Your COMPUTER

► NOVEMBER 1986 VOL. 6 NO. 11

BRITAIN'S BIGGEST-SELLING HOME COMPUTER MAGAZINE

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ATARI ST SUPPLEMENT

HINTS & TIPS ★ SOFT FILE ★ CLUBS ★ NEWS ★ PREVIEWS

With monitor, data £100 of software yo (Until mummy catc



With the Amstrad 464 home computer the fun starts as soon as you get it home.

Because unlike many other home computers the 464 comes complete with its own green screen or full colour monitor.

It also comes with a convenient built-in datacorder.

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corder and u can't lose.

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To help you make the most of your 464, you can join the Amstrad User Club.

And there are lots of books and magazines devoted to it as well.

What's more you can buy joysticks, printers, disc drives, speech synthesisers and light pens to make it even more fun.

But perhaps the most pleasurable thing about the 464 is the price.

The complete home computer costs just £199 with green screen or £299 with colour monitor.

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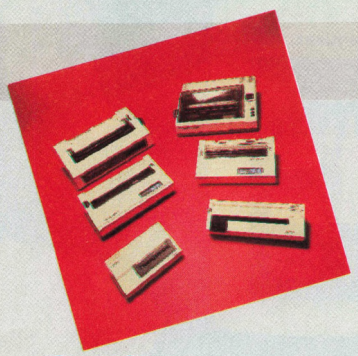

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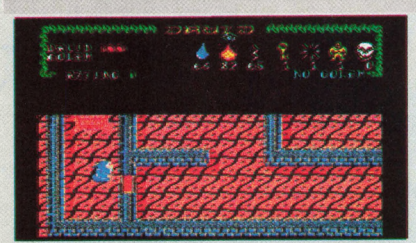

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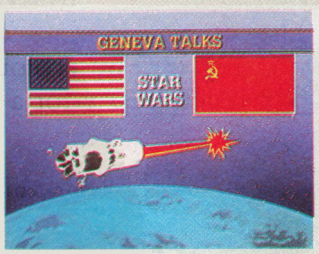

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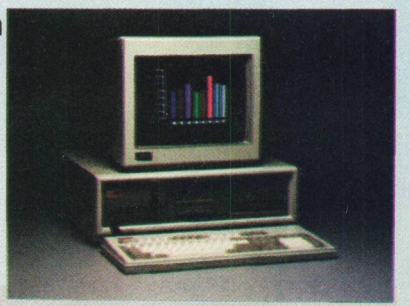

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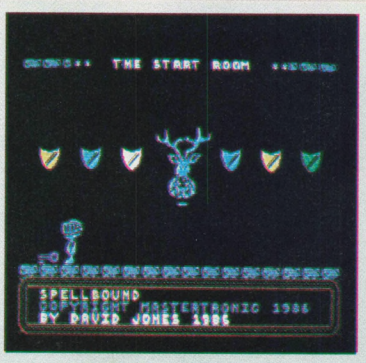

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Turn to page 14 for details of our £1,000 competition.
This month's 25-runner-up prizes are *Your Computer* binders.

Please also remember that no purchase is necessary to enter the instant prize section of this competition and that scratch cards can be obtained by sending a S.A.E. to the *Your Computer* offices at the address on this page.


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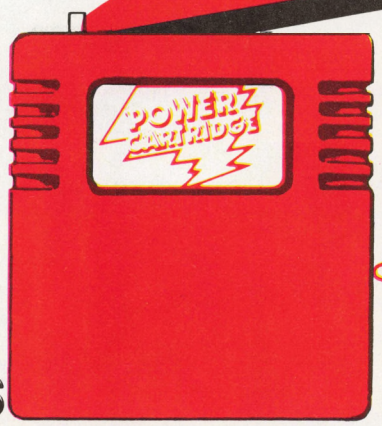

"If you have yet to decide which cartridge you want, and I can assure you that they are becoming essential, then this is possibly the best, yet" Commodore Computing International, July 1986

"I like the Power Cartridge best, mainly because it's slightly easier to use than the Final Cartridge" ZZAP 64 July 1986

KCS

BASIC TOOL KIT

27 extra commands, AUTO, AUDIO, COLOR, DEEK, DELETE, DOKE, DUMP, FIND, HARDCAT, HARDCOPY, HEX$, INFO, KEY, PAUSE, PLIST, ILOAD, RENUMBER, REPEAT, SAFE, TRACE, UNNEW, QUIT, MONITOR, BLOAD
RENUMBER: *Also modifies all the GOTO's GOSUB's etc. Allows part of a programme to be renumbered or displaced.*
PSET: *Set up of printer type.*
HARDCAT: *Prints out Directory.*

DISC & TAPE TURBO

Loads & Saves tape 10 times faster and disc six times.

POWER MONITOR

leaves all of your Commodore memory available for programming. Also works in BASIC-ROM, KERNAL and I/O areas.
A Assemble; C Compare; D Disassemble; F Fill; G Go; H Hunt; I Interpret; J Jump; L Load; M Memory; P Print; R Register; S Save; T Transfer; V Verify; W Walk; X Exit; $ Directory DOS Commands

PRINTER INTERFACE

Compatible with Serial/Centronics Printers.
The HARD COPY function automatically distinguishes between HIRES and LORES. Multi-colour graphics are converted into grades of grey. The PSET functions allow you to decide on Large/Small and Normal/Inverse printing.

RESET & FREEZE

Press Reset button and SPECIAL MENU apears on screen **CONTINU** - *Allows you to return to your program.* **BASIC** - *Return to BASIC* **RESET** - *Normal RESET.* **TOTAL BACKUP DISK**- *Saves the contents of the memory onto a Disk. The programme can be reloaded later with BLOAD followed by CONTINUE.* **RESET ALL** - *RESET any of programme.* **TOTAL BACKUP TAPE** - *As BACKUP DISK but to TAPE.* **HARDCOPY** - *At any moment, prints out a Hardcopy of the screen. Using CONTINUE afterwards you can return to the program.* **MONITOR** - *Takes you into the Machine language Monitor.*

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ATARI ST

Power Without The Price!

520ST PACKAGES

The 520ST-M keyboard costs only £346.96 (+VAT=£399) and includes an RF modulator and cable, allowing you to connect it to an ordinary domestic TV set. The keyboard is supplied with 512K RAM, a mouse and a free set of 3½" disks containing applications software. For a limited period from August 11th 1986, we have some special packs offering combinations of the 520ST-M keyboard with a ½ Mbyte SF354 Atari disk drive and an Atari monitor (either the Mono SM124, or Colour CM36512). These packages offer up to £200 extra discount on a system. If purchased from Silica, they also come with our free 'ST STARTER KIT'. All of the pack prices shown in the chart include VAT.

UPGRADE TO 1024K RAM

We are pleased to be able to offer a 1Mbyte upgrade on the standard 520ST keyboard to increase the memory from 512K to a massive 1024K. It has a full 1 year warranty and is available from Silica at an additional retail price of only £86.96 (+VAT=£100). Any of the five packs can be upgraded to 1Mbyte for only £100. The 1Mbyte ST offers a low price alternative to the 1040, but also gives you the benefit of an RF modulator (not normally fitted on the 1040).

		PACK 1	
£100 DISCOUNT 1 DISK DRIVE	ALL PACK PRICES INCLUDE VAT	Keyboard	£399
		Disk Drive	£149
		Normal Price	£548
		Discount	£100
		Pack Price	**£448**

	PACK 2 (MONO)		PACK 3 (COLOUR)	
£150 DISCOUNT 2 DISK DRIVES + MONITOR	Keyboard	£399	Keyboard	£399
	Disk Drive	£149	Disk Drive	£149
	Disk Drive	£149	Disk Drive	£149
	Mono Monitor	£149	Colour Monitor	£299
	Normal Price	£846	*Normal Price*	£996
	Discount	£150	*Discount*	£150
	Pack Price	**£696**	**Pack Price**	**£846**

	PACK 4 (MONO)		PACK 5 (COLOUR)	
£200 DISCOUNT 2 DISK DRIVES + MONITOR + PRINTER	Keyboard	£399	Keyboard	£399
	Disk Drive	£149	Disk Drive	£149
	Disk Drive	£149	Disk Drive	£149
	Mono Monitor	£149	Colour Monitor	£299
	Printer (SMM804)	£199	Printer (SMM804)	£199
	Normal Price	£1045	*Normal Price*	£1195
	Discount	£200	*Discount*	£200
	Pack Price	**£845**	**Pack Price**	**£995**

REDUCED PRICES

Atari's ST personal computers are now firmly established both in the USA and Europe. The main attraction of the ST range is the value for money which these computers represent, giving both private and business users a powerful asset at a very modest price. There are now several ST packages available from Silica at a reduced price, further enhancing the Atari 'Value for Money' reputation. In addition, we are giving away a FREE Silica 'ST STARTER KIT' with every 520 or 1040 ST purchased at Silica Shop. These offers will only be available for a limited period and commence on 11/8/86.

POWER FOR BUSINESS

The list below shows some of the new business products which have been recently launched for the Atari ST range. It gives an indication of the ST's potential to business buyers looking to install a powerful, low-cost system:

CP/M EMULATOR
20Mbyte HARD DISK
LOTUS 123™ CLONE
dBASE III CLONE
IBM COMPATIBILITY
VT100 EMULATOR
MICROSOFT WRITE
dBASE II

Any ST computer will provide its user with a very powerful asset, utilising a vast range of applications, particularly in the business world. Many software companies have been quick to recognise it for its business potential, and have produced programs for the ST which harness this potential. In addition, there are several peripheral and hardware products becoming available to add to the ST's 'Power For Business'. Software now available includes dBMan, a dBASE III clone as well as H&D Base, a dBASE II clone. In fact, First Software have now launched Ashton Tate's original dBASE II program for the ST. In addition, PC Intercomm is a VT100 emulator which enables you to use any ST keyboard as a terminal connected to a mainframe or mini. Other programs include a powerful accounts package by Cashlink and a Lotus 1-2-3™ clone called VIP Professional. Microsoft have announced that their powerful word processor 'Microsoft Write' will soon be available for the ST. Many packages are available for very specific market applications including a powerful CAD (Computer Aided Design) program called Easy Draw from Migraph. In addition, there is an engineering tool called PC Board Designer by Abacus Software which will enable the user to design printed circuit boards. For further details of how the ST can help in your business, return the coupon below. We will be pleased to send you our latest newsletter and price list.

PRICE MATCH PROMISE

We hope you will find that the combination of our low prices, FREE delivery service, FREE Starter Kit and after sales support, will be enough to make you buy your Atari equipment from Silica Shop. If however, there is something you wish to purchase, and you find one of our competitors offering it at a lower price, please contact Owen Pascoe (Office Manager), or one of the telesales staff in our sales department. When you telephone us, please provide us with our competitors name, address and telephone number. Providing our competitor has the goods in stock, we promise to match his offer (on a 'same product - same price' basis) and still provide you with our normal free delivery. You will also be entitled to our full after sales service, including free newsletters and technical helpline support. We don't want you to go anywhere else for your Atari products. So shop at Silica, the U.K.'s undisputed No1 Atari specialist.

FREE SOFTWARE

When you buy a 520 or 1040 ST computer keyboard from Silica Shop, you will receive a large and varied software package free of charge. This package consists of twelve programs. Wherever you purchase your Atari ST computer, you should receive the first six software titles as standard. However, if you purchase your ST from Silica, you will also receive a further six extra titles, giving you a total of twelve. All ST's now have TOS/GEM already installed on ROM, so the list of free software you should receive is as follows:

1) GEM - *DR Desktop environment with WIMP (fitted in ROM)*
2) TOS - *Tramiel Operating System (fitted in ROM)*
3) 1st WORD - *Word Processor by GST using GEM*
4) BASIC - *Personal Basic by DR (with manual)*
5) LOGO - *Logo language by DR (with manual)*
6) NEOCHROME - *A powerful colour paint and graphics package (only useable with colour systems)*

If you purchase your ST from Silica, not only will you receive the standard six pieces of software as listed above, but we will also give you the following six additional programs FREE OF CHARGE:

7) MEGAROIDS - *Asteroids type game by Megamax*
8) DOODLE - *Simple paint/doodle drawing package (works on mono or colour systems)*
9) CP/M EMULATOR - *Allows use of DR's Z80 CP/M software to run on the ST range*
10) CP/M UTILITIES - *Various utilities to use with CP/M*
11) DEMONSTRATION & PUBLIC DOMAIN SOFTWARE - *Various games, demos and accessories*
12) CARDS - *A unique set of card games from Microdeal*

These additional free software titles are all part of the FREE Silica 'ST STARTER KIT', return the coupon below for further details.

FOUR FREE MANUALS

In addition to the free software which will be given to you when you buy your ST from Silica, you will receive four free manuals:

1) **ST OWNERS MANUAL (80 pages):** *Easy access to the information you require to unpack, set-up and become familiar with the ST.*
2) **ST BASIC SOURCE BOOK & TUTORIAL (240 pages):** *Gives you the information to increase your level of programming expertise.*
3) **ATARI LOGO SOURCE BOOK (77 pages):** *A source book for Logo, showing how to use the language in the GEM environment.*
4) **1st WORD MANUAL (48 pages):** *Instructions for 1st Word.*

ST NEWSLETTER

8 PAGES OF INFORMATION TO HELP YOU TO DECIDE
RETURN THE COUPON FOR A FREE COPY

1040ST-F

For the businessman and the more serious home user, there is the 1040ST-F with 1028K RAM. This can be used in a business environment as a stand-alone system, or can support a mainframe computer as a terminal. The 1040ST-F keyboard with integral 1Mb disk drive costs only £699 (+VAT=£803.85). As the 1040ST-F was manufactured solely with business use in mind, it does not come with an RF modulator for use with a domestic TV. Instead, it requires a monitor. There are three Atari monitors available and the prices for the 1040 with these monitors are as follows:

1040 Keyboard Without Monitor - ***£699*** *(+VAT= £803.85)*
1040 Keyboard + High res mono monitor - ***£799*** *(+VAT= £918.85)*
1040 Keyboard + Low res colour monitor - ***£899*** *(+VAT=£1033.85)*
1040 Keyboard + Med res colour monitor - ***£999*** *(+VAT=£1148.85)*

The 1040ST-F includes 1Mbyte of RAM as well as a 1Mbyte double sided disk drive and mains transformer, both built into the keyboard to give a compact and stylish unit, with only one mains lead. The 1040ST-F is supplied with a set of software disks as well as our own FREE Silica 'ST STARTER PACK'. Call into your nearest branch of Silica Shop for a demonstration.

1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX
117 Orpington High Street, Orpington, Kent, BR6 0LG
Lion House (1st floor), 227 Tottenham Court Rd, London, W1
Selfridges (1st floor), Oxford Street, London, W1A 1AB

£699

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At Silica we have been successfully dedicated to Atari ever since their products first appeared on the UK market. We can attribute our success largely to the Atari specialisation which we practice and to the user back-up we provide. Rest assured that when you buy a piece of Atari hardware at Silica you will be fully supported. Our mailings giving news of software releases and developments will keep you up to date with the Atari market and our technical support team and sales staff are at the end of the telephone line to deal with your problems and supply your every need. With our specialist bias, we aim to keep stocks of all the available Atari hardware, software, peripherals and accessories. We also stock a wide range of Atari dedicated books and through us, the owners on our list can subscribe to several American Atari dedicated magazines. We can provide a full service to all Atari owners and are now firmly established as the UK's NUMBER ONE Atari specialists. Here are just some of the things we can offer to our customers.

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If you would like to be registered on our mailing list as an Atari computer owner, or as a person interested in buying an Atari machine, let us know. We will be pleased to keep you up to date with new Atari developments free of charge. So, return the coupon today and begin experiencing a specialist Atari service that is second to none.

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Do you already own a computer
If so, which one do you own? .....

COMMENT

The C suffix which marks the latest version of the Commodore 64 computer is appropriate because it is the machine which will carry the Commodore battle flag into the fight for sales this Christmas. Whether the C stands for Christmas or for the Compendium pack Commodore has built round the new machine, the company faces stiff opposition in the form of the two Amstrad computers which straddle the price point of the Compendium pack neatly.

At £250, the collection of computer, cassette recorder, mouse and recreational software is under-cut but some £100 by the Sinclair/Amstrad Spectrum Plus Two. The range of CPC machines, both cassette- and disc-based, is slightly more expensive than the CBM pack but offer the new user a monitor as part of the system.

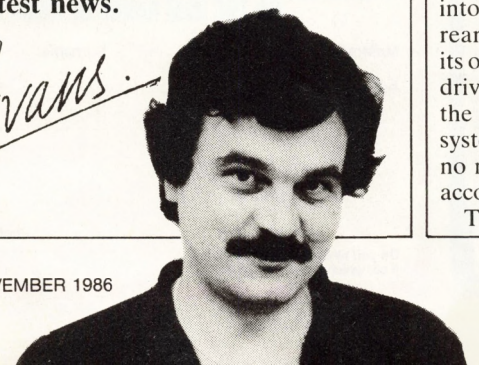
The Commodore and Amstrad computers mentioned thus far are all designed to appeal to the new computer user rather than to people wishing to upgrade their existing hardware. There would be little point in trading a CBM64 for the new C version as, with the exception of the casing, the new machine differs little from the older design. A similar argument applies to the Spectrum Plus Two. Those wishing to swap their existing computers for more powerful hardware will have no shortage of new machines designed to appeal to them.

The Atari ST range of computers will appeal to many potential upgraders. It offers a powerful 16-bit processor, complemented by an operating system and graphics environment to allow software houses to produce applications software which out-performs similar packages running on 8-bit hardware.

As a games machine the ST can also produce some stunning effects. Yet another choice for the upgrader will be a PC system. With the price of PC hardware now below the £500 level, those machines are now a real alternative to the traditional home computer systems.

In this issue of *Your Computer* we review both the 64 Compendium pack and present a supplement based on the Atari ST computer. For the next issue we are preparing an extensive survey of the sub-£500 computer market. Whether you are thinking of buying a new computer or upgrading an existing system, make sure that you continue to read *Your Computer* for the latest news.

Gary Evans



ROMBO – FIRST BLOOD ON AMSTRAD



Rombo Products, the company responsible for one of the earliest ROM boards for the CPC range of Amstrads, has announced a new video digitiser for the CPC 464/664 and 6128 range of Amstrad computers. Called Vidi, it uses a standard one-volt composite video signal for input and can frame-grab in either mode 1, with four shades, or mode 2 with two shades.

The video input is measured in terms of grey scale – amplitude – and colours are not represented directly. Vidi contains its own CRT controller, as well as 16K of video RAM. That enables it to grab a single frame from a moving video or camera. On completion of the grab in approximately 40 milliseconds including synchronisation, the Vidi RAM is then read into the computer RAM.

Contrast and brightness can both be controlled by the user and the 16 digital levels can be controlled via the software provided. The software also allows the user to save all the screens or dump them to an Epson-type printer.

For more information contact Rombo Productions on 0506 39046.

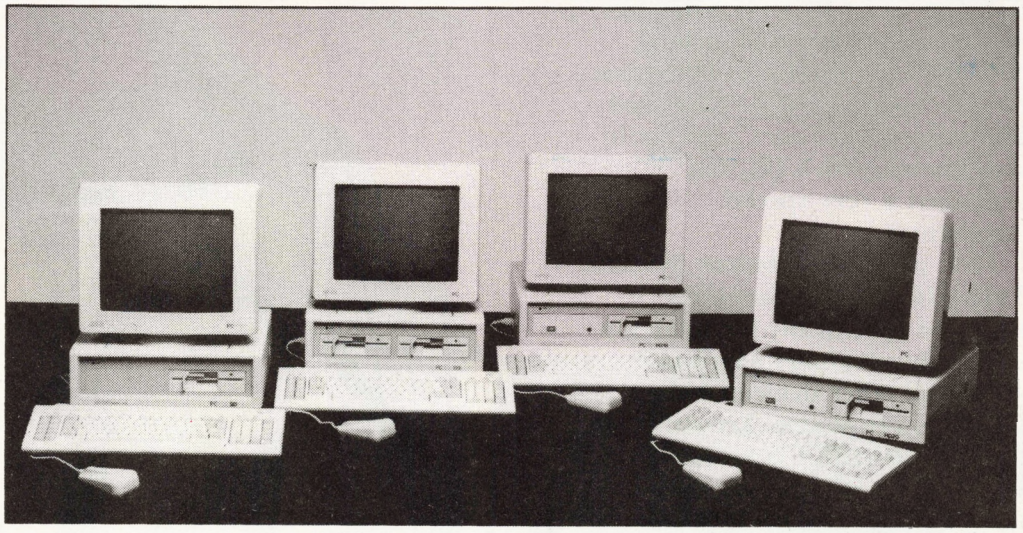
HARD DRIVE FOR JOYCE

ASD Peripherals has launched a 10MB hard disc for the Amstrad PCW 8256/8512. The external unit is described as being simple to install; it plugs into the expansion port at the rear of the computer and has its own power supply. The hard drive is designed to fit under the monitor unit of the PCW system, meaning that there is no need to clear desk space to accommodate the unit.

The drive is supplied with an enhanced version of the CP/M-Plus operating system, of which the disc drive software is an integral part. That software includes a disc format program featuring a bad sector handler which ensures trouble-free operation of the add-on. The 10MB version of the drive retails at £499 plus VAT with a 20MB version available at £599 plus VAT.

For more information contact ASD on 03224 49235/6.

USER GROUP FOR 1512



With the launch of the Amstrad range of personal computers, no time has been wasted in forming a 1512 Independent User Group. As many purchasers of the new computer are likely to be small businesses buying a PC for the first time, there will be a demand for the type of after-sales service normally associated with more expensive computers.

The Amstrad package, while being good value, includes no after-sales support, which is left to the respective dealers to organise and arrange. The group intends to provide members with advice on selection and purchase of hardware and software, useful tips on how to get the most from the 1512, and warnings of software bugs, as well as providing technical help if it is needed.

The group chairman and founder is Paul Mullen, a computer consultant who has been involved actively in the running of the CP/M User Group and is a member of the PC User Group. It is hoped that the new group will combine the best features of the other two, serving ultimately as an independent centre for unbiased advice on software and peripherals.

Other services offered include a regular newsletter, a helpline service to help solve members' problems, access to 500 volumes of public domain software, and regular discount offers for software, peripherals and services.

The group will be organised on a regional basis, with local meetings providing a forum for members to discuss problems and experiences. The annual membership fee is £20.

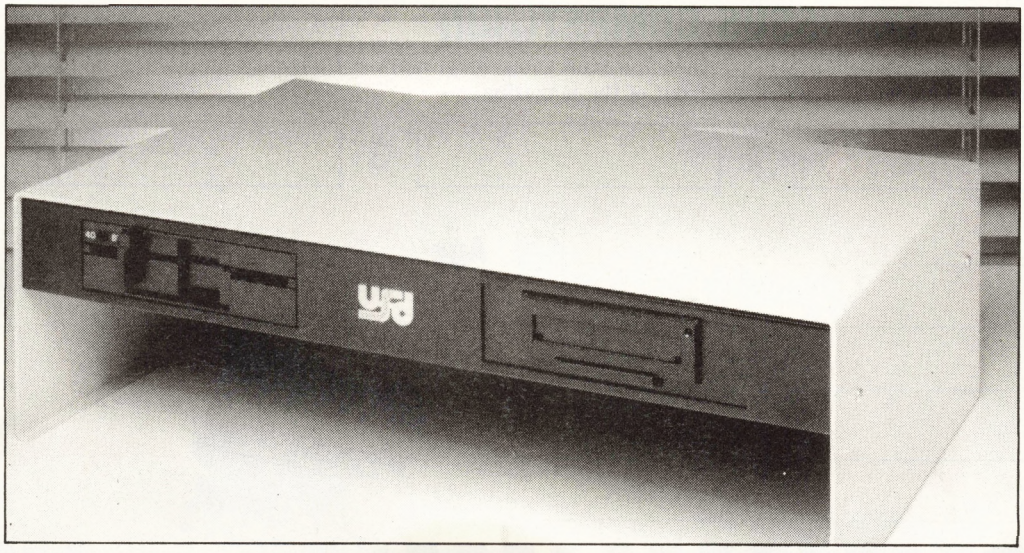
Archive alternative from Akhter

Akhter, a company with nearly 10 years' experience in the PC market, has announced a new disc drive and hard disc back-up system for the BBC range of computers. Called Archive, it consists of a 1MB floppy disc drive, together with a 10MB tape streamer for back-up storage of external hard discs.

As Archive connects to the standard disc port on the BBC, it allows the user to connect a variety of hard discs to the 1MHz bus. To enable the Archive to be used by anyone, Akhter has provided some excellent controlling software which allows not only for backing-up Winchester drives but, alternatively, its hierarchical structure enables it to back-up any of the individual directories or individual files.

To facilitate use as a normal drive, Archive includes a 1MB unformatted 40/80-track switchable floppy disc drive. The entire unit fits in a neat stand which will double as a monitor stand.

For more information contact Akhter on 0279 443521.



Software scheme

A scheme is being launched in the north-east to help promising young programmers write saleable software. The scheme has been devised by Cliff Walden-Goodwin, of KBS Interactive Software, who believes talents are being wasted because of the pressures and amount of money needed to embark successfully on a freelance career.

Initially, four young programmers will be offered office facilities and working space in the Software Factory for a weekly rent of £12.50 but the renting of computers is also planned as part of the KBS scheme.

Each programmer will be provided with his own workspace and desk, with heating, lighting and the telephone charges included in the weekly rent. Each individual will be self-employed but it is hoped that business will be generated between the Software Factory and KBS.

WIN A COMPUTER-CONTROLLED CHESS SET

In the computer games world, there is only one British strategy game which can claim to have taken on all comers, and won, and that is *Colossus Chess* by CDS Software. To celebrate sales approaching 100,000, and the release of the game for the Spectrum 48K, 128K and Plus computers, *Your Computer*, in conjunction with CDS, has organised a very special competition.

First prize is a fabulous Systema Turbo 16K Chess computer. Designed specifically for table-top play, it has features which put almost all other dedicated chess computers to shame. Second prize is an Express 16K Chess computer. Completely portable, the game allows complicated chess to be taken on the move.

Even if you do not win one of the major prizes, there are still 10 copies of *Colossus Chess* to be won by runners-up.

To win, all you need to do is answer three simple questions and send your answers, together with what computer you own, to *Your Computer*, 79-80 Petty France, London SW1H 9ED. The winner and runners-up will be the first 12 correct answers drawn from all those received by the closing date of the competition, November 30, 1986.

QUESTIONS

1. ***Which two Soviet giants recently battled in London for the World Chess Championship?***
2. ***Who is the youngest Grandmaster ever?***
3. ***How many moves per second does* Colossus Chess *examine?***

COMPETITION RULES

- ★ The winners of the competition will be the persons who send the first all-correct entries drawn from all those received before the closing date of the competition.
- ★ The names of the winners will be announced in the January 1987 issue of *Your Computer*.
- ★ All entries must arrive at the *Your Computer* offices by the last working day in November, 1986.
- ★ Each person may enter the competition only once.
- ★ Entries to the competition cannot be acknowledged.
- ★ No employees of Focus Investments nor their agents or close relatives may enter the competition.
- ★ The decision of the Editor in all respects of the competition will be final.
- ★ No correspondence with regard to any aspect of the competition will be entered into.
- ★ Focus Investments assumes no responsibility or liability for any complaints arising from this competition.

COLOSSUS COMPETITION

Do not forget to enclose this coupon, or a photocopy of it, when you send your entry, marked Colossus Competition, to the *Your Computer* editorial offices at the address shown at the front of the magazine.

Answers 1 _____ 2 _____ 3 _____

Name _____ **Age** _____

Address _____

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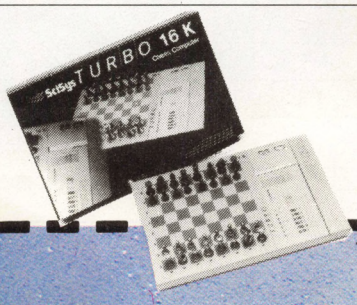
Day Tel. No _____



This chart is based on the *MicroScope* chart as compiled by Gallup.

MicroScope GALLUP

MicroScope is the weekly trade paper of the microcomputer industry. If your computer store doesn't display the latest *MicroScope* chart, ask the manager to call Mark Salmon on 01-631 1433 — we'll send a copy every week.

THE CHARTS

TOP 20

1	PAPERBOY	ELITE	SP
2	DRAGON'S LAIR	SOFTWARE PROJECTS	SP CO
3	ACE	CASCADE	SP CO V2 C1
4	GHOSTS AND GOBLINS	ELITE	SP CO AM C1
5	SUPER CYCLE	EPYX/U.S. GOLD	CO
6	DAN DARE	VIRGIN	SP CO AM
7	KNIGHT RIDER	OCEAN	SP CO
8	JACK THE NIPPER	GREMLIN GRAPHICS	SP CO AM MS
9	GREEN BERET	IMAGINE	SP CO AM
10	TRIVIAL PURSUIT	DOMARK	SP CO AM BB
11	PARALLAX	OCEAN	CO
12	LEADERBOARD	ACCESS GOLD	CO AT
13	YIE AR KUNG FU	IMAGINE	SP AM CO C1
14	KUNG FU MASTER	DATA EAST/U.S. GOLD	SP CO AM
15	DYNAMITE CAN 2	MIRORSOFT	SP
16	COMMANDO	ELITE	SP CO AM M B
17	KNIGHT GAMES	ENGLISH	CO AM
18	NIGHTMARE RALLY	OCEAN	SP
19	INTERNATIONAL KARATE	SYSTEM 3/ ENDURANCE	SP CO AM
20	ELITE	FIREBIRD/ACORNSOFT	BB EL CO SP

BUDGET TOP TEN

1	SPEED KING	MASTERTRONIC	AM CO C1 MS
2	THRUST	FIREBIRD	SP CO AM AT BB
3	NINJA	MASTERTRONIC	CO AT MS
4	NINJA MASTER	FIREBIRD	SP CO AM MS
5	KANE	MASTERTRONIC	SP CO AM BB
6	GO FOR GOLD	AMERICANA	CO
7	FORMULA ONE SIMULATOR	MASTERTRONIC	SP CO AM AT C1 MS
8	KIK START	MASTERTRONIC	CO AT C1
	MOLECULE MAN	MASTERTRONIC	CO AM MS
10	HOLE IN ONE	MASTERTRONIC	CO C1 MS

BUBBLING UNDER

STORM	MASTERTRONIC	SP AM
GLIDER RIDER	QUICKSILVA	SP
JEWELS OF DARKNESS	RAINBIRD	SP CO AM AT MS
PSYCASTRIA	AUDIOGENIC	BB EL
HEAD COACH	ADDICTIVE	SP
HAPPIEST DAYS	FIREBIRD	SP CO
HOLLYWOOD OR BUST	MASTERTRONIC	CO
IRIDIS ALPHA	HEWSON CONSULTANTS	CO
ALLEYKAT	HEWSON CONSULTANTS	CO

MACHINE CODES:
SP = SPECTRUM; CO = COMMODORE; AM = AMSTRAD; MS = MSX; AT = ATARI; V2 = VIC20

Your COMPUTER

AUTUMN GOLD

TREASURE HUNT

Rules and Instructions

The Autumn Gold Treasure Hunt Competition continues this month with part two. The second special treasure hunt card to be given away is on the front of this issue. The final part will appear in the December *Your Computer*. If you missed part one, don't worry. A back issue of *Your Computer* can be purchased for £1.50 from Back Issues Dept., Your Computer, 79-80 Petty France, London SW1H 9ED. (Alternatively by sending a SAE to the same address you can receive a photocopy of the competition pages). By collecting the cards, using the numbers and solving the three picture puzzles, you could find the secret location of the hidden treasure chest and win the first prize of £1,000. There are also 25 instant prizes offered each month, with the chance to win more prizes in the New Year.

Before you attempt to uncover any of the boxes, read the instructions on the card carefully. There are three possible ways to win. The first involves revealing the hidden boxes on your card by scratching off seven of the eight gold leaves, taking care to leave one intact. When you have done that, if there are six numbers plus one instant prize token (a picture of a £1 coin) you have a winning treasure hunt card.

To claim your prize, send your card with your name and address and details of where you bought the magazine to *Your Computer*, 79-80 Petty France, London SW1H 9ED, remembering to keep a record of the numbers on your card. Details of this month's instant prizes are to be found on the contents page. Remember that to claim using this method you must NOT have uncovered a black leaf under the gold.

If you have removed all 8 of the gold leaves on your card you still have a chance of winning an instant prize. Provided that one of the boxes you have revealed contains an instant prize token you can save it and try to collect another card with an instant prize token on it, thereby creating another winning combination. The January, 1987 issue of *Your Computer* will have details of the prizes and how to claim using this method.

Whether or not your treasure hunt card entitles you to one of the instant prizes, it always contains a set of six numbers which will help in your quest for the hidden treasure. Each month there will be a different set of numbers to uncover which relate to that month's picture puzzle.

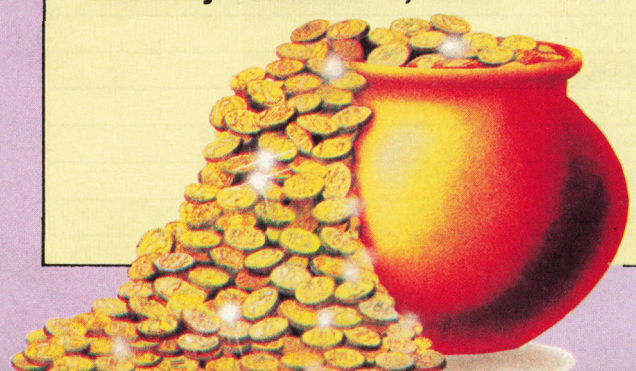
Study the picture opposite carefully. There is a way of using the numbers from your card and the clues in the picture to find a single *clue* word somewhere – not in the picture or on the card. Quite simply the picture leads to a source of information and the numbers lead to a specific item within that source. What to do with the numbers is also contained in the picture. The source of information can be found in any good bookshop or public library or viewed at the *Your Computer* offices. You must telephone us first to tell us what it is you require so that we can ensure nobody gains an unfair advantage. Once we have checked your solution we will arrange for you to view the relevant information. Each month ultimately leads to a single word and the three words will tell you where the treasure is hidden. Write and tell us the secret location and the first correct answer out of the hat will win the £1,000 prize.

Competition Rules

The winner of the competition will be the first correct answer drawn from the hat.

The name of the winner will be announced in the February issue of *Your Computer*.

All entries must arrive at the *Your Computer* offices by December 19, 1986.



Only one entry per household.

Entries to the competition cannot be acknowledged.

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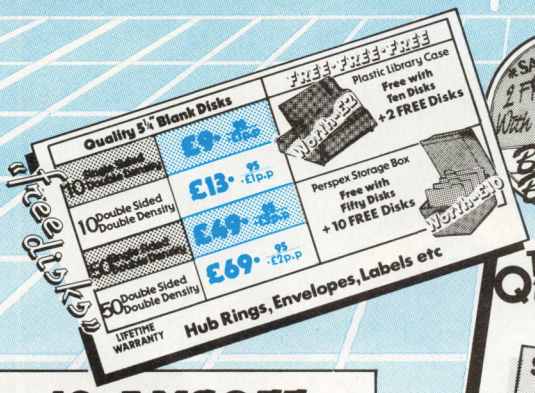





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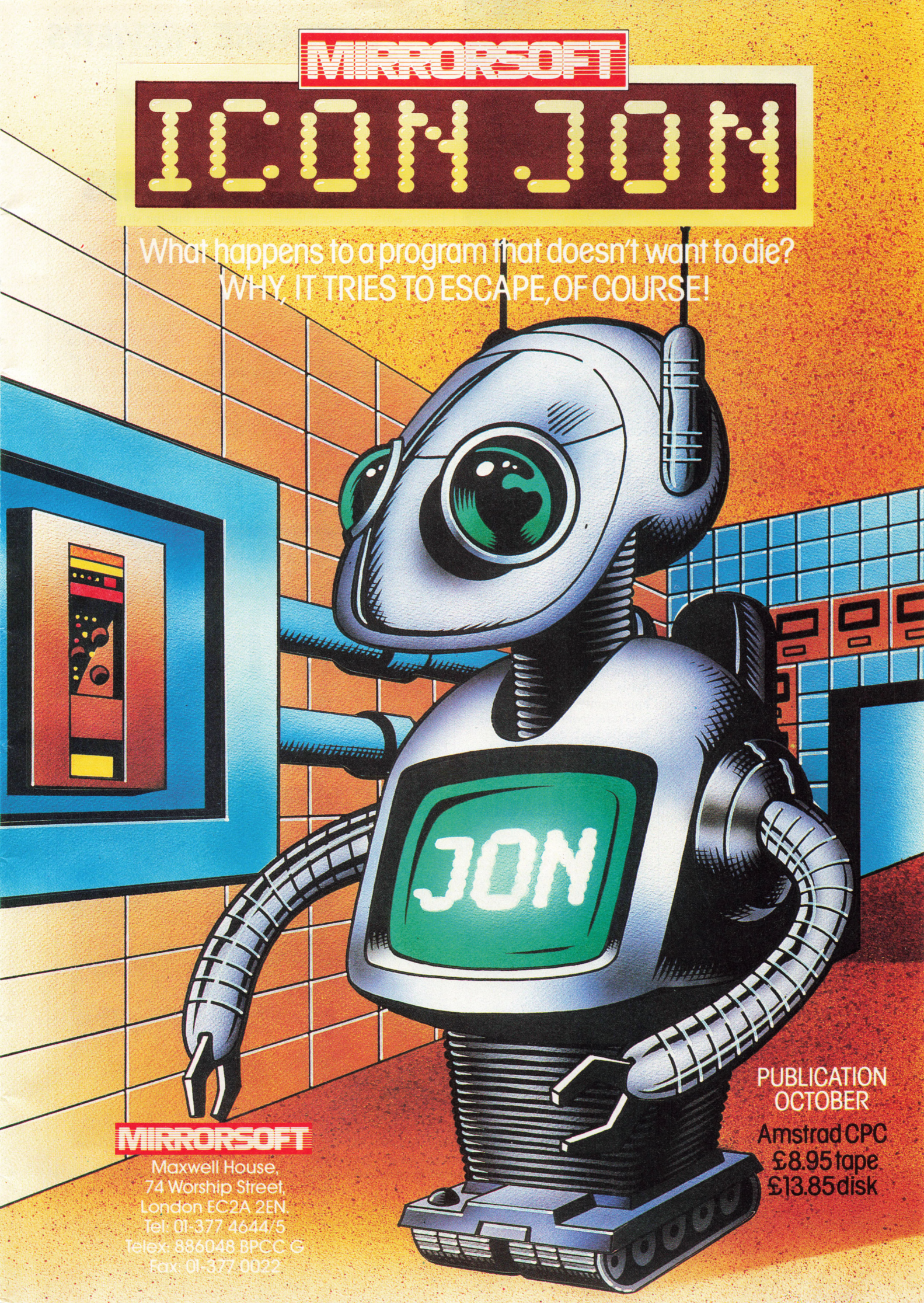

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SNOW JOKE

Hot on the heels of the recent *Colossal Trilogy*, Rainbird is due to release the Level 9 *Snowball Trilogy*. Completely revamped into the new Level 9 format, the graphics, new parser system and multi-tasking the adventures should please most people.

Of the three – *Snowball*, *Return To Eden* and *Worm In Paradise* – Snowball still ranks as one of my favourite adventures. Set aboard the enormous space ship Snowball you are awakened from suspended animation. The only reason it should happen is because the ship is malfunctioning. Your task is to put things right and have headaches and fun doing it. The usual conglomeration of assorted problems, good text descriptions and a well-thought-out storyline all go to making it one of the Level 9 classics.

Return to Eden is the follow-on from Snowball. Having landed the ship you must escape before it leaves the planet, a problem which has puzzled countless adventurers ever since Austin devised it.

Once having solved the initial problem you are then able to explore the planet. This adventure is not easy; with more than 200 locations and as many problems it will be some time before you reach your eventual goal.

Eden represented the advent of graphics from Level 9. Put in solely for commercial reasons, they do nothing to enhance the game but the excellent game play compensates for this otherwise wasted space.

The last game in the trilogy once again concentrates on the exploits of Kim Kimberley, albeit somewhat removed from the original person. Setting out to reach the pinnacle of power, the game twists and turns at every opportunity.

Overall what Level 9 and Rainbird are doing is commendable.

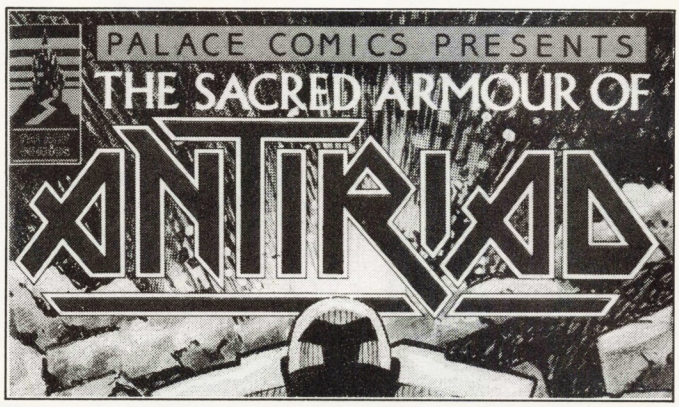
Palace returns

Palace Software has released only two games to the public, *Cauldron* and *Cauldron II*. Each took almost a year to complete and were rewarded by a coveted number one spot, both in the U.K. and across Europe. When, therefore, Palace releases a new program, less than five months after its previous release, the world should take note.

