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First computer software from Activision

Games cartridge manufacturers Activision have just announced software cartridges for the Atari 400 and 800 home computers.

First titles are River Raid and Kaboom and their introduction marks Activision's entry into the computer software market. Up until now they have been producing plug in games programs for dedicated games playing consoles such as the Atari VCS and Matell Intellivision.

Both these titles retail at £29.95 and can be obtained from all good computer stores.

Continued on page 5

Joystick update and Spectrum amp from AGF

AGF have announced that it is reducing the price of its Programmable Joystick Interface to £26.95. Cheaper components and improved production techniques account for the reduction in price together with the omission of the second player socket. An 'auto-fire' feature has been added to compensate for this. The original Interface Module II

Continued on page 5

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Lynx disc drives

Owners of the Lynx can now add on up to four 5¼ inch disc drives, each with a capacity of 200K (formatted). Each comes in its own metal case with illuminated on/off switch and disk access light. The operating system, Lynx DOS is fully functional and available now. It adds 19 commands to the existing BASIC and allows all disk functions to be carried out. Connection is easy and made via the plug in disk interface with a simple keyed cable connector.

Computers, 33A Bridge Street,
Cambridge CB2 1UW

War Games from CCS

Latest in the range of war games from CCS is War 70, a Napoleonic war game in the tradition of the great war games that can last for days, and Pacific War, a simulation set in the Second World War on the Battle of Guadalcanal. War games fans will remember that CCS won the 1983 Cambridge Award for their Battle 17 program. They are also hoping for great things with these two new cassettes.

Cases Computer Simulations Ltd, 14 Langton Way, Blackheath, London SE3 7TL

Joystick interface with sound

Rainbow Electronics have just launched a new programmable joystick interface which is dedicated to the Sinclair Spectrum yet accommodates any software, while also offering sound amplification to boost the weak sound output from the Spectrum.

It can be used to convert those games that depend on the keyboard for operation and is universally applicable to any of the 40 keys. Price is £24 plus £1 p&p.

Rainbow Electronics, Glebe House, South Leigh, Witney, Oxfordshire OX8 6XJ

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Are You?
RICHARD SHEPHERD SOFTWARE



Commodore 64 users: there's two pages of software reviews and an article on programming in this issue

SCISOFT

Exams coming up? Try the £1,000 wordsquare competition on page 15 and you could win educational tapes from Scisoft



Our great strategy game, which starts on page 34, works on the BBC and Electron computers



Design your own characters on the Sord M5 — just type in the routine on page 12

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Leicestershire.



From front page

River Raid, designed by Carol Shaw, is an adventure game in which you are a fighter pilot faced with the task of destroying bridges along a river while the enemy does its best to shoot you down. The further you go, the more difficult it gets. Originally developed for the Atari VCS, the game is now enhanced with striking new graphics and outstanding sound effects.

Kaboom is billed as a whacky fast action reflex game in which you can either be a Mad Bomber or a fast catching Bucketeer, charged with the job of catching his bombs. Again full use is made of the Atari computer's improved graphics.

Activision Software Ltd, Goldins Hill, Loughton, Essex IG10 2RR

From front page

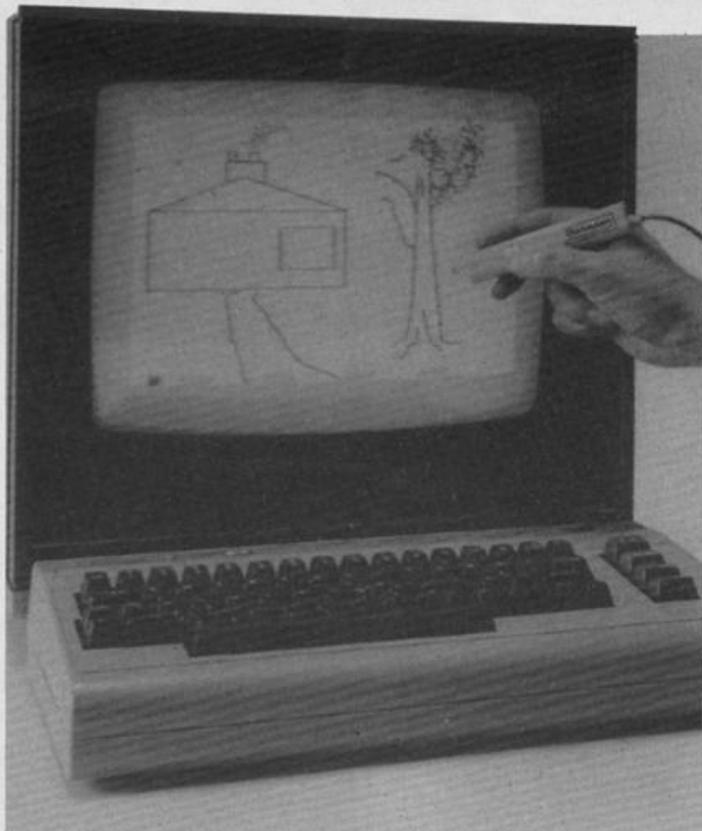
has been similarly modified and will now retail for £13.95 plus £1 p&p.

New from AGF is an amplifier and lead switching unit for the Sinclair Spectrum. Called Amplisound, it connects between the cassette recorder and computer taking its power from the computer itself. A three position switch allows you to LOAD or SAVE without removing any leads while the third position is for amplifying the BLEEP command. Retail price is £24.95 with £1 p&p.

Extender boards are also available price £5.95. They provide clearance between the back of the computer when cased in a keyboard and peripherals. These are available for both Spectrum and ZX81 computers.

AGF Hardware, 26 Van Gogh Place, Bognor Regis, West Sussex PO22 9BY

Drawing the light fantastic?



High-Res Draw program being used with the light pen

Lightpen technology comes to the Commodore 64 with the launch of the lightpen and compatible programmes from Datapen. Already experience has been gained on lightpens for the BBC B, Dragon 32 and VIC-20 computers; now this is applied to the Commodore 64 version.

There are three programmes supplied with each pen both on tape and as a listing which enables the user to incorporate the facilities offered easily into his own programmes. The first program is simply an introduction, highlighting all the features of the device.

The second, called colour draw, allows the user to produce a drawing by transferring the colour graphics characters from a menu to the desired position on the screen.

The third program, called Hi-Res Draw enables the user to produce a drawing down to 200 by 320 pixel resolution directly onto the TV screen. A Sprite creator and Editor will be available shortly.

The Datapen Lightpen for the Commodore 64 costs £25 including p&p.

Datapen Microtechnology Ltd, Kingsclere Road, Overton, Hampshire RG25 3JB

Opalsoft Alphabet

Just out from Opalsoft is Alphabet, a game designed by David Millidge. Designed as a spelling aid for young children, Alphabet, costs £6.95 and can be obtained from many good computer stores, or by post direct from the company. It is available for use with the BBC B computer only.

Opalsoft, 112 Arterial Road, Eastwood, Leigh on Sea, Essex SS9 4DG

You could be on our pages

We welcome programs, articles and tips from our readers.

PROGRAMS must always be sent on cassette. Listings are helpful, but not necessary. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.

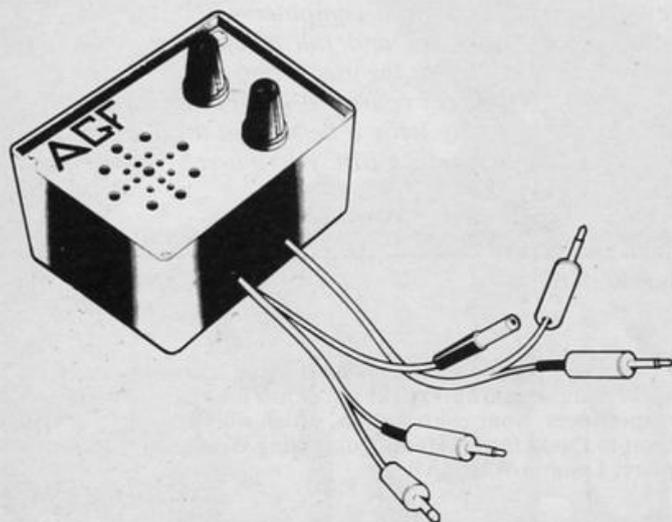
ARTICLES on using home computers should be no longer than 2,000 words. Don't worry about your writing ability — just try to keep to the style in HCW. Articles most likely to be published will help our readers made better use of their micros by giving useful ideas, possibly with programming examples. We will convert any sketched illustrations into finished artwork.

TIPS are short articles, and brief programming routines which we can put together with others. Your hints can aid other computer users.

Competitive rates are paid.

Keep a copy of your submissions and include an SAE if you want them returned. Label everything clearly and give a daytime and home phone number if you can.

Paul Liptrot, Home Computing Weekly, No.1 Golden Square, London W1R 3AB



The AGF Amplisound for the Sinclair Spectrum

Low cost printer and typewriter from Brother

Two new products just launched are the Brother EP44 Electronic typewriter and the HP-5 printer.

The EP44 runs off four 1.5 volt batteries, weighs less than 5lbs and offers all the facilities of a full typewriter as well as 15 character LCD display and full RS232C serial interface so it can be hooked up into most computers.

The 24 by 18 dot matrix printer gives letter quality print with full ascenders and descenders and can print either onto thermal paper or with a heat transfer cassette ribbon onto smooth finish plain paper. As well as the standard 44 character keyboard, a second shift key allows access to an additional set of foreign language characters and accents.

Simple word processing is possible with a standard letter being entered into the 4K memory and stop codes halting printing to allow individual items such as names and addresses to be entered.

Other functions include a printing calculator — four arithmetic functions are included plus percent and the results can be displayed on the LCD display alone if preferred.

As a computer printer the EP44 has the RS232C interface which allows easy connection to any model with a similar output. Print speed is 16 characters per second and continuous roll paper can be used.

With hardware connection or via an acoustic coupler, the EP44 can be used as a full function computer terminal. Baud rate is variable from 75 to 1200 and bit length can be either 7 or 8. And the price? £220.

At £179.95, the HP-5 printer brings good quality hard copy within the reach of many computer users. Column width is a full 80 characters with graphics capacity and the 9 by 9 dot matrix printer will use either thermal paper or plain paper with a heat transfer ribbon. Print speed is 30 characters per second. The full USA ASCII character set is available plus 63 block graphics and 17 international characters and symbols, and the HR5 can be supplied with either RS232C serial or Centronics parallel interface.

Brother Office Equipment Division, Shepley St, Guide Bridge, Audenshaw, Manchester M34 5JD

Integer BASIC compilers from Oxford

Oxford Computer Systems has developed a set of integer basic compilers that allow you to convert BASIC text files into machine code. This allows speed improvements of between 100 and 1,000 times those normally achieved and has been developed for the Commodore 64, 700/B-128 and the 3000/4000/8000 business computer range.

The package consists of two compilers — a resident compiler for experimentation and a disk to disk compiler. Unfortunately new programmes have to be drafted on the Commodore 8000 business machine before being cross compiled for the CBM 64 or 700/B-128, although it does mean that business programmes developed for the 8000 can now be used on the other machines.

Oxford Computer Systems, Hensington Road, Woodstock, Oxford OX7 1JR

Crazy about their status symbols...

About two years ago I got hooked on computers through a computer club at my school. I rushed into buying a TI-99/4A, which wasn't for me. I'm not saying it's rubbish — some of the cartridge software can't be matched and the speech synthesiser is brilliant — but I felt its BASIC was too limited and slow.

When I got my TI there were only four, maybe five, people in my form with computers. Since Christmas I estimate that more than half now have them. But instead of learning on them, all they do is play games such as Jet Pack and Horace Goes Ski-ing.

I think it's a waste of time for parents to fork out over £100 for a computer to play games on when you can buy an Atari games player for less than £80.

To most children the computer is a status symbol. All you hear is "...my computer has more memory than yours", "...my computer has better graphics than yours" and so on. One boy I know makes fun of the memory of another boy's ZX81. He has a VIC-20. But if you compare it with, say, the Commodore 64, who has the skimpy memory then?

Everybody is going computer crazy.

I've recently been bought a BBC micro and I've discovered the benefits of its superb BASIC and graphics. I must admit that at first I only played games on it. But now I've stopped playing games and have nearly finished reading the advanced user guide. Other kids are still playing games.

Children, including me, talk non-stop about computers. My mum sometimes gets worried about me because since I got my computer I very rarely go outside. I just sit in my room tinkering on my computer for at least five hours a day.

What really gets me is that some people think that if they get a really advanced computer with, say, 128K of RAM, proper keyboard and full colour high-resolution graphics, they think that the user is also great.

That's not true, of course. A good programmer on a ZX81 could probably write a better and more interesting game than, for example, a BBC micro user given the same time and effort.

Julian Shawcross
Manchester

● This space is for you to sound off about the micro scene, to present bouquets, to hurl brickbats, or just to share your opinions or experiences. Your contribution, which will earn a fee, should be sent to Paul Liptrot, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB.



The Brother HP-5 printer showing its graphics paces

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Chuckman 48K Spectrum £5

CCI, Units 2, 3 and 4, Shire Hill Industrial Estate, Saffron Walden, Essex CB11 3AQ

No, this is not another version of the ghost gobbling arcader, but an ingenious and very professional original game.

Some nasty soul has hidden time bombs within a massive maze which is 60 times screen size. These bombs have burning fuses which are much too short for comfort. Our hero — yes, you play him again — must rush around trying to defuse the explosives before the big bang. If that isn't enough, between you and the bombs stand the dreaded

booties, fearsome footwear Chuckman, who taps his foot impatiently while you think, can dig potholes for the boots to fall into. Energy can be replenished by paying a visit to one of the delightful little eateries scattered about. From time to time the computer decides to create an earthquake, which damages paths, often forcing you to change route.

The maze is very well programmed, and easy to get lost in. But for me the most entertaining section is the superb routine at the end of each game. Full screen size letters drift across with messages such as "you can do better".

instructions	100%
playability	55%
graphics	80%
value for money	80%



Pengwyn 32K BBC £6.95

Postern, P.O. Box 2, Andoversford, Cheltenham GL54 5SW

I quite enjoy strategy games such as noughts-and-crosses and Othello. I also really enjoy fast-moving arcade games. I was therefore delighted to discover that Pengwyn has magically captured the essential features of both and put them into one.

