A Database Publication

Vol. 4 No. 1 January 1988 £1.25

COMPUTING WITH THE AMSTRAD CPC

INCORPORATING AMTIX!

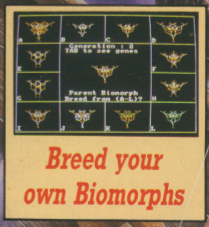
The independent magazine for Amstrad CPC users

The GUILD of THIEVES

How does it compare with The Pawn?

AMTIX! Arcade

TRANTOR



Breed your own Biomorphs

Games reviews: Thundercats, Aliens and much more

Amtips on Renegade, Pulsator and Transmuter

Plus superb arcade game and utility listings

WIN A BIKE!

A BMX could be yours!

ROMANTIC ROBOT present

1988 – THE YEAR OF THE ROBOT

Q: WELL, I'VE HEARD OF THE YEARS OF THE CAT, PIG, AND EVEN DRAGON – BUT THE YEAR OF THE ROBOT?

A: Absolutely! And ROMANTIC ROBOT wish to make 1988 a truly memorable year (if not us, who will?). To kick off with, there is an INTRODUCTORY OFFER OF **£29.88** ON RODOS, plus a truly unique 1988 NEW YEAR MAIL ORDER PRICE OF MULTIFACE TWO – **£39.88!**

Q: I LOVE SALES. BUT WHAT'S SO LIKEABLE ABOUT RODOS *and* MULTIFACE?

A: RODOS is too powerful and complex to be summed up here – please send a SAE for full info. MULTIFACE is (simply) a MUST for ANY CPC owner: it can copy and change programs as you wish.

Q: OH, DO I NEED TO DO ANY PROGRAMMING TO MAKE BACK-UPS?
A: NO! – NOT with the MULTIFACE TWO – it is in fact the ONLY product on the market which works FULLY AUTOMATICALLY. You LOAD any program as usual, RUN it for as long as you like and when you wish to make a copy you just press the MULTIFACE's red button and follow the menu and on-screen instructions.

Q: HOW DOES IT WORK THEN? IS IT EASY? USER-FRIENDLY? ERROR-TRAPPED? IDIOT PROOF? GUARANTEED?
A: YES! It works a treat and it could not be easier. The menu gives four basic options – to **SAVE** a program, to **RETURN** to continue it, to **JUMP** (say to your own routines – invaluable for hackers) and **TOOL** to access the MULTI-TOOLKIT set of built-in utilities. For example pressing **S** to **SAVE** will first allow you to **NAME** the back-up and then let you save a **PROGRAM** or just a **SCREEN** to **TAPE** or **DISK**. Before the saving itself, MULTIFACE compresses the program so that it takes the least amount of space on tape/disk and will re-load as quickly as possible. Once a program is saved, you can **RETURN** or **JUMP**, use the **TOOLKIT** to change it, **SAVE** it again, etc.

Q: DON'T YOU CORRUPT THE SCREEN WITH YOUR MENU, INSTRUCTIONS, PULL DOWN WINDOWS, ETC.?
A: NO. MULTIFACE TWO has its own memory (8K ROM & 8K RAM) and a lot more hardware – thus when it finishes its job or when you re-load your back-ups, everything is **FULLY** and **AUTOMATICALLY** restored: screen modes, colours, windows, etc. This is essential and NO OTHER DEVICE CAN DO IT!

Q: OK, SO MULTIFACE CAN COPY FROM TAPE TO DISC, *BUT CAN IT DO* TAPE TO TAPE *OR* DISC TO DISC *OR* DISC TO TAPE?
A: Of course it can. MULTIFACE saves either to tape or disc and it saves whatever happens to be in the computer at that time – no matter how you loaded it in.

Q: SO FAR SO GOOD. BUT CAN'T I DO ALL THIS WITHOUT THE MULTIFACE?
A: ABSOLUTELY NOT! First, you need a hardware device, a "magic box", to be able to stop and copy programs AT ANY STAGE – be it upon loading, half-way through the game, etc. Tape/disc copiers can only try to copy programs BEFORE they load: if there are unorthodox loaders, speedlocks, protections against copying, etc., you'll end up with a problem – but not with a back-up. Also, with MULTIFACE you can poke infinite lives, ammunition, etc. – and then SAVE.

Q: MULTIFACE IS NOT THE ONLY 'MAGIC BOX' ON THE MARKET – WHY SHOULD I BUY IT MORE THAN ANYTHING ELSE?
A: There are four devices on the market. Action Reply by Datel Electronics, Disc Wizard by Evesham Micros, Mirage Imager and MULTIFACE TWO. Each manufacturer would naturally argue his product is the best buy – fortunately (for you and us), MICRONET recently compared all four units and MULTIFACE TWO came out the best in literally all respects: the most successful one – 100%!, the ONLY AUTOMATIC ONE, the FASTEST ONE both in LOADING *AND* SAVING time, the one taking the LEAST ROOM when saving – and you still get a couple of EXTRAS: a RESET button and an extensive and unique MULTI-TOOLKIT.

Q: MULTIFACE IS IT! THE RIGHT THING IN THE RIGHT TIME! IF ONLY IT PAID FOR ITSELF...
A: But it does! By the time you buy 8 programs on tape instead of disc, you will have saved £40 – the cost of the MULTIFACE. The money you save on further programs is all yours ... **MULTIFACE – worth every penny, saves you pounds!**

Romantic ROBot Disc Operating System

Just one ROM will turn your CPC into a professional set-up: With RODOS you can attach additional disc drives – 40/80 track, single/double sided and store more than 800k per disc.

RODOS NEW

But RODOS is in fact much more than a fast and perfect DOS. RODOS also gives you RANDOM ACCESS, PRINTER BUFFER, full ROM manager, SILICON DISC, altogether 54 new bar commands, enormous power – all this and much more for £29.88 only!

multiface two

NEW YEAR MAIL ORDER SALE PRICE £ 39.88

RODOS INTRODUCTORY OFFER-ON ROM £ 29.88

The special price of £39.88 applies strictly to mail orders received with the coupon below before the 29th February 1988.

Tape-to-disk at the touch of a button. Ridiculous, you may say, but it works every time. *Multiface* can stop any program in its tracks and save the program from memory to either tape or disk. It's completely foolproof. Similar products have had problems with screen size, colour and even sound; *Multiface* can handle all these without a second thought.

That alone would have satisfied many people, but Romantic Robot has gone one step further, incorporating a memory editor. No program is safe with this: everything is out in the open, including the Z80 registers, CRTC data and any part of memory.

Don't be fooled into thinking this will result in mass piracy, however. The *Multiface* unit itself must be plugged into your Amstrad to allow reloading of a program it saved.

Multiface II must be the cleverest hardware device at present – a necessity for disk owners who thought they were stuck with loading from tape every time.

AMSTRAD ACTION JANUARY 1987

THE YEAR OF THE ROBOT · BE PART OF IT

I order MULTIFACE 2 (£39.88)☐ / RODOS (£29.88)☐ plus p&p UK £1, Europe £2, Overseas £3

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Name & address .....

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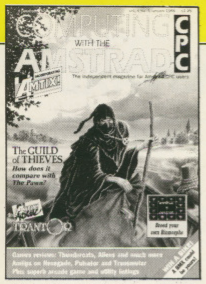

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"Computing with the Amstrad CPC" welcomes program listings and articles for publication. Material should be typed or computer-printed, and preferably double-spaced. Program listings should be accompanied by cassette tape or disc. Please enclose a stamped, self-addressed envelope, otherwise the return of material cannot be guaranteed. Contributions accepted for publication by Database Publications Ltd will be on an all-rights basis.
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TURBO-CHARGE YOUR AMSTRAD

WORD PROCESSING

PROTEXT

Protext is without doubt the most sophisticated word processor you'll find on any home micro. Its ease of use and advanced range of features are normally only found in business systems costing many times more. Widely praised throughout the Amstrad press, Protext is rightly acclaimed as the No.1 word processor for Amstrad CPC owners.

* Super fast * Works with any printer * Flexible find and replace *
* Layout stored with text; normal & decimal tabs, left & right margins *
* Word count * Versatile print options; incl. headers/footers, page nos. *

"Extremely powerful editing features ... superb search and replace" AA
"I can't emphasise how good it is" PCW

rom: £39.95, disc: £26.95, cassette: £19.95

PROSPELL

Typing and spelling errors are simple to make and frustrating to miss. But by using Prospell, you can produce documents that are error-free. Prospell is an automatic spelling checker that points out any odd words or dubious spellings.

* checks Protext text in memory *
* checks file on disc from Protext/Tasword/Amsword/NewWord/WordStar *
* over 33000 words * room for thousands more * up to 2000 words/min *
* find words and anagrams - great for crosswords *

"Fast, efficient, easy to use" YC

rom: £34.95, disc: £24.95

PROMERGE

More than just simple mail merging for multiple standard letters!

* integrates perfectly with Protext * read data from keyboard or file *
* conditional printing to create personalised letters *
* use the built in maths functions to produce invoices etc *
* microspacing - to even out the spaces between words * typewriter mode *
* link files together at print time * Reformat while printing *

disc: £24.95

PROMERGE PLUS

All the features of Promerge, plus:

* Edit two separate files in memory at once; copy blocks between them *
* Background printing - allows you to print and edit at the same time *
* Box mode - cut and paste any rectangle to create newspaper columns *

"You'll have a set-up that can thrash any 8-bit word processor for speed...and even some 16-bit programs for power" PCW

rom: £34.95

UTOPIA

50 new commands available without having to load a program, including:

* Text screen dump * Graphics screen dump to Epson compatible printer *
* disc utilities - disc format and copy, copy files, sector editor *
* useful function keys automatically set up; easily define your own *
* BASIC programming utilities * ROM management commands *

"UTOPIA is by far the best utilities rom....it's worth buying a rom board just to plug it in" AMSCLUB
"Utopia seems to be in a class of its own" AMTIX

rom: £29.95

ROMBO

All rom software requires a rom expansion system. Its benefits include zero loading time and maximum memory available for text, data, programs etc. Remember; Utopia and the extra commands of Promerge Plus are not available on disc. Fits CPC464/664,6128.

8 socket rom box: £34.95

CPC 464/664,6128

MAXAM

The classic Assembler/Monitor/Editor for developing Z80 machine code.

* Plain English error messages * Disassembler * Memory editor *
* Menu driven full screen editor * load/merge/save/print/find/replace *
* Mix BASIC and machine code * or assemble directly from editor *
* Use the editor to edit BASIC programs saved in ASCII *

"This piece of software should be held up as an example of what can be done by programmers who care ... buy one now!" E & C

rom: £39.95, disc: £26.95, cassette: £19.95

BCPL

Flexible, fast, general purpose programming language.
Comprehensive I/O libraries including graphics and sound.
Example source files supplied, including a space invaders game, full screen editor and all the libraries. 60 page manual covers the language and gives details of the libraries.

"Designed for humans, not computers" CWTA

disc: £39.95 (includes free rom)

MODEL UNIVERSE

Create and print your own designs in three dimensions. Zoom into your object, rotate it through 360 degrees or view from any angle or perspective

"An ideal introduction to the world of 3D graphics" CWTA

disc: £19.95, cassette: £15.95

C (6128,CP/M+)

Integrated C programming system. Full implementation of K&R standard.

* Floating point * 32 and 16 bit arithmetic * Optimising compiler *
* Linker * I/O and maths libraries * Conditional compilation * Macros *
* Editor is program mode of Protext *

"In typical Amor fashion, they've taken their time and got it right" AU

disc: £49.95

MAXAM II (6128,CP/M+)

Enhanced version of Maxam for CP/M+. Extras include:

* Single stepping * conditional breakpoints * symbolic debugger *
* Editor is program mode of Protext * Macro assembler *

"Now the best gets even better" CWTA CPC
"Maxam II - others nil" AU

disc: £49.95

POCKET PROTEXT (6128,CP/M+)

An enhanced version of CPC Protext running under CP/M+ with:

* unlimited file size * foreign languages, accents on any letter *
* microspacing to give equal spacing between words * two file editing *
* proportional printing with right justification * disc utilities *

"Deserves to be the system by which all other WPs are judged" YC

disc: £39.95

PROTEXT (6128,CP/M+)

Combines all the features of Pocket Protext, Promerge Plus and Prospell into one program. German program and dictionary also available (Prowort). Protext is also available for IBM PC compatibles including Amstrad PC1512/PC1640 at the same price.

"Protext is just so fast and versatile once you have used it - it is like putting Nigel Mansell against a C5" PYATW

disc: £59.95

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Produced on Protext

TOO CLEVER BY FFAR!

AN international partnership in CPC games production has got off to a controversial start.

The Anglo-German deal between Ariolasoft and Micropartner created the Magic Bytes label to market an initial seven titles including The Pink Panther and Tom and Jerry.

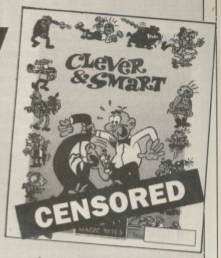
But the first release in the series – a zany adventure called Clever and Smart – has had to be delayed a month for alterations to the text. Translation from the original German into English left the program peppered with obscenities.

Described as "a slapstick comedy", the game features a pair of private detectives in adventures involving a number of other characters.

After seeing a pre-release review copy of Clever and Smart, *Computing with the Amstrad CPC* drew Ariolasoft's attention to the bad language. Press officer Amanda Barry said: "We are aware of the phrase in question, a number of people have mentioned their concern.

"It's a problem of literal translation – apparently these words don't have the same strong impact in Germany where the game originated. It is intended as a funny remark".

Later Ms Barry telephoned to say: "After hearing what *Computing with the Amstrad CPC* and others are saying about Clever and Smart, our managing director Willi Carmincke has decided to delay the game's release for a month so the offending phrase can be changed".



New line in software

LEADING games producer Code Masters has launched the first of a new-style series of entertainment software.

Code Masters Plus cassettes will contain the game on one side and an expert version – said to be unplayable until the standard version is mastered – on the other.

There will also be a second cassette containing alternative scenarios in which either standard or expert versions of the game can be played.

Art for the series is being created by newly-appointed graphics manager James Wilson, who has worked on many of the hits from brothers David and Richard Darling.

First Code Masters Plus game for the CPC is Jet Bike Simulator, written by the Oliver twins, whose Grand Prix Simulator has spent more than 20 weeks at the top of the charts.

Jet Bike brings the excitement of overhead-view racing to water, with the added attraction of 24 different scenarios.

All titles in the new series from Code Masters (0295 68426) will cost £4.99.

James Wilson, CodeMasters' new graphics manager

A show on your screen

FOR several months the US software charts have been dominated by adaptations of television gameshows.

Now Domark has set out to emulate that success with a new label aimed at producing conversions of British favourites for the CPC.

The first releases on the TV Games label from Domark (01-947 5622) are Countdown, the word puzzle which was Channel 4's first ever programme, Bullseye, the darts and quiz game and Treasure Hunt, the general knowledge plus clues teaser.

Countdown follows the television show closely, offering a series of word and number puzzles which can be attempted by one or two players.

The darts in Bullseye are guided from the keyboard and the scores produce subjects for questions, points and bonuses.

In Treasure Hunt the player controls a helicopter, aided by a status map showing time taken and the condition of the aircraft, plus a map screen displaying the area around the current position. A collection of different hunts is included.

Price £7.95

CPC can spot the showers

THE service which offers CPC users an opportunity to become weather forecasters has been upgraded to a professional standard.

Thanks to WeatherLink, all CPC owners can now pick up the same satellite pictures as the Met Office experts.

To achieve this, WeatherLink – which operates on the MicroLink system – has switched satellites from the older NOAA 9 to the more advanced Meteosat.

This means that the weather maps transmitted from outer space have been dramatically improved in quality, offering perfect clarity and true colour.

"The problem with NOAA 9 was that it relied on infrared images", said Derek Meakin, head of MicroLink, "and this at times resulted in weather maps that lacked clarity and true colour.

"The far more sophisticated Meteosat satellite eliminates the problem, enabling CPC owners to download pictures of a completely professional standard".

POOLSWINNER II

THE ULTIMATE POOLS PREDICTION PROGRAM

Boxed, with detailed instruction booklet

- **MASSIVE DATABASE** Poolswinner is a sophisticated Pools prediction aid. It comes complete with the largest database available – 22000 matches over 10 years.
- **PREDICTS** Not just SCOREDRAWS, but AWAYS, HOMES and NO SCORES.
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- **SIMPLE DATA ENTRY** All team names are in the program. Simply type in the reference numbers from the screen. Or use FIXGEN to produce fixture list automatically (see below).
- **LEAGUE AND NON-LEAGUE** All English and Scottish League teams are supported, and also the non-league sides often used on pools coupons.
- **PRINTER SUPPORT** Full hard copy printout of data if you have a printer.

PRICE £15.00 (all inclusive)

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- **THE PERFECT PROGRAM** for everyone interested in Football – Soccer Fans, Pools Punters, amateur league secretaries and team managers.
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- **UPDATED:** The package is supplied with this season's football results already entered into the program.
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PRICE £15.00 (all inclusive)

FIXGEN 87/8

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FOOTBALL FOLLOWER with FIXGEN £16.50 (for both)

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£26.50 (all inclusive) (ask for "COMBO PACK")

Boxed, with detailed instruction booklet

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PRICE £15.00 (all inclusive) includes Flat AND National Hunt versions.

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All programs available for:

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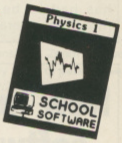
MAXI-MATHS (age 9-15). Amstrad PC, IBM PC, Amstrad CPC. 1. Triangles. 2. Angles. 3. Sin Cos Tan. 4. Rectangles. 5. Circles.
provides a very stimulating learning environment.

MAGIC MATHS (age 4-8). CBM 64, IBM PC, Amstrad CPC, PCW, PC.
Addition and Subtraction. "A serious challenger to similar BBC programs and a good example of its type". PTM (UK).

MATHS MANIA (age 8-12). CBM 64/IBM PC/Amstrad CPC, PCW, PC.
Multiplication and Division. "It appeals to the age group. My son has been sneaking downstairs before breakfast to play". BBC CEEFAX.

BETTER SPELLING (age 8-adult). All Amstrads/ CBM 64/BBC/IBM PC.
"Well Organised Lessons". "A proper course which approaches spelling problems with specific exercises". E & T (U.K.).



BETTER MATHS (age 12-16). All Amstrads/CBM 64/ IBM PC.
Rated in the top five in an edudational survey.

CHEMISTRY (age 12-16). CBM 64/BBC/IBM PC/All Amstrads CPC, PCW, PC.
"Very ambitious in terms of the range of topics. High standard of questions."

BIOLOGY (age 12-16). All Amstrads/CBM 64/BBC/IBM PC.
"A good excuse to play with your computer and have fun while revising". Your Computer.

MAPWORK QUIZ (9-Adult). Amstrad CPC, CBM 64, BBC.
Excellent graphics and sound in this program covering most aspects of the Geography of Britain and Ireland. Great fun for all the family.

PHYSICS (age 12-16). CBM 64, Amstrad CPC, PCW & PC 1512, IBM.
"A colourful way of revising for GCSE/O-Level examination", Your Computer.

PLAYSCHOOL MATHS (age 3-7). Amstrad CPC.
Six of the best programs for the pre-school and young children.

GEOGRAPHY (age 13-17). Amstrad CPC & CBM 64.
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Accent on utility

AIMING to prove that the CPC6128 has a healthy future as a powerful and versatile utility machine is new communications software called Axis.

The program, described by authors Monflair (01-367 1777) as a modular multi-standard communications system, is supplied with full specification viewdata and Ascii terminals.

Features are incorporated which enable users to construct personal databases of stored frames, documents and mail.

Modular construction extends the longevity of the system so that future requirements such as a VT100 terminal emulator can be bought as an inexpensive accessory to run from the original disc system.

Running under CP/M Plus Axis operates in conjunction with any standard RS232 interface and many of the wide range of modems currently available, including Hayes-compatibles. Price £29.95.

Making music – thanks to AI

FOR CPC users who'd like to compose music but can't tell their brass from their oboe, Mastercomposer from Westhill Music may just be the answer.

No musical knowledge of any kind is needed, the user just loads the software and makes a choice from 10 styles.

Mastercomposer then uses a form of artificial intelligence to compose new melodies in three part harmony.

The melodies will be different every time the program is run and the probability of a tune being repeated is less than one in 1,000 million.

Jigs, waltzes and calypsos are just three of the styles that can be employed, selectable from a comprehensive menu.

Once a melody has been saved to disc it can then be printed out on any dot matrix printer in standard musical notation.

The package costs £49, from Westhill Music (0224 740 412).

Questionnaire draw

WE are now sifting through the thousands of readers' survey questionnaires and say a big thank you to all those who took part.

Winners of the prize draw, who each collect one of Marconi Track Ball and Easi-Art, EasiPublish and Easi-Draw, or four assorted games were: S.M. Clough, Worthing; G. Lutley, Basingstoke; F.F. Sentzou, London; E. Visser, Netherlands; Y-C Wan, Holloway; D. Hudspith, Croydon; D.S. Keyse, Nailsworth and B. Tutcher, Bristol.

AMDRUM WINNERS

THE 10 winners in our recent Cheetah competition were: R. Phillips, Pontypool; A. Eden, Australia; C. Gordon, Pimlico; M. Leake, St Annes; E. Stevens, Finchley; G. Sargent, Telford; G.W. Green, Wirral; P. Stanley, London; J. King, Swindon; T. Kent, Sanddown.

Each won a copy of Amdrum, the £34.95 package which has a kit of eight different sounds, plus three additional tapes each containing eight new voices, together worth £13.97.

THE GALLUP CHART TOP 20 CPC SOFTWARE

THIS MONTH	LAST MONTH	TITLE (Software House)	PRICE
1	•	PRO SKI SIMULATOR *Code Masters*	1.99
2	1	GRAND PRIX SIMULATOR *Code Masters*	1.99
3	4	JOE BLADE *Players*	1.99
4	2	DIZZY *Code Masters*	1.99
5	5	RENEGADE *Imagine*	8.95
6	14	SOCCER BOSS *Alternative*	1.99
7	6	BMX SIMULATOR *Code Masters*	1.99
8	7	WORLD CLASS LEADERBOARD *Access/US Gold*	9.95
9	15	INDIANA JONES *US Gold*	9.99
10	9	CRICKET INTERNATIONAL *Alternative*	1.99
11	8	PAPERBOY *Elite*	8.95
12	12	SUPER ROBIN HOOD *Code Masters*	1.99
13	•	SARACEN *Americana*	2.99
14	9	INTERNATIONAL KARATE *Endurance*	2.99
15	11	GHOST HUNTERS *Code Masters*	1.99
16	10	TRANSMUTER *Code Masters*	1.99
17	•	SIX PAK *Hit Pak*	9.95
18	13	DEATH WISH 3 *Gremlin Graphics*	9.99
19	•	BEACH HEAD 2 *Americana*	2.99
20	18	BARBARIAN *Palace*	9.99

Code Masters continue their domination of the chart this month, with Professional Ski Simulator entering at number one. Saracen is the only other new entry, with Beach Head 2 re-entering the chart at 19 and Six Pak re-entering at 17.

Breeding (micro style) can be fun

CHRISTIAN PINDER's biomorphs give you control over evolution

LAST year on BBC 2 Dr. Richard Dawkins, a lecturer in Zoology at Oxford University, hosted a programme about the evolution of life. Richard Dawkins is also the author of The Blind Watchmaker, a book which seeks to explain evolution and natural selection in layman's terms.

Natural selection, in case you haven't heard of it, is generally accepted by scientists to be the mechanism by which life has evolved on Earth. In both the book and the TV programme Dr. Dawkins described and demonstrated a computer simulation of this process.

The program accompanying this article is a conversion of one originally written by Mike Cook for *Electron User*, which in turn is a simplified version of Richard Dawkins' simulation. Before getting on to the program I'll explain its background so you'll know what's going on.

The appearance of an animal or plant is determined by the genes it inherits from its parents. Genes are to be found at the heart of each cell in every living thing – including you and me.

To simplify the explanation I'll concentrate on asexual reproduction, which involves only one parent. This may seem artificial but it's common in plants and the lower animals.

Ignoring the influence of the environment, if an offspring's genes are identical to those of its parent, the two animals or plants will look exactly the same. In real life, however, genes can alter for a variety of reasons, background radiation and the constant jostling they receive from other molecules being two of them.

If a gene mutates and is passed on to an offspring, the result will be that the child looks slightly different to its parent. For instance if the gene controlling size mutated, the offspring would be larger or smaller than its immediate ancestor.

The physical alteration brought about by mutation of its genes may give the creature an increased chance of survival, and if so, it will tend to live longer and produce more descendants than its less well-endowed fellows.

Offspring with the altered gene are also more likely to survive, therefore they will tend to have more children, and as the generations progress an ever greater proportion of the population will inherit the mutation.

Eventually just about everyone will have the new gene, and the species as a whole will have evolved. The changes tend to be in small steps and accumulate into major developments over many thousands or millions of generations.

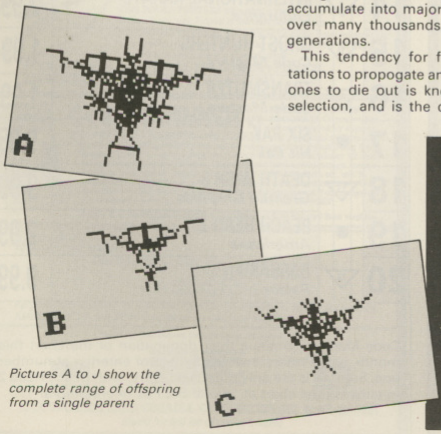
This tendency for favourable mutations to propogate and unfavourable ones to die out is known as natural selection, and is the driving force of evolution. In higher animals with long life cycles evolution is a slow process, so if you watch Fido, the next-door neighbours or grandma, you will not notice it happening.

Humans are only comfortable thinking in time scales ranging from seconds to, at most, a few lifetimes. For this reason many people find the concept of evolution difficult to accept.

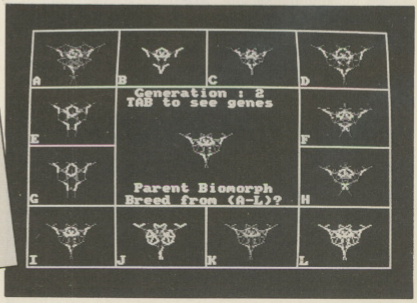
Scientists working with plants or animals able to reproduce and mature quickly can observe the effect in the laboratory, but this isn't accessible to you and me. As an alternative to real plants and animals we can use the Amstrad to simulate evolution and natural selection.

The creatures we're going to observe are the biomorphs. Actually a biomorph is nothing more than the binary tree we looked at in the October 1987 issue, with a set of six genes to control aspects of it's appearance. The functions of the genes are shown in Table I together with their maximum and minimum values.

Biomorphs have a peculiar lifestyle. They go in for one-parent families and always produce litters of 12. When the parent dies, only one child reproduces and so becomes the mother of the next generation. Each daughter differs



Pictures A to J show the complete range of offspring from a single parent



Gene	Min.	Max.	Purpose
0	1	9	Depth of recursion
1	–15	15	Line size
2	–3.14	3.14	Branching angle
3	–3.14	3.14	Amount branching angle increases at each branch
4	0	1	Amount colour value increases at each branch
5	–	–	Displayed colour

Table I: The effects of the genes

from her mum by a small mutation in one gene.

Extensive research by a team of top biologists has revealed the reason for the litters of 12: Each of the six genes can mutate up or down compared to the parent giving 12 possible children.