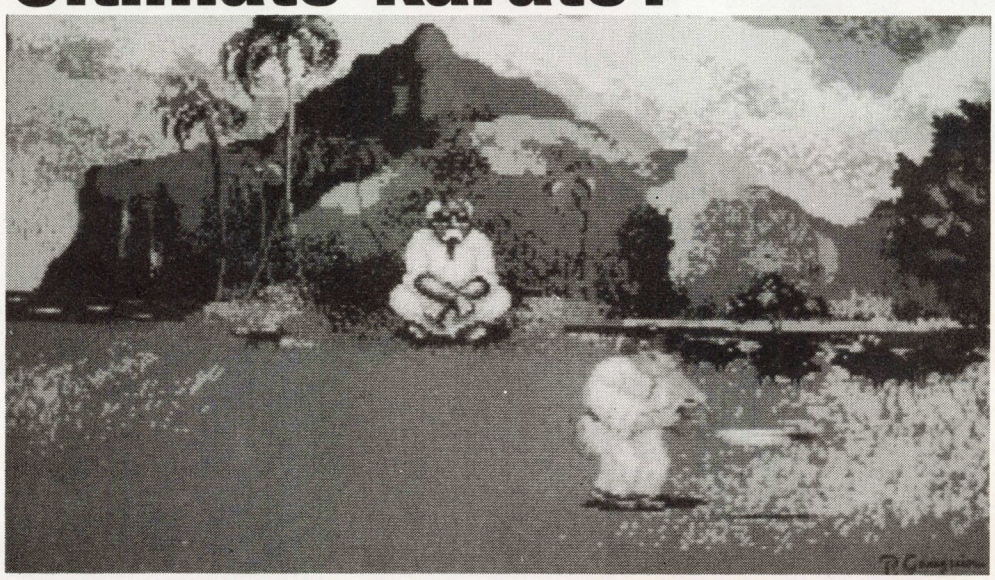
Called *The Sacred Armour Of Antiriad*, the game is an arcade adventure, not of amazing size but with the most impressive graphics yet seen from this software house. Dan Malone, the cartoonist responsible for not only the graphics but the story and the accompanying comic, has managed to create, within the limitations of Commodore sprites, some amazing character shading and definition.

The game involves travelling round a volcano-shaped area, collecting various sections of the legendary Armour of Antiriad. Finding the armour is not too difficult but finding the boots which allow you to fly it is another story.

Released on the Commodore, Spectrum and Amstrad, the game will retail at £8.99 and is worth every penny.

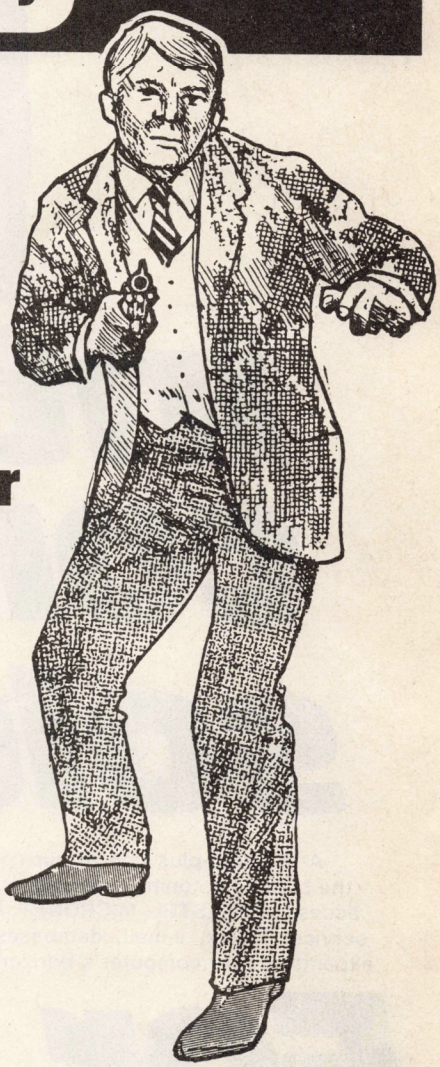


Ultimate karate?



Here is the first screen shot of the latest karate game from System 3. Called *The Last Ninja*, it promises to be even better than *International Karate*, the other karate game from System 3. With graphics by computer artist Bob Stevenson, the man responsible for the amazing *Druid* loading screen, the game promises to breath new life into a tired genre.

WE'VE GOT YOU COVERED



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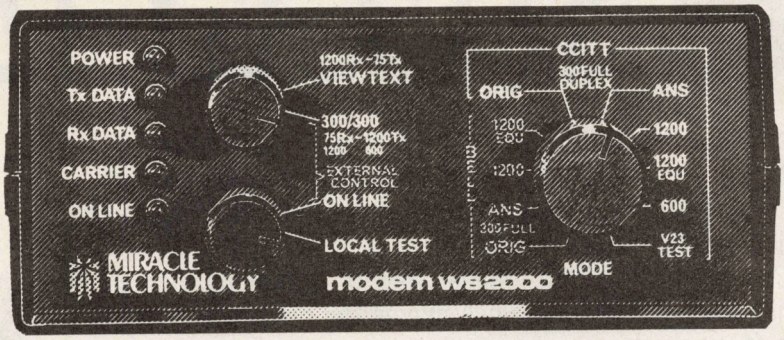

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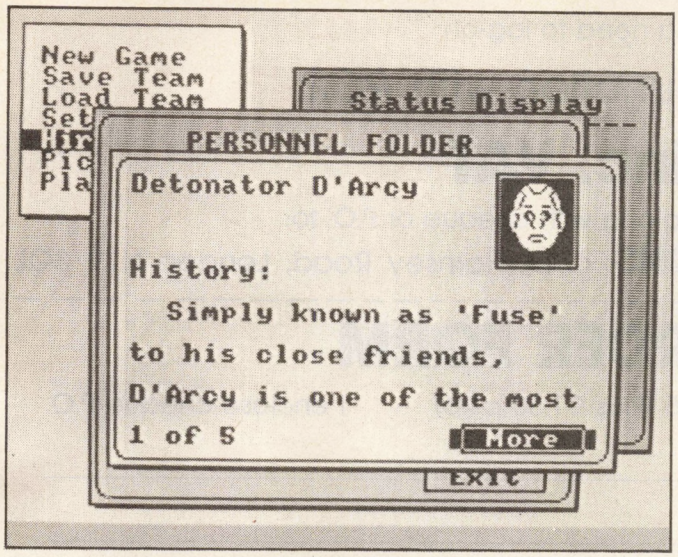


Snatch and grab from Ariolasoft

They Stole A Million is the latest game from Ariolasoft and it promises to do to budding thieves what *Golf Construction* did to junior golfers. Designed by the same team, Tigress, although programmed by a different company, TSAM allows you to choose your team, plan your target and then, in arcade mode, execute the job.

Using an icon-driven environment, together with some witty and well-placed remarks, the appeal of the game is widespread and it should be a great success. To be released soon, TSAM will be available for the Commodore, Amstrad and Spectrum.



This picture shows Christopher Thompson, winner of the *Your Computer* Who Dares Wins competition, collecting his prize from Mike Mahoney of Alligata and editor Gary Evans.

May the Force be with you

When Elite found it could not program *Scrooby Doo* for the Spectrum, it turned to Gargoyle Games, which produced a really good game which will appeal to fans of the TV series as well as games fans. When, therefore, Gargoyle announces a new software house which will release more arcade games than Gargoyle, everyone should take note.

FTL is the new company and its first release, *Light Force,* shows a great deal of promise. Although basically a shoot-'em-up, the game should be a great success and will be reviewed in December.

Epyx is champion

No amount of drum-beating could prepare the Commodore 64 world for the arrival of the latest in the Games series from Epyx, released in the U.K. by U.S. Gold. If you thought *Summer Games II* and *Winter Games* were good, then you are in for a treat.

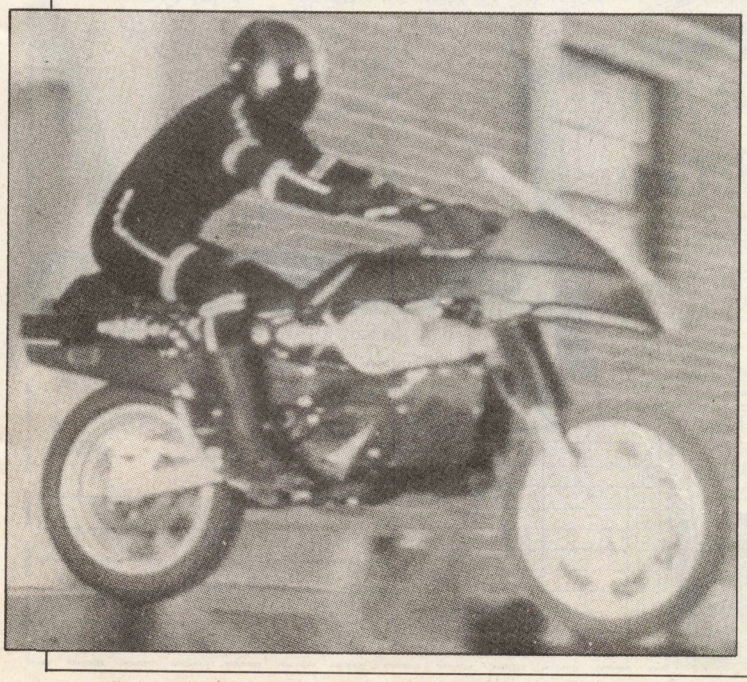
World Games is the latest, and undoubtedly the greatest, release from Epyx, which must now be the undisputed champion of American games houses. Although the game will not be released in the U.K. for more than a month, when it is released it promises to take the Commodore market by storm.

So good is the game that one well-respected journalist described it as "one of the best 64 games I have seen". The eight events are each taken from a specific country and include slalom skiing from France, log rolling from Canada and cliff diving from Mexico.

All the graphics are exceptional and, more than any of the previous three Epyx sports simulations, World Games incorporates a new feeling of playabiulity which improves the game enormously.

It is hoped that *Your Computer* will have a full review of World Games next month.

Two wheels on the Ocean



Finally, and almost as late as *Knight Rider, Street Hawk* has been released. Based on the adventures of the well-known television hero and his well-equipped motorcycle, the game thankfully is a great deal better than Knight Rider.

With different versions available for the Amstrad, Spectrum and Commodore, the game incorporates excellent graphics with a worthwhile idea to produce a highly-playable game. All the usual stunts from the series are there, including turbo boost and some impressive wheelies. Although the game is similar on all machines, the Commodore version has an added 'base' screen and a new soundtrack, always something to look forward to from Ocean.

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THE FRENCH CONNECTION

The French Teletel service, or "French Prestel", which has more than one million government-subsidised users, is undergoing a bout of unwanted press attention. A Paris newspaper alleges that certain information providers are using the Teletel network for immoral purposes.

Teletel equivalents of private chatline services are apparently being used by prostitutes for soliciting. There have also been accusations of on-line pornography. While there is a move to eliminate Teletel abuse by the PTT there has been vocal opposition from civil rights campaigners, claiming that restrictions will erode the liberty of citizens – a dilemma for the PTT.

Meanwhile, plans have been revealed for a gateway link between Teletel and Prestel at the end of this year. It may have involve some software patching at the gateway PAD, as Prestel and Teletel alphamosaic colour graphics and text are not compatible.

PRESTEL ROCK

Prestel was highly visible during the recent BBC2 Rock Around the Clock 13-hour pop extravaganza because of a little imagination by Whistle Test producer and Micronetter Tom Corcoran.

Previously a large manually-operated scoreboard was used to register telephoned video votes. Moving slightly more hi-tech, Corcoran arranged a Prestel/Livewire link with the television studio in London's Shepherds Bush and the video vote chart was displayed from page 1236 on in the Prestel Focus area, visible and updated constantly for Prestel users and, of course, Rock Around the Clock viewers via a video genlocked BBC in the studio gallery.

In the studio, Micronet was recruiting unsuspecting pop celebrities for live interviews on the Micronet Celebrity Chatline.

KIRK TO ENTERPRISE

Kirk Automation, manufacturer and designer of the Magic modem, Modem House Voyager 7/11, and soon-to-be-announced Watford Electronics Apollo modem, has failed to resist the temptation of having a little fun and has announced its own-brand range of modems, Kirk's Enterprise.

The modems are no joke. The £119 Enterprise 1 is a development of the Voyager/ Magic Modem, now incorporating an in-line telephone socket and manual connect button. While the Enterprise 1 is a standard-specification V21/23 – 300 or 1,200/75 baud – device, its more ambitious sibling, the £250 Enterprise 2, will feature V22 – full duplex 1,200/1,200 baud – operation. Both modems have auto-dial and auto-answer capability and the Enterprise 1 is already BABT-approved. Neither Enterprise is Hayes-command compatible.

Not to be outdone by the Enterprise, the new Ipswich-based modem firm. AaronFay Ltd, has begun supplying its first product, the Phasor. Its full title is Trinitas Phasor 2221, the numbers standing for V22/21 capability – 1,200 and 300 baud full duplex. At an introductory price of £295, the Hayes-compatible Phasor should be stiff competition for the Enterprise 2, especially as it offers full baud rate speed-seeking whether answering or dialling, plus full speed buffering regardless of terminal software speed setting.

The Trinitas Phasor 2221 has been submitted for BABT approval, which is expected by the end of the year.

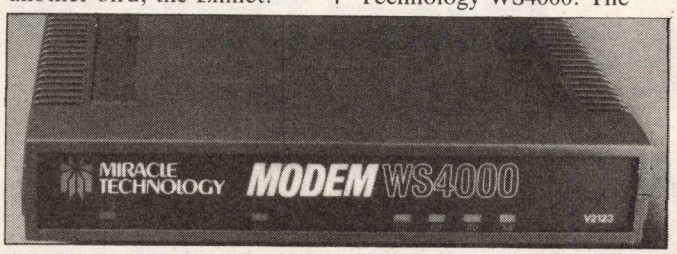
TWO RELEASES

There were two welcome new comms telephone releases for the ST; one from Miracle Technology and the other from Kuma, at the PCW Show. The former, Super Term, was being displayed on the Miracle Technology stand running on a WS4000 modem and will retail for £59.95 inc. VAT. The Kuma package, K-Comm II, sells for £49.95. Both packages will handle viewdata and scrolling terminal emulations.

NEW MODEMS SET THE PACE

At the PCW Show in London there were new additions to the Pace modem range. Joining the venerable Pace Nightingale and the new upmarket Series 4, which was to be called the Kingfisher, is another bird, the Linnet.

Fitting between the hobbyist Nightmare and professional Series 4, the £130 Linnet is a V21/23 – 300 and 1,200/75 full duplex – Hayes-compatible device, which appears to be aimed directly at the Miracle Technology WS4000. The Linnet should be available from this month and should be BABT-approved by then.



WS4000 set for new competition.

The Pace internal modem for the BBC Master was on display but there is still no launch date for the card, which will probably sell for about £100.

It now looks as if another internal modem project, IBM PC slot compatible, will beat the master project to fruition. This new development will be a full-blown V22bis specification modem card for PCs and compatibles. No launch date was announced.

MICRONET IN THE SHADE

The recently-launched Micronet multi-user game, Shades was launched on time but immediately experienced teething problems. For users logging-on to Shades successfully via the gateway, linking the Shades PDP-11 mini with Micronet, there have been no complaints, especially as the game was been running without charge recently.

The expected 99 pence per hour time charge had to be waived while a problem with the Prestel gateway was dealt with. That problem, unacceptable to Micronet technical director Mike Brown, was that as little as one attempt to connect to Shades via the gateway was causing a time charge of sixpence be be generated, even if the connection attempt was unsuccessful because of the local port being busy.

You could make many further attempts at connection without charges above the original sixpence incurred during one session logged-on to Micronet but the prospect of Micronetters paying sixpence and not getting access to Shades involved drastic action by Prestel to re-write the Shades gateway software.

In addition, a bug in Sinclair Spectrum VTX5000 modem software meant that many Spectrum owners were unable to access Shades. The problem is expected to be solved by a software overlay patch.

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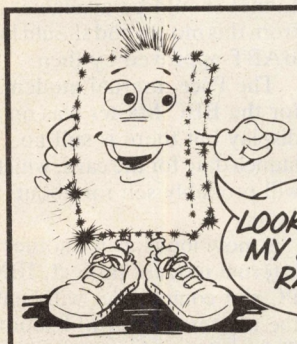

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MORE FROM YOUR PRINTER part two

This month we focus on dot-addressable graphics for your dot matrix printer.

We introduce dot-addressable graphics, a process whereby each individual pin on the printhead can be controlled, in the second of our series on getting more from your dot matrix printer. Such a system forms the basis of many decorative printing patterns and is also essential in the writing of screen dumps.

Graphics modes are entered using the ASCII code 27, the escape code. The code has no effect on the printer but it causes the number following it to be used as a control code, even if normally it would print a character.

Paint test

The majority of dot matrix printers have 9-pin printheads but in graphics modes only eight of these are used. That is because there are eight bits in a byte and ASCII codes are one byte long. Therefore each time an ASCII code is sent to the printer each bit of the byte carries an instruction for one of the pins in the printhead. Using the escape sequence allows you to control the action of each printing pin and thus produces a wide range of interesting and unusual patterns.

The nine pins in a printhead are numbered conventionally 0 to 8, from bottom to top. In graphics printing, only the first eight are used. That can cause some confusion, as in an 8-bit binary number the bits are numbered conventionally 0 to 7. Therefore when sending codes to the printer, bit 0 controls pin 1, bit 1 pin 2 and so on. After the escape code is sent to the printer, the number following it is converted into an 8-bit binary number and, depending on the positions of the zeros and ones, the respective pins would fire.

Sending the decimal number 255, which has the binary equivalent 11111111, would cause all the pins on the printhead to fire, while sending 85, binary equivalent 10101010, would cause every other pin to fire.

For those unable to convert from decimal to binary without complex and time-consuming calculation, table one enables you to select the correct code by adding the values of the pins you wish to fire.

Pin Number	1	2	3	4	5	6	7	8
Bit Position	0	1	2	3	4	5	6	7
Value	1	2	4	8	16	32	64	128

As the escape sequence causes all the codes following it to be treated as control codes it is difficult to send the code to terminate the graphics mode. To overcome that an additional instruction is sent to the printer telling it how many bytes of data it is to treat as graphics data. When that number of bytes has been received, the printer returns to normal text mode automatically.

The largest number which can be sent in a single byte is 255 – 11111111 in binary – but the number of bytes of graphics data which can be sent is far greater. To overcome that difficulty, two bytes are used to convey the information. The low-order byte is sent first and that is obtained using the Basic function MOD. The high-order byte is obtained using the DIV function or floating point division on machines which do not support DIV. The general form for a line of graphics printing is:

ESC " CHR" nL nH d..d..d

where ESC represents the escape code CHR, the character to select the graphics mode. The number of bytes to be treated as graphics data are defined by nL and nH and d..d..d represent the graphics data.

An interesting use of graphics modes is to produce ruled lines and other decorative features on printed copy. If the same binary value is sent to the printer continuously, the same pin or pins will fire as the printhead moves across the paper. That will then produce single or parallel lines depending on the value sent.

By alternating the values, other effects can be produced; 85, which is 01010101 in binary, would cause pins number 1,3,5 and 7 to fire and 170, which is 10101010 in binary, would cause pins number 2,4,6 and 8 to fire. By sending 85,85 170,170 to the printer, a stipple or checker pattern can be produced.

The choice of graphics mode is important when printing those patterns. Single-density mode will give an open effect with the dots clearly separated, while double-density mode will give a tighter pattern with the dots closer together. In quadruple-density mode, the dots

```
5 REM LISTING ONE
10 LPRINT CHR$(27);"K"
20 LPRINT CHR$(480 MOD256)
30 LPRINT CHR$(480 DIV256)
40 FOR P = 1 TO 240
50 LPRINT CHR$(85);CHR$(170);
60 NEXT P
70 LPRINT CHR$(13);CHR$(10);
80 END
```

will be so close together in the horizontal direction that the stipple effect would be lost.

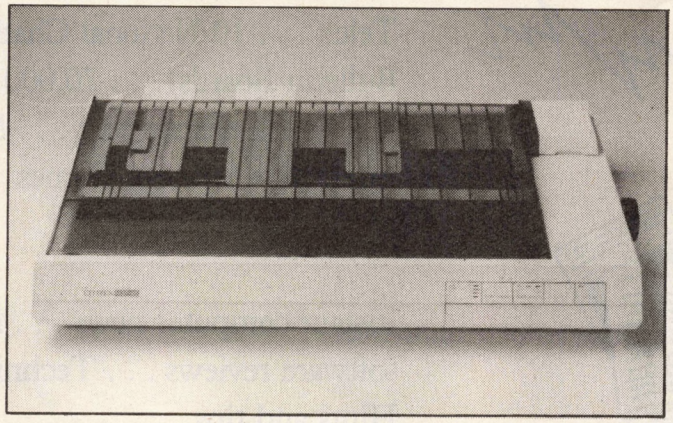
The best way to send the data to produce such features is using a FOR...NEXT loop structure. Listing one is an example of Microsoft Basic which produces a checker pattern in single-density mode. Line 10 selects the graphics mode. Lines 20 and 30 inform the printer how many bytes of data it will receive. Line 40 is the start of the loop and the printer is told to expect two bytes each loop. Line 50 produces the checker pattern by sending instructions to fire the odd and even pins alternately. Line 60 ends the loop, while line 70 re-sets the printhead with a carriage return and a line feed instruction.

The writing of screen dumps is a complex business involving many difficulties which must be overcome. The first is that the printer requires data to be sent first from the top left of the screen. Most computers, however, use the bottom left as the graphics option. Another problem is that an 80-column printer uses multiples of 480 dots across the paper while computers use multiples of either 256 or 320 pixels across the screen. That can be overcome by calculating a scaling factor but it is far simpler to resort to using less than the full width of the paper.

Frustrating

Basic screen dumps are frustratingly slow because the program has to calculate the position of each point on the screen. In Basic, that is best done by using the POINT or TEST function which will reveal whether a particular point on the screen is a foreground or background. Those functions obviate the need to find the location of the screen memory and then use the PEEK command to send it to the printer.

A final problem is that the dot spacing in the vertical and horizontal directions is not necessarily the same. That can result in a figure which is either too tall or too wide compared to the screen image. That often makes it necessary to use a scaling factor in one direction to compensate. Listing two is an example of a screen dump written in BBC Basic. The BBC computer uses the screen co-ordinates 0 to 1023 vertically and 0 to 1079 horizontally. The screen resolution in mode 1, for which this program is most suitable, is 320 x 256, so it is necessary to print only every fourth point. Eight lines of screen data can be sent in every line of printer data, so the total number of lines which need to be sent is 32.



Citizen HQP-45, for those of you who want an optional 132 column dot matrix printer.

Sampling only every fourth point in both directions creates some image distortion, the printed figure appearing squashed. The simplest way to avoid that is to implement a scaling factor to sample every third point. That means some points are printed twice and the figure is therefore not an absolute dot-for-dot representation of the screen. This method of scaling, however, is preferable to losing data and figure width.

In listing two line 10 sets the line spacing to 7/72in. Line 20 is the start of the outer loop which controls the vertical scanning of the screen. The step size of 24 arises from multiplying the eight bits in a byte by three, the interval between the scanned points in line 80.

Line 30 sets the graphics mode and tells the printer how much information to treat as graphics data. Line 40 is the start of the middle loop which controls the horizontal scanning of the screen. The step size of 4 means that each fourth point is checked. Line 50 sets the integer variable B% to zero. This variable is used to build-up the bytes which are sent to the printer as the graphics data.

Line 60 is the start of the inner loop which controls the vertical scanning in the horizontal bands which are reproduced as the lines of graphics printing. The constant '3' in line 70 scans every third point to give a scaling factor. This line calculates the absolute vertical graphics co-ordinate of the point being scanned from the values of L and V, and stores it in U.

Line 80 uses the function POINT to check the points on the screen. If the value returned is non-zero the appropriate bit in B% is set. That is done by calculating the bit value using powers of two and the Boolean OR operator. Line 100 sends the value of B% to the printer at the end of each pass of the inner loop.

Line 110 is the end of the middle loop – that is the end of each line of graphics printing. Line 120 sends a carriage return and line feed to the printer. Line 130 is the end of the outer loop and thus the end of the screen dump. Line 140 sends codes – first the eject the paper from the printer, a FF code, and then to restore normal line spacing. Using this explanation of the program, it should be possible to adapt it for any computer which supports similar commands.

• This article is digested from the Bernard Babani book *Getting The Most From Your Printer*, written by J. Penfold. It is available from Bernard Babani Publishing Ltd., the Grampians, Shepherds Bush Road, London W6 7NF. It is order number BP181 costing £2.95.

```
5 REM  LISTING TWO
10 VDU 2,1,27,1,49,3
20 FOR L = 1023 TO 0 STEP - 24
30 VDU 2,1,27,1,75,1,320 MOD256,1,320 DIV256,3
40 FOR H = 0 TO 1279 STEP 4
50 B% = 0
60 FOR V=1 TO 7
70 U=L-3*V
80 IF POINT(H,U) B%=B% OR 2  (8-V)
90 NEXT V
100 VDU2,1,B%,3
110 NEXT H
120 VDU 2,1,13,1,10,3
130 NEXT L
140 VDU,2,1,12,1,27,1,64,3
```

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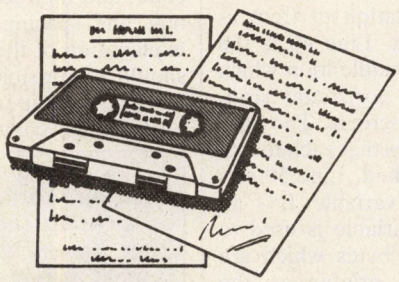

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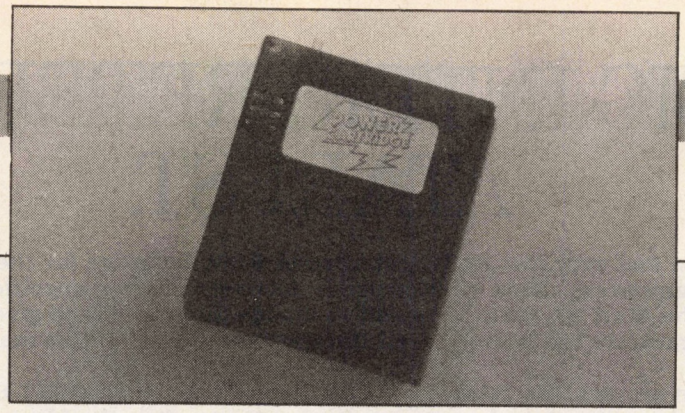

Power for the people

Can Commodore owners do without this latest cartridge? Ian Waugh decides.

Plug-in cartridges are fashionable, specially for utilities, toolkits, turbo loaders and the like. The Power Cartridge at £39.95 plus £1.50 p&p is another one competing for your money. Its specifications certainly look impressive.

The first thing to note is that the cartridge uses none of the computer memory. The utilities fall into five categories – toolkit, monitor, tape and disc loaders, printer utilities and program back-up utilities.

The utilities fall into five categories – toolkit, monitor, tape and disc loaders, printer utilities and program back-up utilities.

The toolkit section has an excellent range of commands. It includes those you would expect to find in any toolkit; AUTO, DELETE, DUMP – lists all variables to the screen; FIND – finds text or variable names; INFO – lists toolkit functions; RENUMBER, UNNEW and QUIT – to switch off the cartridge.

Other commands include COLOR to set background, border and text colours; DEEK and DOKE for double-byte peeks and pokes; HEX$ to convert decimal numbers to hex and $ to convert hex numbers to decimal. PAUSE programs a pause in seconds; REPEAT makes the keys auto repeat and SAFE switches off the RUN/STOP and RESTORE keys.

Trace

Perhaps of even greater interest to the programmer is the MERGE command which merges a program in memory with one on tape or disc. To aid debugging, the TRACE command lists the line numbers of a Basic program in the top right-hand corner as it executes. The function keys are defined from within the program and KEY lists them to the screen but you cannot assign your own definitions to them, which is a pity.

There are also some printer commands. HARDCAT sends a disc directory to the printer, PLIST sends a Basic listing and HARDCOPY sends a screen dump. In the disc command department, DISK offers short versions of common disc commands such as initialising and formatting. DVERIFY verifies a disc, DEVICE alters the device number and DIR produces an on-screen directory without disturbing the program in memory.

DLOAD and DSAVE enable fast loading and saving. That also works with the standard LOAD"name",8. Most programs typically will load five or six times faster but the routine makes little dent in some protected programs and machine code files.

Faster

The tape options have the same quick loading and saving facilities but you can use the quickloader only on a program which has been quick-saved. The tape quickloader is around 10 times faster than normal; how does that compare to a normal drive load?

One of the most powerful features of the Power Cartridge is a machine code monitor and assembler called Powermon. On entering the monitor – or by typing R when in it – the contents of the registers appear on the screen:

```
PC CR NV-BDIZC AC XR YR SP
```

By altering the last CR digit you can access different areas of memory under the Basic ROM such as the KERNAL ROM at $E000 and the I/O area at $D000. Typing A enters the assembler. It accepts machine code mnemonics which are assembled line by line and the on-codes are printed as you go. For example, entering:

```
A C000 LDA #$00 (RETURN)
```

changes the line to:

```
*C000 A9 00 LDA #$00
```

The A9 and 00 are displayed in reverse print. It then offers you the next memory location for your next instruction. The manual contains nothing about the use of labels and I was unable to use them but perhaps it is too much to ask of something which is not a dedicated assembler. It is certainly easy to enter small machine code routines and that will be a boon to the programmer and the machine code dabbler.

D disassembles an area of memory and produces a display similar to that produced by the assembler. You can pause the display and alter the hex or the ASCII part.

W lets you walk through a program step by step and T lets you transfer part of the memory to another location. C compares two areas of memory and prints-out the addresses which are different. F fills an area with a specific value.

G will execute a machine code program from a specified address up to the next BRK and J will jump to a specific address and execute the code there. M and I are identical and both let you examine the memory. H hunts for hex and ASCII values and P sends on-screen information to the printer. You can load, save and verify programs on tape and disc and produce a directory from within Powermon, too.

As with all scrolling displays, you can slow them with CTRL and pause them with the space bar. You can break out of the display by pressing RUN/STOP and alter the on-screen information. Ten out of ten for user-friendliness.

The printer utilities fall into two categories, screen dumps and listings. The listings are straightforward and have been dealt with in the toolkit section. The screen dump is produced almost automatically. The Power Cartridge decides whether the screen is in hi- or lo-resolution and it also determines whether the printer is serial or parallel.

I have an Epson printer connected to my Commodore by one of those printer interfaces which are supposed to trick the computer into thinking it is working with a 1525 printer. I thought if anything would fool it, that would, but all the listings and dumps worked perfectly and I was able to get dumps from games screens easily.

Finally, there are the program back-up commands. The Power Cartridge has a re-set button on the back and pressing it stops any program immediately which may be running and produces a menu with the following options – Continue, Basic, Reset, Back-up Disc, Reset All, Back-up Tape, Hardcopy and Monitor.

Colour

Many programs will not use the whole 64K of memory, so by loading the program with the ILOAD command and then doing a Total Backup, the program will save only the memory used.

The Backup procedures will not work with programs which need to access other files as they are running, nor with programs which check regularly to see if a special code is on the disc. With all the 'self-contained' programs on which I tried it – games, utilities and Basic programs – it worked well.

The Power Cartridge combines a host of useful, interesting and indispensible utilities. If you want dedicated utilities you have to buy them – there is a limit to what you can cram into 16K – but as an all-rounder this is a little cracker. If you do not have a cartridge yet or if your existing cartridge is showing its age, buy it.

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ST CARTRIDGE.

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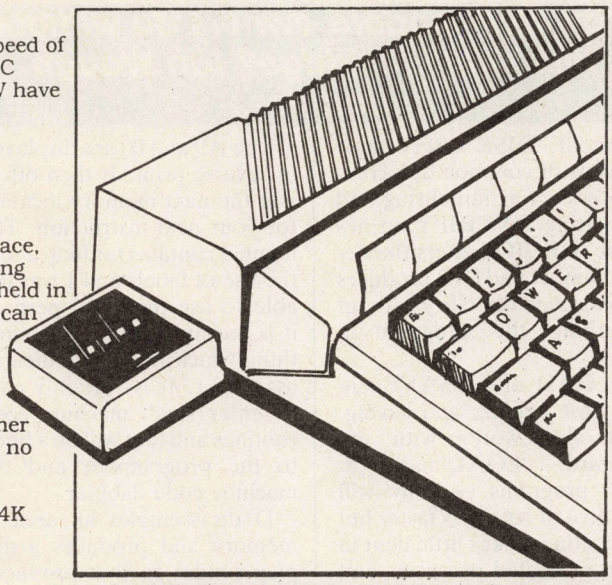
With an average PCW benchmark speed of 1.8 seconds, this is the fastest BASIC available (faster than any other PCW have tested) and compares with 14 for a normal BBC. See table for other comparisons.

EDITOR
Full GEM based scrolling editor is included. Supports search and replace, cut, copy, paste and very fast scrolling speeds. Multiple programs may be held in memory at once, and each program can have its own editing window and associated icon.

PROGRAM SIZE
There is no limit to program size, other than available memory, and there is no speed degradation for running large programs as there is on many other interpreters. Strings may be up to 64K long, arrays may be over 64K.

ASSEMBLER
Similar in concept to BBC BASIC, this allows mixing of assembly language and BASIC together. The assembler can assemble at over 50,000 lines per minute making it one of the fastest available. Macro and conditional assembly facilities combined with one of the best editors around make this a superior alternative to many dedicated assemblers.



STRUCTURED
Fast BASIC supports REPEAT..UNTIL, WHILE.. WEND and multi line IF.. THEN..ELSE constructs. Also named procedures and functions and memory indirection ensure that FAST BASIC supports many of the best features of languages like PASCAL or C, but without the drawbacks.

GEM
Direct and full access is given to the ST graphics such as circle, arc, pie, area filling etc. In addition there are a range of keywords for contolling the menus, icons and windows. It is possible to write programs that present the user with a perfectly standard GEM type interface.

COMPARISONS

MACHINE	TIME
IBM AT	6.8
IBM PC	16.8
BBC B	14.8
AMSTRAD	14.7
SINCLAIR QL	15.6
COMMODORE 128	40.1
SPECTRUM	54.8
FAST BASIC	**1.8**

Review

"...it positively flies."
"Students of structured programming will be well pleased.."
"Perhaps the most staggering advantage of Fast BASIC over the official lingo concerns using the various facilities offered by GEM."
"...it's a vast improvement on Atari BASIC."

Popular Computing Weekly

Review

"The Fast BASIC package provides a complete system for the home programmer; the language is beautifully structured."
"The cartridge spans the gap between high level and low level programming languages and combines some excellent high level structures...It seems to have the advantages of languages like C and Pascal, without the restrictions."
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ST User magazine

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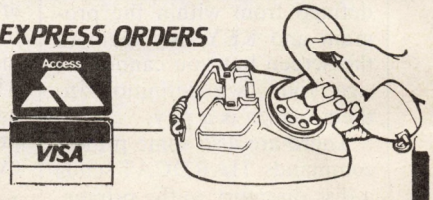

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PERIPHERAL POW

Computers such as the Amstrad and Spectrum dislike undue overloading. Dick Sargent tells you how to avoid smoke in your micro.

The heyday of the microcomputing industry, when a new micro was announced every month or so by any one of numerous and sometimes highly unlikely companies, and when the giants were forever on the verge of launching the market winner of all time, is certainly gone, if not forever, then for the foreseeable future.

It has been superseded by the technological equivalent of the take-away fast food industry, the instant system at an all-in price, from the instant walk-in high-street store. Cynics might say that, in effect, that means an Amstrad from the Dixons empire but, whatever the micro, it means that dedicated computer enthusiasts must look to peripheral manufacturers rather than computer producers for the latest exciting happening – and that could be where the problems really begin.

Computers are temperatmental; if you fit too many extras, you run the risk of impairing performance which, for micros, means they stop altogether or, more likely, work erratically. The market trend towards peripherals for your peripherals should be viewed with suspicion for, along with the joy of ownership, there is the real danger, from a software corruption point of view, of over-loading the micro power supply.

Stranded

Because there is more than one manufacturer involved in the system you find, in the event of a dead machine, that you are stranded between two or three parties, each arguing about which item of your micro complex interfered with which others, or who is liable for a malfunction of the particular peripheral.

The BBC Model B had five years of life before the Master Series replaced it and it must take pride of place among micros for being the one with most expansion potential. Its power supply is a quality unit, using the *switch mode* system to deliver plenty of current while occupying only a relatively small space inside the case; 1.25 amps is delivered at +5V, 1.25 amps at +12V and a small but sufficient 75mA at –5V.

In 1981, when the power supply specification was set, it seemed like a miniature power station, with 5V available for the massive PCB and external disc electronics, if fitted, 12V for the disc motors, and –5V for the RS432 and analogue input. In an effort to get the power to where it is needed – i.e., the chips – no fewer than three identical 5V wires are clipped to different parts of the PCB.

Acorn was aware of and acted on a fundamental fact which peripheral manufacturers tend to overlook – namely, that the PCB tracks reduce the amount of current able to reach ICs on the further side of the board.

Extra power can be drained from the BBC in a hundred and one ways, the number being limited only by the common sense of the peripheral manufacturer or the user. For example, +5V is available on the user-port IDC connector but you should not run your robotic DC motors from it. The official auxiliary PSU is the plastic AMP connector next to the disc drive IDC socket but it is not generally appreciated that the amount of power available there depends on what hardware is connected internally.

Acorn expects a single or dual disc drive on the auxiliary PSU and up to four internal upgrades, for example:

Econet	8 ICs
Speech	2 ICs
Disc filing	11 ICs
Sideways ROM	3 ICs

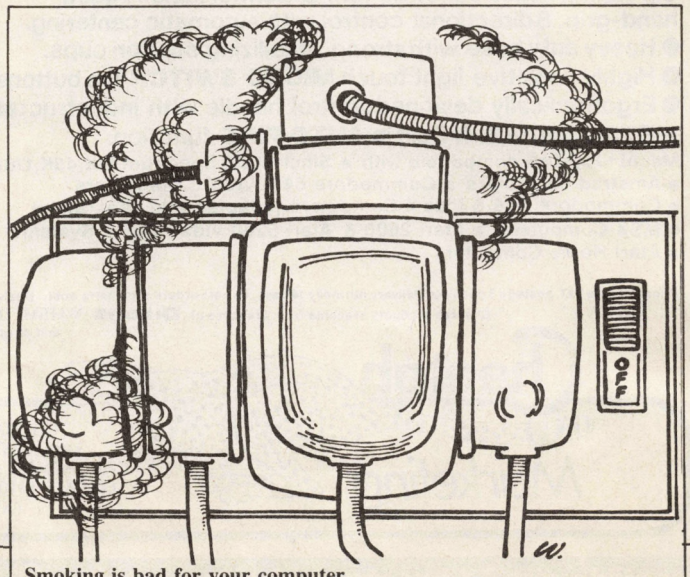
In reality, most BBCs are expanded in one of two ways. Either they are given the Econet and little else – which is the situation in many schools and colleges – or they do not have the Econet but have almost about everything else hung on to the back.

Assuming that the disc ICs are already fitted and that mouse-type ROMs have filled the spare sideways ROM sockets, all subsequent internal expansions tend to go upwards, like high-rise flats. The 1770 disc upgrade, which technically is an upgrade to an upgrade, adds four ICs, plus one more ROM, if you take the opportunity to fit the Advanced Filing System at the same time, and the most popular piggy-back sideways ROM card adds another 10 ICs, not counting the number of sideways ROM ICs with which you populate the card.

If your disc drives run from the AMP socket of the BBC you have reached overload mode and your power supply is capable of drying wet socks. Air-cooling the BBC – i.e., removing the lid – is by now a considerable temptation but despite the fashion among certain academic types, it is not safe to operate the machine with the lid off and you would be well advised not to do it.

At that stage anything can be the straw to break the camel's back. Some ROM boards have battery-backed RAM. Ask yourself which 5V power supply is charging that 3V NiCad battery. The mouse has integrated circuits in it. Is it fixed permanently on to the user port – or is that port feeding a hungrier beast, in the form of a relay board or LED board? Is RS4323 in use, taking its share of +5V as well as –5V?

Fortunately, it is easy, though not necessarily inexpensive, to avoid overloading the BBC power supply. Mains-powered discs are a good starting-point. Leaving the AMP socket free diverts more power to the piggy-back boards inside the computer. Peripherals plugged into the tube, the 1MHz bus, the user port and the printer port should be bought only from manufacturers which have provided independent DC power derived from the mains.

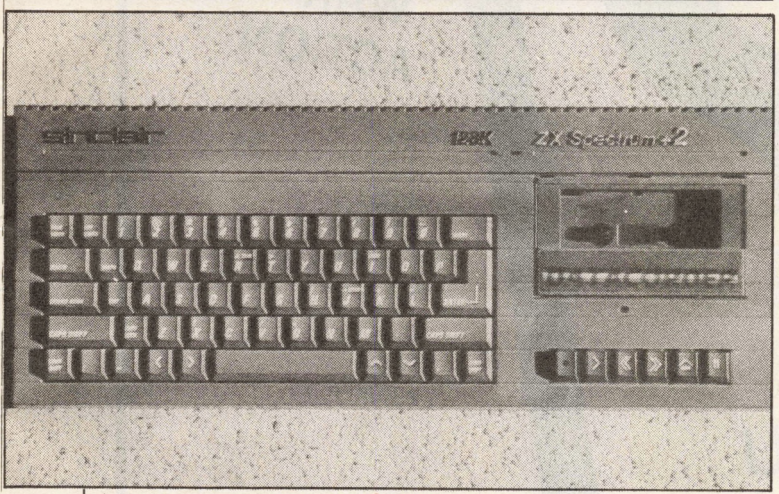


Smoking is bad for your computer.

ER FAILURE

In the case of Acorn and most other reputable peripheral manufacturers, that is usually the rule for BBC add-ons. The assumption is that the market can bear the cost of those separate power supplies, so they are readily obtainable. That, unhappily, is not necessarily the case for other computers – it is all a question of economics.

It is a matter of record, sadly, that many Spectrums prior to the 128 burnt



More power supply it must be good.

themselves to death. Early 48K Spectrums were supplied with piggy-back memory boards and were not the low-chip count computers of Sinclair fame. Continuous daily use caused inevitable component failure because of heat, as many school computer laboratories will testify.

Even the advent of less-demanding RAM chips failed to ease the problem. Interface One had arrived and, together with one or two Microdrives, it was expected to take all its power requirements from the host computer. The 5V power supply was, to put it bluntly, running in overload mode from the first day.

Two things disguised a power supply which, to put it kindly, was inadequate. In the first place, a majority of Spectrum owners used their computers to play games and added no peripheral to it, with the possible exception of a joystick interface, which has only two ICs inside it and therefore has only a small effect on the power supply.

The popularity of add-on keyboards was responsible for saving some Spectrums from incineration, since the room inside them allows air to circulate and cool the over-worked voltage regulator. If your Spectrum fits into one of those categories, do not panic – it will probably last as long as you want it to do. If your original micro is already past prayer, or you have upgraded to the Spectrum 128, there is some good news. The 128 has exterior cooling fins because Sinclair Research finally recognised the problem and the Amstrad/Spectrum 128+2 has a more powerful power supply – it also runs the Datacorder, so it must be good.

