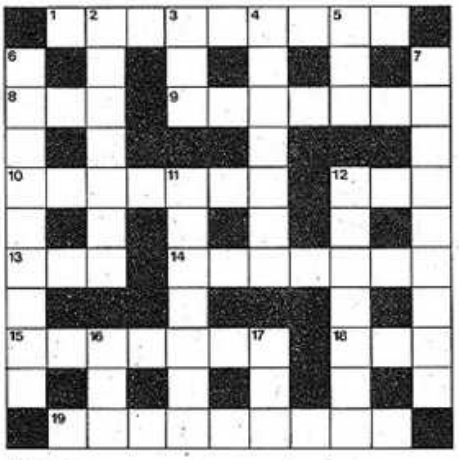
Do you have a computer? YES/NO

Name .....Age .....

Address .....

.....

Wordplotter 5



Across

1. The new hobby — yours maybe (9)
8. Obtain a keyboard peck, for instance (3)
9. Had an ice-cream and did some processing (7)
10. Spoke soundlessly of a strange mode hut (7)
12. Go back briefly from pure theory (3)
13. Metal oxide semiconductor (3)
14. You need to be a big one to go far in 1! (7)
15. Simple sketch of the program, perhaps (7)
18. Crucial chip in a beautiful arrangement (3)
19. Scenes of adventure games (3,6)

Down

2. Caused by PRINT and BEEP (7)
3. Friendly home computer (3)
4. The machine operator used a combination of LET and READ (7)
5. Ton-up through the gate (3)
6. Classic king starts with a playful program (9)
7. What Load Runner's chief says about changing program lines? (9)
11. What the aliens always seem to be — lit up in the tube (7)
12. Sunburned girl in Cornish town (7)
16. I appear in rising extra-terrestrial clothing (3)
17. Receiver for SOUND output (3).

WORDPLOTTER 4 SOLUTION

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SEPTEMBER 1

WIN A VECTREX HOME ARCADE SYSTEM and 3 GAMES

THE SYSTEM

Once again I bring you news of the latest exciting launch from the super-scientific world of computers — the Vectrex Home Arcade System. Marketed by Milton Bradley Ltd and costing around £130, the Vectrex is the first fully self-contained games system, incorporating its own screen, control panel and joystick. With high resolution graphics, three dimensional images and thrilling sound effects, the system captures all the excitement of true arcade machines.

THE GAMES

The Vectrex system comes complete with MINESTORM, an addictive game in which the player battles his way through alien mine fields. Twelve other games are now available, including arcade classics such as BERSERK and SCRAMBLE, and each cartridge costs £19.95. New cartridges will be launched on a regular basis.

THE PRIZES

I am pleased to announce that my operators have succeeded in obtaining one Vectrex Home Arcade System together with 3 game cartridges: SCRAMBLE, HYPERCHASE and COSMIC CHASM (all pictured right) — to give away as First Prize in my competition.

In addition I have two Second Prizes — the computerized board games DARK TOWER and COMPUTER BATTLESHIP. DARK TOWER is an electronic fantasy adventure in which your moves are recorded in the computerized control centre and your aim is to storm the forbidding castle. COMPUTER BATTLESHIP is an up-to-date electronic version of the classic war game, now with spectacular light and sound effects. You must pursue and destroy your opponent's fleet.

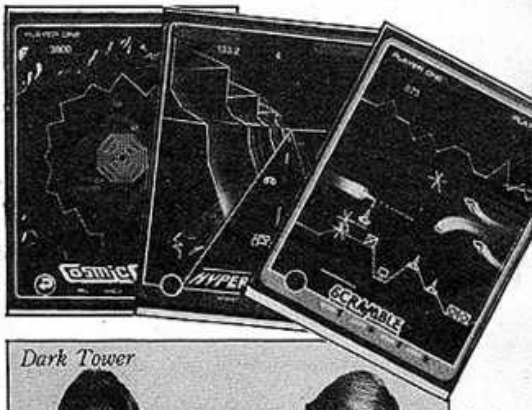
Finally, I have three prizes to offer to those who come third; the recently released arcade-based board games PAC-MAN, FROGGER and DONKEY KONG. One of these is pictured right. All prizes are produced by Milton Bradley Games.

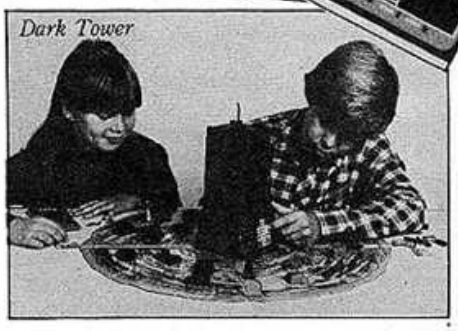
THE COMPETITION

Below is a word square containing the titles of thirteen well-known arcade games. The titles can be read upwards, downwards, horizontally, diagonally, backwards or forwards. When you have found them, list them in the space provided and send your entry to Vectrex Competition, LOAD RUNNER, 196-200 Balls Pond Road, London N1 4AQ to arrive not later than Friday September 2nd.

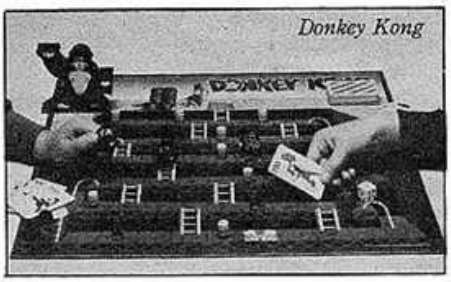
The prize winners will be decided on the basis of the first 6 correct entries opened. My decision will be final and employees of ECC Publications and Milton Bradley are ineligible.

The Controller.





Dark Tower



Donkey Kong

S	C	R	A	M	B	L	E	G	E				
D	G	A	L	A	X	I	A	N	D				
E	Y	J	O	P	T	F	O	O	E				
F	R	O	G	B	R	Z	P	K	P				
E	U	W	A	O	E	A	A	Y	I				
N	S	O	G	L	Z	X	C	E	T				
D	S	G	T	W	X	X	M	K	N				
E	E	T	U	R	B	O	A	N	E				
R	A	K	M	K	E	N	N	O	C				
B	A	S	T	E	R	O	I	D	S				

The thirteen Arcade Games hidden in the word square are:—

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Name .....

Address .....

.....***Age***.....

THE WIZARD'S WARRIORS: A fast moving game that matches developments in your skill as a player by becoming increasingly more devious. By offering to you the full range of options you can choose how to control your warrior through the maze. A full implementation of this program enables such features as a continuous series of sound effects, arcade quality graphics, double-point scoring, and--for the very artful --bonus lives. **Spectrum £4.95**

FORTH: A full implementation. Ideal for writing fast moving arcade type games. Allows the full colour and sound facilities of the Spectrum to be used. Future Microdrive enhancements will be made available. **Spectrum 14.95**

ADVENTURE ONE: Features a save game routine as the game can take months to complete. **ZX81 £5.95**
'a remarkably good version....well worth the money.'
...Sinclair User...

MAZEMAN: A fast action m/c game that reproduces the spirit of the original. **Spectrum £4.95**
'..is very accurate and fast.' *...Which Micro?...* **ZX81 £4.45**

CHESS 1.4: Ten levels of play with this m/c program. Good graphic screen display. **ZX81 £5.95**
'In a class of it's own.' *...Your Computer...*

INVADERS: Very fast m/c action. Includes mystery ship and increasingly difficult screens. **ZX81 £4.45**

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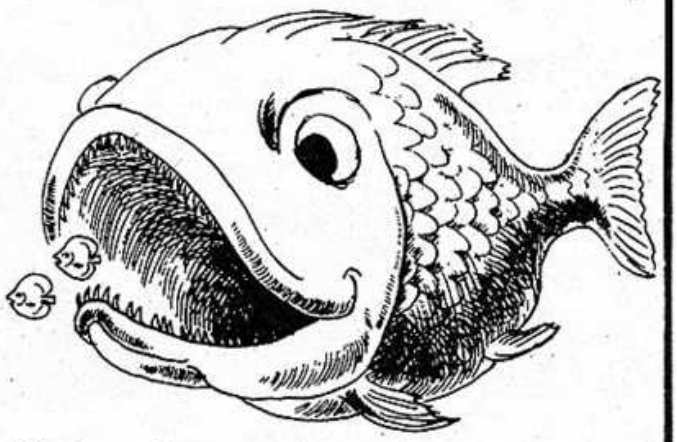
Addison-Wesley COMPUTER GAMES



Whether you're into arcade action, brain teasers, games of strategy and chance, or all-out competition, there's something for you in these new collections of games. They've all been thoroughly tried and tested, and each game comes complete with playing instructions. We've adapted them for most of the popular home micros, and the first batch is out now, at £3.95 each

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Signed _____ Date _____

Name _____

Address _____

Addison-Wesley LR/1

Andy Royd-the DOMINATORS' Rogue star!