Armed with this information it's time to grow your own. When you run the biomorph breeder you will have the option to start at one of three points – an alien, a random point where the first biomorph will be chosen by the micro, or you can specify the genes. In this last option, you only define the first five as the sixth controls colour and doesn't affect the overall shape.

The program will put the parent at the centre of the screen and generate the offspring around it. After each daughter has been drawn you will be asked which one you would like to become the parent of the next generation. Press a key from A-L as appropriate and the whole thing starts again.

In this way you can watch these artificial creatures evolve as you apply your own rules of survival – a sort of unnatural selection.

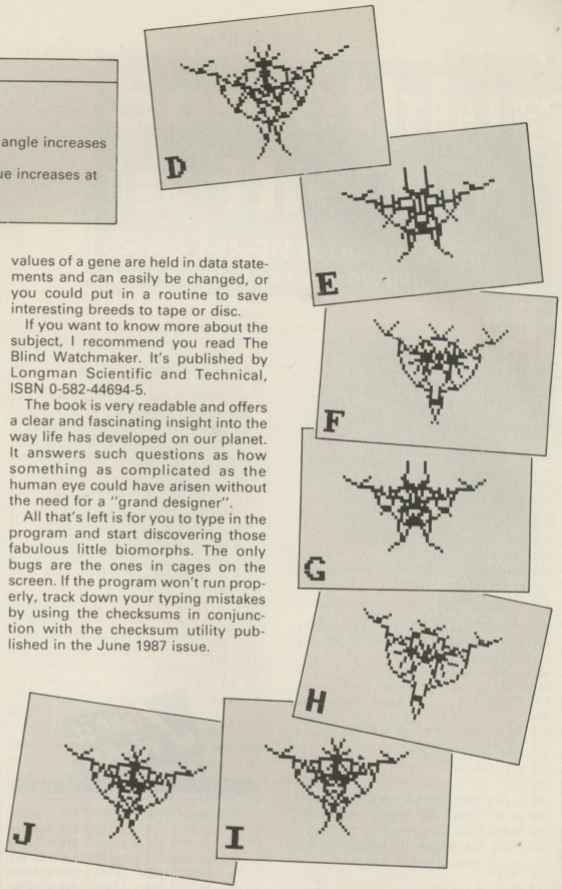
If you want to see the current values of the genes, press Tab, then any key to continue. You can write the numbers down and use them as a starting point next time you run the program.

There are many ways in which Biomorphs could be tinkered with. For example the maximum and minimum values of a gene are held in data statements and can easily be changed, or you could put in a routine to save interesting breeds to tape or disc.

If you want to know more about the subject, I recommend you read The Blind Watchmaker. It's published by Longman Scientific and Technical, ISBN 0-582-44694-5.

The book is very readable and offers a clear and fascinating insight into the way life has developed on our planet. It answers such questions as how something as complicated as the human eye could have arisen without the need for a "grand designer".

All that's left is for you to type in the program and start discovering those fabulous little biomorphs. The only bugs are the ones in cages on the screen. If the program won't run properly, track down your typing mistakes by using the checksums in conjunction with the checksum utility published in the June 1987 issue.



WANTED:
Prize specimens

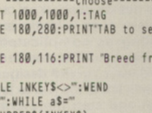
Bred any good biomorphs lately? If you've come up with a particularly pretty, lifelike or exotic example, or even one that's exceptionally ugly, you could win £25 worth of software. Just write down the gene values and send them to: CPC Biomorphs, Europa House, Adlington Park, Adlington, Macclesfield SK10 5NP.

```
10 REM             Biomorphs
20 REM          By C.J.Pinder
30 REM (c) Computing with the amstrad
40 REM ------------CPC------------
50 RANDOMIZE TIME:MODE 1:INK 0,0:INK 1,2
6:BORDER 0
60 DIM morph(4,12),parent(4),gi(5,2),px(
12),py(12),x(50),y(50),d(50),th(50),c(50
),cX(50)
70 c1=26:c2=23:c3=6
80 MEMORY &3FFF:FOR adr=&8000 TO &800F:R
EAD b:POKE adr,b:cs=cs+b+adr:NEXT
90 IF cs<>-522724 THEN PRINT"Please chec
k this line":LIST 100
100 DATA &21,0,&c0,&11,0,&40,1,0,&40,&b7
,&28,1,&eb,&ed,&b0,&c9
110 :
120 REM ---------Read Gene data-------
130 FOR aX=0 TO 2:FOR bX=0 TO 4
140 READ gi(bX,aX):NEXT:NEXT
150 REM Gene Increments
160 DATA 1,2,0.16,0.16,0.1
170 REM Gene min
180 DATA 1,-15,-3.14,-3.14,0
190 REM Gene max
200 DATA 9,15,3.14,3.14,1
210 :
220 REM ----------Main Part----------
230 GOSUB 640:REM Define Start
240 GOSUB 320:REM Init Start
```

Turn to Page 10 ▶

◀ *From Page 9*

```
250 gn%=0:CLS
260 WHILE 1:gn%=gn%+1
270 GOSUB 430:REM Mutate
280 GOSUB 540:REM Display
290 GOSUB 1150:REM Choose
300 WEND
310 :
320 REM ----------Init Start---------
330 IF a$="C" THEN RETURN
340 parent(0)=5:parent(1)=-10:parent(2)=
2:parent(3)=2:parent(4)=0.8
350 IF a$="A" THEN RETURN
360 FOR a%=0 TO 4
370 q=gi(a%,2)-gi(a%,1):q=q/gi(a%,0)
380 r=INT(RND*q):r=r+gi(a%,0)
390 parent(a%)=r+gi(a%,1)
400 NEXT
410 RETURN
420 :
430 REM ----------Mutate-----------
440 FOR b%=1 TO 12:FOR a%=0 TO 4
450 morph(a%,b%)=parent(a%)
460 NEXT:NEXT
470 n=1:FOR a%=0 TO 4
480 morph(a%,n)=morph(a%,n)+gi(a%,0):n=n
+1
490 morph(a%,n)=morph(a%,n)-gi(a%,0):n=n
+1
500 NEXT
510 c3=15+ROUND(RND*11)
520 RETURN
530 :
540 REM ----------Display----------
550 GOSUB 960:REM Lines
560 d=parent(0):l=parent(1):da=parent(2)
:dt=parent(3):dc=parent(4):x=320:y=200
570 GOSUB 1390:REM Tree
580 FOR a%=1 TO 12
590 d=morph(0,a%):l=morph(1,a%):da=morph
(2,a%):dt=morph(3,a%):dc=morph(4,a%):x=p
x(a%):y=py(a%):
600 GOSUB 1390:REM Tree
610 NEXT
620 RETURN
630 :
640 REM ----------Define Start-------
650 FOR a%=1 TO 12
660 READ px(a%),py(a%)
670 NEXT
680 CLS
690 LOCATE 10,2:PRINT "COLOUR BIOMORPHS"
700 LOCATE 10,3:PRINT "----------------"
710 PRINT:PRINT
720 PRINT "Options to start evolving fro
m :-"
730 PRINT
740 PRINT "A - alien"
750 PRINT "B - random point"
760 PRINT "C - defined point"
770 PRINT
780 PRINT "Press A,B or C: ";
790 a$="":WHILE a$=""
800 a$=UPPER$(INKEY$):WEND
810 PRINT a$
820 IF a$<>"A" AND a$<>"B" AND a$<>"C" T
HEN 780
830 IF a$<>"C" THEN RETURN
840 CLS
850 FOR a=0 TO 4
860 PRINT "Gene Number ";a;" = ";
870 INPUT "",b
880 IF b>gi(a,2) OR b<gi(a,1) THEN PRINT
 "values between ";gi(a,1);" and ";gi(a,
2):GOTO 860
890 parent(a)=b
900 NEXT
910 RETURN
920 DATA 80,350,240,350,400,350,560,350
930 DATA 80,250,560,250,80,150,560,150
940 DATA 80,50,240,50,400,50,560,50
950 :
960 REM ----------Lines-----------
970 PLOT 1000,1000,1
980 CLS:MOVE 0,0
990 DRAW 0,399:DRAW 639,399
1000 DRAW 639,0:DRAW 0,0
1010 MOVE 0,300:DRAW 639,300
1020 MOVE 0,200:DRAW 160,200
1030 MOVE 480,200:DRAW 639,200
1040 MOVE 0,100:DRAW 639,100
1050 MOVE 160,399:DRAW 160,0
1060 MOVE 320,399:DRAW 320,300
1070 MOVE 320,100:DRAW 320,0
1080 MOVE 480,399:DRAW 480,0
1090 TAG
1100 FOR a=1 TO 12:MOVE px(a)-76,py(a)-3
2:PRINT CHR$(&40+a);:NEXT
1110 MOVE 196,296:PRINT "Generation :";g
n%;
1120 MOVE 196,136:PRINT "Parent Biomorph
";
1130 TAGOFF:RETURN
1140 :
1150 REM ----------Choose----------
1160 PLOT 1000,1000,1:TAG
1170 MOVE 180,280:PRINT"TAB to see genes
";
1180 MOVE 180,116:PRINT "Breed from (A-L
)?";
1190 WHILE INKEY$<>"":WEND
1200 a$="":WHILE a$=""
1210 a$=UPPER$(INKEY$)
1220 WEND
1230 IF a$=CHR$(9) THEN GOSUB 1330 :REM
see genes
1240 c=ASC(a$)-&40
1250 IF c<0 OR c>12 THEN 1200
1260 FOR a=0 TO 4
1270 parent(a)=morph(a,c)
1280 NEXT
1290 IF c=11 THEN c1=c3
1300 IF c=12 THEN c2=c3
1310 TAGOFF:RETURN
1320 :
1330 REM ----------See genes---------
1340 TAGOFF:CALL &8000:CLS:PRINT"Gene Va
lue":PRINT
1350 FOR i=0 TO 4:PRINT "i parent(i):N
EXT
1360 LOCATE 1,25:PRINT"Press any key":CA
LL &BB18:CALL &8000,1
1370 TAG:RETURN
1380 :
1390 REM ----------Tree-------------
1400 s=0:INK 1,c1:INK 2,c2
1410 IF a%>10 THEN INK 3,c3
1420 PLOT 1000,1000,2:MOVE x,y:DRAW x,y-
l
1430 th=PI/2:c=dc+1:GOSUB 1460
1440 PLOT 1000,1000,3
1450 RETURN
1460 IF d=0 THEN 1660
1470 c%=INT(c) AND 1:c%=c%+1
1480 IF a%=11 AND c%=1 THEN c%=3
1490 IF a%=12 AND c%=2 THEN c%=3
1500 PLOT 1000,1000,c%:MOVE x,y
1510 dx=l*COS(th+da):dy=l*SIN(th+da)
1520 DRAWR dx,dy
1530 s=s+1:th(s)=th:c(s)=c:x(s)=x
1540 y(s)=y:d(s)=d:c%(s)=c%
1550 th=th+da+dt:c=c+dc
1560 x=x+dx:y=y+dy:d=d-1
1570 GOSUB 1460
1580 PLOT 1000,1000,c%:MOVE x,y
1590 dx=l*COS(th-da):dy=l*SIN(th-da)
1600 DRAWR dx,dy:MOVE x,y
1610 s=s+1:th(s)=th:c(s)=c:x(s)=x
1620 y(s)=y:d(s)=d:c%(s)=c%
1630 th=th-da-dt:c=c+dc
1640 x=x+dx:y=y+dy:d=d-1
1650 GOSUB 1460
1660 th=th(s):c=c(s):x=x(s):y=y(s)
1670 d=d(s):c%=c%(s):s=s-1
1680 RETURN
```



LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	= 30528	250	= 56384	490	= 00224
20	= 39424	260	= 04192	500	= 42400
30	= 24672	270	= 21568	510	= 59840
40	= 57440	280	= 14592	520	= 27008
50	= 08608	290	= 38240	530	= 12832
60	= 04736	300	= 12864	540	= 20704
70	= 11520	310	= 12832	550	= 57632
80	= 10944	320	= 56032	560	= 60352
90	= 18400	330	= 49216	570	= 37280
100	= 51104	340	= 07360	580	= 33408
110	= 12832	350	= 34912	590	= 65440
120	= 43840	360	= 26016	600	= 37280
130	= 60416	370	= 22240	610	= 42400
140	= 43488	380	= 10912	620	= 27008
150	= 34624	390	= 03424	630	= 12832
160	= 28736	400	= 42400	640	= 64640
170	= 31776	410	= 27008	650	= 33408
180	= 05408	420	= 12832	660	= 25184
190	= 25504	430	= 08768	670	= 42400
200	= 19072	440	= 05152	680	= 30304
210	= 12832	450	= 54624	690	= 53248
220	= 60416	460	= 27552	700	= 45184
230	= 09280	470	= 58112	710	= 41024
240	= 47008	480	= 04512	720	= 28768

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
730	= 47712	1050	= 15296	1370	= 63936
740	= 02176	1060	= 16320	1380	= 12832
750	= 03520	1070	= 03936	1390	= 57440
760	= 65248	1080	= 08064	1400	= 63328
770	= 47712	1090	= 51424	1410	= 15744
780	= 18560	1100	= 54016	1420	= 05600
790	= 09664	1110	= 58592	1430	= 33056
800	= 60224	1120	= 05920	1440	= 35552
810	= 54976	1130	= 36704	1450	= 27008
820	= 18752	1140	= 12832	1460	= 38016
830	= 25536	1150	= 28640	1470	= 58208
840	= 30304	1160	= 52480	1480	= 07136
850	= 11872	1170	= 39616	1490	= 56832
860	= 31232	1180	= 53088	1500	= 36352
870	= 00864	1190	= 58848	1510	= 33024
880	= 21504	1200	= 09664	1520	= 31200
890	= 65504	1210	= 12480	1530	= 11904
900	= 42400	1220	= 12864	1540	= 07840
910	= 27008	1230	= 51008	1550	= 09472
920	= 42912	1240	= 21280	1560	= 17312
930	= 39520	1250	= 15456	1570	= 00384
940	= 28672	1260	= 11872	1580	= 36352
950	= 12832	1270	= 36640	1590	= 10432
960	= 11520	1280	= 42400	1600	= 51072
970	= 46432	1290	= 63808	1610	= 11904
980	= 53504	1300	= 16384	1620	= 07840
990	= 28160	1310	= 36704	1630	= 34368
1000	= 14560	1320	= 12832	1640	= 17312
1010	= 43712	1330	= 08032	1650	= 00384
1020	= 28992	1340	= 16192	1660	= 10592
1030	= 48576	1350	= 65408	1670	= 43392
1040	= 26240	1360	= 54784	1680	= 27008

Something in the air

CHRIS NIXON turns his CPC into a teletext receiver

TELETEXT is the method used by television companies to transmit hundreds of pages of text and picture information alongside the normal programme signals. Each TV channel has its own teletext service: The BBC's is called Ceefax, ITV's is Oracle, and Channel 4 has 4-Tel. All broadcast similar information such as news, weather maps, travel, share prices, sport and much more.

This information is usually hidden from view, but on televisions with badly set vertical height controls it can be seen at the top of the screen as a thin band of rapidly changing white dots. This is the data which, when decoded, can be used to generate the text.

It involves special circuitry, and to access teletext you normally need a specially equipped TV. Needless to say, these are expensive. At the time of writing the cheapest one I could find was around £220.

The other way is to use your Amstrad in conjunction with special software and an adapter such as the Microtext Teletext Adapter. It relies for its input on a composite video signal which can be obtained from the rear of most videos, and a suitable lead is supplied. If you don't possess a video, an extra £114.80 brings you a digital tuner. This review is based on the complete adapter/tuner kit.

Installation is easy enough: Just plug the adapter into the expansion port – it has a through connector for other peripherals – connect it to the tuner with the lead supplied, plug the aerial and power supply into the tuner and you're ready to run the software.

If you have just the adapter, the software turns your keyboard into a teletext keypad. If you have the tuner as well, it first scans the airwaves for television signals. This takes around 90 seconds, and each time a recognisable signal is found, you are shown the top line of that channel's teletext service. You are then asked to provide an identifying number or letter for the channel, which allows you to select it later.

When all the stations have been identified and named, you are advised to stop the program and resave it to disc or tape. This new version will then have the channel information permanently incorporated and avoids having to scan for stations every time you run it.

I could quite easily pick up all four teletext services using an indoor aerial. A colleague living further away from the transmitter had no luck with a similar arrangement so you may find a roof-mounted antenna necessary.

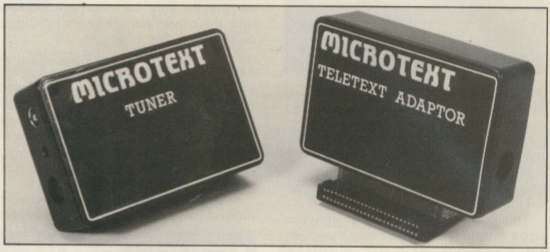
The manual warns that the adapter can be fussy about the signal quality, but being adventurous I was able to obtain 4-Tel without much difficulty, using three feet of co-axial cable and a bent coat hanger!

Once set up, using the system is straightforward and everything works as if you were holding a proper teletext keypad in your lap. Apart from the mandatory three-digit keypresses to select a page, there are eight other keys to give you full control over the incoming information. Microtext has chosen sensible, easily remembered keys and these are summarised in Table I.

Selecting a given page of teletext is simply a matter of typing its number, and after a short wait it appears on the screen. The reason for the delay is that frames are transmitted by the teletext computer at the rate of 10 every second or so, sequentially and in a constant cycle. This means that your receiver has to wait and grab the requested page the next time it comes around – a bit like a merry-go-round.

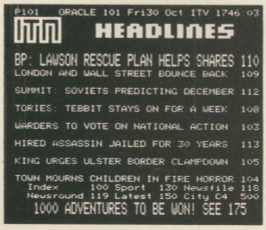
To change channels, you press C followed by the single-character name which you assigned during the initial scanning process. My only complaint

Turn to Page 12 ►



Key	Function
N	Next Page.
B	Back a page.
R	Reveal – reveals parts of a page hidden with a "hide" code.
H	Holds the present screen until pressed again.
P	Prints the current page to an Epson-compatible printer.
S	Save the current screen to tape or disc.
L	Load a previously saved screen.
C	Select channel – superfluous if using a video.

Table I: Commands available within the software



◀ *From Page 11*

about this function is that if you were previously on a page number which does not exist on the new channel's teletext service, the display will remain unchanged. This can be

puzzling the first time it happens, but is soon remedied by typing a valid number.

The first place to look after selecting a channel is the index page, which will be found at page 100 or 200 for BBC 1 and 2, 300 for Oracle, and 400 for 4-Tel.

This page will give you a brief list of page numbers for obtaining the main topic sections, and also the page number of a full A-Z index which will in turn provide you with an alphabetical list of every topic available on that service, together with the relevant page number.

An extremely useful feature is the printer dump – pressing P allows you to dump the page to any Epson-compatible dot matrix printer. The result is a rather small, but very neat image. Those here have been reduced.

If your printer is a daisywheel, you can add the short listing given at the back of the manual to the end of the main teletext program. This will provide you with text-only dumps and can also be used with a dot matrix for speedier prints.

In order to provide the range of colours required by teletext the screen display is in Mode 0. The character set has been redesigned to accommodate

40 characters to the width of the screen, which is a solution commonly found in comms software for accessing viewdata services such as Prestel. I've seen nicer character sets, but Microtext's is perfectly legible and a better one is used in dumps.

The software is extremely flexible because the main functions are implemented from machine code under control of a Basic program. Each routine, such as the one for selecting a teletext page, has its own 3-byte jumpblock entry in a table located between &8000 to &8017. These are all documented and anyone with a modicum of programming ability should be able to incorporate them into their own patent pools predictor or stock market analyser.

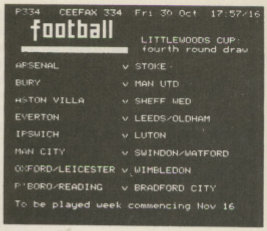
As a hardware unit, the adapter and tuner function perfectly. If reception suffers from interference the software filters out bad characters and replaces them with spaces. Each time the page comes round, the missing characters gradually fill in, thus unscrambling previously unreadable text and pictures.

The system boxes are extremely rugged in construction, but one point

to note concerns the tuner, which is attached to the adapter by a metre of cable. The top of my DDI–1 disc drive seemed a convenient resting place for the tuner – don't do it! Until I realised the cause, the emissions from the tuner gave persistent disc error messages – but did not damage any discs – and caused much frustration!

You may be wondering why anyone with a home computer would fork out for a teletext adapter which can only receive, and is therefore not interactive. A modem, for instance – for around the same price – allows almost real-time conversation between subscribers, electronic mail, game playing, and gives access to much of the information which teletext offers.

The main thing is that if you possess a TV licence, teletext is free. This contrasts with a modem where not only do you have to pay the phone bill, but also the quarterly subscription rates of



your favourite service and possibly further charges depending on the time of day and the usefulness of the information you're after. This can soon amount to a lot of money.

Teletext really comes into its own when accessed via a home computer. Because the same page number is always used for displaying the same information – Ceefax always broadcasts the current weather map on page 152 for example – you can write a program which reads information from certain pages every day, adds it to a growing database and analyses it statistically.

A prediction of future stock market trends is one possibility, pools prediction another. Even the weather could be analysed statistically over the year, which could be useful to students working on a geography project.

You can obtain telesoftware, but most of it is for the BBC Micro and I was only able to find one Amstrad program. This downloaded and ran without difficulty. With luck, the quantity of software will expand as more Amstrad users require the service, but at the moment this can't be considered the adapter's strongest point when compared to services available via a modem.

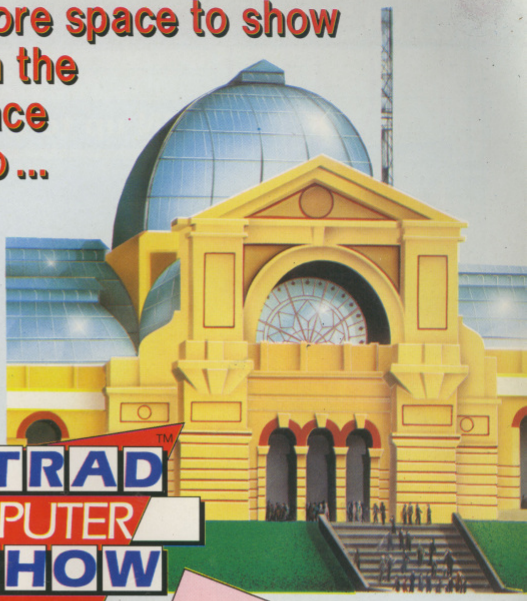
I'm not going to make a recommendation based on economics because this is not straightforward and the decision as to whether you buy these units or opt for upgrading to a teletext TV depends on your particular permutation of needs, equipment and circumstances. The equation is even more complex if you're also thinking about a modem.

If, after doing your sums, you decide that the adapter or adapter/tuner is for you, as far as I know they are the only ones available, they work well and are recommended.

Product: Teletext adapter and tuner
Price: Adapter £74.95, Tuner £114.80
Supplier: Microtext, 7 Birdlip Close, Horndean, Hants PO8 9PW
Tel: 0705 595694

We needed even more space to show you all that's new in the Amstrad marketplace -so we've moved to ...

The Great Hall
Alexandra Palace
Wood Green, London



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10am – 6pm Thursday, February 4
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Note new dates

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_____

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AMSTRAD™ COMPUTER SHOW

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Wood Green, London N22
February 4-6

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Address.....

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10 LINERS

WIN up to £10!

Send YOUR 10-liners to: Computing with the Amstrad CPC, Europa House, Adlington Park, Adlington, Macclesfield SK10 5NP.

THIS month's collection has a distinctly musical flavour, but there's also a game and an excellent graphics display. All merit a few minutes of your time and when you've seen them, why not have a go yourselves and let us see the results? Don't forget to include a stamped, self addressed envelope if you want your tape or disc returned.

Swapper

£5 WINNER

by Andrew MacPhee

THIS program uses screens saved on tape or disc to form a simple puzzle. If you haven't got any saved screens, it will create one out of random lines – just press Enter/Return when asked for a filename.

The picture will be divided into 16 tiles which are then shuffled around. You have to reassemble the picture by swapping pairs of tiles – specify two numbers separated by a comma where 1 is the top left hand tile and 16 is the bottom right.