As with the BBC, the temptation to expand the Spectrum beyond the capabilities of its power supply always exists. The economics of Spectrum peripherals usually dictate that they are parasitic on either the Spectrum regulated 5V line or its unregulated 9V line, the latter case being slightly better than the former.

One disc interface I had occasion to open took the 9V supply as it emerged from the Sinclair transformer, regulated it to 5V for its 15 ICs and then passed what was left of the 9V specification to the Spectrum.

The sad thing is that a naive user would expect to use this disc interface with a parallel printer black box, for his printer, and possibly an RS232 black box, for his modem, without questioning the lack of any auxiliary power supply. All the manufacturers involved would swear that their particular add-on took "no more power than Interface One" and was therefore perfectly satisfactory.

Meanwhile the non-replaceable thermal fuse in the Sinclair transformer would have blown – if you were lucky – or the transformer winding would have melted, if you were unlucky. That, we hope, is all water under the bridge now. Serious Spectrum users will probably have upgraded to a mains-powered, all-in-one peripheral such as the Opus disc drive or may have changed computers.

If they changed to Amstrad, they may find the peripheral situation not entirely dissimilar from that which surrounded the Spectrum and I am not referring to the Amstrad/Sinclair.

On your own

Amstrad does not want its computers ruined by cost-cutting peripheral manufacturers and if you do not buy an approved add-on – preferably one carrying the Amstrad badge – you are on your own. Peripherals, says Amstrad, should be mains-powered. Further, there is no need – and no easy way – to open an Amstrad computer, so piggy-back boards are definitely out. Crafty. There are current-limiting components fitted in the monitor – where the power supply is located – so that power-hungry peripherals cannot overload the system – they are factory-set and definitely not to be altered. Unfortunately, despite the good intentions of Amstrad, that does not mean you will not encounter overload mode or be inconvenienced by it.

CPC464s are upgraded by the mains-powered Amstrad CP/M disc system, while CPC664s and CPC6128s have their disc built-in. All disc Amstrads have the capacity to drive a second disc but after that there is little power left. Sideways ROM is not catered for on the Amstrad PCB, so even if you require only one ROM, you will need a ROM card to hold it and that will have at least four ICs on it, irrespective of how many ROMs you decide to fit.

My Amstrad has one disc drive and a conservative three sideways ROMs but it refused to drive an RS232 interface from a well-known manufacturer.

Irritating

Unlike the Amstrad RS232, the one I had was not mains-powered. With 11 ICs inside it – and they were not all the new low-power, high-speed CMOS devices – I think it should have been. "Amstrad's fault", said the company, "the peripheral works for 99 percent of users".

The device was returned under the provisions of the Consumer Protection Act as "not fit for the purpose for which it was supplied" but I wonder how many users struggle with erratic peripherals because they do not know they are overloading the boat and have been handed some techno-garbage by manufacturers reluctant to take responsibility for problems caused by the design of their products?

The particularly irritating thing about my experience was that I was advised by the peripheral manufacturer that I should have my Amstrad examined by the dealer from which I bought it.

The conclusion is a simple exercise in tact. Next time you see a computer with smoke emerging from it, you will know the user has found the secret of overload mode. Say nothing, offer no help, and pass by quickly – the computer will not be the only one which is over-heated.

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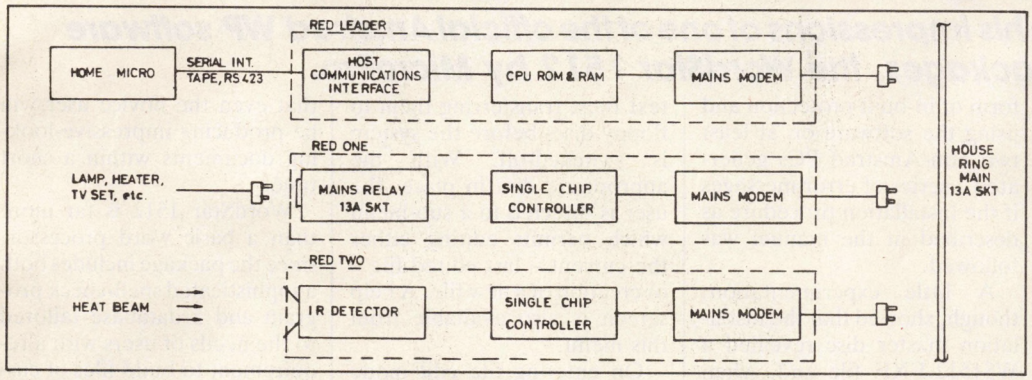
JACK-IN-THE-BOX



Ian Waugh looks at a new product which can form the basis of an automation and security system for every home.

Red Boxes were developed under the auspices of Chris Curry, co-founder of Acorn, and his new company, General Information Systems. They form the basis of a home automation and security system and although you may not have been able to find a power station to control with your ZX-81, Red Boxes will certainly let you control your home environment with a Spectrum, a Commodore 64 or a BBC or, in the near future, any of five other micros.

Red Boxes communicate with each other along the standard 13-amp ring main using a mains-borne 129KHz carrier, a frequency set aside by the British Standards Institution for such a purpose. That means you can plug-in the boxes anywhere in your house and you do not need to put long trailing cables under floors and along ceilings.

The Red Box starter system costs £129 including VAT – add £4 p&p if you buy by mail order – and includes a Red Leader, a Red One and a Red Two. Red Leader is the master control unit and contains its own computer. You program it and monitor its instructions via your micro and the advantage of the system is that once Red Leader has been programmed you can remove your micro and use it for other things.

Previously, home control meant occupying your computer all the time, which is not very practical. Red One is a simple on/off switch and Red Two is an infra-red movement detector.

Red Leader connects to your computer with a DIN lead and when it is switched-on it transfers Red Basic into the micro and runs the main menu program. Commodore and Spectrum computers download the program as if it were on tape. The BBC version uses the RS423 socket but the BBC Master defaults to a different baud rate than model B and instructions for changing it are hidden in the fault-finding guide. It would have saved me an hour if the full instructions had been included in the loading section.

Once the main menu is loaded, the next step is to tell Red Leader about the other boxes you will be using in the system. All boxes have a security number – one of more than 16 million possibilities – so as well as making it difficult, or almost impossible, for unauthorised people to tamper with your programs it lets you run a number of Red Box systems on the same wiring in a large building or office block.

The menu can display information on up to 10 Red Boxes and lets you give them instructions, such as times to switch on and off. You can also make one device control another – you can use the sensor – Red Two – to trigger an alarm plugged into Red One.

You can probably set most aspects of security and environment control from the menu but, for more flexibility, you can use Red Basic. Anyone with a smattering of Basic will have no difficulty with it. It is identical for all computers, although some commands, such as mode changes, will have no effect on computers which lack certain facilities.

Once Red Two has been triggered, its status remains ON until re-set from the menu but I wrote a program quickly which made Red Two trigger Red One – switching on a light because it was nearby, and then re-set the system after a few seconds.

Other modules are being developed – in particular, a real-time clock with battery back-up so that Red Leader does not forget its instructions when it is unplugged or after a power cut. I think it should be fitted as standard but it will cost between £10-15 so you do not have to buy it if you do not want it.

Also being developed are analogue devices for temperature measurement and light dimmer control, RS232 units, a 106db warbling alarm, window contact switches and pressure mats. Additional Red Ones and Twos cost £34.95 plus £2 p&p each but prices on the other items have not yet been decided.

There is also a Project Manual at £9.95 containing application ideas but I can think of dozens, ranging from typical security aspects to automatic heating control and switching lights or TV on and off when you enter or leave a room. I suppose the major practical restriction will depend on how many Red Boxes you can afford. They may also clash with your colour scheme but no new technology is without its sacrifices.

Other systems to computerise environment control have been available for some time but GIS is the first to put it all together in a comprehensive, versatile and useful system.

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Simple BBC Basic program to control Red Boxes.

```
10 REM RED BOXES
20 REM Automatic SENSOR
30 REM Resetting Program
40 REM by Ian Waugh
50 REM for YOUR COMPUTER
60 CLS
70 EVERY 50 PRINTTAB(1,1)"TIME: ";TIME$:CONTINUE
80 TELL("SENSOR",OFF)
90 PRINTTAB(14,12)"ALL CLEAR"
100 REPEAT
110 IF STATUS"SENSOR"=ON GOSUB lampon
120 UNTIL INKEY$="0"
130 END
140 .lampon
150 PRINTTAB(12,12)"SENSOR ALERT"
160 TELL("LAMP1",ON)
170 T=TIME:REPEAT UNTIL TIME>T+10
180 TELL("SENSOR",OFF)
190 TELL("LAMP1",OFF)
200 PRINTTAB(12,12)"  ALL CLEAR "
210 RETURN
```

Amstrad 1512 word processing

Peter Luke gives his impressions of one of the official Amstrad WP software packages, the WordStar 1512 by MicroPro.

WordStar 1512 is a product moulded in the Amstrad tradition of a product which offers a level of functionality sufficient to satisfy the majority of users at a very competitive price. While the name WordStar will mean little to those new to word processing, more experienced computer users will certainly have used one of the incarnations of the most famous of WP packages and have formed either a love or hate relationship with the often esoteric command syntax of some of the earlier versions of the software.

WordStar 1512, though, strives to achieve a user-friendly interface to counter the criticisms levelled at earlier versions of the package and to a large degree achieves that aim.

The software is supplied on six distribution discs, an unusually large number of discs for a WP package. The reason for the plethora of discs is again linked to the specifications laid down by Amstrad during the development of the software. The brief was to produce a single package compatible with all the machines in the Amstrad PC range, from the humble mono screen single floppy version to the top-of-the-range 20MB hard disc system.

The conflicting requirements of the various machines which comprise the full PC1512 range required that the software be spread over six discs, the user configuring WordStar 1512 to run on the machine as part of the installation process which must be performed before the software can be used.

While WordStar 1512 will be marketed by Amstrad as the word processing solution for its PC range of hardware, MicroPro, publisher of the software, states that the product has not been fudged in any way and that it should run on the many PC clones produced by other manufacturers. The review sample proved to have some form of in-built protection and using the software on at least two non-Amstrad PCs generated a series of error messages if the installation procedure as described in the manual was followed.

A little experimentation, though, showed that the installation master disc revealed a WS1512.EXE file and, when called, by-passed the protection and allowed WordStar 1512 to be installed successfully on non-Amstrad hardware.

The secret to the user-friendly nature of WordStar 1512 is the fact that the majority of often-used text manipulation commands are available from a series of drop-down menus in much the same way as Locoscript on the Amstrad PCW. In addition, a series of in-context help files is available.

The WordStar 1512 system disc created as part of the installation process is a bootable disc. That means that switching-on the PC with the system software in drive A: – assuming a floppy based system – will configure the system ready for use. There is no need to boot the computer with the MS-DOS system disc. The opening menu displayed when the boot process is complete will offer the range of options shown in table one. The first three options allow the user to select the major WP operations.

Each of the available options may be selected either by positioning a highlight bar over the required function or by pressing the initial letter of the required function. Selecting word processing will prompt the user to place the 1512 WP disc in the appropriate drive and to ensure that, on a twin floppy system, a text and data disc resides in the second drive.

Single drive users may make use of a RAM disc to store their text files, transferring them to floppy discs before the system is switched-off. With the appropriate disc in place, the user is directed to a sub-menu which permits editing either the current – last edited file – or creation of a new file. A help screen is also available from this menu.

On entering file edit mode the screen will show a ruler line at the top of the display. That indicates the current page width and margin setting in addition to the tab positions. At that stage text may be entered at the keyboard and basic manipulation of the text achieved via the cursor keys and delete keys.

Selecting function key two will display one of the drop-down menus which allow more sophisticated text manipulation to be achieved. Two such menus are available, the second being called by pressing f2 for a second time. The options available from the two menus are shown in table two. As with the main menu, selection of the required function may be achieved either by positioning a highlight bar over the required function or by typing the initial letter of the function. With the highlight bar over any of the options, pressing the f1 key will display some help text relating to the function.

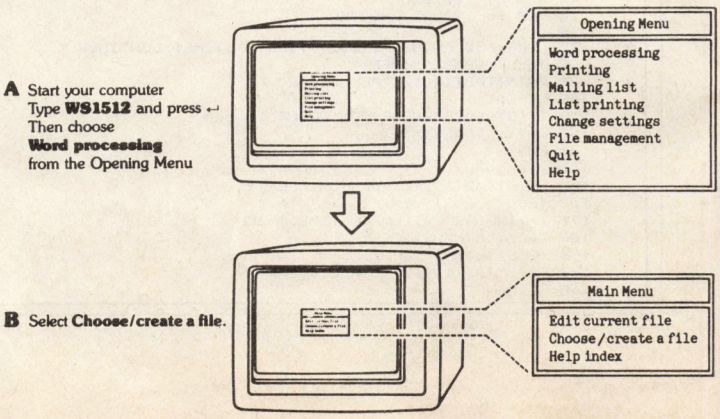
As a tool used to create text documents with the minimum of fuss, WordStar 1512 is an excellent product. The ease of use resulting from the menu-driven rather than the command-driven approach means that even the novice user will be producing impressive-looking documents within a short time.

WordStar 1512 is far more than a basic word processor, since the package includes both a sophisticated spell-check program and a database tailored to the needs of users with a requirement to build files of customer names and addresses.

The spell-check option is available from one of the f2 menus and, when selected, will check a document file for occurrences of any words not in its extensive dictionary. On detecting an unrecognised word, the system will attempt to offer a number of alternative words which match most closely the unrecognised word. The user may select one of those options or type-in the correct spelling of the word from the keyboard. Alternatively, the word may be ignored, this latter option being useful for documents incorporating proper names. There is also an option to add words to a user dictionary which will be searched after the system dictionary.

QUICK GUIDES

Once you've set up WS1512 for your computer, here's how you use it.



commodore 128

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What to look for in the next issue of

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Content subject to late revision

PUTTING YOUR AMSTRAD TO WORK

The magazine for all Amstrad *PCW* and *PC* owners

Tm512 modem reviewed

Held over from this issue because of lack of space, next month we review an up-market modem from Tandata, a company with many years' experience in the field of computer communications. The multifunction Tm512 is supplied complete with the Sagesoft Chit-Chat comms software to form a complete comms solution for the PCW user.

Managing your data

Using a computer to maintain computerised records is one of the major applications to which the PCW computer will be put in a business. We examine a range of databases and, in particular, look at the types available, namely card index and relational.

Calling all 8256 owners

We have a special offer on an 8256 to 8512 upgrade kit which reduces the cost of this conversion dramatically.

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Silver's Return

The Software Projects new adventure *John Silver's Return to Treasure Island,* based on the HTV/Primetime TV series in which you play the part of Jim Hawkins trying to discover the whereabouts of the treasure left behind on the first expedition, should be in the shops soon. Written by Tony Baden and Tony Milner, it contains more than 200,000 locations, eight angles of view from each location giving a massive 1.5 million possible views. That is what I call big. It is available initially for the CBM64 with Amstrad, with other versions to follow.

Two new adventures from Delta 4, written by Fergus McNeil and Judith Childs, are due this month. Titled *Malinsay Massacre* and *Murder off Miami,* they promise to be entirely different from previous Delta 4 offerings. Based loosely on the Dennis Wheatley novels, it appears McNeil is showing us his serious side.

An adventure-writing utility, written by Tom Frost, of *Ket* fame, is due from Alpha Omega retailing at £4.95. I do not think it will offer competition to *GAC* or *The Quill* but it should be fun.

Activision is now set to release the full range of Infocom adventures. No definite date has been set but I would think they will be available just in time for Christmas for CBM64/Atari and Amstrad machines. *Moonmist,* the next impending release, sounds great; it is all about ghosts and things which go bump in the night and it all happens in an old Cornish Castle.

The authors of *Terromolinos* and *Hampstead* are set to confuse and amuse us once again with the release of *Dodgy Geezers* – at least that is what Melbourne House says.

Mike Woodruff of Adventuresoft Ltd is also hopeful that *Kayleth* and *Temple of Terror* should be in the shops as you read this. Also expect *Saigon,* an adventure based on the troubles in Vietnam sometime in November.

Low-cost offerings

Roger Garrett reports on all that is new in adventures.

It seems to me that if games are backed by clever advertising they are the ones people buy but I feel certain adventurers miss many good games for that reason, when there are some excellent adventures available at relatively low cost from lesser-known concerns. Some are poor and it is something of a deterrent if when sending money for a mail order game it proves to be rubbish.

To try to prevent that, in the next few months I shall try to look at as many low-cost adventures as possible. This month I look at some games which have been available for some time, plus two new ones.

8th Day Software, I feel, must be at the top of the list for good, sensibly-priced games; even though they were written some two years ago they still represent good value. Among my favourites are *Quann Tulla, Faeirie* and *Cuddles,* each with a different theme and plenty of head-scratching problems. Trinity Software released an excellent adventure called *Masterclass,* unlike any other game I have played and very difficult but great fun.

Central Solutions seems to have become the Mastertronics of the adventure world with a vast amount of games mainly for the Spectrum. Worth looking at are *Curse of Shaleth, Countdown, Father of Darkness* and *A Picture of Innocence* and at only 99 pence.

Another new concern is River Software. Based in Kent, its first two titles to be released are *Hammer of Grimmold* and *Lifeboat.* I have not seen Lifeboat but Hammer should please most adventurers. The version I saw was a pre-release copy and, apart from one or two spelling mistakes, seemed to contain all the proper ingredients.

H&D Services, the company which writes the *Adventurers' Handbooks,* also sells a quartet of adventures, all on one cassette and written by Walter Pooley, of whom I am sure everybody must have heard, titled *Mission X, Castle Adventure, Mansion Quest* and *Desert Island,* once again very reasonably-priced.

Those concerns represent only a small number of authors who are busy trying to produce and sell good, solid adventures but which with limited resources are finding it difficult to involve themselves in large advertising promotions.

ADDRESSES

The games mentioned can be purchased by mail order only from:

8th Day Software, 18 Flaxhill, Moreton, Wirral, Merseyside L46 7UH. Sepctrum/Amstrad/CBM64, £2.50 each.

Central Solutions 121 London Road, Knebworth, Herts. Spectrum, 99 pence each.

River Software 44 Hyde Place, Aylesham, Canterbury, Kent. CBM64, £2.50 each.

Trinity Software 177 Birchfield Road, Perry Barr, Birmingham B19 1LL. Spectrum, £4.95.

H&D Services, 1338 Ashton Old Road, Higher Openshaw, Manchester M11 1JG.

READERS' FORUM

So far I have had only a small response, so get out the pen and paper. Let us get a really good Infocom section going. Just send those hints and funny replies you sometimes get when inputting something.

HELPFUL HINTS

Valkyrie 17

To get rid of butcher, give box. To get diamond, insert mirror, shake pedestal.

Mordon's Quest

To pass gladiator, smoke cigar. To get rid of jester, give Pyrites.

Never-ending story

To pass wraith, drop coin, go west.

Hitch-hikers' Guide

In the bar, buy a cheese sandwich; give sandwich to hungry dogs. When listening to the Vogon captain's poem, enjoy poetry.

See-Kaa of Assia

To pass black guardian, pull stud from staff; throw staff to open doors. Slide doors.

I hope those hints help some of you but if there is some particular problem which is causing you brain damage, either write to me enclosing a SAE or call the helpline service. Address all correspondence to Roger Garrett's Adventureline, c/o *Your Computer,* 79-80 Petty France, London SW1H 9ED.

Telephone numbers are: Jackie 061 339 0092. Geoff 0695 73141. Helplines are open weekdays only from 7-9pm.

LEATHER GODDESSES OF PHOBOS

► *CBM64/128/Amiga/Atari XI/XE/ST + Disc Drive*
● *Activision/Infocom*
● *Text Adventure*
● *£25*

Whenever a new release from Infocom arrives I always feel as if Christmas has arrived early, mainly because each new game is always terrific fun and, above all, original. *Goddesses* once again falls into this category. Written by Steve – *Planetfall, Hitchhikers' Guide, Sorceror* – Meretzky, it is a wonderful raunchy romp of a tale, full of zany wit and weird characters.

The story starts in the dusty old town of Upper Sandusky, Ohio. Sitting in the only town bar – is it me, or does it seem that many adventures start in bars? – you are whisked-off suddenly to Phobos to meet the Leather Goddesses who would like to use you for a few sexual experiments.

The reason behind the experiments is that the Goddesses intend to use Earth as their playground. Naturally you think everyone should have their own choice of a partner, so off you go to find an Anti-Leather Goddesses machine.

Along the way you will bump into various odd-balls such as King Mitre and his Royal Docks and Ducks. You may have heard of this chap previously. Earth people called him King Midas but the true legend is entirely different. Instead of everything he touches turning to gold, it turns into 45-degree angles. The Royal Docks are interesting, with complicated names like Donald Dock and Baby Dock. I thought I might find a What's Up Dock but did not.

GRAPHICS
None
ATMOSPHERE
●●●●
PLAYABILITY
●●●●●
VALUE FOR MONEY
●●●●
OVERALL
●●●●●

It goes without saying that the text descriptions are up to the usual Infocom standard – full and very descriptive. My only complaint of an otherwise excellent game is that Meretzky has used the mode of transport albeit in a different form from that we saw in *Spellbreaker*. Instead of the various cubes we now have various black circles. You know what I mean – enter the circle and enter new location area. That by no means spoils the adventure; it just gives one the feeling of being there before but I love it all the same.

With more than 20 Infocom titles available and another – *Moonmist* – to be released soon it makes the argument for buying a disc drive even better. Do not forget Activision is releasing the full range for Christmas so it looks like being a mind-boggling time for all.

BREAKERS

► *CBM64/Atari 400/800/XL/XE + Disc Drive*
● *Broderbund (Import)*
● *Text Adventure*
● *£26*

Breakers is the fourth Electronic Novel to be released by the Broderbund/Synapse organisation, written by Rod Smith and programmed by Joe Vierra and William Matega using the amazing *BTZ* – Better Than Zork – language parser.The action this time takes place on the little-known planet of Borg, a small dismal place populated by the low-life of the various neighbouring space stations and satellites. Your first recollections on waking are of a large Gak, a form of mutant space-cop, chasing you into the Breakers bar and beating you severely, leaving you bloody and unconscious on the dance floor.

Looking round you realise you are in the kind of flea-bitten bar you find normally on the lower levels of every industrial colony in the universe, a place where drinks are over-priced and life is cheap. Here, deep in the volcanic rifts of the planet Borg, on the outer tentacles of the Slug Nebula, evil leaves its slimy trail across the once-green home of the gentle Lau people.

GRAPHICS
None
ATMOSPHERE
●●●
PLAYABILITY
●●●●
VALUE FOR MONEY
●●●●
OVERALL
●●●●

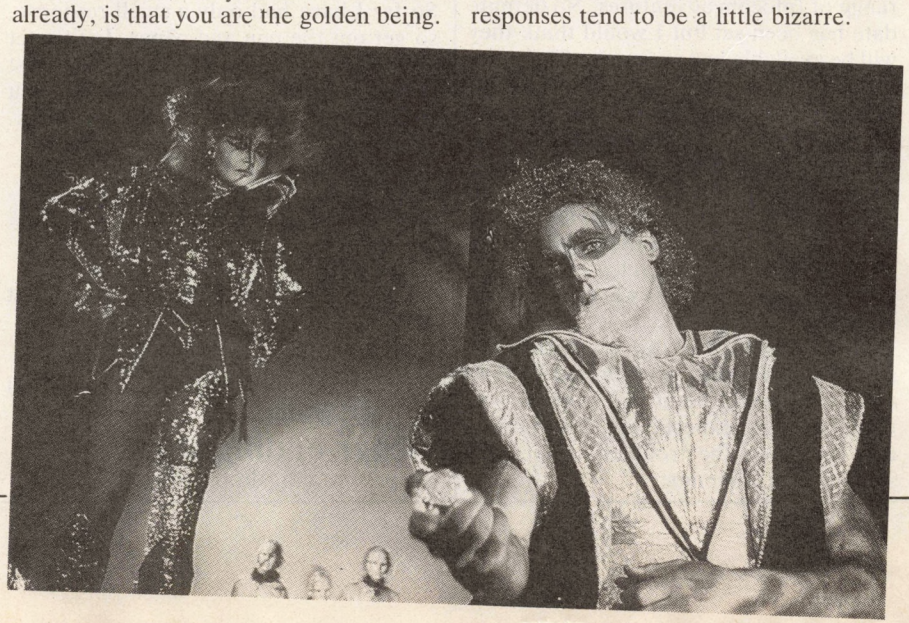
Human misery is the coin of the realm and the mutant space-cops make sure everyone has plenty of change. You feel yourself being pulled, not too gently, to your feet. A feeling of fear makes the short hairs on your golden neck rise sharply. The cause of the fear is the assorted groups of Breakers who stand watching you intently. Breakers are the kind of desperate misfits who give cheap bars and dark alleys a bad name. This bar is crawling with them and the worst part is that they are not even the worst part.

You have heard that this is the nerve centre of a merciless ring of inter-galactic slave traders. You have also heard that everyone is on the take – from the three-eyed barmaid to the cops. Legend has it that one day a golden being will arrive and liberate Borg from all of this evil. Why is everyone looking at you?

The answer, if you did not know already, is that you are the golden being. The task in front of you is like nothing else you have ever played. Apart from staying alive, avoiding the savage Gaks, keeping your senses after drinking the local cocktail, you must find a number of sacred objects. Once having found those so-called elements they must be assembled in a secret ritual, thereby saving the planet from eventual destruction.

As in the previous adventures, the text-only descriptions are everything for which the ardent adventurer could ask. The parser will handle most complicated sentences; responses are a little slow but that in no way detracts from the overall playability of the game.

Interaction plays a very important part in the eventual outcome and it is the interactive play which makes these adventures so life-like. My only criticism of an otherwise excellent game is that the parser is a little too advanced and some of the responses tend to be a little bizarre.



PHANTASIE

► *CBM64/Apple + Disc Drive*
● *Strategic Simulations/U.S. Gold*
● *RPG Adventure*
● *£14.95*



SSI is fast becoming renowned for its war simulations with such releases as *Germany 1985* and *Knights of The Desert*. I had not played any of its role-playing games until I looked at *Phantasie*. Six hours later I staggered away from my computer convinced that this must be the best RPG I have played. I thought nothing could beat the Ultima RPGs but I was wrong. The graphics are nothing to shout about but that is unimportant when you consider the amount of depth and playability there is to this game.

Your main task is to find nine rings hidden among the dismal dungeons and castles of Gelnor, a land devastated by Nikademus and his fearful Black Knights. Nikademus is living somewhere in Gelnor but nobody knows where. His Black Knights range the land travelling from town to town demanding sacrifices and homage.

GRAPHICS ●●●
ATMOSPHERE ●●●●
PLAYABILITY ●●●●●
VALUE FOR MONEY ●●●●
OVERALL ●●●●

Apart from that bunch of unsavoury characters – and until you are experienced in the art of combat do not even think of fighting them – there are countless other monsters, devils and the like who are well-equipped to deal with any foolhardy adventurer who wants to chance his luck.

To start the game you must first recruit your merry band. Six is the maximum and they can be the usual type such as fighters, wizards and monks, each with different characteristics and powers. Once having selected your band you can equip them from the local armoury and set about gaining some experience and money.

The normal hit point system is used, so it is important not to fight monsters with bigger hit points or there is only one result – back to the town to recruit more men. For anybody who is not sure what hit points are, briefly it means if you have a hit point strength of, say, 10. When in combat you are hit by your adversary, the computer registers the hit at, for instance, six, thus leaving you with four points. When you have no points left that is it – you lose a man. By careful selection of your group and by learning different spells you can restore hit points.

The game is one of the easiest RPGs I have played. There is no need to study books for ages; a book is included but if you want to get cracking immediately you can and learn as you proceed.

For those who want to explore strange lands, fight equally strange monsters, delve into deep dungeons, enter secret passages, walk down slime-filled passages, all in the comfort of your home, buy a copy of this excellent adventure – but be warned, it is very very addictive.

THE COLOUR OF MAGIC

► *CBM64/Spectrum/Amstrad*
● *Pirahna Software*
● *Graphic Adventure*
● *£7.95*

Sitting on a hard cedar-wood bench in the run-down pub, aptly called The Broken Drum, Rincewind stared down gloomily at the small mug of beer in front of him. It had cost him the last of his money and he was becoming more certain by the moment that it would not be worth it. Drinking it in one swallow served only to prove him correct.

The sound of the pub door opening and closing caught Rincewind's attention. The sight of the newcomer made him sit up even more, going down the stairs was a very strange-looking fellow, dressed in unusual clothes. Did he really have four eyes? Equally bizarre was the large wooden chest which followed like a tame puppy, mainly because it was propelled by what looked like hundreds of tiny feet.

So begins the latest adventure from a new software house, programmed by one of the brightest talents on the adventure scene at the moment. Based on the Terry Pratchett novel of the same name, Fergus McNeil has once again provided an amusing and original game.

All the action takes place on the weird world of Discworld. As its name would suggest, it is a flat disc-shaped domain, supported by four gargantuan elephants standing astride a huge turtle called Great A'Tuin. As time passes, so Great A'Tuin carries the world into the future – ever patient, ever mysterious.

GRAPHICS ●●●●
ATMOSPHERE ●●●●
PLAYABILITY ●●●●
VALUE FOR MONEY ●●●●
OVERALL ●●●●

The two central characters are Rincewind and Twoflower. Taking the role of Rincewind, your task is to guide the naive Twoflower around the strange land but as Twoflower is the first tourist to visit Discworld your task is made more difficult by his insistence to see things he should not, which results in his being kidnapped.

Rincewind, coward that he is, deciding that it is an opportune moment to be rid of the little pest, tries to leave the city, only to be caught and dragged before the ruler of Ankh-Morpak, who explains that Twoflower is of great political importance and better be looked after or – well, you can guess that for yourselves.

It is for you not only to protect Twoflower but also to show him all the sights of Discworld – and there are plenty. As in previous Delta 4 games there are plenty of problems which start easy and gradually become more difficult as you proceed. Graphics depict certain key locations and very good they are, too, but if you do not like graphics there is the option to turn them off. RAM save is another feature I like particularly. It prevents the need to mess with tapes and the text descriptions are long and interesting.

Not to everyone's taste. Either you like McNeil's style or you don't but if you want something different, try this – you will not regret it.

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GUIDE TO THIS MONTH'S REVIEWS

SPECTRUM
Druid
Nightmare Rally
TT Racer
Hardball
Revolution
Olli and Lissi
Bump, Set, Spike

BBC
Galaforce

COMMODORE
Sanxion
Asterix
The Pawn
War Hawk
Go for Gold
Ninja

AMSTRAD
Activator
Five-a-side Soccer

Software Shortlist

Each of the games reviewed in Software Shortlist has been reviewed extensively by our team of reviewers.
We do not include reviews of unfinished products in this section of *Your Computer;* they are the games you can buy now or in the near future.
See the Software News and Preview features for advance news of games being developed.

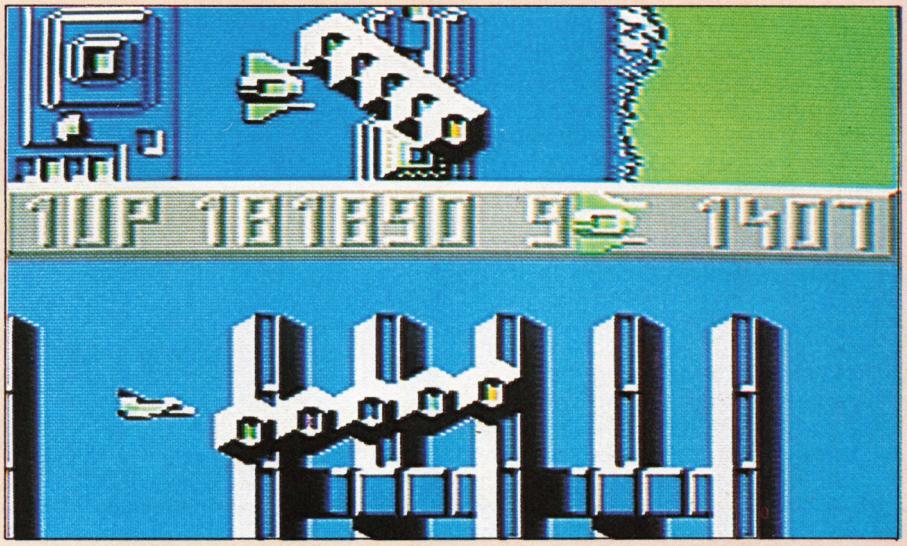
Soft Star

Watch for the *Your Computer* Soft Stars. They are awarded to games which, in our opinion, offer outstanding value.

SANXION

► *C64 ● Thalamus ● Shoot-'em-up ● Francis Jago ● £9.95*

GRAPHICS
SOUND
PLAYABILITY
VALUE FOR MONEY
OVERALL



Thalamus may be a strange name for a software company but its first release, *Sanxion,* is anything but a silly game. Having seen many shoot-'em-ups, I can say safely that almost nothing outblasts Sanxion. It may not require a great deal of thought or strategy but it makes *Iridis Alpha* and *Uridium* look like a day out in the country.

Using a two-thirds/one-third split screen, with a vertical view in the top screen and a horizontal view in the bottom, the object is to shoot as many of the varied aliens as possible, as well as gaining thousands of points by completing the various bonus levels.

In an attempt to turn the game into a complete package, Thalamus has taken the approach of putting much more than a game on each tape. First, there is a new turbo-loading system, together with a neat loading screen, and a fabulous piece of Rob Hubbard music – better than for almost all games, let alone the loader.

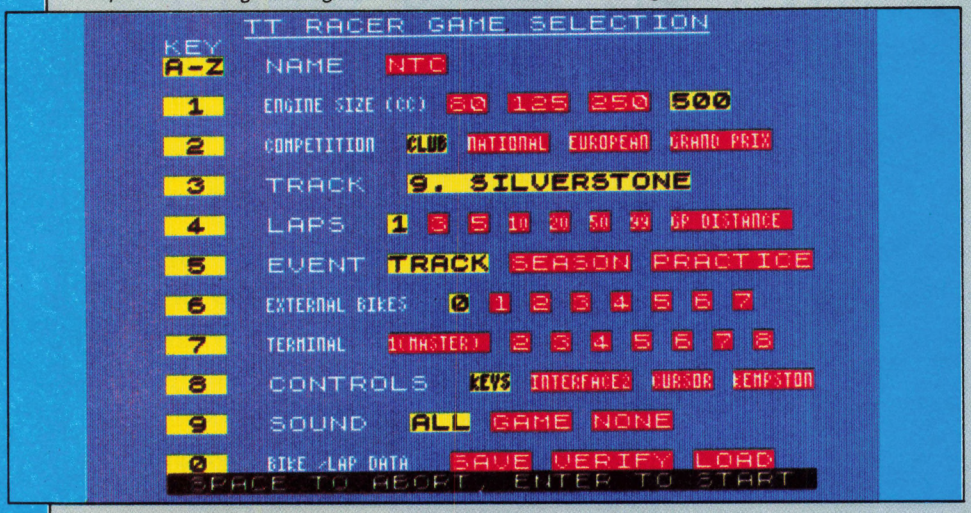
Once loaded, you are then greeted by perhaps the best-ever piece of music for the Commodore or any home computer. Based on Prokofiev's *Romeo and Juliet,* and again by Hubbard, it may not be perfectly suited to the game, although that is a matter for conjecture, but it is still a really great piece of music which will be remembered for a long time and it is undoubtedly Hubbard's best.

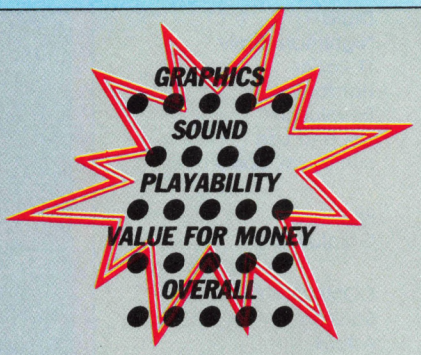
All that apart, Sanxion has excellent graphics, although they owe a great deal to the original metallix images of games such as *Z.* The animation and scrolling are perfect and the game appears to be almost exempt from criticism, except for its lack of originality. If all the company's releases are as good as Sanxion – and from what I have seen they are – Thalamus should soon be established as one of the premier software houses.



TT RACER

► *Spectrum ● Digital Integration ● Simulation ● Francis Jago ● £9.95*





No bones about it, *TT Racer* is the most impressive Spectrum game I have seen for a long time. It is also the most playable simulation I have encountered. All that enthusing apart, Rod Swift, the programmer, can be very proud of the game, even if it took him more than a year to write.

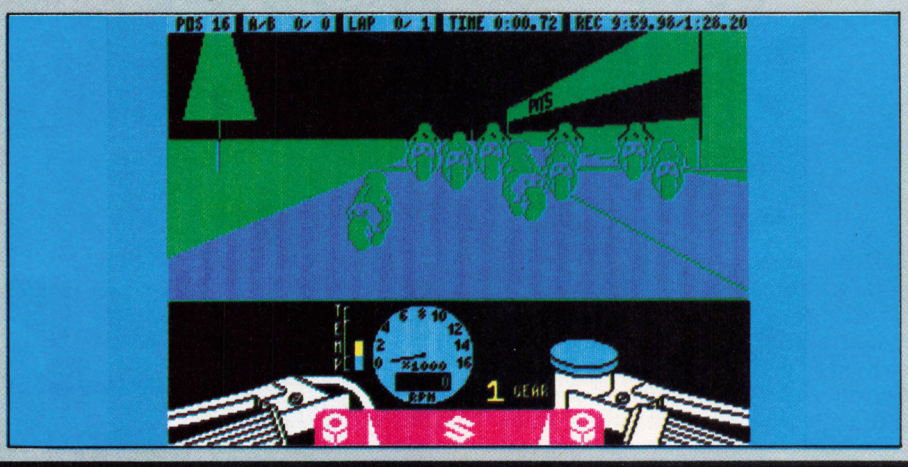
Why the game is called TT Racer is something of a mystery, as it has nothing to do with the famous Isle of Man races. Do not let that deter you, motorcycle fan or not, as the game will keep any Spectrum owner glued to the keyboard.

Based round the Suzuki world championship team, and more specifically around its erstwhile number one, Paul Lewis, it lets anyone experience the thrills and spills of riding a 500cc – 250, 125, and 80cc – round any of the world's top racing tracks. Realism seems to be the order with TT Racer and each of the tracks seems to be exactly correct. Do not take my word for it – Lewis told me.

Using a split screen, with the bottom third being dedicated to a variety of necessary instrumentation – rev counter, gear indicator and the like – the top is left to display the 3D view of the other machines and the track. Of the many features which make this game so novel, the most interesting is the ability to network eight motorcycles together and have a race to the death, thereby stretching the idea of multi-player games to its absolute limit.

Using 3D graphics as the game does, some speed reduction, when compared to more usual vector graphics, had to be expected, but that does not affect the game adversely, particularly when hurtling into Abbey bend at 150 mph.

If you are debating which game to buy this month and are willing to put a little effort into getting the hang of the game, I can recommend TT Racer wholeheartedly. It is surely a leading contender for game of the year.



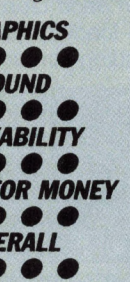
ASTERIX

► *C64/Spectrum ● Melbourne House ● Arcade/Adventure ● Francis Jago ● £9.95*

Defeating odds approaching one million to one always appeals to the public and, consequently, tales of *Asterix* and *Obelix* have always been among the most-loved children's books. In the latest release from Melbourne House, *Asterix and the Magic Cauldron*, you take the role of the veritable Gaul and it is your task to rescue the seven pieces of the Magic Cauldron.

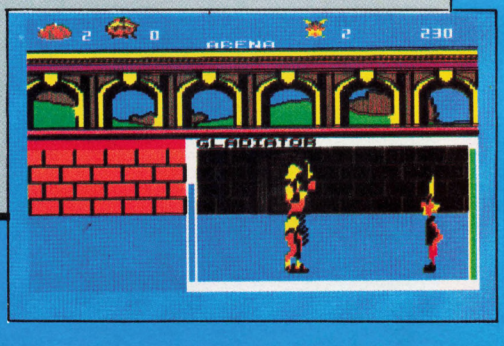
Together with your inseparable friend Obelix, you set out to scour the Roman empire, searching for the smashed cauldron so that Fullyautomatix can put it back together. In more computerised language, it is an arcade adventure with a heavy dose of combat included for good measure.

Without a real hit since *Way of the Exploding Fist*, Melbourne House hopes that Asterix could prove to be a winner. Graphically, the game is excellent. Both the main characters are easily identified, and the Romans look suitably uncivilised. All the backgrounds include various Gaulic dwellings, Roman camps and Rome.



Getting used to the various joystick movements requires more than a little practice, especially in the change-over between movement and fighting. As with the original books, Asterix does not have an unlimited supply of super potion; in fact, the potion can be used only once, even if it is to devastating effect.

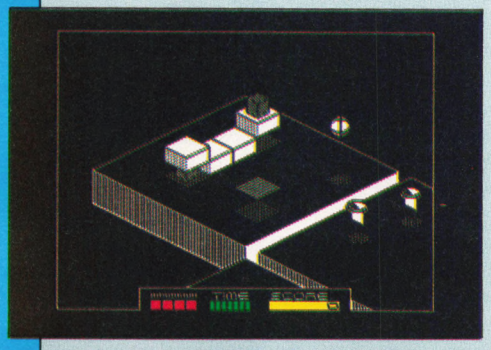
Any dedicated fans of the books will undoubtedly be able to find fault with the game. I could but it is still entertaining and should appeal to anyone from eight to 80. One final criticism, where is *Dogmatix*?



REVOLUTION

► *Spectrum ● Vortex ● Strategy ● Francis Jago ● £8.95*

Vortex can scarcely be accused of trying to flood the market with its products. One thing to stand out from all its releases, however, is the quality of Costa Panayi as a programmer. His hits, which include *TTL* and *Alien Highway,* have always included fabulous three-dimensional



GRAPHICS ●●●●●
SOUND ●●●●
PLAYABILITY ●●●●
VALUE FOR MONEY ●●●●
OVERALL ●●●●●

graphics, and *Revolution* is no exception.