ANDY'S GONE ROGUE. HE MUST BE REALLY MAD!

SHEESH! THAT'S NOT IN THE TEXT BOOKS! BUT WHY DO YOU ALWAYS USE YOUR NO. 10?
I GUESS I'M JUST A TRADITIONALIST!

AND ANOTHER ONE! THAT WRAPS IT UP!
THE DOMS SURE PLAY SOME ODD MOVES.

WELL, DAVY, THE SPORTS PAPERS WILL HAVE A FIELD DAY TOMORROW - HAH! I'D NEVER HAVE BELIEVED IT. I'LL CATCH YOU LATER, CAIOU!
YOU'VE NOT HEARD THE LAST OF THE DOMS, JOHNNY, WE'RE ON OUR WAY UP!

YOU OK, ANDY? FOR A MINUTE I DIDN'T THINK YOU WOULD EVER GET UP!
YEAH, SURE, BOSS, I WAS ONLY WINDED. I'D BETTER GET THIS ROBO-SUIT OFF BEFORE ANYONE COMES IN.

NEXT DAY, DAVY HAS A VISITOR...
A MR MARSHALL TO SEE YOU, DAVY.
WHO?

OH, YOU'LL KNOW MY NAME ONLY TOO WELL BY THE END OF THIS SEASON, MR DAVY!
I DO KNOW YOU! YOU'RE...
THAT'S RIGHT, MARSHALL OF NEAVE MARSHALL ESTATES, AND I'VE JUST BOUGHT THE FINANCE COMPANY THAT HOLDS YOUR MORTGAGE!
I HOPE YOU'RE MORE UNDERSTANDING THAN THEY WERE, 'COS I COULD DO WITH SOME SPARE ROBOS!
NO CHANGE! AND - IF YOU DON'T MAKE A BIG PROFIT BY THE END OF THE SEASON - I'LL FORECLOSE AND MAKE EVEN MORE MONEY WITH THIS PRIME BUILDING LAND YOU CALL A FOOTBALL GROUND!
MY PARTNER, MR NEAVE, WHO DEALS WITH THIS SORT OF THING, WILL BE IN CONTACT...
BLIMEY! NOW I'M REALLY IN SCHTUCK!
YOU COULD SAVE US ALL A LOT OF TROUBLE IF YOU GAVE UP NOW!
LATER THAT DAY, DAVY EXPLAINS THE SITUATION...
...AND SO WE'RE REALLY UP AGAINST IT. I CAN'T CARRY ON UPDATING OLD SOFTWARE WEEK AFTER WEEK - WE NEED NEW PROGRAMS!
AND THEY DON'T COME FREE WITH CORNFLAKES!
I THINK I CAN HELP!
WHO ARE YOU?
ISOBEL D'ARTH - I'M A PROGRAMMER, AND I'VE GOT MY OWN REASONS TO DISLIKE NEAVE MARSHALL ESTATES!
WHO IS THIS GIRL? AND WHY DOES SHE HATE N.M.E? FIND OUT NEXT PRINTOUT!

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What country has MAGYAR on its stamps? .....
What country has NORGE on its stamps? .....

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New wave software

WATER-SKIING has a new meaning when you play Aquaplane on your Spectrum. An afternoon messing about on the water proves not to be such a peaceful a pastime as you might think.

The idea behind this game is to drive your motorboat with a skier in tow through objects ranging from rocks, logs, sailing boats, 'gin and tonic' cruisers and sharks.

Navigating your way through the waters dotted with rocks and logs is not too difficult and, using the keys 6 and 7 for up and down movement respectively, and the 0 key for extra power in the form of an engine thrust, you can make rapid progress through the first phase. Then you find yourself in the middle of a flotilla of yachts.

If you survive and you still have one of your three lives left, you encounter gin and tonic cruisers whose pilots are apparantly drunk in charge of a pleasure boat. They move quickly and it is difficult to complete that phase of the game. If you do, it is time to be fed to the sharks. The limitation of the game is that it seems impossible to finish the shark phase successfully. There are so many of them that you scarcely have a chance.

Altogether the game is a pleasing change from space games and is entertaining, challenging and addictive. It costs £6.95 and is one of the latest Quicksilva releases.

Fun, 8; addictive, 7; graphics, 8.

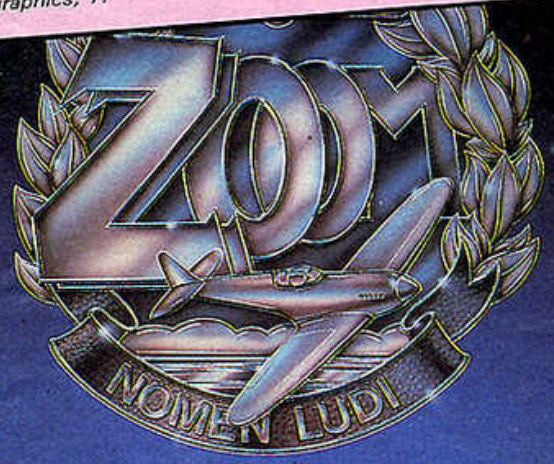
A family favourite

WITH SPACE GAMES reaping the benefits of popularity and publicity, it means traditional board games like this version of the old classic Monopoly, retitled Monopole, are pushed from the limelight, however good they are. Rabbit Software isn't the first firm to produce a version of Monopoly but it has been quick with one for the Commodore 64, and it has done an admirable job.

All the traditional elements of the family favourite have been incorporated, mainly because of the huge amount of memory the programmer had available. Instead of Title Deed Cards, Chance and Community Chest and all your money scattered on the living-room floor, they are all stored in the computer memory. At the press of a button you can see what properties are for sale, which have been mortgaged and the sites on which you can build.

Graphics and sounds are used imaginatively. Monopoly players will like it but only two can play at a time. Monopole costs £5.99.

Fun, 6; addictive, 6—you either like this type of game or you do not; graphics, 7.



Bandits at 12 o'clock

IN ZZOOM you must line-up your sights and destroy the enemy fighters to save the lives of men on the ground. If you do not, they will be reduced to smithereens by the enemy fire.

The game runs as if you were looking through a cockpit window, so the screen is filled with all the objects within that view. You have a variety of instruments to help you fly your craft, including a long-range radar, one for shields, one showing the state of attack and one displaying your score. As play progresses the dials are being updated constantly.

Zzoom is produced by Imagine Games and if you are already familiar with Imagine software this game will be no surprise to you. It costs £5.50 and runs on the Spectrum.

Fun, 7; addictive, 6; graphics, 7.

Attack the androids

SPACE ADVENTURE is a better-than-average version of a theme which has been worked previously. Regardless of that, the game is very playable and combines traditional adventure ideas with all-action arcade ones. It runs on a 32K BBC B.

Your mission is to retrieve four crystals hidden in a spaceship occupied by enemy androids. To find the crystals you have to locate the correct key, of four, to unlock the door of the room containing each crystal.

Use of graphics is good—colour, high resolution—and game control is either via a joystick or keyboard. One to recommend to zap-happy adventure and space fans. Space Adventure costs £7.95, available from Virgin Games.

Fun, 8; addictive, 7; graphics, 8.

Ork offensive

PROBABLY the most exciting thing about this plug-in-style cartridge game is its name—Orc Attack. The words Orc Attack conjure visions of high-speed screen action, full of colour and good graphics. Unfortunately, that is not the case. It is a game dating from the days when brigands scaled enormous walls to attack an enemy only to be doused with a vat of boiling oil.

You and your Atari joystick control a man who seems to be defending the battlements of a castle single-handed. They occupy the top of the screen, the remainder being filled with the offending attackers, the Orcs.

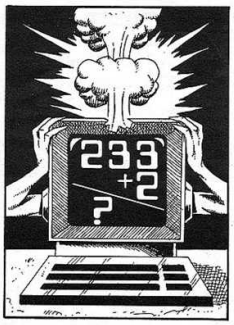
Using ladders one on top of another to scale the walls, they will attack you with swords. You are also under fire from the crossfire bolts which have a nasty effect on your man if he is hit. Beware.

You can collect weapons from either of two turrets to the left and right of the screen. The type of weapon you can use changes during the game. First you have some bricks which you must drop on the heads of the Orcs. Then the weapon changes to broadswords with which you are supposed to kill the Orcs. You use the fire button on the joystick to drop a brick or swing your sword into action.