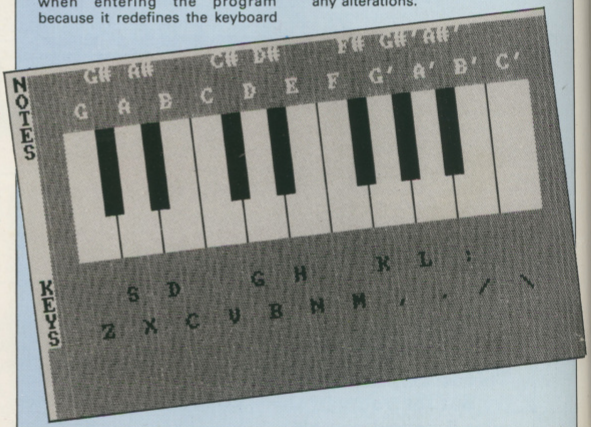
```
10 MODE 0:REM ** Will work in any m
ode **
20 IF PEEK(100)<>255 THEN POKE 100,
255:RESTORE 100:FOR I=&BF00 TO &BF4
7:READ A$:POKE i,VAL("&"+A$):NEXT:C
ALL &BF00
30 LOCATE 1,11:INPUT"Input file nam
e";f$:IF f$="" THEN GOSUB 80 ELSE L
OAD f$,&C000:PLOT 0,16,1:DRAW 0,398
:DRAW 639,398:DRAW 639,16:DRAW 0,16
40 WINDOW 1,40,25,25:CLS:INPUT "Ret
urn to start";o:GOSUB 70
50 INPUT"Swap ",a,b:IF a>16 OR b>1
6 THEN SOUND 1,100:GOTO 50 ELSE RES
TORE:FOR I=1 TO a:READ a$:NEXT:REST
ORE:FOR I=1 TO b:READ b$:NEXT
60 FOR L=0 TO 4:i$WAP,VAL("&"+A$),V
AL("&"+B$):FOR D=0 TO 200:NEXT:NEXT
:GOTO 50
70 FOR L=0 TO 50:RESTORE:FOR I=1 TO
 (RND*16)+1:READ a$:NEXT:RESTORE:FO
R I=1 TO (RND*16)+1:READ b$:NEXT:i$
WAP,VAL("&"+A$),VAL("&"+B$):NEXT:RE
TURN
80 CLS:FOR K=0 TO 200:DRAW RND*640,
RND*400,(RND*14)+1:SOUND 1,INT(RND*
255):NEXT:PLOT 0,16,1:DRAW 0,398:DR
AW 639,398:DRAW 639,16:DRAW 0,16:RE
TURN
90 DATA C000,C014,C028,C03C,C1E0,C1
F4,C208,C21C,C3C0,C3D4,C3E8,C3FC,C5
A0,C5B4,C5C8,C5DC
100 DATA 21,9,BF,1,D,BF,C3,D1,BC,0,
0,0,0,14,BF,C3,19,BF,0,0,53,57,41,D
0,0,FE,2,C0,DD,6E,0,DD,66,1,DD,5E,2
,DD,56,3,6,30,C5,E5,D5,6,14,7E,F5,1
A,77,F1,12,23,13,10,F6,E1,C0,26,BC,
EB,E1,D5,C0,26,BC,D1,C1,10,E3,C9
```

Grand piano

£10 WINNER

by David Bozon

WE don't think Steinway will lose much sleep over this one, but it's pretty neat for a 10-liner. Be careful when entering the program because it redefines the keyboard and can make stopping or editing very difficult. It's best to save it before running and reload to make any alterations.




```
10 MODE 1:INK 0,13:INK 1,26:INK 2,0
:INK 3,6:BORDER 13:FOR y=220 TO 340
 STEP 2:PLOT 48,y,1:DRAW 576,y:NEXT
:FOR x=96 TO 528 STEP 48:PLOT x,220
,2:DRAWR 0,120:NEXT:FOR n=1 TO 7:RE
AD x:FOR y=260 TO 340 STEP 2:PLOT x
,y,2:DRAWR 20,0:NEXT:NEXT
20 LOCATE 5,16:PEN 2:PRINT
"Z X C V B N M , . / \":L
OCATE 7,14:PRINT"S  D    G  H
K  L  :":LOCATE 5,3:PEN 1:PRINT"G
A  B  C  D  E  F  G' A' B' C":LOCA
TE 6,1:PRINT"G# A#    C# D#    F# G
#'A#"
30 a$="NOTES        KEYS":FOR y=1 TO
 16:LOCATE 1,y:PAPER 1:PEN 2:PRINT
MID$(a$,y,1);:NEXT
40 a$=SPACE$(40)+"KEYBOARD 10-LINER
 - Use the Computer Keys shown belo
w the Piano Keyboard"+SPACE$(40):WI
NDOW#1,1,40,22,24:PAPER#1,3:PEN#1,1
:CLS#1:FOR t=1 TO 112:b$=MID$(a$,t,
40):LOCATE#1,1,2:PRINT#1,b$;:NEXT:P
APER#1,0:CLS#1
50 DIM n$(18),kn(18),kx(18),ky(18),
p(18):ENV 1,1,15,1,1,0,5,15,-1,10:F
OR n=24 TO 71:KEY DEF n,0,32:NEXT:F
OR n=1 TO 18:READ n$(n),kn(n),kx(n)
,ky(n),p(n):KEY DEF kn(n),0,n+64:NE
XT:WHILE 1
60 n$=UPPER$(INKEY$):IF n$<"A" OR n
$>"R" THEN 60
70 n=ASC(n$)-64:SOUND 130,p(n),200,
0,1:LOCATE kx(n),ky(n):PAPER 1:PEN
2:PRINT n$(n):FOR p=1 TO 100:NEXT:L
OCATE kx(n),ky(n):PAPER 0:PEN 1:PRI
NT n$(n):WEND
80 DATA 84,136,228,280,372,422,472
90 DATA G,71,5,3,159,G#,60,6,1,150,
A,63,8,3,142,A#,61,9,1,134,B,62,11,
3,127,C,55,14,3,119,C#,52,15,1,113,
D,54,17,3,106,D#,44,18,1,100,E,46,2
0,3,95,F,38,23,3,89,F#,37,24,1,84
100 DATA G',39,26,3,80,G#',36,27,1,
75,A',31,29,3,71,A#',29,30,1,67,B',
30,32,3,63,C',22,35,3,60
```

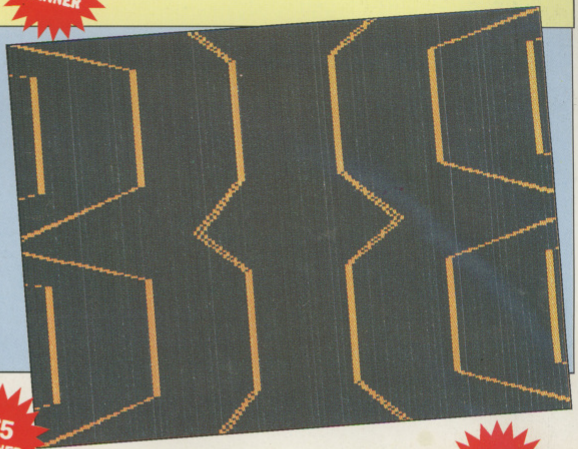
Scrolling scenery

by Andrew Wyatt

£5 WINNER

MOST of the graphics programs we receive involve palette switching and this is one of the most effective we've seen lately. The animated 3D effect is very striking. Experiment with altering the values of *loop* and *st* for slightly different results.

```
10 INK 0,0:INK 1,26:MODE 0:st=4:loo
p=14
20 FOR n=0 TO 640 STEP st
30 c=c+0.5:IF c=15.5 THEN c=1
40 PLOT 1000,1000,c:z=2*n-320
50 MOVE z,200:DRAW n,150:DRAW n,40
60 MOVE z,0:DRAW n,40
70 MOVE z,400:DRAW n,350:DRAW n,240
80 MOVE z,200:DRAW n,240
90 NEXT
100 INK 1,7:INK 15,0:FOR n=2 TO 15:
INK n,15:INK n-1,0:FOR t=0 TO loop:
NEXT:NEXT:GOTO 100
```



Sing alonga CPC

by Jessica O'Donovan (age 7)

£5 WINNER

AS far as we know, Jessica is the youngest ever contributor to *Computing with the Amstrad*. Brother Alex may have had a hand in the programming, but she's to be congratulated on coming up with something that's well worth typing in.

```
10 ENV 1,5,0,1,5,-1,4:ENV 2,5,0,1,1
5,-1,1:ENT -1,5,-2,1,10,0,1,5,2,1:a
=1:b=1:c=1:MODE 2:BORDER 11:INK 0,1
1:INK 1,0:LOCATE 25,10:PRINT "Writt
en by: Jessica O'Donovan":LOCATE 35
,12:PRINT "(Age 7)"
20 DIM a(16):DIM b(16):FOR n=1 TO 1
6:READ a(n):NEXT:FOR n=1 TO 16:READ
 b(n):NEXT:DATA 239,239,190,213,179
,213,179,179,159,159,179,190,239,23
9,319,319,1,1,2,0,1,0,2,2,1,0,2,0,1
,1,2,0
30 FOR f=1 TO 2:FOR n=1 TO 16:IF n<
9 THEN pow=pow+0.25 ELSE pow=pow-0.
25
40 IF a=1 THEN IF a(n)<>a(n-1) THEN
 SOUND 1,a(n),20,15,1 ELSE SOUND 1,
a(n),20,10 ELSE SOUND 1,0,20,0
50 IF b=1 THEN IF b(n)=0 THEN SOUND
 2,a(n)+1,20,10 ELSE IF b(n)=1 THEN
 SOUND 2,a(n)+1,20,15,2,,31 ELSE SO
UND 2,a(n)+1,20,15,2,,1 ELSE SOUND
2,0,20,0
60 IF c=1 THEN SOUND 4,a(17-n)*4/2↑
INT(pow)+10,20,10,,1 ELSE SOUND 4,0
,20,0
70 NEXT:NEXT
80 READ a:IF a=9999 THEN RESTORE 90
:GOTO 80 ELSE READ b,c:GOTO 30
90 DATA 1,1,1,1,0,0,0,1,0,1,0,1,0,1
,1,1,1,0,9999
```

Highlighter

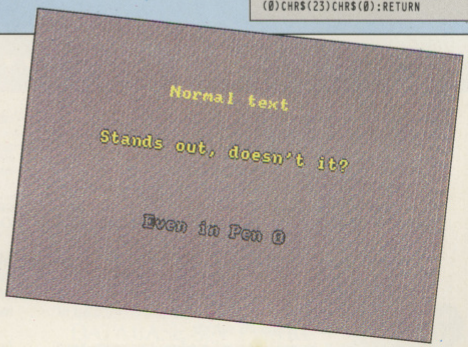
by Brendan Newbanks

£5 WINNER

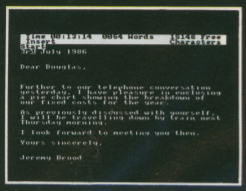
THIS is an illustration of a technique ráther than a self-contained program. It provides a neat way of highlighting text on the screen. The subroutine at line 70 should be called with the following parameters:

a$	String to print.
x,y	Text coordinates of string.
s,t	Pen numbers for shadow and text

```
10 MODE 1:INK 0,10:INK 3,0
20 LOCATE 14,8:PRINT"Normal text"
30 s=3:t=1:x=8:y=12
40 a$="Stands out, doesn't it?"
50 GOSUB 70
60 t=0:a$="Even in Pen 0":x=13:y=18
:GOSUB 70:PEN 1:CALL &BB18:STOP
70 ' ------ text highlighter ------
80 PRINT CHR$(22)CHR$(1)CHR$(23)CHR
$(3):gx=(x-1)*16:gy=398-(y-1)*16:PL
OT -2,-2,s:PEN t
90 TAG:MOVE gx-2,gy:PRINT a$;:MOVE
gx+2,gy:PRINT a$;:MOVE gx,gy+2:PRIN
T a$;:MOVE gx,gy-2:PRINT a$;:TAGOFF
100 LOCATE x,y:PRINT a$CHR$(22)CHR$
(0)CHR$(23)CHR$(0):RETURN
```

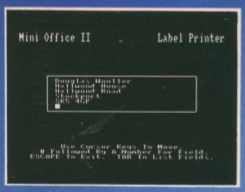


All this in just



WORD PROCESSOR
Compose a letter, set the print-out options using embedded commands or menus, use the mail merge facility to produce personalised circulars – and more!

DATABASE
Build up a versatile card index, use the flexible print out routine, do powerful multi-field sorting, perform all arithmetic functions, link with the word processor – and more!



LABEL PRINTER
Design the layout of a label with the easy-to-use editor, select label size and format, read in database files, print out in any quantity – and more!

...and at a price t

Mini Office II offers the most comprehensive, integrated suite of programs ever written for the Amstrad – making it the most useful productivity tool yet devised.

A team of leading software authors were brought together to devote a total of 26 man years of programming to the development of Mini Office II. What they have produced is a package that sets new standards in home and business software.

The sample screenshots above illustrate just a few of the very wide range of features, many of which are usually restricted to software costing hundreds of pounds. Most are accessed by using cursor keys to move up and down a list of options and pressing Enter to select.

Is it that easy to use? Several leading reviewers have already sung its praises on this very point.

Yet possibly the best advertisement for Mini Office II is that it comes from the same stable that produced the original Mini Office package back in 1984.

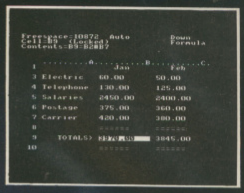
That was so successful it was shortlisted in two major categories of the British Microcomputing Awards – the Oscars of the industry – and sold in excess of 100,000 units!

It was up to Mini Office II to take over where the first Mini Office left off, with 32 extra features, two additional modules, a program to convert existing Mini Office files to Mini Office II format, and a 60 page, very easy to follow manual.

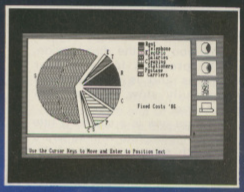
This is the package thousands of Amstrad owners have been waiting for – and at a price everyone can afford!

t ONE package!

SPREADSHEET
Prepare budgets or tables, total columns or rows with ease, copy formulae absolutely or relatively, view in either 40 or 80 column modes, recalculate automatically – and more!



GRAPHICS
Enter data directly or load data from the spreadsheet, produce pie charts, display bar charts side by side or stacked, overlay line graphs – and more!



COMMS MODULE
Using a modem you can access services such as MicroLink and book rail or theatre tickets, send electronic mail, telex and telemessages in a flash – and more!

ce that can't be matched!

Here's what some independent reviewers say about Mini Office II:

Menus throughout the program were abundant and well structured, allowing complex choices to be made with hardly a glance at the pocket-sized spiral-bound manual, and offering a wealth of user-defined functions . . . For the money it really is unbeatable. Dedicated word processors, spreadsheets and comms packages may offer some extra facilities, but some are so full of whistles and bells you may find yourself forever in the manual or even not using half of their power. What you get with Mini Office II is a valient attempt to provide an all-embracing small business package at a down to earth price; it fulfills all its promises, and there's nothing cut-rate about the facilities it provides. – **Tubelink/Viewtax 258**

Amstrad CPC 464, 664, 6128	
Cassette	*£14.95*
3" disc	*£19.95*

Voted Business Program of the Year – 1985 AND 1986
"Popular Computing Weekly"

'This package is incredible value. It includes a word processor, database, spreadsheet, graphics display, label printer and communications module. You could well spend over £200 to get the same range of functions if you bought separate programs from other firms.'
Daily Mail Home Computing Guide.

DATABASE SOFTWARE

Order form on Page 51

TRANTOR – THE LAST STORMTROOPER

Go!/US Gold
£9.99 (tape)
£14.99 (disc)
Joystick or keys

WHERE you are, or why you are there, is a complete mystery. All you know is that you are Trantor the last stormtrooper, and that you must escape from the alien complex before there is one stormtrooper less!.

As this will be one of the most frequently played games in your library, I strongly suggest that you buy the disc version. The program loads in four stages and is consequently painfully slow to load from cassette.

Stage one is a stunning title screen, complete with software speech announcing the title. Stage two loads an animated sequence, depicting Trantor's arrival on the alien planet. The third stage is the most annoying – a pretty bouncing title, but the loading process is halted until you press the spacebar. Eventually, after what seems an eternity, the opening menu is displayed.

Trantor is a regular space-age Rambo – bronzed, rippling muscles, clad with standard-issue armour, plus helmet. Standing a full 4.5 cm high Trantor is truly a mega-sprite. Combine this with superb use of colour, shading and highlight, and you have some of the best graphics to have graced the Amstrad's screen in a long, long time.

Our hero is not the only sprite to have received the programmer's loving care and attention – the aliens too are works of art. Wave after wave of spiralling missiles, eyeballs, and vicious-looking droids of various kinds, are all bent on curtailing Trantor's life.

Despite the complexity of the graphics, the animation is faultless. Even with a screen full of aliens, Trantor in full flight, and a weapon belching yards of incredibly realistic flames, there is no perceivable reduction in speed.

The alien complex is constructed on numerous levels, travel between which is achieved by means of elevator platforms. Each elevator will only carry you between two levels – to descend further you have to disembark and find an alternative platform.

On each of the first eight levels there is a NIK security terminal. The game is a race against time and you have 90 seconds to locate, and activate, the first terminal. Success is rewarded with one letter of a password, and the resetting of the countdown timer. You now have a further 90 seconds to locate the next timer.

That may appear to be a miserly time allocation, but not once, in the hundreds of times that I played the game, did I lose a life due to lack of time. The two parameters which have most bearing upon life expectancy, both directly and indirectly, are strength and flame-thrower fuel.

Two bar graphs at the top of the screen represent fuel and strength. This type of display enables you to make quick and accurate assessments of your current situation. Fuel can be replenished on all levels by squatting beside the two gas cylinders until your tanks are full.

Strength is a very elusive commodity. It is replenished by breaking into the lockers present on each level, but unfortunately not all contain food. I have found a clock that resets the timer to 90 seconds, and a floppy disc embossed with a letter P, which is presumably some kind of security pass.

My favourite symbol is the shield: Cloaked in a shimmering force field you can run, jump, and smash your way through the marauding monsters!

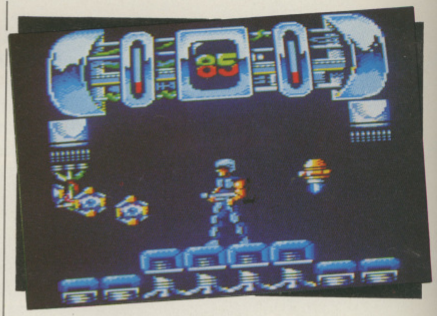
Trantor is a challenge for those of you with lightning reflexes and masses of stamina, and even with these your first few games will be shortlived. The speed and ferocity with which you are attacked is breathtaking. It is very tempting to shield yourself behind a wall of flame, but watch your fuel tanks – without your flame-thrower you are as good as dead.

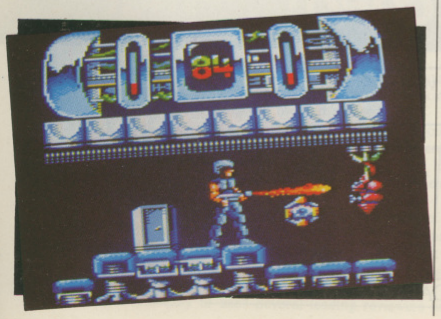
If you are fortunate enough to battle your way to each of the eight terminals, you will have in your possession a jumbled up password. Decipher this, type it into yet another security terminal and you will be given a beam code. Enter this into a computer in the beam area and you'll be teleported back to the wife and kids on your home planet.

Death is accompanied by your score and a message, the degree of sarcasm of which is inversely proportional to your score.

Having expended hours of nervous energy I was within feet of reaching the eighth terminal. With this milestone in sight my concentration lapsed momentarily and I was slugged from behind by a marauding droid – oh well, there's always next time!

James Riddell





Presentation 84%
Brief instructions, plus a game control menu.

Graphics 95%
It will be a long time before you see better.

Sound 88%
Zap and blast effects to match the graphics.

Playability 92%
Fast and furious.

Addictive qualities 93%
The games are over so quickly that there is always time for just one more go.

Value for money 90%
A reasonable price for a top-notch game.

Overall 92%
An impressive combination of good graphics and speed.

POWER PLAYS

The Power House
£9.99 (cass)
Joystick or keys

POWER Plays is a compilation of eight games you're unlikely to have seen before – and some of which you probably won't want to see again.

Wrath of Olympus is the first of two adventures. It uses the traditional verb/noun parser which would be no great disadvantage were it not so painfully slow in responding to your input. Several of the locations you visit are accompanied by simple, but colourful, illustrations.

As the title suggests, the adventure is set in ancient Greece. Awakening at the foot of a mountain, with a lump on your head and no recollection of past events, your quest is to remember your name and what crime you have perpetrated.

The story is a tangled tale of centaurs, nymphs, and golden apples, sadly let down by a lack of speed.

Program two is a ladders and levels game by the name of Nakamoto. Each screen is constructed from a series of girders, some of which are linked by horizontal chains. These can be used for swinging ape-like between adjacent girders.

Your aim is to collect all the goodies and make a bee-line for the nearest teleport. Progress is hindered by the presence of a samurai bat, several snowmen, and numerous TNT mines.

Nakamoto is dated, yet refreshing and enjoyable to play.

Nocturne is the second adventure game, written by the author of Wrath of Olympus. Thankfully this is much more responsive, and contains a far higher proportion of pictures.

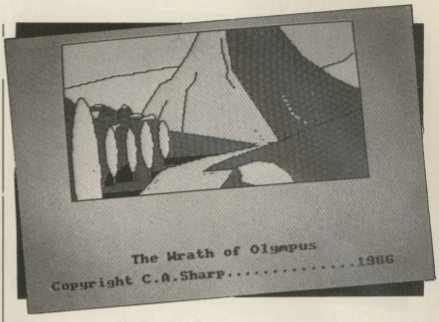
You awaken to find yourself imprisoned in a steel cell. Your first task is to escape and disable the guard who bars your exit. The room turns out to be part of a spaceship, and further investigation reveals the presence of many different species of animal – a regular Noah's ark. Nocturne is a big improvement on the first adventure.

Corridor Conflict is an arcade challenge in which you compete against a human opponent or the computer.

Using a split-screen technique, both competitors play simultaneously. There are no instructions, but I deduced the following: You must both search six levels of the same spaceship looking for six sections of a starbomb. Shooting your opponent has no effect, but a collision results in your ship being returned to the lift.

Apart from the clever split-screen effect, this game has very little going for it.

Game five is an arcade/adventure in which you make a bid to become a Time Lord. Dressed in your regulation space suit, you wander from screen to screen, avoiding or shooting the swarming aliens. You have three lives, their duration determined by the state of your oxygen reserves.



Very little margin for error is allowed when moving though gateways to the next screen, with much time and energy expended bumping into walls. Time Lord has plenty of colour, but poor control, and no excitement.

The ocean depths play host to game six, Barrier Reef. Trapped in a maze of caverns beneath the reef, you must use your skill, agility and intelligence to make your way back to the surface.

Even Jaques Cousteau would have had problems in these waters – the reef is poisonous, the fish are poisonous, and even the little blue bottle is fatal.

The exit from each cavern is blocked by a rockfall. By locating a bomb and detonating it in the correct place, you can escape to the next cavern. Once again, an extremely colourful game – but tedious.

The Amstrad Shuffle is not a new dance, but a collection of card games. The thought of playing Patience on the micro wasn't my idea of excitement, yet this turned out to be one of the best programs on the compilation.

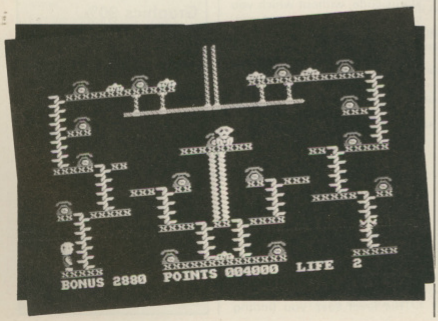
You can choose from six types of Patience: Column, clock, row, carpet, raglan and sultan. There are also versions of Blackjack and Pairs. This is one of the most comprehensive collections of card games I have seen.

The final game is an all-out zap-and-blaster. Freedom Fighter is in the Space Invaders/Galaxians mould – blast the living daylights out of swarms of hostile aliens without colliding with one of the many bombs they have dropped.

This very old formula would have failed miserably were it not for the use of large colourful sprites, a variety of different screens, and the clever use of software speech.

Power Plays is a compilation of games which fall fairly and squarely into the budget category. As such it still represents good value for money – just don't expect to find any Accolades hiding among them.

Steve Brook



Presentation 50%
Instructions were practically non-existent.

Graphics 79%
In most instances these were of a reasonable standard.

Sound 75%
Pretty average, except for the speech on Freedom Fighter.

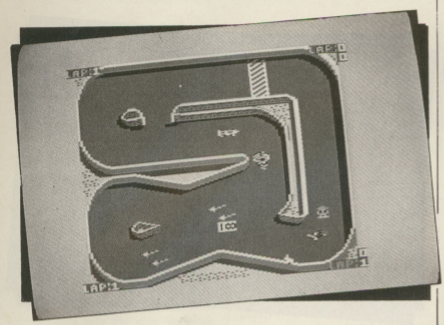
Playability 68%
Most programs had dodgy controls.

Addictive qualities 75%
Nakamoto was the only game I played for more than half an hour at a time.

Value for money 82%
Budget quality at a budget price.

Overall 74%
A collection of games which were never destined for the big time.

SUPER SPRINT



Electric Dreams £9.99 (tape) £14.99 (disc) Joystick or keys

IF you've ever fancied your chances as a new Alain Prost, here is the opportunity you've been waiting for. You too can race around a track leaving burning rubber in your wake.

On loading you are presented with options to compete against the computer, or race against a human opponent. The keys selected are simple to use, and the layout for two players is such that you have enough space and aren't elbowing each other. After you decide on the type of opponent, you are given the choice of nine tracks to start on.

When the race finally gets under way you are given a plan view of the circuit, with your car – and the three driven by the computer – lined up on the starting grid. One nice touch is the way the race is started by a small chequered flag being waved in front of the cars.

Unfortunately, one of the not so nice touches also greets you as soon as you start to accelerate. The engine noise – and believe me it is noise – instead of rising steadily in pitch as your speed increases, actually decreases from a whine to a low purr.

The race is made more interesting, however, by the provision of several factors not often seen at Brands Hatch. The first of these is the wandering tornado. This will quite happily blow your car out of control and into a barrier. Oil slicks and pools of water can have similar effects.

For those who would like a higher performance car, there is a customising option. This involves picking up golden spanners as you zoom around the track – these enable you to improve things such as the car's speed, road holding, and so on.

Picking up these objects showed up another fault with the game: Collision detection isn't up to scratch. It is possible to pick things up without touching them and miss things that have been driven over. This fault can also cause you to crash into barriers that aren't there.

All in all, this game is a very average one that could have been a lot better if a bit more care had been taken over it.

Sean Murphy

Presentation 70%
Nice helpful layout.

Graphics 70%
Good, but nothing new.

Sound 40%
A constant drone.

Playability 70%
OK, but could be better.

Addictive qualities 60%
Not so good.

Value for money 50%
Expected better for the price.

Overall 60%
Let down by niggling little faults.

ALIENS

Electric Dreams £9.99 (tape) £14.99 (disc) Joystick or keys

YOU are the only person alive who knows what the Aliens are, what they can do and, possibly, how to destroy them. If you want to return home you must face six challenges.

After checking out your weapons, you must guide your plummeting ship down to the surface of LV426. A great deal of practice is needed to master the controls of the drop ship – oversteering and too-violent movement will send you to an early grave.

Successful completion of this part will give you a mission status code, without which you cannot move to the next segment of the game.

Having landed on the surface, you must attempt to bring the marines back to the armoured personnel carrier (APC).

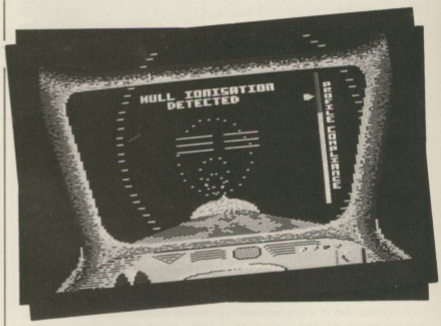
If you can manage to get all your men back to the APC safely, you will be given a second mission status code.

The next phase is a good old blast-'em-up in which you must hold off a barrage of aliens to make time for your men to cut their way through a steel door. If you can fend them off for long enough you can crawl through the air duct and into the next level, where you are given yet another mission status code.

This level sees you finding your way through the air duct maze, avoiding contact with the aliens, and back to the drop ship landing field. With two more sections to go and two more status codes to collect, you must rescue Newt from the alien nest before the atmosphere processor blows and the whole planet turns into a nuclear nightmare.

The final phase places you in direct confrontation with the Alien queen, using the power-loader arms to drop her through the air lock.

Each phase is loaded from tape or disc in turn, and you must remember to keep a note of the mission status code if you don't want to have to plough your way through the game from the start. Without a disc drive, this is very tedious.



Steve Lucas

Presentation 60%
Buy a disc drive or you'll wait forever!

Graphics 90%
Smooth and clever.

Sound 55%
Adequate but uninspiring.

Playability 75%
Some phases better than others.

Addictive qualities 70%
Mixed depending on the phase.

Value for money 90%
Six games for the price of one.

Overall 75%
Worthwhile, but one for the enthusiast.

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Guild of Thieves – it's a steal!

Game of the Year 1987 — Micro Printer Software Awards 1987

Guild of Thieves is the long-awaited follow-up to the award-winning adventure, The Pawn.

You're back in the fantasy world of Kerovnia, in the role of a novice thief who has applied to become a member of the illustrious Guild. To prove your worthiness you must ransack an island of all its treasures.

There are 29 beautiful illustrations, a massive vocabulary, and a text parser which is claimed to be more sophisticated than the parser in the Infocom adventures.