Pengwyn, the cute little polar inhabitant, has been given the job of lining up three special flashing ice cubes side by side. He can move the cubes by giving them a sharp kick and can clear a path for them by either moving or melting other blocks that can get in the way. Seems simple enough doesn't it? The only trouble is

that "smiley" monsters keep emerging from random ice blocks and coming to attack him. Pengwyn's only escape is to crush the monsters by kicking blocks at them (splat!)

A super game with good graphics. My only criticisms are that I found the keyboard controls too widely spaced for easy use and that the random element allows monsters to jump out immediately adjacent to Pengwyn — giving no chance of escape

instructions	P.D.
playability	80%
graphics	60%
value for money	95%



Danger Ranger Dragon 32 £8

Microdeal, 41 Truro Rd, St Austell, Cornwall PL25 5JE

Here is an unusual game which still retains the flavour of the arcades. It's a fast moving machine code presentation where the object is to collect keys and treasures.

The animation is superb with an initial choice of different coloured screens: black, buff or green background. This can affect the quality of the drawings where — in the buff version, for example — the score was decidedly blurred. I found green best, a compromise between colour choice and clarity.

You guide a man down a series of shelves picking up keys while

avoiding bats and laser firing urns. Why urns, I ask? They could equally have been robots! If you succeed then you proceed to the second screen where you negotiate acid coming from top and bottom. There are four demons which can be shot and treasure to collect.

This was a very addictive game initially but with only two screens it proved limiting. As you got better more hazards were added but the incentive to go on was lacking. These days it's not enough to see a mounting score — one has to be visually rewarded.

instructions	100%
playability	90%
graphics	90%
value for money	80%



PI-Eyed 48K Spectrum £6

Automata, 27 Highland Rd, Portsmouth, Hants PO4 9DA

If lavatorial humour and boozing are for you, then you may enjoy this. The PI Man, a huge-discovered purple splodge, is busy road à la Frogger. Steer him to avoid the cars and into one of the many buildings, and your senses are assaulted by either an excruciating "joke" or the inside of a pub, where obstacles like people, pool tables, dogs, crisp packets and "certain substances" must be negotiated. To escape and return to the street you must consume all the beer on the bar, avoiding the obstacles.

The scoring system is strange.

You start with huge quantities of points which are lost as PI Man is knocked down, obstacles hit or beer drunk. When you run out of each pint the PI Man sinks is totted up to give the final score. So avoid cars and obstacles and sink as many pints as possible to amass millions.

The graphics are certainly not up to the highest standard achieved on the Spectrum, but are acceptable, though controlling the PI Man without a joystick is very tricky. The humour is not to my liking; I got over the excitement of dog *0*?! years ago, but then I am 13 next birthday(!) All this game needs to be complete is a low score hall of fame!

instructions	D.M.
playability	90%
graphics	70%
value for money	75%
	65%



Counter Attack 32K BBC £6.50

OIC, 15 Burghead Cl, College Town, Camberley GU15 4XL

Amid arcade and adventure games, there remains a nebulous area of computer entertainment like noughts-and-crosses and Othello — the strategy games. Inventing a new game in this category must be the hardest task given to anyone; Counter Attack is a very good try.

The game involves a seven by seven vertical grid, into which the players may place their counters. The object is to produce a row of four counters of your own colour (horizontally, vertically or diagonally). This would seem pretty trivial, and far below the level of "serious games players",

were it not for the opportunity for each player of shifting a whole row or column of counters by one square, up, down, left or right. So the playing area takes on an almost spherical dimension, with players having to watch possibly important pattern changes.

As a computer game the advantage lies in the fact that tedious counter manipulations are carried out automatically, and it is in this way similar to computerised Orthello. As an adult I found the feel of the game rather slow, but I imagine that it will be popular with younger children. A good but not a great game. Needs O.S. 1.2.

instructions	80%
playability	60%
graphics	70%
value for money	75%



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The contents of the BASIC ROM in the Commodore 64 can be copied into RAM and then altered as you wish — in just the same way as the character ROM can be copied and then certain characters redefined.

In fact, the copying of BASIC is even easier because there is no need to switch off the interrupt routines. This article will use this technique to enable Commodore 64 users to redefine any error message or BASIC keyword — and in doing so gain a greater understanding of how the computer works.

Program 1 shows how this can be done. The loop in lines 10 to 30 copies the ROM into RAM, one byte at a time. Line 40 switches out the BASIC ROM, so that the RAM at the same locations is used instead. If you were to enter POKE 1,54 without copying the ROM, the computer would just do a warm start (same as pressing the RUN/STOP and RESTORE keys), leaving the BASIC ROM as it is.

Note that we are using RAM which shares the same memory locations as the BASIC ROM and is normally not used. This leaves the normal 38K free for BASIC programs.

The second part of Program 1 demonstrates how the BASIC vocabulary can be altered. The error messages and keywords are stored in ROM as blocks of ASCII code. Now that the BASIC language is in RAM, it is possible to POKE new values, representing characters, into the message tables to define alternative error messages and keywords.

Line 50 declares the memory location of the first character in SYNTAX. Line 60 is the string which is to replace SYNTAX. The loop in lines 70 to 90 takes each character in turn and POKES the ASCII code of each character into the message table.

While entering line 60, hold down the SHIFT key while pressing the last character to be printed. The program will take about 40 seconds to RUN, almost all the time being taken by the first loop. After running the program, enter something which would normally generate a SYNTAX ERROR (not difficult to do!) and see what happens. By changing the string in line 60 you can invent your own alternative to the dreaded SYNTAX ERROR.

The last character of each message in ROM is indicated by being a shifted character. Should you forget to shift this character, the next message in the table will be printed as well. Strings of more than six characters may be used (whole sentences may be entered if required), but the next message

Write your own BASIC ...almost

It's easy to tinker with the BASIC in the Commodore 64 — and gain more knowledge of the computer at the same time. S. A. Sassoon explains how to use his two short routines



Program 1 — copies the BASIC ROM into RAM

```

9 REM **** COPY BASIC ROM INTO RAM ****
10 FOR BYTE=40960 TO 49151
20 POKE BYTE,PEEK(BYTE)
30 NEXT BYTE
40 POKE 1,54 :REM SWITCH OUT BASIC ROM
47 :
48 :
49 REM **** REDEFINE SYNTAX ERROR ****
50 LOC=41525
60 MESSAGE$="SILL !"
70 FOR I=0 TO LEN(MESSAGE$)-1
80 POKE I+LOC,ASC(MID$(MESSAGE$,I+1,1))
90 NEXT
    
```

Program 2 — lists the computer's BASIC vocabulary alongside the memory locations

```

1 REM ** LIST MESSAGES IN BASIC ROM **
2 REM ** WITH THEIR MEMORY LOCATIONS **
3 :
10 PRINT CHR$(14):REM LOWER CASE
20 BEGIN=41118 :FINISH=41767 :GOSUB 100
30 BEGIN=41829 :FINISH=41865 :GOSUB 100
40 BEGIN=44284 :FINISH=44316 :GOSUB 100
50 END
98 :
99 :
100 PRINT:PRINT BEGIN;
110 FOR BYTE=BEGIN TO FINISH
120 PRINT CHR$(PEEK(BYTE));
140 IF PEEK(BYTE) > 128 OR PEEK(BYTE)=0 THEN PRINT:PRINT BYTE+1;
150 IF PEEK(BYTE)=13 THEN PRINT BYTE+1;
160 NEXT BYTE
170 RETURN
    
```

in the table will be corrupted. In the case of SYNTAX error, the RETURN WITHOUT GOSUB error message will be affected.

Program 2 will list the computer's vocabulary in the BASIC ROM alongside their memory locations.

The messages are stored in three blocks within the ROM. The first of these, which is by far the largest, contains all the BASIC keywords and error messages — including a few file errors not mentioned in the manuals. The second block contains general messages such as "READY.", and the third holds the two INPUT error messages. By altering these you can avoid the rather disconcerting "?REDO FROM START" and "?EXTRA IGNORED" messages from appearing while your programs are running.

These messages are terminated by a carriage return (ASCII value 13) rather than a shifted character. Also they must not be replaced with a string of greater length.

Lines 20 to 30 of program 2 give the memory locations of the three blocks. Each location is passed to the subroutine at line 100. This subroutine PEEKs each location in turn and prints the value as a character. If the character has shifted (has an ASCII value of more than 128) or is a null character (ASCII/ of 0) or is a RETURN character (ASCII value 13) then the next location is printed on a new line.

While entering Program 2 don't forget the semi-colons at the end of lines 100, 120, 140 and 150.

By noting the memory location of any message and replacing the value of LOC in line 50 of Program 1, any message can be redefined. Any location that is listed by the program, but is not followed by characters, must not be altered.

Commodore 64 users may wish to extend those ideas further to generate error-trapping routines — a feature which Commodore V2 BASIC lacks.

These programs show only the beginnings of what can be done by altering the BASIC language. However, it is not only the 64's vocabulary that can be changed. Using machine code routines it is possible to adapt the way that BASIC works — to add new commands or extend those already available. For those who are really adventurous, the Kernal operating system can be copied and altered in just the same way.

LLAMASOFT NEWS

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COMMODORE 64: After finishing HELL GATE Jeff took a couple of days to pop the code onto the '64. Whilst this is no Revenge or Hover Bover, we are offering HELL GATE 64 at the bargain price of £5.00... an interesting diversion to occupy a little time while you wait for Jeff's next '64 epic, which we can now reveal will be called

SHEEP IN SPACE — for which Jeff promises the usual great graphics and sound — and also a totally new control concept... so prepare to feel extremely sheepish in a few month's time.

Until then — to all our followers

- A) HAPPY BLASTING/MOWING/SPITTING ETC.
- B) DON'T SHOOT THOSE GOATS!!!

BY JEFF MINTER FROM LLAMASOFT

Jeff



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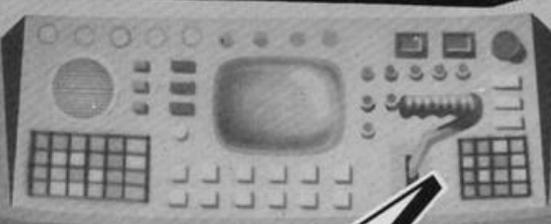
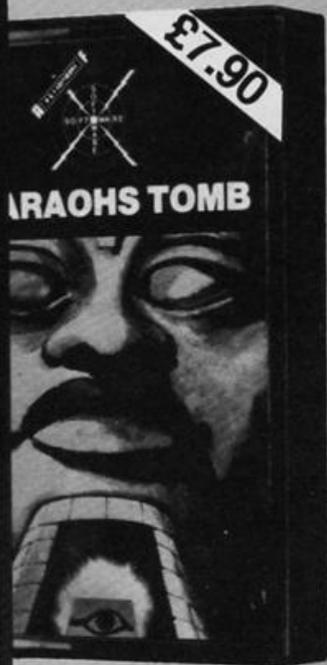
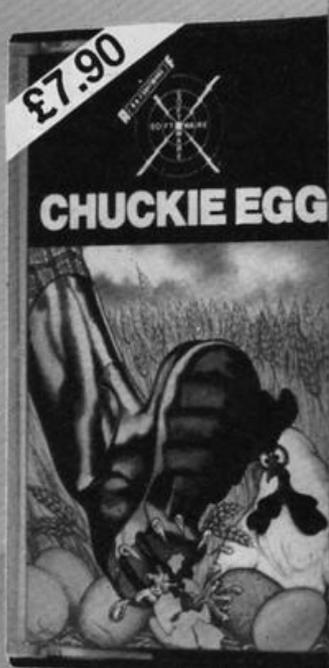
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Closing date is first post on Friday March 2.

The winners will be the first 70 correct entries opened at random after that date, regardless of computer or prizes chosen.

The prizes will arrive from Scisoft within 28 days of the publications of the issue containing the names of the winners and the solution.

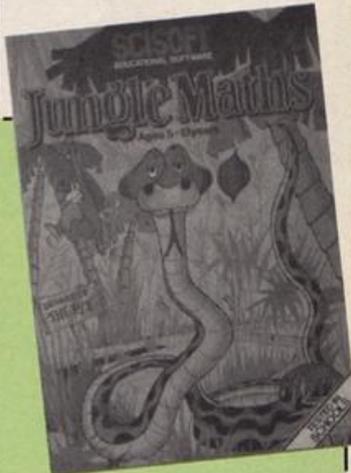
The rules

The first 70 correct entries opened after the closing date, Friday March 2, 1984, will win the prizes. They will be selected at random, regardless of computer owned or age group selected.

Entries which do not follow the guidance in the How to Enter section cannot be considered.

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

The editor's decision is final and no correspondence will be entered into.



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**Kongo Kong
£6.95**

Mogul, 90 Regent St, London W1R 5PT

Yet another version of Donkey Kong for the CBM-64, but I found this one nicely fills a gap in the "Kong market". The game has a slightly unusual screen layout and is quite easy to play on level 1 but rather hard on level 9.

Comparing it with other versions, Anirog's is far superior but requires quite a lot of skill and practice and Interceptor's is inferior and harder to control.

The first screen comprises of getting past barrels and working your way to the top. Screen two is a set of conveyor belts on which you must travel. The third screen is a complex set of gaps in the

floor through which you must jump and moving girders to hold onto. In the final screen you must collect the supports holding up the platforms. On doing this there's a nice display of collapsing platforms. You now go back to the start but the speed is faster.

Quite a few inaccurate things happen, such as barrels moving up ladders or over mid-air. These can be quite annoying as there is neither a pattern nor rules in play that the computer sticks to.

A quite good version, but overpriced compared with Anirog's version. **K.I.**

instructions	50%
playability	85%
graphics	80%
value for money	65%



**Revenge of the Mutant Camels
£7.50**

Llamasoft, 49 Mount Pleasant, Tadley, Hants

Beware, ZZaxians! Those camels are back on our side now, and ready to take everything you care to throw at them!

This game is very well presented, with a video-type case containing the cassette and a little instruction leaflet. One of the best things about it is that it loads fast — no more 15-minute waits before you can play. There's an experimental "Turbo" format recording on side one, and a normal version on side two in case your equipment won't accept this (mine did).

There are 42 different waves of nasties for your mutant camel to spit at, jump over or duck under, some of them extremely odd. Telephone kiosks, walking sticks, flying saucers — you name it and it's probably in there somewhere. You can work your way through the waves in order, or opt to have them selected randomly, when only the first 32 are available. You have five camels per game, each of which can survive quite a lot of hits before collapsing with legs in the air.