Watch for the Ninja Orcs which, although few and far between, have the ability to climb the walls unaided. Pouring boiling oil over an attacking bunch of Orcs will ensure their death and you move to another round.

As with most games it increases in difficulty as you progress through the various stages. Extra Orcs pose the danger in that instance. If you reach certain high scores, or kill the Sorcerer, among other things, you are awarded an extra life. Produced by Thorn Emi and running on an Atari 400/800 it costs £29.95

Fun, 5; addictive, 5; graphics, 6.



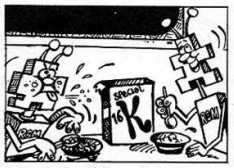
Countdown to chaos at Avon County Council

THE DAY Avon County Council bought a computer in 1975 to deal with staff wages was a great step forward—or so everyone thought. The computer took control—and immediately there was chaos. A caretaker was paid £75 per hour, instead of 75 pence, and a janitor received £2,600 for one week's work. Many heads of departments and schoolteachers were paid their annual salary every month and others had more tax deducted monthly than they paid each year. One woman received nothing—the computer refused to pay her.

After six months, the council staff held a protest meeting. Of the 280 employees, only eight had received the correct wages. They promptly went on strike.

Name calling

ON NAMES AGAIN, the IBM 1620 was known as CADET before being released to the market. It was said to stand for 'Can't Add—Doesn't Even Try'.

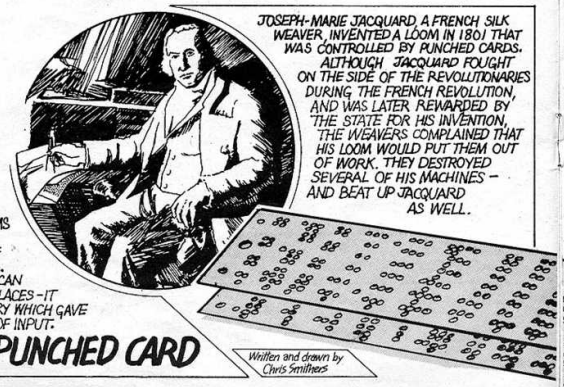


Describing special K

IN MANUFACTURERS' descriptions of machines, frequent reference is made to storage signs measured as 8K or 64K bytes or words, or whatever, and sometimes the abbreviation £20K is used for £20,000. Most machines were, and are, constructed using a binary scale—see our definitions. The store sizes are multiples of a power of 2, rather than 10. The nearest power of 2 to 1,000 is 2^{10} = 1,024 and it has become customary to use K to represent that unit. There is some confusion with the K used as short for Kilo—one thousand, as in Kilogram, of course—but mostly the context makes it clear what is meant.

The Computer Story

A HISTORY OF COMPUTERS PART FIVE

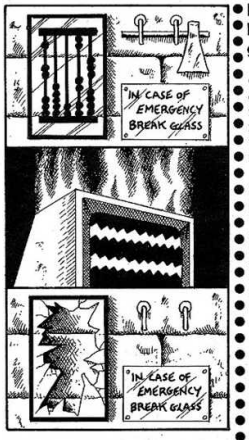


JOSEPH-MARIE JACQUARD, A FRENCH SILK WEAVER, INVENTED A LOOM IN 1801 THAT WAS CONTROLLED BY PUNCHED CARDS. ALTHOUGH JACQUARD FOUGHT ON THE SIDE OF THE REVOLUTIONARIES DURING THE FRENCH REVOLUTION, AND WAS LATER REWARDED BY THE STATE FOR HIS INVENTION, THE WEAVERS COMPLAINED THAT HIS LOOM WOULD PUT THEM OUT OF WORK. THEY DESTROYED SEVERAL OF HIS MACHINES – AND BEAT UP JACQUARD AS WELL.

AWELL-KNOWN COMPUTING SLOGAN IS "GIGO"—SHORT FOR "GARBAGE IN, GARBAGE OUT." FEEDING PROGRAMS AND DATA INTO A COMPUTER CORRECTLY IS VITAL—OTHERWISE WHAT COMES OUT WILL BE WRONG. AND—SHOWING THAT IDEAS CAN COME FROM THE MOST UNLIKELY PLACES—IT WAS THE WOVEN TEXTILE INDUSTRY WHICH GAVE COMPUTING A RELIABLE METHOD OF INPUT.

BIRTH OF THE PUNCHED CARD

Written and drawn by Chris Smithers



Danish back-up

THE FIRST COMPUTER in Denmark was called the DASK. Machines in those days were not so reliable as they are now and it was thought necessary to provide back-up in case it failed. That took the form of a glass case containing an abacus, with directions to break the glass in the event of an emergency.

Buzzwords are the jargon of the computer world and can be very confusing. Below, *Load Runner* continues its glossary of computing terms. Get buzzing.

Command. An instruction to a computer from a programmer to tell it what to do. For instance, the command RUN would tell the computer to run the program which it has in its memory.

Compiler. A program which will convert instructions which are entered using a high-level language, such as Basic which humans can understand into the low-level language, machine code, which the computer can understand. A compiled program will run faster than one written in a high-level language.

Computer. A device which will output results gained from information input. It is different from a simple calculator because a computer must be able to make simple decisions as a result of information entered by a programmer.

Console. The place at which the programmer enters programs and where the computer operator will enter data. A console usually comprises a keyboard, disc units and printer or visual display unit.

Constant. A piece of data, or information, which does not change. It could be the characters of text to be printed or information which controls the data structures in a program.

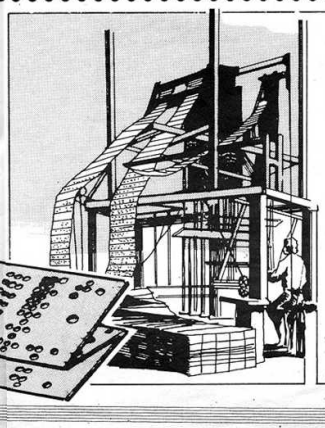
Control character. A piece of data, usually represented as a number, which will govern the way a computer or a printer works. For instance, control characters can be used to set the width of type on a printer.

Controller. A device which controls computer add-ons such as a visual display unit, printer or disc drive unit.

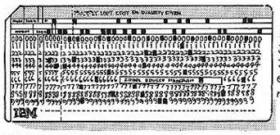
CPU. The chip which controls the computer system. It is the black box into which everything in the system is hooked. The Central Processor Unit will control the input and output of data, the storage and retrieval of information, and will decide how to handle errors when they occur.

CRT—Cathode Ray Tube. The device which puts the picture on to the screen of a television set. It is the tube which makes a television set so big and it is that which computer manufacturers hope will be discarded when flat-screen television sets are produced.

Cursor. A pointer on the computer screen which shows where data is about to be entered. Usually it shows the next print position on the screen where a character is about to be displayed.



PREVIOUSLY, WEAVERS HAD TO MOVE INDIVIDUAL RODS TO CONTROL THE DIFFERENT SPOOLS OF COLOURED THREAD WHEN MAKING A PATTERN. IN JACQUARD'S LOOM, HOLES IN A CARD ALLOWED SOME RODS TO PASS THROUGH, WHILE THE SOLID PARTS OF THE CARD STOPPED THE OTHERS. CARDS WERE LINKED TOGETHER AND DRAWN THROUGH THE LOOM AS IT WOVE EACH SET OF HOLES CONTROLLING ONE MOVEMENT OF THE LOOM.



From left to right: Joseph-Marie Jacquard (1752-1834), linked Jacquard punched-cards, an early Jacquard loom, and a modern punched card for computer input.

JACQUARD'S INVENTION TRANSFORMED THE TEXTILE INDUSTRY, AND FOUND USE ELSEWHERE. 19TH-CENTURY FAIRGROUND ORGANS USED LINKED CARDS TO CONTROL THE AIR-VALVES AND PLAY COMPLEX TUNES. AND LOOKING AT EACH SET OF HOLES AS A NUMBER, JACQUARD HAD INVENTED THE PRINCIPLE OF NUMERICALLY CONTROLLED MACHINERY—STILL IN USE TODAY. PUNCHED CARDS HAVE CONTROLLED BIG AUTOMATIC CALCULATORS AND COMPUTERS EVER SINCE AND ARE ONLY NOW GOING OUT OF FASHION.