At first glance, Revolution appears to be an uneasy combination of *Bobby Bearing* and *Bounder* but once you have been enthralled by the graphics and overwhelmed by the realistic feel of the ball control, the game soon becomes a challenge which cannot be ignored.

The object is to bounce, or roll, round various levels of the game, solving puzzles as you go. Control is via the keyboard or, more realistically, a joystick. The puzzles consist of touching two blocks quickly before they have a chance to revert to their original colour. Essentially that sounds very simple but when you have to contend with all kinds of inanimate objects whose life revolves round making you fall off the edge of the playing plain, the game becomes much more difficult.

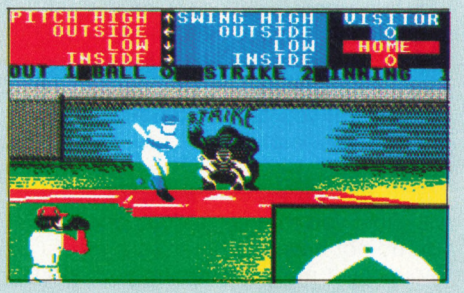
What makes it so playable is the realism with which the ball moves. Gravity, elasticity and power are all well represented, although the height of the bounce can be determined by the player. Once you have played the game once you will be hooked. It requires more than dextrous fingerwork and more than an auto-fire option to succeed. What you really need is patience and skill.

HARDBALL

► *Spectrum ● Advance Software ● Sports Simulation ● Francis Jago ● £8.95*

When U.S. Gold, in all its wisdom, decided not to convert *Hardball* from the Commodore 64, most people felt it was because it could not be done. It has taken a new software house, Advance Software Promotions, to attempt the conversion and a very creditable job it has done, too.

When the first screen shots arrived at the *Your Computer* offices, everyone believed that the pictures were of the original 64 version and that Advance had probably made a legitimate mistake. Eating my words has never been a favourite pastime but when Hardball was loaded on the office Spectrum I chewed for five minutes.



The game follows the rules of baseball closely, with excellent depiction of the three main characters of importance – the batter, pitcher and catcher. Playability, too, has not been sacrificed and once perfect timing, in both pitching

GRAPHICS ●●●●●
SOUND ●●●
PLAYABILITY ●●●
VALUE FOR MONEY ●●●●
OVERALL ●●●●

and batting, has been achieved, it is possible to give the computer a good run for its money.

So far as sports simulations go, it is one of the best of the arcade type. What makes the game more interesting than most of this genre is the ability to manage the whole team.

THE PAWN

► *C64 with disc drive ● Rainbird ● Adventure ● Francis Jago ● £19.95*

GRAPHICS ●●●●●
SOUND
None
PLAYABILITY ●●●●●
VALUE FOR MONEY ●●●●
OVERALL ●●●●●

At last, after nearly two years of waiting, Commodore 64 owners can play and enjoy *The Pawn.* Unlike certain adventures, this really was worth the wait. For those who may not yet know about The Pawn, the plot is that wandering down the high street one bright morning you pass an extremely odd-looking man. Suddenly, you feel a sharp blow on the back of your head.

On waking, you find yourself in the strange land of Kerovnia which, mainly due to the assassination of the Queen, is in turmoil. It was said to have been done by Roobikyoub, the dwarf master. Because of that, good king Erik has banished the dwarfs. That is where you figure – did the dwarfs assassinate the Queen or was it a plot by someone else?

The game has been available for more expensive machines for some time and the Atari ST and Amiga versions have received praise from all directions. What everyone was worried about with the Commodore version was that the graphics would be below par. No-one need have worried. Bob Stevenson, the undoubted king of 64 graphics, has produced screen after screen of fabulous images which show what can be done on a machine some people call dated.

Unlike many adventures, The Pawn can cope with long sentences containing more than one action. That can be put down to the parser created by Anita Sinclair for her company, Magnetic Scrolls.

Overall, The Pawn is an excellent adventure, the like of which is rarely seen on the 64. Unfortunately you must own a disc drive to use it but I am among those who believes the game alone justifies the initial outlay.



GALAFORCE

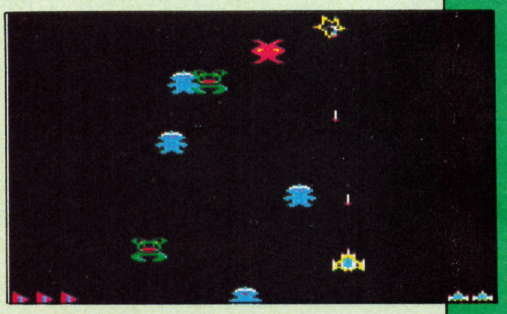
► *BBC, Electron ● Superior ● Shoot-'em-up ● Nick Fry ● £9.95*

BBC owners have been deprived of a really good shoot-'em-up, mainly because Orlando, the ace programmer of Zalaga, has been relatively quiet. Now Superior, having linked with Acornsoft, has redressed the situation with the release of *Galaforce,* a truly playable blast of a game which should have BBC and Electron owners glued to their seats into the early hours.

Owing more than a little to Zalaga, in both scenario and overall feel, the object is amazingly simple – kill as many things as possible. Initially the game appears to be very easy, as it is simply a matter of being in the proper place at the correct time and keeping your finger on the fire button. Using this technique, wave after wave of aliens will fly directly into your line of fire.

It is only in the latter stages of the game, by which I mean later than level 7, that the game becomes more difficult, especially when the aliens decide to start reaping their revenge by shooting back. At that point it becomes essential to know each attack wave, from where it emanates and how fast and how many aliens it contains.

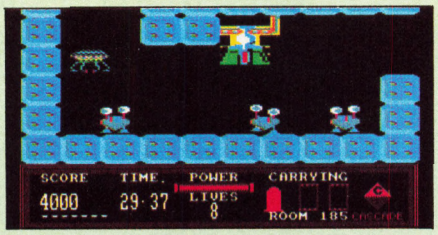
GRAPHICS ●●●
SOUND ●●●
PLAYABILITY ●●●●
VALUE FOR MONEY ●●●
OVERALL ●●●●



One relatively unusual inclusion is the ability to travel up and down the screen, as well as left and right. Whether that is of practical value is dubious but it can certainly add to the tension. Superior Software deserves to do well with the game. It is one of the few really top-quality software houses left supporting the BBC and any BBC owner could pass many hours with this game.

ACTIVATOR

► *Amstrad ● Cascade ● Arcade/Adventure ● Francis Jago ● £7.95*



Cascade is not really known as a games software house, mainly because until now its only release had been an air combat simulator, *ACE.* At the PCW Show this year, however, Cascade took the plunge by launching two new games for the Amstrad. Of those, *Activator* seemed to be the most addictive.

The plot behind the game is a fairly normal save-the-whole-of-civilisation type thing, only this time you must save another ship which was lost far in the depths of unknown territory. Playing the game requires a great deal of skill, especially if you are not fond of making maps, and completing it is a very long task.

You must collect certain letters which will allow you to enter certain doors. If you do not have the necessary letter, frequently it means retracing your steps for many hours, something which proves very frustrating. As well as the letters, there are also bullets, which are necessary if you want to get anywhere in the game. Frequently the bullets must be sacrificed for a new letter and then it is only quick wits which keep you alive.

Graphically, the game makes the most of the computer colour, rather than going for high-resolution 3D screens, and it works. The colour coding also helps when you are lost. Overall, it is an above-average arcade adventure which should reward Cascade well. So long as the games it produces continue to improve, it will do very well.

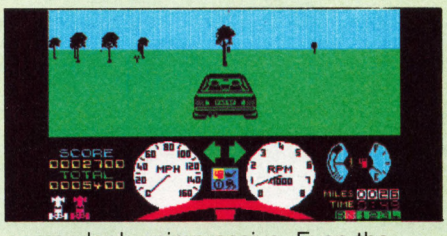
GRAPHICS ●●●●
SOUND ●●●
PLAYABILITY ●●●●
VALUE FOR MONEY ●●●
OVERALL ●●●●

NIGHTMARE RALLY

► *Spectrum ● Ocean ● Arcade ● Francis Jago ● £7.95*

GRAPHICS ●●●●
SOUND ●●●
PLAYABILITY ●●●●
VALUE FOR MONEY ●●●●
OVERALL ●●●●

When Ocean releases a game with no blaring of trumpets, something which happens very rarely, it usually means it wanted to get rid of it as quietly as possible. *Nightmare Rally* tends to disprove that completely. The first I heard of the game was when I opened the package but it proved to be a game which makes some more exposed games look unimpressive. Even the cover was good, with a picture of a car remarkably similar to a Lamborghini Countach adorning it. Unfortunately the car used in the game seems more similar to an Escort XR3i. Supposedly based on a rally of kinds, sports fans will look on it more as a ski slalom on wheels.



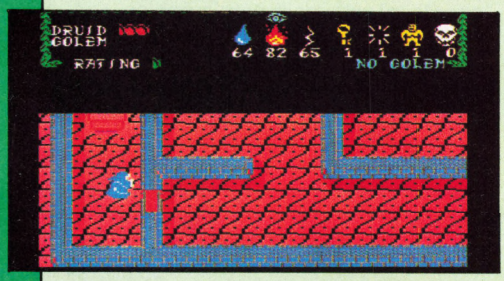
In play, the game seems to combine a realistic feel of speed control, using five forward gears as well as reverse, with a very odd steering mechanism. Although the joystick allows you to steer the vehicle, the computer also assists in a most disconcerting fashion, especially if you are heading for anything untoward.

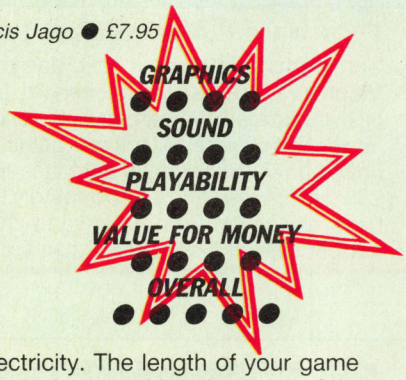
The scoring system depends on the number of flags you miss and how quickly you can reach the finishing post on each level. One of the most novel features of Nightmare Rally is the ability to use natural humps to leap across all kinds of obstacles, including rivers and anything else which is likely to end your game.

Using excellent 3D graphics, with more than two-thirds of the screen used for action, that, combined with a detailed instrumentation panel, a speedometer, rev counter, fuel guage and directional indicators, should provide many hours of fun to budding Tony Ponds.

DRUID

► *Various* ● *Firebird* ● *Arcade/Adventure* ● *Francis Jago* ● *£7.95*





If the thought of waiting almost two months to buy the official version of *Gauntlet* is too much for you, the latest release from Firebird might be just the medicine you need. Although not so close as to attract the wrath of Atari, it still maintains the immense playability, as well as some more obvious features, of the original arcade machine.

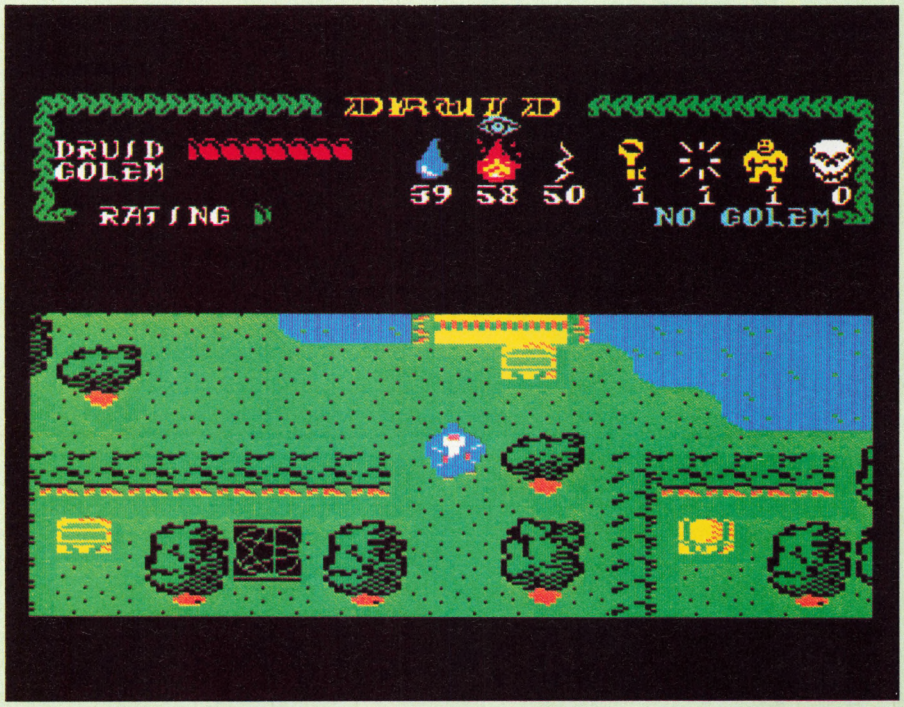
Using a multi-directional scrolling screen, *Druid* combines a true arcade feel with an atmosphere not dissimilar from the early *Dungeons and Dragons* board games. The object is to travel through various levels, reaching the exit, and using the keys you have collected to complete the game.

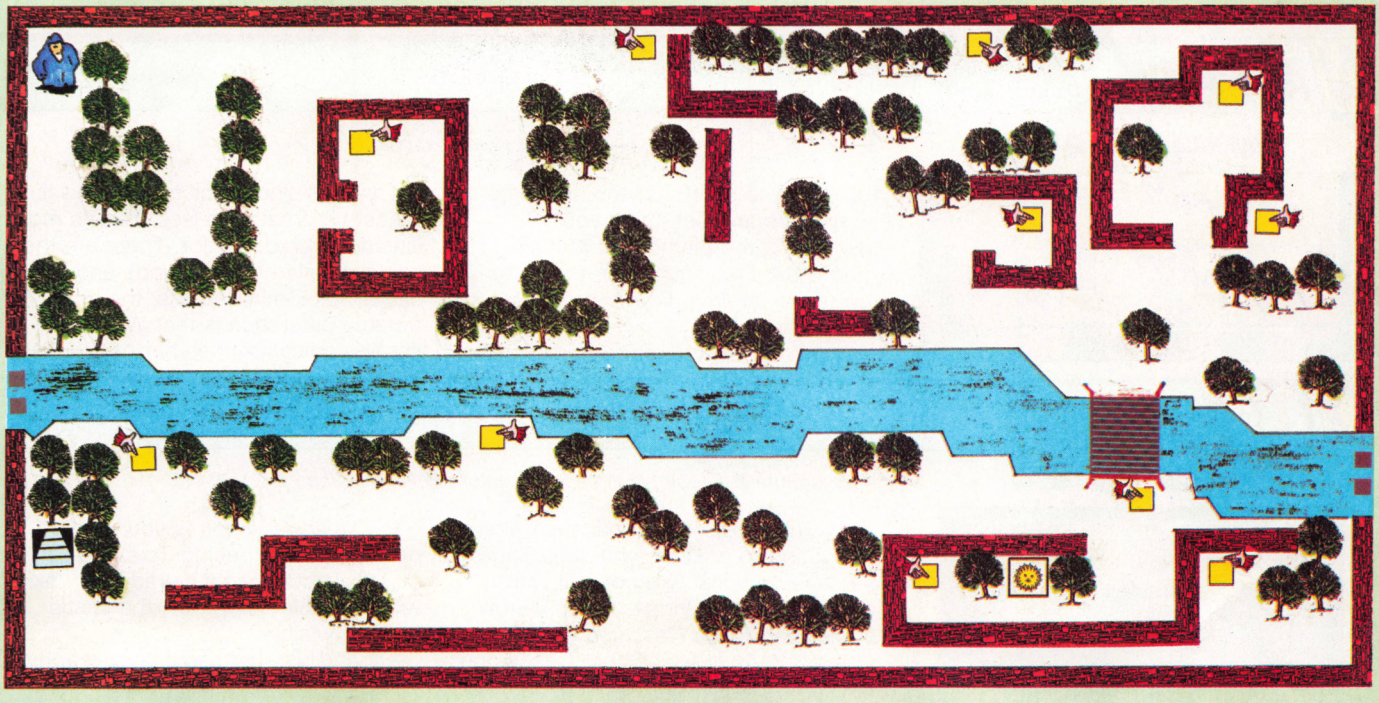
Although unlike the original Gauntlet, no more than one player can play a whole game. At certain points the player can pick up an object called a Golem. He acts as a defensive helper who, although he is unable to fire, can kill any baddies by walking through them. If you have a friend, he can control the Golem but, even on your own the Golem can prove extremely useful.

Other objects which can be collected include Chaos, which acts in the same way as a smart bomb would. Invisibility – an extra firepower for each of the three weapons you use – water, fire, and electricity. The length of your game depends on making the most of the energy with which you are supplied, or getting to the five-pointed star which re-vitalises your energy.

Perhaps surprisingly the Amstrad version is as good, if not a little better than the Commodore version, with the graphics being exquisite. All the levels I have managed to see – getting past level three proved to be almost impossible – are of equal quality, with excellent definition of all the backgrounds.

One thing to look for on both Commodore and Amstrad versions are the amazing loading screens. Originally done by ace 64 artist Bob Stevenson, The Amstrad version has a very creditable look-alike done by the game's programmer.

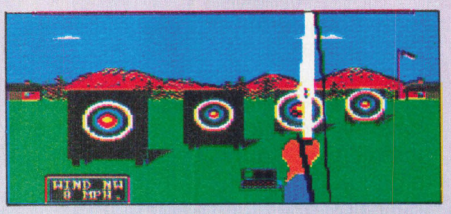




BUDGET SOFTWARE REVIEWS

GO FOR THE GOLD

OVERALL ● ● ● ● ●



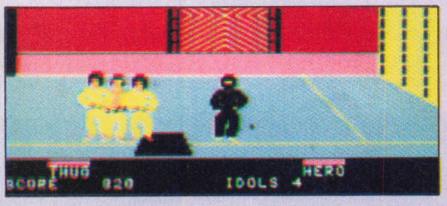
► *C64 ● U.S. Gold ● Sports Simulation ● Ken Alexander ● £2.99*

Commodore 64 owners have had their fair share of sports simulations, with four or five number one games being based on the *Track 'n' Field* arcade game, but how many of them have cost less than £3? *Go For The Gold* is undoubtedly the best release yet from Americana, the budget side of U.S. Gold. It has six events, all with really neat graphics, and plays as well as almost all of the more expensive sports games. One event of particular note is the diving, which some budget companies would have released as a game on its own.

It must be one of the biggest bargains available.

NINJA

OVERALL ● ● ● ●



► *C64 ● Mastertronic ● Martial Arts ● Ken Alexander ● £1.99*

With the iminent release of *Fist II*, a great deal of interest has been re-kindled in fighting games. One surprising point many people noticed was the lack of one good budget fighting game. Many companies tried but many also failed.

It was, as always, for Mastertronic to prove that it could be done – and sold for a ridiculously low price. Here it is – *Ninja*. It has all the essential elements to make a good fun game.

Other features are the inclusion of weapons and the ability to travel through various levels of action.

FIVE-A-SIDE SOCCER

OVERALL ● ● ● ●



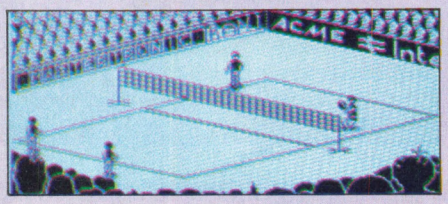
► *Amstrad ● Mastertronic ● Sports Simulation ● Francis Jago ● £2.99*

MAD Games, otherwise known as Mastertronic Added Dimension, has managed to maintain a surprisingly high quality for the products released and *Five-a-side Soccer* is no exception.

Using an angled 3D view, together with some good if not fabulous graphics, the programmer has managed to create a good feel for the game and, playing either a friend or the computer, it is very easy to become involved. The players are controlled either by joystick or keyboard. Overall, it is an above-average sports simulation.

BUMP, SET, SPIKE

OVERALL ● ● ●



► *Spectrum ● Mastertronic ● Sports ● Ken Alexander ● £1.99*

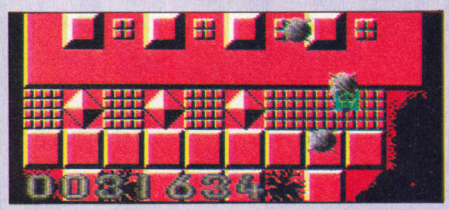
Volleyball can safely be called one of the least popular of all sports played in the U.K. That might have something to do with the fact that England has very few miles of golden sandy beaches and what small strips of sand we have are very rarely shone upon by the sun.

Mastertronic, however, has seen fit to release *Bump, Set, Spike*, a volleyball simulation for all the family.

The animation is good but, overall, the game lacks the addictive quality which normally makes Mastertronic games such firm favourites.

WARHAWK

OVERALL ● ● ● ●



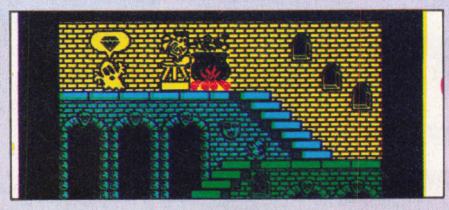
► *C64 ● Firebird ● Shoot-'em-up ● Ken Alexander ● £1.99*

Examine the charts for the last three or so months and one thing you will discover is the plethora of mettalix graphics-based shoot-'em-ups in the top ten – *Uridium*, *War* and *Parallax* to name three.

With *Warhawk*, Firebird has released yet another Uridium clone, only this time it costs a great deal less than its more illustrious predecessor. There are the same detailed backgrounds and the same well-defined aliens; the most notable difference is that Warhawk scrolls vertically rather than horizontally.

OLLI AND LISSA

OVERALL ● ● ● ●



► *Spectrum ● Firebird ● Arcade Adventure ● Francis Jago ● £1.99*

As we all know, the Americans will stop at nothing to destroy what little English heritage remains. Not content with owning London Bridge, which is now somewhere in the West, some American now wants to buy Shilmore Castle and ship it to that land of all things cheap.

In *Olli and Lissa*, it is your task to prevent that happening. To achieve it you must collect the eight ingredients which will make Sir Humphrey, the castle ghost, invisible.

Olli and Lissi has some good graphics, and a fiendishly difficult task.



CBM 64 Screen shots.

THAI BOXING



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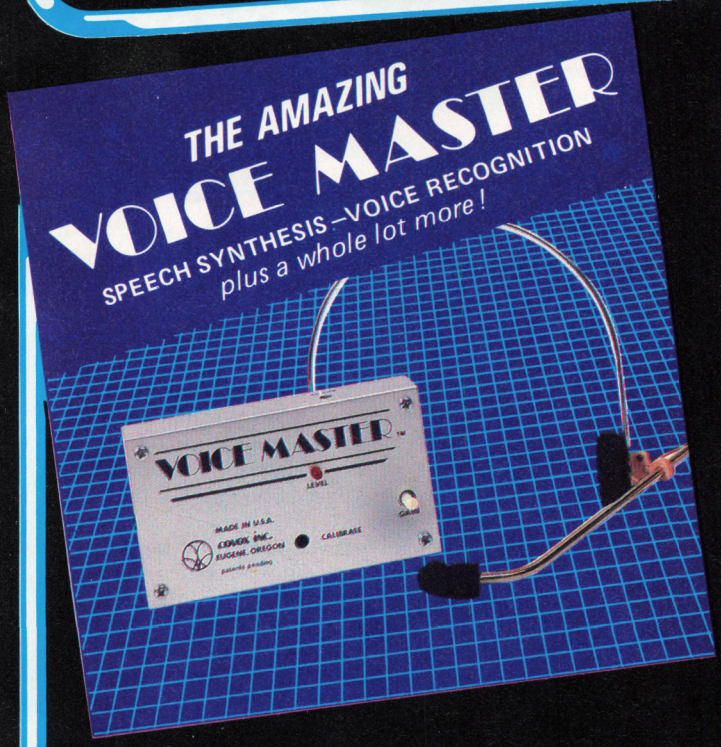

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Going t

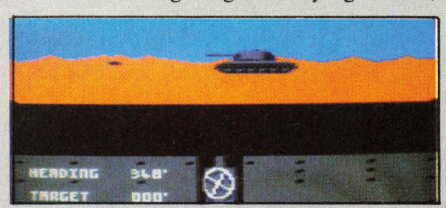
War simulations are bec
Tom Courtenay exam

War games have come a long way from the time H. G. Wells wrote *Little Wars* at the turn of the century. He wrote it as a result of trying to regulate the battles on the kitchen table against his friends involving a handful of painted tin soldiers. These days, war-gamers revel in the complexity and realism of their simulations – if you call it playing soldiers they would be very upset. Any game worth its salt will involve tape measures, dice, sets of tables, vast numbers of troops, or even cardboard counters representing regiments or divisions.

So it is scarcely surprising that the home computer was welcomed by the war-gaming lobby with open arms. Two approaches were taken; either the computer could be used to referee a traditional war game fought on a table-top in traditional manner, or the whole thing could be transferred to the computer.

The pioneer of the latter approach was Lothlorian, which began to produce war games written in Basic on the Spectrum. Obviously they look primitive by today's standards but they attempted to be accurate representations of historical events. To the mainstream games enthusiast, they played slowly and you could not kill anything.

The first truly modern game was *Nato Commander* from Microprose. It takes place in nothern Europe and features that almost constant American obsession, the Reds pouring over the border and trying to take over Europe. The game covers the most critical period, between the initial invasion and the U.S. getting huge reinforcements to the front. Thus, the Nato commander is severely outnumbered and is fighting a delaying action,



Tobruk.

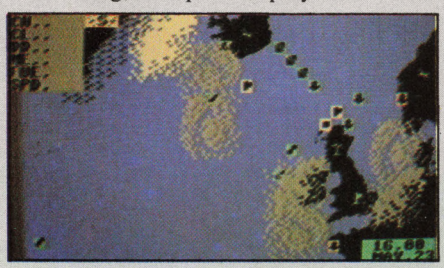
trying to hold on to as much ground as possible, and possibly inflicting significant losses on the Soviets.

However distasteful you may find the scenario, it is a very good game. Success depends on falling back in stages, each rearguard action allowing time for the forces to the rear to dig in, then fall back, and so on. In that way, the steam is taken out of the Soviet advance. Any Soviet forces not in contact with friendly forces may disappear from the map, depending on how many aircraft are flying reconnaissance missions.

Aircraft can also run air superiority or ground attack missions. It is important to keep open supply lines and make the best possible use of terrain. The computer opponent is fairly intelligent, although by following particularly outrageous tactics it might be very confused.

Microprose recently followed this with *Decision in the Desert* and *Crusade in Europe.* They are a real *tour de force.* Covering two famous campaigns in WWII, they are about as near to a board game on a computer as you are likely to see. Almost everything is there, the different strengths and weaknesses of units, use of terrain, supply – in both strategic and tactical senses – fog of war, and a two-player option.

Again, the computer could be a little lacking in the old grey matter, especially when called on to defend, but the two-player option is what the game was about. Both games feature several different scenarios which portray different battles within the campaign. Although the games can be long, the speed of play can be var-



Bismarck.

ied to slow things when things become difficult. Orders are made in real time – the battle does not stop while you input orders. Tactics are very subtle. All-out effort rarely works; you will just run out of supplies and exhaust your troops. It is all about probing for weaknesses and then exploiting them quickly. The games are on C64, Atari and Apple.

Microprose recently capped even that success with its chart-topping *Silent Service,* in the same three formats, with ST, Amstrad and Spectrum versions promised. It is a superb simulation of submarine warfare in the Pacific. Almost without being aware of it, the player is subject to many rules about sighting, detection, firing and hidden movement. It knocks spots off all the board games devoted to the same subject – and you can shoot things.

You command one submarine on patrol in the Pacific. After a convoy is detected, a quick squint through the periscope to see whether its worth the risk – how heavy is the escort? Then check the time. Should you wait until dusk? Check the speed and course of the convoy. What is the best attack course to evade detection? A little on the slow side for the shoot-'em-up fraternity but a superb and exciting simulation which will take some beating.

That is not to say British programmers are not starting to get their acts together. Particularly Robert Smith, who has produced two fine simulations. *Arnhem* and *Desert Rats,* published by CCS on the Spectrum and Amstrad.

Another company specialising in this field is PSS. It has attempted to popularise the genre by including an arcade element in most of its games. Unfortunately that tends to mean the realism of the game suffers – precious memory and development time is lavished on a rather tedious shoot-'em-up.

Neither is the company a stranger to controversy. Its titles include *Theatre Europe,* all about the jolly little subject of a European war escalating into a thermonuclear holocaust. The scenario is much the same as Nato Commander but the addition of a complex air war, the arcade sequences and the thermonuclear option has left in its wake a rather dull land game.

The game falls between four stools. *Falklands '82* was another landmark of good taste. It features the Argentinians and the British locked in a struggle to save



o battle

oming ever more popular. ines some of the best.

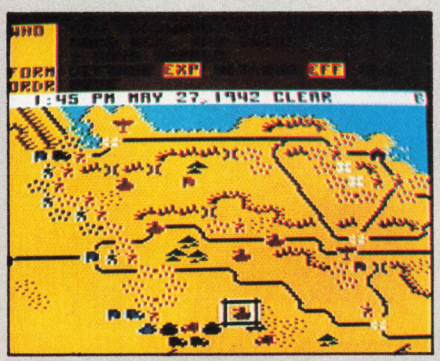
their respective governments from the wrath of the electorates. The game stayed mainly with the land campaign and it aroused much anger as it demonstrated the possibility of the British losing – something fairly obvious to anyone of even a semi-rational disposition.

Possibly the company's best game to date is *Battle of Midway*, about the decisive carrier battle in the central Pacific in the middle of 1942 which effectively ended Japanese chances of winning the war. The player controls the American task forces in an attempt to seek and destroy the Japanese aircraft carriers protecting an invasion of the American base at Midway island.

Although the tactics employed would make most military historians turn pale, it is not a bad game. The player has to find, identify and then shadow the enemy task force as his strike aircraft close in from his carriers. Naturally, the enemy is trying to do the same, or even get to grips with his surface units. The player must plan his raids, try to evade the enemy, and control the strikes, making sure they find their targets and have sufficient fuel to return to their carriers.

The same system was developed further in the PSS *Battle of Britain*. It covers the Luftwaffe attempt to destroy the RAF in the summer of 1940. The main pre-occupation of the player is to preserve his fighters, taking on the Germans only if he can do so on favourable terms. There are problems; after each interception the fighters must land, re-fuel and re-arm. The nightmare is that a German raid will catch the fighters on the ground. The campaign is fought through several turns, with the British meeting raiders as their losses permit. It is a long game, of slightly dubious accuracy, but a fascinating struggle.

On the same subject, *Their Finest Hour* from Hutchinson is a flawed attempt to be a real simulation of the battle. Although highly-detailed, some of the



Decision in the desert.

mistakes are almost laughable. First, defensive flak can zip from target to target as if on wheels; ME109s have huge fuel tanks, along with the Spitfires which also have inexhaustable ammunition. Time and again, a squadron can shoot down 200 aircraft and usually the Luftwaffe is defeated on the first day. It is a pity, because it had the makings of a fine game.

The most recent PSS game returns to the Western Desert. *Tobruk*, on the Amstrad, features an exceptional network option where two Amstrads are connected using the joystick ports so that two players can battle with highly-realistic *Fog of War*. Neither can see each other's pieces. The game design is a little artificial, with the British having fixed supply dumps and the Germans being able to zip around at will but it is a fine game which is great fun to play.

Most of the games have been set in WWII. If you crave for the age of the horse and the cannon, there is a grave shortage of quality material from that era. The Lothlorian *Waterloo* and *Austerlitz* are not bad. Although they lack detail, the games go some way to recreating the Napoleonic era, but if you are looking for dramatic cavalry charges, forget it.

Possibly the best thing Lothlorian has done to date is *Jonny Reb*, a semi-abstract simulation of tactics in the American Civil War, seen in retrospect as the transition from the Napoleonic to the modern era. As firepower became more formidable, so the only way to stay alive was to take cover. The infantry charge became a rather rare commodity. That is dealt with very well in this game. The Confederate army's job is to try to take a bridge from a small force of troops before a large number of Union reinforcements can arrive.

The tactic is to move up men with covering fire from artillery, then open fire with the infantry. If that does not work, send in the cavalry as a last resort –



Crusade in Europe.

demoralised troops will tend to run rather than face a cavalry charge. Endless variations of troops and terrain can be tried with a kind of battlefield designer.

The major criticism is that such a complex game has completely inadequate instructions. The terrain is placed there with little explanation of its effects. Despite that, and the usual monumentally thick computer opponent, it is a game which will reward plenty of experimentation.

Computer war games have progressed a long way from their humble origins but they still have some way to go before they reach the level of accuracy and subtelty of most board war games. Perhaps the new generation of 68000-based machines might just fulfil that potential.

ADDRESSES

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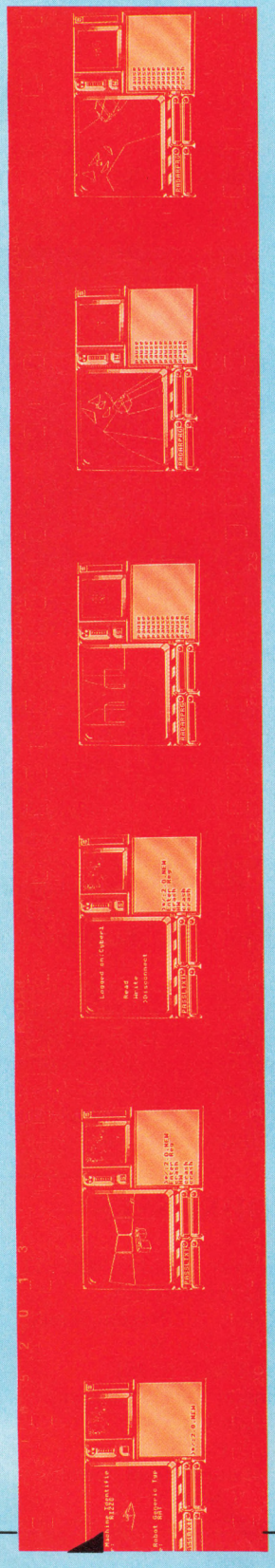
FIREBIRD

Francis Jago reports on hot stuff coming out of the fire this Christmas.



Phoenix out o

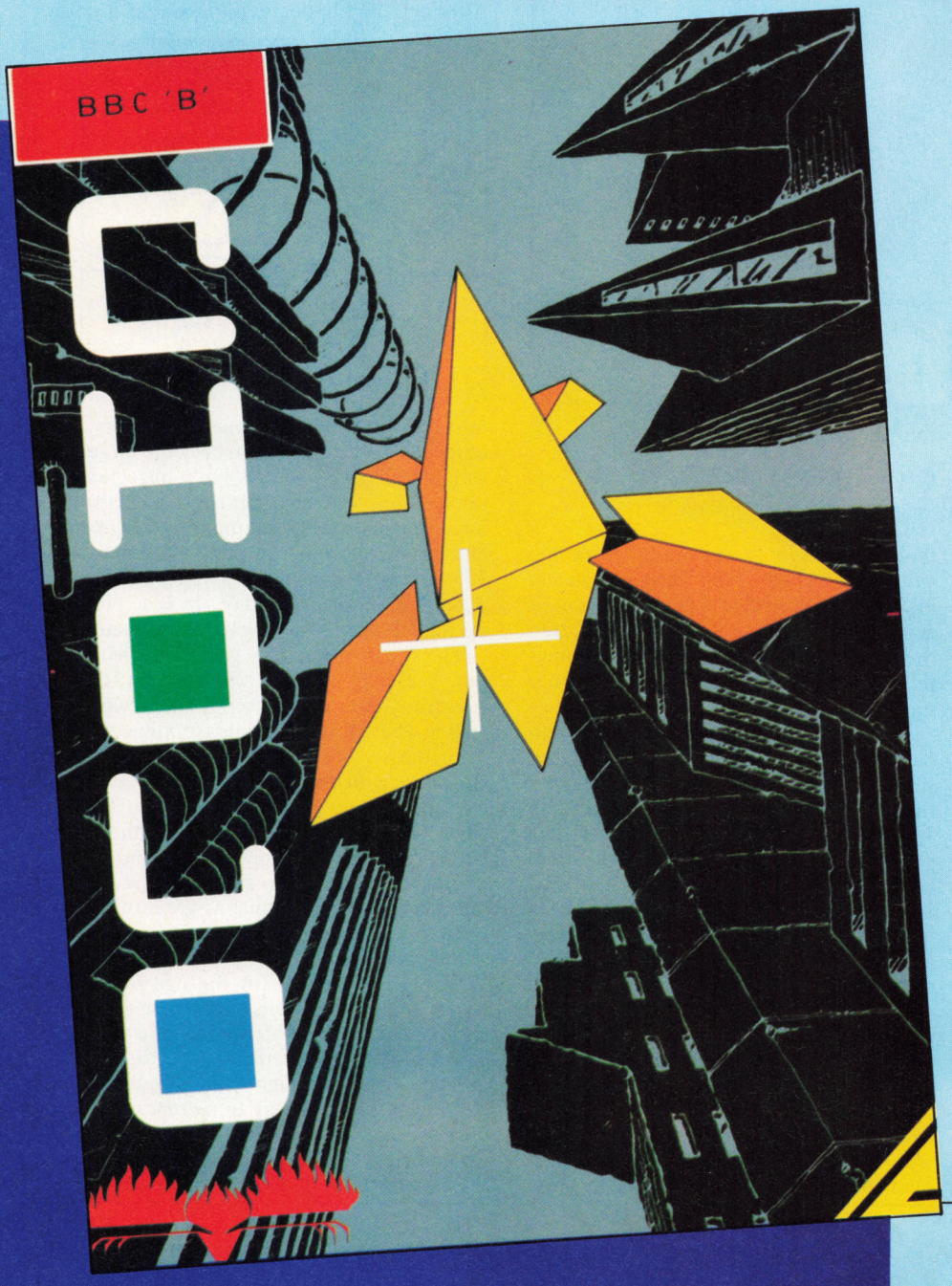
It has taken a long time for Firebird to get into its swing. Some of its earlier releases failed to dominate a market where there was undoubtedly a gap. Only *Thrust,* surprisingly, of the £1.99 Silver range managed to achieve the sales expected from such a major software house.

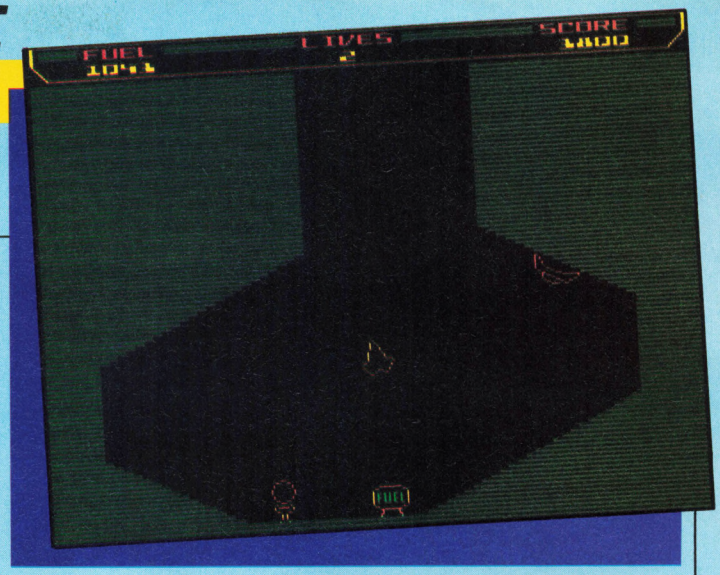
Recently, however, things have changed dramatically. The release of *Druid,* together with the plethora of other high-quality products which should soon be leaving its doors, seems set to establish Firebird once and for all.

Firebird was set up as the first software publishing side of British Telecom, although it was soon joined by companies such as Odin and Thor, which BT masters and distributes, and finally Rainbird, a company dedicated almost solely to the production of high-quality 16-bit computer games.

Starting relatively well, with successful conversions of *Elite* and a number of good, solid games, what it lacked was a direct source of good product, a problem reflected by a string of less-than-successful games.

Only recently has that been seen to change even in the slightest. The appointment of Tom Watson as marketing manager, and a new feeling of determination throughout the company, means that Firebird is ready to attack the big boys and, with a new product catalogue as big as it is, I can see no reason why it should not become one of the leading





f the fire

powers in the software industry.

Of its latest releases, Druid is the one likely to cause the most immediate stir. Everyone has seen and been impressed by the Commodore 64 version, not only because of the obvious similarities to *Gauntlet* but because the game is vastly playable in its own right. Druid fans may well be interested in the following list, which shows the complete list of levels it is possible to achieve:

Halfwit!
Apprentice
Acolyte
Seer
Lore Seeker
Spirit Master
Cleric
Potion Master
Lore Master
Priest
Illusionist
Magic Master
Conjurer
High Priest
High Druid
Light Master

That should help to determine just how close to completion certain players are.

Apart from Druid, Firebird has a number of other releases which it hopes will keep it on top both before and after Christmas. The first to expect is *Cholo*. Although available initially for the BBC, Firebird already has a Commodore version up and running, although the date for release has yet to be finalised.

Set on the surface of a planet called Cholo, the game puts the player in the role of a worker, sitting beneath the planet surface. The surface of Cholo smoulders and glows. There are no trees, no oceans and no life – only post-nuclear fallout and instant suntan. Your life is spent doing what you are told and listening to Committee Reports from the topside – 1984 anyone?

There is only one way of forgetting the monotony of life and that is to play the only reasonable computer game, RAT, which allows the player to guide a robot round a shattered city – a city which seems vaguely familiar yet unplaceable. It is only then that the thought enters your mind. Could RAT be a real view of the topside? Could the Committee have been lying?

Using a three-way split screen, with an action screen, a message screen and a scanner, the game makes Elite look simple and, as with its illustrious predecesssor, the three-dimentional vector graphics are drawn and animated immaculately.

Although Cholo looks to be a very impressive game, it seems *Sentinel* is the game which will steal the limelight. Programmed by Geoff Crammond, the man responsible for possibly the best racing simulation on any home computer, *Revs*, it promises to be the biggest Firebird coup yet, especially as it arrives unexpectedly.

Based on a massive 10,000-screen landscape, with excellent use of filled-in three-dimensional graphics, the game relies heavily on strategy while still retaining a distinctly arcade feel. The object is to get to the top of whatever landscape on which you are placed. That may sound easy but it requires a great deal of planning, as well as some split-second reactions.