'The puzzles are delightfully well constructed and obtusely logical ... Guild of Thieves must surely steal the title of best graphics adventure. I'm very impressed.'
– Gandalf, Computing with the Amstrad CPC, January 1988

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1/88 17

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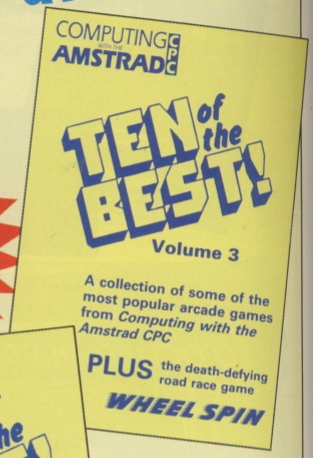
Rollaball – Guide balls through the complex maze and drop them into boxes
Fishing – Cast your line and keep a keen eye on the float to catch the fish
Eggstatic – Raid the seven caverns of the egg mine by digging through soil
Centipods – Blast away at the mutant bugs which scuttle across the screen
Diamond Digger – Navigate the droids through the mines, avoiding falling rocks
Hungry Snappers – Guide the Doodlebug to safety while eating up the truffles



Ten of the Best Volume 4

Maltese Cross – Play this popular domino game for one to four players
Ayo – Bring the ancient African board game to life on your computer screen
Automaton – An interesting variation on John Conway's famous game of Life
Fun Factors – Learn about factors with this entertaining game for young children
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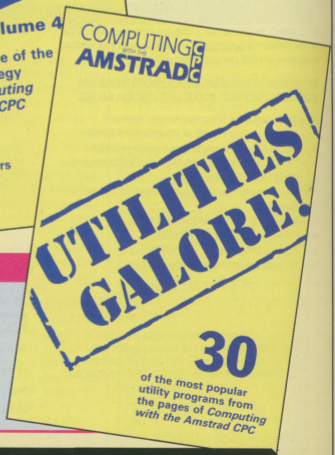
Party Machine – See the party leaders in a spin on this one-armed bandit
Patience – Try your hand at this popular card game, without the faff of real cards
Quarters – Position multi-coloured tiles on a grid in this clever test of strategy
Roulette – Place your bets, ladies and gentlemen, with this realistic simulation
Yahtzee – Hang on to your lucky rabbit's foot, blow on the dice and let them roll!



Utilities Galore!

This superb value collection contains over 30 programs ranging from clever, compact routines to 13k listings.
There's a mini card index system; assembler, disassembler and checksum programs; text file compacter; printer buffer; and machine-code circle routine.
You can also catalogue all your discs; add procedures to Basic (with an example Mastermind program); hold more than one Basic program in memory; produce multi-directional scrolling windows; design and print big fancy fonts on your printer; format discs to 200k; speed up your drive by five to ten per cent; list out all the variables in any Basic program; produce a shaded screen dump; add extra colours in any mode; strip REMs from your listings; RESTORE to any line number; list all roms and their commands . . . and much more!

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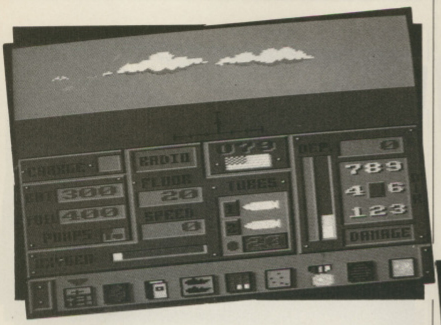
BLUE WAR



Go!/US Gold £14.99 (disc) Keyboard only

BLUE War is a submarine warfare simulation that follows the exploits of a U79 as it patrols the waters around a small group of islands in the Pacific.

The first-rate screen shots on the inlay card whet my appetite for a feast of stunning graphics. Alas it was not to be – the pictures were from some other unspecified machine, certainly not the Amstrad.

A row of icons at the bottom of the screen is used to control the submarine's various functions. The two most frequently used screens are those for the periscope and the map – selecting either boots up the disc drive and loads the appropriate piece of code.

The map is a multi-coloured, contoured chart showing the islands, your sub, and any ships in the vicinity – enemy submarines are not displayed.

Propulsion is provided by diesel or electric engines – diesel is used on the surface, batteries when submerged.

Periscope mode splits the display: Half is dedicated to controls and dials, the remainder looks out across the ocean.

When a ship is visible on the horizon, its simple silhouette is redrawn about once per second as it moves. Fire a torpedo at that ship and the redrawing is halted – instead of firing in front of a steaming destroyer, you aim directly at it.

Staying with torpedoes: Line the sub up with a ship, dive to a depth of one metre and fire a torpedo – it will miss its target. These destroyers have an incredibly shallow draught!

When engaged in combat the sub sometimes suffers damage to its periscope, causing the display to go blank. When this happens check your torpedo stocks – you will find they have been magically replenished.

Finally we come to the messages displayed throughout the game. Even by my own mediocre standards the spelling is atrocious.

Despite its failings I still enjoyed playing Blue War. Correct the inaccuracies, iron out the bugs, and it will be an excellent game.

Jon Revis

Presentation 67%
Good instructions, but the game is riddled with spelling mistakes.

Graphics 79%
The majority of the displays were good.

Sound 70%
Nothing special.

Playability 65%
The game contained several bugs and inaccuracies.

Addictive qualities 78%
An easy game to get to grips with – no struggling through reams of manuals.

Value for money 61%
Not in its present state.

Overall 74%
With a little more care, it would have been much better.

PROFESSIONAL SKI SIMULATOR

Code Masters £1.99 (tape) Joystick or keys

IF you fancy practising the art of skiing without running the risk of serious physical injury, this offering from Code Masters could be your opportunity.

There are seven pistes in all. However, before you can go on to the second piste you have to qualify on the first ... and so on. You only get 60 seconds in which to pass through six gates – seems fair. Only you're not allowed to proceed at your own pace. The screen scrolls relentlessly downward and if you're too slow to keep up, your skier vanishes off the top of the screen – not fair.

When – or if – you get the hang of it, it's possible to ski faster than the screen scrolls – and then your skier vanishes off the bottom.

The instructions suggest you can continue by following the radar map on the right of the screen. Come on guys, give the beginner a break! Sorry, not fair at all!

You do have a little leeway in case you run into a flag, a mound of snow, a hut or a tree – and you will – but not a lot.

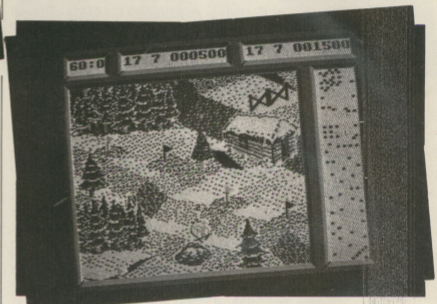
There's a simultaneous two-player option so you can break limbs in pairs, but you can't run each other off the slopes. Shame. Get some practice in before inviting your friends around so you can show them how easy (ha!) it is.

You can, of course, play against the computer. There are fast and slow areas of snow which is nice detail but the computer skier has inside info and knows where these are – not so good.

The title, Professional Ski Simulator, is probably a little ambitious, but apart from the initial difficulty in getting started – keep a week free! – it is probably one of the more comprehensive ski simulators around.

If you're prepared to spend some time mastering the controls you'll probably get a lot of fun out of this. If you're not, you won't! Seems fair?

Ian Waugh



Presentation 65%
Definable controls and a simultaneous two player option.

Graphics 70%
It looks chilly. Skiers are small and there's a bit of flicker.

Sound 65%
Simple music, scuffling snow noises.

Playability 60%
If you can persevere you'll probably enjoy it.

Addictive qualities 75%
A game you can get your teeth into – if they don't get knocked out first.

Value for money 65%
You'll love it or hate it. If you only get £1.99 pocket money give it a miss.

Overall 65%
One for the sports simulations fans, macho masochists or anyone who loves a challenge.

COMPUTER HITS 4

Beau Jolly £9.95 (tape) Joystick or keys

THE packaging proclaims "Buy 10 and get 2 free." Sounds like a good deal, so let's see what you get.

First to load is Ariolasoft's Bride of Frankenstein, an arcade adventure with the worst rendition of Bach's Toccata I've ever heard. You are Frankie's bride and must hunt the haunted corridors looking for bits of his body. There are 60 rooms to explore and good, cute graphics.

It's very frustrating only having one life and the ghouls and zombies don't give you many chances to escape. The cardiac arrest feature is neat – it scares you to death!

Electric Dreams' Spindizzy is a classic and, if you haven't got it, probably worth much of the compilation's asking price. At one time there was even talk of turning it into an arcade machine.

In search of jewels you guide a spinning top around a massive, abstract landscape. Nice graphics, and if you like sliding off the end of the world – or struggling to keep on – a brilliantly constructed game.

Martech's Pulsator is one of those fiendishly difficult mazes. You have to rescue five pulsators on five different levels. It has a big, bright display and, in demo mode, a super soundtrack. You only see a very tiny portion of the maze at once and there's no map function which makes it all the more difficult.

Palace's Sacred Armour of Antiriad is an arcade adventure with excellent sound and beautiful graphics. As Tal, the last hope of a post-nuclear holocaust Earth under alien tyranny, you must find the legendary armour of Antiriad which will make you invulnerable.

It's a pity the instructions spend more time on the background than on how to actually play the game although once you find out what you're supposed to be doing – I know, saving the Earth again! – you will enjoy it.

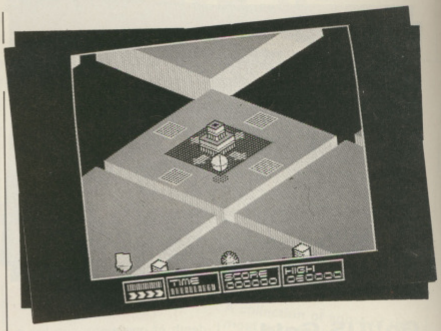
In Vortex's Revolution you control a bouncing ball as it roams a world of giant tiles. There are eight levels to work through, solving puzzles as you go. The graphics are nice and clear although the flicking from screen to screen is annoying.

Ariolasoft's Triaxos is an interesting variation on the maze theme, this time in 3D. Your task is to break into a top-security orbiting prison and rescue the only man capable of activating the most powerful weapon in the world.

You have only 30 minutes of realtime in which to complete your mission and only one life. Fortunately a cloning booth lets you swap half of your energy for a double.

In Deactivators you control an elite force of droids whose task is to clear five buildings of bombs and replace circuit boards.

To make things more difficult, the gravity can vary and doors may not always be in the walls! And, of course, you're being



chased by the inevitable robot guards. The graphics are functional and there's a nice soundtrack.

Martech's Uchi Mata is the Brian Jacks-endorsed Judo game. One or two can play and there's a practice mode where you can whop your opponent without getting whopped back. That's my kind of fight!

Hewison's City Slicker sees you collecting parts of a bomb disassembly unit in order to stop the terrorist Abru Cadabbra from exploding the Houses of Parliament. It's a ladders and platform effort with hi-res graphics which look thin in comparison with other games in the collection.

In Starquake you play BLOB (Bio-Logically Operated Being – how subtle) whose task is to prevent an unstable planet blowing up. You wander around the maze collecting some things and blowing other things up. Lots of cutie graphics, shame about the instructions. Am I perverse in wanting to know what I'm supposed to be doing?

In English Software's Elektraglide you steer something – could be a bike or a car – down a track trying to avoid unavoidable objects. A bouncy tune accompanies your travels, only marred by crackles and hisses as you hit things and run off the course.

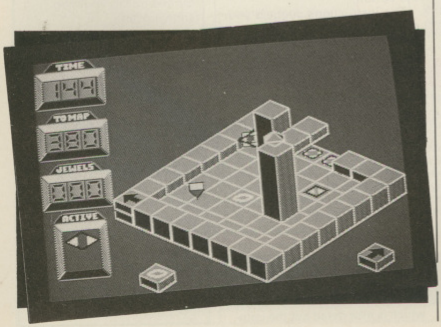
I thought I was a good driver until I discovered I could actually get more points by keeping the joystick forward and not steering at all.

Electric Dreams' Dandy is a hack-'n'-thwack arcade adventure with one and two player options. You've 15 dungeons to explore and you can tackle them in any order. Bash the nasties, collect the clues and solve the riddle.

The graphics are olde worlde and you get a bird's eye view of the action. As you move from screen to screen it updates in an unfortunate scrolling fashion from top to bottom.

How's that for a whistle-stop tour? There are lots here for which you would have paid full price only a few months ago. If you didn't or if you don't have them all, now's your chance.

Ian Waugh



Presentation 80%
I'd still like better instructions!

Graphics 80%
Variable in style and generally good.

Sound 68%
Ranges from the excellent to the dire.

Playability 72%
Most of the games play well although some have their quirks.

Addictive qualities 80%
If you don't get addicted to at least two of these you just ain't trying.

Value for money 100%
At 83p a time all the games are worth exploring.

Overall 90%
A must for your Christmas stocking.

ZIGGURAT

Ariolasoft
£9.99 (tape)
£14.99 (disc)
Joystick or keys

A ZIGGURAT was an ancient pyramidal tower found in Mesopotamia. In Ariolasoft's game of the same name you find yourself firmly in the depths of such a building.

Your goal is to reach the treasure room. Sounds simple doesn't it? Well, after many a tortured hour, my aching fingers and weary brain are testaments to the fact that solving Ziggurat is not the proverbial piece of cake.

I've done everything I can think of: Explored as many rooms as possible, manipulated all manner of objects found scattered around the building and still not a sniff of any gold, let alone the actual treasure room.

The display is the familiar 3D room and your character looks like an old-fashioned boy scout. He runs, jumps, hops on lifts, avoids malevolent zombies (mimbies), and collects anything that it can lay its pixelled hands on.

The standard of puzzles, is higher than the usual hybrid which can be found masquerading under the description of arcade adventure.

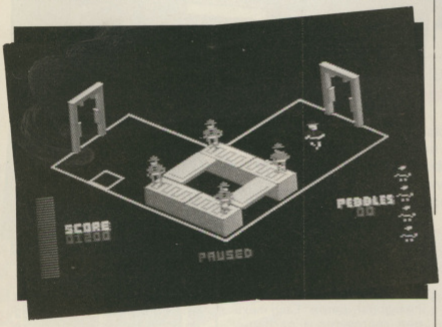
Manual dexterity is required to pass a marauding pack of zombie creatures, but a good deal of brain power is also needed to learn how to reach the top of the stone blocks found piled up in a number of the rooms.

Many puzzles involve pushing and dragging a giant marble around the various rooms. It has the infuriating habit of rolling away whenever you are not paying full attention to it, usually into the path of a Mimbie. I found playing the game an uphill struggle, for as one loses a life, additional Mimbies can be found patrolling the rooms.

The game is well designed with an easy-to-control character – made easier by the key-defining option – that is given plenty of chance to survive the game, but little to actually solve it.

It should keep relatively hardened arcade-adventurers amused for many an hour.

Clive Gifford



Presentation 90%
Excellent, professional stuff.

Graphics 82%
Detailed and colourful.

Sound 70%
Enjoyable tune but limited game effects.

Playability 75%
Responsive, but moving the marble is infuriating.

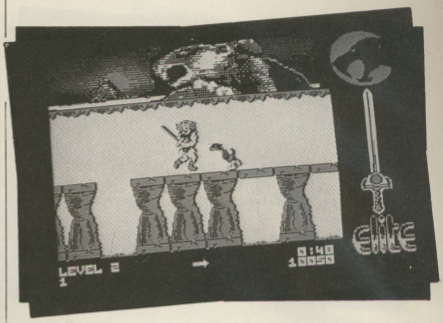
Addictive qualities 84%
Solving those puzzles can lead to sleepless nights.

Value for money 80%
Will take a fair amount of time to solve.

Overall 83%
Enjoyable, thought-provoking exploration game.

THUNDERCATS

Elite
£8.95 (tape)
£14.95 (disc)
Joystick or keys



YET another spin-off from children's TV and yet another muscle-flexing hero brandishing his oversized biceps, wielding a great sword and killing everything in sight.

In concept, Thundercats has nothing new to offer, but its saving grace is that the designers have sweated over their drawing boards to provide you with challenges of just the right level to prove addictive without being impossible.

You control Lion-O who is set the arduous task of recapturing the eye of Thundera, a jewel which holds great mystical power. This magic gem was stolen by the evil Mumm-Ra's agents, the wicked Molemen, who also kidnapped several members of the Thundercats team. Lion-O has got to wage war against the Molemen, battling through the forests and caves until he reaches Mumm-Ra's lair.

The superbly responsive controls which allow Lion-O to crouch, run, jump and strike home with his deadly sword guarantee your eventual passage through the first couple of levels. It's mainly a matter of avoiding, or killing, the evil creatures that pursue you.

As the levels progress, crumbling floors, barriers and other obstacles make your passage more difficult. However, once on to levels three and four, the game starts to sort out the men from the boys.

There are streams and ravines that Lion-O must jump, only to find a monster waiting on the other side. On the helpful side, there are various talismen, which if either hit with the sword or just touched by Lion-O, respond by giving you additional lives.

The graphics are good and the animation is particularly slick and smooth.

Thundercats comes complete with high score table, good title tune, effective effects and keyboard and joystick options. Elite has come up with an highly enjoyable game.

Clive Gifford

Presentation 75%
Nothing particularly special.

Graphics 81%
Smooth movement and reasonable detail.

Sound 90%
Lengthy, original title tune and good sound effects.

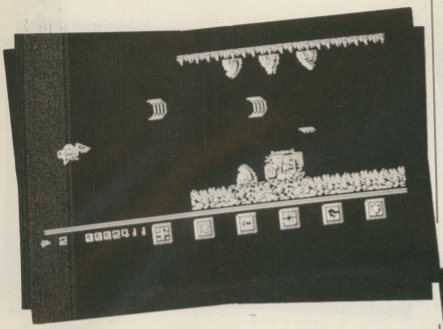
Playability 92%
Excellent controls and very well designed obstacles.

Addictive qualities 93%
You bet, right from the first moment.

Value for money 77%
Excellent, but will it keep you amused in a month's time?

Overall 85%
Good cut and thrust arcade game.

TRANSMUTER



Codemasters
£1.99 (tape)
Joystick or keys

REMEMBER Scramble in the arcades, where you had to fly through caverns and tunnels to reach the enemy base? It's a theme that's been exhumed with varying degrees of success at four month intervals ever since. Just in case you missed them all – or want another – Codemasters has been busy with another version.

Your ship is a one-off design equipped with a standard photon cannon and at its heart, a nucleonic transmuter. This device is able to suck in energy from the surroundings and use it in a number of pre-programmed forms such as extra speed or bombs.

As it works off raw energy round the hull, the more debris there is flying around the more energy is available for you to use. So, blast away. Hit anything and everything – your score goes up and so does your potential.

After some levels a bonus section is available to increase your score, complete with some sarcastic comments if you fail. Like the arcade version, if you die you start your next life on that level and not right back at the beginning of the game.

Needless to say, as you fly around the corridors and caves the occupants are out to get you – after all, who's cavern is it anyway? So get your strategy right and take no prisoners.

As in the arcade version, the idea is good, but unlike the arcade game the execution leaves a lot to be desired. The sprite design is fair, if rather Spectrumish, but the screen handling is dire, with slow, jerky scrolling. The ship flickers something rotten and lurches around the screen with a bad case of the jitters.

The collision detection appears to be more sensitive at the front than on top or bottom so you can fly closer to some things above or below than in front of you – a bit unfair when it comes to flying through the tunnels.

It's a shame about the graphics: Inside there's a good game trying to get out.

Paul Sherreard

Presentation 55%
Easy to use.

Graphics 30%
Nicely drawn, but oh dear me, that scrolling!

Sound 65%
Some nice spot FX.

Playability 55%
Easy to get going with good progression to the more difficult levels.

Addictive qualities 60%
Can I make just one more level?

Value for money 50%
Not quite what it could have been, even at £1.99.

Overall 50%
Codemasters has done a lot better than this.

RED L.E.D.

Starlight
£9.99 (tape)
£14.99 (disc)
Joystick or keys

GIVEN that Earth's resources are finite, this game's scenario certainly lies within the bounds of possibility. The year is 2379 and the world's energy supplies are about to run out.

Fortunately, more are available, but to get them you have to forge a path across a cosmic interlace grid represented by a hexagonal matrix. Each hexagon represents a particular planet which must be conquered before you can move on to the next.

Initially you are shown the grid and your first task is to choose a plant to explore. To help you are three droids, each with slightly different capabilities.

To conquer a planet you have to collect four objects – displayed at the bottom right of the screen – and find the exit. The hexagon's surface is made up of squares and is, for the most part, barren.

There are ramps, steps, hills and valleys to negotiate, and waterfalls and lakes to avoid. Just stopping yourself falling off the edge of the world is a game in itself!

Thankfully this does not lose a life but merely knocks a minute off the clock. When a droid runs out of energy you can call on the next, but if you run out of time, the game is over.

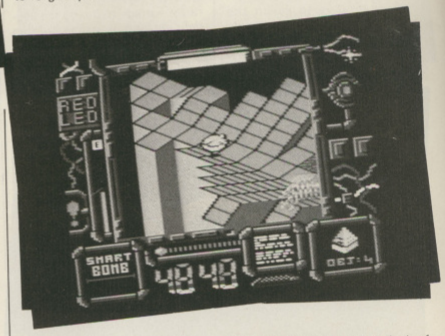
Additional problems are created by the alien droids. Collision with these costs vital energy.

Each planet has teleport pads to take you from one part of the hexagon to the other. There are also a variety of objects scattered across the surface. Some will add minutes to the clock, others will slap on time penalties. Other objects will freeze the lakes so you can glide over them.

Smart bombs are also to be found and these will destroy all enemy droids in the vicinity. A more efficient way of disposing of the aliens is by zapping the generators that power them.

There's certainly a game in Red L.E.D but there is a lack of variety that makes it, in the long run, monotonous and therefore disappointing.

Tony Flannagan



Presentation 63%
Definable keys. The playguide tells you nothing, leaving you play the game through trial and error.

Graphics 71%
Interesting landscapes, but they soon become monotonous. Colourful and well presented screen.

Sound 51%
Basic spot effects, though teleporting gives a great sound!

Playability 58%
Lacks variation – ultimately doomed to boredom.

Addictive qualities 56%
This game quickly palls.

Value for money 54%
Not enough variety to warrant such a price.

Overall 59%
Minority appeal.

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- Doomsday Blues

There are no 'stocking fillers' here – every game has been highly commended, and many have been awarded coveted Amtix Accolades.

6-Pack Volume 2 contains some of the very best games of the last 12 months.

There's war-time action with **Into the Eagle's Nest**, the futuristic racquet game **Batty**, the realistic flight simulator **Ace** and the superior shoot-'em-up **Lightforce**.

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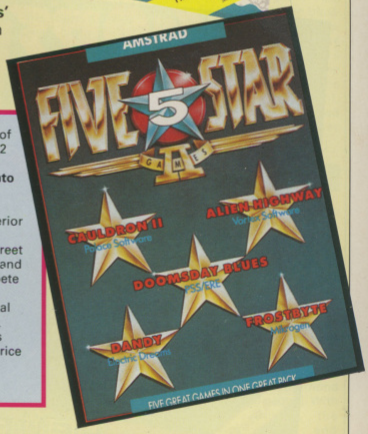
This magnificent compilation is only available at a special offer price with a new subscription or a subscription renewal.



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TWO Accolade winners at a very special price!

SAVE UP TO £6

In the role of Vitorc, a heavily-armed humanoid, you blast, battle, bound and blunder your way over more than 100 screen in this spectacular space epic. The graphics, sound and playability combine to make it a knockout game which would be a blockbuster in the arcades – but you can play it on your CPC for as little as £4.95!

'Graphically Exolon is a masterpiece...[the] graphics surpass all that has gone before, yet somehow combine them with faultless animation. Having played Exolon for the past few weeks I hereby vote it my favourite game of 1987 – nothing comes close!'

– Jon Revis, *Computing with the Amstrad CPC*, September 1987

SAVE UP TO £6

Zynaps is one of the most exciting shoot-'em-ups to appear on the Amstrad CPC. It features slick movement and smooth right-to-left scrolling. With 16 levels, nearly 450 screens and a two-player option, there's enough here to keep you busy for many months!

'Zynaps is certainly a superior shoot-'em-up and one that will provide hours of fun and frustration in equal quantities. If this is the kind of game you like, Zynaps is a must! (Addictive qualities 93%)'

– Tony Flanagan, *Computing with the Amstrad CPC*, September 1987

Suitable for	Product	Format	RRP	Special reader offer	YOU SAVE	Offer including subscription	YOU SAVE
CPC range	Exolon	Tape	£8.95	£6.95	£2	£19.95	£4
CPC range	Exolon	Disc	£14.95	£11.95	£3	£23.95	£6
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CPC range	Zynaps	Disc	£14.95	£11.95	£3	£23.95	£6

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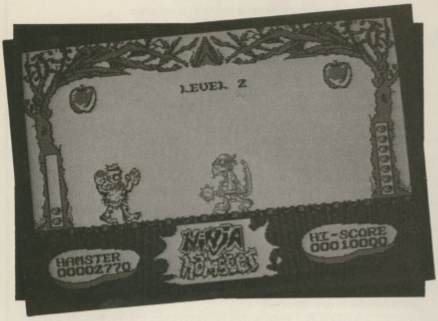
NINJA HAMSTER



CRL / Electronic Arts
£8.95 (tape)
£14.95 (disc)
Joystick or keys

EVERYBODY'S heard of Super Ted and Danger Mouse – but Ninja Hamster? This Rambo rodent is the hero of a cartoon-character martial arts romp.

Ninj – as he's known to his friends – has been chosen to champion his village. The freedom of his kinshamsters depends upon the result of a kung fu contest and to succeed, Ninj must defeat eight baddies. The first two opponents are loaded with the main game and the rest are stored as a further three files on the cassette.

With many games of this type failure on one of the higher levels results in you being asked to rewind the tape in order to reload the first level. CRL avoids this by continuing with the current characters, but using the standard of play from level one.

The sprites are all large, comical, cartoon characters. Unfortunately, they suffer from Spectrumitis and are drawn in single colours with a nasty habit of turning into an unrecognisable splodge.

Each contest is fought over the best of 11 bouts, the duration of each being determined by the state of a character's energy meter.

As with all martial arts games, a full selection of punches, kicks, and jumps are available. In practice I found that one move – the middle kick – was sufficient to get me through to level four.

Having reached the fourth level you are judged to be doing too well so the baddies begin to cheat. Your opponent's henchman, standing off-screen, begins to launch projectiles across the arena.

Ninja's response to the controls is not particularly swift during normal combat, but it becomes noticeably slower when he is required to stop kicking and jump over a spiked club.

Martial arts games are very old hat but even in their heyday Ninja Hamster would have been a non-starter.

Nev Astly

Presentation 78%
One or two players and a wide range of controls.

Graphics 62%
Large, single-colour, sprites, whose colours clash when superimposed.

Sound 58%
Title tune, plus inferior sound effects.

Playability 50%
Character control can be annoyingly unresponsive.

Addictive qualities 55%
The game left me feeling cheated and frustrated.

Value for money 46%
Only if you're desperate.

Overall 51%
A second-rate martial arts spoof.

HOUSE CALL

To bring to you the very latest information, interesting insights and fascinating facts on Amstrad games we are starting a series of visits to Britain's top software houses.

Ocean Software in Manchester was our first port of call, with Ian Sharpe and Pam Turnbull talking to the programmers and designers – and getting a sneak preview at what they have in store for us.

PLATOON

The coding and graphics have been done out of house by Choice Software. Platoon consists of six different scenarios based on the film of the same name.

Vietnam as a theme has been popular in various mediums over the last year, but here you are introduced to the horror and paronoia as you lead your five men through jungle, booby-trapped villages, tunnels, bunkers and the night to seek Sergeant Barnes before the napalm strike.

COMBAT SCHOOL

Following the Konami coin-op, James Higgins, Ronnie Fowles and Mike Lamb are responsible for the Amstrad version of the game based on the film, Officer and a Gentleman. You must complete the extremely gruelling training course. But this isn't sufficient: You then have to complete a delicate mission involving an ambassador and terrorism, for which you are going to need all your training.

GRYZOR

John Brandwood and Mark Jones have been working on this, another coin-op. Multi-levels lead you through an enemy stronghold to destroy the giant beating heart. Exciting with clean good graphics.