FOOTBALL ASSOCIATION
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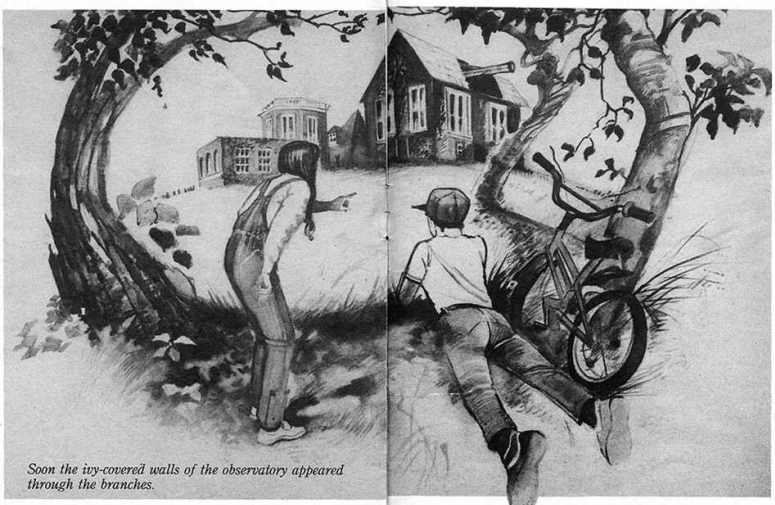
LOAD STARS
Goalkeepers and Computer owners
GARY BAILEY
(Sharp PC1500)
and
BRUCE GROBBELAAR
(Apple III)
meet at Wembley on August 20 when MANCHESTER UNITED and LIVERPOOL play in the CHARITY SHIELD match

Shut down all systems! It's . . .

COUNT DOWN TO CHAOS

by Philip Steele

The computer—one of humanity's finest achievements. Or is it? One day the world is plunged into chaos as microchips mysteriously seem to destroy themselves. A world without computers can be a frightening place, as Joe and Ellie discover on Day One of the great disaster. On Day Two they try to get to the bottom of the mystery, with astonishing results . . .



Soon the ivy-covered walls of the observatory appeared through the branches.

THERE IS no smell in the world like that of bacon and eggs. Ellie rolled over in her bed, still drowsy. It must be late. Was it Saturday? Normally she and Joe were awake long before their parents. . . but no, it was Thursday. No school? Suddenly she sat up and the incredible events of the previous night flooded into her head.

She raced down the stairs. Mum was already eating her breakfast and Dad was at the stove.

"I'm *really* hungry!"

"All right, Ellie, I think you kids deserve a special breakfast today." On the table lay a newspaper. Apparently there was no shortage of old printing presses which did not need computer typesetting for the paper to appear. Ellie leafed through the pages, which today seemed to be covered in giant headlines. *THE WORLD BREAKS DOWN!* So it hadn't all been a dream! *Minutes from nuclear horror. Transport shut down: many deaths. UN in uproar. BANKS GO BUST. TV BLACKOUT. Curfew as floods threaten capital. Looters run riot.* Ellie turned to the back page.

Boffins blame corrosion. Yesterday's dramatic system failures are the result of some kind of corrosion of microchips. When scientists examined the microcircuits which had failed, they found that the silicon was being eaten away in some strange process. In many parts of the Earth, mineral deposits decayed in a similar way, overnight. There have been many earthquakes and landslides. We asked the geologist Dr Helga Ravenscroft to comment. . .

Ellie read on. Nobody really seemed to have an answer.

"Oh, they'll sort it out soon enough", said dad. "You mark my words".

"What did they use before microchips, dad?" asked Ellie.

"Well, the first computers were big 'uns—like dinosors, real monsters, and today just as extinct. Valves used to be the thing, you see. Your wireless sets were in big cabinets, too. None of your little portables. Then your transistors came along . . . I don't think we'll go back to all that just because of the disaster, though. They'll find a way round this little problem".

"If you ask me", said mum, "it's all down to that darned comet. There's funny things out there in space; now, take flying saucers . . ."

Ellie folded the newspaper. She wished it would all end—but she wasn't so sure as her dad that the problem would just go away.

JOE NEVER liked Thursdays. Every Thursday morning there was a French test at school and every week he seemed to do worse. He used to dream of spending the day fishing, or swimming at the pool. Today, of course, there was no school. Yet he didn't really want to swim or fish. The events of the previous day kept running through his head like an action replay. He sat in the backyard, throwing stones at a watering can.

Ellie gave him a shove. "Why, Joe. Why? There must be a reason for all this." "Look, let's think about this. Silicon is being chewed-up all over the world. It's not one country trying to attack another. Do you think it could be pollution? You know, factory smoke with some kind of acid in it? What do they call it? Acid rain? Or perhaps mum's right, and its coming from outer space".

"Well, there's one way to find that one out".

"What's that?"

"Go and see Lebo".

"Who?" Ellie scratched her nose.

"Professor Lebo. The old astronomer bloke from last night".

"Shall we? We could cycle to see him at Linden Castle Observatory; that's where he said he was going—but what about the curfew?"

"Look, it's a two-hour cycle ride. If we leave now we'll be back before the curfew starts. We can avoid the evacuated area, Sector 5".

They told their parents they were going for a bike ride—but they did not say that they were on the trail of the strange professor.

"Well, for heaven's sake, take care!" said dad. "Things seem to be getting back to normal—but you never know. Take some sandwiches and be back here before curfew—or else!"

IT WAS a fine, sunny day. Out in the country they seemed to leave the troubles far behind. They bowled along the peaceful lanes with the breeze in their faces. At Sellerton they stopped for lunch and soon the towering Linden Castle Observatory appeared on the skyline.

"That's it!" said Joe. "It looks a bit creepy to me".

All visitors to report to the main gate read a sign on the fence. Joe rode over and leaned his bike against the cabin. He put his head in at the window.

"Hello! Is Professor Lebo there, please?"

"Oh, you want to see the Prof, do you?" was the reply. A little fat man with a red face stared at Joe. "I suppose you think you're the Prime Minister? Beat it, sonny! Don't let me catch you skulking about round here!"

Joe rode back to Ellie. "No hope!" He pulled a face.

"How about an encore for last night?' said Ellie, pointing at the high wire fence around the grounds. With a leap and a scramble they had scaled the fence and dropped down among the shrubbery on the other side.

They crawled through the undergrowth for what seemed an eternity. Joe got a flake of bark in his eye—but soon the ivy-covered walls of the observatory appeared through the branches. The ancient building was some 600 years old—but it housed one of the world's most modern telescopes.

Joe and Ellie zipped across a strip of lawn and stared in through the nearest window. Nothing much to see there. Suddenly they both jumped out of their skins. A hand closed on their necks from behind.

"Aha! My young friends from last night!" They wriggled round to find themselves staring into the pebble glasses of Professor Lebo. "And what can I do for you?"

"Oh, professor, we only wanted to see you again and ask you some questions."

To their relief he let out a guffaw of laughter. "And to break into the observatory like burglars, eh? Oh, never mind. You had better come in and look around".

"Oh, thanks!" said Joe. "That would be great!"

"Against the rules", said the prof. "Don't tell a soul." He swept into the hallway and along a series of corridors. "Extraordinary business, all these troubles, don't you think?"

"That's why we came to see you", said Ellie, panting as she tried to keep up with the old man. "Mum thinks it's something to do with outer space but I wondered if it was pollution". The professor led them into a book-lined study.

"Sit down! Well, it seems that they now know what the problem is, even if they can't solve it. The silicon is being eaten by bacteria. The bacteria have attacked mineral deposits in the Earth's crust and it seems they have developed a taste for silicon chips. Or so I am reliably informed. As for the whys and wherefores, well, your guess is as good as mine. Now I expect you would like to see the telescope; stay here while I go and get a key."

With the professor out of the room, Joe and Ellie felt easier. On his desk were piles of glossy photographs. They showed the night sky in fantastic detail.

"Aha, my little friends!" said Joe, imitating the professor. "And vot have ve here?" He screwed his eye against a magnifying glass and looked at some of the photographs. Suddenly he stiffened.

"What's up, Joe?" asked Ellie, suddenly wary.

"Ellie", said Joe quietly. "What in heaven's name is that? Just in front of the comet?' . . .

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THE INVASION OF THE ARCADIANS

SCRIPT: LES COOKMAN
ART: JOHN STOKES
LETTERS: STEVE POTTER

MUST TRY TO LOCATE THEM... PICTURE THEIR POSITION. SO WEAK THOUGH... SHOULDN'T HAVE TELE-PORTED... AHH... WHO'S THIS...