An extremely entertaining game, which will really challenge arcade aces as well as giving the rest a lot of fun. **M.N.**

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



**Hunter
£7.95**

Terminal, 28 Church La, Prestwich, Manchester M25 5AJ

This game has its origins in Pacman but it's sufficiently different to be original. It is also reminiscent of the motor cycle race in Tron.

You are chased by six enemy planes around a maze of 'corridors'. You can fire at, and destroy, an enemy plane when it's in the same corridor. However your shots go straight and the enemy plane doesn't hang around.

While you are moving around trying to destroy the planes they are inclined to ambush you. But at least you have five lives.

It's easy to clear the first screen of its six enemy planes. On each succeeding screen, however, the enemy move faster and by about the sixth you're a nervous wreck. At the start you type your name in and the screen displays the top three scores.

I enjoyed this game and kept coming back for more. It is addictive because it becomes more difficult slowly, so you think next time you'll be able to go a little bit further. **L.C.**

instructions	60%
playability	70%
graphics	60%
value for money	75%



**Five more
for your
CBM 64**

As proof of the computer's popularity, software houses have been beavering away with their Commodore 64s. Here's what our reviewers think of some of the latest

**Stellar Dodger
£7.95**

Terminal, 28 Church La, Prestwich, Manchester M25 5AJ

This game involves piloting a shuttle vehicle between a mothership and supply dumps. The mothership moves slowly across the top of the screen and the supplies, on red and yellow platforms, are at the bottom of the screen. In going between the two you have to pass through an asteroid belt.

The screen displays current score, high-score, trip number and fuel gauge — a vertical bar down the right of the screen. You only get topped up when you complete a round trip.

If you don't want to avoid the asteroids you can blast them, but there are rather a lot. While

you're positioning yourself to blast one you're likely to be sideswiped by another.

I was not very impressed by this game. The instructions were rather vague. The card said it was self demonstrating. Having loaded the program I sat for quite a time waiting for it to self demonstrate, but it never did. I eventually decided that you had to select the keyboard option and then do nothing for a demonstration.

The graphics were relatively crude. When the shuttle got hit or crashed several parts of the display started to flash in multicolour unison. Not a game I feel like coming back to. **L.C.**

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



**Arcadia 64
£5.50**

Imagine, 5 Sir Thomas St, Liverpool L1 6BW

Having seen this game advertised for just about every machine except the CBM-64, I often wondered if the opportunity to master it would come my way.

Arcadia consists of you, a galaxian-style laser base and various ships coming at you in fleets. The object is, as usual, to blast anything that moves. If you do not manage to get everything when directly above you then you get killed by missiles from them. This makes the game tedious and impossible at times.

The game uses 16 sprites (or at least it seems to). You may remember CBM claims you may have up to 256. The fault is that

only eight may be displayed each time the screen is scanned. The result is a constantly annoying flicker in the graphics. This could be the cat amongst the pigeons because the rest of the program is quite well written.

The game loaded perfectly each time, though there is one slight snag — it takes 20 minutes. The instructions are adequate and cover all aspects of play.

This is not exactly my type of game. Although I like space games on this theme, this one has less lasting appeal. However, after saying that, it is worth considering because of its price. **K.I.**

instructions	50%
playability	70%
graphics	60%
value for money	85%



PEDRO

“Vengo”

“Vengo”

“Vengo”

Pedro is one mad mexican gardener, and he's bringing his troubles your way.

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Can you block up the maze exits to keep them out of your garden?

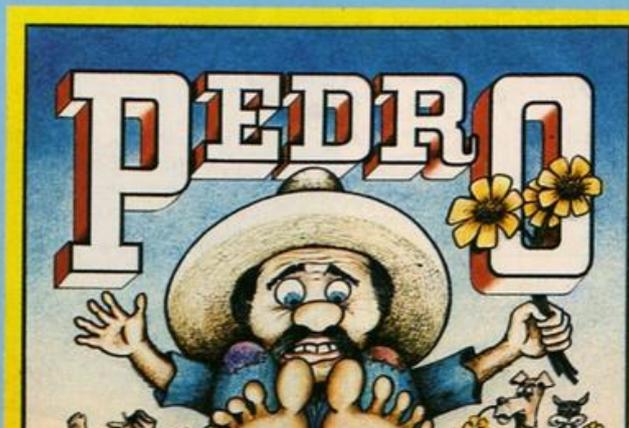
Can you scare away the thieving tramp who's after your precious seeds?

Can you stop yourself pulling out your hair with frustration?

Find out soon, with PEDRO.



For the
48K SPECTRUM
COMMODORE 64
DRAGON 32
BBC Model B
ELECTRON



TI-99/4A PROGRAM

How it works

- 100 REM
- 110-160 Y or N to instructions
- 170-290 instructions
- 300-830 define characters for screen, laser beam and set screen
- 840 set random column for alien descent
- 850-920 define alien, move alien
- 930-950 limit quantity of aliens
- 960-1090 fire laser beam
- 1100-1120 limit quantity of laser shots
- 1130-1140 stop alien when laser is fired
- 1150 decide if laser is on target
- 1160-1240 laser miss routine
- 1250-1270 score generator
- 1280-1430 game over
- 1440-1680 explosion routine

Laser Defence seems simple to play — there's just one key to press — but it's not as easy as it looks.

Use any key, I recommend the space bar, to fire your laser beam at the aliens as they ascend.

Only one alien will appear at a time and your number of shots is not restricted, although you can be fired by up to 20 aliens and then you have a maximum of 20 shots.

Variables

- E random position of alien between columns 1 and 24
- C row number of alien in steps of one from row 1 to 21
- I column number of laser gun in steps of -1 from column 29 to 1
- The other variables explain themselves

Don't be fooled... it's not so easy

Here they come again. Those aliens are determined to conquer us. You can stop them. Quickly type in Tim Freeman's program for the standard TI-99/4A

Hints on conversion

- TI BASIC is fairly standard with two main exceptions. Single statement lines are used and sub-routines for graphics and sound are available, prefixed with CALL, as detailed below.
- CALL CLEAR clears screen
- CALL SCREEN defines screen colour
- CALL CHAR defines a character with a 16-digit hex string from an eight by eight grid. Other machines will use a different method
- CALL COLOUR (character set, foreground, background) sets colour of character
- CALL HCHAR (row, column, character code, number of repeats) places character on screen at co-ordinates specified and optionally repeats character horizontally
- CALL VCHAR similar to HCHAR but repeats character vertically
- CALL GCHAR (row, column, variable) similar to a screen PEEK on other machines. Gives the ASCII code at the given screen co-ordinates
- CALL SOUND (D,F,V) gives sound of duration D, frequency F and volume V. Three sounds can be produced at once

It is wise to aim carefully and hit each alien in turn.

The best score possible is zero, which means that all aliens were destroyed without any harm to the city or its people.

```

100 REM LASER DEFENCE BY T FREEMAN
110 CALL CLEAR
120 PRINT "DO YOU WANT INSTRUCTIONS?          Y OR N"
130 CALL KEY(0,K,S)
140 IF S=0 THEN 130
150 IF K=78 THEN 300
160 IF K=89 THEN 170 ELSE 130
170 CALL CLEAR
180 PRINT "YOU ARE IN THE LASER CONTROL TOWER AND YOU ARE THE CITY'S ONLY FORM OF DEFENCE-----"
190 PRINT "          * You will be attacked by upto 20 aliens"
200 PRINT "          * You can shoot up to 20 times *"
210 PRINT "*****"
220 PRINT "YOUR OBJECTIVE IS TO DESTROY ALL ALIENS...YOUR SCORE WILL DEPEND ON THE S"
230 PRINT
240 PRINT "you should try for a score that is as close to zero as possible...the e higher the score the bad sining"
250 PRINT "          use the space bar to fire"
270 PRINT "          PRESS ANY KEY TO BEGIN"
280 CALL KEY(0,K,S)
290 IF S=0 THEN 280 ELSE 300
300 RANDOMIZE
310 CALL SCREEN(0)
320 CALL CLEAR
330 CALL COLOR(1,13,2)
340 CALL CHAR(33,"FFFFFFFFFFFFFF")
350 CALL COLOR(2,7,2)
360 CALL CHAR(40,"FFFFFFFFFFFFFF")
370 CALL CHAR(41,"7C6B3010F1F37F")
380 CALL CHAR(42,"366C8B8F8BFCF")

```

```

390 CALL CHAR(43,"FFFFFFFF90C060")
400 CALL CHAR(44,"FFFFFFFFF010306")
410 CALL CHAR(45,"1F3061D99D6930B")
420 CALL CHAR(46,"FB8CC3C187EFE")
430 CALL CHAR(60,"C0793B3B3B3B79C")
440 CALL COLOR(15,3,2)
450 CALL CHAR(144,"804020101020598")
460 CALL CHAR(145,"1010101010101010")
470 CALL COLOR(4,11,2)
480 CALL CHAR(61,"91523C3FFC3C4A89")
490 CALL COLOR(16,14,2)
500 CALL CHAR(152,"7E7E5A7EFFFFABEF")
510 CALL HCHAR(20,2,152)
520 CALL HCHAR(20,5,152)
530 CALL HCHAR(20,7,152,2)
540 CALL HCHAR(20,12,152)
550 CALL HCHAR(12,30,144)
560 CALL VCHAR(13,30,145,4)
570 CALL HCHAR(20,19,152,2)
580 CALL HCHAR(20,24,152)
590 CALL HCHAR(20,3,152)
600 CALL HCHAR(20,9,152,2)
610 CALL HCHAR(20,14,152,3)
620 CALL HCHAR(20,19,152,5)
630 CALL HCHAR(3,5,61)
640 CALL HCHAR(9,23,61)
650 CALL HCHAR(3,16,61)
660 CALL HCHAR(4,29,61)
670 CALL HCHAR(7,8,61)
680 CALL HCHAR(10,32,61)
690 CALL HCHAR(6,19,61)
700 CALL HCHAR(2,12,61)
710 CALL HCHAR(5,26,61)
720 CALL HCHAR(21,1,33,128)
730 CALL HCHAR(17,25,40,6)
740 CALL HCHAR(18,26,40,4)
750 CALL HCHAR(19,27,40,2)
760 CALL HCHAR(20,26,40,7)
770 CALL HCHAR(16,27,41)
780 CALL HCHAR(16,28,42)
790 CALL HCHAR(15,27,43)
800 CALL HCHAR(15,29,44)
810 CALL HCHAR(14,27,45)
820 CALL HCHAR(14,29,46)
830 CALL HCHAR(4,23,60)
840 E=INT(23*RND)+1
850 C="C3241010101024C3"
860 E="0000FF1010FF0000"
870 D="FFFFFFFFFFFFFF"
880 CALL CHAR(36,C)
890 CALL CHAR(37,E)
900 CALL CHAR(104,D)
910 CALL COLOR(10,2,2)
920 FOR C=1 TO 21
930 IF C=1 THEN 940 ELSE 960
940 ALIEN=RND*21
950 IF ALIEN=21 THEN 1270 ELSE 960
960 CALL VCHAR(C,E,36)
970 CALL VCHAR(C,E,37)
980 CALL VCHAR(C,E,104)
990 CALL SOUND(340,425,2,-6,1)
1000 CALL KEY(0,K,S)
1010 IF S=0 THEN 1190

```

```

1020 CALL HCHAR(C,E,36)
1030 A="0002093CFFC0802"
1040 CALL SOUND(3750,110,0,500,0,-0,0)
1050 CALL CHAR(120,A)
1060 CALL CHAR(104,D)
1070 CALL COLOR(12,4,2)
1080 CALL COLOR(10,2,2)
1090 FOR I=29 TO 1 STEP -1
1100 IF I=1 THEN 1110 ELSE 1130
1110 SHOTS=SHOTS+1
1120 IF SHOTS=20 THEN 1270 ELSE 1130
1130 CALL HCHAR(12,I,104)
1140 CALL HCHAR(12,I,104)
1150 IF (12/I)+(12/I)*(12/I)+(C/E)+(C/E) THEN 1250
1160 NEXT I
1170 CALL HCHAR(C,E,104)
1180 GOTO 1000
1190 IF C=21 THEN 840
1210 CALL SOUND(200,110,0,5000,0,250,0,-7,0)
1220 E=I
1230 NEXT C
1240 GOTO 920
1250 HITS=HITS+1
1260 IF HITS=20 THEN 1450 ELSE 1270
1270 SCORE=(ALIENS*SHOTS)-(HITS*HITS)*10
1280 CALL CLEAR
1290 CALL SCREEN(4)
1300 CALL COLOR(4,2,4)
1310 CALL COLOR(1,4,4)
1320 PRINT "YOUR MISSION WAS ACHIEVED AFTER YOU ALLOWED THE ALIEN TO KILL *J'S CORE"
1330 PRINT "THOUSAND PEOPLE IN YOUR CITY-----"
1340 PRINT "          Y OR N"          DO YOU WANT TO PLAY AGRINT"
1350 PRINT
1360 CALL KEY(0,K,S)
1370 IF S=0 THEN 1360
1380 IF K=78 THEN 300
1390 IF K=79 THEN 1400 ELSE 1360
1400 CALL CLEAR

```

```

1410 PRINT "GAME OVER          GAME OVER          GAME OVER"
1420 PRINT "          GAME OVER"          GAME OVER          GAME O.
1430 END
1440 CALL SOUND(-10,110,0,330,1,1000,0,-3,0)
1450 CALL HCHAR(C,I,36)
1460 CALL SOUND(-9,120,0,340,1,1010,0,-3,0)
1470 CALL HCHAR(C,I,40)
1480 CALL SOUND(-8,130,0,350,1,1020,0,-3,0)
1490 CALL HCHAR(C,I,37)
1500 CALL SOUND(-7,140,0,360,1,1030,0,-3,0)
1510 CALL HCHAR(C,I,40)
1520 CALL SOUND(-6,150,0,370,1,1040,0,-3,0)
1530 CALL HCHAR(C,I,36)
1540 CALL SOUND(-5,160,0,380,1,1050,0,-3,0)
1550 CALL HCHAR(C,I,40)
1560 CALL SOUND(-4,170,0,390,1,1060,0,-3,0)
1570 CALL HCHAR(C,I,37)
1580 CALL SOUND(-3,180,0,390,1,1070,0,-3,0)
1590 CALL HCHAR(C,I,40)
1600 CALL SOUND(-2,190,0,400,1,1080,0,-3,0)
1610 CALL HCHAR(C,I,36)
1620 CALL SOUND(-1,200,0,410,1,1090,0,-3,0)
1630 CALL HCHAR(C,I,40)
1640 CALL SOUND(1,210,0,420,1,1100,0,-3,0)
1650 CALL HCHAR(C,I,40)
1660 CALL SOUND(2,220,0,430,1,1110,0,-3,0)
1670 IF HITS=20 THEN 32767 ELSE 940
1680 END

```





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**McKensie
48K Spectrum
£5.95**

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

An adventure game with the unoriginal scenario of having to escape from an abandoned space station before your oxygen runs out. Instructions consist of two sides to aid the beginner entitled "What is an adventure", "Courtesy P. Kemp" — whoever he is. Then some Quicksilver-type blurb which says about as much as my first sentence, and finally half a side of loading instructions, very apt because the program didn't load until my fourth try. However, they don't actually tell you how to play! They don't say you must type "protein" — yes

protein — instead of "pills"; they don't say you can type the first three letters of certain objects. I only found out by listing.