MADBALLS

You are aiming to be top Madball on the planet Orb, or at least secure as many points as possible. Basing the game on Denton Design's idea and the TV cartoon and toys, Steven Lamb introduces the Amstrad to the world of Dustbrain. To succeed you must capture the other Madballs and enlist their help without falling into any of the numerous traps.

Also imminent is Phantom Club, my favourite, but as we have a full review next issue I will only tell you that it is an original game from Dusko in which you are a super-hero with amazing powers.

FLASHPOINT

This is different – a unique and absorbing strategy game from Denton Design. Real-time blasting and fast reflexes are necessities in this "board" game which could only be played on a computer. You change the environment, decide on the arsenal and its deployment, scanning all the time to outwit your opponent – whether human or computer.

BASKET MASTER

Dinamic Software brings you this realistic one-on-one basketball simulator. Watch out for the new feature – slow motion close-up action replay which occurs each time a player scores a basket.

MATCH DAY II

An original game from Jon Ritman and Bernie Drummond and a long awaited sequel. With good player control, the amazing kick meter, and excellent sprite design this is a must.

THE RASTAN SAGA

Taito's popular arcade game has been converted by Icon Design. Six levels each contain an evil wizard, but first you must conquer demons, skeletons, bats, snakes, lions and lava pits as you guide Rastan the Barbarian in his mission.

Pam Turnbull

P.C.B. DESIGNER

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- Single Pads, Lines, Blocks and Edge connector tracks placed or removed with a single key.
- User selectable colours for Top/Bottom lines, pads, paper and cursor (Menu selectable).

The Minimum system requirements to run this software are: Amstrad 464 with Mono monitor and Epson compatible printer (DMP2000). The user can change the colours to suit monitor in use from the main menu.

Supplied on Cartridge only £89.95 (Note there is NO through edge connector).
An Evaluation Cartridge is available for £25.00* everything works except the printer routines which have been removed. *(Refundable against purchase of the main cartridge).

DEMON DEVELOPMENT CARTRIDGE

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WIN A FANTASTIC BMX bike!

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How to win

What we would like you to do is design the packaging for a compilation tape. You could base it round The Elite Collection, with the same or a new title, containing the same games, other games or imaginery games of a particular type. Your entry can be in black and white or colour – what we're really looking for is a clever new idea, not a work of art. Attach your design to the coupon and send it to the address below to arrive no later than January 29, 1988. The best entry will win the BMX bike, and the next best 20 will win the compilation tapes. We will be showing some of the winning entries in a forthcoming issue.

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Send to: BMX Bike Competition,* Computing with the Amstrad CPC, *Europa House, Adlington Park, Adlington, Macclesfield SK10 5NP.

AM tips

Transmuter
(Codemasters)

Graham Lawton of Congleton has sent in this little gem which gives you infinite lives for Codemasters' budget shoot-'em-up. To use the poke, skip past the first file called Transmuter and run it.

He also suggests entering the following names into the high score table: SIOUXSIE, KITTEN, SIGGY, MYSTRA, DARBY, ZORRO, IONEA, JAMES, MADELEINE and MEEP.

```
10 REM Transmuter
20 REM By Graham Lawton
30 REM (C) CWTA/CPC
40 MODE 1:CALL &BD37
50 MEMORY &3000:t=0
60 FOR n=&BE80 TO &BEBB
70 READ a$:a=VAL("&"+a$)
80 POKE n,a:t=t+a:NEXT
90 IF t=&1834 THEN LOAD "":
CALL &BE80
100 PRINT "You better check
 the data.":LIST 110-
110 DATA 3e,c3,21,94,be,32
120 DATA 76,3a,22,77,3a,21
130 DATA ff,ab,11,40,00,c3
140 DATA 43,3a,3e,45,32,4b
150 DATA 00,3e,38,32,4e,00
160 DATA f3,f1,c9,dd,21,00
170 DATA bf,11,47,00,cd,4e
180 DATA bc,21,b3,be,22,44
190 DATA bf,c3,00,bf,af,32
200 DATA d2,28,c3,5c,44,a9
```

Gyroscope
(Melbourne House)

The Lincoln hacker, Jeremy Hall, has come up with this little beaut which endows you with invulnerability – just rewind the tape and run the poke.

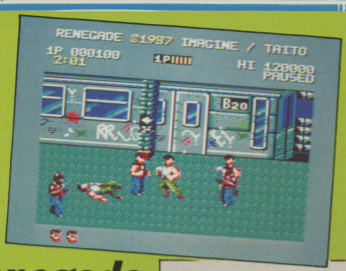
```
10 REM Gyroscope (tape)
20 REM By Jeremy Hall
30 REM (C) CWTA/CPC
40 CALL &BD37
50 MODE 1:t=0:MEMORY &3000
60 FOR n=&BE80 TO &BEA2
70 READ a$:a=VAL("&"+a$)
80 POKE n,a:t=t+a:NEXT
90 IF t=&E05 THEN LOAD "":C
ALL &BE80
100 PRINT "O dear O dear O
dear there's an error in th
e data.":LIST 110-
110 DATA 21,8f,be,22,e0,39
120 DATA 21,ff,ab,11,40,00
130 DATA c3,af,39,21,a9,f5
140 DATA 22,2b,02,c9,3e,c9
150 DATA 32,08,53,af,32,2b
160 DATA 53,c3,10,4f,a9
```

Ghost Hunters
(Mastertronic)

Judging from the mail this seems to be one of the most popular games around so I make no apologies for printing some more on it. This time it's a map from none other than Cool Ric of Auf-Wiedersehen-Monty-map-in-the-November-ish fame.

I've had quite a few maps which are illegible or an awkward shape so if you draw one, make sure it's the right size – and please, use a ruler.

A bit of graph paper behind the map as you draw it helps too. Our resident artist may not know the game, but has to make out what you mean. Before you send it in, ask a friend if it's clear.



I'VE had a plea for help from Stan Stevens concerning November's Game Over poke – the poor dear just can't get it to work with his disc. Ooops! I forgot to mention it was only for the tape version. Stan admits to being new to computers so he wouldn't have spotted the significance of the LOAD"!" in line 50 of Locksmith. Sorry Stan, looks like you'll have handle Gremla all on your own. Good luck!

Don't some people write strange letters? David James from Aldershot said he couldn't work out any pokes and wants me to print his photograph instead. He didn't even fill in the coupon. Er, sorry David – try *Your Chimpanzee*.

I've got another map this month and I want to know what you think about these. Do you like them or would you rather have the space filled with tips and pokes? Don't forget the coupon with contributions and remember to send me nominations for your favourite games by the second week in January.

One last thing before getting on to the cheaty bit: When you do machine code pokes please, *please* put a checksum on the data. I've spent ages typing some in only to find out the hard way that they were wrong.

Tiffany

Renegade

(Imagine)

Big Bertha watch out! Jason Brooks has ways of making you balk.

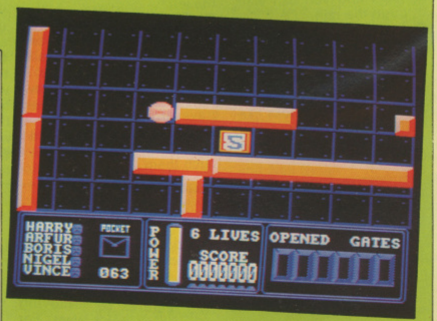
```
10 REM RENEGADE by Jason br
ooks (tape)
20 DATA 3E,B9,32,0B,B9,3E,2
E,32,0E
30 DATA B9,ED,4B,02,BC,06,8
A,11,00
40 DATA B9,C5,1A,D5,11,79,0
3,91,21
50 DATA 8A,B9,AE,77,23,1D,C
2,1D,BE
60 DATA 15,C2,1D,BE,01,13,C
1,4F,05
70 DATA C2,13,BE,DD,21,D9,B
B,11,dd
80 DATA 00,CD,67,BB,21,5B,B
E,22,b4
90 DATA BC,C3,03,BC,21,40,0
0,E5,21
100 DATA 00,B9,E5,C3,C9,37,
3E,45,32
110 DATA 4B,00,3E,99,32,4E,
00,F3,F1
120 DATA c9
130 DATA af,32,48,0a,3e,c3,
32,4f,0a :' for infinite me
n
140 DATA 3e,ff,32,07,10 :'
for 255 renegades
150 DATA c3,40,00,end :'Lea
ve this line
160 MODE 1:MEMORY &3000:LOA
D"!
170 POKE &37F4,&C3:POKE &37
F5,&4E
180 POKE &37F6,&BE:i=&BE00
190 READ a$:IF a$="end" THE
N CALL &BE43
200 POKE i,VAL("&"+a$):i=i+
1:GOTO 190
```

Nemesis

(Konami)

This month CJP has been attacking the shoot-'em-ups and has managed to remove all the collision detection in this fabbo game. Use it in the normal way.

```
10 REM Nemesis (tape)
20 REM By C.J.Pinder
30 REM (C) CWTA/CPC
40 MODE 1:t=0:CALL &BD37
50 FOR n=&BE80 TO &BEAF
60 READ a$:a=VAL("&"+a$)
70 POKE n,a:t=t+a:NEXT
80 IF t<>&1A84 THEN PRINT "
WOOPS! There's a data in th
e error...":LIST 100-
90 CALL &BE80:RUN ""
100 DATA 2a,e1,bc,22,92,be
110 DATA 3e,c3,21,94,be,32
120 DATA e0,bc,22,e1,bc,c9
130 DATA 00,00,e5,f5,af,21
140 DATA a3,9b,77,23,77,23
150 DATA 77,2a,92,be,22,e1
160 DATA bc,3e,cf,32,e0,bc
170 DATA f1,e1,c3,e0,bc,a9
```



Pulsator

(Beau Jolly)

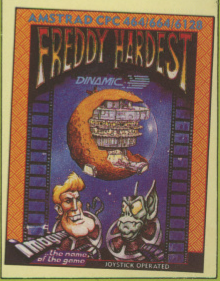
Here's infinite lives for the Computer Hits 4 compilation version of Pulsator – thanks to CJP.

```
10 REM Pulsator (Tape)
20 REM By C.J.Pinder
30 REM (C) CWTA/CPC
40 CALL &BD37
50 MODE 1:BORDER 0
60 INK 0,0:INK 1,23
70 LOCATE 15,8
80 PRINT "----------"
90 LOCATE 12,10
100 PRINT"LOADING PULSATOR"
110 LOCATE 15,12
120 PRINT "----------"
130 LOAD "!casrun"
140 FOR n=&BEEB TO &BEF7
150 READ a$:a=VAL("&"+a$)
160 POKE n,a:NEXT:CALL &BED
2
170 DATA 21,00,00,22,95,53
180 DATA 22,97,53,c3,49,4a
190 DATA a9
```

Freddy Hardest

(Imagine)

I've just noticed how to get all your lives back and as many points as you want in the first part. Walk up to a chasm, but don't jump over it. Turn round and start blasting the stream of critters that shuffle and slouch their way in from the left.



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Motos

(Mastertronic)

There isn't much this one of Paul Robson's doesn't do. You get infinite or extra lives, plus infinite power and jump ports with two of each at the start of the game.

The infinite lives option is not suitable for two-player games as the first player will never finish his turn.

```
10 REM Motos
20 REM by Paul Robson
30 REM (c) CwtA/CPC
40 MEMORY &3FFF:m=&A806
50 FOR f=&A7EB TO &A819
60 READ a$:POKE f,VAL("&"+a
$):NEXT
70 m$="Infinite lives":GOSU
B 170
80 IF a=1 THEN POKE m,0:GOT
O 130
90 m$="Extra lives":GOSUB 1
70
100 IF a=0 THEN 130
110 INPUT"How many";l
120 IF l<1 OR l>100 THEN 11
0 ELSE POKE m+5,l
130 m$="Infinite power/jump
s":GOSUB 170
140 IF a=1 THEN POKE m+10,0
150 LOAD"",&7940
160 CLS:CALL &A7EB
170 CLS:PRINT m$;"? (Y/N)":
a$=""
180 a$=UPPER$(INKEY$)
190 IF a$="Y" THEN a=1:RETU
RN ELSE IF a$="N" THEN a=0:
RETURN ELSE 180
200 DATA 3e,79,32,42,79,3e,
c9,32
210 DATA 58,79,cd,40,79,3e,
a8,32
220 DATA 25,40,c3,00,40,3e,
3c,32
230 DATA 71,0b,3e,3d,32,fb,
05,3e
240 DATA 05,32,79,0b,3e,90,
32,df
250 DATA 06,32,ea,06,c3,00,
04
260 RESTORE 300
270 FOR f=&A7F8 TO &A82C
280 READ a$:POKE f,VAL("&"+
a$):NEXT
290 MODE 1:CALL &A7F8
300 DATA 21,04,a8,7e,b7,c8,
cd,5a
310 DATA bb,23,18,f7,48,45,
4c,4c
320 DATA 4f,20,46,52,4f,4d,
20,50
330 DATA 41,55,4c,20,52,4f,
42,53
340 DATA 4f,4e,20,2d,20,43,
57,41
350 DATA 20,52,55,4c,45,53,
2c,4f
360 DATA 2e,4b,2e,3f,00
```

Lightforce

(FTL)

This one comes all the way from Neapolis in Greece. Costas Theodoridis is the name, Lightforce the game. Type in a number between 1 and 255 and that's the number of lives you get.

```
10 REM Lightforce
20 REM C. Theodoridis
30 REM (c) CwtA/CPC
40 MODE 1:INPUT"Number of l
ives";z
50 IF z<1 OR z>255 THEN 40
60 OPENOUT"M":MEMORY 5999
70 LOAD"LF.PG1",7352
80 LOAD"LF.PG2",&C000
90 LOAD"LF.LOA"
100 POKE &760d,z
110 CALL 6000
```

Dizzy

(Codemasters)

Here's a poke from Jason Brooks of Long Eaton for this superb budget game. It removes the collision detection and makes Dizzy four times faster. Jason also sent some hints which should give you a flying start.

```
10 ' Dizzy Poke
15 ' by Jason Brooks
20 MEMORY &3000:LOAD"!"
30 POKE &3A76,&C3:POKE &3A7
7,&F3:POKE &3A78,&9F
40 i=&9FE8 :' REMOVE data l
ines not needed
50 READ a$:IF a$="dizzy" TH
EN CALL &9FE8
60 POKE i,VAL("&"+a$):i=i+1
70 c=c+VAL("&"+a$):GOTO 50
80 DATA 21,40,00,E5,21,00,B
B,E5
90 DATA C3,4B,3A,3E,5B,32,4
B,00
100 DATA 3E,99,32,4E,00,F3,
F1,C9
110 DATA F3,DD,21,00,BF,11,
47,00
120 DATA CD,67,BB,21,14,A0,
22,44
130 DATA BF,C3,00,BF
140 DATA 3E,01,32,25,89:' I
ncrease Dizzy's speed by 4
150 DATA 3e,c9,32,1b,75:' R
emove Collision Detection.
160 DATA CD,37,BD,C3,B1,73,
dizzy:'Leave this line
```

Hints:

- Collect the burning torch and drop it next to the cauldron to light it.
- Collect the mucky grease gun and drop it next to the wagon near the mine entrance.
- Find and keep the plastic raincoat and you can walk through the rain.
- To destroy all white and green birds collect the Acme bird seed.
- Get the crowbar from the ice mountains and drop in on the ground which looks like a giant plug. Collect the raincoat and go into the tunnel.
- The clove of garlic destroys all the red brids.
- Get the Ghost Hunter's laser and drop it down the chimney where the ghost lives.
- Collect the bottle of dry ice and go into the mine to the left.
- Jump over the river and as you do, drop the dry ice. This will allow you to walk the rest of the way across.
- Drop the graveyard key near the entrance to the graveyard.
- The insect repellant will destroy spiders when you touch them.
- To lower the drawbridge, drop the can of oil next to the pulley.
- The miner's hard hat will destroy any apples or icicles that fall on you.
- To get across the three logs wait until one is at least your height down, walk off until you get to the middle, and jump.
- To get past the part where the ground moves away, walk until you're near the middle and jump across – the ground will not give way.
- Drop the bottle into the cauldron.

Spindizzy

(Electric Dreams)

According to self-confessed expert Jeremy Hall, when this all-time great has loaded if you hold down the F and X keys, you will find yourself in a program called Stix.

To control Stix use the joystick or the normal game keys. Pressing the spacebar will halt Stix, Clr or Del will clear the screen and T will toggle trail mode.

I've tried this on the tape version and it's OK, and there shouldn't be any problems with the disc.

Conquest

(Mastertronic)

David White of Shrewsbury is back with a multi-feature poke to help you conquer Conquest. You can select the features by removing those you don't want. For instance, if you don't want to be able to walk through walls just remove line 180. The poke can then be used in the normal way.

```
10 REM Conquest (Tape)
20 REM By David White
30 REM (C) CWTA/CPC
40 CALL &BD37
50 MODE 1:ad=&BE80
60 READ a$:WHILE a$<>"**"
70 a=VAL("&"+a$)
80 POKE ad,a:ad=ad+1
90 READ a$:WEND
100 BORDER 0:INK 0,0:INK 1,9
110 INK 2,26:INK 3,6
120 LOAD "!screen",&C000
130 LOAD "!":CALL &BE80
140 DATA 06,00,11,00,60,cd
150 DATA 77,bc,21,e4,11,cd
160 DATA 83,bc,cd,7a,bc,00
170 REM Walk Through Walls
180 DATA 3e,c9,32,fa,5e
190 REM Stop monsters moving
200 DATA 3e,c9,32,01,5e
210 REM Infinite Energy
220 DATA af,32,e9,6c,32,ef
230 DATA 77,32,ab,a5
240 REM Leave next line.
250 DATA c3,72,a4,a9,**
```

Family favourites

Gandalf presents a personal selection

AS we move into 1988 it gives me an ideal opportunity to make a brief mention of some of the adventures, released during the last 12 months, that I have particularly enjoyed playing for many different reasons.

My first choice is Leather Goddesses of Phobos, which manages to combine well-written humour with exceedingly complex gameplay. Second, and excellent value for money, is the Silicon Dreams trilogy. Level 9 has managed to create three fiendishly difficult games in one package.

In the under-a-tenner range, I'm a bit spoilt for choice. I find two products equally commendable: Rick Hanson – a complex game that, but for an extensive Help facility, would tax the master adventurer, and The Big Sleaze – probably the funniest offering in this price range to emerge.

If you still haven't given your loved ones a few hints as to what you would like for a birthday present, and are missing any of the above from your collection, you will not go wrong by asking for one – or all!

Next month I'll be announcing the winners of the Write a Review and Pick the Top Ten competitions. The response has been extremely good, and I know they are going to be very hard to judge.

To make room for reviews, there will be no map for the next two issues, so it's a good opportunity to suggest that you write in if there is any map in particular you would like to see published.

Finally, I would like to quote from a letter sent in by Graham Wheeler.

"I would like to say that I enjoy reading your section very much. I find it has a nice mix of problems, letters and reviews that give it a sort of club feel, if you know what I mean, instead of a flat facts section, which gets boring after a while".

This is the highest compliment I have ever been paid. I do like to think of this as an adventurers' page and the fact that Graham, who is no mean adventurer himself, thinks it has a "club feel" has made my day. To me, it is a club and I always say, if you want something published in these pages, write and let me know. This is YOUR column.

Tor Skomsvold has written in from Norway for help with Heroes of Karn. To get rid of the pirate tell Khadin to kill him with the dagger; to get past the spider tell Haldir to play the lyre; use the spear or sword to kill the phoenix, and the cross to kill the vampire.

Tor is also having problems with Microman. To get out of the car, examine it, climb the seat belt and wind the handle.

E.B. Thornton asks if I would elaborate on part of Graham Wheeler's solution to the Pawn published in the September and October issues. Try planting the plant with the trowel, in the hut in the palace gardens. As for the Devil letting you go – he will if you have done everything correctly.

Stephen Thompson and Neil Smith need further help with Seabase Delta as they are unable to open the doors South of the microphone. Use the cassette that can be found in the memory banks west of the computer room.

Leather Goddesses of Phobos is puzzling Richard Tyler. He wants to know the answer to the Sultan/ess's question. For this and others you must pay careful attention to the documentation.

Read the comic, then examine the dead alien for some clues. To progress further, look at the map in the June and July issues.

What are some of the objects needed to build an anti-leather goddess machine? Try kissing the frog, using the machine from the salesman on the king's daughter after visiting the slime pit and solving the catacombs maze.

H-E-L-P

RICHARD Tyler is in difficulties in two adventures. In Lord of the Rings, he would like to know how to cross the river next to Merry's house and where to find the town Gandalf is talking about in the note.

In Escape from Koshema he has reached the waterfall, the cave in the forest and been attacked by dogs while watching an ant hill but would like to know what to do next. Can anyone help?

FEEDBACK

A READER who has simply signed himself Kris, Stephen Buxey and Graham Wheeler have sent in help for Stephen Lawson's Questprobe 3 problem in our October issue.

From the start of the game, talk to the examiner, (press any key), enter the shack, get the candle, S, fly, enter the tarpit, give the candle to the Thing, get the watch, leave the pit, flame off, change into the Thing, hold your breath, wait 15, wait 10, (you sink), feel around, smash machinery, W, N, N, E, light the candle, examine the fire, W, S, S, E, S, change into the Torch, throw a high flame at the tarpit (to make a smokescreen), fly hills, fly hills, flame off and enter the cave.

Graham has also sent in help for Peter Van Cauwenbergh's October problems with Heavy on the Magick. To use the first exit: Door long, and the second: Door eleven. The third is more complex: Invoke Astarot (you need the sword) and then "Astarot, lichgate". Invoke Asmodee (you need the ruby) and then "Asmodee, door". Asmodee will destroy the door in the room of shame now go North from the tomb of Taro the third to get to the third exit. See also Hall of Fame this month.

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READERS' HALL OF FAME

***Aftershock* – A complete solution by Graham Wheeler.**

Take the chair and radio, E, E, drop the chair and climb on to it and examine the ceiling. Remove the panel and climb out of the lift. Move down, S, W and switch off the isolator. Examine the bench and take the torch. E, E, E, up, E, N, E, E, S and take the television. E, N, E, S, examine bin and take bottle.

N, W, S, W, N and fill the bottle with the oil from the wrecked tanker. W, W, S, S, E, S, S, down and switch on the torch. E, S, E, N, E, take handle, N, S, W, S, fit the handle to the mechanism, lubricate the mechanism with the oil and open the sluicegate to clear out the water.

Drop the bottle, S, W, N, N, W, N, up, N, down, E, up, S, E, S, enter the kiosk and take the screwdriver, N, climb over the rubble and take the beam and then W. Here you will meet looters.

As long as you are carrying the TV and radio they will leave you alone. As soon as they have gone, drop the radio and television, W (there are soldiers here who will shoot you if they think you are a looter), S, open the gate, W, open the door, W, support the stairs with the beam, up , W, N, W, S, W, up, climb down to the parapet and jump on to the roof.

Go down, S, E, take the buns, S, drop the screwdriver and torch, N, W, N, up, jump on to the parapet and climb up the roof. Move down, E, N, E, S, E, down, E, E, N, E, E, climb over the rubble, N, W, N, down, W, up, N, N, take the meat and fruit, S, W, N, N, E, E, S, E, N.

Give the meat to the lions, E, give the fruit to the monkeys, S, S, give the buns to the elephant (which will then move off the ramp), take the ramp, N, N, W, S, W, N, W, W, S, S, E, S, down, E, up, S, E, S, climb over the rubble, W, W, S, W, W, up, W, N, W, S, W, up, climb down to the parapet and jump on to the roof again, down, S, E, S, drop the ramp by the chasm and take the screwdriver.

Remove and examine the body in the car and take the key. Enter the car, start the engine and drive the car on to the ramp. S, S, E, E, open the gate, S, examine the desk and take the key, S, down, E, unlock and open the door, E, N, examine the body and take the valve, S, W, W, W, connect the valve to the pipe, fit the wires to the valve with the screwdriver, E, up and press the button to end the game.

***Enchanter* – Part 3 of a solution by Graham Wheeler.**

Now go to the library, learn Ozmoo (in case you are captured), get the book and read the legend of terror then drop it. Follow the rat tracks and reach into the hole you find to get the scroll. Gnusto Gondar and go to the temple where you will be captured and put into the North cell. Ozmoo yourself and when you are taken to be sacrificed on the altar you should take the magic dagger.

Head for the South cell where you will find your belongings then leave the temple as fast as possible.

Visit the closet where you will find the jewelled box tied with rope which you can now cut with the dagger. Get the scroll from inside the box and Gnusto and learn it. Use it on yourself to be protected from capture.

Behind the mirrors in the mirrored room you will see an adventurer. Learn the Vaxum, Zifmia and Cleesh spells and Zifmia the adventurer to get him on your side of the mirror. Vaxum him to make him friendly and when he asks what treasures you have, show him the egg but don't give it to him.

Move on to the protected door and drop the egg and spoon. When the adventurer takes them, tell him to open the door, then follow him North and use the Cleesh spell on him. Get the map and pencil (and the Filfre spell if you can find it) and go to the translucent room.

***Lord of the Rings Part 1* – A hint sheet by T.F. Hopkins.**

Collect the candle stub from the town hall and, when you get to the tunnel, say "open matchbox". Take a match and say "light match" and "light candle with match". Drop the match.

When you are through the tunnel and in the forest, say "East". You may not be allowed to go that way and if this happens, wait and try again.

You must ask Tom for help at the old willow and if you go East when you leave, you may find yourself with the barrowight. Put the ring on to get past him but remember to remove it afterwards.

Knock on the big doors and say your name is Underwood and then get the food from behind the red door. The yellow door is the next one to try and you should talk to Strider and give him the ring. Go out into the yard and then through the black door and say "Kill black rider" three times.

Return and follow Strider to the top of the hill and ask him for your ring back. Continue following him to the East road. Move North to drop the ring and then go back to the road. When the black riders come, again say "Kill black rider" three times and then continue East until you are told you have reached the end of Part 1.

***Heavy on the Magick* – A hint sheet by W.F.J. Beardwell.**

Passwords

Waterfall, Soronoros, Silence, Wolf, Laza, Lunacy, Long, (Rabak) – Water, Eleven.

Exchanges

Drop shell to get egg (then drop egg in phoenix's nest)
Drop nougat to get nugget
Drop copper ball to get pellet

Protection

Chasm	The flask
Cyclops	The slat
Fire	The clasp
Hydr	The snake/ undine
Medusa	The mirror
Slug	The pellet
Vampire	The garlic
Werewolf	The nugget
Asmodee (Ruby)	Final exit
Astarot (Sword)	Transports you
Belezbar (Mantis)	Describes an item
Magot (Sunflower)	Locates an item

Gremlins is an entertaining adventure based on the Steven Spielberg film of the same name. This map shows the main locations and the objects to be found on your travels.

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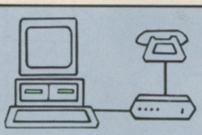

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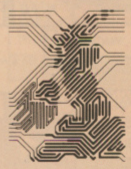

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Guild of Thieves

Rainbird
£19.95 (disc)
CPC6128 only

IMAGINE that everybody who played The Pawn has been waiting avidly for the sequel to appear. Well it's here and, I'm pleased to say, worth the wait.

You play the part of an apprentice thief who has applied to join the Guild of Thieves – an elite band who set tasks to judge the worthiness of applicants. Accordingly, the object of the game is to gain entry to the guild by passing the test.

The Master Thief himself takes you to an island where a known quantity of booty exists and you are instructed to ransack the place and return with all its treasures.

Your first move is to find a way out of the boat on to the nearby jetty. Fortunately, the rope preventing the craft from drifting away is near at hand and can be used to manoeuvre close enough for you to jump.

