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POPULAR Computing WEEKLY

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16–22 October 1986 Vol 5 No 42

SPECIAL supplement

Commodore plans 'fat' 64 micro

Full story on page 6

COMMODORE 64

The Pawn – now out on the 64

Astounding graphics with Artist 64

Choosing disc drives and cartridges

HARDWARE

Apple IIGS – An Amiga performance for less than £1000?

NEWS DESK

Amstrad scuppers the clones

Saga confirms Compliment launch at Microfair

REVIEWS

Dandy
Arena
Fist II
and more

starts on p 14

TRACKER by Union Software

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–	–	–	D	–	–	–	–	–
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–	–	–	24·95	–	D	D	D	D
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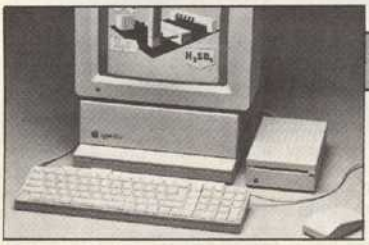
Contents

GAMES

14, 16 Reviews
A strong line-up this week, with some long-awaited releases seeing the light of day. Check out *Fist II* from Melbourne House, *Dandy* from Electric Dreams, *Leather Goddesses* from Infocom, *Arena* from Psygnosis, and more.

15 Arcade Action
Lots of pokes to help you through the trouble spots in *Dynamite Dan*, *Starion* and BBC *Airwolf*. Includes this week's Gallup Top Twenty.

18 Adventure Corner
Tony Bridge gets lost in caverns of Global's *Monsters of Murdac*.



HARDWARE

21 Apple IIGS
The performance of the Amiga, at the price of the Atari ST? So the rumours go, anyway. Peter Worlock gives you the details.

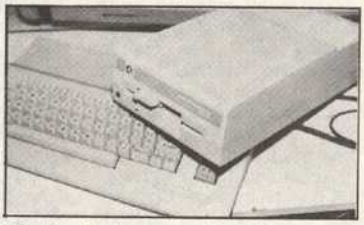
SOFTWARE

23 K-Word
Another word processor for the Atari ST. How does *K-Word* match up to *First Word*, or *GemWrite*? Chris Jenkins knows the answers.

PC Outline
For all those who have ordered/are thinking of ordering the Amstrad PC, Tony Kendle thinks he's found the ideal desk-top utility.

SPECIAL SUPPLEMENT COMMODORE 64

25 Utility cartridges compared.
29 Commodore's Connoisseur's Compendium – a lucky bag or a pig in a poke?
31 Epic adventure, *The Pawn*, reaches the Commodore 64.
34 Graphics Challenge: *Artist 64* vs Rest of the World.



36 Producing graphic documents with *The Print Shop*.
37 The greatest Commodore disc drive dilemma.

PROGRAMMING

42 Spectrum
A fully comprehensive renumbering program.

43 Amstrad CPCs
Place your bets here – Nicky Morris's racing prediction listing.

44 QL
Printer utility, for use with the EP44 and others.

45 BBC
Into the closing minutes of Mark Slater's Soccer program – a game of three thirds, Brian.

46 Commodore 64
Series of disc and printer utilities.

48 Bytes and Pieces
49 Peek and Poke

REGULARS

6 News Desk
12 Letters, Chess
17 Chess Board
Martin Bryant profiles *Cyrus* and *Psion Chess* author Richard Lang.

51 Soundcheck
Everything the musical MSX owner needs to know to get started.

52 Communications
60 New Releases
62 Ziggurat, Hackers

Editor Christina Erskine **News editor** John Lettice **Features editor** John Cook **Technical editor** Duncan Evans **Production editor** Michelle Beauchamp **Supplements editor** Christopher Jenkins **Supplements designer** Barbora Hajek **Advertisement and Promotions manager** Simon Langston **Assistant advertisement manager** David Osen **Advertisement executive** Jon Beales **Classified executive** Rodney Woodley **Editorial secretary** Annmarie O'Dwyer **Administration** Geraldine Smyth **Managing editor** Peter Worlock **Publishing director** Jenny Ireland. **Published by** Sunshine Publications Ltd, 12–13 Little Newport Street, London WC2H 7PP. Tel 01-437 4343 Telex 296275 Fax 01-439 0681 **Typeset by** Magazine Typesetters, 6 Parnell Court, East Portway, Andover, Hampshire. **Printed by** McCorquodale Magazines, Andover, Hampshire. **Distributed by** S M Distribution, London SW9, Tel 01-274 8611, Telex 261643.

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Commodore plans expanded Ram for 64

COMMODORE is planning a series of launches in its 64/128, Amiga and PC ranges in the next few months. The Amiga range is to be expanded to include an entry-level machine with 512K and single disc drive for around £600 (see *Popular Computing Weekly*, September 18), while the 64 and 128 are to get a series of expansion packs that expand their memory by up to 512K.

According to Commodore UK general manager Chris Kaday there are no specific plans to design new versions of the machine that have this amount of Ram on board, but he concedes that "as Ram gets cheaper it's a distinct possibility."

The fact that Commodore's main competition in the next year or so is liable to come from the Atari ST and from PC compatibles must however mean that it is more than a possibility, since if the company is to maintain its position in the home market it must produce powerful machines at a price the market is willing to pay. A cheaper Amiga is one part of the strategy, but an expanded 64 would allow Commodore to differentiate better between its home and business ranges.

The add-on Ram for the 128, the 1750, is already out in the US, priced at $199 (around £130), with the 1764 pack for the 64 to follow shortly. Kaday currently can't say when the packs will arrive in this country, or what they'll cost, but in all probability they'll be with us soon, probably early next year.

The 128D: A clue to the new range?

Compliment launches at ZX Microfair

SAGA'S Compliment expansion unit for the Spectrum is to be launched at the ZX Microfair on 25 October. The unit, which consists of new keyboard, parallel interface, joystick port, disc drive, printer and bundled software will cost £344.