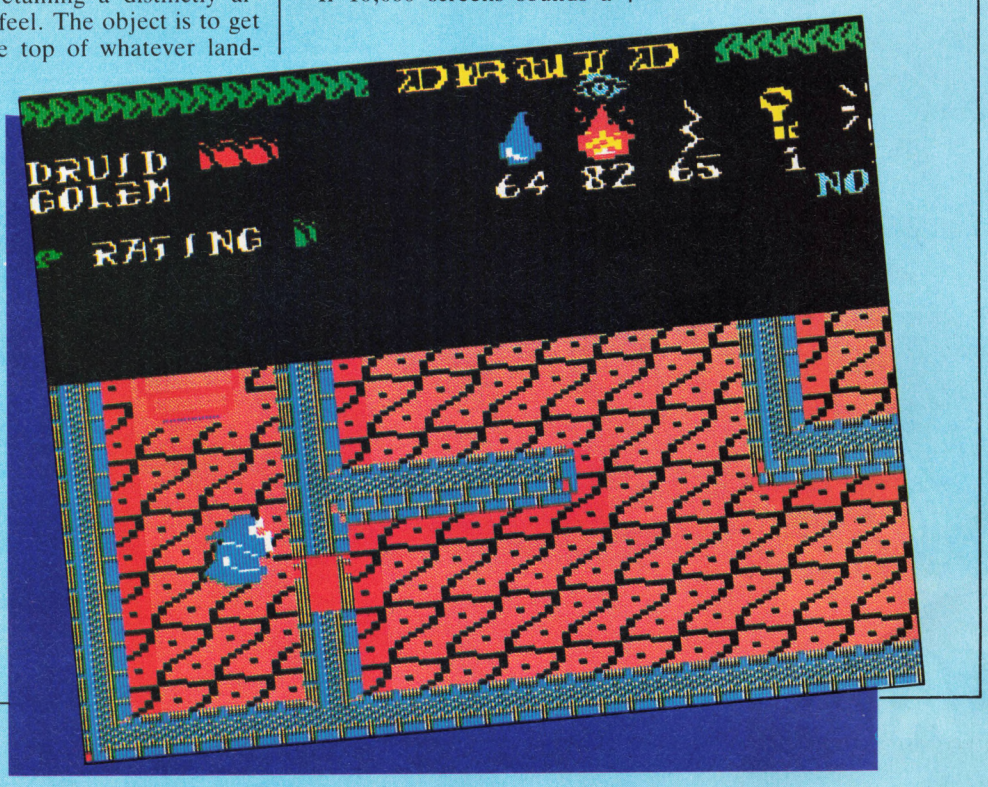
To climb up the landscape the player is required to build blocks upwards and that calls for a great deal of energy. Energy, the most vital commodity of the game, is acquired by absorbing trees, building blocks and the Sentinel. To absorb anything, you must be able to see the base on which it stands, so the game is not so easy as you would at first imagine.

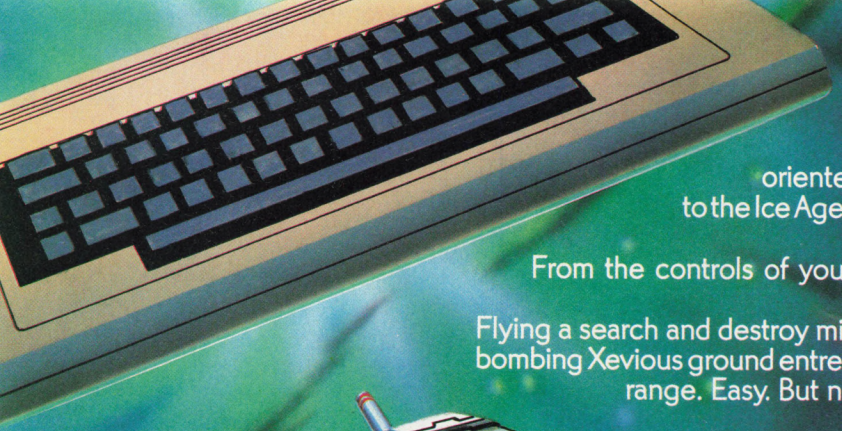
Unfortunately, the Sentinel likes nothing more than draining you of as much power as possible. If you are scanned by the Sentinel, you must make a quick dash round the landscape until you find a safer spot. Staying in any one place for more than a minute, however, is inadvisible, as the Sentinel also has a number of helpers.

If 10,000 screens sounds a little excessive, in play the levels whizz by, especially if you become adept at the game. If you finish a level with a great deal of energy it is possible to skip 10 or even 20 levels onwards. The difficulty increases correspondingly with the amount of Sentinels and at certain points you can have up to eight, which makes life very difficult.

Although programmed on the BBC first, as with Cholo, the Commodore 64 version is well advanced and is both as playable and, more surprisingly, as fast. When the game is released in roughly three months it is set to take the market by storm and should be one of the best games of 1987.

At last, Firebird has begun to fulfil its potential and 1987 should prove to be by far its most successful yet, especially if the games I have seen are a criterion.





Many eons ago, an advanced technologically oriented civilization was forced to evacuate the Earth prior to the Ice Age. Now, these Xevious people are returning to reclaim their heritage through conquest.

From the controls of your Solvalu super spacecraft, you must defend the Earth from takeover by the Xevious invaders!

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In the event of your surviving wave after wave of enemy onslaught you will encounter the controlling force of the Xevious offensive; the Andor Genesis Mother Ship! This is your goal. A direct hit to her central reactor will disable her, but do not be lulled into a false sense of security. Xevious forces will soon re-appear to renew their attacks with increased determination!



Another classic Atari coin-op hits the 64!

ZZAP 64

XEVIOUS

XEVIOUS



U.S. GOLD
All American Software

ATARI

Commodore 64	£9.99 CASS.	£14.99 DISK.
Spectrum 48K		£7.99 CASS.
Amstrad	£9.99 CASS.	£14.99 DISK.

*Xevious is engineered and designed by Namco Ltd. Manufactured under license by Atari Inc. and U.S. Gold, 2/3 Holford Way, Holford, Birmingham B6 7AX.

WIN THE ORIGINAL ARTWORK FROM DRUID, THE LATEST HIT FROM FIREBIRD

Anyone with an interest in the games world will know that *Druid* was intended originally as only a *Gauntlet* clone. In practice, however, the game has proved to be much more, incorporating new and innovative features which were not seen on the arcade original.

In this exclusive competition, *Your Computer* is giving away the original artwork from the cover of the game, as used in magazine advertisements. Already valued at more than £100, the picture has been specially framed and is definitely a fine prize.

Even if you fail to win the picture, there are still 15 runners-up prizes of two Firebird games, so start entering. To win, all you need to do is answer three simple questions and send your answers, together with what computer you own, to *Your Computer*, 79-80 Petty France, London SW1H 9ED.

The winner and runners-up will be the first 16 correct answers drawn from all those received by the closing date of the competition, November 30, 1986.



QUESTIONS

1. ***In what year was Firebird formed?***
2. ***Name three Firebird number one hits?***
3. ***Which new Firebird game has 10,000 screens?***

COMPETITION RULES

- ★ The winners of the competition will be the persons who send the first all-correct entries drawn from all those received before the closing date of the competition.
- ★ The names of the winners will be announced in the January 1987 issue of *Your Computer*.
- ★ All entries must arrive at the *Your Computer* offices by the last working day in November, 1986.
- ★ Each person may enter the competition only once.
- ★ Entries to the competition cannot be acknowledged.
- ★ No employees of Focus Investments nor their agents or close relatives may enter the competition.
- ★ The decision of the Editor in all respects of the competition will be final.
- ★ No correspondence with regard to any aspect of the competition will be entered into.
- ★ Focus Investments assumes no responsibility or liability for any complaints arising from this competition.

FIREBIRD COMPETITION

Do not forget to enclose this coupon, or a photocopy of it, when you send your entry, marked Firebird Competition, to the *Your Computer* editorial offices at the address shown at the front of the magazine.

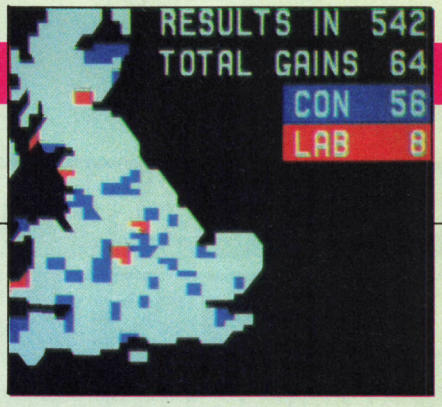
Answers 1 [ ] 2 [ ] 3 [ ]

Name _____ **Age** _____

Address _____

_____

POSTCODE _____ **Day Tel. No** _____



ITN – ILLUSTRATED TELEV

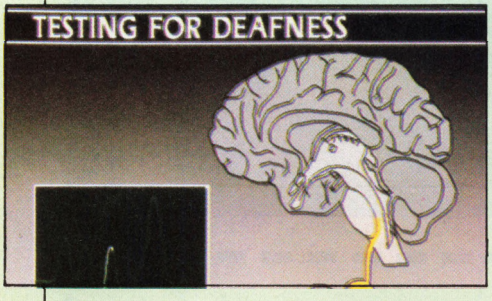
Computer graphics are now an essential part of television news, but how is it done? This is John Barnes at ITN reporting for Your Computer.

Using computer-generated graphics on television is now an accepted way of creating anything from title sequences to the weather forecast. The present emphasis, by the BBC and ITV alike, on winning higher ratings has made television broadcasting much more competitive. The search for new programme ideas and new formats for old programmes has given more importance to graphics than was previously thought necessary.

The Independent Television News presentation and format of news programs illustrates the change in importance well. News tends to be very similar from one day to the next, requiring a straightforward and serious presentation. Those requirements create great problems for the programme designers, as they restrict the degree of change and innovation which can be injected into news programmes.

The use of graphics, however, helps solve the problem to a certain degree but is often an overlooked aspect of ITN broadcasts. How many people watch television news and realise how much work has been put into the presentation of it?

The first computer graphics to appear on ITN were during the 1974 General Election, displaying results from the various constituencies. While the use and function of graphics at ITN have not changed drastically from that, they have become increasingly sophisticated,



allowing more complex graphs, maps and diagrams to be included in news reports.

The original machine was a DEC terminal which, while being effective, had certain limitations, particularly in terms of precision, permitting only the selection of eight colours and presenting huge problems when trying to create curved shapes. Those problems have been overcome by the design, development and construction of the ITN graphic generating system, the VT80.

In very simple terms, a television graphic generator builds an image by separating each of the scan lines into pixels, each of which has its own preselected colour. In the production of a simple image the system works well but for more complicated shapes and characters which require shadows or movement, the process requires a massive storage ability for each character, which proves impracticable for television broadcasting because of the large amounts of data needing to be transferred between the graphic generator and the computer.

Producing an image in this way is slow, taking several seconds for each picture to be generated and also preventing instant recall of stored images. Due partly to those inherent weaknesses and ITN requirements, the VT80 was constructed to allow the immediate recall of images, the production of high-resolution graphic displays, the on-air capability to change between displays and the ability to program the machine simply.

The VT80 therefore defines each pixel individually and then stores each shape as a whole image in the font memory, allowing the immediate recall of that shape when commanded to do so. The advantages the system offer are immense, not least in time. There are 1,000 characters which can be held and used at any time in the memory of the VT80, with no limitation on their size or shape, and up to 512 colours can be selected instantly from a total of more than 16 million.

Operation is simple

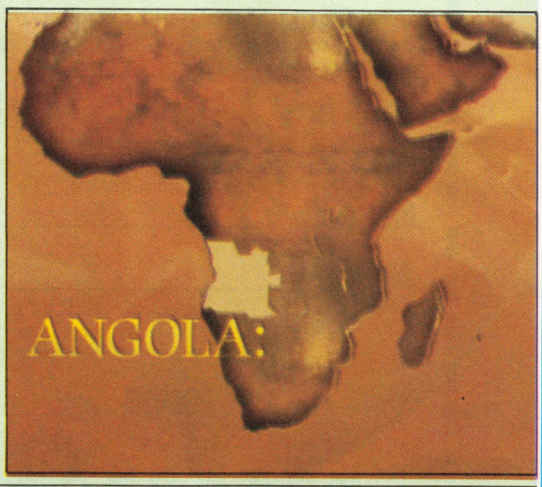
The operation of the system is also extremely simple and is shown in the form of a block diagram in figure one. The dotted lines from the computer interface illustrate the various paths of information which need toi be loaded from the computer into the font memory, the catalogue and the colour memory before it is ready to be used.

The catalogue stores the data addresses of the characters and gives their location in font memory. The characters, on the other hand, are loaded in the font memory with the colour data being added in the colour memory. That information when combined creates a display file containing the list of characters, their colour and location, which is sent via the interface into one of the display memories.

Once in a display memory, the data is sorted into its correct sequence while the other display memory is being loaded. The display processor then sends commands to the display controller, so that the correct display memory is read first. As each character comes out of the display memory its data address in the font memory is located in the catalogue. Using that information, the display processor then locates each character in the font memory and sends the information to the line store, where it is merged with its positional information.

The line store is made up of eight pairs of 1,024-word memories, with each pair being assigned a priority, so that characters of higher priority will overlap those with lower values. That data is then passed into the colour memory, where the colour data is translated before entering the digital-to-analogue converters, where the information leaves the system to enter the video input.

The versatility of the system is apparent every day of the week on Channel Four news and the three daily ITN broadcasts. Perhaps the best and most consistent uses to which the VT80 graphic capabilities have been put are the variety of maps which appear regularly in news broadcasts. The likelihood of needing up-to-date maps without prior warning is extremely high in news broadcasting. The unpredictability of the news also



ISION NEWS

makes it essential to maintain a comprehensive library of maps stored and ready to use on the computer.

The VT80 system is, of course, the ideal way of doing it, allowing maps of the Middle East or Northern Ireland, for example, to be prepared and broadcast in a relatively short time.

Having read about the VT80 system and the way it is used, I was expecting the ITN graphics department to be large and chaotic, because of the time restrictions imposed by broadcasting deadlines. In fact, nothing could be further from the truth. The department is small considering the amount of work it handles daily and was surprisingly calm, despite the amount of pressure there is to complete work on time.

It was also surprising to learn that most of the staff are not from a computing background but had been trained in the use of computers by ITN. When employing new staff, more interest is shown in artistic and creative abilities than computer competence, a policy ITN believes



helps to keep the correct balance between original ideas and what can realistically be achieved on the different machines.

The work of the graphics department is not limited to the production of maps and diagrams. Each news program has a variety of pictures relating to current events or personalities featured in that particular edition of the news. Therefore if a story about Margaret Thatcher is being used, the graphic designer will impose a photograph of her on to the background behind the news reader.

The technique of enhancing the story visually is not something which is done on-air but is prepared earlier in the day. ITN House has its own computer system with each department having its own terminals. The graphic department is able through its terminal to keep up-to-date with the news stories as they are written and to prepare the various backgrounds accordingly.



Each of the news programmes has a schedule written into the computer, displaying information daily on the length of each article, whether or not it will include film footage and the introduction time. It is the introduction time which the graphic department has to fill with the still pictures displayed behind the reader.

The material used for the background is from a number of sources. It could be a still frame taken from a new film, an old photograph from the picture library, or prepared artwork. Whichever is used eventually it will certainly be enhanced with the help of the Quantel *Paintbox*.

In simple terms, Paintbox is a highly-sophisticated graphics computer with a huge memory of colours and it is used to change or improve artwork and slides. That is done usually because either the quality of the original is poor or because the colours on the original clash with those used on the background behind the newsreader.

Great potential

In addition to the typical weekly work of the ITN graphics department, graphic sequences also have to be prepared for special programmes such as the Budget or a General Election. Broadcasts which deal with such topics require visual presentation of large amounts of information, not only to make it more interesting but prevent the presenters of the programmes having to read pages of text which would almost certainly be interrupted as more information or results were available. The preparation of special programs allows the graphics department to utilise skills to the full, not having to confine the graphics to the more limited use of a typical daily news broadcast.

The use of computer graphics still has great potential at ITN, with the advances which have been made in recent years making considerable improvements in terms of time and quality. The head of computer graphics at ITN is Peter Atkinson. In the time he has been working in television the uses to which graphics have been put have increased considerably.

Unlikely to change

It is difficult, however, to increase their presence in the accepted format of the news. Television audiences prefer video reports of current world and home events. That preference is unlikely to change as the real thing is more interesting than any simulation of it but graphics are beginning to be incorporated in reports as a way of tracing events.

Reports of natural or human disasters illustrate this new-found use well. Through the use of graphics, timeflow charts can be shown on the screen, illustrating how, why and when the disaster occurred. For the recent spate of air disasters this technique was used a great deal, with the graphic images helping to make the information easier to digest for the average viewer.

Computer graphics are definitely there to stay at ITN and are being improved and researched constantly in an attempt to enhance the already impressive capabilities. Learning how much work goes into the presentation of a broadcast is certainly illuminating and it is worth bearing in mind how much effort has gone into all the features we expect from a good news programme next time you tune to ITN.

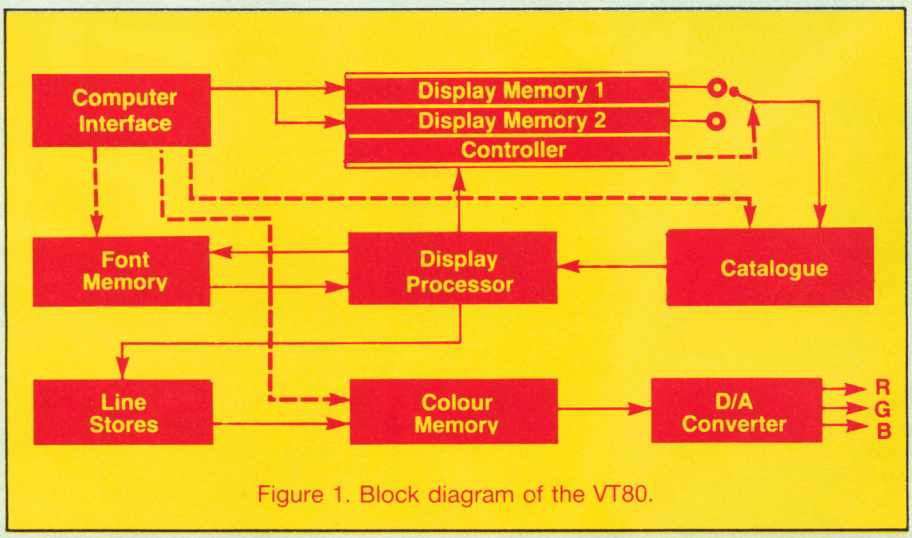


Figure 1. Block diagram of the VT80.

Any more realistic and you'd need insurance to ride it.

There are two guys in front. One coming up from behind. And another just off your elbow. The screams of the bikes are deafening.

The wind is pulling your face off your head. Your adrenaline is pumping like Hoover Dam.

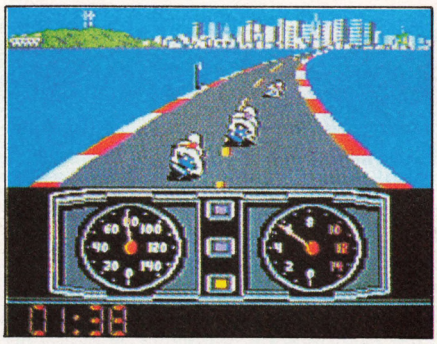
You kick your bike to the right. He's bumped. He's flying. You push on.

Take your eyes off the road for a millisecond, and you could end up a *part* of the road.

It's all a blur. No time to think. You've just gotta pump it. The next turn's the steep one. Bank, bank! The curve's wide open, but the screeching wheels of the bike in front are kicking gravel right in your...your...

You hear a phone. A phone? Hey, wait a minute. This isn't a bike. It's a chair. It all comes back now. Yes. You're home. The pizza's here. The computer's on. Looks like it's going to be another quiet night after all.





On Super Cycle™ If it were any more realistic, you'd need insurance to ride it.

Commodore 64	Disk	£14.95
	Cassette	£9.95
Spectrum 48K	Cassette	£7.95
Amstrad	Disk	£14.95
	Cassette	£9.95

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TRAVELS WITH TANDY

Tandy managed to capture a large slice of the portable computer market with its model 100 computer. The recently-launched model 102 should ensure a dominant share in this sector of the market. Peter Luke has been out and about with the computer.

As an increasing number of business and home computer users become dependent on their machines for both the storage and manipulation of data, be that text or figures, and for recreational purposes, the fact that the majority of computers can be used only when a mains power supply is available can represent a serious handicap for some people. The hi-tech businessman who uses a word processor for the creation of all letters and reports, plus a comms pack for the transmission and reception of electronic mail, will be able to make use of all this hardware only when tied to the desk.

No doubt

It is precisely that type of user at whom the Tandy 102 portable computer is aimed. The word portable has in the past been associated with computers which could be described more correctly as luggable. Even today the distinction between transportable and portable hardware can become blurred when it is the marketing department of a company which is preparing the specifications of a product. There can be no doubt that the Tandy 102 is portable. The computer is small and light and is powered by a set of four batteries.

Unlike some other portable computers, model 102 provides a standard QWERTY keyboard with a positive feel. In addition to the keyboard, the 102 features an array of function keys. The display, too, is of adequate size, offering a 40-column by eight-line window of any application in use.

The 102 is supplied with a suite of ROM-resident software tailored to the needs of the typical portable computer user. The text editor will be the most frequently-used application in many cases. The editor is not designed as a rival to the *WordStar*-type word processing packages found on larger machines. It is a straightforward program which allows text to be entered to the Tandy and manipulated by basic cut-and-paste functions available from a set of dedicated keys at the left-hand side of the keyboard.

The text editor mode of the computer is, like the other applications, entered by moving a highlight bar displayed on the opening menu screen to the required function. Pressing the enter key will then select the function. Alternatively, the user may type the name of the required operation to enter any of the modes of operation.

When selecting the text editing function, the user will be prompted for a file name under which the document will be stored. Files usually will be stored in the battery-backed RAM of the computer. There is, though, a provision to store data to a cassette record by selecting function key three. Files stored in that way naturally may be loaded back into the system, that operation being selected by function key two. At the end of a session with the text editor, pressing function key eight will take the user back to the main menu screen.

Other applications provided include a simple address and schedule which allow the creation of straightforward databases which may be searched for a specific record.

One of the main attractions of the 102 is that it features a built-in 300/300 baud modem. That, together with the terminal emulation software supplied with the machine, makes connecting remote computer systems via the telephone network an easy process. That means that the travelling computer user can send files created with model 102 via one of the many scrolling e-mail services available.

Attractive

The manual supplied with the 102 gives extensive examples of the use of American databases but the information and examples will be of use to anyone wishing, for example, to log on to Telecom Gold.

The modem interface is only one of a range of I/O ports provided on the 102. Others include a parallel printer port, RS232 and cassette interfaces, in addition to a bar code reader socket which, when used with suitable hardware and software, can decode the data on bar-coded products.

Model 102 is an ideal, low-cost solution for users who demand computing power on the move. The attractive specification of the computer, combined with the excellent network of sales and support centres Tandy has established throughout the country, means that model 102 should continue Tandy domination of the portable market.

AT A GLANCE

Processor:	**80C85 8-bit**
Clock speed:	**2.4MHz**
Memory:	**32K ROM** **24K RAM**
Keyboard:	**Full-travel, 56-key QWERTY plus eight programmable function keys.**
Display:	**80 x 8 LCD alpha – 240 x 64 graphics**
Interfaces:	**Parallel printer, RS232 serial, cassette datacorder, modem and bar code reader.**
Price:	**£299**
Expansion:	**8K RAM upgrade, portable disc drive, bar code reader, mains adaptor**
Supplier:	**Tandy U.K., Leamore Lane, Bloxwich, Walsall, West Midlands WS2 7EP. Tel: 0922 477778**

Is Compaq 386 the

At more than £5,000, it is not cheap. Is it worth the m

With the cost of IBM PC-compatible computers floating below the £500 mark, a PC, even a fast one, is the last thing you would expect to appear on the *Your Computer* Dream Machine honour roll. Thus the appearance of the new Compaq Deskpro 386 as the subject of this month's electronic reverie may well generate some degree of debate among the more hard-line dream machine fans, for whom a 68000 processor and a mouse would seem a minimum requirement for fantasy hardware. The fact, however, is that the Deskpro 386 is about as far away from being an ordinary PC as the Aston Martin Lagonda is from being a regular car.

The Deskpro 386 is simply the most powerful PC-compatible computer to appear from a mainstream PC-compatible manufacturer, including IBM, and is also the first to use the much-praised Intel 80386 32-bit processor chip.

As such, it can run two to three times faster than the fastest IBM PC – the 8MHz AT, featured recently in this column – and even outpaces some minicomputers.

32-bit

For those impressed by such things, the Deskpro 386 uses an 80386 running at 16MHz with a maximum RAM capacity of 14MB, which is to say that it can remember a vast amount of programming and data and recall it almost instantly. The 80386, however, is not just a litany of performance figures; it is also one of the most expensive we have had the pleasure of using.

The Deskpro 386 starter kit, including 40MB hard disc, 1MB of memory, keyboard, parallel and serial ports – but not, incidentally a monitor or display interface card – costs £5,399 plus VAT. By the time you have the Compaq EGA colour monitor and display card included with our test system, you would not have much change from £6,500, even after you claimed back the VAT.

No matter how fast it goes, what, you may ask, can a machine which costs so much do for you? Compaq is hoping that it will provide sufficient processing power to serve as the central file server on a network, where a number of less powerful single-disc, floppy-based machines or dumb terminals can chare the hard disc capacity and software of the Deskpro 386.

Framework II

It might be relatively easy to see how a company could cost-justify even the Deskpro 386 when it was providing the real horsepower for eight or so single-drive, low-cost PCs – and also allowing communication between all those machines – but having such a machine to yourself might seem a trifle greedy. Yet it seems there are legions of power users – for whom the 8MHz AT does not give sufficient power and memory for large speadsheets, desk-top publishing and big databases – lurking inside large firms and even larger bank accounts.

The real problem with a machine like the Deskpro 386 is how to get at all the power locked inside the machine. It is like driving a new sports car for which the optimum fuel has not been invented and having to survive on two-star petrol in the meantime. In PC terms, that means having to use programs written for the five-year-old 4.77MHz PC with memory limits of 640K on a new 80386 machine with a 16MHz processor speed and 14MB of RAM.

Climbing

To circumvent the problem, Compaq has executed some clever ploys which will give 386 users significant speed and performance advantages over the standard PC user while they wait for their own breed of applications to appear.

The cleverest has to do with the Deskpro 386 memory, part of which is not composed of any old ordinary 64K or 256K memory chips but makes some use of a new calibre of 32-bit high-speed memory.

To use the full potential of the 32-bit system memory board, you can expand it all the way up to 10MB, without using one extra expansion slot. Total system memory can be expanded even further, to a mind-boggling 14MB by installing two additional 2MB memory expansion boards in the other two 8/16-bit expansion slots.

Controller

The most effective way to use that memory is for data, either by configuring the extra RAM above 640K so that you can use it as a RAM disc on which all your data can be read directly in and out of memory or by using programs which can address up to 8MB of that memory through so-called RAM bank-switching. They would be programs, such as *Framework II* or *Symphony 1.1* which follow the LIM – Lotus, Intel, Microsoft – specification for extended memory.

The basic machine has 1MB of RAM soldered to the main system board, to combat the evil RAM chip creeping disease – when the legs of a RAM chip expand slightly on a hot day and it starts climbing out of its socket – which has in the past afflicted many a home computer. As on most PCs, 640K is available for standard user applications, 256K for use as RAM-disc or under the LIM specification and a remaining 128K for special system utilities.

There will probably be thousands of words written in praise of the flexible memory system in this dream machine, so I will not spend more time flattering a company which needs no additional praise. Suffice it to say that the Compaq Deskpro 386 user should have no difficulty accessing the massive amount of memory included in the machine.

Several gears

Like most high-performance sports cars, the Deskpro 386 runs in several gears depending on what you are doing with it.

To circumvent the problems created when running software which will be sensitive to a much higher processing speed, the machine has an automatic transmission which allows it to increase or reduce the processing speed when it encounters software which will not run at the full 16MHz processing speed.

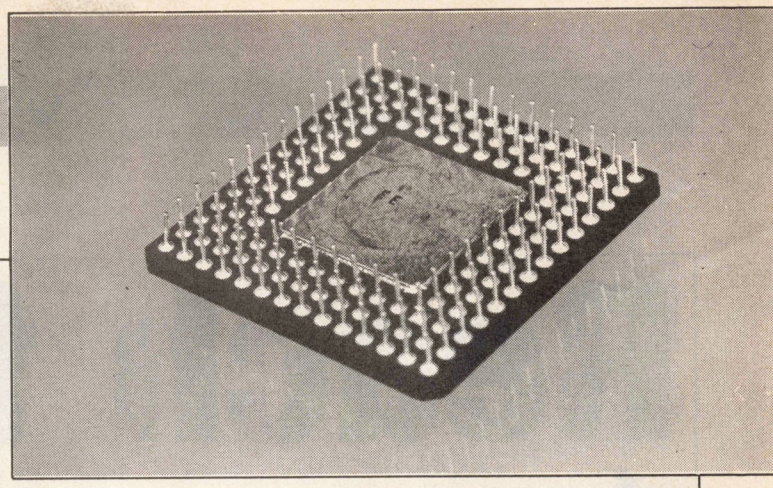
You can, of course, set the machine always to run at the highest possible speed. If you do that, as we did during the first part of our test, software with heavy copy protection, such as Symphony and *dBase III Plus*, will not load. Leaving it on AUTO allows the machine to make the speed choices and we found that to be far the most effective method of using it.

COMPAQ DESKPRO 386/COMMODORE AMIGA

The last computer to impress us with the level of speed and performance shown by the Compaq Deskpro 386 was the Commodore Amiga. Here is a comparative table to show how the machines compare to one another.

	Commodore Amiga	Compaq Deskpro 386
Price	£1,800	£6,500
Processor	Motorola 68000	Intel 80386
Speed	8MHz	16MHz
Max RAM	8MB	14MB
Storage	800K floppies	1.2MB floppy, 40 M hd
Serial I/F	Yes	Yes
Parallel I/F	Yes	Yes
O/S	AmigaDOS	MS-DOS
PC compat	Yes (w Sidecar)	Yes (included)

As you can see, the Deskpro 386 is a much faster and more powerful machine.



ultimate PC?

oney? Geof Wheelwright's verdict.

Everything we have mentioned so far deals with the little entry-level Model 40 machine but you will be pleased to know that the more powerful Model 130 is identical in every way, except that it uses one of the expansion slots for a hard disc controller and offers 130MB hard disc storage instead of 40MB.

It is that model, for which you would pay around £9,000 by the time you have added a display card, monitor and VAT, which will lead the vanguard of machines offering minicomputer power in a desktop package – Model 130 is no larger than Model 40. Despite being the more powerful model, however, it is likely to have a less powerful monochrome display system, as it is unlikely someone will use the machine directly.

It will probably become the network file-server and as such few people will use it directly, employing instead one of the terminals or low-cost PCs which will be linked to it. It is ironic to think of the most powerful PC-compatible in the world as one few people are ever likely to use directly but that will probably be the case with the Compaq Deskpro 386.

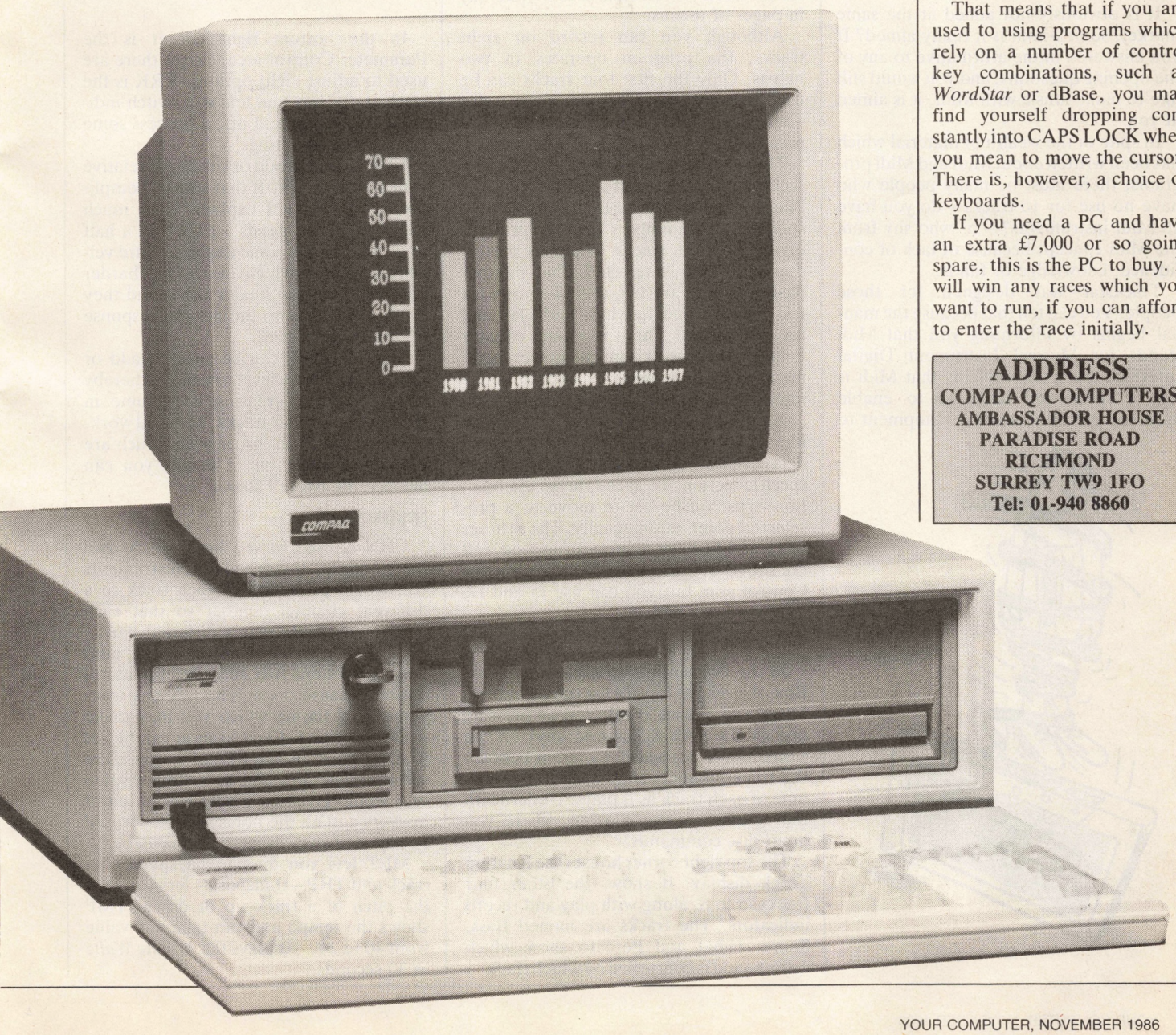
If people use it, however, the company offers a choice of two keyboards for doing so – a standard AT-style keyboard or one of the new enhanced AT keyboards with extra function keys. It is the second keyboard which features one of the few things about which I will criticise the machine – the placement of a CAPS LOCK key where the CTRL key is normally.

Keyboard choice

That means that if you are used to using programs which rely on a number of control key combinations, such as *WordStar* or dBase, you may find yourself dropping constantly into CAPS LOCK when you mean to move the cursor. There is, however, a choice of keyboards.

If you need a PC and have an extra £7,000 or so going spare, this is the PC to buy. It will win any races which you want to run, if you can afford to enter the race initially.

ADDRESS
COMPAQ COMPUTERS
AMBASSADOR HOUSE
PARADISE ROAD
RICHMOND
SURREY TW9 1FO
Tel: 01-940 8860



Reach for a MID

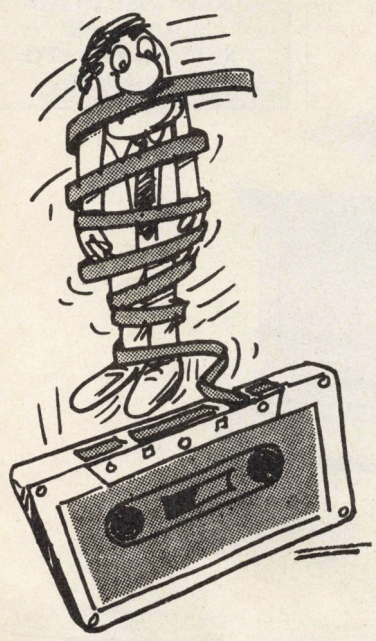
Steinberg already has an excellent reputation with micro-musicians but by cutting the price and specification of its latest Midi package, has it cut its own throat? Ian Waugh thinks not.

Are you paralysed by parameters? Mortified by Midi modes? Do you find tracks truculent and are channels churlish? If the answer to any of those question is in the affirmative, *Trackstar* could be just what you need. Steinberg Research has already earned respect with its *PRO-16* package for the Commodore 64 and the *PRO-24* for the Atari. Now it seems to have done an about turn by releasing Trackstar, an 8-track Midi sequencer with nothing like the facilities offered by its up-market companions.

It is obviously not aimed at the same market, so at whom is it really aimed? If you answered in the affirmative to any of the opening questions, and you would still like to make music with Midi, it is aimed at you.

In spite of the wealth of material which has been written about Midi and Midi programs, there must be many people who have no use for 16 tracks – do you have 16 Midi instruments? – or who shy from the Midi concept because of lack of confidence, knowledge or funds.

Trackstar was designed for those people. You can tell that because the manual begins by informing you that Midi stands for Musical Instrument Digital Interface and then explains that Midi is just a specialised language to enable different pieces of musical equipment to talk to each other. It continues in similar vein and even explains that Midi does not record or store audio signals but rather digital ones.



Since you are unlikely to be baffled by any of the technicalities, let us see what the program is about.

The Trackstar program is complete with its own Midi interface for an all-in price of £70. It operates in similar fashion to a multi-track tape recorder, a method of recording which will be familiar to many people. All options are selected from one main screen so you cannot lose your way in pages of menus.

Although you can record on eight tracks, the program operates in two halves. Only the first four tracks can be used to record polyphonic – many notes – music parts; the other four are used to record drum patterns.

The main screen is divided into four sections and the top left section even looks like a tape recorder. Between the two spools are the numbers 1 to 4, representing the first four tracks. When the corresponding track is selected, that number flashes. There are two sets of arrows for fast forward and re-wind, and play and record buttons. There is a tape counter between them and counts in quaver increments, so it is reasonably easy to determine where you are in a recording.

As the program is configured to work like a tape recorder you would expect a delay while you search the tape for a specific section. To speed things the function keys can be set to move to a preselected point automatically. The settings of f1 and f3 have a special function and are shown in the last box in the Parameter Control area but you can use f5 and f7, too.

Columns

In the bottom left corner is the Track Box. Across the top are the track numbers 1 to 8 and a track is selected by pressing one of the 1 to 8 numeric keys on the Commodore keyboard. Columns beneath the track numbers show the relative volume of each track as it plays. Underneath the columns is the Textline where you input disc commands.

The top right corner houses the Rhythm Track display. It shows the other four tracks, 5 to 8, along with play and record indicators. The tracks are named Bass, Snare, Hihat and Perc to show which drum sound is controlled by which track.

In the bottom right corner is the Parameter Control area. Boxes there are used to adjust eight options. TRK is the track status box and lets you switch individual tracks on and off, a process some software calls muting.

VEL is used to add or subtract a relative velocity to a track. If that sounds complicated, the manual explains it in much more detail but needs a page and a half to do so. Briefly, some keyboards are velocity-sensitive, which means the harder you hit them, the louder the sound they produce. That is to imitate the response of a piano keyboard.

The VEL box can be used to add or subtract a velocity level to a track, thereby increasing or decreasing its volume in respect to the other tracks. That will work, of course, only on instruments which are velocity-sensitive but it means you can balance the overall sound.

Instrument

CHN is used to set the Midi channel for the tracks. If you had four instruments you would probably set each track to a different channel number so that each instrument would play a different part.

QNT stands for quantisation or auto note correction. It is an incredibly useful option because it can help tidy any inaccuracies in timing which you may make while recording. Quantisation can be set to 4, 6, 8, 12, 16, 24, 64 and 0. These are sub-divisions of a bar, so setting a value of 8 would give you a note resolution of quavers and all the notes you play would be adjusted on to the nearest quaver beat.

MLT lets you double the speed of a track and TRP – transpose – lets you shift the pitch of a track up or down. TMP shows the tempo and can take any value from 40 to 240 – it plays the *Minute Waltz* in 30 seconds.

l star

AUTO sets the Auto Repeat. When it is turned on it will keep playing the section between f1 and f3 as shown in the last box. This loop can be very useful when recording, because the section will repeat continually and you can record over it until you have it correct.

The recording process is simple. Select a channel with the 1 to 8 keys and start recording by pressing R or SHIFT and R. SHIFT and R will give you an eight-beat count-in. Then everything you play will be recorded. A metronome keeps time and you stop the recording by pressing RUN/STOP or RETURN. You can play back what you have recorded by pressing RETURN – the tutorial section indicates that you should press P but that is corrected in the Quick Key Guide at the back.

You can record in a similar fashion on the first four tracks. Tracks 5 to 8 are different, since they can record only one note at a time. If you have a drum machine with Midi you can program simple drum patterns using those tracks. If you do not have a drum machine, Trackstar provides you with four drum sounds which play through the Commodore audio socket. They are poor but better than nothing if you do not have a drum machine.

As well as recording in real-time, you can also enter notes one at a time in step-time. The note durations are determined by the quantisation value. Unfortunately you cannot change values while recording and longer notes are created by tying notes together. If the quantisation had been adjustable it would have been an exceptional step-time system instead of being merely adequate.

Casio

That covers most of the basics. There is a little more to add about Midi modes. Some keyboards, such as the Casio CZ series of synthesisers, can sound more than one voice at once, under computer control, and they are known as multi-timbral instruments. They can accept Midi information on four or more channels and play four or more sounds at the same time.

Instruments of that type make the most of Midi and work well with Trackstar. To use them in this fashion, Trackstar must be set to Midi mono mode. The manual explains it with specific reference to the Casio CZ synths. Several demonstration songs and rhythms are supplied on the disc to initiate you.