AFTER ESCAPING FROM A GANG OF DAZERS THE MYSTERIOUS YOUTH IN BLACK HAD NOW TO FIND HIS SCATTERED GANG. HE HAD TRIED TO CONVINCE THEM THAT THE MIND WARP MACHINES WERE REALLY A MIND CONTROLLING DEVICE BEING USED BY ALIENS WHO PLANNED TO DOMINATE THE WORLD. THEY RAN IN FEAR AND NOW HE USED HIS STRANGE POWERS TO TRACK THEM DOWN.

AGGIE... JUST THE ONE I NEED... NOW IF I COULD ONLY CONVINCE HER THE OTHERS WOULD FOLLOW!

...SO I MAY AS WELL STAY AT KAREN'S FOR THE NIGHT, O.K. MUM? AFTER ALL IT IS SUN-DAY TOMORROW...

AGGIE, BUSY HELPING WITH THE CHORES LOOKS UP AND SEES...

NO, I DON'T MIND, DEAR, BUT MIND YOU'RE HOME BY LUNCH TIME... I'VE GOT YOUR FAVOURITE.

...D STANDING OUTSIDE!

...ER... UM... OH... THANKS MUM, I-I'M JUST POPPING OUT FOR A MINUTE.

HOW DID YOU FIND ME? I MEAN, I'D GIVEN YOU UP... ANY-WAY, I DON'T SEE HOW I CAN HELP YOU.

AH! BUT HOW WRONG YOU ARE, AGGIE! AFTER THAT *CLOSE ENCOUNTER* WITH THE *DAZERS*, PERHAPS NOW YOU'LL BELIEVE ME! IT'S *VITAL* THAT WE DESTROY THOSE WRETCHED MACHINES, AND TO DO THAT, WE MUST FIND OUT WHERE THEY COME FROM.

IF WE CAN FIND OUT WHAT THE MACHINES ARE INSTRUCTING KIDS TO DO, WE MAY FIND WHAT WE'RE LOOKING FOR. THE DAZERS MUST HAVE A CONTACT SOMEWHERE. IF YOU CAN PLAY MIND WARP ONE LAST TIME, WITH ME THERE TO HELP...
HOLD ON! PLAY THAT AWFUL GAME AGAIN?
SHE CHOOSES...
LOOK—I DUNNO WHO YOU ARE, D, OR WHERE YOU COME FROM, BUT I THINK YOU MIGHT BE RIGHT. O.K. LET'S DO IT!
WELL, THERE'S NO TIME LIKE THE PRESENT—EXCEPT IN MY CASE, THAT IS—LET'S GO AND HAVE A GAME OF MIND WARP—FOR THE LAST TIME WITH A BIT OF LUCK!
WE'D BEST GO IN THE BACK, AS THE ARCADES ARE NOWADAYS WATCHED CLOSELY BY DAZERS, AND FOR ONCE I'D LIKE TO AVOID ANY TROUBLE. O.K.?
RIGHT—LET'S GET ON WITH IT.
FOX
GOOD, THERE'S AN EMPTY MACHINE. ALL WE HAVE TO DO IS AVOID THE DAZERS AT THE DOOR. NOW, YOU MUST PLAY, OTHERWISE THE ALIENS WILL SENSE ME, AND THAT WOULD ALERT THEM!
10p
REMEMBER, JUST RELAX AND PLAY YOUR USUAL GAME. NO CLEVER STUFF, LET ME DO THE LISTENING. I CAN TUNE IN TO THE INSTRUCTIONS THEY GIVE. YOU WON'T EVEN HEAR THEM!

THE GAME PROCEEDS WITH THE USUAL THOUGHT CONTROLS, TRAPPING THE UNWARY HOSA BRAIN WAVES.
THEN COME THE INSTRUCTIONS. "YOU MUST SEND FOR YOUR FREE PERSONAL STEREO TO..."
THAT'S IT! THAT'S THE BREAK WE NEEDED. NOW WE KNOW WHERE THE CONTROLLING HEAD-SETS COME FROM; WE'VE GOT THEM... WELL DONE!
NOW WE'VE GOT TO FIND THE OTHER TWO. COME ON—QUIETLY!
I MUST USE MY MIND TO TRACE JO AND BENNY. WE NEED THEIR HELP IF WE ARE TO SUCCEED... MUST CONCENTRATE...
PHEW! DONE IT! I KNOW WHERE THEY ARE. JUST GIVE ME A MINUTE
THE TEAM IS COMPLETE!
I KNOW IT'S HARD TO BELIEVE, BUT YOU MUST TRUST ME AND TOGETHER WE CAN SAVE THE WORLD!
CONTINUED NEXT ISSUE!

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CONFLICT – Total war for two players, involving both the machinery [armies, missiles, warships] and finance [stock market, oil, piracy] of conflict.

To order quote the following references: – ZX81-16k: C-1; Spectrum-48k: C-2.

GALAXY CONFLICT – Raise the fleet of battle Eoncruisers then move from bridge to bridge taking full control and responsibility in this battle for the heavens – to prove yourself a born galactic ruler!

To order quote the following references: ZX81-16k: GC-1; Spectrum-48k; GC-2.

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1-01 **Stock Market**
Buy and sell your way to millions! 16K RAM **£3.95**

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Manage your team through a hectic league season! 16K RAM **£5.95**

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2-12 **Avenger**
(See 1-12 under ZX81). 48K RAM **£4.95**

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Guard your mother ship against alien attacks. 48K RAM **£4.95**

2-14 **Meteor Storm**
Spectrum version of the ever-popular arcade game. 16K or 48K RAM **£4.95**

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Popular space program brought to life by excellent graphics. 48K RAM **£4.95**

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Manoeuvre the frog across the road avoiding heavy traffic. 48K RAM **£5.95**

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The expert's version of the popular 'Invaders' game. 16K or 48K RAM **£5.95**

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The finest of golf handicap games. 48K RAM **£5.95**

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More exciting than the real thing! 48K RAM **£5.95**

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The harmless way to take on the one-armed bandit. 48K RAM **£5.95**

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See 1-21 under ZX81. 48K RAM **£6.95**

To: The Software Workshop, Yew Tree, Selborne, Hants GU34 3JP

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Total

I enclose a cheque/postal order for _____

Name _____

Address _____

SU7

(Allow 28 days MAXIMUM FOR DELIVERY)

BBC Model B

BBC Microcomputer Systems,
PO Box 7,
LONDON W3 6JX

Specifications

Price	**£399**
Numbers sold	**80,000+**
How sold	**Assembled**
Processor	**6502**
Standard RAM	**32K**
Expansion RAM	**—**
Basic + operating system	**16K**
Display	**80 characters × 30 lines**
Tape recorder	**Any**
Backing storage	**Disc drives**

Software

Acornsoft, c/o Vector Marketing, Denington Estate, Wellingborough, Northamptonshire NN8 2RL.
Soft Joe's Software, Business Centre, Claughton Road, Birkenhead, Merseyside.
Level 9 Computing, Department C, 229 Hughenden Road, High Wycombe, Bucks HP13 5PG.

Books

Newtech Publishing Ltd, 8 Forge Court, Reading House, Yateley, Nr Camberley, Surrey.
Granada Publishing, PO Box 9, Frogmore, St Albans, Hertfordshire AL2 2NF.
Sunshine Books, Hobhouse Court, 19 Whitcomb Street, London WC2 7HF.

Comments

The BBC Micro is generally regarded as the best microcomputer on the market, although it is very expensive. There are two models, A and B, but because of lack of demand the Model A is to be phased out of production. The Model B can be used as a business machine. It has a device called the tube which will allow a second CPU to be attached. The favourite second processor is the Z-80.