Yes folks, it's written in BASIC. Not that I hold this against anybody, but I agree with John Braithwaite (One Man's View, HCW 45): "Machine code, BASIC or Chinese hieroglyphics, the buyer should be able to repeatedly load it, play it and enjoy it." It is too slow to be enjoyable. Faster adventures can be written in BASIC:

This comes from the same stable as Manic Miner, but is not of the same class: it is outstanding only in its mediocrity. As for why it's called McKensie, your guess is as good as mine.

instructions	45%
playability	45%
graphics	n/a
value for money	50%



**Chuckie Egg
Electron £7.90**

A&F, Unit 8, Canal Side Industrial Estate, Woodbine St, Rochdale, Lancs.

Just when you thought it was safe to go back on the farm, this game makes you think again. The idea is to collect eggs before storks devour the corn or you. The eggs are on different floors. Using ladders you can climb up or down. You can also jump down but, beware, if you fall below the ground floor the undertaker is in business.

The program lets you get used to the game gently. Climbing ladders and dodging nasties is great fun. Later it becomes very

skilful with the introduction of lifts as well to gain access to different floors. Everyone knows the dangers of falling down lift shafts, so be very careful.

You use two sets of keys and the space bar. Combinations of these allows you to move up or down, left or right and jump.

An enjoyable game with good graphics. If you are wondering what that duck is doing in the cage, clear eight sheets of the game to find out. The nightmare has begun.

instructions	70%
playability	90%
graphics	70%
value for money	95%



**Di-Lithium Lift
Spectrum
£5.95**

Hewson, 60a St Mary's St, Wallingford, Oxon OX10 0EL

The most compulsive games are usually the simplest in concept. Be warned: this game is no exception.

Remember the Sieddabs? We battled them in Hewson's last effort, 3D Space Wars. Well, they're back with a vengeance. Their armour division has to protect the priceless di-lithium crystals from light fingered Spectrum owners.

You must rush around the grid and grab as many as you can before enemy droids line you up in their sights. Each cluster of jewels is in a pattern, and each jewel must be grabbed before you can progress to the next, and more

hostile Sieddabs. A clock is ticking away, only replenished by grabbing red crystals.

Simple? It is. But don't let this fool you. This is one of the most difficult and compulsive I have ever played. Having stayed up all night I can report that I have cleared the first screen! Only seven more to go...

The most maddening aspect is that when you lose a life all crystals are replaced. In fact this game requires a different strategy to any other game I have played. Instead of watching your man you must keep an eye on the Androids who patrol the edges of the screen. An excellent game which I will still be playing months from now.

instructions	100%
playability	70%
graphics	80%
value for money	80%



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**Arcade-style games star-rated
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you buy**

**Birds of Prey
Electron £6.99**

Romik, 272 Argyll Avenue, Slough, Berks

A fast-moving invaders-type game where the aliens in space take the form of birds. At the start the birds appear in formation at the top of the screen. Your gun is stationed at the bottom and is moved and fired by either keyboard or joystick. There are four skill levels.

For each bird destroyed points are scored, these being lowest while the birds stay in formation, but as the game progresses they break ranks and attack begins in earnest.

There are three categories of bird: the Swoopers, these circle down the screen dropping bombs

as they come; the Death Bombs, to be destroyed before they reach the bottom of the screen or a life will be lost; and the Kamakazee Birds — the most elusive yet these will score the most points.

As each screen is cleared another formation appears and for every third screen completed an extra life gained. The game ends when no lives are left and a table of high scores displayed.

Additional features of the program include commands to turn off the sound, and pause to stop play when finger fatigue sets in.

instructions	100%
playability	85%
graphics	80%
value for money	80%



**Dragon Hawk
Dragon 32 £8**

Microdeal, 41 Truro Rd, St Austell, Cornwall PL25 5JE

Dragon Hawk is a "busy" game — there is a lot going on and you have to be on your toes. Your job is to prevent the hawk from carrying Freddy off and to score points. Armed with a rifle and a basket you have to shoot the hawk and then fetch the basket to catch Freddy. Other targets present themselves — flies, larvae and eggs — all of which are a potential nuisance. Although what the flying larvae are doing up there I've no idea!

Loading was no problem and the game — joystick or keyboard control — ran smoothly. What I found annoying was the very

messy screen presentation that spoiled some of the very good graphics. When the hawk rose to carry Freddy a thick black and white bar appeared. The larvae created a stepping stone barrier which you had to shoot through and sometimes prevented your reaching the basket. At some stages you have a littered screen which simply clogs up the game.

A good idea with some nice animation. A Top 10 score table is included and an auto mode. A lot of nice features but not enough to save the game.

instructions	100%
playability	50%
graphics	40%
value for money	30%





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WHAT DO YOU GET?

The bulk of our cassettes are now made by the factory which produced the Horizons tape. Programs are recorded twice and carry on the reverse side an audio narrative to supplement the operating instructions. Where appropriate, cassettes are accompanied by a comprehensive and clearly written instruction manual.

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16K ZX81

Here is a selection of titles still available for ZX81. Send s.a.e. for illustrated catalogue. These are the ZX81 equivalents of the Spectrum programs described above. Although similar in concept the specifications fall short of the descriptions given for the Spectrum.

"FOOTBALL-LEAGUE" Forerunner of "Day of the Match" £4.00

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LETTERS

Reviewer writes

I read with interest the letter from Neil Stelling, of Stell Software, in HCW 48. I reviewed his Maths Invaders program and I feel he deserves an apology. The points he makes are quite fair and, therefore, I would like to recommend this program to a far greater extent than my review would suggest.

The reason for my change of heart is that since the review was completed I have had the opportunity to test the program in school and with some reluctant learners. Unfortunately, the review was written during the Christmas holidays when no children were available for testing.

I hope Mr Stelling will, therefore, accept that while my opinions were sincerely held at the time the review was written, it is since then I have good reason to change them. I wish him every success with this program.
D.C., Home Computing Weekly software reviewer

Maths Invaders costs £7.95 and runs on the 32K BBC or Electron computers. From Stell Software, 36 Limefield Ave, Whalley, Lancs BB6 9RS

Spectrum isn't so bad

I am fed up with people complaining about the Spectrum and making jokes about it so I thought I would write in and tell your readers that it isn't so bad after all.

The times I have been in Boots or W. H. Smiths where computers are on show and I hear: "Ugh! Look it's one of those Spectrum things. It's so small. These keys are made of rubber."

Admittedly, the keys are not all that spectacular. But then again the keys on an Oric are bad. Also the sound isn't supposed to be very good. If you pass it through the tape recorder, or the TV (with an add-on) it sounds perfect.

Some people say the graphics are terrible, look at Ultimate's Atic Atac. On that they are excellent.

I noticed that in HCW Nos 46 and 47 you published letters showing you how to get to any level in Manic Miner. If you want to have endless lives, when loading, before the program to load the picture starts press C/S and B/S to break into the program. Then at line 25 insert POKE 35136,0. Now run the program and start the tape off again.

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



Another tip: if you want top scroll the screen up by one line then type LET L=USR(3280). Also, to find how much memory you have left type PRINT 65535-USR 7962.

Mark Crisell, aged 14, Great Totham, nr. Maldon, Essex

Any old computers?

I wonder if I could use the letters section of your magazine to make an appeal to your readers. I am involved with an ILEA Saturday school project in Islington. As part of our activities I run a computer group and although we have access to three Spectrums, we desperately need more facilities. There must be a number of people who have discarded to a cupboard their old ZX80 or ZX81 having bought a Spectrum or other micro. Perhaps some of these people would feel able to loan or donate such unused micros as the funding for this project is minimal. If anyone can help in any way perhaps they would contact me.

Stephen Oxford, Senior Teacher, Highbury Fields School, Benwell Road, London N7 7BW

Flight plan

As I am an avid user of the Psion Flight Simulator, I have found a novel idea to make it more interesting. All you do is find a map, around five miles to the inch, and draw grids on it the same as on the map in the program, for example 16 miles square. If you live in the S.E. you will find that the main runway in the program could represent the runway at Heathrow, and the club is in virtually the same portion as Ipswich. Thus, if you take off from Heathrow, example (MAIN), you can count the squares in relation

to where you are on the program map and you will see where you are. You can also tell how long it takes to fly from one place to another. Of course, this idea will work on any simulation program that has a map, with scale grids.

S. Warcand, Gillingham, Kent

Miner tips 1

In his letter about Magic Miner (HCW 47), S. Holland amended G. Holding's letter (HCW 45) by supplying the codes for all the caverns. They both appear to have forgotten about the indefinite amount of lives you can have.

Put MERGE "" and ENTER then LOAD first part, stop tape when 0 OK,01 appears at the bottom of the screen, put 25 POKE 35136,0 ENTER RUN,ENTER. Start tape when loaded, press ENTER 6031769 with boot on screen. You now have unlimited lives as well as access to sheets.

P. R. Capstick, Leeds, West Yorkshire

Miner tips 2

Having read tips on Manic Miner for the Spectrum on your letters page, I have a tip that may be of some use. Stop the tape about 11 seconds after it has begun to load, break the program and type 25 POKE 35136,0 ENTER it, push run and start the tape and let the program load. This enables you to play the game without losing any lives.

Steven Sheppard, Redfield, Bristol

More for the Oric

Magazines I buy nowadays are all featuring articles on Spectrums, BBCs and other micros. Hardly any of them have articles on the Oric-1. I must admit that HCW does feature most things about the Oric, but please could you print more than you do?
Alistair Crichton, Ayrshire, Scotland

We always take note of letters like this because we try to balance the content of the magazine according to the demands of our readers. But, please remember, that there are more than 20 home computers on the market. As always, contributions — programs and articles — are welcome for all home micros under £400. Oric owners take note!

Plotting the dots for extra colours

While reading an American computer magazine, I came across a program to put more than one colour on a mode 8 display, without altered display lists or any interrupts.

Eager to see the new colours, I typed in the program.

Disappointingly, all I got were ugly green and blue stripes. I investigated and found that the program plots the different coloured dots on an American TV, here the correct colours didn't show.

Program 1 should put nice shades of orange and blue on a US TV, but horrible shades of green and blue on a British TV.

By plotting every eight dot on our TV system, then every eight dot but with an offset of four across and one dot down, we get a coloured line.

If we zig-zag these dots down the screen we get a graphics 8 screen filled with a new colour.

By plotting dots in between these we can get a more distinct colour. Program 2 demonstrates this.

By starting the loops at

**Program 2 —
more distinct colour**

Follow the advice of Anthony Ball for more colours on any Atari. His three programs show how it works

Program 1 — horrible shades of green and blue

```
10 GRAPHICS 8:POKE 710,0:POKE 709,14:
  COLOR 1
20 FOR X=1 TO 300 STEP 2:PLOT X,50:
  DRAWTO X,90
30 NEXT X
```

```
10 GRAPHICS 8:POKE 710,0:POKE 709,14:COLOR 1
20 FOR X=0 TO 300 STEP 8:FOR Y=50 TO 90
  STEP 2
30 PLOT X,Y:PLOT X+1,Y+1:PLOT X+3,Y:
  PLOT X+4,Y+1:PLOT X+5,Y:PLOT X+6,Y+1
40 NEXT Y:NEXT X
```

Program 3 — how "new" colours can be used

```
0 DIM SALES(8):FOR N=1 TO 8:SALES(N)=INT(
  RND(0)*60):NEXT N
10 GRAPHICS 24:COLOR 1:POKE 709,14:
  POKE 710,0
20 DIM TEXT$(40):WRITE=1000:SCR=PEEK(88)+
  PEEK(89)*256
25 X=14:Y=4:H=2:TEXT$=" Artifacts ":
  GOSUB WRITE:REM Artifacts IS INVERSE
26 X=10:Y=30:TEXT$="Plotting the dots":
  GOSUB WRITE
27 X=12:Y=60:H=1:TEXT$="By Anthony Ball":
  GOSUB WRITE
28 FOR N=1 TO 1000:NEXT N:
  ?£6;"(ESC-CTRL/CLEAR)":
30 LINE=2000
40 FOR N=20 TO 122 STEP 2:PLOT N,0:
  DRAWTO N,11:NEXT N
50 X=5:Y=2:H=1:TEXT$="American":GOSUB WRITE
60 COL=1:BX=20:EX=120:SY=8:BY=13:EY=24:SY=2:
  GOSUB LINE
70 Y=15:TEXT$="Colour 1":GOSUB WRITE
80 BY=26:EY=37:GOSUB LINE:Y=28:
  TEXT$="Colour 2":GOSUB WRITE
90 BX=19:BY=39:EY=50:GOSUB LINE:Y=41:
  TEXT$="Colour 3":GOSUB WRITE
100 BY=52:EY=63:GOSUB LINE:Y=54:
  TEXT$="Colour 4":GOSUB WRITE
105 FOR N=66 TO 77:PLOT 18,N:DRAWTO 122,N:
```

various points we get different colours. Program 3 shows this, and also demonstrates a way in which these "new" colours can be used in a "serious" application.

If you leave the program for about a minute it will shift the colours — not normally possible with these colours — by moving the screen up and down by one pixel.

A lot of American games use these "artifacts" to get more colours without using the resolution of mode 8. Unfortunately, these haven't been converted to the UK's TV system and so we get the ugly colours from program 1.

The only solution to this is to write two versions of each program: one for America and one for the UK. The sooner American games writers realise this the better!