Crash

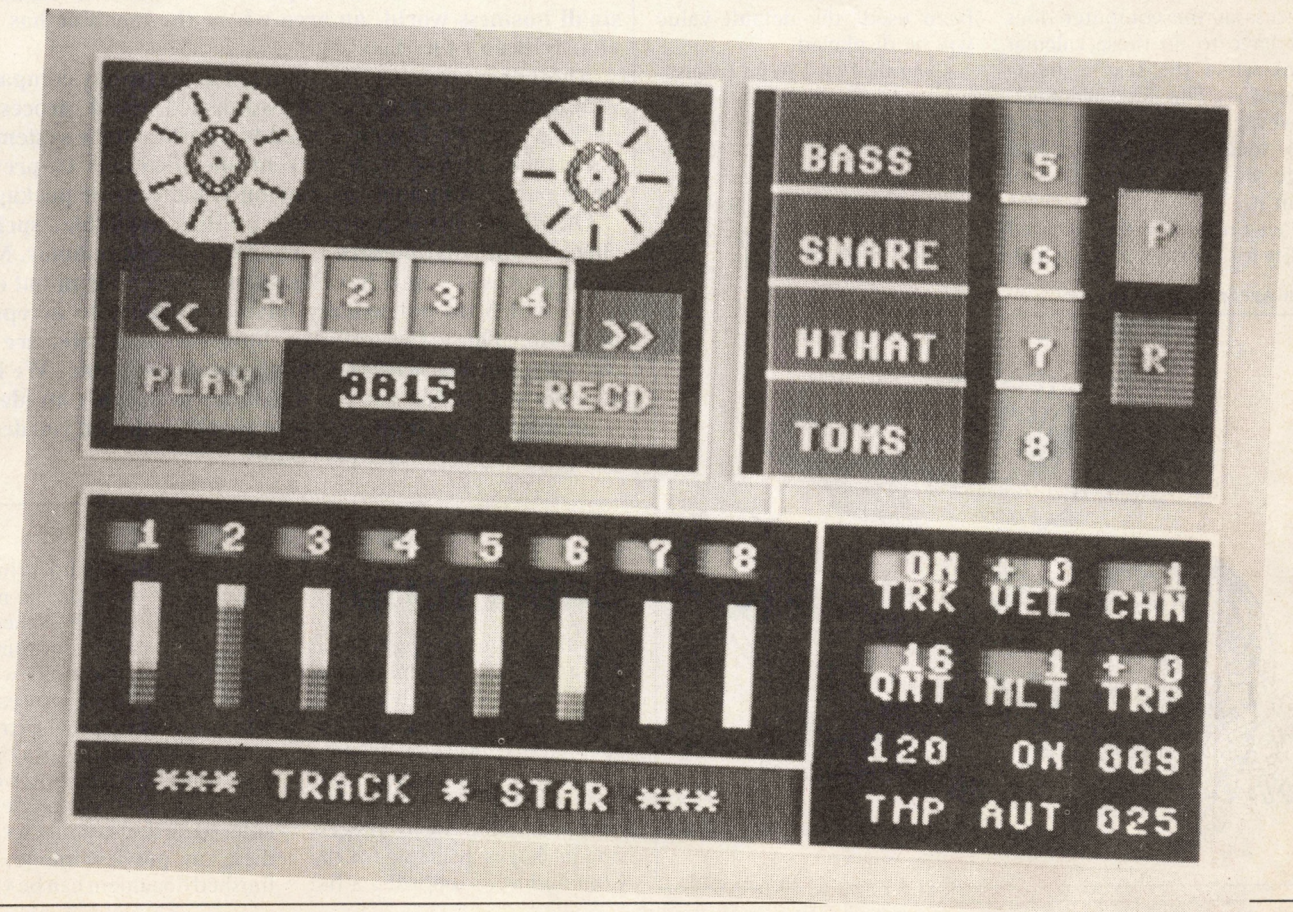
For all its ease of use, the program has several limitations. There is a copy function which lets you copy a part of a track to the end of itself – it does just that, occupying precious memory in the process. I managed to crash the program by trying to copy too much. You cannot transpose during a copy or copy from one track to another. There are no editing facilities, other than auto loop, there is no quick system re-set and the pitch bend resolution depends on the quantisation setting.

Some of those may not bother you and many of the deficiencies are noticeable only when you compare it to the likes of the PRO-16.

Trackstar is simple to use and the manual leads you gently through the rigours of Midi. If you have fought shy of Midi programs, it will give you a reasonably painless start. Once you become familiar with it you will have sufficient knowledge to be able to make decisions about any Midi programs which appear in the future.

Steinberg Research U.K., 68 Wilsdon Way, Kidlington, Oxon OX5 1TX. Tel: 08675 5277.

The main screen.



WORD PERFECT PROGRAMS

In all professions, trades and pastimes, fads and trends arrive and pass. In the world of computing, the latest, which seems almost certain to stay for many years, is word processing.

A major contributing factor to the sudden rush of interest in word processing is, of course, the success of the Amstrad PCW machines. They revealed a huge demand for word processing hardware and software to which other manufacturers are only now beginning to respond. That has led to some companies taking home computers, not normally associated with word processing, and producing hardware and software to convert them into Amstrad-beating machines.

Saga is one such company. Although better-known for its wide range of add-on Spectrum keyboards, it is developing a new upgrade kit which will be known as the Compliment. It will feature a 3.5in. disc drive, 256K RAM, a full-travel keyboard, dot matrix printer and word processing software. The company hopes that the kit, selling for around £299, will enable Spectrum owners to enter the small business world, an area where the machine has previously been sadly lacking.

Another interesting development is that many companies which have produced well-established word processing packages are finding they need to upgrade their systems to keep them in line with current specifications to prevent third-party companies producing enhancement packages.

Of all the word processing utilities available, spelling checkers and mailmerges are by far the most popular. Most word processors now have those functions built-in but even those which do not usually have the facility to accept an upgrade. Those two utilities, however desirable, are not the only word processor enhancements available. We look at a few others for various machines to provide an idea of what might be available for your machine should you decide to upgrade your word processor.

Pen-Friend

Wordwise is one of the best-established word processors for the BBC microcomputer with a large number of users. It has a number of faults which make it appear archaic and awkward when compared to some more modern systems.

The major criticism stems from the fact that Wordwise is not WYSIWYG, so any special effects which appear on the printed page will not be shown on the screen. Text can be entered or modified in edit mode which is displayed on the screen in 40 columns. Although the codes used to produce those special effects are shown on the screen, usually in a darker text, it means that it is virtually impossible to determine which page or line you are writing until you switch to menu mode. There, a preview of the finished page, complete with margin settings, page lengths and justifications, is shown.

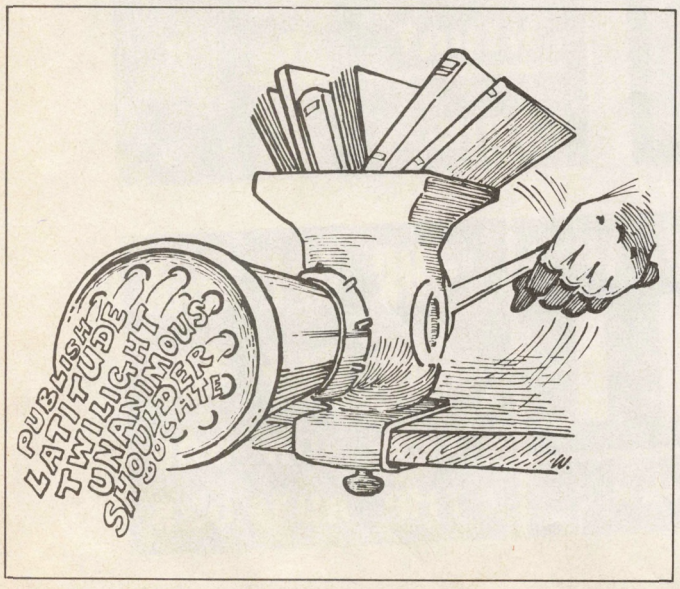
The system has the advantage of speeding the editing process as the computer does not have to do those calculations while the text is being typed-in. The disadvantage, however, is that you have very little idea of what the finished page will look like until you print it.

Pen-Friend is a ROM-based utility for Wordwise Plus which overcomes some of those disadvantages by giving the user access to information in edit mode which otherwise would be available only in menu mode. It also provides a number of other useful routines, such as the facility to list the current state of most embedded codes like line length, page number and margin position. Another option will allow the user to display the current directory of disc files, enabling any of them to be loaded either as a new file, or merged with the existing file at a pre-set position.

Perhaps the most important and most-used routine contained in the Pen-Friend ROM is option C. It uses a system of drop-down windows which appear in the top right-hand corner of the screen and provide the user with the values of the embedded codes, without the need to leave edit mode. Pressing the appropriate function key will produce a menu of nine options with the current values displayed next to them. If a particular code has not yet been used, the default value will be displayed.

Overall, Pen-Friend is a useful utility which makes the perfect complement to the Wordwise Plus word processor. After a little practice, it can save valuable time, whether it is used for producing documents, letters or labels.

Iron-Age word processor.



Superscript

Although used primarily as a games machine, the Commodore 64, with its full-travel keyboard, is readily-adapted to the task of word processing. *Superscript* from Precision Software is one of the most complete word processing packages available for the Commodore, supporting a full range of editing and printing features. It also has a mail-merge facility, spell-checker and column arithmetic capabilities, features which many other word processors offer only as optional extras.

In a similar way to Wordwise, Superscript works in two stages. First, the text is entered on a 40-column screen; then, in preview mode, the finished document can be view-

cision
tware

Disk Software

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Commodore 64

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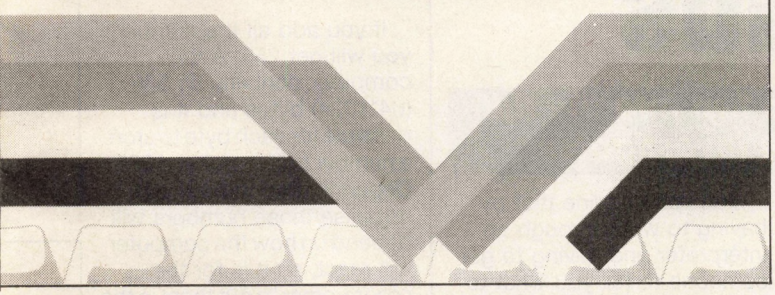


The Superscript word processor.

ed as it would appear on the printed page.

Superscript was born out of *Easyscript*, another successful product from Precision. It did not have the spell-checking facility as standard but it could be bought as an optional extra. The spell-checker supplied with Superscript has much in common with the many other available packages. It has an expandable dictionary containing between 20,000 and 30,000 words and offers a choice of options when it discovers a word it does not recognise.

The dictionary data is contained on the reverse side of the system disc and that must be inserted before a search can begin. When the spell-checking function is selected, a five-option menu appears on the screen. The user then has the option of accepting the entry, changing it, adding the word to the dictionary, ignoring the mistake or abandoning the check.

Another utility which Superscript features as standard is mailmerge. A standard letter is created, followed by a list of names and addresses on a separate document. The two can then be merged so that each addressee receives a personalised copy of the letter. Superscript can also be adapted to print labels, although only in one column, and it can also load and edit information from any database which produces sequential files.

Tainted only by the fact it does not use a WYSIWYG system, Superscript is a value product which makes full use of the word processing abilities of the Commodore computer.

ADDRESSES

Ansible Information
94 London Road, Reading, Berks. RG1 5AU.

Precision Software
6 Park Terrace, Worcester Park, Surrey KT4 7JZ.

Saga Systems
3 Eve Road, Woking, Surrey GU21 4JT.

Word processing
P.O. Box 67, Wolverhampton, West Midlands.

Ansible-Index

Locoscript is fast becoming one of the most widely-used word processing programs in Britain. That is a remarkable achievement when you consider the criticism the program receives. Third-party companies such as Arnor were quick to act with its *Prospell* utility for Locoscript and several more enhancements are expected from a range of outlets.

The other greatly missed option on the Locoscript menu is a word-count facility. Once again, several are available from third-party companies and there are rumours that the long-awaited Locoscript version 1.3 will have this facility and a mailmerge built-in. Until then, those who are desperate to know the exact number of words which they have written will have to choose from the few packages which are available.

One company, Ansible Information of Berkshire, has developed some Locoscript enhancement software which features accurate word count but can also have many other uses. *AnsibleIndex* is a utility which will run against any Locoscript test document. It may be used in a number of ways but, in its most simple form, it will produce an index for a Locoscript document with the page numbers for each entry corresponding to the page numbers in the document.

AnsibleIndex also contains other programs designed to compensate for some the shortcomings of Locoscript. The first is AnsibleCheck and can be used in two ways. It will count the number of words in a document without the need to convert it to ASCII and it will also check through the test to find any words which have been repeated, accidentally or otherwise.

Another program on the AnsibleIndex disc has the unlikely name of Grease, which the company believes will appeal to writers. It will provide a numerical analysis of the text, providing the user not only with a list of all the words used but a listing in numerical order showing the frequency with which the words have been used.

The products from Ansible, although geared heavily towards professional and amateur writers, should appeal to many others who want a second opinion on their work.

NAME	PRICE	MACHINE	COMMENTS	SUPPLIER
AnsibleIndex	£49.50	Amstrad PCW	A Locoscript utility which features a word counter and an indexing facility. The price includes VAT, post and packing.	Ansible Information, 94 London Road, Reading, Berkshire. BG1 5AU.
Superscript	£43.43	Commodore 64	A wordprocessing program for the C64 which includes a built-in spelling checker. This was an optional extra on the program's	Precision Software Ltd., 6 Park Terrace, Worcester Park, Surrey. KT4 7JZ.
Pen Friend	£14.95	BBC	A utility ROM for the BBC. It can be used only in conjunction with the Wordwise Plus word processor which costs an additional £56.35 plus VAT.	Word Processing, PO Box 67, Wolverhampton, West Midlands.



Pure genius

Programming utilities can help you to tap into the full power of your system. Ian Duerdan investigates.

Many home computers are used solely for playing games – no bad thing, of course, and when you consider the standard of software on the market for the popular makes of computer it is not really surprising. You must not, however, forget the amount of time and effort which goes into the programming of such games. You may even wonder how they are written.

All computers are complete with some kind of programming language which gives you direct access to computer, most often Basic – *Beginning All-purpose Symbolic Instruction Code* – which is invariably different from one machine to another. It is but one of the many languages available for programming. The one most widely-used for the programming of games because of its speed and controlability is machine code.

Let us look a little deeper into the workings of the computer and find why machine code is used so widely and whether it is as alien as some people think. All computers have a central processing unit which is the large black microchip with 40 pins or legs. It is different from one machine to another; the Commodore 64 contains a 6502 chip while the Amstrad and Spectrum a Z-80 chip.

The CPU is the brains of the machine and all communications or instructions are dealt with here, but the CPU cannot understand Basic – it is like someone speaking a foreign language. Therefore you need an interpreter to translate the Basic into a form the machine can recognise – machine code. The Basic interpreter resides in the read only memory chip usually with the operating system; the two together control instructions and inform the CPU to communicate where necessary with the keyboard, monitor or cassette.

You can imagine that by having to work through an interpreter and having to get someone to tell you what to do next tends to slow things, while it is always possible that some of the original meaning may be lost in translation.

Many may have dabbled with or be conversant with Basic and know that by typing-in English-type phrases you can get the computer to do various things, so how does machine code work? The CPU can perform a variety of operations but also has available a set of internal registers – some for specific functions, others for more general use. Electrical signals are transmitted to eight special registers, a signal to a pin being represented by the number '1', no signal as a '0'; they are known as bits or binary digits. A combination of eight of those bits such as 00110111 is known as a byte or binary number.

It is possible to arrange the 0s and 1s into a variety of combinations – 256 ranging from 0 to 255. Having to program like that, and it used to be done, would have most people heading for a psychiatrist, so the code can be converted into a denary (base 10) number, taking the foregoing example 00110111=55.

If you add all the numbers you will get 255. A 64K computer contains 65,536 (64*1024) bytes and it is possible for each byte to store a number between 0 and 255. Depending upon how you organise those numbers will depend on how the computer will react, so it is for the programmer to put them in the correct order in the computer memory.

To try to make things a little easier an eight-digit binary number is split into two equal halves called nibbles. If you add each nibble you get a maximum of 15 or a series of numbers from 0 to 15 as follow:

```
 0    0    0    0  = 0
to
 1    1    1    1  = 15
(8 + 4 + 2 + 1)
```

Figure 1.

```
so the binary number  00110111 becomes 37 how:-

                  0011=3 and 0111=7    or

              0100 1110 0110 1110=4E6E
```

Figure 2.

```
3E 21 CD 5A BB 3C FE FF 20 F8 C9
```

Base 16 Hexadecimal

Rather than representing numbers to base 10 it was decided to represent them to base 16 – hexidecimal – which is very convenient for the computer to understand. It has been done by adding the letters A to F top the number column, as in Fig. 1.

Amstrad CPC464

so you can see that it is possible to represent a byte with a two-digit number and an address by a four-digit number. To differentiate between the two, some kind of sign is positioned alongside the hex numbers, i.e., &2A, 2AH,2Ah,#2A to show a few.

A typical hex program would probably look something like Fig. 2. That program lists the character set for the Amstrad CPC464. Usually a program such as this would be POKED into the computer memory using Basic.

Early in the development of the computer it was realised that a simpler system had to be devised where the codes and operations were given simple names. Eventually a system was adopted called assembly language which used shorthand descriptive words called mnemonics, which made programming more comprehensible; for instance, LD stands for LOAD, INC for INCREMENT, JR for JUMP. The foregoing example written in Assembly would be as in Fig. 3. That does exactly the same but is a little easier to follow and to show the difference, the same program in Basic is shown in Fig. 4. If you compare the amount of memory the two programs use and the speed at which they run you can see why assembly is used by assembly is used by professional software programmers and, with a little patience, practice and experience, there is no reason why the average individual cannot become reasonably proficient in its use.

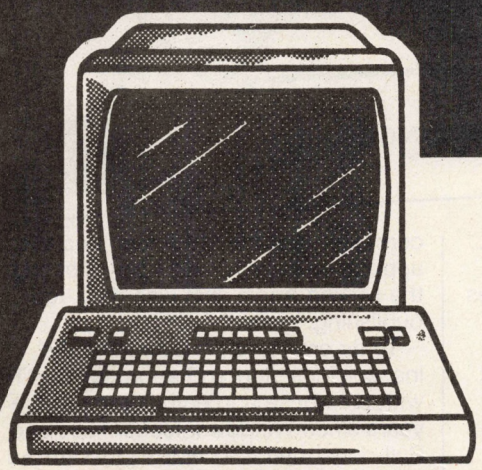
One difficulty is the fact that assembly language cannot be understood by the computer, so the code has to be processed. That is done by the assembler, which converts the assembly language program into binary, which can then be save on to tape or disc and used as required.

Figure 3.

```
                org     &5000       )
                ld      a,33        )
loop:                               ) uses 11 bytes
                call    &bb5a       ) and takes less
                inc     a           ) than 1 second to
                cp      255         ) execute.
                jr      nz,loop     )
                ret                 )
```

Figure 4.

```
10 for a=33 to 255          ) uses 47 bytes and
20 print chr$(a);           ) takes 2
30 next  a                  ) seconds to execute
```

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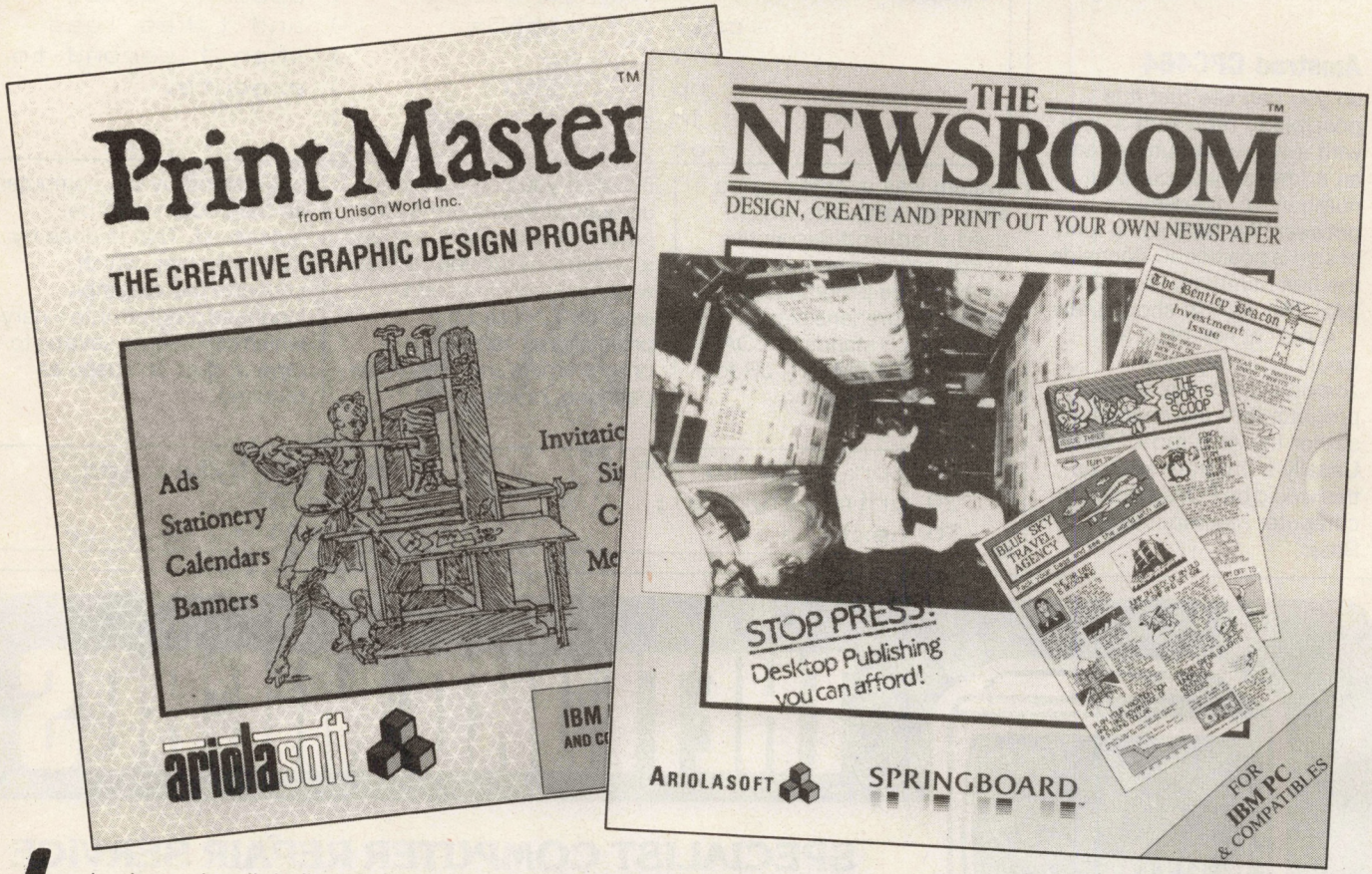
PASSING FOR PRESS

Desk-top publishing for all types of businesses is becoming a viable proposition. Jeremy Kite reports on the latest developments in this field.



In a business virtually built on fads and buzzwords, 1986 will probably be remembered by the computer community as the year of desk-top publishing, a label that organisations and individuals who have been working on the development of DTP for many years would not find attractive. They would argue strongly that DTP is neither fad nor buzzword and that the most exciting developments lie in the future, not the past.

If their extensive market research is any criterion, they may have a point. It is believed widely that by the early part of the next decade the number of DTP installations round the globe will be greater than the total number of desk-top computers now in use, a staggering advance which would put publishing hardware in almost every environment where two or three workers are gathered.

Still, if the major players would rather talk of revolution than fad and decades of growth rather than years, few can deny that 1986 has been a major year for DTP. It has marked the first specialist suppliers offering DTP bureaux services to publishers and business. Operated like dry cleaners, it is possible to deposit manuscripts, letters or text files and pick up perfectly-printed documents in a few hours.

Commercial desk-top publishing systems were first developed in the States by Xerox, the office systems corporation which by a combination of ill-considered marketing and over-pricing lost its advantage in the market. Ironically, Xerox has recently re-entered the battle with a system many claim to be one of the best now available. The DTP flag was picked up by another American company which, by chance, was finding it difficult to sell its competent but slightly 'oddball' computer without an exceptional application to lift it above the wall of IBM hardware which dominates U.S. business. The company was Apple, the computer was the Macintosh and the application many credit with refloating the sinking Apple ship was desk-top publishing.

To its credit, Apple overcame the inauspicious start and approached DTP with enterprise and enthusiasm. In the years since Windows, Icons, Mice and Pull-down menus – WIMPs – first arrived on the scene, Apple has worked at, or very close to, the edge of DTP technology.

In its purest form, desk-top publishing can be defined as the preparation of documents on a computer processor to a state permitting them to be output at near typeset quality by a page printer. That naturally places demands on three key elements – the speed, power and storage abilities of the processor; the flexibility and competence of the software; and the output quality of the printer. Since any DTP system is only as strong as its weakest element, developments in one area are of limited

use until the rest of the technology catches up.

Home computers tend to lack the speed and processing capabilities necessary to run a full-scale DTP operation but some clever software has enabled competent implementations, particularly on the BBC computer, to be made available to a wide clientele of schools, small clubs, societies and home users.

Best-known among them are the AMX *Pagemaker* system and latterly the Mirrorsoft *Fleet Street Editor,* both achieving good quality output, and not a little press interest, when run on the BBC computer with an added mouse. Mirrorsoft has now developed the editor to run on the PCW 8256/8512 and it is a fair assumption that this version will probably become the most widely-used DTP installation in the sub-£500 hardware bracket.

Most suppliers, though, have identified a far larger and far more lucrative opportunity rising from the East. The proliferation of IBM-compatible PCs, not least the offering from Amstrad, has lit a fuse which will surely result in an explosion in the number of IBM DTP installations in and out of the office. Already more than a dozen software houses are working on new DTP implementations for the low-cost hardware, while those which have operated in the market for some time are busy tweaking their software to reside in the clones.

The type of companies now moving into the field gives some indication as to the future direction the market will take. Mirrorsoft, long supporter of DTP, is promising low-cost systems to professional printers; Wang is developing installations for its dedicated word processors; and Letraset has recently bought its way into the DTP software business.

Even Ariolasoft, whose only serious foray into non-games software has been the Batteries Included range of home productivity software, is about to launch serious DTP and print utility packages marketed under names unashamedly attractive to non-technical consumers. Names like *Newsroom* and *Printmaster,* costing around £40, do not pretend to replace professional typesetters but will probably prove useful to the group/society/small business community.

Packages such as those do little to advance the frontiers of DTP but are a useful reminder that the technology which is now turning heads in large corporations is likely to be served to domestic users before too long. It is therefore worth looking at the developments spearheading the industry.

At present, the definitive desk-top system is likely to bear the Apple logo. It is also likely to have a £10,000 price tag, sufficient to pay for a subscription to *Your Computer* for the next 500 years. Apple will provide the Macintosh processor terminal, mouse and the surprisingly small laser printer but few would doubt that the best software is produced by independent suppliers. Choosing the best from them is not easy but any buyer looking for a successful record would have to look no further than *Pagemaker,* a simple but enormously comprehensive package from Aldus.

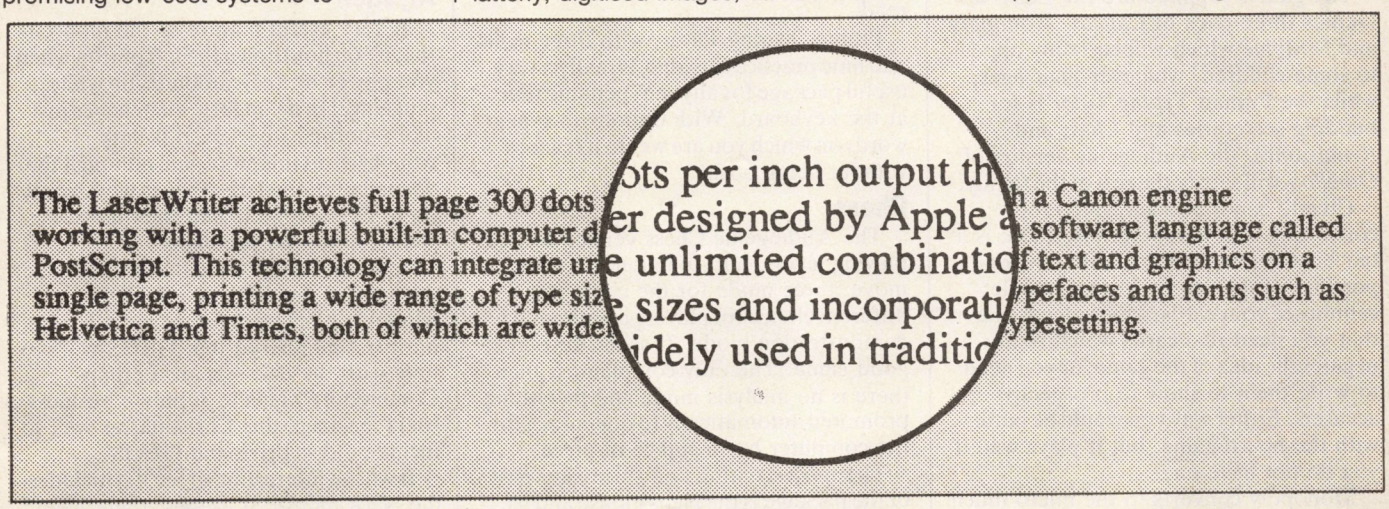
In operation, this compact installation would indeed reside comfortably on a single desk-top. With little practice, users can format a page layout on the WYSIWYG screen display and define the font, point size and column width. Headlines, borders, rules, diagrams and, latterly, digitised images, can be drawn direct to the screen or merged from specialised text and art packages. Most DTP software allows for basic text editing as you create the page but more efficient, and more fun, is the pouring of text files from dedicated word processors into a space you have created.

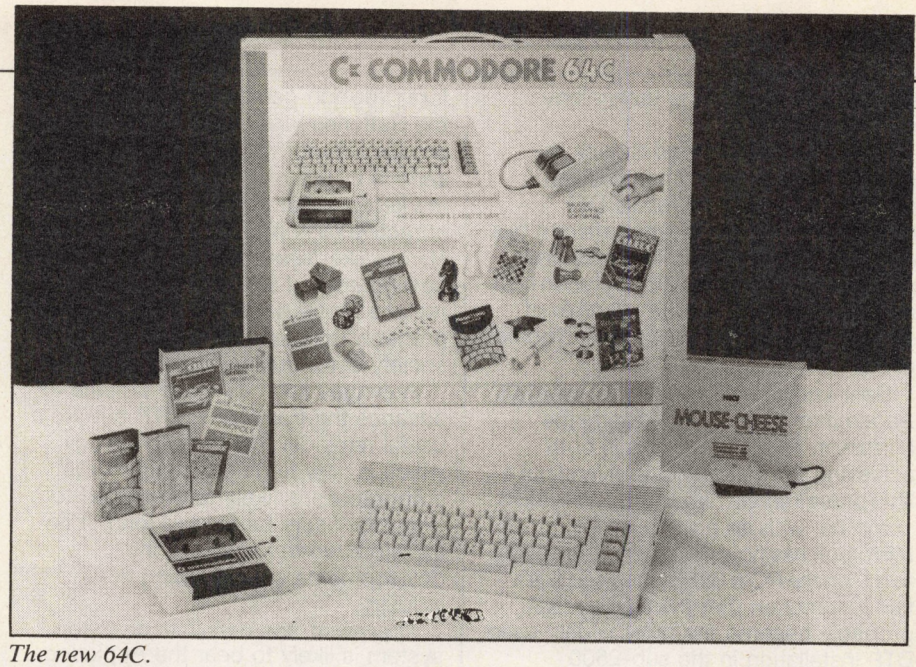
Tidying pages can then proceed, with tints being introduced, fonts changed to suit the mood, pictures re-positioned and pages numbered. Once completed, a few clicks on the mouse button will set the page printer into action. If anything is to be credited with the spectacular growth in the popularity of DTP, it must be the sharp rise in the quality of output from page printers.

The words you are now reading have been produced on conventional typesetting hardware which produces output photographically with a definition of between 2,000 and 2,500 dots per inch. The laser printers marketed by the leading DTP players operate at around 300-500dpi, although the first IBM effort trundles on at only 250dpi, an undershot it promises to correct soon. Our quest for a definitive system, though, must take account of the work being done by specialist engineering laboratories in the States. They can now achieve output at 800dpi. It seems the DTP industry equivalent of the sound barrier stands at 1,000dpi.

Apple claims to be unflustered by the flurry of activity on the IBM front, staying bravely with the claim that, given the present state of technology, the Macintosh is the definitive DTP terminal and until the first of the new third-party software for the IBM clones appears, it is difficult to assess the strength or weakness of the Apple position.

If, while reading this it seems to you that IBM has let DTP slip through its fingers, you are not alone. Some months ago IBM executives admitted reluctantly that Apple had something with vast potential. With all the corporate charity they could muster they resolved to 'bust' Apple out of the market by the next decade. The work it is doing now may appear in your office, perhaps even your sitting-room, very soon.





The new 64C.

The Commodore 64 is dead. Long live the Commodore 64. Chris Wood examines the heir apparent.

'C'sons greetings

Summer is officially over. You can tell because shops are starting to display Christmas cards again and so now begins the rush to promote this year's computer Christmas presents. Commodore has just announced details of what it hopes will be its most popular Christmas pack ever, consisting of the new-style 64C, cassette recorder, mouse and drawing software and five games for £249.99.

The company has finally acceded to demand for this popular computer which will not lie down, however hard it tries to kill it, by offering the C128 and repacked the trusty old C64 in the livery of the C128 to give it a little more street credibility and a fighting chance in the market.

The package obviously is not intended for existing owners but for the up-and-coming generation of users and the sleek lines of the 64C may well tempt many from the alternatives of an Amstrad or Spectrum.

What do you get for your money and is it worth it? The 64C is just the old C64 in a new box; nothing new and exciting technically but if it was satisfactory previously why spoil a winning combination? That said, the keyboard is much more pleasant to use for typing compared to the old keyboard and the angle is better, with not such a rise at the front, making it a great deal easier on the wrists.

Professional

The muted colours of the keys and the extra size of the unit also add to the professional feel of the machine. The cassette recorder is the trusty C2N, so there are no problems with compatibility there.

The games supplied are the Leisure Genius three-pack of *Cluedo, Monopoly* and *Scrabble* which will certainly appeal to some children, whatever their ages, while the Pitman *Typing Tutor* is for budding secretaries and *Chess* and *Renaissance,* the Audiogenic version of *Othello* – will satisfy the rest of the family.

Cluedo is not an ideal game for converting to a micro because there is a fair bit of messing about with covering portions of the screen so that people cannot see your cards, which means either that you need real cards which rather negates the idea of the game, or you need to write them to show to prospective accusers. Either way you would be better with the board game, but it plays well if you do not have one.

Monopoly converts to the micro much more effectively and takes all the tedium out of moving your pieces round and handing over the money. It also makes sure that nobody cheats. With pleasant facets like police sirens when you are carted to jail and the whole screen shaking as the hammer hits the gavel when a deal is made it should be fun even for the non-computerite.

Scrabble converts well to the micro. With up to four players allowed and any or all of them being computer players with four skill levels for each, it should suit everyone. Although it does not play so fast as some other micro versions it plays well and the display is clear and easy to read.

Pitman Typing Tutor, with three drills and nine practice sessions, is really a very useful package for anyone spending time at the keyboard. With options to repeat words on which you are weak, it teaches without being pushy.

Chess

The Audiogenic Chess version has 10 playing levels, hint function, take back move, force mode for the computer, different choices of playing colours and a demonstration mode. It seems to play a good game. The only complaint is that there is no analysis mode and pawns are promoted automatically to queens where the computer has a choice of piece.

The most exciting and surprising part of the package is the Neos mouse and its accompanying drawing package, *Cheese.* Consisting of a high-quality mouse very similar to the one on the Amiga and an icon-operated drawing package, it should certainly have everyone round the machine. The documentation is a little sparse – only three pages; the program is very easy to use but also fairly powerful.

Using the 16-colour mode of the 64C it is easy to create pleasing pictures and Commodore says even a four-year-old could use it. With multiple cut-and-paste, textured filling, rubber banding and a magnify mode, it should give some other art packages a run for their money.

Joystick

A very useful feature of the mouse is that if you hold down the left button when you power-up the computer or while plugging it in if you forget it behaves just like a normal joystick. It is very responsive in this mode and although the documentation states that it works only on MSX computers and then not very well, I found no problems.

You may be surprised that the package does not include the new GEOS windowing operating system, as I was until I remembered that GEOS works only with the disc system. Perhaps Commodore plans to supply a business users' package this Christmas as well to include a disc drive and GEOS?

It will be interesting to see if it includes the Neos mouse; if it does, there would be a proper mouse-driven system for the 64C. Whether or not it does, the package should appeal to new users looking for a computer and ensure that Commodore gains a healthy slice of the Christmas market.

Compact – all is forgiven

Can this new BBC re-establish Acorn's ageing micro?

Acorn, the once-mighty producer of the BBC Micro, is making another attempt at producing a cut-down version of the machine everyone can afford. It is not the first time the company has tried. The last time resulted in the release of the Acorn Electron but this machine, the BBC Master Compact 128, looks as if it is a slightly better buy.

At £537.85 including VAT for the basic machine with single 800K 3.5in. disc drive, black and white monitor and bundled software it looks like relatively good value. Still, with the new Commodore 64C at less than £200, the new Spectrum +2 with tape recorder at £150, the Amstrad 6128 with monitor and disc drive at £299 and the Amstrad PC starting at £460, the machine is by no means exceptional in price.

Acorn sees the machine as appealing to the discerning buyer looking for a reliable, well-supported computer with something for everyone both in schools and at home but that may not be sufficient to provide a big user base for the machine.

The expansion capabilities are not so good as those on the Master Series, or indeed the original BBC, but this is a machine for the computer user who is not an electronics whizz-kid, which is strange when you consider that is what many owners of the original BBC became as they tried to enhance its original hardware.

Processor

As its name suggests, the Master Compact is a refined version of the Master Series computer which is complete with a single disc drive and an optional monitor. The Compact differs from its cousin physically and in its capabilities. The main processor is still housed in the keyboard case but the power supply has been moved to a separate box which also contains a single 3.5in. disc drive. That unit stands behind the Compact and acts as a monitor support.

The Master Compact is in three system variations. The entry system does not include a monitor and costs £440 including VAT. The addition of a high-resolution monochrome monitor increases the price to £537, or £687 with a medium-resolution colour monitor.

That said, the Master Compact fits into a category of its own in the home computer market. It is in a class above games machines such as the Commodore 64, Spectrum +2 and the Commodore 128, and is far better-suited to learning about computers than machines like the Amstrad 8256 and 8512. It is not, however, as well-suited to business applications as the Master Series or some of its rival computers, like the Amstrad PC or the Atari ST series.

To be fair to Acorn, the Master Compact is an excellent computer for any parent or adult wishing to learn about computers. It points the user away from games to more practical applications by incorporating some of those while still maintaining a close relationship between the user and the operating system.

As computers become more widely-accepted their simplicity of operation has increased greatly, particularly at business levels where the emphasis now rests entirely on the software and very little knowledge of how the computer and its operating system works is required.

The first thing you notice is how differently the machine handles generally. Unlike the original BBC B, which offered a Welcome cassette so limited that it was confined to the bottom of a drawer soon after its debut, the Welcome disc for the Compact is both useful – and, unfortunately – essential for daily use.

It is from the Macintosh-like desk-top environment provided by the Welcome disc that you must access the bundled word processing software – a choice of two, the Acorn View ROM-based professional word processing system and the starter ABC word processor, paint software and sample games.

On the word processing front in particular, it is frustrating that you cannot access the ROM-based software without first booting-up this user-friendly desk-top when you start the machine. Once booted, however, you can move between ROM programs in the usual manner without having to use the desk-top.

Compared to the original Acorn BBC B, the Compact is a very refined computer, particularly so far as presentation is concerned. It does not require the user to become as familiar with Basic to run the built-in applications and other programs and it has finally taken the plunge and rejected the 'telly and cassette' market, which the likes of Amstrad dominate.

The cassette interface, however, will be sadly missed, as it means that the Compact can run none of the hundreds of games and educational packages which have been released for this machine over the years, limiting the level of software compatibility seriously. The same is equally true of the disc drive system, which cannot use standard 5.25in. drives without a special cable adaptor and even then requires you to buy a new Disc Filing System ROM to get at data or programs produced on the old BBC system.

As owners of one of the first BBC micros, we find the Compact a little tame by comparison. It seems to represent excellent value compared to earlier machines, although it is the removal of the cassette port, Shugart-style disc interface, user port, RS-423 – although it is available as an option – 1MHz expansion bus and second processor capability, as well as the TV modulator, which now becomes optional extra, which has reduced production costs.

All in all, Acorn will probably find only limited appeal for the machine as it has few of the features which attracted so many early BBC users and sufficient incompatibility among data devices to cause serious problems. Acorn says it has sold some 50,000 Master Series machines in the last year and we doubt whether it will sell many more Compacts than that.

– Geof Wheelwright and Jason Ball.

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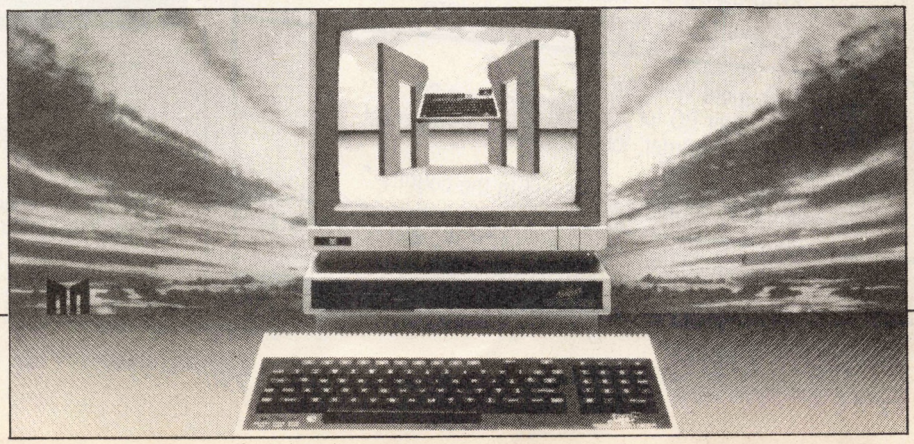

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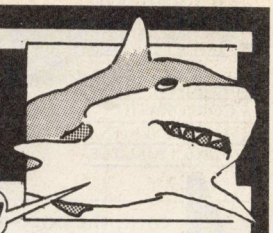

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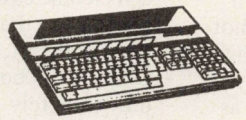

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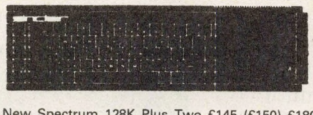

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High Flyer

I do not as yet own a computer and know comparatively little about them but I would like to buy some computing equipment in the near future and am seeking some advice.