Program

The useful routine printed below enables the user to list the contents of memory locations and to change those contents at will.

```
   10 VDU22,7:INPUT"BYTE NUMBER ?"Q$:M%=EVAL(Q$):VDU12,31,10,1,33,83,46,65,100,9
7,109,115,33,28,0,22,39,3,14:FORX%=0TO255 STEP8:PRINTSTR$(M%+X%);:FORY%=0TO28 ST
EP4:PRINTTAB(Y%+6);STR$(?(X%+M%+(Y%/8)));:NEXT:PRINT:NEXT:VDU26,15:GOTO10
   20 REM TO USE   THIS  DECIMAL  MEMORY  VIEWER
   30 GOTO LINE 10 (IT CAN BE RENUMBERED TO ANY LINE IN THE PROGRAM)
   40  REM ENTER  LOCATION  IN  HEX (& ) OR DECIMAL
   50 WHEN SCREEN FULL USE SHIFT TO SEE NEXT BIT
   60 USE ESCAPE TO GET OUT OF PROGRAM.
   70  REM VDU22,7 CLEARS THE SCREEN BY CHANGING TO MODE 7
   80 REM  INPUT BYTE  MAY BE IN HEX OR DECIMAL  OR  A  CALCULATION  AS LONG AS
VARIABLES EXIST
   90 REM VDU12 CLEARS SCREEN.VDU28 SETS UP  LIMITED  TEXT  SCREEN  WITH  FOUR
VARIABLES FOLLOWING.
  100 REM X% GIVES NEXT 255  VARIABLES  FROM INPUT BYTE AND PRINTS LOCATION AS F
IRST BYTE ON LINE.
  110 REM STR$ MUST BE USED TO RESTRICT NUMBER TO POSITION ON SCREEN.
  120 REM ?(NUMBER)  MEANS  PEEK AT THIS LOCATION IN MEMORY
  130 REM Y% IS  USED TO  GET NUMBERS IN RIGHT PLACE ON SCREEN
  140 REM  VDU26  RESTORES  SCREEN  TO  NORMAL SIZE
  150 REM VDU 15 RESTORES PAGEING SCREEN TO SCROLLING SCREEN
  160 REM CAN YOU PUZZLE OUT THE REST OF THE VDU COMMANDS ?
>
```

Lightning Strike

YOU MUST survive the lightning strikes for as long as possible by moving left with "5" and right with "8". Whenever the lightning hits the ground it will form a hole and if you fall down one of them you will be trapped. Holes can be filled by standing next to them and pressing "P". The game was written for the 16K ZX-81 by David Jackson of Todmorden, Lancashire.

Graphics instructions have been written in small letters inside brackets to make them obvious. Do not enter those brackets. An inverse space is represented by isp, graphic 8 by g8, graphic 5 by g5, graphic A by ga, graphic H by gh and graphic S by gs. If a graphic character is to be entered more than once, the appropriate number and a multiplication sign will be given before it. Thus, 16 graphic Ss are shown as (16*gs).

```
  20 GOTO 1000
  30 RAND
 100 LET P=24
 110 LET L=0
 120 LET C=5
 130 PRINT AT 15,0;"(64*isP)"
 140 PRINT AT 14,5;"(9a)";AT 14,
25;"(9a)"
 150 FOR X=1 TO INT (RND*3+D)
 155 PRINT AT 14,P;"I"
 160 PRINT AT 3,C;"  (9*isP)  ";
AT 4,C;"    (8*isP)  ";AT 5,C;"
   (8*isP)  ";AT 6,C;"    (7*isP
)  ";AT 7,C;"     (6*isP)  ";AT
8,C;"      (5*isP)  "
 170 LET C=C+(C+8<P)-(C+8>P)+(IN
T (RND*3-1))
 180 PRINT AT 14,P;" "
 185 IF INKEY$="P" THEN PRINT AT
 15,P-1;"(3*isP)"
 190 LET P=P+(INKEY$="8")-(INKEY
$="5")
 200 PRINT AT 15,P;
 210 IF PEEK (PEEK 16398+256*PEE
K 16399)=0 THEN GOTO 500
 220 IF P=5 THEN LET P=6
 230 IF P=25 THEN LET P=24
 240 NEXT X
 245 PRINT AT 14,P;"I"
 250 LET Z=C+7+INT (RND*3)
 260 PRINT AT 9,Z;"(95)";AT 10,Z
;"(98)";AT 11,Z;"(95)";AT 12,Z;"
(98)";AT 13,Z;"(95)";AT 14,Z;"(9
8)"
 270 IF Z=P THEN GOTO 700
 275 LET L=L+1
```

```
 280 PRINT AT 9,Z;" ";AT 10,Z;"
";AT 11,Z;" ";AT 12,Z;" ";AT 13,
Z;" ";AT 14,Z;" ";AT 15,Z;" "
 290 GOTO 140
 500 PRINT AT 15,P;"I"
 510 LET Z=P
 520 GOTO 260
 700 PRINT AT 15,P;"(9a)";AT 14,
P-1;"(3*9h)";AT 13,P;"(9a)"
 710 PRINT AT 3,5;"THE LIGHTNING
 GOT YOU.";AT 5,0;"YOU DODGED ";
L;" BOLTS OF LIGHTNING"
 715 PRINT AT 6,7;"ON LEVEL ";6-
D
 720 PRINT AT 19,0;"PRESS A KEY"
 730 PAUSE 4E4
 740 CLS
1000 PRINT AT 0,10;"LIGHTNING ST
RIKE";AT 1,10;"(16*9s)"
1010 PRINT ,,"     ""P"" TO FILL
 IN A HOLE"
1020 PRINT ,,"YOU CAN""T GO PAST
 THE WALLS(9a)"
1030 PRINT ,,"DON""T FALL DOWN A
 HOLE"
1040 PRINT ,,"AS YOU CAN""T GET
OUT"
1050 PRINT AT 20,0;"ENTER DIFFIC
ULTY (1 TO 5)"
1051 LET A$=INKEY$
1052 IF A$<"1" OR A$>"5" THEN GO
TO 1051
1053 LET D=6-VAL A$
1070 CLS
1080 GOTO 30
```

HI ! I'M BRAINY and I really rate computers. I'm in Load Runner every issue so write to me at 196-200 Balls Pond Road, London N1 4AQ and I'll do my best to answer any questions you have.

Remember, Brainy's the name and, by the way, I will pay £1 to anyone whose name is mentioned. Write away!

BRAINY'S BRAINBOX

Practice make perfect programs

COULD YOU give me some hints about how to make up my own programs for a Sinclair ZX Spectrum?

Dominic Gastrell, Hilsea, Portsmouth.

THE BEST WAY to learn is by practice. Work through your handbook or an introductory book, such as *Easy Programming for the Spectrum* from Shiva, or the Collins *Starter Packs,* which have tapes, too. Try the programs suggested and make sure you understand the commands involved and how they are used. Then you can try your own simple program and, as you become more familiar with Basic, you will be able to write more difficult programs. Games and similar programs on cassette are usually long and complicated, as you can see if you LIST them. All the same, study them to learn what they do.

* * *

The origin of the PCs

I WOULD like to know who invented computers. What is his name?

Charles, London SW5

SOME PEOPLE think computers were created like Earth, with a big bang. That is not true; the invention was a slow and time-consuming process. As men have developed from Stone Age ape-like creatures, computers stem from simple adding systems over thousands of years. The first calculating machine with a memory was designed by Charles Babbage in 1833. You can find a detailed history of computers in the weekly strip on pages 18 to 19 of Load Runner.

* * *

More loading difficulties

COULD YOU help me solve a problem? My tape recorder will not load games from tapes properly. We have tested the tapes but they are O.K. Could you give me a few ideas?

James Sullivan, Bexley, Kent.

I AM having difficulty loading my ZX-81. I load the program as it says in the manual, roughly estimating the correct tape recorder level. The program will not load. I adjust the sound but still it does not load. Can you help me?

Russell Bron, Polmont, Falkirk.

FOR A START, check that the EAR and MIC plugs are in the correct sockets and that the EAR especially is not loose. If they are not firm, fix them in with Blu-Tack or something similar. Put the tone control on maximum if you have one. If you have failed with altering the volume of loading which may take time and patience—changing the volume gradually from near maximum down to minimum—try swopping the leads, removing the one in the MIC socket, and a different lead from a computer friend. If you know a fellow computer user—with the same computer, of course—try swopping tape recorders or lending your program to try on that computer.

* * *

How to spot the mistakes

I HAD a ZX-81 for a short time and I found that when I had programmed some games, they did not work due to faults in the programming. How do people find faults in such programs? Please tell me how to correct them.

Philip Cooper, Buxton, Derbyshire.

I PRESUME you are unhappy about mistakes in magazine programs. Well, they often have difficult-to-spot faults. First, check carefully what you have written with the written program you are copying and correct any copying mistakes you may have made. When you have found and corrected them and run the program, the computer will tell you which line is incorrect. All you can do then is to try to correct the line, using the manual and any help you can get from computer books or friends.