From the point of view of existing Spectrum owners the Compliment bundle looks good value. The disc drive is an Opus Discovery, which retails at £115, while the Compliment printer is a high quality 150 cps device. The addition of keyboard and software (*The Last Word, Trans Express, Masterfile* and *Omnicalc*) make the system substantially cheaper than the sum of its parts.

With the Amstrad 6128 and PCW 8256 as competition the Compliment looks less plausible as a completely new system, as the addition of Spectrum and monitor would bring the cost up to £500—£550, and the Amstrad machines are around £300 for 6128 (without printer) and £460 for 8256, but although a Compliment system would have less Ram (48K or 128K, depending on the model used) it does have advantages.

White: Software on menu.

The Discovery, for example, uses cheaper $3\frac{1}{2}$ inch discs, while the Compliment's printer is superior to the 256's. The software position is less clear cut, as while the Spectrum has vastly more entertainment software, it doesn't have access to the CP/M programs the PCW does, but this will be a matter of choice for individual users.

David White of Saga is particularly keen to extol the virtues of the Compliment Operating Environment, a menu-driven system that allows the applications to be loaded without recourse to Sinclair Basic.

Atari appoints former Commodore manager

ATARI'S new UK managing director is Bob Gleadow, who until recently was vice president with responsibility for Asia at Commodore International. Gleadow was with Commodore for 12 years, and was general manager of Commodore UK for the six years up to 1983, a time when Commodore under Jack Tramiel was threatening to engulf the world.

Tramiel left Commodore and took over Atari in 1984, and Gleadow is the latest of the Commodore old guard to follow him there. As the man who unleashed the Commodore 64 on Europe (Hanover Fair 1982) he's something of a catch for Atari, and is expected to begin beefing up the company's marketing profile in the next few months.

A new UK marketing manager to replace Rob Harding, who left Atari recently in what was described as a "career move", is due to be appointed by Gleadow shortly.

Alpha backup system has it taped

ALPHA Microsystems has launched a videotape based backup device for the Amstrad PC. It takes the form of an interface which plugs into the machine's expansion port and allows data to be stored on a standard video recorder. A two hour videotape will hold up to 80Mb of data.

The device, which costs only £365, allows multiple copies of data to be recorded, and for people with access to a video recorder provides a low-cost alternative to tape streamers for hard disc backup.

Details from Alpha Microsystems, Berkshire House, 56 Herschel Street, Slough, Berks SL1 1PY. Tel: 0753 821922.

Karate tops US charts

SYSTEM 3's *International Karate* has reached number one in the US software charts. The game is sold there by US software house Epyx, and is the second British game to top the US charts, the first being Firebird's *Elite*, which has been ringing tills round at BT since the CES show in the spring.

BT rubbishes closure story

SUGGESTIONS that British Telecom was about to pull out of the software business and close Rainbird, Firebird and Beyond were strongly denied last week. Head of BT Telecomsoft Ed Williams said that the position of BT's software labels was, if anything, improving, and that "British Telecom remains committed to games software."

The suggestions of trouble appear to be based on a deadline set by BT in April, which stated that the Telecomsoft division had a year in which to show a profit, with reviews every three months. According to one insider the first two reviews failed to show a profit, and the departures of Francis Lee from Beyond, Tony Rainbird from Rainbird and Barry Lewis, until recently head of Telecomsoft, have added weight to speculation that something was wrong.

"We're coming up to a very crucial period this Christmas," says Williams, and he admits to having spelled out to staff that the labels' BT parent doesn't have "infinite patience", but he points out that much of the stable is starting to come good.

"A lot of good things have happened recently," he says. "Firebird has just done a large deal with Ariola for £1 million worth of exports to Germany." And, he says, "Firebird Licensees turned in its highest sales figures ever in September."

At the same time Rainbird has hits like *The Pawn* and *Star Glider* under its belt, and Firebird itself is scoring chart successes.

Beyond is not, however, currently sharing in that success, and seems close to missing the Christmas market with *Star Trek*, this year's big production number. The ST version of the game is nearly ready, says Williams, but it still has to be approved by Simon and Shuster, the US publisher which licensed the title to Beyond. Alongside this, 8-bit conversions of the game have proved to be "very complicated".

January launch for Philips MSX 2

PHILIPS is thought to be planning to release its MSX 2 micro in this country, although the company denies that the machine will be launched here as a stand-alone machine. According to Steve Paul, marketing manager of Philips' consumer electronics division, it's probable that when it arrives here it will be sold as part of a complete video-based system rather than into the home computer market.

Such a system would use a laser disc and the MSX 2 machine to edit digitised video frames, add subtitles and so on. Pamela Ladd of Philips' interactive media systems division, which is likely to be handling any such system, refused to comment on potential launches, but said that further information might be available shortly.

If Philips does take the video route it will be following on JVC's initiative. The latter company sees video and audio as logical paths for the MSX standard to take, and has configured its MSX 2 machine to attack vertical markets in these areas.

Graham Knight of leading MSX dealers Knight Computers has sold a number of JVC machines, and confirms this. "We're selling to people who are video buffs, and the machines go in the same way as Video 8 and video cameras."

Software Hotlines

Alien

Who said there was no money in adventures? **Incentive Software** has just announced that they've sold one million pounds worth of **Graphic Adventure Creators** – and that's a lot of pixies. Of the vast number of GAC generated adventures received by the company, the best are given the Gold Medalion Award . . . indeed Incentive will be marketing the first two of these, *Apache Gold* and *Winter Wonderland* towards the end of November for £7.95. Which strikes me as being rather a lot.

How's this for bad taste? Remember *Mad Doctor* – in which you had to dig up graveyards in search of limbs to make up your Frankenstein? Now try *Mad Nurse* from **Firebird.**

In this game, you control a variety of nurses (with names such as Brenda Bumwash . . . yes . . . it is that tasteless), running around levels of a ward, picking up babies before they stick their cute little fingers down electric sockets, or swill the contents of specimen bottles – both hilariously fatal.