My main interest is flight simulation software such as the Sublogic *Flight Simulator II* or *Solo Flight* by Microprose, and possibly some scenery discs. My problem is deciding which hardware is capable of running the widest range of these simulators. Specifically I am looking for good quality graphics and a relatively fast loading system.

My finances could run to £600, or perhaps £700, but obviously I would be pleased if the final system cost less. I run a small business, so I may be interested in some business software when I get bored with flying. What systems would you recommend?

Ian Ruse,
Birmingham.

Editor's reply: As always, a bewildering number of computers could suit your requirements, especially considering the arrival of PCs at less than £400. Probably the best idea is to read the December issue of Your Computer, *which will have a buyers' guide to computers costing less than £500 and telling you the pros and cons of all of them.*

Long live Adam

Your review in the September issue of *Dragons Lair* was interesting and pleasing. It was, however, somewhat inaccurate. The game has been available as home computer software since 1983, when it was made available for owners of the Coleco Adam computer, in the form of a version written by Magicom Inc.

Unfortunately, the Adam came and went rather quickly – so fast that many people in the computer business have never heard of the machine, even though in many ways it was ahead of its time. It had 64K of RAM and was controlled by a 6801 processor, something of a rarity, I think you will agree. Another feature the Adam had was the ability to load a tape while the computer is playing the game, so Software Projects methods are not really so innovational.

Finally, for anyone who thinks the Adam is a toy computer, it should be pointed out that we have CP/M 2.2 available and a vast amount of public domain software. For anyone interested in the Adam, there is a users' group. For full information contact Keith Marner, 33 Homer Road, Croydon, Surrey CR0 7SB.

R. M. Fillary,
London.

Editor's reply: It is welcome to note that people are remaining loyal to machines regardless of market trends and in many ways the Coleco suffered only because of timing. Had the machine been released a few months earlier or later it might have had more success. Who knows?

Speedy Gonzalez

I am a satisfied owner of an Atari 520ST, which I use for a variety of tasks, including running a small business and keeping my home accounts in order. What I would like to know is are there are third-party companies providing new programming languages for this computer?

Having studied computers at university, I feel capable of writing some specialised application software which would work better than the database I am using.

I would use the Basic provided with the machine but my implementation has more than its fair share of bugs. Any ideas?

David Smith,
Milton Keynes.

Editor's reply: If you read the Atari supplement in this issue you will see a review of Fast Basic *by Computer Concepts. The program is sopld in ROM form and would seem to suit your needs perfectly. If, on the other hand, you are interested in other high-level languages, Bristol-based Metacomco produces excellent versions of* BCPL, Lisp, Pascal and Lattice C, *all of which will run considerably faster than the provided Basic.*

Orics – alive and well

I am writing to inform you of the existence of the Independent Oric Users' Group. The non-profit group has been in existence since April, 1985. Since then we have built our membership to its current level, which fluctuates around the 100 mark.

Contact is mainly via our newsletter, *IOU,* which I distribute on a regular basis. It consists of five A4 pages and contains news, views, hints and tips dedicated to Oric users.

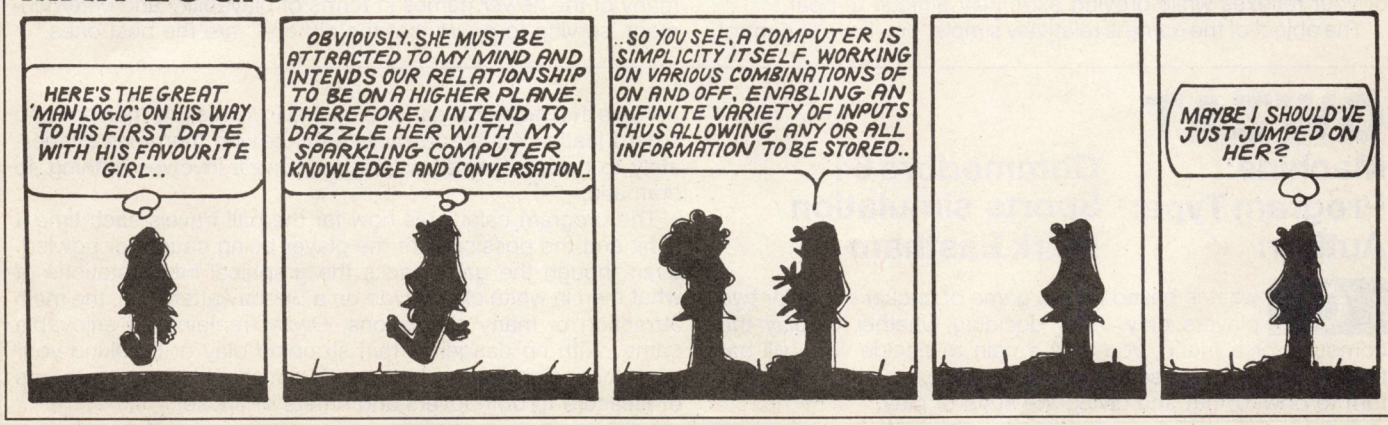
For more information, interested parties should send a SAE to I.O.U.G., 1 Kingsway Crescent, Burnage, Manchester M19 1GA.

G. Ramsay,
Manchester.

Editor's reply: Good news for all Oric fans is that it seems likely a launch for an all-new Oric will be happening soon.

MAN LOGIC

By NEIL BRADLEY



SOFTWARE EXCHANGE



The length and complexity of many computer programs makes it impossible to publish them without losing valuable space which could otherwise by devoted to editorial features. To combat this, *Your Computer* has introduced Software Exchange, a new service for readers offering them the opportunity to purchase quality software at bargain prices.

Each tape features two programs, either games or utilities, sent by readers and evaluated fully by our staff before being offered for sale.

If you would like your program considered for this feature, please send it to Software Exchange, *Your Computer,* 79-80 Petty France, London SW1H 9ED. Full instructions should be enclosed and please ensure the tape or disc is marked clearly with your name and address. A fee of £50 per program used is paid after publication and royalties of 25 pence each are paid for each tape more than 100 sold.

CBM12

COMMODORE

SUPER WORMY

Machine: Commodore 64
Program Type: Arcade game
Author: Mikael Sundstrom

Super Wormy is a version of the classic arcade snake game which used to be so popular on computers such as the BBC. The game is suitable for two players and has up to nine speed settings, the highest of which tests the speed of your reflexes while proving extremely difficult to beat.

The object of the game is relatively simple. You have to control the worm round the screen, collecting scattered food while taking great care not to double back on yourself. Matters are complicated by the fact that as the worm moves it increases in length, making it not only more difficult to collect food but also increasing the likelihood of doubling back or bisecting its body.

The game has been well-written, with features such as the variable speed settings and an attractively-illustrated menu screen giving it a professional look. Despite the fact that this type of game is outdated, it can certainly hold its ground against many of the newer games in terms of playability and entertainment, serving to prove that the old ones are the best ones.

OWZAT

Machine: Commodore 64
Program Type: Sports simulation
Author: Mark Eastham

Owzat is based on the game of cricket but is for two players only. After deciding whether to play the computer or a friend, you toss a coin to decide who will bat first. A series of on-screen prompts appear at each player's turn to bowl or bat and giving the state of play.

While the traditional game of cricket involves one man bowling a hard leather sphere towards another who then tries desperately to defend himself with a bat, *Owzat* involves nothing so dramatic.

The program calculates how far the ball travels each time it is hit and the possibility of the player being caught or bowled. Even though the game lacks the graphical interpretations of what men in white clothing do on a Sunday afternoon, the main attraction of many simulations, Owzat remains an enjoyable game. With no danger of rain stopping play or breaking your next door neighbour's windows, Owzat should give many hours of pleasure to both lovers and haters of cricket.

AMS08

AMSTRAD

DIGITAL CLOCK

Machine: Amstrad CPC range
Program Type: Clock
Author: Allan McLeod

Programming is often a lonely and time-consuming affair and it is all too easy to lose track of time when deeply engrossed in your work. *Digital Clock* offers a practical solution to the problem. It provides an interrupt-driven digital clock which appears on the top left-hand corner of the screen, informing you of the time in hours, minutes and seconds while you continue programming.

The clock remains in view while the program listing scrolls upwards and has several features which can be accessed using RSX commands.

The first sets the time to be displayed. As it is an RSX command, it must be preceded by the : symbol – shifted @. The time is then set using the sequence :Time,&house,&minutes. All the parameters need to be preceded by the & symbol and the seconds are set to the default of 00 automatically.

Further details on how to control this useful utility are enclosed in the program.

ADDRESS MASTER

Machine: Amstrad CPC range
Program Type: Address database
Author: S. Baxter

This useful program provides a simple but effective way of storing names and addresses and can accept up to 100 entries. Loading the program provides you with a opening menu consisting of nine options. Choosing the first gives you full instructions how to use the program. The second is used for creating a new file of entries.

Addresses are entered in the standard five-line format of name, street, town, country and postcode. The third option allows you to sort the stored entries into alphabetical order, while the remaining six have varying functions – from searching for a particular entry to saving or printing the finished list.

The search facility will find an address only if the name is known; it can also be used to find a series of addresses which have a common name by using simple wildcards. The print facility provides the option of printing an address either as a single horizontal line or a series of five lines for producing labels. Overall, *Address Master* is a useful program which could help you stay in touch with the in-crowd.

SP12

SPECTRUM

JACKPOT

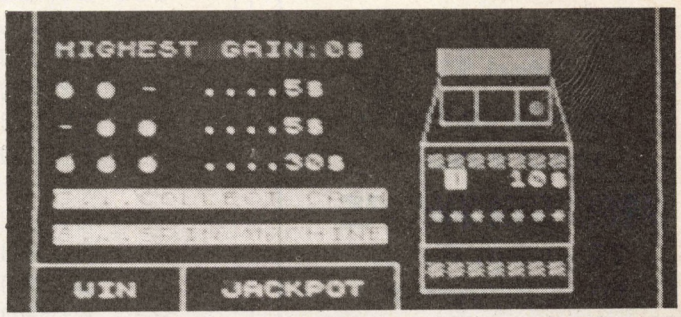
Machine: Spectrum
Program Type: Simulation
Author: Andy Barrow

From Las Vegas to Lancashire the one-armed bandit is one of the most popular forms of entertainment for all ages. Now you can experience all the pleasures and pains of gambling without ever leaving the comfort of your own home.

The screen display shows the winning lines, the spinning reels and your total winnings – or losses as the case may be.

All winning spins go on to the gamble feature where you have the chance to double your money if you are good or lose it all if you are not.

Throughout the whole game, the possibility of winning the much-sought-after jackpot looms on the horizon. Unfortunately



such an occurrence is as rare as on the real thing. Jackpot provides the perfect solution for all those people who love to gamble but cannot bear to lose in public; in the safety of your own home, you can become bankrupt, pawn your clothes and sell your grandmother in an attempt to beat the machine. This colourful simulation proves to be just as addictive as the real thing but it is not such a strain on your pocket.

TUNNEL OF LOVE

Machine: Spectrum
Program Type: Arcade game
Author: James Brown

Tunnel of Love is like a psychedelic roller-coaster ride. You have to control a ship travelling down a multi-coloured tunnel and prevent it crashing into the side. The score is related to the distance travelled down the tunnel and it is extremely difficult to obtain a respectable score.

The ship is controlled by the keyboard only with Q and A determining its upward and downward movements, while 8 and 9 moves the ship left or right. If you enjoy a fast-moving game, this is definitely for you. We found the game to be highly enjoyable and it quickly proved to be compulsive.

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EGGY

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It is not so easy as it seems initially and the game records the number of misses and takes them into account when calculating the high score table. If you drop an egg, the boss of the farm will probably make an eggs-ample of you.

```
10 INK 0,0:MODE 1:INK 1,6:INK 2,24:INK 3,13
:INK 4,15:INK 5,26:SYMBOL AFTER 232:GOSUB 1
170
20 MODE 0
50 FOR W=1 TO 10:READ E:LOCY(W)=E:NEXT
60 DATA 2,2,2,3,3,3,2,2,3,3
65 REM*************UDGS*****************
70 SYMBOL AFTER 35
80 SYMBOL 35,0,0,0,0,0,0,1,1
90 SYMBOL 36,0,0,0,0,0,0,128,0
100 SYMBOL 37,1,0,0,0,0,0,8,24
110 SYMBOL 38,0,0,0,0,0,2,1,0
120 SYMBOL 39,0,3,7,5,7,13,6,3
130 SYMBOL 40,128,0,0,0,0,0,16,24
140 SYMBOL 41,0,0,0,0,0,64,128,0
150 SYMBOL 42,0,192,224,160,224,176,96,192
160 SYMBOL 43,0,0,0,15,7,3,1,0
170 SYMBOL 44,1,1,1,7,31,59,55,55
180 SYMBOL 45,128,128,128,224,248,220,236,2
36
190 SYMBOL 46,47,45,46,22,21,4,0,0
200 SYMBOL 47,0,2,65,105,42,251,255,255
210 SYMBOL 91,255,48,207,252,1,255,206,0
220 SYMBOL 92,252,1,223,113,4,255,12,0
230 SYMBOL 93,6,6,6,3,3,3,1,1
240 SYMBOL 94,0,0,0,0,0,0,255,255
250 SYMBOL 95,96,96,96,192,192,192,128,128
260 SYMBOL 58,244,244,244,212,152,48,16,0
270 SYMBOL 163,24,60,60,126,122,114,52,24
280 SYMBOL 59,0,1,2,42,101,207,239,255
290 SYMBOL 61,0,0,0,7,3,0,0,0
300 SYMBOL 62,1,1,1,255,255,251,119,23
310 SYMBOL 63,128,128,128,255,255,223,238,2
32
320 SYMBOL 64,0,0,0,224,192,0,0,0
325 REM*******DEFINE VARIABLES**********
330 WINGU$="=>?@":WINGD$=" ,- ":WOOD$="[\":
FOR E=1 TO 10:WOD$=WOD$+WOOD$:NEXT:CATCH$="
]^ ":EGG$="#"
370 X=3:YY=22
375 REM**********SET UP SCREEN***********
380 CLS
390 PRINT #2,CHR$(22);CHR$(1)
400 PEN 4:LOCATE 1,9:PRINT WOD$
410 LOCATE 1,23:PRINT WOD$
420 LOCATE X,YY:PEN 3:PRINT CATCH$
```

PROGRAM LISTINGS

```
430 PEN 5:LOCATE 1,24:PRINT"HI SCORE ";HISC
ORE
440 LOCATE 15,1:PEN 1:PRINT"EGGY"
450 FOR Z=1 TO 5
460 LOCATE #2,LOCY(1),6:PEN#2,1:PRINT#2,"%"
470 LOCATE #2,LOCY(2),6:PEN#2,2:PRINT#2,"&"
480 LOCATE #2,LOCY(3),6:PEN#2,3:PRINT#2,"'"
490 LOCATE #2,LOCY(4),6:PEN#2,1:PRINT#2,"("
500 LOCATE #2,LOCY(5),6:PEN#2,2:PRINT#2,")"
510 LOCATE #2,LOCY(6),6:PEN#2,3:PRINT#2,"*"
520 LOCATE #2,LOCY(7),8:PEN#2,3:PRINT#2,"."
530 LOCATE #2,LOCY(8),8:PEN#2,2:PRINT#2,"/"
540 LOCATE #2,LOCY(9),8:PEN#2,3:PRINT#2,":"
550 LOCATE #2,LOCY(10),8:PEN#2,2:PRINT#2,";
"
560 LOCATE LOCY(1),7:PEN 3:PRINT",-"
570 LOCATE LOCY(1),5:PEN 1:PRINT"#$"
580 FOR E=1 TO 10:LOCY(E)=LOCY(E)+4:NEXT E:
NEXT Z
590 PRINT #2,CHR$(22);CHR$(0)
595 REM*************SCREEN ACTION*********
600 FOR G=1 TO 10
610 GOSUB 820
620 NEXT G
630 LOCATE 2,7:PEN 3:PRINT",-"
640 PEN 5:LOCATE 1,1:PRINT"SCORE ";SCORE
650 LOCATE 1,2:PRINT"DROPS ";DROP
660 Q=INT(RND(1)*5)+1
670 GOSUB 820
680 PEN 5:LOCATE 1,1:PRINT"SCORE ";SCORE
690 LOCATE 1,2:PRINT"DROPS ";DROP
700 IF Q=1 THEN A=1
710 IF Q=2 THEN A=5
720 IF Q=3 THEN A=9
730 IF Q=4 THEN A=13
740 IF Q=5 THEN A=17
750 Y=10
760 GOSUB 820:LOCATE A,7:PEN 3:PRINT WINGU$
:FOR T=1 TO 100:NEXT T
770 LOCATE A,7:PRINT WINGD$
780 GOSUB 820
790 LOCATE A+1,Y:PRINT EGG$:Y=Y+1:IF Y>=22
AND A+1<>X OR Y>=22 THEN LOCATE A+1,21:PRIN
T" ":IF DROP=12 THEN 900 ELSE 660
800 LOCATE A+1,Y-1:PRINT" ":LOCATE A+1,Y:PE
N 5:PRINT EGG$:GOSUB 820:GOTO 790
810 GOTO 660
815 REM*************MOVEMENT*************
820 IF INKEY(8)=0 THEN X=X-1:IF X<1 THEN X=
1 ELSE LOCATE X+1,YY:PRINT"   "
830 IF INKEY(1)=0 THEN X=X+1:IF X>17 THEN X
=17 ELSE LOCATE X-1,YY:PRINT"   "
840 IF INKEY(69)=0 THEN LOCATE 7,12:PEN 1:P
":FOR T=1 TO 1000:NEXT T:RUN

850 IF INKEY(44)=0 THEN 1340
```


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```
860 IF X+1=A+1 AND YY=Y THEN SCORE=SCORE+1:
SOUND 1,400,6:SOUND 1,300,6
870 IF X+1<>A+1 AND Y=22 THEN DROP=DROP+1:S
OUND 1,300,20,,,,1:IF DROP=12 THEN 900
880 LOCATE X,YY:PEN 3:PRINT CATCH$
890 RETURN
895 REM**************END OF GAME*********
"
910 FOR T=1 TO 2000:NEXT T
920 CLS:SYMBOL AFTER 232
925 PLOT 16,8:DRAW 16,392:DRAW 624,392:DRAW
 626,8:DRAW 16,8
930 INK 3,6,0:PEN 3:PRINT"
940 PRINT
945 PEN 2
950 PEN 5:PRINT"

EGGS CAUGHT:";SCORE
960 PEN 5:IF SCORE>HISCORE THEN FOR G=290 T
O 10 STEP -10:SOUND 1,G,6,15:NEXT G:PEN 3:P
RINT"



HISCORE!!!":HISCORE=SCORE
1100 PRINT
1101 LOCATE 1,20
1102 PEN 1
1110 PRINT"
1120 R$=INKEY$:IF R$="" THEN 1120
1130 IF R$<>"P" AND R$<>"p" THEN 1120
1140 RESTORE
1141 DROP=0:SCORE=0:WOD$="":Y=10
1160 GOTO 10
"
1180 PEN 1
1190 PRINT
1200 PRINT"        A GAME OF BOTH LUCK & SKI
LL"
1210 PRINT
1250 PRINT
1260 PEN 1:PRINT"KEYS..."
1270 PRINT
1280 PRINT CHR$(242);".........LEFT"
1290 PRINT CHR$(243);".........RIGHT"
1300 PRINT "A.........ABORT
1310 PRINT "H....HOLD....S....UNHOLD"
1320 PEN 2:PRINT"
"

1330 R$=INKEY$:IF R$="" THEN 1330
1331 IF R$="P" OR R$="p" THEN RETURN
1332 GOTO 1330
"
1350 IF INKEY(60)=0 THEN LOCATE 7,12:PRINT"
       ":GOTO 860 ELSE 1340
1360  R$=INKEY$:IF R$="" THEN 1360
1370 RETURN
```

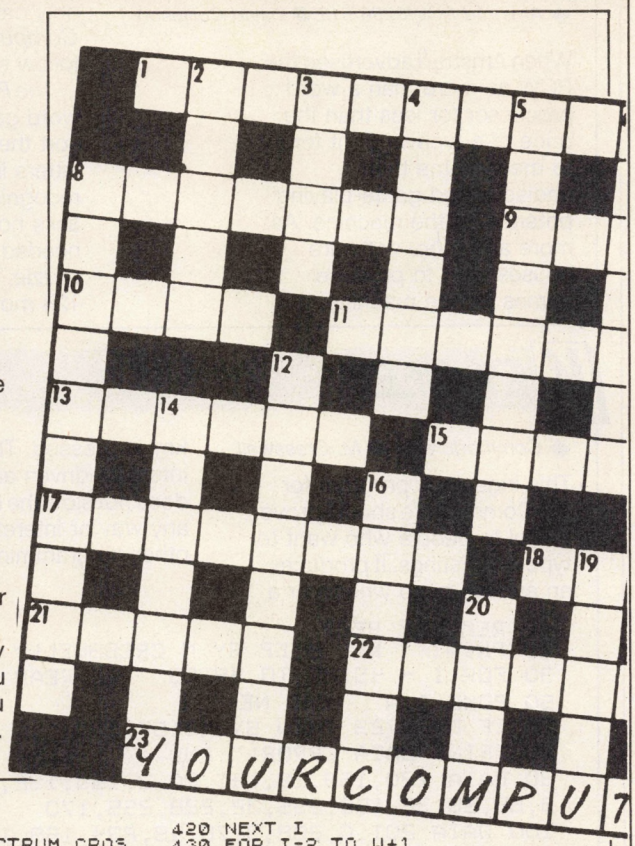
CROSSWORD

◆ *Spectrum* ● *Lars Lensen*

Are you one of the many people who rushes to the news-stands every day, full of enthusiasm and keenness, only to find you cannot complete the crossword? If you read *The Times* or *The Guardian,* you need feel no shame but if you cannot finish the quick crossword from *Beano,* this program could be just what you need.

It allows the user to produce a crossword pattern on the screen to any shape or pattern. Looking similar to many of the commercial sprite-designer programs available, you can then add or delete squares to leave the correct number of spaces for your answers.

The only difficulty you may encounter appears when you print the finished pattern – you then have to think of the clues.




```
  10 CLS
  20 PRINT AT 7,7;"SPECTRUM CROS
SWORD"
  30 PRINT AT 10,15;"by"
  40 PRINT AT 13,10;"LARS LENNAN
G"
  50 GO SUB 9000
  60 INPUT "Do you need instruct
ions? (y/n) ";a$
  70 IF a$="n" OR a$="N" THEN GO
 TO 300
  80 IF A$="y" OR a$="Y" THEN GO
 TO 100
  90 GO TO 60
 100 CLS : PRINT AT 2,7;"SPECTRU
M CROSSWORD"
 110 PRINT : PRINT : PRINT "This
 program allows you to do  cros
sword puzzles of your own  desi
gn. It is also useful when  solv
ing crosswords."
 120 PRINT : PRINT "First enter
 the size of your  crossword. S
ize has not to be  more than 26
 squares wide and  not more tha
n 18 rows high."
 130 PRINT : PRINT "When grid is
 ready, enter your  words in the
 following way:"
 140 PRINT : PRINT "    1. The r
ow letter              2. The c
olumn letter           3. ""A""
 =across or                 ""D
"" =down"
 150 PRINT : PRINT "All entered
 in one statement,  eg: ABDspect
rum"
 160 PRINT : PRINT "Black square
 is under graphic B."
 170 PRINT : PRINT "To stop prog
ram, type ""s"" and  press ENTE
R"
 180 PRINT : PRINT "To restart,
 GO TO 600 without toclear screen
. (If screen is  cleared, the
n you have to start from the beg
inning by GO TO 300."
 190 PRINT : PRINT "Press ENTER
 to continue."
 200 INPUT a$
 300 CLS
 310 PRINT AT 21,0;"How wide is
 the crossword?"
 320 INPUT W
 330 PRINT AT 21,4;"high"
 340 INPUT L
 350 IF W>26 OR L>18 THEN GO TO
 300
 400 CLS : FOR I=65 TO 64+W
 410 PRINT AT 0,I-63;CHR$ I
 420 NEXT I
 430 FOR I=2 TO W+1
 440 PRINT AT 1,1;CHR$ 149;AT 1,
I;CHR$ 153;AT 1,W+2;CHR$ 151;AT
 L+2,1;CHR$ 146;AT L+2,I;CHR$ 148
;AT L+2,W+2;CHR$ 147
 450 NEXT I
 460 FOR I=65 TO 64+L
 470 PRINT AT I-63,0;CHR$ I;CHR$
 150;TAB W+2;CHR$ 152
 480 NEXT I
 490 FOR I=2 TO W+1
 500 FOR J=2 TO L+1
 510 PRINT AT J,I;CHR$ 145
 520 NEXT J
 530 NEXT I
 600 PRINT AT 21,0;"Please enter
 first code and word"
 610 INPUT B$
 620 PRINT AT 21,0;"
                    "
 630 IF B$="S" OR B$="s" THEN ST
OP
 640 IF CODE B$(1)>95 THEN LET B
$(1)=CHR$ (CODE B$(1)-32)
 650 IF CODE B$(2)>95 THEN LET B
$(2)=CHR$ (CODE B$(2)-32)
 660 IF B$(3)="D" OR B$(3)="d" T
HEN GO TO 700
 670 IF B$(3)<>"A" AND B$(3)<>"a
" THEN GO TO 750
 680 PRINT AT CODE B$(1)-63,CODE
 B$(2)-63;B$(4 TO LEN B$)
 690 GO TO 730
 700 FOR I=1 TO LEN B$-3
 710 PRINT AT CODE B$-64+I,CODE
B$(2)-63;B$(I+3)
 720 NEXT I
 730 PRINT AT 21,0;"Next word pl
ease"
 740 GO TO 610
 750 PRINT AT 21,0;"Wrong code.
Try again."
 760 GO TO 610
9000 FOR a=0 TO 71
9010 LET p=65376+a
9020 READ n: POKE p,n
9030 NEXT a
9040 DATA 0,126,126,126,126,126,
126,0,6,7,7,0,0,0,0,0,96,224,224
,0,0,0,0,0,0,0,255,255,0,0,0,0,0,0
,0,0,0,0,0,7,7,6,6,6,6,6,6,6,6,6,6,0
,0,0,0,0,224,224,96,96,96,96,96,
96,96,96,96,0,0,0,0,0,255,255,0
9050 RETURN
```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THE PUZZLER

◆ *Amstrad PCW8256/512* ● *David Collinson*

When Amstrad advertised the PCW as more than a word processor for less than the price of a typewriter, it forgot to mention the then-undiscovered game-playing potential of the machine. As more and more software houses start to produce games for the machine, it is only natural that some *You Computer* readers should follow suit.

The Puzzler is an interesting word game. Your task is to sort the jumbled strings of letters into an easily-recognisable sentence which asks how many moves you needed to complete the puzzle. The author's record is 124 moves.

KEY BEEP

◆ *Commodore 64* ● *M. Cresswell*

This ingenious program for the Commodore should prove useful to people who want to type long listings. It produces an audible beep whenever a key is pressed. The beep is interrupt-driven and therefore does not slow the computer in any way or interefere with other programming.

```
10 REM KEY BEEP
20 PRINT " KEY BEEP BY M CRESSWELL"
30 FOR I = 49167 TO 49263   40 READ A:B=B+A
50 POKE I,A     60 NEXT I
70 IF B=12723 THEN SYS49167:END
80 PRINT"DATA ERROR!":END
90 DATA 120,169,28,141,20,3,169,192,141,21,
3,88,96,32,159,255,32,228,255,170
100 DATA 201,0,208,3,76,49,234,169,15,141,2
4,212,169,0,141,5,212,169,240,141,6
110 DATA 212,169,120,141,1,212,169,12,141,0
,212,169,33,141,4,212,76,85,192,169
120 DATA 16,141,4,212,134,197,76,49,234,160
,0,140,255,207,160,0,200,192,255,208
130 DATA 251,172,255,207,200,140,255,207,19
2,8,208,238,76,75,192,0
```

SQUARES

```
110 REM SQUARES BY IAN DORE
20 MODE 1:VDU 23;8202;0;0;0
30 GCOL0,1
40 A=640:B=512
50 R=1000 : MOVE A+R,B
60 FOR D = 0 TO 2*PI+0.03
   STEP 0.03:MOVE A, B
80 PLOT 5,A+(R*COS(D)),B+(R*SIN(D))
90 NEXT:REPEAT
100 FOR K%=0 TO 15:VDU 19,1,K%,0,0,0
110 NEXT K%
```

◆ *BBC* ● *Ian Dore*

This short but interesting routine draws a high-resolution graphic square. The box is then filled with various flashing colours. The program could form the basis for an interesting title or loading screen.

SIMPLE SOUND DEMO

```
10 REM SIMPLE SOUND DEMO
20 PRINT " SOUND DEMO BY F S LI"
30 PRINTCHR$147);:X=0
40 IFX=15 THENEND
50 FORA=1 TO10
60 FORJ=15 TOXSTEP-1
70 POKE54296,J:POKE54296,0:NEXT
80 POKE53280,A:POKE53281,A+A:NEXT
90 X=X+1:GOTO2
```

◆ *Commodore 64* ● *Fu Sang Li*

Some people found it difficult to program sound effects on the Commodore 64 and this short program should be of great interest to them. It produces sounds by varying the tone and volume levels.

```
1 REM *******THE PUZZLER*******
2 REM ***BY DAVID COLLINSON****
3 REM ****FOR THE 8256/8512****
4 REM
10 DIM a$(20):jk=7
20 FOR t=1 TO 30:PRINT:NEXT
30 DEF FNat$(x,y)=CHR$(27)+"Y"+CHR$(x+32)+CHR$(y+3
2)
40 FOR t=1 TO 7
50 READ a$(t):NEXT t
60 FOR t=10 TO 19:PRINT FNat$(t+k,25);a$(t-9):k=k+
1:NEXT t:k=0
70 FOR h=25 TO 65:PRINT FNat$(8,h);"_";:NEXT:FOR h2
=10 TO 22:PRINT FNat$(h2,22);"I";:NEXT
80 PRINT FNat$(7,25);"A";FNat$(7,29);"B";FNat$(7,3
3);"C";FNat$(7,37);"D";FNat$(7,41);"E"
90 PRINT FNat$(7,45);"F";FNat$(7,49);"G";FNat$(7,5
3);"H";FNat$(7,57);"I";FNat$(7,61);"J";FNat$(7,65)
;"K"
100 FOR g=10 TO 16:PRINT FNat$(g+k2,19);(g-10):k2=
k2+1:NEXT:k2=0
110 PRINT FNat$(28,30);"No. Of Moves So Far=";move
s
120 k$=INKEY$
130 IF k$="" THEN k$=" "
140 IF ASC(k$)<48 OR ASC(K$)>54 THEN GOTO 160
150 s=(ASC(k$)-47):GOSUB 340
160 IF ASC(k$)<97 OR ASC(k$)>107 THEN GOTO 200
170 c=(((ASC(k$)-97)*4)+1)
180 IF ASC(k$)=97 THEN c=1
190 GOSUB 250
200 ;
210 IF a$(1)<>"t   h   e       p   u   z   z   l
 e   r   "OR a$(2)<>"*   *   *   *   *   *   *   *
   *   *   *   "THEN GOTO 240
220 IF a$(3)<> "c   a   n       i   t       b   e
        " OR a$(4)<>"s   o   l   v   e   d   ?
     a   n   d   "THEN GOTO 240
230 IF a$(5)="h   o   w       m   a   n   y
       "AND a$(6)="m   o   v   e   s       w   i
  l   l       "AND a$(7)="i   t       t   a   k
e       y   o   u   "THEN GOTO 410
240 GOTO 60
250 PRINT CHR$(7):moves=moves+1:f$=MID$(a$(1),c,1)
260 MID$(a$(1),c,1)=MID$(a$(7),c,1)
270 MID$(a$(7),c,1)=MID$(a$(6),c,1)
280 MID$(a$(6),c,1)=MID$(a$(5),c,1)
290 MID$(a$(5),c,1)=MID$(a$(4),c,1)
300 MID$(a$(4),c,1)=MID$(a$(3),c,1)
310 MID$(a$(3),c,1)=MID$(a$(2),c,1)
320 MID$(a$(2),c,1)=f$
330 RETURN
340 PRINT CHR$(7):moves=moves+1:change$=a$(s)
350 char$=MID$(change$,41,4)
360 a$(s)=char$
370 a$(s)=a$(s)+MID$(change$,1,40)
380 RETURN
385 DATA"t   t       a   k   z   z   l   e   r
   ","*   h   e   *   p   u   *   *   *   *   *
","    c   *   n   *   *   t       b   e       ","
d   s   a   *       i   d   ?       a   n   "
390 DATA"    h   o   l       e   a   n   y
   ","l       o   w   v   m   v       w   i   l
","u   i   m   o   t   e   s       y   o   "
410 FOR c1=1 TO 30:PRINT:NEXT
420 PRINT "You finally finished taking ";moves" mo
ves"
```

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With the 1986 Personal Computer World Show the Atari ST range of microcomputers finally came of age. In what was called the Atari Village, hundreds of people, experts and laymen alike, watched the computer show what it really can do – and a very impressive sight it was.

One of the most important new developments for the Atari ST is the announcement of two models aimed at more business and scientific areas. Called the 2080 STF and the 4160 STF, the machines have a phenomenal 2MB and 4MB of RAM as standard and are styled identically to the 1040 STF, with an internal 3.5in. disc drive.

Apart from the two new computers, the most interesting launch for the ST was the Blitter chip enhancer. Released to stem criticism that the Atari did not have the graphics power of the Amiga, the Commodore 68000 computer, the Blitter, wowed everyone who saw it in action. In effect, the Blitter chip can increase animated graphic screens by between six and seven times, compared to a standard ST. Costing £69 including VAT, the Blitter chip will be available as an upgrade kit for the complete range of ST computers.

ATARI ST SUPPLEMENT



In an attempt to find more about what Atari has in store for 1986 and 1987, *Your Computer* asked Max Bambridge, Atari U.K. general manager, for his views.

Q. How do you see Atari developing in the future?

A. *The 16-bit product will remain the mainstay of the company, although the prices will fall. We will also work a great deal on product development, leading towards 32-bit micros, which we hope will be ready by the second quarter of 1987.*

Q. Although the ST seems to be updated continually, there are rumours about an all-new computer, the TT. Any comments?

A. *Most of the rumours are journalistic fantasy. Of course, we are aiming for a 32-bit micro but mainly we are working on improved graphics, with enhancements such as the Blitter chip. We hope we will be able to get a graphic resolution of 1,024 x 1,024 but that is not definite yet.*

Q. What do you see as your competition?

A. *We really have no competition, as it depends entirely on target clientele. The Atari 1040 STF is available today with 1MB of RAM and no other comnpany can offer that power. In the business sector, our computers appeal to people upgrading from their first computers to something necessarily more powerful.*

Q. Why did you decide to offer a Blitter chip?

A. *Because we could do it so easily. It enables us to run a faster and more efficient graphic management system, thus creating new markets for the ST, such as CAD/CAM. On a more everyday note, we also found that the Blitter increased the speed of some normal operations considerably, as is the case with text scrolling.*

Q. If Commodore releases a cut-down £700 Amiga, as has been rumoured, how will Atari stay on top?

A. *Whatever Commodore does is up to that company. We will offer the best we possibly can.*

Q. The Atari ST seems to have spawned many add-ons which allow it to run the operating environments of other computers, such as the Macintosh, CP/M, and now BBC Basic; do you not see that as degrading the true value of the ST?

A. *Not at all. Whatever emulator you talk about, the background environment is always the ST. By providing these emulators, we are giving people the option of upgrading from dated machines without losing all their work. We were particularly pleased with the MS-DOS emulator, which opens the door to a huge amount of new software.*

Q. How will Atari attack 1987?

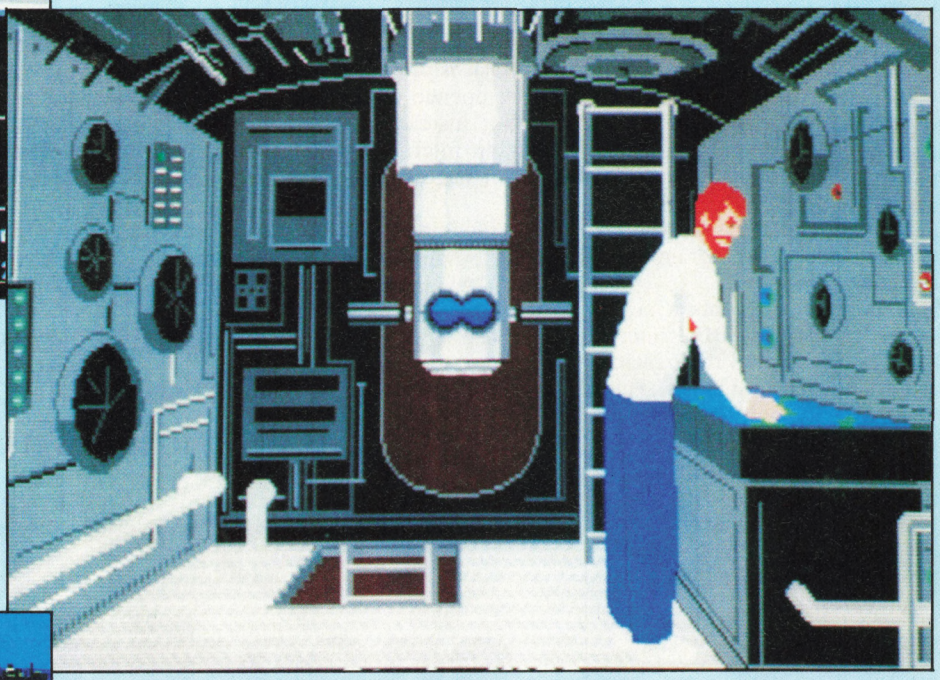
A. *Enhancement will be the significant development. We will be talking to different customers, with upward and downward changes in product and specification to offer more alternatives.*

STOP PRESS

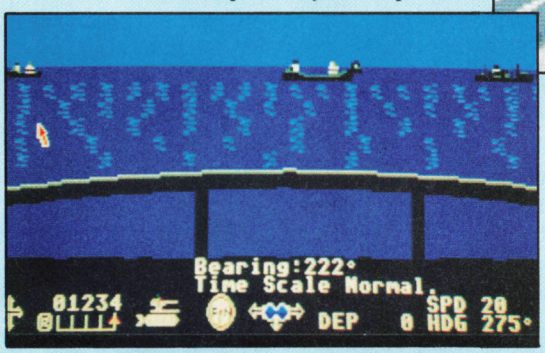
Since this interview was conducted, Max Bambridge has left his position as U.K. General Manager of Far Eastern production operations.



Captain Nemo of** 2000 Leagues under the Sea **should not have bothered getting his hair wet now Microprose has announced** Silent Service **on the Atari ST. Jem Stone takes the helm along with this report.



Silent War in the deep



Men from the United States were drafted to do *Silent Service* on board submarines in the Pacific Ocean during World War II. That sometimes meant long periods would be spent at sea, often in hostile conditions. The first training they received was attacking old burnt-out tankers. They they were sent on manoeuvres, where scenarios of real conflicts meant dealing with anti-submarine tactics imposed by the Japanese.

Once that had been accomplished the long nights arrived, meaning long periods would be spent at sea without seeing the light of day during a patrol. The targets they encountered consisted mostly of oil tankers, troopships and the deadly destroyers on busy shipping lanes used by the Japanese. All those forms of combat are caputed by the Microprose simulation. tion.

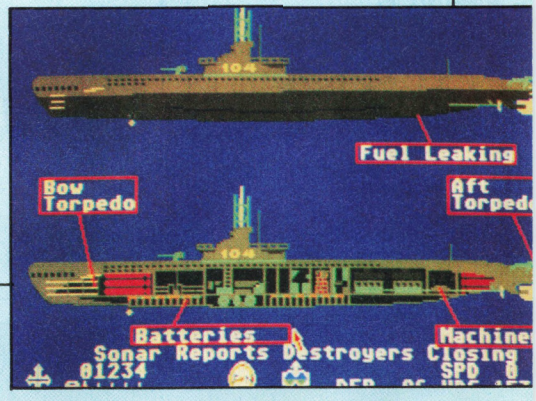
In training, the object of the simulation is to sink four ships off the coast of a small naval base, Midway. No tactics are involved but the experience gained in controlling the submarine proves to be invaluable at a later stage. From the bridge a panoramic view of the ocean can be seen, along with the slight glimmer of a ship on the horizon. That calls for battle stations. Pressing the down arrow key or using the mouse on one of the icons at the bottom of the screen will sound the diving hooter and the sound of the waves on the hill of the submarine will fade away slowly, being replaced by the constant drone of the engines.

Studying the maps reveals that the submarine is slightly off course and the slight movement of the left rudder corrects it in line with the target. Observation made through the periscope displays information about the vessel being hunted. Returning to the map shows that the target is in line with the torpedos and at a press of the "T" key the high-speed sound of a torpedo leaving the bow of the ship can be heard.

Looking through the periscope again is not possible as the submarine has dived below the maximum depth of the periscope. Surfacing and returning to the bridge shows the sight of a ship exploding in suberb ST sound and graphics. To complete the attack, the deck gun can be fired in rounds of four. When the ship is first hit the engines will go silent, then it will sink gradually. Confirmation of a sunken ship will be reported by sonar in text form and then it will disappear from the map.

In real-world senarios the detection by sonar had to be negotiated from enemy Japanese destroyers. The sound of engines as they pass overhead is sufficient to make your heart jump and perspiration trickle from your brow; air bubbles from the tanks may be sufficient to indicate the position of the submarine. All types of other factors not required when training have to be taken into account. The damage report of the submarine or the checking of the gauges for flat batteries incurred by travelling under water are constant headaches for any captain. Other worrying factors are the maximum depth of the submarine and the nightmare of being hit by depth charges.

Sid Meir designed the game inspired by the book *Clear the Bridge* and has done a great job to capture the electric atmosphere.



Can Computer Concepts establish itself with this ST cartridge? Stephen Applebaum investigates.

Faster than a speeding bullet

There are a great many programming languages available for the Atari ST but few of them have been designed specifically for the machine and hence exploit all its features. What the majority afford users is, in effect, a halfway house.

Given that there is such a variety, it is surprising there is a scarcity of good Basic interpreters. Manufacturers seem to have forgotten that there are still computer users for whom Basic is the only programming language.

Computer Concepts, a name familiar to most BBC micro owners, has noted the paucity and launched Fast Basic. This upgrade not only gives you a completely new Basic with which to work but provides a more workable route into GEM, a built-in 68000 assembler and the positive advantage of being far faster than most other Basics.

Informative

The Fast Basic package consists of a ROM cartridge, a disc full of demonstration programs, a quick reference card, and a 394-page manual. The latter, although informative, takes pains to explain that it is not designed as a Basic instruction manual. Fast Basic is aimed at experienced programmers who have already learned the ins and outs of the language but novices who keep another source of reference close at hand should not have too great a problem using the software.

The Fast Basic cartridge slots into a port embedded in the left-hand side of the Atari. Inserting the cartridge is difficult because the port is not flush with the computer casing.

Having the cartridge attached makes no difference to the way that the ST boots-up. An additional icon on the desktop is the only indication that Fast Basic is present. The icon can be opened as if it were a disc but instead of accessing either an internal or external drive, it pages the Fast Basic ROM.

After loading Fast Basic, the display splits into two large windows, labelled PROG1.BSC and Output. That marked PROG1.BSC is known as the edit window and is where your input is shown as you type it at the keyboard. The other window is used to display the output from the program during its execution.

Below the edit window is a new icon, also entitled PROG1.BSC. It represents what Computer Concepts terms a segment which, in normal programming language, equates to a program. Depending on their size, up to 10 segments can be held in memory at any time, though only one can be run.

When all the segments have been opened at least once, they can each be accessed using the function keys F1 to F10 or by using the alternative method of double-clicking on their respective icons. Programs written in Fast Basic can be saved to and loaded from a disc in much the same way as if they were written under GEM.

A particularly pleasant although simple feature of Fast Basic is something called an Immediate Window. This bijou is a test-bed where you can discover whether or not a new line works before putting it in a program. Unlike the edit window, where everything you enter becomes part of the current program, the Immediate Window can take a function, execute it, then throw the result across to the output window without affecting the program.

Three modes

In some ways, the Immediate Window acts as a kind of pre-emptive debugger by allowing you to make sure that things work before entering them into the program *per se*.

Even the most assiduous user of the Immediate Window cannot be sure a program will be entirely glitch-free. Therefore a real debugger, with several modes of operation, has been included in the package.

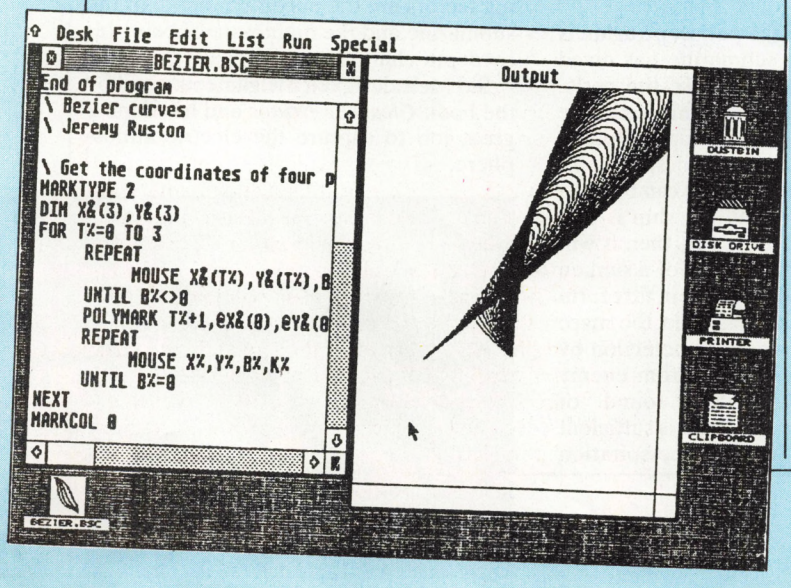
The Fast Basic debugger has three modes of operation – Trace Program, Delay In Statements and Variable Tracking – all of which can be selected from a pull-down manu called 'RUN'. Trace Program lets you single-step through a program while it is running. After each line has been executed, the program stops and a cursor appears at the beginning of the line in the edit window. You are then given three options. You can either leave the trace on, turn it off or select something called key, which will run the program as normal but allow you to stop it by pressing the Control-Return keys simultaneously.

Delay In Statements lets you vary the speed of a program. How great is the speed differential depends on the changes you make in the Variable Tracking window.

Variable Tracking is a facility designed to monitor the values of certain specified variables while a program is in operation. The Variable Tracking window is similar in style to the edit/output windows. The variable names you want to track are written in a window on the left of the screen, while their values are given in a window to its right when the program is run.

Just below the tracking windows is a slide bar with the words 'Fast' and 'Slow' at its extremities. That is the control for altering the speed at which a program is executed, so bringing into effect the Delay In Statements function.

The importance of the debugger Variable Tracking facility becomes apparent when you consider the wide variety of variable types available in Fast Basic. Real variables are the most common type. They have no trailing indicator, such