* * *

Cartridges for the Atari

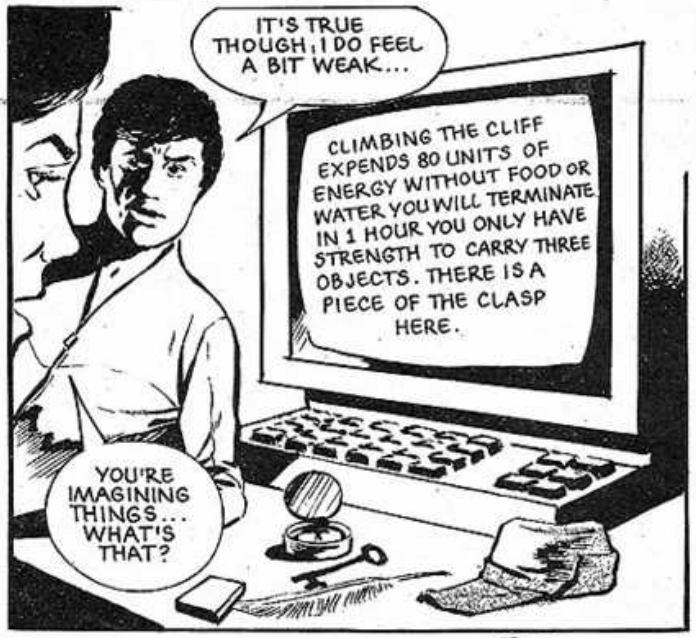
CAN YOU tell me if the Atari 400 or 800 could use cartridges for the Atari television game or do they need special computer cartridges? If they need them, are they difficult to buy?

Alan Endean.

THE 400 and 800 machines need their own special cartridges. They are, unfortunately, difficult to buy. You should be able to get them from a specialised Atari dealer. Also you can get them at good computer games shops and at computer shows. Often at shows the prices—from £15 to £30—are reduced.

TRUMBULL'S WORLD

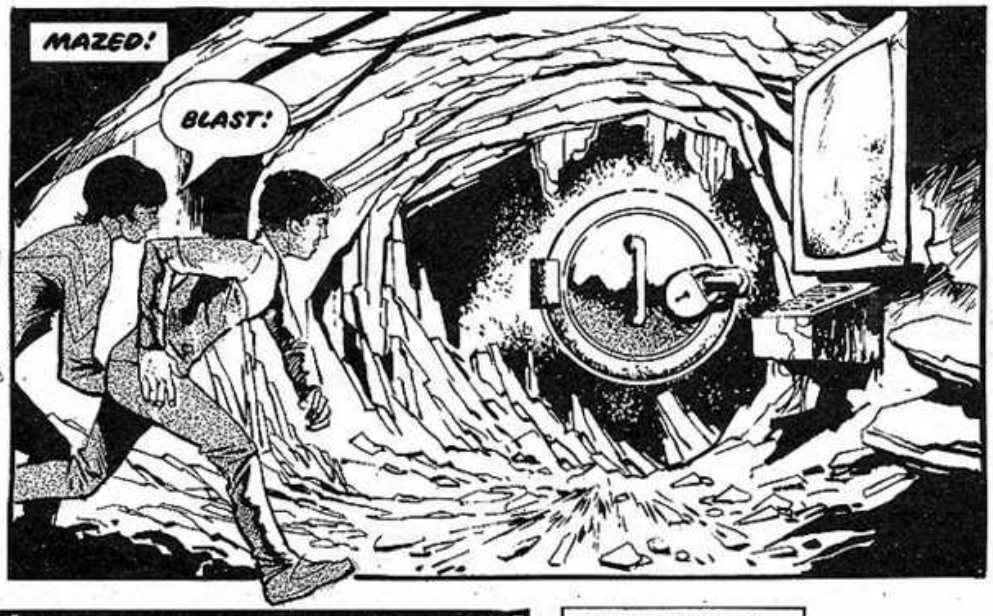
MARC AND **JAN** HAVE ENTERED THE **ADVENTURE GAME** CREATED BY THEIR FATHER ON HIS COMPUTER. THEY ARE SEARCHING FOR FIVE PIECES OF A **MYSTERIOUS CLASP,** WHICH WHEN RETURNED TO THE OUTSIDE WORLD WILL FREE MANKIND FROM THE OPPRESSION OF A TYRANNICAL GOVERNMENT LED BY THE CRUEL **SIMIAN.**



THE BIRD FLEES!
HUMPH! GREAT IDEA, MARC. JUST GREAT. C'MON.
WAIT, WE'VE STILL GOT TWO OBJECTS TO PICK, WHAT D'YOU THINK?
I THINK THE KEY AND THE COMPASS.
THAT COULD BE WHAT WE'RE SUPPOSED TO TAKE. I RECKON THE FEATHER AND THIS HAT.
leave knife.
take key.
take compass.
KNIFE IS LEFT
MMM... MAYBE YOU'RE RIGHT, I'LL LEAVE THEM.
WHAT'RE YOU GOING TO DO WITH A FEATHER AND A HAT?
THEY SET OFF INTO THE MAZE OF HEART'S END.
DOWN TWISTING TUNNELS...
PAST GUTTERING TORCHES...
AND ARCHES OF SHADOW.
LOOK JAN, ANOTHER KEY.
AND THERE ON THE WALL...

YOU ARE AT HEART'S END.
THERE IS A GOLDEN KEY HERE.
LET'S TAKE THAT AND LEAVE THE RUSTY ONE HERE.
YOU'RE PROBABLY RIGHT.
BUT THEY LEAVE TOO SOON.
C'MON, MARC... I'M GETTING TIRED.
LOGRE HAS HEARD YOU.
THERE IS A RUSTY KEY HERE.
THEY REST AND INTERROGATE ANOTHER SCREEN.
JAN, I THINK YOU'D BETTER COME HERE.
watch
TO THE NORTH IS A NARROW TORCHLIT PASSAGE
TO THE SOUTH, THE SAME.
EAST, WEST, UP, DOWN ARE IMPASSABLE.
YOU ARE BEING FOLLOWED.
AND IN THE DEAD SILENCE...
I THINK WE'D BETTER KEEP GOING.
NOT FAR BEHIND...
THEY SPEED AWAY.
JAN, LOOK, THE SCREENS!
WHAT ON EARTH..?!

THE LOGRE IS ON THEIR TRAIL!



JAN TRIES AGAIN...

THAT KEY DOESN'T FIT THIS DOOR.

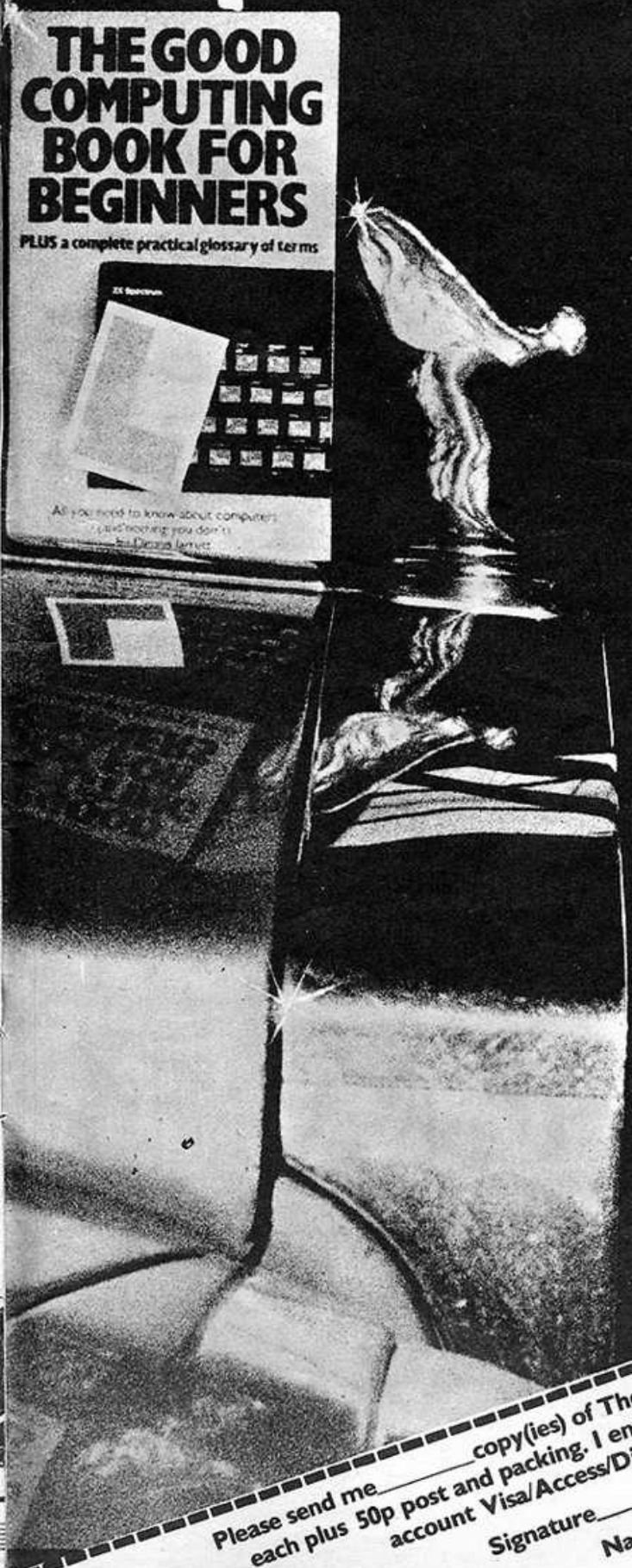
...THE SHADOW FALLS!