Note: Due to colour balances on some TVs, these "extra" colours may not appear. Try turning up the colour/luminance controls on your TV.

```
NEXT N:Y=68:TEXT$="Colour 5":GOSUB WRITE:
  REM Colour 5 IN INVERSE
106 PLOT 18,79:DRAWTO 18,90:DRAWTO 122,90:
  DRAWTO 122,79:DRAWTO 18,79:Y=81:
  TEXT$="Colour 6":GOSUB WRITE
107 GOSUB 3000
108 REM LINES 110 TO 130. A '*' IS A SHIFT =
  110 H=2:X=20:Y=0:TEXT$="S *":GOSUB WRITE:
  Y=16:TEXT$="a *":GOSUB WRITE
120 Y=32:TEXT$="1 *":GOSUB WRITE:Y=48:
  TEXT$="e *":GOSUB WRITE
130 Y=64:TEXT$="s *":GOSUB WRITE:Y=80:
  TEXT$=" *":GOSUB WRITE
140 H=1:Y=96:TEXT$="
  ":
  GOSUB WRITE:REM 3 SPACES, THEN CTRL-K,
  THEN 16 INVERSE CTRL-U'S
150 H=2:X=30:Y=110:TEXT$="Weeks":GOSUB WRITE
160 H=1:X=23:Y=100:TEXT$=" 1 2 3 4 5 6 7 8":
  GOSUB WRITE
170 Y=88:X=22:FOR N=49 TO 54:TEXT$=CHR$(N):
  GOSUB WRITE:Y=Y-16:NEXT N
175 FOR C=1 TO 0 STEP -1:COLOR C
180 COL=2:N=1:SY=1:BY=94:SY=-2:
  FOR BX=194 TO 306 STEP 16:EX=BX:EY=SALES(N):
  GOSUB LINE:N=N+1:NEXT BX
185 NEXT C:FOR C=1 TO 0 STEP -1:COLOR C
190 N=1:BY=93:FOR BX=194 TO 306 STEP 16:
  EX=BX:EY=SALES(N):GOSUB LINE:N=N+1:NEXT BX
195 NEXT C:FOR C=1 TO 0 STEP -1:COLOR C
200 N=1:BY=94:FOR BX=195 TO 307 STEP 16:
  EX=BX:EY=SALES(N):GOSUB LINE:N=N+1:NEXT BX
205 NEXT C:FOR C=1 TO 0 STEP -1:COLOR C
210 N=1:BY=93:FOR BX=195 TO 307 STEP 16:
  EX=BX:EY=SALES(N):GOSUB LINE:N=N+1:NEXT BX
220 NEXT C:COLOR 1
230 DLIST=PEEK(560)+PEEK(561)*256+4
240 SCREEN=PEEK(88)+PEEK(89)*256:SCREEN2=
  SCREEN+40:SCR2A=INT(SCREEN2/256):SCR2B=
  SCREEN2-(256*SCR2A)
```

ATARI PROGRAMMING

```

250 SCR1A=INT(SCREEN/256):SCR1B=SCREEN-
(256*SCR1A)
260 POKE DLIST,SCR2B:POKE DLIST+1,SCR2A:FOR
N=1 TO 500:NEXT N
270 POKE DLIST,SCR1B:POKE DLIST+1,SCR1A:FOR
N=1 TO 500:NEXT N:GOTO 260
1000 REM WRITE
1005 FOR L=1 TO LEN(TEXT$):INV=0:TEXT=
ASC(TEXT$(L,L)):IF TEXT>127 THEN TEXT=
TEXT-128:INV=1
1010 IF (TEXT<32) THEN TEXT=TEXT+64:
GOTO 1030
1020 IF TEXT>31 AND TEXT<96 THEN TEXT=
TEXT-32
1030 START=40*Y+X+L-1:LOC=START:FOR L2=
0 TO 7:BYTE=PEEK(57344+(8*TEXT)+L2):IF INV=
1 THEN BYTE=255-BYTE
1040 FOR L3=1 TO H:POKE SCR+LOC,BYTE:LOC=
LOC+40:NEXT L3:NEXT L2:NEXT L
1050 RETURN
2000 REM LINE
2010 FOR L=BX TO EX STEP SX:FOR L2=BY TO EY
STEP SY
2020 IF COL=1 THEN PLOT L,L2:PLOT L+1,L2+1:
PLOT L+2,L2:PLOT L+3,L2+1:PLOT L+5,L2:PLOT
L+6,L2+1
2030 IF COL=2 THEN PLOT L,L2:PLOT L+1,L2+1:
PLOT L+2,L2:PLOT L+3,L2+1
2040 NEXT L2:NEXT L:RETURN
3000 FOR N=18 TO 121 STEP 8:PLOT N,92:
DRAWTO N,103:PLOT N+2,92:DRAWTO N+2,103:
PLOT N+5,92:DRAWTO N+5,103:NEXT N
3010 Y=94:TEXT$="Colour 7":GOSUB WRITE
    
```

```

3020 FOR N=19 TO 121 STEP 8:PLOT N,105:
DRAWTO N,116:PLOT N+2,105:DRAWTO N+2,116:
PLOT N+5,105:DRAWTO N+5,116:NEXT N
3030 Y=107:TEXT$="Colour 8":GOSUB WRITE
3040 RETURN
    
```



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Creator's Revenge £7.95

Mogul, 90 Regent St, London W1R 5PT

My four year old loves this sort of game — waggle the joystick and fire like mad while sound and colours pour forth. For me, the enjoyment won't be so lasting. Yes, there are some splendid targets to shoot at, there are ants, butterflies, birds, wasps, rockets, tanks and even bonus 'treasure' to collect as it slips down amongst the nasties. But the addiction soon wears off.

There is little or nothing in the packaging to indicate what to expect, and the address of the supplier is nowhere to be found. It has a pause facility, for when the telephone rings, and a restart

option for when you lose a life early on. I especially like the ability to type 'EX' and exit the game back to BASIC. That's so much better than turning off and on again — other programmers please note.

Once upon a time, when Space Invaders was giving way to Galaxian, this would have been knockout. Now it's good but unexceptional, and a little bit overpriced. The computer games industry is a place of tough competition. If this company, wherever they are, can't do better than this one, they won't be lasting very long.

B.J.

instructions	60%
playability	80%
graphics	85%
value for money	60%



Manic Miner £7.95

Software Projects, Bear Brand Complex, Allerton Rd, Liverpool

This game is excellent, not perfect, not incapable of improvement, but definitely top class. It's not even totally new as it was translated from a Spectrum program. But the 64's sprites, colour, graphics and sound are all used to produce this remarkable piece of software.

The concept is in the Crazy Kong mould, but there are 20 screens to negotiate. The assortment of obstacles to be jumped over, platforms to be leapt from and pitfalls to avoid is the product of an extremely fertile mind.

Unfortunately, the first screen

is one of the hardest and since there is no choice of starting screen, I can only comment on the first half dozen. Once you sort out exactly where and when you make your moves, it's a case of maintaining your reactions and concentration. Mine usually desert me at the vital moment. It does have a pause facility, music on/off option and choice of keyboard or joystick control, all useful features. A word of warning: it takes 13½ minutes to load! Mind you, it's worth waiting for.

B.J.

instructions	80%
playability	95%
graphics	97%
value for money	92%



How good are your reactions?

Another five games for the Commodore 64 — a computer that seems, from the amount of software being released — to be rapidly increasing in popularity

Crazy Balloon £7.95

Software Projects, Bear Brand Complex, Allerton Road, Liverpool

Another arcade classic translated and enhanced for the Commodore 64.

In case you don't know the idea, you guide a balloon around prickly mazes — one touch and pop! The balloon sways gently from side to side and some obstacles have to be passed at just the right angle. To add to your problems, there are assorted mobile balloon-bursting shapes to dodge, plus bonus squares that you do want to bump into to collect the bonus. Scores for each of the 26 screens depend on how fast you complete them. You start with five lives but gain an extra

one for each screen successfully completed.

There is a choice of keyboard or joystick control and I found the joystick very smooth and pleasant to use. Colour and graphics generally are pleasing, with a lovely looking and sounding balloon burst.

Moans: I'd prefer a choice of entry screen; it displays score of 'Player 1', but there is no two player option as far as I can tell; the packaging and instructions aren't terribly helpful. Nevertheless, it's a good game, tolerably well implemented.

B.J.

instructions	60%
playability	85%
graphics	82%
value for money	70%



Annihilator 2 £5.99

Mogul, 90 Regent St, London W1R 5PT

Annihilator 2 seems to be a descendant of the popular arcade game Defender. It is not quite as good but almost equally addictive.

The object is to blast everything in sight, except certain space beings and debris. You may fire horizontally and move in all directions. All this would be quite easy if it was not for the fact that the objects tend to move in your direction. If you do not keep moving it's fairly certain you will not last more than a few seconds. The game is played on a series of levels; each consecutive level being harder.

You need fast reactions and a

high quality joystick is necessary (I used a Quickshot). The game is harder to play using a cheaper, less sensitive model.

The program loaded well, although it is only saved on one side. I would have thought it common practice to use both sides by now.

The graphics could be improved considerably in places. For the sake of a few more hours when writing the program, a potentially very good game has been downgraded.

The instructions, on a program title page, are badly set out and hard to read.

K.I.

instructions	15%
playability	70%
graphics	50%
value for money	75%



Paratroopers £5.99

Rabbit, 380 Station Rd, Harrow, Middlesex

A game for people with limited skill and a perverted sense of humour.

You have control of a gunner, who has to shoot down helicopters and the paratroopers who jump out of them. Every now and then a bomber comes over. You cannot shoot these, but must shoot or dodge the bombs they drop.

You have only one life, which you lose if a bomb or a paratrooper lands on you. If you allow too many paratroopers to land, they march off and fetch a tank to shoot you with; your controls

freeze when this happens, so you just have to sit there and wait to be blown up.

The graphics are very good. The gun rotates nicely, and the helicopters and tank are very well drawn. Sound effects are limited to boom! boom! bang!

You can choose vertical or angled fire, a stationary or mobile gun base, single shot or rapid fire. I found rapid vertical fire with a mobile base was best. The game still didn't last long, though.

It seems a shame that such good graphics and programming should have been wasted on a game like this.

M.N.

instructions	20%
playability	40%
graphics	80%
value for money	40%



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Let's zap a few aliens again

Fancy another trip into space? Here's a batch of the latest space games for the Spectrum, Dragon 32 and TI-99/4A

Skramble Dragon 32K £8

Microdeal, 41 Truro Rd, St Austell, Cornwall PL25 5JE

Starting with three spacefighters you must penetrate the enemy's defences which are on five levels. On level one you must avoid the ground defences. On level two you must fly through a cave where there are UFOs. The next level, also in the caves, contains meteorites. Levels four and five are a fortress and a maze respectively. Points are gained for each enemy destroyed and there are fuel dumps along the way. It is important to destroy some of these to maintain your fuel level, displayed on-screen. An extra ship is awarded at 10,000 points.

Two players can compete and you can use joysticks or keys. I preferred to use keys for finer control. The screen display is a side view of the area over which you are flying. At the top the score for both players and the highest score is displayed. The number of fighters for each player is also shown. Your fighter can fire a cannon and launch two bombs at a time. At the end of the game there is a high score table.

Graphics are smooth flowing and I quite enjoyed playing this game, although the price could be lower. Full instructions are on the insert, but in very small type.

J.E.M.

instructions	75%
playability	70%
graphics	80%
value for money	70%



Tobor 48K Spectrum £5

CCI, Units 2, 3 and 4, Shire Hill Industrial Estate, Saffron Walden, Essex CB11 3AQ

Exciting instructions and a very attractive title screen, but the game fails to live up to its image. According to the blurb, you have made a forced landing on a distant planet and must collect fuel capsules to escape. Unfortunately the planet Kalanium is populated by rather hostile robots who are understandably upset that you are stealing their fuel. They patrol, quite stupid too — for no apparent reason they will often disintegrate.

A tediously long introduction has to be sat through at the beginning of each life as your humanoid and the robots take up positions. On losing a life the computer plays a very downbeat version of the Funeral March.

Use of graphics is very limited, although sound and colour are quite good. You soon find to your cost that the green robots are indestructible.

Although I cannot understand why, I found the game quite compulsive at first. This soon wears off when you are faced with more and more robots to disintegrate.

instructions	T.B.
playability	65%
graphics	40%
value for money	35%



Aries TI-99/4A £6

Stainless Software, 10 Alstone Rd, Stockport, Cheshire SK4 5AH

A dodge-em and blast-em type game set in outer space.

Your space pod descends from its mothership at top left of the screen. This must be manoeuvred through debris that continually crosses its path until in line with an alien space craft and its cargo. After blasting the alien and collecting its treasure you return to the mothership before your pod's fuel runs out. This continues until all cargo has been collected. The number of these depend on the rounds completed, there being five in all. After every round an alien control ship

appears which must be blasted six times in succession to destroy.

Points are awarded for the number of cargoes collected and ships destroyed as multiples of rounds played and skill level adopted. There is a choice of five skill levels. Extended BASIC and joystick are needed.

At the end of a game the score is given and if sufficiently high you enter the Hall of Fame. Here there is an option to save and load your high scores on file. Unfortunately the scoring system of the game is at fault as in all following games the program fails to reset to zero.

J.W.

instructions	50%
playability	75%
graphics	70%
value for money	80%



Stonkers 48K Spectrum £5.50

Imagine, 5 Sir Thomas Street, Liverpool L1 6BW

Having invaded, you command the port and supply facilities for tanks, artillery, and infantry. You keyboard or joystick over the battle area, divided by a river with a single bridge, with a large cursor. This cursor area is examined in larger detail by pressing fire. In magnified mode, using fire button and smaller cursor, you deploy your forces to new positions, check their status and move supply trucks to them.

A "Tickertape" displays a sample message: "Division needs supply". It would be helpful to know which division. Mine stopped and gave "instructions

understood" long before I had got them where I wanted. And my supply trucks must be black marketeering, since they rarely reach where I sent them. Even my infantry have a distressing tendency to die miles from the enemy and yards from the supply area.

Perhaps I am not cut out to command or the program is bugged. I tried two different cassettes and both sides of each either crashed or NEWED after about 10 minutes of play.

Pleasant graphics, not a lot of movement. Too little action for arcaders — not enough information for strategists. A bit disappointing, really, from D.C.

instructions	90%
playability	40%
graphics	60%
value for money	70%



Lunar Rescue 48K Spectrum £5.95

Lyversoft, 66 Lime St, Liverpool L1 1JN

The scenario is quite straightforward — you must navigate a rescue craft from the mother ship at screen top to the moon surface at screen bottom to rescue a team of marooned scientists. You are only able to carry one passenger at a time so six trips are needed through space littered with asteroids. Having successfully completed the mission the cycle is repeated.