Conservative MPs will be outraged, Boots will ban it and it's a sure fire hit. File it under 'warped' along with *Di's Baby* and *Driller Killer.*

Electric Dreams seems to be coming along nicely with *Aliens* – with the game due for release mid-November on Spectrum, Amstrad CPC and Commodore 64.

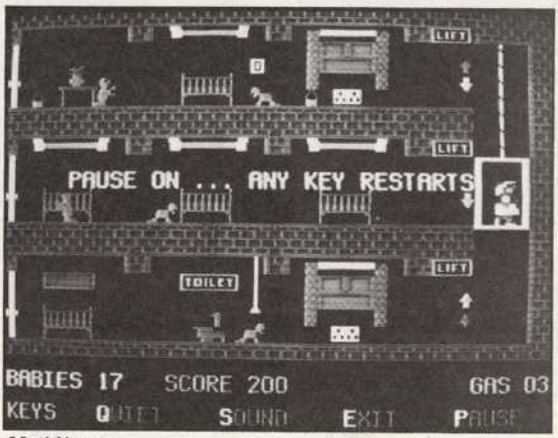
If you've seen the movie (or clips from it) you'll remember that one of the main action sequences has a platoon of Space Marines working their way through the Alien infested complex.

Aliens The Game has you controlling six marines from the Mobile Tactical Operations Base, selecting one at a time and viewing the complex through their own personal TV cameras. The general aim of the game is to shoot, miam, kill, etc – with the ultimate aim of getting the team through to the Alien Queen's lair, but has significant strategic factors . . . if the Aliens take over the generator room for instance . . . it all goes dark.

Hey! Remember *Nexus* – the pencil case that came with a free computer game? Well now **Nexus** (the company) has announced its next release for the 64 – *Assault Machine.* Can't wait.

The **US Gold** juggernaut rolls on – it's signed up US biggies **Broderbund** – that means £2.99 oldies.

John Cook



Mad Nurse

Amstrad block on clone Wordstar

AMSTRAD'S entry into the business software market seems to have run into trouble before it has even started. According to MicroPro, which produced *Wordstar 1512* for the Amstrad PC, the program will run on practically any PC compatible machine. But it appears that Amstrad, which has sole publishing rights to the program, has doctored it so that it will not – not even on an IBM PC.

The problem lies in the installation procedure, which has been modified so that it is specific to the Amstrad PC. It is possible to install the program so that it will work with other compatibles, but not by using the install program on the discs supplied by Amstrad, as this seems to be where the "log breaker" has been inserted.

MicroPro's technical support department was unaware of the problem when contacted, while Amstrad technical support said it couldn't help, and asked for the query to be put in writing. Such queries are then apparently forwarded to MicroPro. Reception at the latter incidentally suggests that queries about *Wordstar 1512* should be taken up with Amstrad.

In default of support from author or publisher it's the dealers who will have to fend off most of the queries. Softshop's Amstrad Business Centre is a stockist of both the PC and *Wordstar 1512*, but hadn't run into the installation problem.

Naturally enough most dealers will have installed demonstration programs on the Amstrad PC, and therefore aren't likely to spot the problem until owners of other clones start complaining the product doesn't work.

MicroPro, which has assigned Amstrad sole marketing rights to the program, is unlikely to be best pleased about the situation, while other software houses with product being published by Amstrad will be similarly concerned.

While it may be in Amstrad's interest to limit the machines that software runs on it certainly is not in theirs.

AM's Vicom package

DR plans a range of new packages running under Gem

DIGITAL Research is planning to launch Gem-based communications, spreadsheet and database packages in the near future. The communications package, *GemComm*, is based on A M Technology's *Vicom* package, recently converted from the Macintosh to the PC, and is expected to cost around £150.

DR is, however, being cagey about the database and spreadsheet, admitting that it intends to launch products but refusing to comment on what or when.

The two packages are apparently being bought in rather than developed in-house, and are liable to be low-cost, fitting in with the company's current policy of pricing Gem software at levels that will allow it to sell to Amstrad PC users.

Thingi

Thingi of beauty, say judges

OVERBASE'S "ergonomic computer copy holder," Thingi, has been named Business Idea of the Year by a collection of companies that includes British Telecom, Marconi, Champion Spark Plugs, Cadbury Typhoo and the Midland Bank.

Thingi costs £8.04 and is available from Overbase, 176A Conway Street, Birkenhead (051-647 8981).

Commodore admits to new chips

COMMODORE has confirmed that it is working on enhanced versions of the Amiga's Agnus and Denise custom chips for future versions of the machine. The Amiga's Agnus chip currently controls 512K of the machine's display memory, which at the time of design seemed adequate for display purposes, but is now being upgraded to handle a full 2Mb.

Together with the upgraded Denise this will allow future versions of the Amiga to handle more detailed graphics much faster. More news of the new Amigas is expected at the November Comdex show in the US (see *Popular Computing Weekly*, September 18).

Eyles loses face

Footnotes

As our picture shows, Mark Eyles is keeping some pretty strange company these days. He is not in fact discussing *Alien 2* with an Electric Dreams executive, but instead is demonstrating a pop-out extra to be included in the game's packaging. Don't open the box till you get it home . . .

IBM bids to bring clones to heel

IBM began preparations for a counter-attack against the clone manufacturers last week by linking up with chip manufacturer Intel in a technology exchange agreement.

IBM's problem so far has been that both the operating system and processor for its PC series has been readily available, so companies like Amstrad have been able to produce IBM lookalikes and carve out a slice of IBM's market.

The new agreement however allows IBM to use tailor-made Intel chips, so if IBM continues to set the standard it will be illegal to copy it.

This will call into question the whole concept of IBM compatibility.