```
GETFIRST MyWind,X,Y,W,H

WHILE (W<>0) AND (H<>0)

FINDINTSCT X,Y,W,H,XUp,YUp,WUp,HUp

IF (W<>0) AND (H<>0)

PROCUpdateWindow (MyWind,X,Y,W,H)

GETNEXT MyWind,X,Y,W,H

WEND
```

A short program to calculate the intersection between two rectangles and return the result. Such a program is useful when re-drawing the screen in response to re-draw messages from GEM.

as a '%' or '$', and are used to represent numbers with a fractional part with between six and seven printed digits of accuracy.

Sometimes you will find the accuracy afforded by a real variable is insufficient. On those occasions, it will probably be necessary to use a double-precision floating point variable. The cost of using one of them is a reduction in speed. Double variables are denoted by a trailing # symbol.

Integer variables, unlike real variables, represent whole numbers only and are indicated by a trailing %. Whereas the majority of Basics allow only 16-bit or 2-byte integers, Fast basic caters for ones of 32 bits or four bytes. That lifts the oft-encountered restriction of not being able to manipulate and store memory addresses.

In Fast Basic, variables can be accessed using indirection. The function works in much the same way as the ubiquitious PEEK and POKE statements, except that it has the added bonus of being able to access both real and double numbers. The Indirection syntax is:

{ <**numeric-address**> }
<**type-identifier**>

Instead of PEEKing a number therefore you could use indirection. To quote an example from the Fast Basic manual {Ptr%} would be the real number at the address given by Ptr% and {Ptr%+4}# would be the double-precision number four bytes further on.

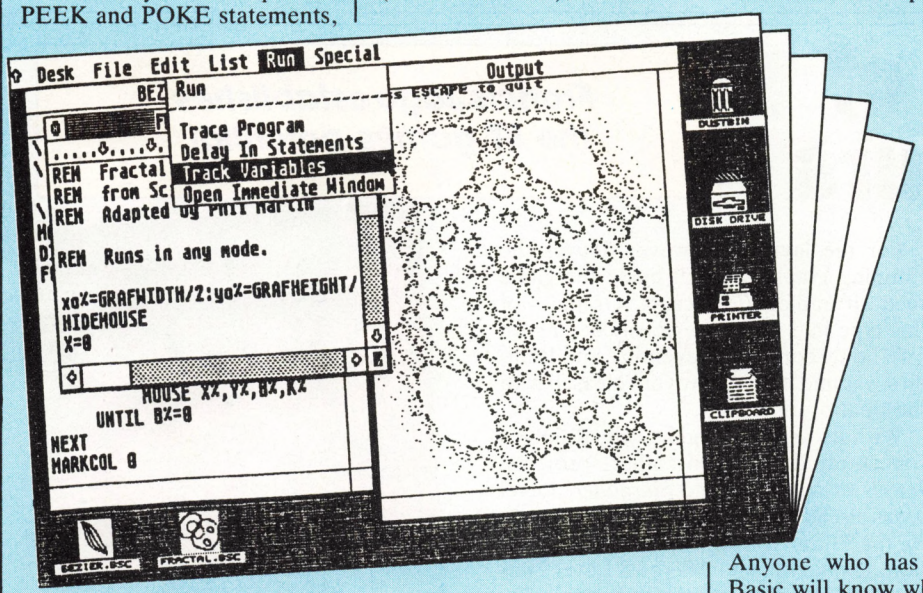
Indirection can also be used to write strings into memory. For instance {Buf%}$="Your computer" would write the letters in the string into memory, starting with the first 'Y' being placed at the location addressed by Buf%.

Since Computer Concepts has had a long and successful history of making products for the BBC, it is not surprising that one of the forms taken by indirection should have been adopted to provide compatibility with both BBC Basic and BCPL. What Computer Concepts has done is to include '?' and '!' as shorthand expressions for byte and integer indirection.

The question-mark operates almost as if it were a PEEK. Say, for instance, you wanted to look at the byte stored at the address given in the variable Hello% all you would do is type ?Hello%. Typing !(LOGBASE+80), on the other hand, would return the four-byte integer stored at the address LOGBASE+80.

Indirection does not make PEEK and POKE redundant. They perform much the same operation as indirection but, unlike it, work in supervisor mode. Were you to try and access supervisor memory using indirection, you would cause a bus error. Accessing supervisor memory is risky unless you have a good knowledge of how the Atari memory is mapped. Novices should avoid using PEEK and POKE and use the relatively harmless indirection.

Another BBC Basic-like characteristic found in Fast Basic is the ability to define procedures, using a function called DEF PROC (DEFine PROCedure). When a procedure has been set-up within a program, it can be called from anywhere by typing PROC<name of procedure>.



Anyone who has used BBC Basic will know what a difference procedures can make to the efficiency of a program. Being a BBC owner, I am pleased to see them being used on the Atari.

When you play with the ST desk-top you are using some of the facilities of GEM, an add-on to GEMDOS, the computer operating system. GEM acts as an interface between the user and GEMDOS. On the one hand GEM is a friendly front-end and on the other a reservoir of mainly self-contained utility routines to take the hassle out of writing programs which conform to the interface standard.

Those routines can all be used via easy-to-understand commands. Most of the commands are so simple to use that even a non-programmer could, with a minimum of effort, set about defining his own windows, alert boxes and pull-down menus.

Fast Basic programs are quick but to make them really fly you could add a little assembly language. To use the Fast Basic built-in assembler to good effect you have to know something about the 68000 instruction set.

Keywords

The Fast Basic assembler can be used at any point in a Basic program. I mentioned that Fast Basic is accompanied by a demonstration disc. For the most part the programs found on it are there to offer some guidance as to how you use the Fast Basic keywords. Some, however, serve a more practical use. There is a text-to-speech converter, a toolbox containing a utility to turn programs into auto-running ones, and a short routine turn programs into desk accessories.

Computer Concepts is talking about launching a utility to turn any Fast Basic program into a stand-alone ST program which can run on any Atari ST, regardless of whether or not the cartridge is present. If that arrives, the appeal of Fast Basic will probably be for ST owners who look on their machines as a means of making money.

Bigger and better things to come. Francis Jago reveals the price you have to pay.

1ST clones

If imitation is the sincerest form of flattery, Atari is doing its best to keep the rest of the computer world happy. Not happy with being at the forefront of the computer industry, Atari Corporation is striving continually to make its machine a more attractive proposition.

At the Atari Village at this year's Personal Computer World Show, the public was wowed by a series of peripherals for the ST which either serve to increase the power of the machine or allow it to run software written for other machines.

Probably the most impressive upgrade is K-Max, an Inmos transputer add-on produced by Kuma Computing. It provides a 32-bit transputer and an added 256K to plug directly into the ST. Costing £1,450 plus VAT – minimal only when compared to other comparable systems – it can send instructions at a speed never reached previously by anything except the most powerful industrial computers.

A less dramatic add-on, infinitely more useful to the average user, is the new MacCartridge. Again fitting straight into the ST, it allows you to run a great deal of the excellent Macintosh software base. There are disadvantages, of which the most obvious is the incompatibility of Macintosh and ST disc drives, but that can be overcome.

Another new emulator, and the one of which Atari approves most, is the PC-compatible emulation system – created by Atari. Consisting of a 8088 chip and 512K, it opens a completely new and vastly wider-ranging software base to Atari ST owners who have previously had to stay with more intrinsically specialist ST-only software.

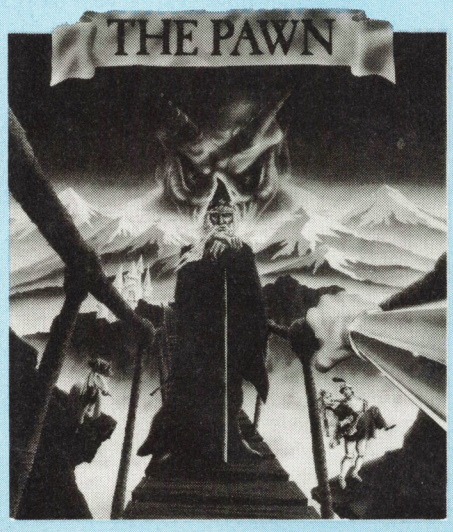
For home users, hobbyists and especially anyone interested in education, the release of BBC Basic for the ST will be a godsend, allowing as it does the ST to replace completely the BBC as an education tool. Once loaded, BBAS really converts the ST, allowing all the usual BBC Basic commands, though understandably there are no 6502 assembler calls available. Another good point is that more than 60K is available to the user, opposed to the more usual 20K of the BBC.

Model	Price (ex. VAT)	Monitor Price
520	£347 B&W – £130, colour – £347	Separate
1040	£799 incl. B&W monitor £999 incl. colour monitor	
2080STF	£1,149 incl. B&W monitor £1,349 incl. colour monitor	
4160STF	£1,459 incl. B&W monitor £1,659 incl. colour monitor	

Computer of many colours

Francis Jago establishes the ST games potential.

Many months of hard work should at last bear fruit for Rainbird, as a host of its Atari ST products near completion – they should be ready by now. Almost everyone who owns an ST will either own, or have played, *The Pawn*, by Magnetic Scrolls. One of the first top-quality ST games produced in the U.K., it has been acclaimed by many as one of the finest adventures of all time.

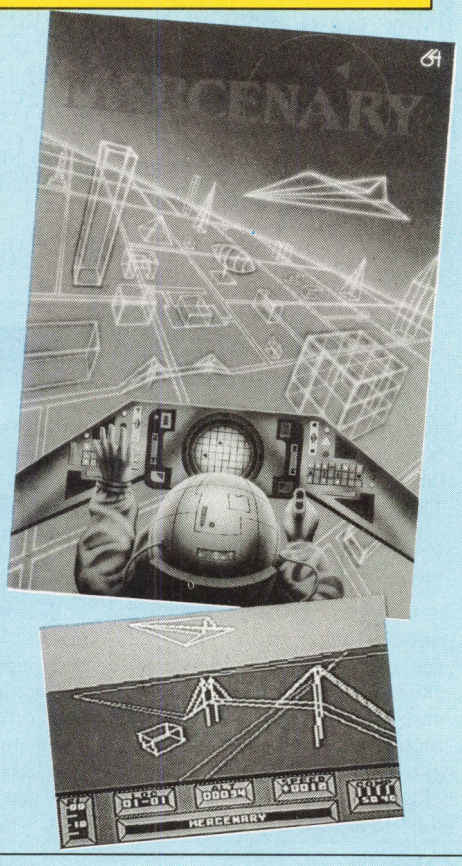


For the layman, however, it was the stunning graphics which made the game such an immediate success. Graphics of this type had never previously been seen on a home computer adventure and Rainbird was understandably very pleased with the final product.

With its first ST product out, Rainbird concentrated on two other projects, *Jewels of Darkness* and *Starglider*. Level 9 was already moving fast on its adventure for the ST and soon it was nearing completion. Unlike Magnetic Scrolls, Level 9 has not tried to sell the game on the amazing quality of the graphics; rather it hopes their reputation will precede them.

Anyone who has played any Level 9 adventures will find themselves at home with the ST conversion and the programmers have gone some way to making the most of the ST, with the now well-documented OOPS command retracing up to 1,000 steps on the 1040.

The jewel in the Rainbird crown, however, must be *Starglider*. Having taken its programmer, Jez San, more than a year to complete, the game represents the state-of-the-art in ST arcade games. Using excellent graphics, together with some three-dimensional animation which has to





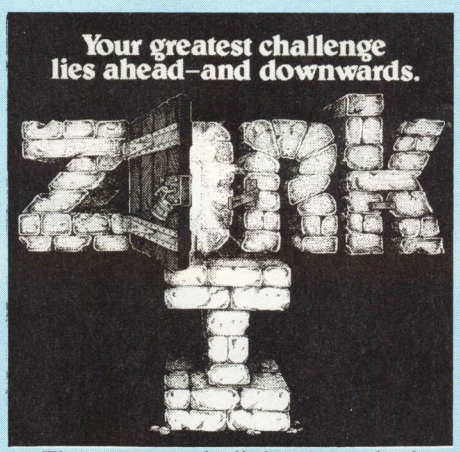
520ST, a nice little number.

be seen to be believed, the game manages not only to be technically excellent but also highly playable, something many programmers seem to forget.

When playing the game it is easy to notice certain features reminiscent of the *Star Wars* arcade game, with walkers and towers, but the Starglider, a kind of futuristic bird, is something else and has been brought to life with very effectively.



The undisputed king of arcade clones at the PCW Show was ST *International Karate* by System 3. Programmed by Andromeda in Hungary, the game takes graphics and animation to a level as yet not seen anywhere outside the arcades. Using the original Commodore 64 game for ideas, the game has been improved beyond recognition and is now possibly the most impressive game ever.



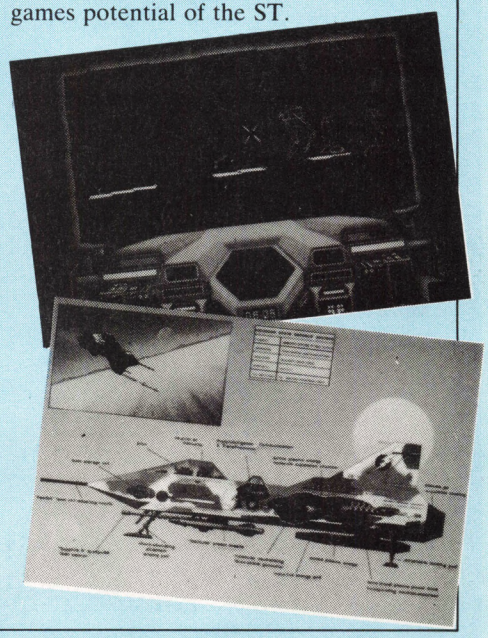
That may sound a little over-enthusiastic but when the game is finally released this month I predict that the whole computer games market will be enthusing about it.

Activision, the company responsible for the marketing, sales and distribution of System 3, has also released some new ST products, obviously feeling the market is now ripe. *Hacker II* plays identically to the Commodore 64 version, although the graphics are notably superior. The Infocom games, of which almost all have been ported to the ST, are just as good and are still, to my mind, the best value games around, if lasting entertainment is a criterion.

3D Masterpiece

Unless you have been in Papua New Guinea for the last twelve months, you cannot have failed to see or read about a game called *Mercenary,* programmed by the reclusive Paul Woakes. Originally for the Commodore 64 and Atari 800, the last few months have been spent converting this three-dimensional masterpiece to the Atari ST range.

Even the briefest demonstration was sufficient to convince me of the quality of the conversion; with the ST running at something approaching 50 frames per second, it is considerably faster than anything previously seen. Due to be released this month, it should help establish the games potential of the ST.



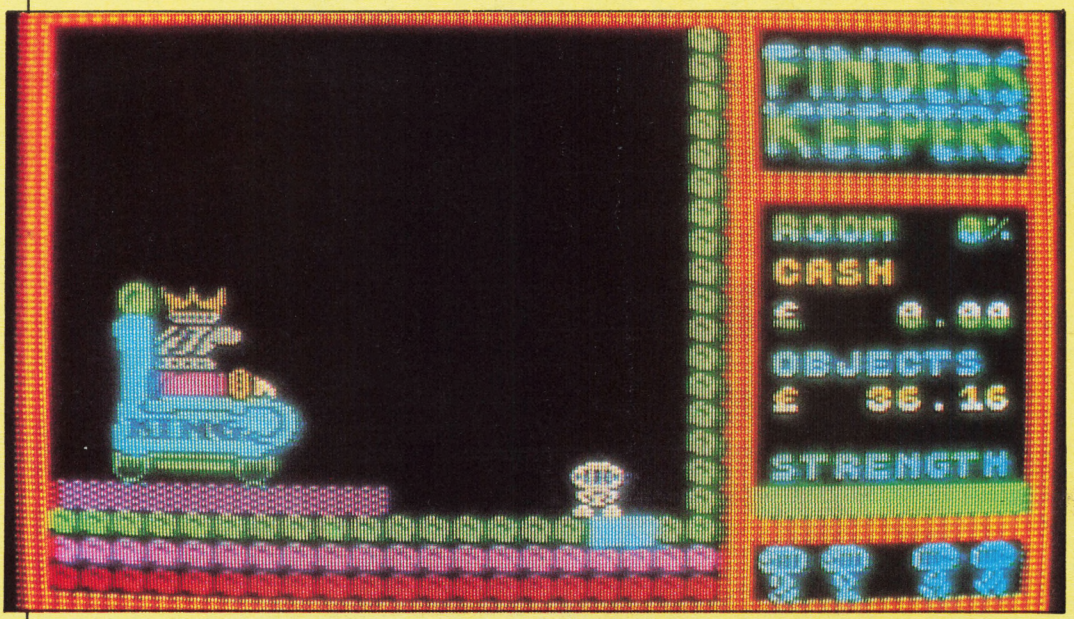
»THE EXPERT WAY«

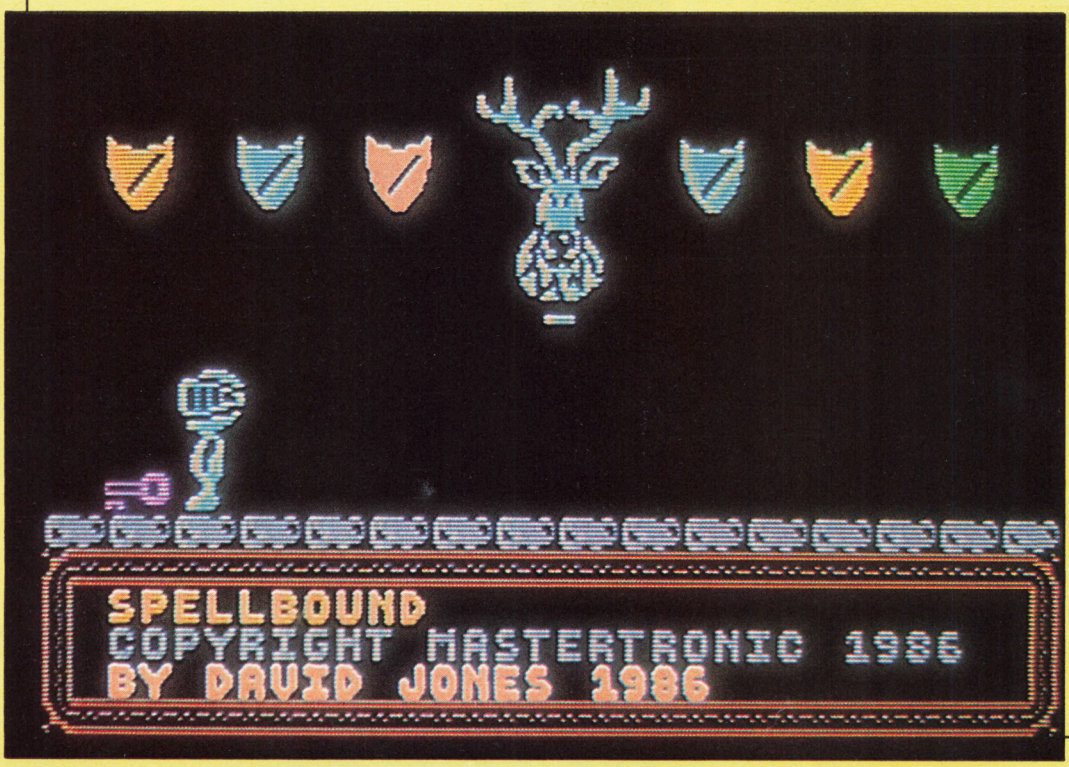
This month David Jones gives an insight into how he wrote his hugely successful games.

We are fortunate enough in the second in our series of tips from expert programmers to have a program from one of the top games programmers in England, David Jones. His three games to date have all been released by Mastertronic; he is a Spectrum programmer by choice and all three games have been for that machine.

Finders Keepers, the first game Jones wrote, was one of the first really successful budget games and his second, *Spellbound,* was given every possible award. Released as one of the first games on the Mastertronic Added Dimension range, it was an arcade adventure of great depth and involvement which, at £2.99, proved to be one of the top-selling budget Spectrum games and has since been converted to every conceivable machine.

When everyone decided he needed a rest, Mastertronic released his next game, *Knight Tyme,* and it, too, received rave reviews from everyone. Again, Knight Tyme features Jones' brand of icon-driven arcade adventuring, *Windimation.* The next game to look forward to is *Stormbringer,* which should be available in two months and promises to be his best game yet.





Suite

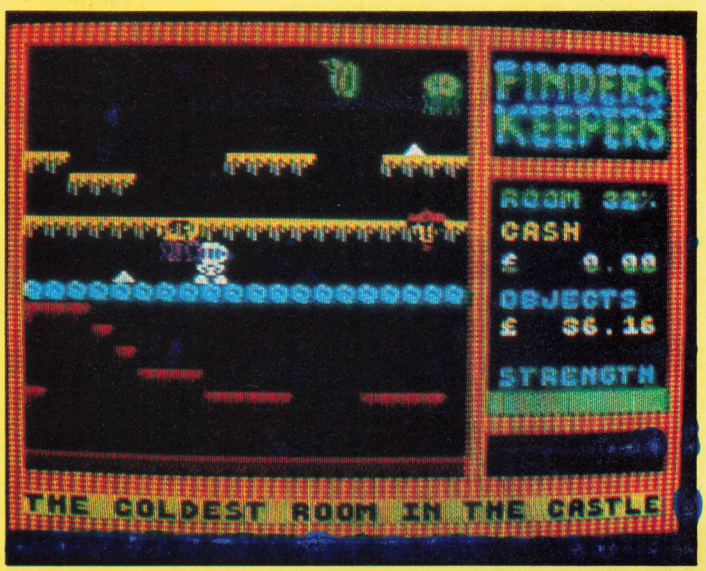
In this month's Programming The Expert Way, we decided to sell Jones' listing, rather than publish it over many pages for many months. The program consists of a suite of utilities for budding Spectrum programmers.

All the new commands can be used through Basic and include a wide variety of excellent utilities. Some of the more important facilities of the program include:

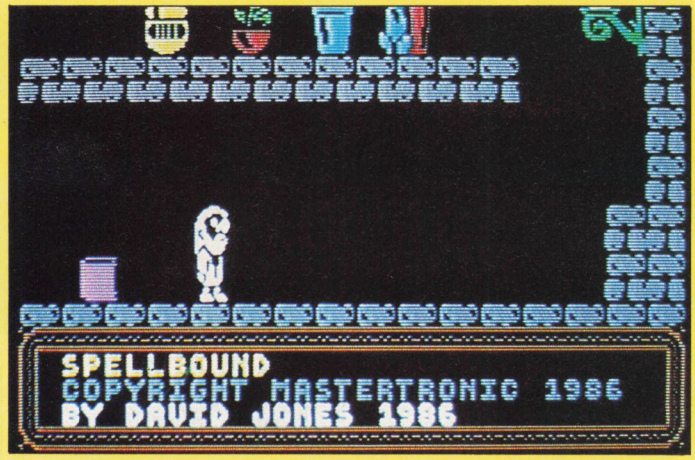
16 x 16 pixel sprite routines with attributes.
Seven pre-defined sounds.
Easy directional scrolling.
26-colour border.
Built-in help commands.
Screen store, replace, swap and overlay.

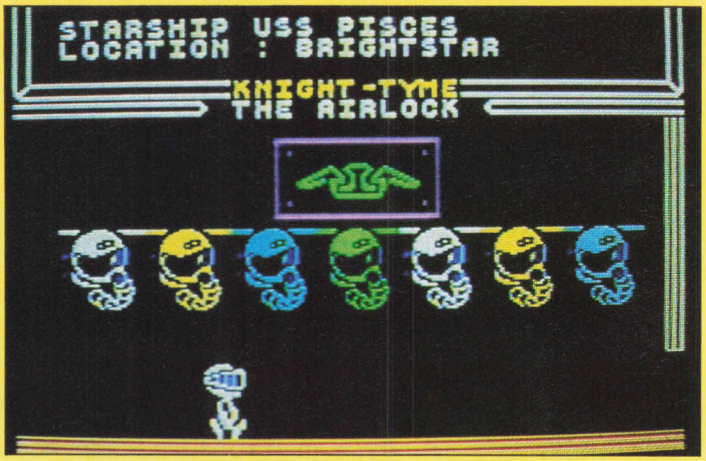
The listing provided will serve as a good source of instruction and demonstration, as it uses many of the facilities the original program provides. The program requires copying on to tapes and it can be done this way:
First load it with LOAD "". Then the program can be saved by using SAVE "XXX" CODE 49100,16268.






```
  10 CLEAR 40000: LOAD ""SCREEN$
  20 INK 0: PAPER 0: PRINT AT 18,0;: LOAD "DPCODE"CODE
  30 INK 0: PAPER 7: BORDER 7: BRIGHT 0: FLASH 0: CLS : LET y$="DYNAMIC PROGRAMM
ING": LET z$="pat0,0:pl12 ": GO SUB 9000
  40 LET y$="DEMONSTRATION": PAPER 6: LET z$="pat2,0:pl12 ": GO SUB 9000: PAPER
7
  50 PRINT AT 4,0;"Press any key to see the SPRITES": PAUSE 1: PAUSE 0
  60 LET z$="spa,a,4,0:spb,a,1:spm,a,3,2 ": GO SUB 9000
  70 LET z$="spa,b,2,0:spb,b,1:spm,b,-2,-7 ": GO SUB 9000
  80 BORDER 0: PAPER 0: INK 7: INPUT "": LET z$="cd4:ca3 ": GO SUB 9000
  90 LET y$="PRESS A KEY.": LET z$="pat0,0:pl22:dsp:spd,a,0,0,0:spd,b,0,0,0 ": G
O SUB 9000
 100 BORDER 7: PAPER 7: CLS
 110 INK 7: LET y$="PIXEL WINDOWS": LET z$="pat2,0:pl22 ": GO SUB 9000: INK 0: P
RINT AT 0,0;: FOR i=0 TO 63: PRINT  INK 4; BRIGHT 1;" ";: NEXT i
 120 LET z$=" DEF FN pw0,0,31,31 ": GO SUB 9000
 130 LET z$=" DEF FN loop15 ": GO SUB 9000
 140 LET z$="pwdir:loop ": GO SUB 9000
 150 LET y$="CAN BE DEFINED AND THE CONTENTS CAN BE MOVED ABOUT PIXEL BY      PIX
EL. PRESS ANY KEY TO SEE THE TOP FOUR LINES SCROLL LEFT 256  TIMES."
 160 PAUSE 1: LET z$="pat2,0:phf ": GO SUB 9000: PAUSE 100
 170 LET z$="pat2,0:pvf ": GO SUB 9000: PAUSE 100
 180 PRINT AT 2,0;y$: PAUSE 1: PAUSE 0
 190 LET z$=" DEF FN loop255 ": GO SUB 9000
 200 LET z$="pwlr:loop ": GO SUB 9000
 210 LET z$="thc12 ": GO SUB 9000
 220 LET z$="ion:bon ": GO SUB 9000
 230 PAUSE 100: LET z$="ioff:boff ": GO SUB 9000
 240 LET z$=" DEF FN loop7:bfx ": GO SUB 9000
 250 LET z$="awip:awii:loop:bfx ": GO SUB 9000
 260 FOR i=0 TO 3
 270 POKE USR "a"+2*i,BIN 10101010
 280 POKE USR "a"+1+2*i,BIN 01010101
 290 NEXT i
 300 BORDER 7: LET z$="cd4:ca2 ": GO SUB 9000
 310 LET y$="This is the FRAME command"
 320 LET z$="pat2,2:pl12 ": GO SUB 9000
 330 LET z$="framea,50 ": GO SUB 9000
 340 PRINT AT 5,5;"Pretty isn't it ?"
 350 LET z$="swp2 ": GO SUB 9000
 360 PRINT AT 6,5;"THERE ARE OTHER CHARACTER";AT 7,5;"SETS BUILT IN"
 370 LET a$=" !"+CHR$ 34+")$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWX
YZ[\]^_£abcdefghijklmnopqrstuvwxyz{|}"+CHR$ 126+"
 380 PRINT AT 10,5;"PRESS ANY KEY TO SEE."
 390 PAUSE 1: PAUSE 0: BORDER 6: PAPER 6: CLS : LET y$="NEW CHARACTERS"
 400 LET z$="pat0,0:pl22 ": GO SUB 9000
 410 PRINT AT 3,0;a$
 420 LET y$="OLD CHARACTERS"
 430 LET z$="swp1:pat10,0:pl22 ": GO SUB 9000
 440 PRINT AT 13,0;a$
 450 PRINT AT 20,0;"Press any key.": PAUSE 1: PAUSE 0: PAPER 4: BORDER 4: BRIGHT
 1: CLS
 460 LET y$="NEW CHARACTERS CAN BE ENLARGED"
 470 LET z$="swp2:pat0,0:pl12 ": GO SUB 9000
 480 LET y$="LOOK": FLASH 1
 490 LET z$="pat4,12:pl21 ": GO SUB 9000
 500 FLASH 0: INK 7: LET a$="no": LET b$="xy"
```






```
  510 PRINT AT 10,5;"no";AT 11,5;"xy"
  520 LET y$=a$: LET z$="pat10,9:pl21 ": GO SUB 9000
  530 LET y$=b$: LET z$="pat11,9:pl21 ": GO SUB 9000
  540 LET y$=a$: LET z$="pat10,15:pl12 ": GO SUB 9000
  550 LET y$=b$: LET z$="pat12,15:pl12 ": GO SUB 9000
  560 LET y$=a$: LET z$="pat10,19:pl22 ": GO SUB 9000
  570 LET y$=b$: LET z$="pat12,19:pl22 ": GO SUB 9000
  580 LET y$=b$: LET z$="pat10,25:phf ": GO SUB 9000
  590 LET y$=a$: LET z$="pat11,25:phf ": GO SUB 9000
  600 PAPER 6: INK 1: LET y$="bc"
  610 PRINT AT 16,5;"bc"
  620 LET z$="pat16,9:pl21 ": GO SUB 9000
  630 LET z$="pat16,15:pl12 ": GO SUB 9000
  640 LET z$="pat16,19:pl22 ": GO SUB 9000
  650 LET z$="pat16,25:phf ": GO SUB 9000
  660 FLASH 1: LET y$=",": LET z$="pat22,0:pl22 ": GO SUB 9000
  670 LET y$=")": LET z$="pat22,30:pl22 ": GO SUB 9000: FLASH 0
  680 LET y$="PRESS ANY KEY.": INK 0: BRIGHT 1
  690 LET z$="pat22,9:pl12 ": GO SUB 9000
  700 INK 7: PAPER 1: LET a$=" no ": LET b$=" xy "
  710 PAUSE 5: PRINT AT 5,23;"        ";AT 6,23;"        ";: LET y$=a$: LET z$="p
at7,23:pl21 ": GO SUB 9000
  720 LET y$=b$: LET z$="pat8,23:pl21 ": GO SUB 9000
  730 PAUSE 5: LET y$=a$: LET z$="pat5,23:pl22 ": GO SUB 9000
  740 LET y$=b$: LET z$="pat7,23:pl22 ": GO SUB 9000
  750 PAUSE 5: LET y$=a$: LET z$="pat5,25:pl12 ": GO SUB 9000
  760 LET y$=b$: LET z$="pat7,25:pl12 ": GO SUB 9000
  770 LET c$=INKEY$: IF c$="" THEN  GO TO 710
  780 LET z$="help ": GO SUB 9000: PAUSE 1: PAUSE 0: GO TO 30
 9000 RANDOMIZE USR 49409: RETURN
```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"It is very fragmented. There is no co-ordination, the right hand never tells the left hand what it is doing, and it is a highly-incestuous business. There is a good deal of one-upmanship and people are very much into cutting off their noses to spite their own and their rivals faces."

That trenchant criticism of the computer communications industry is offered by the sales director of a new company, which has set up offices in north London with the declared intention of selling comms equipment which works to people who need it but have been deterred by the industry's poor self-presentation.

Initiative

Terms like the wired society and the electronic office have been used by computer industry pundits for years and have probably achieved very little beyond pushing the equally tendentious man in the street into terminal techno-fear.

The view of the computer as the arbiter of future society and destroyer of human initiative has tended to obscure its real function as workhorse and invaluable time-saver for everyday folk, from the journalist to the filing clerk, secretary, warehouse manager, accountant, stock-controller, writer, office manager or mail-order businessman.

"The false technicalities frighten the man who needs to use the equipment," says Charles Lacey, company secretary of RCR (Computer Communications). "The small business man sitting in his office, with the big bang here and a computer system he does not know what to do with, will be very upset with all the PEEKs and POKEs and ROMs and RAMs. What he wants is some straightforward instructions – press this and that will happen. He does not have time to waste."

The company intends to supply just that kind of guidance, together with the facility for all prospective customers to try the equipment before deciding what to buy; it is that fundamental, commonsense approach to the problems which have so far hampered the comms scene which makes RCR an interesting enterprise.

Micronet

Richard Jansz, its managing director, is an experienced observer of the micro-sales scene. As a sales executive with EMAP, and ultimately advertising manager for Micronet, he has seen most of the mistakes made by aspiring companies whose products are either not good enough or not properly documented.

Lacey has a sound financial background in banking and shop management – and no illusions about making a fast fortune. Reg Ruse, sales director, worked originally as a civil servant but became interested in the potential of micros through electronic music and synthesisers.

The company is, it believes, the only one concentrating solely on comms equipment, certainly in London, and possibly in the U.K. It is an area which can only increase in importance as the distinction between home and business users decreases.

The need for modems, reliable interfaces and efficient software goes far beyond the limited requirements of the enthusiast anxious to log-on to a bulletin board and ultimately will affect the way information is passed round the world, in a manner calculated to make postal charges a matter of indifference. Complete communications stations in small business premises are only a matter of time, with developments involving fax machines and Telex systems becoming both more effective and drastically cheaper.

Because its directors believe the importance of computer communication cannot be over-emphasised, RCR will sell not only direct to the end-user but also to retailers, who at present are often as confused about what is available and how it works as the consumer. The company will also make available to all customers the benefits of thorough testing procedures – "If it is rubbish, we won't sell it," says Ruse – sensible, i.e., affordable, pricing policies and a technical help-line service designed to demystify computer communications and place the micro firmly in the ranks of valuable tools, human beings for the use of.

So far as consumers are concerned, RCR will make it possible both to buy a complete communication package, including modem, and join one or more of the commercial database systems at the same time, instead of having to wait some weeks before going on-line. Straightforward instructions for using the system will be included. For retailers, there will be comprehensive information about manufacturers' products, including their availability, and advice on selling points, if required.

Anything

The philosophy has impressed several manufacturers to date, not least GEC. As a maker of modems for the last 16 years, GEC has been cautious about moving into the home micro area. Its products have been aimed primarily at the business user and it is only with the blurring between home and small business markets that it entered the lists initially with the Datachat 1223 for the BBC.

GEC has just agreed a distribution deal with RCR for communications-related products due to be launched in the New Year and the decision is a clear indication of faith in the future not only of the modem market but RCR as well.

"We will be a one-stop shop for anything to do with computer communications," says Jansz. "People can walk in or make an appointment. The products will be here, they can use our lines, log-on, try it, buy it. They can find a package they can really use and these service is what RCR is about."

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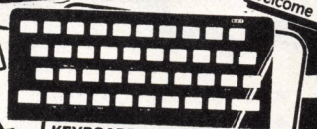

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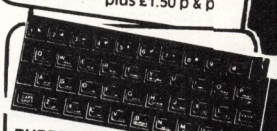

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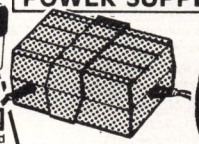

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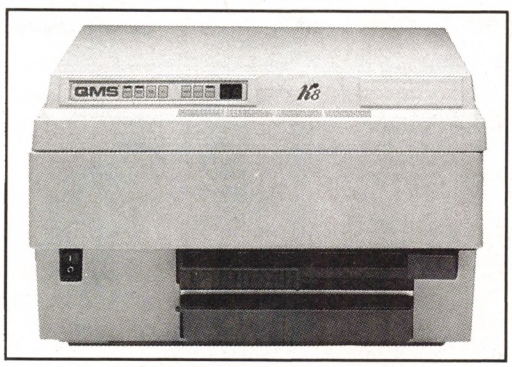

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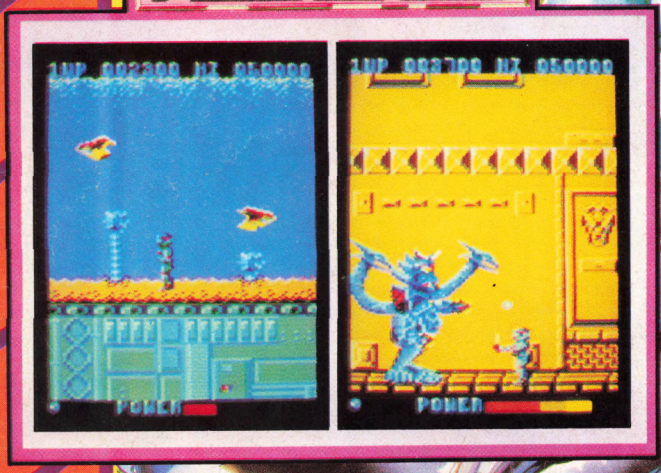

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