Having accomplished this, it is time to explore your surroundings. The temple is a repository for any items of treasure you may find and further exploration reveals an old man who is in difficulties with a heavy trunk.

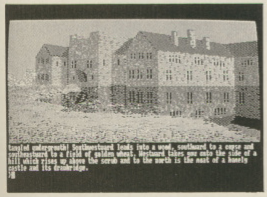
Since he is not as feeble as he looks, acting out of character is likely to be rewarding and will provide a means of entry into the nearby castle.

The gatekeeper will reveal a vital piece of information about a race you must bet on and win, and your efforts should now be directed at finding a stake. The ground floor of the castle should provide several treasures to increase your score.

The coal bucket can be persuaded to yield the first though you may have to break things down a bit first. A perusal of the paintings will lead to your second treasure and a valuable clue as to what to spend your winnings on later.

The settee can be used for more than sitting on and being less comfortable should see you in possession of an object that holds a five ferg note – your stake in the coming race. Your swag bag is now full and you should consider making room for more loot.

The gatekeeper does not have X-ray vision and, if you consider carefully, will not bar your progress out of the castle. Having deposited your swag safely, it is time to return to the castle for the race.



If you don't want to be found holding just a bird, timing is critical here and it may take several attempts to get it right. When you do, examine the rats carefully. I can't tell you which one to back – the answer can't be put in such black and white terms.

Hopefully you will have wagered successfully and now be in a position to buy an object that goes with food and love, and be able to make the painting come to life.

Altogether there are 29 pictures and every one of them adds to the flavour and enjoyment of the game. The gameplay and responsiveness of the program are excellent, puzzles are delightfully well constructed and obtusely logical.

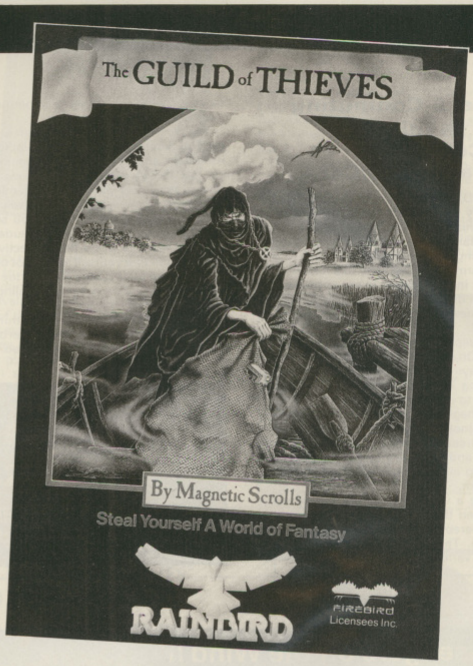
The satisfaction you get from solving the problems in this game is well justified – they are far from easy.

If I had to criticise at all, it would be to say that the copy protection of the disc leaves a lot to be desired. I found there were occasions when I couldn't load the program at all. I suspect this is because my drive is slightly out of alignment, but it does tend to show just how effective the protection is.

It's hard for me to do justice to a program like this. As with The Pawn, the graphics are superb though not, I think, quite as good.

The packaging is also up to the usual high standard we have come to expect from Rainbird and includes a copy of What Burglar magazine containing amusing stories and adverts, a guide to the command structure of the game and a comprehensive, if convoluted, help section. Then there's an official contract of indenture and your very own Bank of Kerovnia credit card. If anyone finds a shop that will accept this, please let me know!

Overall, while The Pawn can claim to have the best graphics, Guild of Thieves must surely steal the title of best graphics adventure. I'm very impressed.



Presentation 94%
I don't think you could ask for much more.

Atmosphere 98%
Scores highly because of the very evocative text.

Frustration factor 92%
I often found myself solving problems more by good luck than by planning.

Value for money 90%
Twenty quid is a lot but it's money well spent.

Overall 94%
A stunning sequel to The Pawn.

Gnome Ranger

Level 9 Computing
£14.95 (disc)
CPC6128 or expanded CPC464

INGRID, a bossy Sloane Gnome, left her dreary farming village to study gnome economics at college. Armed with all sorts of newfangled ideas she has now returned, intending to modernise her family and their farm – whether they like it or not.

After initial success, every improvement ends in disaster. Eventually her family tire of her new ways but attempts to get rid of her fail.

In desperation they buy her a magic scroll. On opening it she is transported far, far away. Not discouraged, Ingrid begins the long walk home putting the countryside to rights as she goes.

You begin outside a shop, and here you should look for your first task. The owner is a businesslike centaur who eventually relents and offers any one of the objects in his shop in return for delivering a letter to the witch.

Being a wise gnome, not to say nosy, you open the envelope and discover you have thereby saved yourself from an early demise. The witch is obviously of the wicked variety and the problem of removing the threat she poses is uppermost in your mind.

The brambles seem to offer a clue, though you have to be well versed on mountain animals before the connection can be made. Armed with a flower you should now seek someone of gentle disposition to appreciate it. This is easily done and, after taking her in hand, you should consider ways to utilise her gratitude.

If you manage to do this correctly, you should soon find yourself with a pot of gold and an irate leprechaun. Here virtue is its own reward, and the means of dealing with the witch is much closer.

I find it difficult to find anything to criticise. The graphics are superb, the puzzles logical – if rather convoluted – and

the parser has been extended to understand more complicated input.

The vocabulary and command structure have also been enlarged to allow you to FIND objects, GO TO and RUN to locations. The latter suppresses the descriptions of the rooms you pass through.

My opinion of Level 9's recent games has been unenthusiastic. With Gnome Ranger, however, I'm pleased to say that the company has re-established itself as a top adventure software house.

This marvellous game fully deserves success.

Presentation 96%
You even get Ingrid's diary to set the scene.

Atmosphere 94%
You'll end up believing you're a gnome.

Frustration factor 98%
Much depends on character interaction, and completing it can very frustrating.

Value for money 98%
A masterpiece of programming – worth every penny.

Overall 97%
Brilliant!

Passengers on the Wind II

Infogrames
£19.95 (disc)
joystick or cursor keys

THIS is the second in a series of graphic adventures based on the work of the French cartoonist François Bourgeon.

Isa, a countess who has been cheated out of her title and lands, meets Hoel, a young Breton sailor. They fall in love but are captured by the British. Hoel is taken prisoner and Isa finds a job as a French tutor in Portsmouth. She befriends Mary, who is having an affair with John – one of Hoel's guards – and the three of them hatch a plan to help Hoel escape.

This took place during the course of the original game, and various other characters were introduced. The sequel opens with them arriving in Africa after a rough crossing in a slave ship.

John goes mad and Hoel falls ill, leaving the two women to the designs of the evil Viaroux and Montaguerre. In an attempt to save Hoel, Isa travels to Dahomey to see King Kpengla.

This isn't an adventure in the accepted sense. Instead, the screen is split into four

main areas. The top half is used to display the graphics and there is one major picture for each episode. Actions are undertaken in small windows which open up to depict the scene and the ensuing results.

The other three sections show the currently selected character, their speech to other characters or a list of the choices open to them, and two bars enabling you to change character or choice.

The joystick or cursor keys are used to select the section of screen you want to update, and pressing the spacebar confirms the choice.

There is no text input and the only other keys used are for loading or saving the game. Other options include replaying a situation and firing a gun when necessary.

The graphics are very good – even better than those in the first of the series. My major criticism is that there seems to be very little player involvement.

At no time did I get the "buzz" you associate with having solved a puzzle, and for this reason I can't recommend the game. Those who enjoy this sort of thing will find it to their taste, but it's not my style.

Presentation 34%
I expect more than a small booklet and very crushable box for this price.

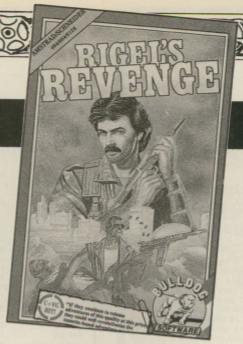
Atmosphere 65%
Good, because of the high standard of the graphics.

Frustration factor 24%
I couldn't get involved.

Value for money 15%
The graphics may be worth the asking price, the game content isn't.

Overall 35%
Without the content to back up the graphics I soon tired.

Rigel's Revenge



Bulldog
£1.99 (tape)

IT'S not easy being a member of a news team in the 22nd Century, especially when your partner keeps coming up with harebrained ideas for getting scoops. His latest scheme is the most dangerous to date: He has infiltrated the rebel HQ on Rigel to discover whether the rumours of a doomsday device are true.

Your role seems easy – meet him late at night to find out what he has discovered. You arrive at the rendezvous, but as your partner comes into view the rebels begin shelling the city.

The barrage finally ends and you can hear moaning nearby. Your infra-red goggles have fallen off, and after finding and wearing them you see your partner lying mortally wounded. With his dying words he tells you that the device is in rebel territory to the east of the city.

As the only person who knows the whereabouts, it is up to you to find and disable it. Your first thought is for equipment. The nearby hotel holds some surprises, but the tank tracks lead to the first object that can be acquired. Getting it back to your starting point is easier said than done.

Travelling South leads to the residential part of the city, and – if you are not careful – to capture by a roving gang. Tantalising objects are kept just out of reach and the most plausible, a red herring, begins to smell strangely just before the gang returns and end your life.

The nearby park would seem a likely place until you realise the tank still works well enough to prevent you from reaching a walkway that might see your quest off in the right direction.

To the north a barricade, once climbed, sees you subject to fire from an automatic weapon, but a handy cellar flat offers some respite – especially if you visit the bathroom. If you are beginnig to feel jaded, the kitchen is worth a visit but may offer a bar to further progress.

By now the pieces are beginning to fall into place, and you should be able to find your way out of the city to fulfil your task.

I really liked this game. The author's sense of humour verges on the ridiculous and this adds greatly to the enjoyment. There are some extremely frustrating puzzles and overall I loved it.

Presentation 75%
Basic but good for the price.

Atmosphere 87%
A well-woven plot.

Frustration factor 95%
Try it and see!

Value for money 98%
The best adventure I have seen at this price.

Overall 89%
Can you afford not to get it?

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VISA

Save Santa!

by TIFFANY WOOD

IT'S Christmas Eve and Santa is loading his sleigh – the one with go-faster tinsel and furry reindeer in the windscreen – with presents from his warehouse.

Usually this is the elves' job, but earlier in the evening they sneaked off to a party and after partaking in plenty of festive spirit came back a lot worse for wear.

Before going to sleep it off they stumbled into a crate of video games which crashed to the ground and burst open. Now dozens of vicious little invaders are on the loose and seizing their chance to avoid being zapped by hordes of trigger-happy humans over the holiday.

They're on the prowl looking for Santa, and we'll leave what they're going to do to him to your fertile imaginations – needless to say, it's unpleasant and terminal.

Your task is to save Christmas from being giftless by guiding Santa round the 10 sections of his warehouse, collecting the presents and exterminating the invaders. His only means of defence is a well-aimed snowball. Be careful not to run into the fires, which will mean instant death.

You can use the cursor keys with the spacebar to fire or you can christen your shiny new joystick. Points are scored for collecting presents and the only way to complete a screen is to frazzle all the critters, but you don't score for killing them.

The game is less than 9k in length, it's colourful and there's a high score table, so why not type it in and have a competition on Boxing Day? If you want to design your own screens, the blocks of data marked Screen 1 through to Screen 10 define the layouts.

To save space, each block is only a quarter of the screen, and the program reflects it to form the other three-quarters. Presents are represented by an 8, ice blocks 7 and flames 6. Make sure the bottom right hand item in the block is a 0 which represents the background.

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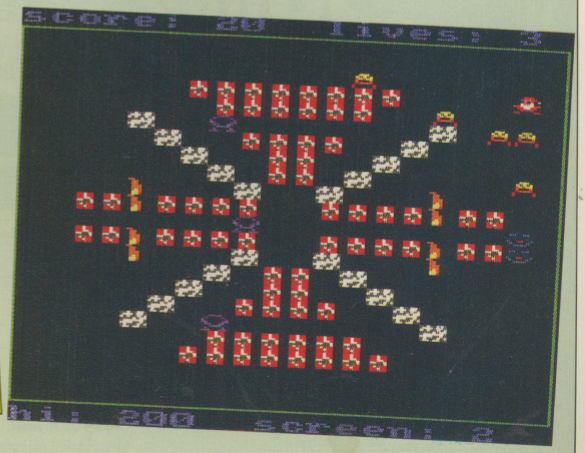
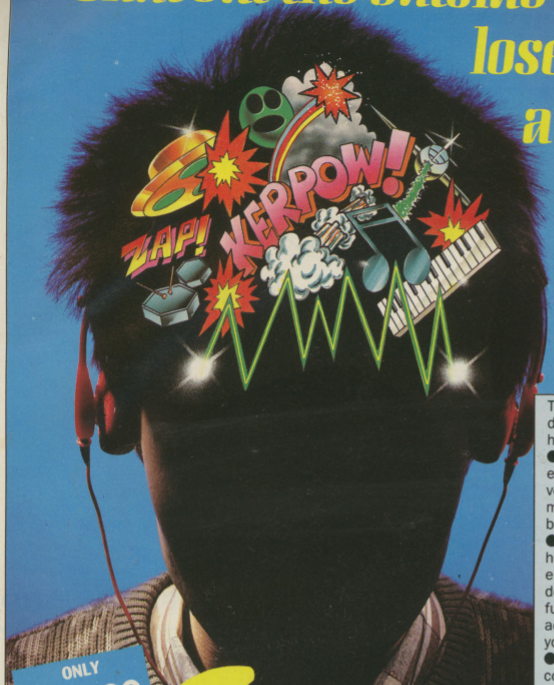


MAJOR VARIABLES

lives	Lives remaining
osby,osbx	Old snowball coordinates
sby,sbx	New snowball coordinates
sbyv,sbxv	Snowball x and y directions
sbf	1 if snowball active, 0 if not
sdy,sdx	Santa's last direction
osy,osx	Santa's old coordinates
sy,sx	Santa's new coordinates
screen	Current screen number
sc	Score
i	General purpose
sn()	Map of screen
in()	Details of invaders
hiscore$()	Hiscore names and numbers

Shut out the outside world... and lose yourself in a totally new dimension!



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CPC1
CPC 11/87(4)

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```
10 REM          Save Santa!
20 REM        by Tiffany Wood
30 REM      (with a bit of help)
40 REM (c) Computing with the Amstrad
50 REM ------------ CPC ------------
60 GOSUB 810 :REM intialise
70 WHILE NOT asleep
80 GOSUB 190 :REM titlescreen
90 GOSUB 270 :REM waitkey
100 WHILE lives>=0 AND screen<11
110 GOSUB 310 :REM setupscreen
120 WHILE sn(osx,osy)=11 AND iv
130 GOSUB 490:IF sn(osx,osy)<>11 THEN 14
0 ELSE GOSUB 580:GOSUB 660
140 WEND
150 IF iv THEN GOSUB 530 ELSE screen=scr
een+1:IF screen=11 THEN screen=1
160 WEND
170 GOSUB 700 :REM hiscore
180 WEND
190 REM -------- title screen ------
200 MODE 0:LOCATE 5,2:PEN 1:PAPER 8:PRIN
T" Mega Heros ":PAPER 0
210 LOCATE 1,6:FOR i=1 TO 5:SOUND 130,90
-i*15,0,15,1:PEN 7-i:PRINT " "hiscore$(i
,1) TAB(15) hiscore$(i,2):PRINT:NEXT
220 PEN 11:PAPER 12:LOCATE 5,24:PRINT"Hi
t a button":PAPER 0
230 RESTORE 260:FOR i=1 TO 4:READ bx,by,
bw,bh,bc:GOSUB 980:NEXT
240 PLOT 440,350:DRAWR 6,24:DRAWR 6,-24:
TAG:MOVE 430,400:PRINT"e";:TAGOFF
250 sc=0:lives=5:screen=1:RETURN
260 DATA 0,10,638,378,1,120,362,396,26,2
,22,154,590,180,3,120,10,396,26,4
270 REM ------- wait for key -------
280 WHILE INKEY$<>"":WEND
290 c$="":WHILE c$="":c$=UPPER$(INKEY$):
WEND
300 RETURN
310 REM ---- initialise screen -----
320 MODE 0:ON screen GOSUB 1010,1120,123
0,1340,1450,1560,1670,1780,1890,2000
330 ERASE sn:DIM sn(19,22):osx=9:osy=11:
sx=9:sy=11:sdx=1:sdy=1:iv=1:sbf=0:sbxv=1
:sbyv=0
340 FOR i=0 TO 19:sn(i,0)=18:sn(i,22)=18
:sn(i,1)=11:sn(i,21)=11:NEXT
350 FOR i=1 TO 21:sn(0,i)=18:sn(19,i)=18
:sn(1,i)=11:sn(18,i)=11:NEXT
360 FOR j=2 TO 11:READ a$:FOR i=2 TO 9
370 zz=11+VAL(MID$(a$,i-1,1)):sn(i,j)=zz
:sn(i,22-j)=zz:sn(19-i,j)=zz:sn(19-i,22-
j)=zz
380 zz=zz-11:CALL &8034,i,j,zz:CALL &803
4,i,22-j,zz:CALL &8034,19-i,j,zz:CALL &8
034,19-i,22-j,zz
390 NEXT i,j
400 CALL &8034,osx,osy,1
410 FOR i=1 TO 10:in(i,0)=1:in(i,3)=3+RN
D*2:in(i,4)=ROUND(RND*2)-1:in(i,5)=ROUND
(RND*2)-1
420 in(i,1)=1+RND*5+ROUND(RND)*12:in(i,2
)=1+RND*5+ROUND(RND)*13:IF sn(in(i,1),in
(i,2))<>11 THEN 420 ELSE sn(in(i,1),in(i
,2))=i:CALL &8034,in(i,1),in(i,2),in(i,3
)
430 NEXT
440 PEN 5:PRINT"score:" sc TAB(12) "live
s:" lives
450 LOCATE 1,25:PRINT"hi:" hiscore$(1,2)
 TAB(10) "screen:" screen;
460 PLOT 0,20,1:DRAWR 636,0:DRAWR 0,360:
DRAWR -636,0:DRAWR 0,-360
470 RETURN
480 REM ---------- santa ----------
490 sx=osx+(INKEY(kl)=0)-(INKEY(kr)=0):s
y=osy+(INKEY(ku)=0)-(INKEY(kd)=0)
500 IF sn(sx,sy)=18 OR sx=osx AND sy=osy
 THEN RETURN ELSE CALL &8034,osx,osy,0,s
x,sy,1:sdx=sx-osx:sdy=sy-osy:osx=sx:osy=
sy:SOUND 2,100,5,15,,1
510 IF sn(sx,sy)=19 THEN sc=sc+1:sn(sx,s
y)=11:LOCATE 7,1:PRINT sc
520 RETURN
530 REM ------- santa slayed -------
540 CALL &8034,osx,osy,9:FOR i=1 TO 1000
 STEP 20:SOUND 135,i+RND*100,50,15:NEXT
550 lives=lives-1:LOCATE 18,1:PRINT live
s
560 RETURN
570 REM -------- snow ball ---------
580 IF INKEY(f) AND sbf=0 THEN RETURN
590 IF sbf=0 THEN sbxv=SGN(sdx):sbyv=SGN
(sdy):osbx=osx+sbxv:osby=osy+sbyv:IF sn(
osbx,osby)>11 THEN RETURN ELSE sbf=1:CAL
L &8034,osbx,osby,2:SOUND 4,60,5,15,,2
600 IF sn(osbx,osby)<11 THEN 630 ELSE sb
x=osbx+sbxv:sby=osby+sbyv
610 IF sn(sbx,sby)>11 THEN sbf=0:CALL &8
034,osbx,osby,0:RETURN
620 CALL &8034,osbx,osby,0,sbx,sby,2:osb
x=sbx:osby=sby
630 IF sn(osbx,osby)<11 THEN in(sn(osbx,
osby),0)=0:sn(osbx,osby)=11:sbf=0:CALL &
8034,osbx,osby,0:SOUND 2,500,0,15,1
640 RETURN
650 REM -------- invaders ----------
660 iv=0:FOR i=1 TO 10:IF in(i,0) THEN i
v=1 ELSE 690
670 tx=in(i,1):ty=in(i,2):ix=tx+in(i,4):
iy=ty+in(i,5):IF sn(ix,iy)<>11 THEN in(i
,4)=SGN(osx-tx):in(i,5)=SGN(osy-ty):GOTO
 690
680 CALL &8034,tx,ty,0,ix,iy,in(i,3):sn(
tx,ty)=11:sn(ix,iy)=i:in(i,1)=ix:in(i,2)
=iy:SOUND 1,1000,2,15
690 NEXT:RETURN
700 REM --------- hiscore ----------
710 WHILE INKEY$<>":WEND:CLS
720 FOR i=1 TO 5:IF sc<VAL(hiscore$(i,2)
) THEN NEXT
730 IF i=6 THEN RETURN ELSE FOR j=5 TO i
+1 STEP -1:hiscore$(j,1)=hiscore$(j-1,1)
:hiscore$(j,2)=hiscore$(j-1,2):NEXT
740 hiscore$(i,2)=STR$(sc):hiscore$(i,1)
=""
750 PEN 2:PAPER 14:LOCATE 3,1:PAPER 3:PR
INT"Congratulations!!":PAPER 5:LOCATE 6,
3:PRINT"A Hi-Score"
760 PAPER 8:LOCATE 4,5:PRINT"Type your n
ame"
770 LOCATE 5,15:PRINT STRING$(12,"."):LO
CATE 5,15
780 c$=INKEY$:IF c$=CHR$(13) THEN RETURN
 ELSE lh=LEN(hiscore$(i,1)):IF c$=CHR$(&
7F) THEN IF lh>0 THEN hiscore$(i,1)=LEFT
$(hiscore$(i,1),lh-1):PRINT CHR$(8) "."
CHR$(8);:GOTO 800 ELSE 800
790 IF lh<12 THEN hiscore$(i,1)=hiscore$
(i,1)+c$:PRINT c$;
800 GOTO 780
810 REM -------- intialise ---------
820 GOSUB 2110 :REM machine code
830 DEFINT a-z
840 DIM sn(19,22),in(10,5),hiscore$(5,2)
850 MODE 0:PEN 2:LOCATE 1,12:PRINT"STICK
 or KEYS? (s/k)"
860 GOSUB 270:IF c$="S" THEN RESTORE 880
 ELSE IF c$="K" THEN RESTORE 890 ELSE 86
0
870 READ ku,kd,kl,kr,f
880 DATA 72,73,74,75,76
890 DATA 0,2,8,1,47
900 MODE 0
910 BORDER 0:RESTORE 920:FOR i=0 TO 15:R
EAD j,k:INK i,j,k:NEXT:SPEED INK 30,15
920 DATA 0,0,18,18,26,26,15,15,11,11,5,5
,0,25,25,25,7,7,16,16,13,13,15,0,0,15,6,
0,6,6,0,6
930 FOR i=1 TO 5:READ hiscore$(i,1):hisc
ore$(i,2)=STR$((6-i)*40):NEXT
940 DATA Ronny Raygun,Arfur Brain,Dan Di
re,Min L Boroom,Cap'n Hand
950 ENT 1,5,10,1:ENT 2,5,-10,1
960 ENV 1,1,0,5,10,-1,5
970 RETURN
980 REM --- box bx,by,bh,bw,bc ----
990 PLOT bx,by,bc:DRAWR bw,0:DRAWR 0,bh:
DRAWR -bw,0:DRAWR 0,-bh
1000 RETURN
1010 RESTORE 1010:RETURN :REM screen 1
1020 DATA 00777770
1030 DATA 00000000
1040 DATA 70088888
1050 DATA 70000000
1060 DATA 70077777
1070 DATA 70080000
1080 DATA 70077000
1090 DATA 76078006
1100 DATA 80070000
1110 DATA 80070000
1120 RESTORE 1120:RETURN :REM screen 2
1130 DATA 00000000
1140 DATA 00008888
1150 DATA 00000888
1160 DATA 00700000
1170 DATA 00070088
1180 DATA 00007008
1190 DATA 00000708
1200 DATA 00600070
1210 DATA 88688880
1220 DATA 00000000
```

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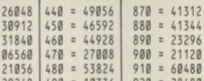
```
1230 RESTORE 1230:RETURN :REM screen 3
1240 DATA 00000000
1250 DATA 00000000
1260 DATA 66000007
1270 DATA 60000078
1280 DATA 60000780
1290 DATA 00007800
1300 DATA 00078000
1310 DATA 07780066
1320 DATA 78000000
1330 DATA 88000000
1340 RESTORE 1340:RETURN :REM screen 4
1350 DATA 00000666
1360 DATA 00000000
1370 DATA 00878888
1380 DATA 00870006
1390 DATA 00807006
1400 DATA 00800706
1410 DATA 00800706
1420 DATA 00800700
1430 DATA 00800700
1440 DATA 00888600
1450 RESTORE 1450:RETURN :REM screen 5
1460 DATA 88800000
1470 DATA 80000000
1480 DATA 80000766
1490 DATA 80007800
1500 DATA 80078800
1510 DATA 80078800
1520 DATA 80078800
1530 DATA 00007800
1540 DATA 08800700
1550 DATA 08600000
1560 RESTORE 1560:RETURN :REM screen 6
1570 DATA 00000088
1580 DATA 00000088
1590 DATA 00000088
1600 DATA 00000000
1610 DATA 77007770
1620 DATA 88088000
1630 DATA 00808800
1640 DATA 77007770
1650 DATA 00000000
1660 DATA 88888800
1670 RESTORE 1670:RETURN :REM screen 7
1680 DATA 00000000
1690 DATA 00800088
1700 DATA 00800088
1710 DATA 00800088
1720 DATA 00800088
1730 DATA 00080088
1740 DATA 00088088
1750 DATA 88008880
1760 DATA 00880088
1770 DATA 00000000
1780 RESTORE 1780:RETURN :REM screen 8
1790 DATA 00060000
1800 DATA 08006000
1810 DATA 08000600
1820 DATA 08800060
1830 DATA 08800600
1840 DATA 08806080
1850 DATA 08060808
1860 DATA 00608080
1870 DATA 06080800
1880 DATA 60808000
1890 RESTORE 1890:RETURN :REM screen 9
1900 DATA 00000000
1910 DATA 00000006
1920 DATA 00078080
1930 DATA 00087006
1940 DATA 00078000
1950 DATA 00087006
1960 DATA 00078000
1970 DATA 00087006
1980 DATA 00078000
1990 DATA 00087000
2000 RESTORE 2000:RETURN :REM screen 10
2010 DATA 00007777
2020 DATA 00000886
2030 DATA 70600800
2040 DATA 70007770
2050 DATA 70000000
2060 DATA 70607770
2070 DATA 70000800
2080 DATA 86060886
2090 DATA 86007777
2100 DATA 86000000
2110 REM ------ machine code ------
2120 IF PEEK(35D)=255 THEN RETURN
2130 MODE 2:PRINT"Wait a mo', I'm initia
lising"
2140 ln=2210:RESTORE 2210:FOR adr=&8000
TO &81DD STEP 13
2150 READ byte$:chk=0:FOR i=0 TO 12
2160 v=VAL("&"+MID$(byte$,i*2+1,2))
2170 POKE adr+i,v:chk=chk+v:NEXT
2180 IF chk<>VAL("&"+RIGHT$(byte$,3)) TH
EN PRINT"ERROR in LINE";ln:LIST 2210-
2190 ln=ln+10:NEXT
2200 MODE 0:CALL &8000:MODE 1:POKE 350,2
55:RETURN
2210 DATA 0616210100117E80DD21DE81FD4A7
2220 DATA 210A82E5C5CD1ABCDD7500DD7469D
2230 DATA 01212000197FD7500FD7401EBFD527
2240 DATA 23FD23DD23DD23C1E12C10DDC96C7
2250 DATA 2A5CD500F1E5D5FE03CA4B80117E4
2260 DATA 0600DD19CD5D80CD8C80D1E1C36E7
2270 DATA 8C80D5E00CB23160BFD210A824F5
2280 DATA FD19FD6E00FD660lFD21DE81DD73F
2290 DATA 5E02DD5603CB23CB12FD19FD5E5D2
2300 DATA 00FD56D1E5DD6E04DD6605CB255CD
2310 DATA CB14CB25CB1C19EBE1C9060BC5637
2320 DATA D5010400EDB0D17AC60857C1105B8
2330 DATA F1C900000000000000000000001BA
2340 DATA 0000000000000000000000000000
2350 DATA 0000000000000000000153F0000054
2360 DATA 6B972A004141047749868B9F0C45E
2370 DATA 0C6F512E1DA2002B170DB7AA553B1
2380 DATA 7B0000000000000C00000400E00099
2390 DATA 0005OC08000C0D08000E0C0A0085E
2400 DATA 040C0000050D00001020000030082
2410 DATA 30005B0070A0103030203075BA42F
2420 DATA 30B0FBF77050FFFFA000F0F000810
2430 DATA 0000000005400000AADAA800352
2440 DATA DCDCA80088AA88006FCF2A15145AB
2450 DATA 3C151500001500030300010000082
2460 DATA 020228140lA1000052500201A0227
2470 DATA 00F0F0005000000AA003020103453lE
2480 DATA 9B220000CC000000CC0000llCC332
2490 DATA 8A0011CC8A011DC8A0011FC8A4FF
2500 DATA 0055FCA2000F0D0E0D0E0C0E0D25F
2510 DATA 0D0D0E0E0F0F0D0C0E0C0C0D0C0AC
2520 DATA 0C0F0D0E0F0E0E0E0D0C0F0D3Fd06
2530 DATA 1D2A003F1D2A003F0C2A000C0F15D
2540 DATA 0800F0F080802E1F2A003F1D2A12B
2550 DATA 003F1F2A410044410410093A01236
2560 DATA 002A7A01FC6E7A83A82A7A03D452F
2570 DATA 00F00380000F003C000F00000000416
```



LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	= 26048	440	= 49056	870	= 41312
20	= 30912	450	= 46592	880	= 41344
30	= 31840	460	= 44928	890	= 23296
40	= 06560	470	= 27008	900	= 21120
50	= 21056	480	= 53824	910	= 60480
60	= 29248	490	= 10336	920	= 28480
70	= 57600	500	= 16512	930	= 17760
80	= 27392	510	= 17216	940	= 29632
90	= 60256	520	= 27008	950	= 63904
100	= 20448	530	= 58016	960	= 52224
110	= 44448	540	= 47392	970	= 27008
120	= 09888	550	= 42304	980	= 34784
130	= 33952	560	= 27008	990	= 15072
140	= 12864	570	= 19488	1000	= 27008
150	= 64544	580	= 35680	1010	= 18496
160	= 12864	590	= 04800	1020	= 21536
170	= 34080	600	= 35264	1030	= 55328
180	= 12864	610	= 15968	1040	= 00736
190	= 34272	620	= 54048	1050	= 00832
200	= 40032	630	= 29728	1060	= 26048
210	= 18368	640	= 27008	1070	= 01568
220	= 32608	650	= 50624	1080	= 10368
230	= 35616	660	= 30944	1090	= 01472
240	= 21824	670	= 52608	1100	= 31360
250	= 27520	680	= 39680	1110	= 31360
260	= 44224	690	= 42880	1120	= 02688
270	= 29216	700	= 27168	1130	= 55328
280	= 58848	710	= 47456	1140	= 56544
290	= 18144	720	= 51040	1150	= 32064
300	= 27008	730	= 51008	1160	= 44096
310	= 31616	740	= 49760	1170	= 55648
320	= 58176	750	= 00416	1180	= 21376
330	= 28768	760	= 07808	1190	= 02112
340	= 52352	770	= 06112	1200	= 33440
350	= 21216	780	= 50592	1210	= 38208
360	= 37408	790	= 53920	1220	= 55328
370	= 62720	800	= 29408	1230	= 38304
380	= 14464	810	= 22720	1240	= 55328
390	= 51008	820	= 01120	1250	= 55328
400	= 09984	830	= 60320	1260	= 18784
410	= 28864	840	= 56224	1270	= 65248
420	= 11968	850	= 64512	1280	= 03392
430	= 42400	860	= 12448	1290	= 22464
1300	= 22720	1730	= 64832	2160	= 10720
1310	= 61248	1740	= 64960	2170	= 36576
1320	= 38176	1750	= 26688	2180	= 29984
1330	= 52640	1760	= 59808	2190	= 29280
1340	= 49824	1770	= 55328	2200	= 32480
1350	= 59328	1780	= 46272	2210	= 59456
1360	= 55328	1790	= 40896	2220	= 51552
1370	= 52480	1800	= 27776	2230	= 10368
1380	= 25856	1810	= 27040	2240	= 43872
1390	= 20160	1820	= 51744	2250	= 11904
1400	= 05376	1830	= 22784	2260	= 15968
1410	= 05376	1840	= 27488	2270	= 35232
1420	= 47552	1850	= 03552	2280	= 08608
1430	= 47552	1860	= 00192	2290	= 26496
1440	= 27552	1870	= 29312	2300	= 16448
1450	= 19424	1880	= 27680	2310	= 57760
1460	= 64768	1890	= 59200	2320	= 03424
1470	= 23488	1900	= 55328	2330	= 22720
1480	= 04736	1910	= 29920	2340	= 40704
1490	= 54304	1920	= 63968	2350	= 05184
1500	= 24128	1930	= 31488	2360	= 16736
1510	= 24128	1940	= 22720	2370	= 41664
1520	= 24128	1950	= 31488	2380	= 45056
1530	= 22464	1960	= 22720	2390	= 30144
1540	= 12192	1970	= 31488	2400	= 12992
1550	= 38432	1980	= 22720	2410	= 49920
1560	= 19648	1990	= 55232	2420	= 35424
1570	= 22784	2000	= 48928	2430	= 43808
1580	= 22784	2010	= 40928	2440	= 50048
1590	= 22784	2020	= 20640	2450	= 47168
1600	= 55328	2030	= 24128	2460	= 11168
1610	= 33792	2040	= 55904	2470	= 10592
1620	= 60032	2050	= 00832	2480	= 26592
1630	= 52288	2060	= 00512	2490	= 27392
1640	= 33792	2070	= 34336	2500	= 30560
1650	= 55328	2080	= 48640	2510	= 53088
1660	= 56480	2090	= 13984	2520	= 13024
1670	= 49696	2100	= 29024	2530	= 16832
1680	= 55328	2110	= 12544	2540	= 64288
1690	= 51328	2120	= 53376	2550	= 45472
1700	= 51328	2130	= 55840	2560	= 33568
1710	= 51328	2140	= 20256	2570	= 19552
1720	= 52704	2150	= 42208		

Take your time with that 464 upgrade

I HAVE been told by a friend that it is possible to upgrade my CPC464 to CPC6128 specification by fitting a new chip. If this is true, can you give me details on how to do this and a source of the necessary parts? – **Roger Milne, Southampton.**

● Your friend is correct, it is possible to turn a CPC464 into a CPC6128. Do not attempt the conversion unless your machine is out of guarantee because it is necessary to make an internal modification which will invalidate your warranty.

You must have a disc drive fitted and a ram expansion such as the dk'Tronics 64k pack.

Disconnect your keyboard and open it up. Look for the rom chip – it's on the left with Amstrad printed on it and below the one marked Sound.

If it is soldered into place, give up there and then unless you're very competent with a soldering iron or know somebody who is.

If the rom is in a socket, the conversion is straightforward. Contact CPC Components, 194-200 North Road, Preston, Lancashire PR1 1YP, Tel. 0772 555034 and obtain the CPC6128 rom – it costs less than £20 and fits in place of the original.

Apart from the manual all you lack now is CP/M Plus. The only legal way to get hold of a copy is to buy it. If you need CP/M Plus, write to Amsoft to find out how much it's going to cost before committing any money to the project.

Screen saving

THE user instructions for the CPC464 give very sketchy instructions for saving a screen to cassette and subsequently reloading it. I would be most grateful if you could print a short article or feature explaining in detail how to do this. – **R. Burrows, Stowmarket.**

● You wouldn't believe it looking at the manual, but saving screens from your own Basic programs is fairly easy.

Make sure the screen hasn't scrolled since switching on or the last MODE command and at the point where you want to save the screen, think of a filename such as *fred* and insert a line like this:

```
SAVE"!fred",b,&c000,&4000
```

The exclamation mark in the name prevents the computer from ruining the display with the "Press REC and PLAY ...." prompt, but you must remember to press the keys.

Another useful tip is to make the line part of a subroutine:

```
20000 IF INKEY(68)=0 THEN P
RINT CHR$(7):SAVE"!fred",b
,&c000,&4000
20001 RETURN
```

and at the start of the program put this:

```
10 EVERY 10 GOSUB 20000
```

The screen will then be saved whenever you press the Tab key.

Reloading is simply a matter of:

```
MODE m:LOAD"screen",&c000
```

where *m* is the mode the screen was saved in.

Fresh viewpoint

I HAVE seen numerous letters in CwtA *from people asking if you know where they can get hold of a monitor for their CPC, either having had their existing monitors break down or wanting to exchange for colour/mono.*

Comet is advertising green and colour screens in its price list – at least the Gateshead branch is and I should think other stores will be the same. – **Frank Ryan, Prudhoe.**

Win a tenner

Each month we award £10 prizes for the most interesting letters sent to us.

So now there's more reason than ever to contribute to our lively letters page.

Get your pens out, start writing and you could be one of the winners.

The address is: Postbag, Computing with the Amstrad, Europa House, Adlington Park, Adlington, Macclesfield SK10 5NP.

Barbarians?

JAMES Langley's letter in the November issue regarding the advertising of Barbarian has left me rather puzzled.

He does not say which of the organs shown in the picture has upset him, but since there are three and all are of approximately equal mass I assume he takes triple offence.

He is also underestimating the difficulty of selling software to young people. They know what they want and those who are more interested in breasts will be behind the bicycle shed and not at the keyboard.

Having been an elbow fetishist for many years I have been able to enjoy the efforts of the advertising world without feeling any offence when they use the human body as a (usually irrelevant) medium.

I regret that young Master Langley may be corrupted by such material but as a father of four myself I would consider there was something wrong with my children if they could derive anything but wry amusement from this type of advertising.

Frankly, the attitude shown by people like Mr. Langley gets on my elbows. – **P. Barlow, BFPO Hong Kong.**

A bit extra

RECENTLY I purchased an 8-bit printer port from KDS and it is very good. I would like to be able to use it for screen dumps.

Roland Waddilove's excellent screen dump routine in the August 1986 issue just doesn't work with the interface attached although 7-bit and 8-bit ports are mentioned in the article.

Am I right to assume that by using the KDS port correctly I should be able to

Turn to Page 48 ▶

◀ *From Page 47*

get a faster dump? – **Charles Woodbridge, Huddersfield.**

● The only way to get a faster dump would be to rewrite the machine code so that it sent eight bits to the printer port rather than the normal seven.

That's a bit beyond the scope of a mail page answer and as we haven't got the interface we don't know why the dump doesn't work at its normal speed.

Check the software supplied with the interface isn't trying to live in the same area of memory as the dump routine.

Crashing checksum

RECENTLY I typed in Roland Waddilove's checksum program from the June issue. In spite of checking it most carefully, when I follow your instructions in the July issue and enter CALL &9000, I get the instruction "Press PLAY then any key".

My CPC6128 doesn't have a Play key! I feel sure I'm missing something somewhere. Can you help? – **John McInnes, Calne.**

● What you're experiencing is known as a crash and the reason is either that you've made a typing mistake in the utility listing or when you're calling &9000 the machine code is no longer in memory. Run the utility. Do not reset or switch off the computer or the machine code will be lost. will be lost.

Load the program you want to check, but don't run it. If you want to check the checksum listing itself, you need to reload that as well.

Then call &9000 and you should see the checksums. If you don't, get somebody else to have a look at your typing, particularly the part before the data statements.

Renegade

AFTER reading your review of Renegade in the November issue I went out and bought it, my first full-price game since upgrading from a BBC Micro.

Wow! I never realised how good Amstrad graphics

COMPUTING WITH THE AMSTRAD CPC **Postbag**

WE welcome letters from readers – about your experiences using the Amstrad, about tips you would like to pass on to other users . . . and about what you would like to see in future issues.

The address to write to is:

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Europa House
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So you want to write games . . .

I'M a new reader of Computing with the Amstrad – *great isn't it? What I want to know is can I write games and utilities for you? I've just started computing at school and I'm eager to put my programming skills to work.* – **Nick Davis, Newtown.**

● Many of the programs you see in *CwtA* are submitted by readers in the hope that we'll publish them. We can't guarantee to accept submissions, but everything is judged on its own merits. Guidelines are available if you send us a self-addressed envelope.

★ ★ ★

PLEASE try to answer some questions that I have:

● Which is the fastest high-level language?

● What is the best version and is it available on rom?

● Once compiled, will it take more memory than a real machine code program?

● Could I use it to write real machine code arcade games like Head Over Heels?

● Could I use a sprite package with this language and if so, which one is the best?

● Would I be better off writing games in assembly language?

● If so, what is the best sprite package I could use with Maxam?

● Which books will tell me all the routines professional programmers use in machine code games? – **David Gibbon, Bearpark.**

● The fastest high-level languages on the Amstrad are probably BCPL, C and Pascal. As different versions have their own strengths and weaknesses it's difficult to say a particular one is best.

The only non-CP/M version of C is by Hisoft and it isn't available on rom. BCPL and Pascal are and can be obtained from Arnor and John Morrison respectively. Programs in compiled languages are rarely as compact or fast as straight machine code.

You can write games in just about any language, but if you're aiming at the standard of Head Over Heels you're wasting time with anything less than assembler.

If you haven't mastered machine code, it's going to take a lot of hard work to get to that standard so it's better to start with something simpler such as a magazine listing. It's possible to write quite reasonable games in a mixture of Basic and machine language and this is a good way to start.

Simple sprite routines are easy enough – try disassembling the machine code section from this month's game. For more advanced techniques, there isn't a book revealing all the tricks and secrets of commercial programmers.

The information is too valuable because games software is big business and very competitive – if you've just spent several months developing a best-selling game you aren't going to tell the rest of the world how to do it! As for sprite packages, you can only get so far with these.

The trouble is that you tend to end up with something that's too big for a magazine listing, but not good enough to sell in it's own right. Remember that it costs a lot of money to market a game so it has to be good before a software house will invest in it.

We're prepared to be corrected on this, but we can't think of one successful arcade game written using a commercial sprite package. By using one you're trying to cut corners and as far as games programming goes, there are no short cuts to the top.

If you aspire to writing top-quality games you'll have to develop your own system rather than relying on somebody else's. In the meantime, get some practice with something simple and let us see the results – you never know, you might find yourself in print.

could be. I found it a lot more playable than your rating of 35 per cent suggests. Maybe John Butters would be better going back to Space Invaders and leaving Renegade to the real men out here.

Anyway, my reason for writing is that he got a couple of things wrong. My version loads in one go, not a level at a time. Also, try as I might, I can't get a single drop of blood to pour from the bodies. Were we both playing the same game? – **Jason Willoughby, Horncastle.**

● John reviewed a pre-production copy on a CPC464. Presumably you have a CPC6128 because on this machine the levels are loaded into the extra ram. As for the blood, Ocean decided to tone things down on production versions.

Cobol-less

I AM studying for examinations, use an Amstrad CPC6128 and I am looking for a Cobol compiler. I haven't been able to find one. Can you help? – **F. Bunnier, Marseilles, France.**

● You can get one from Hisoft, The Old School, Greenfield, Bedford MK45 5DE. It costs around £40.

Horses for courses

I WAS very pleased to see Darren Hughes' 10-liner Basic Nobbling in the November issue and think it is very good. I have been toying with something like it which I never got round to finishing.

I have made a small adjustment which I think Darren will agree makes it a little more lifelike. RENUM the program and add these lines:

```
25 SYMBOL 241,0,0,1,63,95,
158,24,24:SYMBOL242,128,19
6,206,255,252,60,12,4
26 colt$=chr$(241)+chr$(24
2)
```

Now in line 70 change PRINT"***" *to* PRINT colt$ *and all being well you will have little horses instead of asterisks.* – **D. Smith, Leeds.**

Non-runner

PLEASE can anyone tell me why commercial games starting with a binary file can be run, but files I write with either of my two assemblers – Zapp and Devpac – need to be loaded and called? – **Philip Whitcome, Ebbw Vale.**

● The reason is that the file header can contain both load and entry addresses for the code. If the assembler doesn't set these when it writes the binary file, you will have to supply the information when you want to load it.

The assembler doesn't set up the header correctly because the file is opened for writing a byte at a time and the firmware doesn't allow you to set load and entry addresses with such a file. It can only be done with a block save from memory.

The way round this is to load the code into memory – or assemble it there rather than to a file – and resave it with Basic's:

```
SAVE"filename",b,start,
length,entry point.
```

Don't forget to lower HIMEM first.

Providing the disc power

£10 Prize letter

WITH reference to Derek Lightfoot's query in the October issue about upgrading from a CPC464 to a CPC6128, I found myself in the very dilemma he is contemplating. The only difference was that I actually did what he is thinking about and forgot about the disc drive power supply.

Having made the classic error I set about restoring my injured pride by phoning Amstrad's technical staff for help. While being sympathetic towards my problem – they said it could be overcome – they would not be party to a solution.

Here's the answer I came up with. Buy a plug-in 12V DC power unit of the type supplied with calculators and radios. It should be rated at a minimum of 300ma. The one I bought is a Panda, model number BAH 030 which I'm told has been superseded by BAH 0325.

If you have difficulty, it can be obtained from Ampower Video, 15a Alcester Road, Studley, Warwickshire Tel. 0527 853374 who will supply by mail order if required. You will also need to buy a suitable socket as used on the later monitors and you should be able to find this locally.

Open the casing of the supply, remove the three external 13 amp pins and solder wires to the neutral and live connections on the transformer. At this stage drill two holes in the casing in such a position that it will fit inside the monitor at the rear right hand top corner (looking from the front).

Offer the transformer up to the monitor and mark and drill the case as necessary. Now make provision for the two newly soldered wires to feed through the transformer casing and connect to the **output** side of the monitor on/off switch ensuring live to live and neutral to neutral. Fit the drilled half of the power supply to the monitor and assemble the remainder in situ.

Next decide where the 12v socket is going to be on the monitor – just to the right of the CTM640 decal is best, but this does mean removing the circuit boards after disconnecting all the relevant wires.

Remember to note where all the connections came from. If this is too daunting, you can fit the socket on the right hand side of the monitor, but this gives less manoeuvrability.

Drill holes to fit the socket and connect it to the transformer with a suitable length of cable. Make sure there is enough to run tidily round the case away from the tube.

The connections **must** be negative to the centre pin and positive to the outer one. This is most important so check it with a voltmeter before connecting up your disc drive.

The conversion cost me around £5.00 and has been working perfectly for several months. – **John Curley, Bromsgrove.**

● Even though this is a relatively simple operation if you're careful, we recommend that if you're in the slightest doubt about whether you can complete the job, leave well alone and pass it on to a professional.

Make sure you unplug the monitor before surgery and leave it for at least an hour to allow static charges to dissipate. Also, double check that you've got a DC supply of the correct voltage and current.

We can't see anything wrong with the method described here, but we can't take responsibility for damage resulting from any modifications you make.

Thanks to Derek Smith and many others who have written in to say that the latest CPC464s are supplied with the new style monitor with its 12v disc drive power socket.

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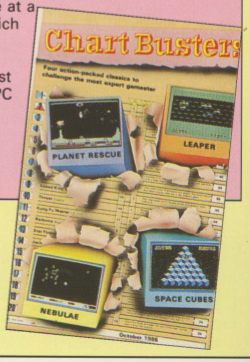

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Tas-spell has a similarly disappointing performance. The text of our free booklet was checked by Tas-spell after the 37 unknown words had been saved, and it took a staggering 18 minutes and 31 seconds for the 3455 words. BrunSpell took just 1 minute 21 seconds for the same test.

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THE GANG'S ALL HERE

IAN SHARPE digs deeper into Logo's list processing

FIRST things first – the answer to last month's problem. I asked you to write a procedure to take a list of numbers from the keyboard and print their average. Here's the solution I came up with:

```
to average
 pr [Type some numbers on one line !
with spaces in between]
 make "numlist rl
 make "num count :numlist
 make "total 0
 make "pointer 1 repeat :num
      [
      make "total :total + item :po!
inter :numlist
      make "pointer :pointer + 1
      ]
 pr :total / :num
end
```

I hope you got something like it. If not, here's a blow-by-blow account of how it works. Don't forget, the exclamation mark shows where the line has wrapped round and you shouldn't type it in.

After the message has been printed, the third line reads a list from the keyboard and puts it in *numlist* – that was explained last month. Next, Logo counts the number of items you typed in – the contents of *numlist* are extracted with the colon and delivered to **count** which puts the answer into the variable *num*.

To work out an average of a list of numbers you add them together and divide the result by the number of items. There's nothing mysterious about computer programming, and Logo does averages in the same way.

So, starting at the first item, we're going to access each element of the list in turn and add it to a running total. The instructions to do this are going to be the same for each number apart from the place in the list where it comes from. This is an ideal situation for a loop.

If you look forward to the loop, there's a command in there to get the contents out of *total*, which is the variable in which we're going to store the total as the values in the list are added together. The first time round there won't be anything to get out which will generate an error. To avoid this we initialise *total* with zero in line five.

Each time round the loop we need to increment a pointer – *pointer* – to the item in the list being accessed. Before the loop starts we make *pointer* point to the first item.

The loop is going to cycle the same number of times as there are items in the list. We could have said **repeat count :numlist** but we need the same figure again later in the program so it makes sense to do the calculation once and store it in a variable.

The body of the loop does the following: Get the list out of *numlist*, get the value of the pointer and pass them to **item**. This will pull out the item pointed to by pointer which is then added to the running total and the result put back in *total*. The pointer is then made to point to the next item by increasing its value by one.

Finally, when the loop has run the required number of times the value in *total* is divided by the number of items and printed out. Easy, isn't it?

So far we've been ploughing through lists without using them for more than simple demonstrations. Now let's have a look at a very simple database – a hypothetical police record.

Before we do, however, this is another of those awkward situations where CPC464/664 owners lack an important command – **memberp**. I'll explain what it does in a minute, but if you're using Logo 2.2 make sure you have **memberp** defined before going on to the next bit. A primitive often used with **memberp** is **where** so I've defined that as well. You'll also need **thing** from December.

```
to memberp :bit :list
 make "pointer 1
 repeat count :list
  [
  if item :pointer :list = :bit
   [make "where :pointer op "TRUE]
  make "pointer :pointer + 1
  ]
 op "FALSE
end

to where
 op :where
end
```

What you're about to see isn't the best way of getting Logo to do the job, but until we get on to property lists it's the best we can do and has the virtue of being simple. Type in the following:

```
      make "gang [Jim Bill Joe]
      memberp "Jim :gang
      where
      memberp "Bill :gang
      where
      memberp "Eric :gang
```

First we put a list holding the members of a gang of criminals into *gang*. Next we ask Logo if the names of various people are members of *gang*. That's what **memberp** does, it tests to see if the first object is part of the second and reports back with TRUE or FALSE.

If the answer is TRUE, you can find the position where it was found with **where**. So you can see that Jim and Bill both being in the gang will get a positive report and the numbers 1 and 2 respectively, while Eric who isn't a member will show up as FALSE.

Next, we'll put some information about each gang member under his name.

```
make "Jim [Boss 45 London]
make "Bill [Driver 23 Leeds]
make "Joe [Minder 37 Liverpool]
```

I'm sure you'll realise what we're doing here – making each member's name the title of another list holding their occupation, age and home.

Having stored some information, it's no use to us unless we can get it out again. As an example, let's define a procedure to tell us who matches a named occupation.

Last time we saw how to get at the contents of lists within lists using **item** and **thing**. In conjunction with **memberp** we are now in a position to ask our mini database some questions.

```
to whois :occupation
 make "pointer 1
 repeat count :gang
  [
  make "name item :pointer :gang
  if item 1 thing :name = :occupat!
ion
    [op :name]
  make "pointer :pointer + 1
  ]
 op "Nobody
end

whois "Minder
whois "Boss
whois "Teaboy
```

The logic behind this is as follows: Pass the name of the occupation to the

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◀ *From Page 54*

procedure and store it in *occupation*. For the size of the gang (**repeat count :gang**), get the gang member's name (**item :pointer :gang**) and store it in the variable *name*.

Next, use the name to get at the first item in the associated list of personal details (**item 1 thing :name**) and test if this is the same as the occupation. If so, the procedure stops and outputs the name – that's the part in the square brackets **op :name**. If a match isn't found with any gang member, the procedure will continue to the second **op** and output *Nobody* instead.

If we don't know where in the personal details the occupation is or aren't too particular about the order in which the details are stored, we could achieve a similar result using **memberp** as shown at the top of the next column.

You might like to experiment with writing a similar procedure to find out who lives in a particular city. Perhaps you can then develop it to combine the functions of **whois**.

```
to whois :occupation
 make "pointer 1
 repeat count :gang
  [
  make "name item :pointer :gang
  if memberp :occupation thing :na!
me = "TRUE
   [op :name]
  make "pointer :pointer + 1
  ]
 op "Nobody
end
```

Here's a more obvious procedure to check if someone is in the gang and report their age if they are:

```
to howoldis :name
 if memberp :name :gang = "FALSE
  [pr [He's not a member!] stop]
 pr item 2 thing :name
end

howoldis "Jim
howoldis "Eric
```

Before I round off this month, a word about your workspace. I've mentioned before that Logo sets aside an area of memory where it stores your text when you're editing procedures, variables and lists. There's an easy way of finding out how much space you have left – just type **nodes**. A node is what Logo considers to be one unit of memory and **nodes** tells you how many are free.

Nodes disappear at an alarming rate, but there is a way of making sure any that have been used and are no longer required are marked as being free for use.

The primitive **recycle** does as its name suggests and recycles old nodes. The only problem with it is that it can cause a delay while it sorts itself out. You can also erase unwanted procedures with **er** as in:

```
er "howoldis
```

● *That's it for another month. Next time we'll investigate property lists and see what goes on behind the scenes.*

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SOLISQUARE

By WILLIAM LAWRIE

THIS intriguing puzzle will test your ability to think logically. On the screen are two 3x3 grids and you must make the one on the right match the target pattern on the left. If you manage it, there are two more for you to have a go at.

To make things more challenging there's a time limit of one minute on the first level and even less on subsequent ones.

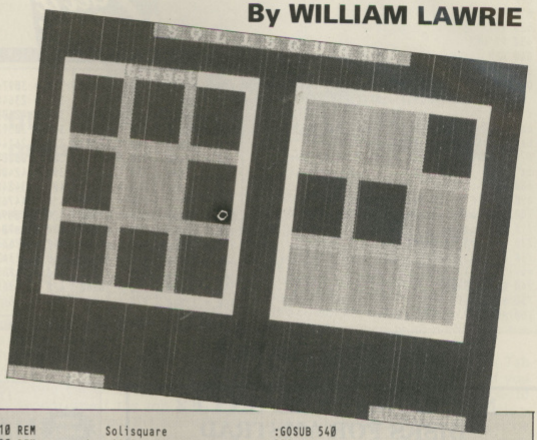
The idea is that the keys 1 to 9 on the numeric keypad correspond to the squares in the grid. Pressing a key reverses the colour of that square, plus others based on the following rules: The corner keys – 1,3,7,9 – flip the colours of the four squares in that corner.

For instance, pressing 7 reverses the squares corresponding to 7,8,4 and 5. Keys in the centre of an edge – 2,4,6,8 – flip the three squares on the edge, and the centre key, 5, switches the five squares which form the central cross.

You can only change colours when the key you press matches a black square. If it's orange, nothing will happen. Of course if you inadvertantly turn the entire grid orange, you can't go any further and will have failed in your task. The program will detect this and give you the option of restarting the game.

The data that defines the starting position and shape of the targets is clearly marked at the end of the program, so you can easily create new puzzles when you complete this one. In the target data each row is a level and the first three items are the first row in the grid, and so on.

Good luck. Nobody here has managed it yet without cheating!



ARRAYS

bd	Holds your grid and targets.
kbt	Translates key to grid coordinates.
sqtch	Offsets from cooordinates of other squares to change.

MAIN VARIABLES

alorn	Flag set if all orange.
done	Flag set if level complete.
level	Current level.
count	Used by timer subroutine.
bdx,bdy	Coordinates in grid.
bx,by	Used by switching and square drawing routines.
bsz,col	Size and colour of square.