HardBall!

by Accolade

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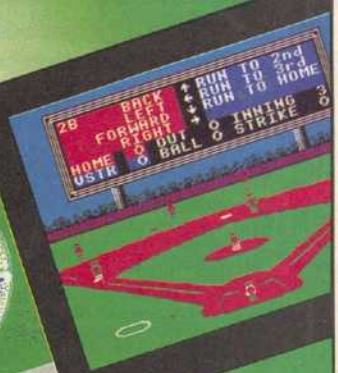

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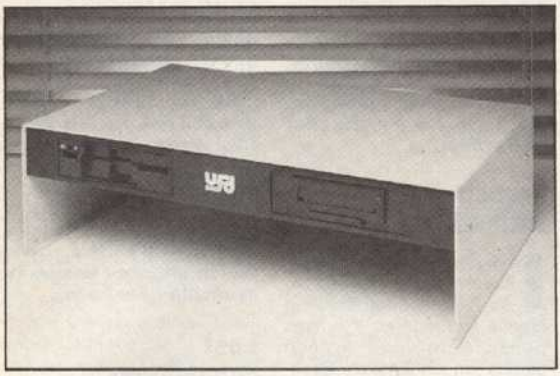


Akhter carries on streaming with BBC backup box

AKHTER is to launch the Archive drive, a combination 1Mb floppy drive and 10Mb tape streamer for the BBC. The tape streamer's software can produce a mirror image backup of a Winchester or can handle both individual files and directories.

The floppy drive is switchable between 40 and 80 track, and is housed alongside the streamer in a unit which fits over the BBC machine.

The complete unit costs £999.95.

Details from Akhter Group, Akhter House, Perry Road, Staple Tye, Harlow, Essex CM18 7PN (0279 443521).

Expansion for the Amstrads

THE Velleman interfacing system for the Amstrad CPC machines consists of a series of kits or ready built units based on a four slot motherboard. The motherboard connects to the computer's disc drive port and provides an additional disc drive connector, allowing the system to be used at the same time as other peripherals.

Plug in interface cards which can be used with the Velleman include an eight channel analogue input multiplexer, A/D and D/A conversion, Centronics printer port, eight channel logic input, real-time clock and a general purpose output card. The kits start at £42.20.

Details from Electronics and Computer Workshop, 171 Broomfield Road, Chelmsford, Essex CM1 1RY (0245 262149).

Blow your own on BBC series

MULTIPROM is an Eprom programmer for the BBC series, and is compatible with all models from BBC B up to Master. The UVP 1.1 software can run in sideways Ram if required, and enables an Eprom to be programmed from any file on a disc.

The Multiprom takes its power from the computer, and is fitted with dip switches which allow it to be configured to handle a number of different types of Eprom. The Multiprom costs £44.95, while the UVP 1.1 Rom is £5.

Details from Ground Control, 4 Alfreda Avenue, Hullbridge, Hockley, Essex SS5 6LT (0702 230324).

Budget WP pack for Amstrad PC

VUMAN Computer Systems' *Vuwriter* word processor has been adapted to run on the Amstrad PC and will be launched at £57.65 in November. The program supports a wide range of printers, and offers an extended character set which provides italics, European language characters and box drawing in addition to the standard typeface. Underlining, bold, superscript and subscript are also available.

Details from Vuman Computer Systems, Enterprise House, Manchester Science Park, Lloyd Street North, Manchester (061 226 8311).

OCTOBER

25 October
20th ZX Microfair
Central Hall, Westminster, London SW1
Details: Sinclair machines, hardware and software support.
Price: £1.50 adult, £1 children for advance sales, £2 and £1 on the door.
Organiser: Mike Johnston, 01-801 9172.

27 October
Computer Club 86
Blue Coat Comprehensive School, Birmingham Road, Walsall
Details: Mainly Amstrad but includes a Sinclair corner
Price: 25p
Organiser: West Midlands Amstrad Users Group, 021-420 1915

30–31 October
Hampshire Computer Fair
Guildhall, Southampton
Details: Business computers.
Price: Free entry by business registration.
Organiser: Testwood Exhibitions, 0703 31557.

NOVEMBER

7–9 November
Electron and BBC Micro User Show
New Horticultural Hall, Greycoat Street, London SW1
Details: Hardware, software and peripherals for the Electron, BBC micro and Master series.
Prices: £3 adults, £2 children, £1 discount for advance booking.
Organiser: Database Exhibitions, 061-456 8835.

8 November
UKEUG National Einstein Show
National Motor Cycle Museum, Birmingham
Details: Einstein software and hardware.
Price: Free.
Organiser: UKEUG, 07982 2399.

15 November
Wales and West Computer Show
Central Hotel, Cardiff
Details: All types of home computer and support.
Price: £1 adult, 50p children.
Organiser: Preston Exhibitions, 0658 880965.

29 November
Wight Computing Fair
Ryde Town Hall, Ryde, IoW
Details: Local show covering wide range of subjects
Price: N/A.
Organiser: Wight Computing Users Group, 10 John Street, Ryde, Isle of Wight PO33 2PY.

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

Letters

STs make light work

I find the comparisons being made in *Popular Computing Weekly* between Atari STs and IBM PCs and their Amstrad clones quite strange. Our expedition has both an Atari 1040 STF and an IBM PC XT – the latter enhanced with an 8087 maths co-processor and a vast software library. There is, in my view, little comparison at all between the two machines. We still like and use the IBM, but it does after all run yesterday's software (which generally costs a great deal more), and is far more suited to the corporate environment than small users such as ourselves.

In contrast, the Atari makes light work of whatever we throw at it, from inverting 100 x 100 matrices using APL.68000, to heavy database work, even fancy graphics. The Atari uses tomorrow's software, at realistic prices, and having Gem in Rom means that we can deal with a consistent friendly user interface. I do not even feel compelled to use a hard disc, as the high-capacity floppies and occasional use of Ram discs from 360K to 650K in size makes one a luxury.

The Amstrads may seem a wonderful bargain now, but I fear that in two or three years time, they will be as exciting and useful as the ZX80 is now, whereas our Atari will still be at the 'leading edge'.