There is a joystick option. With only three controls, left right and thrust this is far from essential. An annoying feature is having to enter a keyboard/joystick option

after each game. I would have thought this only necessary after initial loading.

Graphics are nicely presented but it does look odd to see the asteroid belt halt just because a scientist is running to the rescue craft! Lyversoft claims "machine code sound", but my version was as silent as real space.

I found the game too predictable and slow moving on any of the four skill levels even with my clumsy fingers. I doubt its ability to sustain long term interest.

D.J.

instructions	70%
playability	60%
graphics	65%
value for money	40%



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Top Ten programs for the Commodore 64

- | | | |
|----|--------------------------|----------------------|
| 1 | Space Shuttle | Microdeal (3) |
| 2 | Falcon Patrol | Virgin (8) |
| 3 | Crazy Kong | Interceptor (2) |
| 4 | Spirates and the Snowman | CBM (-) |
| 5 | Cosmic Convoy | Taskset (5) |
| 6 | Styx | Supersoft (-) |
| 7 | Motormania | Audiogenic (10) |
| 8 | Transylvanian Tower | Richard Shepherd (-) |
| 9 | Ship of the Line | Richard Shepherd (-) |
| 10 | Hover Bovver | Llamasoft (6) |

Top Ten Programs for the Spectrum

- | | | |
|----|-------------------|----------------|
| 1 | Atic Atac | Ultimate (1) |
| 2 | Lunar Jetman | Ultimate (4) |
| 3 | Stonkers | Imagine (-) |
| 4 | Manic Miner | Bug-Byte (3) |
| 5 | Chequered Flag | Psion (2) |
| 6 | Hunchback | Ocean (9) |
| 7 | The Pyramid | Fantasy (-) |
| 8 | Mr Wimpy | Ocean (-) |
| 9 | 3D Ant Attack | Quicksilva (8) |
| 10 | Flight Simulation | Psion (6) |

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

Top Ten Programs for the ZX81

- | | | |
|----|-------------------|----------------|
| 1 | Football Manager | Addictive (3) |
| 2 | Asteroids | Quicksilva (1) |
| 3 | Flight Simulation | Sinclair (-) |
| 4 | Mothership | Sinclair (-) |
| 5 | Space Raiders | Sinclair (-) |
| 6 | Chess 1K | Sinclair (-) |
| 7 | Invaders | Quicksilva (6) |
| 8 | Defenders | Quicksilva (4) |
| 9 | Crazy Kong | PSS (9) |
| 10 | ZX Assembler | Bug-Byte (8) |

Compiled by Websters. Figures in brackets are last week's positions

Top Ten programs for the Dragon

- | | | |
|----|---------------------|----------------------|
| 1 | The King | Microdeal (-) |
| 2 | Eight Ball | Microdeal (2) |
| 3 | Scramble | Microdeal (4) |
| 4 | Leggit | Imagine (3) |
| 5 | Grand Prix | Salamander (5) |
| 6 | Space Shuttle | Microdeal (1) |
| 7 | Dragonchess | Oasis (5) |
| 8 | Transylvanian Tower | Richard Shepherd (7) |
| 9 | Intergalactic Force | Microdeal (9) |
| 10 | Danger Ranger | Microdeal (-) |

Compiled by Websters. Figures in brackets are last week's positions

BEST SELLERS

Top 30

- | | | | |
|----|------------------------|-------------------|---------------|
| 1 | Manic Miner | Software Projects | Spectrum (2) |
| 2 | Hunchback | Ocean | Spectrum (1) |
| 3 | The Hobbit | M.House | Spectrum (6) |
| 4 | Jetpac | Ultimate | Spectrum (5) |
| 5 | 3D Ant Attack | Quicksilva | Spectrum (7) |
| 6 | Lunar Jetman | Ultimate | Spectrum (4) |
| 7 | Harrier Attack | Durrell | Spectrum (3) |
| 8 | Valhalla | Legend | Spectrum (14) |
| 9 | Atic Atac | Ultimate | Spectrum (13) |
| 10 | Hunchback | Ocean | CBM 64 (-) |
| 11 | Falcon Patrol | Virgin | CBM 64 (10) |
| 12 | Hobbit | M.House | CBM 64 (12) |
| 13 | Chuckie Egg | A & F | Spectrum (20) |
| 14 | Kong | Ocean | Spectrum (8) |
| 15 | Penetrator | M.House | Spectrum (11) |
| 16 | Frogger | Microdeal | Dragon (-) |
| 17 | The King | Microdeal | Dragon (18) |
| 18 | Zzoom | Imagine | Spectrum (9) |
| 19 | Chequered Flag | Psion | Spectrum (17) |
| 20 | Cuthbert in the Jungle | Microdeal | Dragon (16) |
| 21 | Hunchback | Superior | BBC (23) |
| 22 | Arcadia | Imagine | VIC-20 (21) |
| 23 | Manic Miner | Software Projects | CBM 64 (-) |
| 24 | Skrambler | Solor | VIC-20 (26) |
| 25 | Mini Kong | Anirog | VIC-20 (22) |
| 26 | Hunchback | Ocean | Oric (-) |
| 27 | Crazy Kong | Interceptor | CBM 64 (28) |
| 28 | Jetpac | Ultimate | VIC-20 (25) |
| 29 | Bugaboo (The Flea) | Quicksilva | Spectrum (-) |
| 30 | The Hobbit | M.House | Oric (-) |

Compiled by PCS Distribution (0254 691211) and sanctioned by the Computer Trade Association. Chart is for retail sales in individual outlets in the UK and Northern Ireland for the fortnight ended March 3

Top Ten Programs for the VIC-20

- | | | |
|----|-------------------------|----------------|
| 1 | Wacky Waiters | Imagine (8) |
| 2 | Wizard and the Princess | M.House (2) |
| 3 | Snooker | Visions (5) |
| 4 | Gridrunner | Llamasoft (-) |
| 5 | Flight Simulator | Davenport (6) |
| 6 | Bewitched | Imagine (1) |
| 7 | Catcha Snatcha | Imagine (-) |
| 8 | Abductor | Llamasoft (15) |
| 9 | Arcadia | Imagine (10) |
| 10 | Tomb of Drewan | Audiogenic (-) |

Compiled by Websters. Figures in brackets are last week's positions

48K SPECTRUM OWNERS *Read This From* ...LET'S GET DOWN TO BUSINESS...



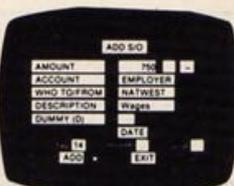
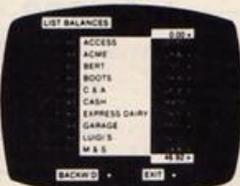
★ ★ ★ FINANCE MANAGER ★ ★ ★

Voted "the best value financial program available" by SINCLAIR USER

FINANCE MANAGER is a powerful, flexible and very fast MENU DRIVEN general purpose ledger package which includes both standing order and special forward planning features. The program will handle up to 255 separate accounts and 1800 transactions. The power of MACHINE CODE has enabled us to produce the very latest "on the page" presentation which lets you enter and edit data naturally, as if you were filling in a form.

These screens are just a sample to show the style of the program:

But that's not all, not by a long way. This program automatically raises a corresponding debit or credit for every entry, and will even open a new account if an entry features an unrecorded account name.

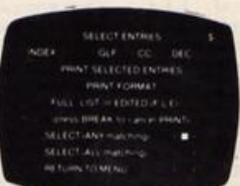


Information can be manipulated in various ways — you can call up your bank or credit card account, or analyse expenditure according to a variety of categories which you assign to the transactions. Instant Account balances can be listed at any time. A great time saving feature of this program is that account names and transaction descriptions need only be recorded **once**, as all the input fields will scroll existing files. There are many, many more features which make this the most powerful finance package around, we even include a test file for you to experiment with before getting started.

★ ★ ★ ADDRESS MANAGER ★ ★ ★

ADDRESS MANAGER utilises the same "on the page" presentation as **FINANCE MANAGER** and offers Spectrum owners a professional standard address filing, indexing and retrieval system. Below are examples of the screen presentations.

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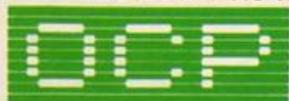
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I'm lost in the jungle... help me get back to base camp

I have always wanted to travel and see the world and when I was invited to join the 1984 expedition to Africa to search for the legendary Sea of Blue Water, I leapt at the chance.

I am not so sure now that I did the right thing!

How it works

- 60 game lost when error is generated
- 70 disable escape key
- 80 disable break key
- 90 selects MODE 6 and chooses colour
- 100-110 initialise variables
- 120 defines envelope for sound effects
- 130 call instructions
- 140-180 fill arrays for locations, items and words understood
- 190-520 main control loop, repeats until location 24 (base camp) is reached
- 330 waits for response
- 340-510 calls PROCEDURE appropriate to input word
- 530-540 end of game
- 560-670 instructions PROCEDURE
- 660 waits for space bar to be pressed
- 680 data for sound effects
- 690-900 data for games "rooms"
- 910-920 data for objects
- 930 data for words understood
- 940-2220 PROCEDURES which have self explanatory titles, e.g. PROCget

The party leader sent me off yesterday to search for food and guess what... I have got myself lost in the middle of the jungle. Please help me to find my way back to base camp by telling me what to do in the form of two-word sentences.

Unfortunately, I do not speak very good English and if you find that I don't seem to understand you, try another word.

Here is a list of some of the words I understand:

GO, N,S,E,W, UP, DOWN, IN, OUT, PRAY, HELP, EXAMINE, SEARCH, SWIM, TALK, SAY, DROP, LEAVE, INVENTORY, SCORE, WAIT, DIG, THROW, JUMP, DIVE, ROW, CUT, CHOP, MAKE, UNLOCK, EAT, DRINK, SAIL, LOOK, RUB

...that's the plea from Steve Lucas, who wrote Jungle Search for the BBC and Electron computers. Type it in before something dreadful happens

```

10 REM ** JUNGLE SEARCH **
20 REM ** AN ADVENTURE GAME FOR THE BBC AND ELECTRON
COMPUTERS **
30 REM ** BY Steve W. Lucas **
40 ON ERROR X$="a spider just came up and bit me!":P
ROC:Close
70 *FX229,1
80 *KEY10 OLD!M RUN!M
90 MODE6:VDU19,0,1,0,0,0
100ABX=0:AAZ=0:ACX=0:ADX=0:AEX=0:AFX=0:AGX=0:AHX=0
110AIX=0:AJX=0:PX=2
120 ENVELOPE1,2,6,0,0,255,0,0,126,0,0,-126,126,126
130 PROC:Instructions
140CLS:DIM SX(24,4),Q$(24),X$(40),G$(30),V$(3),B$(30,
1),N$(30),NX(30)
150Y$=""
160 FORX=1TO24:READQ$(X):FORY=1TO4:READS$(X,Y):NEXTY,
X
170 FORX=1TO14:READG$(X),B$(X,1):NEXTX
180 FORX=1TO18:READN$(X),NX(X):NEXT
190 REPEAT
200IFPX=10ANDAGX<>1THENX$="I fall into a deep hole be
neath some straw... It must have been a trap!!":PRO
C:Close
210PRINT "I am :- "Q$(PX)
220A$="":IFSX(PX,1)>0THENA$="North"
230IFSX(PX,2)>0ANDLEN(A$)>0THENA$=A$+",South"ELIFSX
(PX,2)>0THENA$="South"
240IFSX(PX,3)>0ANDLEN(A$)>0THENA$=A$+",East"ELIFSX
(PX,3)>0THENA$="East"
250IFSX(PX,4)>0ANDLEN(A$)>0THENA$=A$+",West"ELIFSX
(PX,4)>0THENA$="West"
260PRINT "I can go :- "A$
270E=0:FORTX=1TO14:PPX=0:IFB$(TX,1)=PXTHENPPX=1
280IFPPX=1THEN300
290NEXT:GOTO330
300IFE=0THENPRINT "I can see:- "
310PRINT "G$(TX):E=E+1:GOTO290
320 IFPX=11THENPRINT$
330PRINT "What do you think I should do ":INPUTZ$
340B$=LEFT$(Z$,2):C$=LEFT$(Z$,3):CLS:VDU7:K=0
350IFC$="LOO"THENK=1ELIFC$="SCO"THENPRINT "What do y
ou think this is....some sort of game?":K=1
360IFC$="RUB"THENPRINT "Don't be silly!":K=1
370IF (B$="N"ORLEFT$(Z$,4)="GO N")ANDS$(PX,1)<>0THENPX
=S$(PX,1):K=1
380IF (B$="S"ORLEFT$(Z$,4)="GO S")ANDS$(PX,2)<>0THENPX
=S$(PX,2):K=1
390IF (B$="E"ORLEFT$(Z$,4)="GO E")ANDS$(PX,3)<>0THENPX
=S$(PX,3):K=1
400IF (B$="W"ORLEFT$(Z$,4)="GO W")ANDS$(PX,4)<>0THENPX
=S$(PX,4):K=1
410IFK=0AND (B$="N"ORB$="S"ORB$="E"ORB$="W") THENPRINT

```

Hints on conversion

● Few computers have REPEAT UNTIL loops. Then main REPEAT UNTIL loops from line 190-520 can be replaced by line 520 IF P% (less than or greater than) 24 THEN GOTO 200

● The REPEAT UNTIL loop in line 2160 is used to provide a time delay. Use a FOR/NEXT loop, e.g. 2160 K=1:PRINT"O.K.":FORX=1TO1000:NEXTX

● The PROCedures used will have to be replaced by sub-routines, e.g. Line 130 will need to be replaced by 130 GOSUB 570 (The line after DEFPROC statement) and all ENDPROC's will need replacing by RETURNS

● The biggest problem in converting this program for other machines is likely to be encountered when you try to enter lines of over 40 characters. Machines like Orics and Commodore 64s will not accept these long lines. If you split long lines beginning with IF THEN statements, you will need to start the second line with the same IF THEN statement!