NEXT ISSUE: THE HUNTER AND THE HUNTED.

Second Edition Just Published

If you only buy ONE computing book

THIS IS THE CLASSIC!



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196-200 Balls Pond Road
London N1 4A

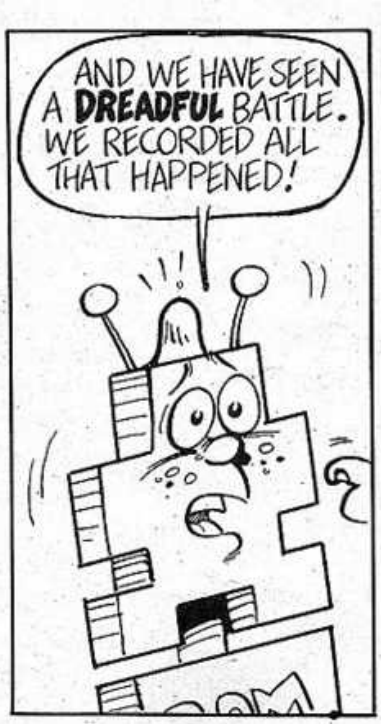
THE ADVENTURES OF
ROM AND RAM
A HOT STEAMY SUMMER'S AFTERNOON AT DUNZAPPIN.
IT'S TOO HOT TO PLAY COMPUTER GAMES
LET'S GO TO THE PARK TO PLAY CRICKET
INSIDE THE STEAMING COMPUTER ARE ROM & RAM, SPIES FROM THE PLANET ZILLYKON...
WHAT'S KRICKET RAM?
LET'S FOLLOW THE HUMANOIDS AND FIND OUT!
AT THE PARK
I THINK IT'S SOME KIND OF BATTLE
I'M GOING TO TAKE A CLOSER LOOK
RAM, COME BACK!
THAT MUST BE A BOUNDARY!
LOOK OUT! WE'RE BEING FIRED AT!
OUCH!
BONK!
WHAT HAPPENED? THAT SHOULD HAVE GONE FOR FOUR!
MUST HAVE HIT A LARGE DIVOT! TEE HEE!
I THINK WE SHOULD WATCH THIS STRANGE CONFLICT FROM A SAFER DISTANCE!
I HAVEN'T SEEN SO MANY STARS SINCE WE FLEW THROUGH THE MILKY WAY
WE MUST GET ANOTHER WICKET!
WE'LL BE IN TERRIBLE TROUBLE IF WE DON'T!
I'LL WRITE ALL THIS DOWN FOR OUR REPORT BACK TO ZILLYKON

DRAT! I WAS JUST ABOUT TO SCORE A CAREER BEST... ELEVEN
HOWZAT?!

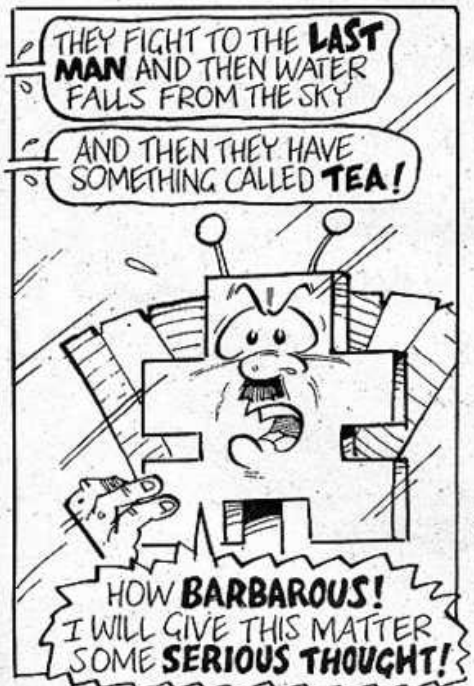
IT STARTS TO RAIN
I THOUGHT IT WOULD RAIN IF WE PLAYED CRICKET! NOW IT'LL BE COOL ENOUGH TO PLAY WITH THE COMPUTER AGAIN!

ROM AND RAM MAKE THEIR WAY BACK TO BASE
WE MUST REPORT EVERYTHING THAT HAPPENED, TO OUR LEADER, THE GREAT PIXEL
ROM
RAM

BACK INSIDE THE COMPUTER...
WHAT HAVE YOU TO REPORT ROM AND RAM?
TODAY WE DISCOVERED THE THING THAT THE HUMAN RACE MOST DESIRES...
IT'S CALLED A WICKET!
YOU MUST TRY AND GET ONE FOR ANALYSIS!


AND WE HAVE SEEN A DREADFUL BATTLE. WE RECORDED ALL THAT HAPPENED!

THE EARTH WARRIORS DRESS ALL IN WHITE, WEAR PADDED ARMOUR AND HAVE SQUARE LEGS!
IT WAS BLOODTHIRSTY- LOT'S OF SLICING AND CUTTING. I WAS HIT BY A LARGE PROJECTILE!


THEY FIGHT TO THE LAST MAN AND THEN WATER FALLS FROM THE SKY
AND THEN THEY HAVE SOMETHING CALLED TEA!
HOW BARBAROUS! I WILL GIVE THIS MATTER SOME SERIOUS THOUGHT!

AND HOW ABOUT SOME RE-INFORCEMENTS? WE REQUESTED...
TOO LATE! HE'S GONE. COME ON LET'S GET SOME SHUT-EYE BEFORE THE HUMANOIDS...
HEY! LET'S TRY OUT THIS GREAT NEW GAME PROGRAM FOR CRICKET!

HOW CAN HUMANOIDS CALL SOMETHING AS SERIOUS AS KRICKET A GAME?!!
STUMPS ME! HEY!! CAREFUL WHERE YOU THROW THAT THING!
ANDY ROBB
CATCH ROM AND RAM IN THE NEXT ISSUE!

SPACE INVADERS

FROM SIMPLE bat-and-ball games on home TV, games centres emerged. Space Invaders, the gradfather of all video arcade games, was introduced into the U.K. from Japan by Taitel Electronics towards the end of 1978.

Although there were 100,000 machines in Japan, only 46 units were installed in the U.K. for a trial period; they were an instant success. The demand for more Space that Taitel was compelled to employ other companies to help with the manufacturing.

The theme of Space Invaders was simple — rows of aliens marching back and forth firing missiles earthwards and getting lower on each contact with the edge of the screen. Flying saucers move across the top of the screen at intervals and can be fired at to score a mystery bonus.

The player controls a laser base which can be moved left or right along the bottom of the screen; his aim is to shoot down the entire invasion fleet before it reaches the bottom of the screen. Scores between two and four million have been recorded but for a dedicated player the sky's the limit.

High scores can be achieved by the 22-14 method, that is, firing 22 shots and waiting at the side of the screen for the flying saucer to appear. Shooting it at that point will give a maximum score of 300 points. Then fire another 14 shots and wait for the saucer, which will again give 300 points. Repeat the process until a new wave begins and then start again from 22.

The graphics compared to modern machines were relatively poor but were a revolution in their day.

Software

ATARI produced the first game of Space Invaders for the home TV games centre — the VCS — making record sales on both sides of the Atlantic. The game is virtually the same as the arcade game and there is also a version available for Atari 400/800 home computers with the title.

Commodore produces a similar version for its Vic-20 machine, Vic Invaders, with average graphics for the unexpanded computer.

Other computerised nasties include Spectral Invaders for the ZX Spectrum and TI Invaders for the Texas Instruments TI/99/4a which include many types of alien.

Star Rating out of 10:
Atari, 8;
Vic-20, 6;
Spectrum, 6;
TI/99/4a, 8.

Providing processor power to The Controller in publishing Load Runner were Bill Scolding (editor), David Hogan (advertisement manager) and June Mortimer (administration). Chris Winch, Harold Mayes MBE, John Sterlicchi, Terry Cartwright and Richard Hease linked into the system. The corporate might of ECC Publications of 196-200 Balls Pond Road, London N1 4AQ was utilised continually. Printout by Cradley Print PLC, Warley, West Midlands. Distributed by Spotlight Magazine Distribution Limited, 01-607 6411. ISSN 0264-8369. © 1983 Load Runner.