Howard Oakley
Database Manger
Joint Services Expedition to Brabant Island
Antarctica

Searching for Micro Prolog

In your July 3 issue, you published a series on alternative languages, and I became particularly interested in Micro Prolog for the Spectrum.

However, I have been unable to find anyone to date who can supply me with a copy, or, come to that, who has even seen it!

I ordered a copy from Sinclair Research, quoted as the suppliers in your article, but they returned my cheque and said they were unable to help.

Can you please advise on anyone who can provide one?

L W Tyler
Cheltenham

The company which originally wrote Sinclair's Micro Prolog is LPA (Logic Programming Associates), of Studio 4, Royal Victoria Patriotic Building, Trinity Road, London SW18 3SX. It is possible that the rights of Sinclair's Micro Prolog have now reverted to LPA – try writing there for information.

Meanwhile, if anyone else knows of a Spectrum Micro Prolog package, we'd be happy to hear from them.

French without tears

I own a 48K Spectrum and have many games for it. As I am soon visiting France I wondered if it was possible to load French games on an English Spectrum, and if so, would any text be altered as I would buy an adventure. Could you name any decent French adventures?

Alex Skinner
Norwich

There should be no problems loading French software into your Spectrum. However, as you probably know, you will need to buy an adaptor for the Spectrum itself, in order to enable you to plug it in in France.

As for text changes, *Load""* and so on, is identical. Otherwise, how good is your French? While some UK adventures (such as *The Hobbit*) have been exported to France with screen messages and responses in English, France has a thriving software base of its own, and no particular desire to publish home-grown software in a foreign language!

Decent French adventures? Try Loriciels or Infogrames, two of the leading French software companies. The latter certainly has a good catalogue of adventures, judging by the ones which are now becoming available over here.

Lost connections

I refer to the recent correspondence in your magazine about the Centronics GLP. I bought one about two months ago to use with my CPC464. I purchased from Boots its Connections tape and connecting lead but to date I have been unable to get the printer to work. Can anyone tell me how?

Gareth Doherty
15 Edanmount Road
Derry BT48 0DB
N Ireland

Wanted: B Baxter

Following the publication of Address Master program for Amstrad computers by B Baxter in the May/June editions of *Popular*, I forwarded a cheque for

Puzzle

Puzzle No 229

I have five cards on which I have written the following digits:

If I lay them in a row as shown, the five-digit number so formed, 11939, is a prime number. If I take the card from the left-hand end of the row and move it to the right-hand end, I still get a number that is also prime (19391). By repeating this procedure I can make a further three primes before arriving at my starting value again.

Can you say what other sequence of digits I could have written on the five cards that would also produce this effect?

Solution to Puzzle No 224

The only other possible combination of books is:

$$6 \times 29 = 174 = 58 \times 3$$

We need to find a three digit product which results from multiplying a single digit number by a two digit number, in two different ways. Further the nine digits used must be the digits one to nine without repetition. Clearly this can only happen if the smaller of the single digit numbers is multiplyed by the larger of the two digit numbers, and vice-versa.

In the program lines 10 and 20 generate different combinations of one digit numbers, and lines 30 and 40 the two digit numbers. Line 50 tests to see if the product of the pairing of A with C is the same as the pairing of B with D. Any values that are not equal are rejected.

Duplication of digits are tested for in lines 60 to 110, by placing all relevant values into string format (Z$). Lines 80 to 110 check every digit against every other digit in the string. Any acceptable values are printed out.

Winner of Puzzle No 224

The winner this week is John McCarthy of Mansfield, Notts. who will be receiving £10.

Rules

The closing date for Puzzle 229 is November 3. Answers on a postcard please.

£2.50 to the author at PO Box 17, Burnham-on-Sea, Somerset TA8 1DT, with a request for a copy of the listing.

Despite repeated follow-up letters, I still have not received the tape.

My cheque drawn on June 10 was cleared through my bank account on June 20, and this is clear evidence that my original letter was received by B Baxter.

As only a PO Box number was given I am unable to pursue this on a direct basis with B Baxter.

W L Barker
Gravesend
Kent

B Baxter, please come forward and sort this matter out!

"It's not much fun backing up 80 megabytes of data, but it's more interesting than 'Wogan'"

Jewels in the crown

To those who already have the original versions of Level 9's *Middle Earth Trilogy* and who question the point of buying Rainbird's *Jewels of Darkness,* the answer is Yes.

The new versions are so much more playable with the complex parser and other recent Level 9 advances. Those whose machines allow the Ram disc features will find the gameplay raised to a new dimension.

Colossal, Adventure Quest and *Dungeon Adventure* have always been wonderful games. With the presentation brought right up to date there is nothing outside random-accessed disc-based games to touch them for depth and atmosphere (and some would argue . . . !).

At £19.95 is there better value for the host of new PC owners?

Hugh T Walker
Guildford

Matters arising

I have some queries, arising from articles in *Popular,* September 11. I have a Pioneer PX-7, graphics tablet and an Amstrad DMP 2000.

Expanding the Amstrad DMP-2000's buffer to 8K. The chip required is a 6164 from RS. Who is RS?

Lastly, Big Text by Steve Dunn. Is it possible to get hold of the full programme, or more information, so that a programming illiterate, as I am, can make the thing work?

Bernard Leighton
Birmingham

The chip required for the buffer is actually the 6264. RS stands for Radio Spares, and can be contacted at Lammas Road, Weldon Industrial Estate, Corby, Northants NN17 9RS (0536 201201).

As for BigText, it will run perfectly so long as the program is typed in correctly. However, it will only do this on a Commodore 128. Could this be your problem?

Eat your heart out, Atari

Early this year I 'upgraded' from a Commodore 64 to an Atari ST, a micro often referred to as a "supreme games machine" with arcade quality graphics and sound.

Well, it didn't take me very long to find out it had neither of these qualities. When it comes to graphics, the ST can only handle four colours on its hi-res (640 x 200) screen and that is so restrictive that most games use the low-res (320 x 200) 16 colour mode, which is no great improvement on cheap existing eight bit machines.