Variables

- Resident integer variables A%-Z% are used widely so as to increase the speed of the game.
- P% current location
- AA%-AJ% flags to test if certain events have taken place
- E% flag to test if item is there
- ZS,CS,BS,LS holds words entered
- S%(X,Y) holds the map
- Q\$(X) holds descriptions of locations
- G\$(x) holds descriptions of objects
- V\$(X) holds items carried
- B%(X,1) holds locations items found in
- N\$(x) holds words understood
- N%(x) pointer for words understood
- Y\$ holds message
- X\$ holds message for losing game
- H%,D%,D,X,Y used as counters in FOR-NEXT loops
- R holds check for number of item

Important note: Do not type in lines 60-80 until you have fully debugged the program. Then SAVE a copy before RUNNING.



BBC/ELECTRON PROGRAM

```

I can't go that way :K=1
420IFC$="ROW"ORC$="SAI"ORLEFT$(Z$,4)="GO R"THENPROCra
ft
430IFC$="DRI"THENPRINT"I can't see anything to drink!
":K=1 ELSEIFC$="EAT"THENPRINT"There's nothing to eat!":
K=1
440 IFB$="UP"THENPROCup ELSEIFC$="DOW"THENPROCdown EL
SEIFC$="IN"THENPROCin ELSEIFC$="OUT"THENPROCout ELSEIFC
$="UNL"THENPROCunlock
450IFC$="REA"THENPROCread ELSEIFC$="OPE"THENPROCopen
460IFC$="CUT"THENPROCcut ELSEIFC$="CLI"THENPROCclimb
ELSEIFC$="JUM"ORC$="DIV"THENPROCjump ELSEIFC$="CHO"ORC$
="FEL"THENPROCfell
470IFC$="WAI"THENPROCwait ELSEIFC$="DIG"THENPROCdig E
LSEIFC$="THR"THENPROCthrow ELSEIFC$="SAY"ORC$="TAL"ORC$
="ASK"THENPROCtalk
480 IFC$="HEL"THENPROChelp ELSEIFC$="PRA"THENPROCpray
ELSEIFC$="SWI"THENPROCswim ELSEIFC$="BUI"ORC$="MAK"ORC
$="CON"THENPROCmake
490 IFC$="KIL"ORC$="DES"ORC$="ATT"ORC$="STA"ORC$="HIT
"THENPROCattack
500 IFC$="GET"ORC$="GRA"ORC$="TAK"THENPROCget
510IFC$="DRO"ORC$="LEA"THENPROCdrop ELSEIFC$="INV"THE
NPROCinventory ELSEIFC$="EXA"THENPROCexamine ELSEIFC$="
SEA"THENPROCsearch
520 UNTILP%=24
530PRINT "WELL DONE!!!!" "You have solved this adven
ture!":RESTORE:FORX=1TO13:READD:SOUND1,1,D,3:NEXT
540 END
550 END
560 DEFPROCinstructions
570 CLS:PRINT"TAB(1);"JUNGLE SEARCH"
580PRINT"TAB(8);"<C> 1984 S.W. Lucas"
590 RESTORE
600 FORX=1TO17:READA:SOUND1,1,A,4:NEXT
610 PRINT"TAB(10);"Please help me!"
620PRINT"I am a member of the 1984 expedition, whi
ch has come to Africa in search of the sea of blue wa
ter."
630PRINT"The party leader has sent me in search of
food, but I seem to have got lost."
640PRINT"Help me to find my way back to safety."
650PRINT"Press <Space Bar> to play game."
660 REPEAT UNTIL GET=32
670 ENDPROC
680 DATA 53,69,53,69,89,53,197,53,149,53,101,53,117,1
37,145,89,53
690 DATAat the bottom of a sheer cliff face.,0,0,2,0
700 DATAon a muddy footpath,0,0,3,1
710 DATAin thick undergrowth,0,0,0,2
720 DATAby a cave entrance,0,0,5,3
730 DATAin a dark cave. Water is dripping down the s
limy walls.,0,6,0,4
740 DATAby an old wooden door.,5,0,0,0
750 DATAin a narrow passage.,8,0,0,6
760 DATAin a secret laboratory. There is a largelizar
d in a wooden cage here.,0,7,0,0
770 DATAon a straw covered footpath.,3,10,0,0
780 DATAamongst several very tall trees. The floor
here is covered with straw. There is a deep pit here.,
9,11,0,0
790 DATAon the banks of a fast flowing river.,10,0,0,
0
800 DATAon a raft in the middle of a fast flowi
ng river.,0,0,0,0
810 DATAin a sheltered cove,0,14,16,0
820 DATAin a steamy swamp,13,0,15,0,in a steamy swamp
,16,15,15,14,in a steamy swamp,16,15,17,16
830 DATAin a steamy swamp. A rope hangs down from
an overhanging tree.,0,0,0,16
840 DATAat the top of a rope. A large monkey canbe se
en amongst the branches of the tree,0,0,19,0
850 DATAamongst the branches of a very tall treeA cre
eping vine seems to be firmly attached to the tree
.,0,0,0,18
860 DATAon a narrow plateau. A creeper hangs from
above. Spires of smoke can be seen in the distance.,0,0
,21,0
870 DATAon a narrow plateau.,0,0,0,20
880 DATAon a mountain track. The track is soft under
foot. The path crumbles to the West.,0,0,23,0
890 DATAby a river. There is a camp on the far side.
,0,0,0,22
900 DATAin the expedition's camp.,0,0,0,0
910DATA a sharp knife,1,a plank of wood,7,a small key
,9,a small spider,15,a giant lizard,16,a monkey,19,a pi
le of bones,10
920DATA an axe,5,a coil of rope,8,a strange looking p
lant,4,a native on the river bank,12,a piece of paper,2
1,a crocodile,23,Tarzan...swinging from tree to tree,14
930DATAKNIFE,1,PLANK,2,WOOD,2,KEY,3,SPIDER,4,LIZARD,5
,MONKEY,6,BONES,7,AXE,8,COIL,9,ROPE,9,PLANT,10,FLOWER,1
0,NATIVE,11,PAPER,12,PIECE,12,CROCODILE,13,TARZAN,14
940DEFPROCget
950K=1:PROCcheck
960IFLX<>1THENENDPROC
970EX=0
980FORHX=1TO14:IFBX(HX,1)=PXANDBX(NX(R),1)=PXTHEHX=1

```

```

990NEXT
1000IFEX=0THENPRINT"I can't see it here!":ENDPROC
1010IFR=1THENAAZ=1 ELSEIFR=4THENAFX=1 ELSEIFR=9THENAHZ
=1
1020IFR=5THENX$="It bites me...It's venom surges throu
gh my blood":PROCclose
1030IFR=6THENX$="The stupid thing...It jumps at my thr
eat":PROCclose
1040IFR=12ORR=13THENX$="I fall into a stupor as the fl
ower sendsa jet or strange pollen into my face":PROClos
e
1050IFR=17THENPRINT"Don't be stupid!!!!":ENDPROC
1060IFR=18ORR=14THENPRINT"How am I supposed to do that
!":ENDPROC
1070IFR=15ORR=16THENADZ=1
1080EX=0:FORDZ=1TO3:IFV$(DZ)=G$(NZ(R)):EX
=1:DZ=5
1090NEXT
1100IFEX=0THENPRINT"I'm sorry I can't carry any more!":
K=1:ENDPROC
1110BX(NX(R),1)=0:ENDPROC
1120DEFPROCcheck
1130L$="":FORHX=1TOLEN(Z$)
1140IFMID$(Z$,HX,1)=" "THENL$=RIGHT$(Z$,LEN(Z$)-HX):
HX=HX+40
1150NEXT
1160R=0:LZ=0:IFLEN(L$)<2THENENDPROC
1170FORHX=1TO18:IFLEFT$(N$(HX),LEN(L$))=L$ THENLZ=1:R=
HX
1180NEXT
1190ENDPROC
1200DEFPROCdrop
1210PROCcheck
1220K=1:IFLX<>1THENPRINT"I can't see a ";L$:ENDPROC
1230EX=0
1240FORDZ=1TO3:IFV$(DZ)=G$(NZ(R)) THENV$(DZ)="":EX=1
1250NEXT:IFEX<>1THENPRINT"I haven't got it!":ENDPROC
1260BX(NX(R),1)=PX
1270IFR=1THENAAZ=0 ELSEIF(R=15ORR=16)THENADZ=0 ELSEIFR
=4THENAFX=0 ELSEIFR=9THENAHZ=0
1280 IFR=2ANDP%=9THENAGZ=1:PRINT"I slide the plank ove
r the lion trap"
1290ENDPROC
1300DEFPROCinventory
1310K=1:PRINT"I have :-":FZ=0
1320FORHX=1TO3:IFV$(HX)<>" "THENPRINTV$(HX):FZ=1
1330NEXT:IFFZ=0THENPRINT"Not a thing!"
1340PRINT:ENDPROC
1350DEFPROCcut
1360K=1:IFAAZ<>1THENPRINT"I have nothing to do that wi
th!":ENDPROC
1370IFPZ<>3THENPRINT"There's nothing here to cut!!!":E
NDPROC
1380 IFABZ=0THENABZ=1:PRINT"That's done the trick!":SZ
(3,2)=9:ENDPROC
1390IFABZ=1THENABZ=2:PRINT"I have managed to cut a way
through!":SZ(3,3)=4:ENDPROC
1400PRINT"nothing happened!":ENDPROC
1410DEFPROChelp
1420K=1:IFPZ=3THENPRINT"I think I can see a way throug
h!":ENDPROC
1430IFPZ=9THENPRINT"I'd watch out!":ENDPROC
1440PRINT"Sorry I don't have a clue!":ENDPROC
1450DEFPROCpray
1460K=1:PRINT"O.K.":RESTORE:FORX=1TO13:READY:SOUND1,1,
Y,3:NEXT
1470PRINT"That made me feel better!":ENDPROC
1480DEFPROCdig
1490K=1:PRINT"I need a spade!":ENDPROC
1500 DEFPROCup
1510K=1:IFPZ=17THENPZ=18:PRINT"O.K.":ENDPROC
1520IFPZ=22THENPRINT"It's too far to jump!":ENDPROC
1530PRINT"I can't do that here!":ENDPROC
1540DEFPROCdown
1550 IFPZ=18THENPZ=17:PRINT"O.K.":ENDPROC
1560 IFPZ=19THENPRINT"O.K.":PZ=20:ENDPROC
1570 IFPZ=21THENPRINT"There's no ladder you know!":END
PROC
1580PRINT"not here!!!!":ENDPROC
1590DEFPROCjump
1600 IFPZ=21THENPRINT"Made it. The ground is soft here
!":PZ=22:ENDPROC
1610PRINT"I can't do that here you know!":ENDPROC
1620DEFPROCclimb
1630 K=1:IFPZ=20THENPZ=19:PRINT"O.K.!!!!":ENDPROC
1640PRINT"Not here !!!!":ENDPROC
1650DEFPROCswim
1660K=1:IFPZ=23THENPROCch:IFACZ=1THENPRINT"O.K. Made
it !!!!":PZ=24:ENDPROC
1670IFPZ=11ORPZ=12THENX$="I fall into a deep whirlpool
and drown":PROCclose
1680PRINT"Don't be silly!":ENDPROC
1690DEFPROCch
1700K=1:IFACZ<>1THENX$="The crocodile bites a large ch
unk out ofme!":PROCclose
1710 ENDPROC
1720 DEFPROCclose
1730 RESTORE:CLS:PRINT"X$""I AM DEAD!!!!":FORX=1TO1
3:READD:SOUND1,1,D,3:NEXT

```


REVENGE

OF THE MUTANT CAMELS

At last the long awaited sequel to Attack of the Mutant Camels is available. You are controlling a ninety foot high, neutronium shielded, lazer spitting death camel; leading a rebellion against your evil Zzyaxian overlords. The game features beautiful smooth scrolling graphics and no less than 42 different attack waves, more than any game in video history. The challenge of play will last for months as you battle to see what's on the next wave.

£7.50



Lamasoft

AWESOME GAMES SOFTWARE

49 MOUNT PLEASANT,
TADLEY, HANTS. RG26 6BN.
TELEPHONE: TADLEY (07356) 4478

Dodgy Dealer 32K BBC £6.50

OIC, 15, Burghead Cl, College Town, Camberley GU15 4XL

Ever fancied running your own business? You know the sort of thing... armed only with your £5,000 bank loan, and a number of advisors, you set out to make your mark on industrial Britain. Too risky? Fortunately this text-based simulation lets you play out exactly this business scenario without having to suffer any real sleepless nights.

Your goal is simply to try and make a profit, or avoid bankruptcy, in a set time. You are offered helpful advice by your managers, covering all aspects of your business, including production, marketing, transport and accounts. You must then

decide how much money and resources to allocate in the different areas of the business. Oh, of course, the advice doesn't come free!

If you enjoyed ruling your country in King (one of the programs supplied with your BBC) or Hmrabi, then you will find this quite gripping. Obviously the business simulation is not quite up to the level of Executive Suite on an IBM-PC, but I am sure any marketing man will have a challenge sorting out his market strategy on level nine! Rank novices should start on level zero. Needs O.S. 1.2 **P.D.**

instructions	90%
playability	80%
graphics	60%
value for money	85%



City 48K Spectrum £6.95

Terminal, 28 Church Lane, Prestwich, Manchester M25 5AJ
Anyone who has nurtured ambitions to be a bloated capitalist can now act out the role with this game of property development speculation. It's for one to four players with the Spectrum playing vacant places. Each starts with £200,000 with the aim of making £1 million. You take turns — quickly or, as in real life, the chance may disappear — at moving round an on-screen map, building, demolishing or purchasing pubs, houses, apartments, shops, factories and banks. All the rent collecting, tax paying and other book-keeping is done for you. As the city is developed the map shows each

players' property holding in a distinctive colour. Realistic features include varying property values to reflect, for example with a pub, the building nearby of houses for customers.

City has four game lengths, each with slightly different characteristics, along with a "save game" facility, necessary because of the time taken to complete a game. There are even two colour schemes in case one does not suit your TV!

A very well thought out, well presented package and very enjoyable to play. I would suggest, though, printed detailed instructions as well as those on screen.

instructions	D.J. 60%
playability	85%
graphics	80%
value for money	90%



Bandit 32K BBC £2.99

CompuSoft, 32 Watchyard La, Formby, Liverpool L37 3JU

I still cannot see the fascination in playing a game which normally has money pouring out of a machine's mouth on a machine which has no mouth at all! Don't get me wrong, I like feeding the unidextrous thieves, but only if there is that chance of the big win. I really can't see any pleasure otherwise.

As you may have guessed, this is a fruit machine program and a very good one, with random holds, nudges, collect or gamble winnings and even a special Bandit feature offering even more mythical money to win. You start with 50p and it "costs" 10p a go.