```
10 REM            Solisquare
20 REM          by William Lawrie
30 REM (c) Computing with the Amstrad
40 REM ------------ CPC -------------
50 ENT 1,100,15,3:ENT 2,100,10,3:ENT 3,5
0,-4,2
60 PAPER 0:MODE 1:BORDER 0:INK 0,0:INK 1
,15:INK 2,26:INK 3,1
70 DEFINT a-z:DIM bd(2,2,3),kbt(9,1),sqt
ch(9,10)
80 FOR i=1 TO 9:READ kbt(i,0),kbt(i,1):N
EXT
90 FOR i=1 TO 9:READ sqtch(i,0)
100 FOR j=1 TO sqtch(i,0)*2 STEP 2:READ
sqtch(i,j):READ sqtch(i,j+1)
110 NEXT j,i
120 FOR z=0 TO 3:FOR i=0 TO 2:FOR j=0 TO
 2
130 READ bd(i,j,z)
140 NEXT j,i,z
150 EVERY 50 GOSUB 430:DI
160 REM *** play the game ***
170 FOR level=1 TO 3
180 GOSUB 640
190 count=61-(level-1)*8:EI
200 alorn=0:done=0:bsz=3:WHILE done=0 AN
D alorn=0
210 ik$="0":WHILE ik$<"1" OR ik$>"9":GOS
UB 800:WEND
220 ik=VAL(ik$):bdx=kbt(ik,0):bdy=kbt(ik
,1)
230 IF bd(bdx,bdy,0)=1 THEN 210
240 FOR z=1 TO sqtch(ik,0)*2+2 STEP 2
250 bx=bdx+sqtch(ik,z):by=bdy+sqtch(ik,z
+1)
260 bd(bx,by,0)=bd(bx,by,0) XOR 1
270 col=bd(bx,by,0):bx=bx*5+23:by=by*5+5
:GOSUB 540
280 NEXT
290 GOSUB 580
300 WEND
310 REM *** done level ***
320 DI:IF alorn THEN LOCATE 10,22:PEN 0:
PRINT"Oh dear, all orange":GOTO 500
330 IF level<3 THEN LOCATE 4,22:PRINT"No
t bad, now try the next level!" ELSE 360
340 GOSUB 770
350 NEXT
360 REM *** Success ***
370 PAPER 0:CLS:FOR i=10 TO 1 STEP -1
380 col=(i MOD 2)+2:bx=20-i:by=11-i:bsz=
2*i:GOSUB 540
390 NEXT
400 PEN 1:PAPER 0:LOCATE 13,8:PRINT"Cong
ratulations"
410 LOCATE 15,14:PRINT"You did it!"
420 GOSUB 770:GOTO 510
430 REM *** Counter ***
440 count=count-1:PEN 2
450 SOUND 1,5+count*10,3,15:SOUND 4,5+co
unt*8,4,15
460 LOCATE 5,25:PRINT count
470 IF count<>0 THEN RETURN
480 REM *** Failed ***
490 PEN 0:LOCATE 15,22:PRINT"Too slow!!"
500 SOUND 1,0,0,15,0,1:SOUND 2,0,0,15,0,
2
510 LOCATE 7,23:PRINT"Press space for an
other go"
520 WHILE INKEY(47)=-1:INK 2,RND*26:INK
3,RND*26:WEND
```

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```
530 RUN
540 REM *** box bx,by,bsz,col ***
550 WINDOW#7,bx,bx+bsz,by,by+bsz
560 PAPER#7,col:CLS#7
570 RETURN
580 REM *** completed? ***
590 done=1:alorn=1:FOR i=0 TO 2:FOR j=0
TO 2
600 IF bd(i,j,level)<>bd(i,j,0) THEN don
e=0
610 IF bd(i,j,0)=0 THEN alorn=0
620 NEXT j,i
630 RETURN
640 REM *** draw screen ***
650 PAPER 0:CLS:PRINT TAB(10);:PAPER 3:F
OR i=1 TO 10:PEN 1:PRINT"*";:PEN 2:PRINT
 MID$("SOLISQUARE",i,1);::NEXT:PEN 1:PRIN
T"*"
660 RESTORE 990:FOR i=1 TO 4:READ bx,by,
bsz,col:GOSUB 540:NEXT
670 LOCATE 8,4:PAPER 3:PEN 2:PRINT "targ
et"
680 PEN 1:LOCATE 1,25:PRINT"Time"
690 LOCATE 31,25:PRINT"Level";level
700 wx=3:wy=4:z=level:GOSUB 720
710 wx=22:z=0
720 FOR i=0 TO 2:FOR j=0 TO 2
730 bsz=3:col=bd(i,j,z):bx=wx+1+(i*5):by
=wy+1+(j*5)
740 GOSUB 540
750 NEXT j,i
760 RETURN
770 REM *** done it sounds ***
780 SOUND 1,220,100,15,0,3:SOUND 4,210,1
00,15,0,3
790 FOR d=1 TO 3000:NEXT:RETURN
800 REM *** keyboard ***
810 WHILE INKEY$<>"":WEND
820 ik$="":WHILE ik$="":ik$=INKEY$:WEND
830 RETURN
840 REM *** k/b translation ***
850 DATA 0,2,1,2,2,2,0,1,1,1,2,1,0,0,1,0
,2,0
860 REM *** squares to change ***
870 DATA 3,0,-1,1,0,1,-1,2,-1,0,1,0
880 DATA 3,-1,0,0,-1,-1,-1,2,0,-1,0,1
890 DATA 4,-1,0,1,0,0,-1,0,1
900 DATA 2,0,-1,0,1,3,1,0,0,1,1,1
910 DATA 2,-1,0,1,0,3,-1,0,0,1,-1,1
920 REM *** start position ***
930 DATA 1,1,1,1,1,1,1,0,1
940 REM *** target data ***
950 DATA 0,0,0,0,1,0,0,0,0
960 DATA 1,0,1,0,0,0,0,1,0
970 DATA 0,1,0,0,1,0,1,1,1
980 REM *** window data ***
990 DATA 3,4,15,2,22,4,15,2,4,5,13,3,23,
5,13,3
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	57152	170	19808	330	30976
20	30952	180	45376	340	23648
30	06560	190	39328	350	42400
40	58112	200	45056	360	30592
50	07872	210	42592	370	26144
60	12480	220	41216	380	03200
70	25696	230	64544	390	42400
80	52352	240	20416	400	34848
90	50112	250	50240	410	44768
100	15136	260	32512	420	40896
110	29952	270	05952	430	36704
120	17984	280	42400	440	09632
130	11904	290	33568	450	42368
140	39584	300	12864	460	21888
150	58688	310	16960	470	61088
160	37888	320	34080	480	26848
490	16992	660	08224	830	27008
500	26080	670	26144	840	20128
510	54048	680	48256	850	18592
520	14368	690	11552	860	64032
530	16352	700	05728	870	41792
540	42464	710	18848	880	53696
550	19648	720	40480	890	44800
560	26112	730	46368	900	41440
570	27008	740	10688	910	00576
580	54656	750	29952	920	33280
590	09152	760	27008	930	20672
600	30112	770	57312	940	02336
610	60896	780	04544	950	25248
620	29952	790	26848	960	54816
630	27008	800	31424	970	39488
640	61536	810	58848	980	63008
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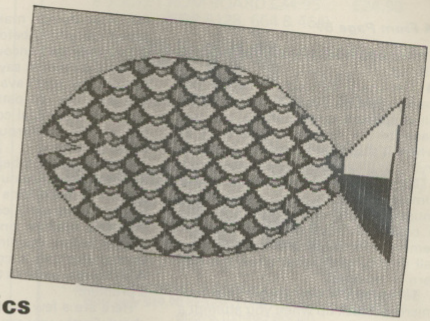

IAN SHARPE's pattern fill packs power into your graphics

TO make up for the lack of a fill facility on the CPC464 several routines have appeared here and elsewhere, but all have one drawback – they only fill an area with a single colour, which hardly exploits the Amstrad's potential.

Now you can put some life into the graphics of any model of CPC with this enhanced routine which fills an area with a pattern of your own design. You can get superb results with this utility and it will become an essential part of your graphics toolkit.

Type in, save and run Program I. Move the graphics cursor to a point within the shape to be filled (use the MOVE command) and to fill the area:

```
CALL &9000,pw,pd,@pat$
```

where *pw* is the width of the pattern in pixels, *pd* is its depth and *pat$* contains the pattern as detailed further on. Note the *@* before *pat$* – it is essential on the CPC464 but on the CPC6128 you can omit it or even call the routine like this:

```
CALL &9000,2,2,"1221"
```

As mentioned earlier, filling starts at the current graphics cursor position. The first thing the routine does is to look at the colour of the screen at this point. It will then fill all points connected vertically and horizontally until it meets another colour.

The fill pattern is stored in *pat$*. Ideally it would be stored in a rectangular array, but I couldn't find a simple way of passing this to a machine code routine short of poking its contents into a known area of memory. This would be slow, and not particularly convenient.

Imagine a pattern in a rectangular block composed of individual dots (or pixels), each with an ink number. In Mode 0 the maximum ink value is 15, in Mode 1 it can range from 0 to 3 and in Mode 2 it can be either 0 or 1.

As an example, let's assume the pattern to be two dots wide by three high. To store the pattern in a form that can be passed to the machine code, we write down the ink values of the dots in the top row followed by the values for the second and third rows, giving a list of six numbers.

So using the default colours when you switch on, if the top row was coloured yellow, red, the second row red, blue and the third yellow, blue *pat$* would be 133212.

Follow that through – pen 1 is yellow, pen 3 is red, pen 3 again, pen 2 is blue and so on. If you're working in Mode 0 and want the inks 10 to 15 you must use hexadecimal format. In other words 10 is A, 11 is B up to F which is 15. Now all you need to do is:

```
pat$="133212":CALL &9000,2,3,@pat$
```

If that sounds a bit too much like hard work, never fear, Program II is a utility to let you plot your pattern on a grid and generate the string afterwards. It's the minimum required to get you going and isn't too difficult to develop and improve. A string can be up to 255 characters long, but to keep things simple this designer only caters for 15 x 15 dots.

The first thing it will do is prompt you for the screen mode – 0, 1 or 2. Then you'll be presented with a box containing a flashing cursor which can be moved about with the arrow keys. Press the spacebar to plot a point and use Shift plus the up and down cursor keys to change the plotting colour.

If the box is bigger than your pattern, make sure you plot from the top left hand corner working to the right and downwards.

Press Tab to finish editing. The next thing is to remove superfluous space to the right and below the pattern if it is smaller than the box. To this end, you will see flashing horizontal and vertical lines. Move them around with the cursor keys to a position where the area to be saved is above and to the left of the lines.

When you've done that, press Tab again. Now you'll be asked what you want to call the string – remember to type in the $ symbol after the name – for example *fred$*. This is going to be written as a two or three line program to a file so you'll be prompted for the first line number and the filename.

A line can be a maximum of 255 characters, so if the string with its name and line number is too long it'll be split on to an extra line. Also, the width and depth of the pattern are written to a REM statement. These lines can then be added to your own program by loading it into memory and using MERGE"filename"

Writing a pattern fill presents more problems than for a single colour. This routine is quite fast because it bypasses the firmware and deals directly with the screen memory. The price for this and keeping the program a manageable size is that there are a few rules and restrictions on how it can be used:

- The graphics origin should be at 0,0.
- The routine works in any mode but must only be used when the screen hasn't been scrolled since switching on or the last Mode command.
- It doesn't check for the edges of the screen and will have unpredictable results if you don't make sure there's a different colour surrounding the area to be filled. It won't crash your machine if it leaks out but it will create

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◀ *From Page 57*

a mess which will be rather difficult to tidy up.

● The main difficulty is when the background colour of the area to be filled appears in the pattern. It's very easy for the routine to lose track of where it's up to and get stuck in a loop trying to fill areas it's already covered.

To avoid this you must obey a simple rule: At no point in the pattern must the background colour appear in a column of two or more pixels – remember the top and bottom rows fall next to each other when the pattern is repeated.

Be warned, if you ignore this your micro will lock up when you attempt a fill and the Escape key is not checked for. If in doubt, make sure you've saved everything before trying it.

You may also encounter this if you define a pattern in say, Mode 0, using colours that aren't available in Mode 1 and then use the pattern in Mode 1. Some of the illegal colours may turn out as the background colour and cause problems.

Another point to bear in mind when the background colour appears in the pattern: If there are a lot of pixels set to the background colour, you may find the routine only fills simple shapes before aborting, and requires several attempts to complete the job. With normal patterns this shouldn't be a problem.

Here are a few possibilities to think about. Firstly, you can achieve a single colour fill by having a block of only one pixel, for instance:

```
a$="1":CALL &9000,1,1,@a$
```

This provides you with a way of changing the background colour should the existing one prove troublesome and avoids having to have two fill routines in memory.

Secondly, on Mode 1 and 2 screens you can get extra colours by alternating two inks such as 0,1 on the top row and 1,0 on the second. This is more successful with some combinations than others. Thirdly, when defining a pattern, if you're careful you can hide the fact that it's based on a rectangle by making one edge a continuation of what's happening on the opposite edge.

Program I

```
10 REM          Pattern Fill
20 REM        By Ian C. Sharpe
30 REM (c)Computing with the Amstrad
40 REM ------------ CPC ------------
50 IF HIMEM<&93C6 THEN PRINT"Sorry! Not
enough memory - switch off a rom or two"
60 MEMORY &8FFF:ln=150
70 FOR adr=&9000 TO &9188 STEP 13
80 READ byte$:chk=0
90 FOR i=0 TO 12
100 v=VAL("&"+MID$(byte$,i*2+1,2))
110 POKE adr+i,v:chk=chk+v
120 NEXT
130 IF chk<>VAL("&"+RIGHT$(byte$,3)) THE
N PRINT"ERROR in LINE";ln:STOP
140 ln=ln+10:NEXT
150 DATA D603C032C09132C491DD7E0432634
160 DATA BE91DD7E0232C291DD6E00DD666BF
170 DATA 01E5DDE17E47B7C8DD6E01DD66777
180 DATA 0211C8917EFE3A3804CBAFD6075B5
190 DATA D633CD2CBC12132310ED21C79257A
200 DATA 22C691DD21B791CDC6BBCBFB0B885
210 DATA CD2CBCDD7700CDC6BBCD11BCF57E6
220 DATA GCB291F1F5DCB291F1DCB291CB9EF
230 DATA 3CCB1DCD1DBCDDCB01C66DDCB046E5
240 DATA C6FD21BE913EFF329691CB01306C5
250 DATA 012BCD9591CD8C9128F3E5CD296FF
260 DATA BC22B991E1E5CD26BC22BC91E17ED
270 DATA FD21BE913E01CD9791CB0931158 6
280 DATA 23E52AB9912322B9912ABC91235A5
290 DATA 22BC91E1CD8C91C25E917CE6C08D
300 DATA EEC0C0E521C891E05BBE913AC4862
310 DATA 9147B728031910FDED5BC09119592
320 DATA 7EE1A14779EEFFA6B077E53AC485D
330 DATA 91F5F53EFFFD21C291CD9791FB91B
340 DATA 21B891CD1891F132C4913E01FD694
350 DATA 21C291CD9791FD21BB91CD1891749
360 DATA F132C491E11884FD6E01FD66D26C6
370 DATA CD8C912805FDCB00C6C9FDCB00736
380 DATA 4EFDCB0086C8FD2AC691113A6C691
390 DATA FBE5FD19FDE1D8FD7500FD7401892
400 DATA FB71023AC491FD77033AC091FD6FE
410 DATA 77041105 00FD19FD22C691C92A510
420 DATA 06 91E5FDE111C892AFED52D81185C
430 DATA FBFFFD19FD22C691FD6E00FD66854
440 DATA 01ED4E02FD7E0332C491FD7E045D2
450 DATA 32C091C36E9879A64779DDA6DD6A6
460 DATA A8C93E00FD8602CB7F2808FD7E629
470 DATA 003DFD7702C9FD7702FD96DD0D65D
480 DATA FD360200C9CB3ACB1BC90000004B2
```

Program II

```
10 REM   Simple pattern designer
20 REM         by Ian C. Sharpe
30 REM Computing with the Amstrad
40 REM ------------ CPC ------------
50 DEFINT a-z:OPENOUT"dummy":MEMORY HIME
M-1:CLOSEOUT
60 md=-1:WHILE md<0 OR md>2:MODE 1:INPUT
"Mode :",md:WEND
70 MODE md:xs=3-md-(md=0):xo=4*xs:nc=2^(
xo/4)-1:cp=2:ncp=1:ox=7:x=7:oy=7:y=7:DIM
mat(15,15),cols(nc)
80 FOR i=0 TO nc:READ cols(i):INK i,cols
(i):PEN i:PRINT CHR$(143):NEXT
90 DATA 13,0,2,6,10,11,12,13,14,15,16,17
,18,19,20,21
100 ORIGIN 200,100:PLOT 0,-4:DRAWR 84*xs
,0,1:DRAWR 0,160:DRAWR -84*xs,0:DRAWR 0,
-160
110 WHILE INKEY(68)<>0
120 IF ncp<>cp THEN LOCATE 2,cp+1:PRINT
CHR$(32):PEN 1:LOCATE 2,ncp+1:PRINT"<":c
p=ncp
130 PLOT x*xo*1.25,y*10,-(mat(x,y)=0):DR
AWR xo,-8:MOVER 0,8:DRAWR -xo,-8:PLOT ox
+xo*1.25,oy*10,mat(ox,oy):FOR i=0 TO 4:D
RAWR xo,0:MOVER -xo,-2:NEXT
140 IF INKEY(47)=0 THEN mat(x,y)=cp:PLOT
 x*xs,200+y*2,mat(x,y)
150 ncp=cp+(INKEY(0)=32)-(INKEY(2)=32) A
ND nc
160 ox=x:oy=y
170 x=ox+(INKEY(8)=0)-(INKEY(1)=0):IF x=
0 THEN x=15 ELSE IF x=16 THEN x=1
180 y=oy+(INKEY(2)=0)-(INKEY(0)=0):IF y=
0 THEN y=15 ELSE IF y=16 THEN y=1
190 WEND
200 LOCATE 1,25:PRINT"Define block";
210 lx=15:ly=15:PRINT CHR$(23)CHR$(1)
220 WHILE INKEY(68)=0:WEND:olx=200:lx=15
:oly=200:ly=15:GOSUB 430
230 WHILE INKEY(68)<>0:olx=lx:oly=ly
240 lx=olx-(INKEY(1)=0)+(INKEY(8)=0):IF
lx=0 THEN lx=15 ELSE IF lx=16 THEN lx=1
250 ly=oly-(INKEY(2)=0)+(INKEY(0)=0):IF
ly=0 THEN ly=15 ELSE IF ly=16 THEN ly=1
260 GOSUB 430
270 WEND:PRINT CHR$(23)CHR$(0)
280 REM ------ write to file ------
290 FOR j=1 TO ly:FOR i=1 TO lx:pat$=pat
$+HEX$(mat(i,16-j)):NEXT:NEXT
300 MODE 2:WHILE INKEY$<>"":WEND
310 INPUT"What do you want to call the s
tring? :",s$:IF LEN(s$)=0 THEN 310
320 INPUT"Line number :",ln$
330 INPUT"Filename :",f$
340 OPENOUT f$
350 line0$=ln$+" "+s$+"="+CHR$(34)
360 IF LEN(line0$)+1+LEN(pat$)<255 THEN
line0$=line0$+pat$+CHR$(34):GOTO 390
370 line1$=LEFT$(ln$,LEN(ln$)-1)+"1"+" "
+s$+"="+s$+"+"+CHR$(34)+RIGHT$(pat$,100)
+CHR$(34)
380 line0$=line0$+LEFT$(pat$,LEN(pat$)-1
00)+CHR$(34)
390 PRINT#9,line0$:PRINT#9,line1$
400 PRINT#9,LEFT$(ln$,LEN(ln$)-1)+"2 REM
 width="lx"height="ly
410 CLOSEOUT:END
420 :
430 MOVE (olx+1)*xo*1.25,-4:DRAWR 0,160,
1:MOVE (lx+1)*xo*1.25,-4:DRAWR 0,160,1
440 MOVE 0,(15-oly)*10:DRAWR xo*21,0:MOV
E 0,(15-ly)*10:DRAWR xo*21,0
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	16896	160	00960	310	19904
20	46304	170	07840	320	59136
30	17120	180	48000	330	57920
40	00512	190	12864	340	30848
50	03136	200	27712	350	55936
60	31296	210	25120	360	02368
70	31168	220	41952	370	28992
80	52736	230	06560	380	14272
90	06752	240	33344	390	41952
100	14016	250	04736	400	48544
110	44960	260	22016	410	04768
120	29856	270	16128	420	12832
130	12832	280	05728	430	39008
140	05536	290	35456	440	04608
150	44640	300	61920	450	27008

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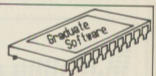

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Learn a lot from the Three Bears

STEVE LUCAS looks at an educational adventure based on a children's fairy story

THE Three Bears is a disc-based adventure with a strong educational content clearly aimed at youngsters aged between 5 and 10. The story line is loosely based on the traditional fairy tale, which may well limit its use with older children.

The game starts with you standing outside the bears' cottage deep in the forest. Inside the cottage, mummy and daddy bear are found crying because baby bear was silly enough to go into the forest alone and get kidnapped by the wicked witch. With only an apple and an orange, you must set out to find the witches' castle and rescue the poor little wretch.

Adventure enthusiasts will be well aware of the need to plot a map showing the locations you visit. In this game, the map has already been drawn and is displayed each time you move to a new location.

It has been kept simple enough for even the youngest player to follow, with only six locations displayed. Only moves along the marked path are allowed, which forces you to go in a sensible direction. Most puzzles are fairly simple and help is provided in the form of hints by Blackie the cat.

Like all adventure games, you must give the micro instructions about what you want to do next. Very young children will have been introduced to lower-case letters at school and should, with a little help, be able to read the text on the screen.

They will, however, probably find some difficulty relating the capital letters marked on the computer's keys to their lower-case equivalent and will certainly need a great deal of time to find their way around the keyboard.

The authors have managed to keep the amount of keyboard input required to a minimum by careful presentation of the choices available to the youngster and have adopted a large clear character set which helps to make it easier to read the text on screen.

Writing an adventure game for such young children is not an easy task. In addition to the programming skills required, close attention must be paid to the reading problems which the children are likely to have.

The authors have managed to create a program in which the language used is simple enough for even a five-year-old to understand with a little parental help, yet exciting enough to keep an older child's interest for quite some time.

The locations are well described and accompanied by high-quality pictures. These are loaded from disc each time a new location is reached. On most occasions the text is held on the screen while the picture is loaded, although at some points the screen stays blank for several seconds.

The music and sound effects are fairly simple, with no attempt made to stretch the machine's potential to its limits. In practice, however, this does not seem to spoil the fun for the children.

Many parents persuaded to buy a home computer for educational reasons will have been sorely disappointed to find little educational software available for the CPC range. A careful glance at the variety of educational software available to owners of the BBC Micro is enough to make an Amstrad user feel like a second class citizen. Even more frustrating is the fact that many of the programs available are badly written and have very little educational value.

This game shows just how useful the adventure format can be in encouraging children to develop skills without them even knowing, and is well up to the standard of similar programs available for other machines. When used with a group it can lead to some stimulating discussion and encourage the sharing of ideas.

Regrettably, for a program of such high quality costing nearly £15, the standard of documentation is very poor. Only a few simple loading instructions are provided, and with this target audience, I would have expected a small story book to set the background to the game, together with colourful leaflets and some information to guide parents and teachers.

Despite these minor criticisms, The Three Bears is, without doubt, one of the best introductory adventure games I have seen on any computer and School Software is to be congratulated on taking this venture into early learning software for the Amstrad range of computers.

Let's hope this is just the first of a whole series of educational adventures. Any parent or teacher looking for an exciting and stimulating package for children between 5 and 10 should take a close look at this program.

Product: The Three Bears
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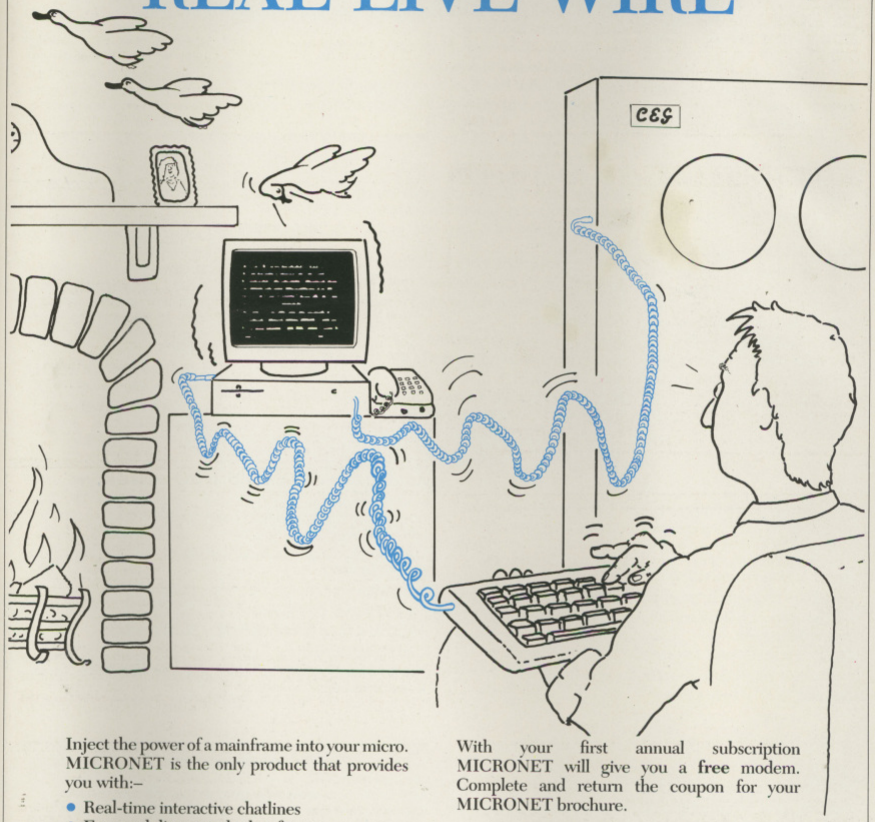

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