Although it is possible to connect Midi equipment, this is a rather useless feature when it comes to playing games; the built-in AY3-8910 sound chip (also used in the 128K Spectrum and Amstrad CPCs) is a downright insult to the whole ST concept. It sounds awful and doesn't even come close to the Commodore 64 sound output.

Needless to say, I have sold my ST and recently bought a Sony MSX-2 computer – several MSX-2 micros are already on sale on the continent – and I just couldn't resist telling you about this superb machine.

Just picture this: built-in 3½ inch disc drive, 256K free Ram, an additional 128K video memory, a 512 x 512 hi-res screen that allows the use of 256 on-screen colours, and on top of all that a sound chip that will blow your mind.

Eat your heart out, Atari.

Peter Nijs
Belgium

Before we all completely desert the Atari STs in favour of MSX 2, it is worth pointing out that Atari's low-res 16 colours are selected from 512 and are true multicolour, ie, all 16 colours can be in one square. Comparative lack of colour in higher resolutions can be circumvented, cf *The Pawn*.

Anyone who's heard the music on *StarGlider* will have judged for themselves how 'awful' the ST's sound is.

And in conclusion, the ST may be a 'supreme games machine', but that's in addition to its business and utility capabilities.

CDS special offer in chess tournament

Popular's Readers vs *Colossus* tournament is beginning to sort out the knights from the pawns, as you can see from the latest moves printed below.

In Game one, the Readers team is playing Black, and overwhelmingly voted to move another pawn, from d7–d5 (see below). *Colossus* has replied with P e4xd5.

In Game two, you're playing White, and elected to even matters up by taking *Colossus*'s pawn at d4 (see below). *Colossus*'s next move is P e7–e5.

So, it's all up to you again. Send your suggestion for the *Popular* Readers' next move in each game to *Popular* Chess, Unit 2, (yes, they've moved down the road!) South Block, The Maltings, Sawbridgeworth, Herts CM21 9PG, to arrive by October 22.

The most popular suggestion will be entered into the game, and *Colossus* will come up with its reply.

Special offer

While the reader who makes the most number of accepted moves at the end of the games will win a reproduction Arran chess set, CDS, publisher of *Colossus Chess*, has offered runners-up prizes of a copy of *Colossus Chess* itself.

These will go to the five people who make the most suggestions, ie, the most consistent entrants (well, it'll make up for some of that postage, won't it?). The rider to this is that you can only make one suggestion per game at each move.

Colossus Chess is available for the Spectrum, Commodore, Amstrad CPCs and PCWs, BBC, Electron, and Apple II.

The games so far

Game One

1	Pe2–e4	Pe7–e5
2	Ng1–e3	Nb8–c6
3	Bf1–c4	Ng8–f6
4	Nf3–g5	Pd7–d5
5	Pe4xd5	?

Game Two

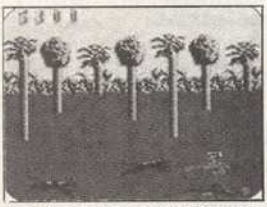
1	Pe2–e4	Pc7–c5
2	Ng1–f3	Nb8–c6
3	Pd2–d4	Pc5xd4
4	Kf3xd4	Pe7–e5
5	?	

In our next chess report in two weeks' time, we'll mention some of the names who are currently in the running for the prizes.

Fist II arrives

Sequels are usually a disappointment, and to my great regret *Fist 2* does nothing to break the mould. An incredibly-delayed follow-up to *Way of the Exploding Fist*, its 'adventurified' scenario adds little to the concept of the original.

As before, you control a fearless warrior, capable of making a number of realistic combat moves under keyboard or joystick control. If you played *Fist 1* you can play *Fist 2*; controls are exactly the same, to begin with. The difference is that instead of be-



ing limited to a static background, with progressively more adept but otherwise identical opponents, in *Fist 2* you can move through over 100 different screens, fighting many different types of warrior, plus snakes, bats and other menaces.

Sounds great; unfortunately the animation is slow, the backgrounds drab, and the atmospheric music does little to alleviate the boredom. If you lose a life you go right back to the start of the game (intensely annoying), and your main quest – to find magic scrolls in order defeat the evil warlord – is both unoriginal and unimaginative.

At one stage your warrior must find a temple in which to meditate and regain energy. Lying curled up on the floor in a foetal position, he seems to express my feelings about this game. Bring back *Fist 1*.

Popular Appeal ♦♦

Chris Jenkins

Program *Fist 2* **Micro** CBM 64 **Price** £9.95 **Supplier** Melbourne House, 60 High Street, Hampton Wick, Kingston upon Thames, Surrey KT1 4DB.

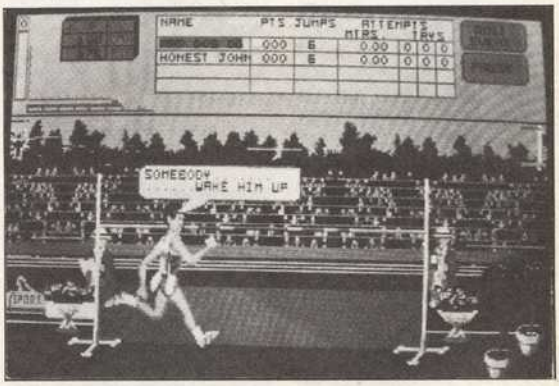
Quality graphics in Arena

It may be old hat on some machines, but the ST software market isn't exactly overflowing with athletics simulations at the moment so it's nice to see *Arena* from Psygnosis, the people who brought you *Brattacas*.

The game, then, comes in a decent sized box containing two discs and features six events. Namely, the 100 metres, long jump, high jump, pole vault, shot putt and javelin.

Okay, so on with the action and clicking on the menu for a new game. At this point beware that pressing the *Shift* key when typing in your name causes the computer to hang up! Having avoided that you can then compete in the events in any order you wish.