There is nothing to criticise — plenty of colour, good graphics and sound. But you don't actually win or lose money and, in keeping with this, you can get another 50p any time! The best feature is undoubtedly price and if you want this kind of program you won't beat this value. It really is as good as others I have reviewed at twice the price.

Wait a moment. I've thought of a use at last! It's for gamblers who want to stop losing money but keep the habit. Eureka!

instructions	D.C. 70%
playability	80%
graphics	80%
value for money	90%



Are they like real life?

You can run your own business or play golf or pool or try golf in these simulation games. How well do they perform?

Eight Ball Dragon 32 £8

Microdeal, 41 Truro Rd, St Austell, Cornwall PL25 5JE

Dragon graphics aren't up to producing a playable game of snooker — not enough colours — so Microdeal has come up with this version of pool instead. It's a simplified game with no scoring. The first to pot all their own balls and the eight ball wins.

It's a two-player game, though you can play yourself if you can't talk anyone else into it. Play is controlled by joysticks. You position the cue ball (if necessary), press the fire button, position the cue, press the button again, select spin by positioning a small dot on a ball at the top, then hold the fire button down while a

"power bar" grows to the appropriate length for the force you want. The balls move smoothly around, making a fairly authentic click when they collide and disappearing if they reach a pocket.

Sound effects are good, though limited, and graphics adequate. There is a choice of three screen colours, but with the traditional green table the balls are none too easy to distinguish. It's clearer in black-and-white. It's not much like the real thing, but fun to play all the same.

instructions	M.N.
playability	75%
graphics	80%
value for money	70%

85%



Royal Birkdale 48K Spectrum £6.90

Ocean, Ralli Bdg, Stanley St, Manchester M3 5FD

This golf simulation takes its name from the well-known golf course, and promises a faithful reproduction of the 18 holes. The title page is spectacular in colour and definition, with a picture of the club house. That high standard of graphics is maintained throughout.

As with most computer golf games, you select the direction, club, and strength with which you wish to strike the ball. An added plus here is that you also have your reactions tested. The outcome decides whether the shot

is true, or whether you hook, fade, or slice the ball.

Once the ball is on the green, the display moves to a close up. Even the slope is taken into account as you attempt to putt. Again, there is a reaction test. This I found the most frustrating part — the strength of the putt is too sensitive to the test, and success is extremely difficult.

Apart from poor error-trapping of the INPUT responses, this is a well-written BASIC program which could provide a lot of fun — once you've learned to putt!

instructions	D.N. 80%
playability	70%
graphics	90%
value for money	80%



DRAGON 32 PROGRAM

It's a one-way flight, unless your bomb aiming is on target

As your target approaches you feel surprisingly calm. Your hand is lightly resting on the button ready to start bombing the centre of the enemy's industrial complex.

Your mission is one of high risk. To carry the maximum tonnage, you decided to limit your fuel.

It means this is a one-way journey. The only chance you have for survival is to clear the screen, enabling you to land safely, otherwise you will go down with guns blazing.

The game is played in high resolution graphics and the instructions are in the program. There is a choice of 10 skill levels relating to the height of the buildings.

Add to your collection of arcade-style classics with 6809 Squadron, written for the dragon 32 by Clive Gifford (who intended the pun in the title...)

```
10 REM*****
20 REM*****6809 SQUADRON*****
30 REM*****CLIVE GIFFORD*****
40 REM*****
50 CLEAR 1000
60 PMODE 3,1:PCLS:SCREEN 1,0
```

```
70 CIRCLE(128,130),60,3:PAINT(128,130),3,3
80 CIRCLE(128,130),40,2:PAINT(128,130),2,2
90 CIRCLE(128,130),15,4:PAINT(128,130),4,4
100 DRAW"BM30,60;U50R30D10L20D10R20D30L30BE10U10R10D10L10"
110 PAINT(35,55),4,4
120 DRAW"BM85,60;U50R30D50L30BE10U10R10D10L10BU20U10R10D10L10"
130 PAINT(90,55),4,4
140 DRAW"BM140,60;U50R30D50L30BE10U30R10D30L10"
150 PAINT(145,55),4,4
160 DRAW"BM190,60;BU24U26R30D50L10U24L20BE10U6R10D6L10"
170 PAINT(215,55),4,4
180 PLAY"T203L4GL2EP10L6CDEFAL12B04C03B04C03L2BP10L6GAB04CEL12FGFGL2FP8L403FEDL1CP2"
190 CLS:PRINT @ 66,"SKILL LEVEL (1-10) 10=SIMPLE":INPUT L
200 IF L>10 OR L<1 THEN 190
210 SC=0:A=10
220 PMODE 3,1:COLOR 2,3:PCLS:SCREEN 1,0
230 CLS:PRINT @ 199,"g o o d   1 u c k"
240 PRINT:PRINT" REMEMBER: SPACE BAR TO BOMB"
```

```
250 POKE 65495,0
260 FOR I=1 TO 22
270 H=((INT(RND(70)+L*8)+20))
280 A=A+10
290 LINE(A,H)-(A+9,197),PSET,BF
300 FOR T=10 TO 230 STEP 10:LINE(T,197)-(T,0),PRESET:NEXT
310 NEXT I
320 PMODE 3,1:COLOR 2,3:SCREEN 1,0
330 PLAY"L403CED"
340 X=20:Y=9
350 A=X-6:B=Y+6
360 IF PEEK(135)=32 THEN POKE 135,0:GOSUB B 470
370 GOSUB 400
380 GOTO 350
390 S$=""
400 S$="BM"+STR$(X)+", "+STR$(Y)+"U7R3D3R7D4L10BU2BR4R4":DRAW S$
410 LINE(X-15,Y-9)-(X-1,Y+1),PRESET,BF
420 IF X=240 AND Y>=180 THEN FOR T=1 TO 8:PLAY"03L12FACE":NEXT:GOTO 540
430 IF X>=250 AND Y<190 THEN Y=Y+10:X=10:LINE(248,0)-(255,190),PRESET,BF
440 X=X+10
450 IF PPOINT(X+9,Y+3)<>3 OR PPOINT(X+7,Y+3)<>3 OR PPOINT(X+9,Y)<>3 OR PPOINT(X+6,Y+6)<>3 OR PPOINT(X+7,Y+6)<>3 OR PPOINT(X+9,Y+6)<>3 THEN 510
```

How it works

60-80 set up and display title page
190-310 request skill level and transfer this to the size of the buildings. Graphics are drawn while the text screen is displayed, a useful trick which prevents people from having to watch the graphics display slowly evolve time and time again

470-500 are put into action is spacebar is pressed. This is the bomb drop routine

510-520 are for when the aircraft crashes. If it manages to land safely, then lines 530-590 activate win routine. An interesting point of note is line 600 which produces the striped effect background for the win routine

600-690 score, high score, another game?, if so re-start. Note use of fast POKE in lines 640 and 250

DRAGON 32 PROGRAM

```

460 RETURN
470 B=B+15
480 LINE(A-2,B-15)-(A+4,B),PRESET,BF
490 B$="BM"+STR$(A)+", "+STR$(B)+"R4D3G2H
2U3":DRAW B$
500 IF PPOINT(A,B+6)=3 OR PPOINT(A,B+7)=
3 THEN GOSUB 400:GOTO 470 ELSE LINE(A-2,
B-15)-(A+7,B+30),PRESET,BF:PLAY"01L20C":
SC=SC+10:RETURN
510 FOR T=1 TO 15 STEP 2:CIRCLE(X,Y),T,2
:NEXT
520 FOR T=1 TO 8:SCREEN 1,1:PLAY"01V30L9
C":SCREEN 1,0:PLAY"02V18C":NEXT:GOTO 640
530 PMODE 3,1:COLOR 2,3:SCREEN 1,0
540 X$="BM40,40:S2D60E30F30U60BR30R60L60
D30R50L50D30R60BR30R60L60U60BR90D60R60"
550 X$=X$+"BM40,120:S2R60D60L60R10U60BR8
0R60D60L60U60BR90D60U60F60U60BR30R60L60D
30R50L50D30R60"
560 Y$="C3"+X$
570 X$="C2"+X$
580 FOR T=1 TO 8:DRAW X$:PLAY"01L250CDEF
GBDCDA"
590 DRAW Y$:PLAY"03DFEGCABBBCD":NEXT T
    
```

```

600 POKE &HB2,109:POKE &HB2,108
610 FOR T=1 TO 255:LINE(T,0)-(T,190),PSE
T:NEXT
620 FOR X=1 TO 15:DRAW X$:DRAW Y$:NEXT
630 FOR T=1 TO 1000:NEXT T
640 POKE 65494,0:CLS:IF SC*10>HS THEN HS
=SC*10 ELSE GOTO 670
650 PRINT @ 200,"SCORE: ";SC*10:PRINT"YOU
HAVE BEATEN THE HIGH SCORE PLEASE ENTE
R NAME (LESS THAN 9 CHARACTERS)"
660 INPUT N$:IF LEN(N$)>9 THEN 660
670 CLS 3:PRINT @ 297,"SCORE: ";SC*10;
680 PRINT @ 71,"HIGH SCORE: ";HS;:PRINT @
139,"BY ";N$;
690 PRINT @ 392,"ANOTHER GAME?";:INPUT G
$:IF G$="Y" THEN 190 ELSE END
    
```



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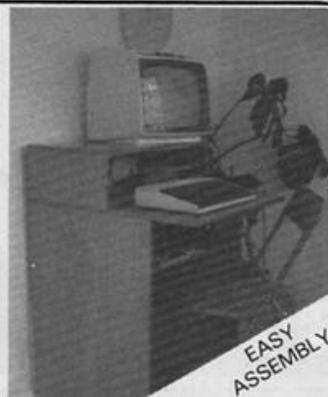
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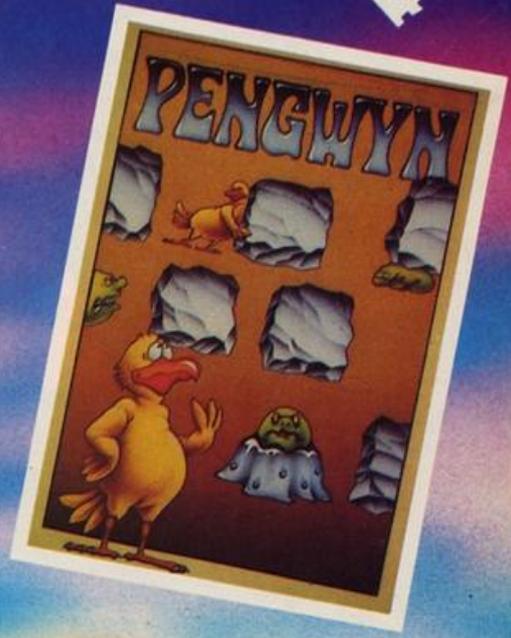
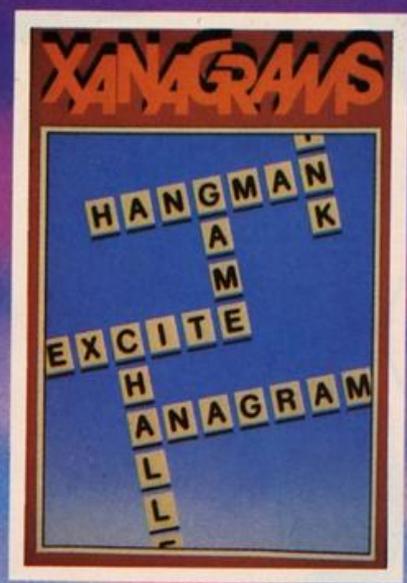
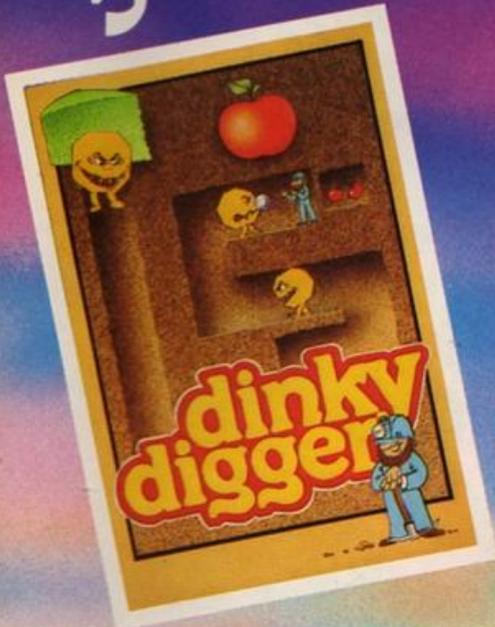
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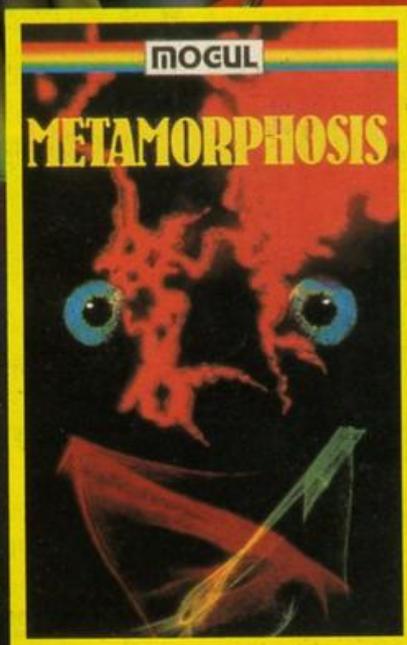
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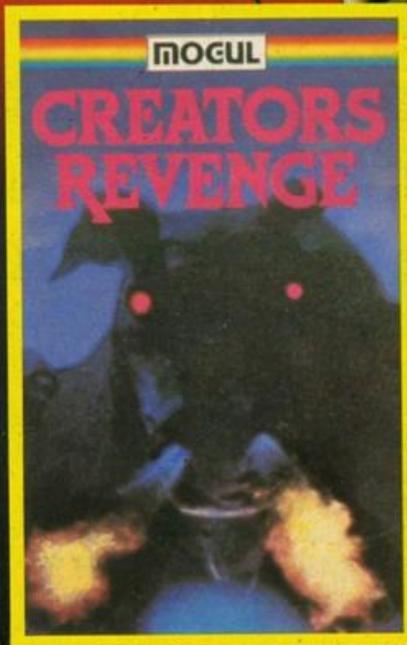
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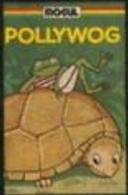
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