The graphics are the biggest plus factor for *Arena* as they are large, colourful and reasonably well detailed. Unfortunately the very size of the graphics leads to the animation being fair in parts and pretty lurchy in others. The shot putt in particular is something of a joke as the



putter doesn't even rotate on the build-up to the throw.

My other complaint about the game concerns the 'referee' type figure which shuffles onscreen after each event and offers various pieces of usually sarcastic advice. This is faintly amusing the first time round but soon, very soon, it becomes as funny as having your toe nails pulled out as you wait and watch the same old witless comments come up.

However, despite these shortcomings, and the fact that the pole vault and high jump events take too long to complete, *Arena* has quality graphics and is very playable.

Popular Appeal ♦♦♦

Duncan Evans

Program *Arena* **Micro** Atari ST **Price** £29.95 **Supplier** Psygnosis, 1st Floor, Port of Liverpool Building, Pier Head, Liverpool L3 1BY.

Infocom's whipping yarns

I never thought I'd see the day when my word processor would issue such sentiments – but the day has come.

Here is an Infocom adventure which is less than totally brilliant. Sorry, I know it's a shock, but there you are. Perhaps you'd like to go and lie down quietly for a while.

Leather Goddesses of Phobos is not a bad adventure. God forbid. The possibility of Infocom releasing a bad adventure is beyond the comprehensive of mere mortals. It's just . . . er, well . . . not quite up to the usual Infocom standard.

The storyline is splendid – a sort of Flash Gordon scenario set in the 1930s with you, the hero, kidnapped by the soon-to-be infamous leather goddesses. You quickly end up on Phobos, a tiny moon in orbit around Mars.

Your main task is to thwart the leather goddesses in their plan to enslave all humans on Earth. On the way, there's a lot of exploring to do, much puzzle-solving, and a deal of humour.

Here we encounter problem number one. Much of the humour struck me as unfunny.

Leather Goddesses is being promoted as a kind of adult, naughty adventure. What it is, is Carry On Spaceman with too much of the humour depending on parts of the female anatomy and bodily functions that most of us (I hope) ceased to find funny a long time ago.

"you'll find such delights as the Wattz Up Dock, and Donald Dock"

Not all of it, thankfully, depends on this obsession with tits and toilet smells. Some of it is funny in an offbeat way. For example, on the Martian surface you'll need to explore a system of canals and docks. Here you'll find such delights as the Wattz Up Dock, and the Donald Dock, among others.

Author Steve Meretzky was the co-author of the unspeakably brilliant *Hitchhiker's Guide to the Galaxy* and you can detect the influence here. Not enough of it, unfortunately.

Leather Goddesses is still head and shoulders above most adventures – but I trust this is just a temporary setback, and doesn't mark the decline of this truly great software company.

Popular Appeal ♦♦♦

Peter Worlock

Program *Leather Goddesses of Phobos* **Micro** Commodore 64/128 **Price** £24.95 (disc only) **Supplier** Activision, 23 Pond Street, London W3.

An infinite variety

Tony Kendle picks a selection from the games pokes received recently

Before we get on with dealing with the long awaited and ever growing *Knight Tyme* file here are a collection of pokes for the BBC and Spectrum.

Paul Miller of Waddon has come up with a cheat routine for 255 lives in the Spectrum version of *Starion*, which he points out is an improvement on the pokes we printed a few months ago for reducing the rate of life loss.

Starion routine

```
 0>REM STARION for spectrum
   by PAUL MILLER of Waddon
10 REM to load
20 DATA 221,33,0,100,17,200,2
35 DATA 62,255,55,205,86,5,201
30 FOR f=65522 TO 65535
40 READ a: POKE f,a: NEXT f
50 RANDOMIZE USR 65522
60 POKE 25647,255: REM lives
70 REM to save
80 POKE 65533,194
85 POKE 65534,4
90 PRINT #0;
"start tape and press any key"
95 PAUSE 0
100 RANDOMIZE USR 65522
110 PRINT #0;
"program saved reload starion"
120 LOAD ""
```

Once the game has loaded, save your position by pressing *Break* and *2*. Reset the machine and enter the following program, run it and then load your saved game. This will be changed to give you the extra lives and should then be re-saved. You can later reload this into *Starion* for the extra lives.

Paul has also sent a poke for *Hellfire – Poke 29137.n* where *n* is the desired number of lives.

Mark Gidley wrote a few weeks ago with some pokes for the BBC and has sent two more (see right), complete with loaders this time so all you have to do is enter them, save them, run them and play the game tape from the beginning.

Dynamite Dan 2 – infinite energy

```
 1 REM DYNAMITE DAN 2 POKES
 2 REM @ STUART MITCHELL
 3 REM HI (ABA)
 5 DATA 221,33,64,156,17
 6 DATA 144,1,88,0,255
 7 DATA 205,86,5,48,241
 8 DATA 49,38,64,33,31
 9 DATA 91,17,141,156,1
10 DATA 9,0,237,176,195
11 DATA 64,156,62,24,50
12 DATA 78,113,195,144,106
20 LET T=0
30 FOR N=23296 TO 23335
40 READ A
50 LET T=T+A
60 POKE N,A
70 NEXT N
80 IF T<>3595 THEN STOP
90 BORDER 0: PAPER 0
100 INK 7: CLS : PRINT AT 10,9;
110 PRINT "START DD2 TAPE"
120 RANDOMIZE USR 23296
```

BBC pokes: Airwolf – infinite shields

```
 10REM Airwolf - infinite
 shields
 20*T.
 30FORI%=&1800TO&1899 STEP4:
 READ A%:!I%=A%:NEXT
 40CALL&1800
 50:
 60DATA &B9C800A0,&E3201B4B
 70DATA &D03FC0FF,&A218A0F5
 80DATA &FFF72092,&4E8D18A9
 90DATA &8D21A91B,&604C1B4D
100DATA &8DA9A919,&63A979FE
110DATA &A979FF8D,&7A008D8D
120DATA &018D64A9,&8D0DA97A
130DATA &4CA97A02,&A97A038D
140DATA &7A048D00,&058D09A9
150DATA &79004C7A,&72694186
160DATA &666C6F77,&666E6983
170DATA &74696E69,&68732065
180DATA &646C6569,&20202073
190DATA &20202020,&20202020
200DATA &20202020,&88202020
210DATA &73657250,&6C702073
220DATA &6F207961,&6174206E
230DATA &000D6570,&00000000
240DATA &2E4C0000,&4C4F5722
250DATA &0D223246
```

Bug Eyes – infinite lives

```
!LIST
  10REM Bug Eyes II - Infinite lives
  20*T.
  30ENVELOPE 1,1,0,0,0,1,1,1,126,-104,-111,-116,100,0
  40ENVELOPE 2,-127,0,0,0,50,1,1,127,-2,0,-2,104,1
  50ENVELOPE 3,1,-7,7,0,10,10,0,126,0,0,-126,126,126
  60ENVELOPE 4,4,-4,-4,-4,40,40,40,126,-30,0,-30,126,110
  70osc|!-&FFF7
```

```
 80P%=&1800
 90[LDY#&1B|LDX#&251JSR&fff7
 100LDA#&40|STA&4F|JSR&4001|LDY#&1B|LDX#&2A|JSR&fff7
 110LDA#&40|STA&72F||LDA#&07|STA&730|JMP&4C91
 120#&1B23**|.BUG|*|&1B24**|.BUG2|P%=&760
 130[LDA#&A7|STA&E3B|JMP&180A]
 140CALL&1800
```

Mark is still looking for pen pals, so write to him at 296 Newton Road, Northamptonshire, NN10 0SY.

Stuart Mitchell of Knaresborough has sent an "infinite energy poke for *Dynamite Dan 2* (Spectrum). It is probably the best platform game ever and the music is worth buying the game for!

"The listing gives protection against all objects that sap energy except Dr Blitzen and water. Simply type it in and run it and load your game – the first block won't load, but this is intentional."

Thanks for these, all of you, now has anyone got tips for my current favourite game, *Frost Byte* from Mikro-Gen?

Charts

Top Twenty

1	(1)	Paperboy	**Elite**
2	(–)	Lightforce	**Faster Than Light**
3	(2)	Druid	**Firebird**
4	(3)	Thrust	**Firebird**
5	(8)	Speed King	**Mastertronic**
6	(9)	Ninja Master	**Firebird**
7	(12)	Ninja	**Mastertronic**
8	(5)	Trivial Pursuit	**Domark**
9	(7)	Dragon's Lair	**Software Projects**
10	(–)	Pub Games	**Alligata**
11	(–)	Streethawk	**Ocean**
12	(–)	Video Poker	**Mastertronic**
13	(4)	Go for Gold	**Americana**
14	(15)	ACE	**Cascade**
15	(–)	Strike Force Cobra	**Piranha**
16	(13)	Dan Dare	**Virgin**
17	(14)	Alleykat	**Hewson**
18	(11)	Kane	**Mastertronic**
19	(15)	Warhawk	**Firebird**
20	(–)	International Karate	**System 3/Endurance**

All figures compiled by Gallup/Microscope

Take heart

It's not often that we bother to review versions of games that make it onto other machines – the reason is simple.

If a conversion is good, then the game will be exactly like the old version, so there is little point in going over old ground. If it is bad, well, it's so obvious that it doesn't need the likes of us to point it out. But the Amstrad version of *Heartland* (previously on Spectrum) is something exceptional.

On the Spectrum, you might remember, it was very well received as an atmospheric, well designed arcade adventure. However, on Amstrad, although the total number of locations is smaller (and the map slightly different) each location and character has been totally redrawn in 16 glorious colours with some very smooth scrolling and animation thrown in.

The result is simply the best looking arcade adventure yet on the PC machines – and pretty good sound to boot. The game plot has your good self striding through *Heartland* in search of the 12 pages that make up the final chapter of a book – six 'light' pages that must be collected and six 'dark' pages that must be destroyed. There are two pages on each of the first four levels, The Garden, Moonbase, The Caves and The Castle, with four residing in The Village. To complete a level, you must collect both pages then return to your bed – for the whole thing is a dream . . . or is it?

On completion, another section of graphics code is loaded in – around 128K over all levels – but it shows.

Each has distinctive scenery and monsters that has set a new standard for Amstrad games. Not that *Heartland* is just about graphics.

The gameplay will stretch your mapping skills and the time limit will ensure you don't hang about.

It does lack pause and save facilities – surely things no full price game should be without – but believe me, the charm and instant visual appeal of *Heartland* should have you hooked.

Popular Appeal ♦♦♦♦

John Cook

Program *Heartland* **Micro** Amstrad CPC **Price** £9.95 (tape) £14.95 (disc) **Supplier** Odin Computer Graphics, First Floor, 764–67 New Oxford Street, London WC1A 1EU.

Dandy – running the gauntlet

So here it is – the best of the full price 'hack and slay' Gauntlet-style games to hit the market, it being preceded by *Storm* (Mastertronic) and *Druid* (Firebird), with the US Gold offering coming later in the year.

The similarities between all four games makes you wonder exactly what a company is buying when it licenses a coin-op – really, the bottom line is that it's just the name – no matter how much chest beating goes on. And although the 'big name' equals 'money in the bank', it's no sure indicator of a good game.

Dandy, of course, isn't a big name. No one had heard of the thing outside of Atari, until a nifty bit of research by someone showed that this college programming thesis was, in fact, the basis of the hit arcade stand-alone *Gauntlet*. Enter Electric Dreams, and now via Ram Jam we have the home computer version . . . and it's not half bad.

Looking down on the action from above, one or two players can scythe through the masses of nasties, gobble food for extra energy, find spells and very importantly, keys, that will get you past otherwise impassable barriers. Hint number one – don't shoot keys.

The game does not feature full scrolling, it flips from one full screen to another when one / both players reach the screen boundary, with 12 screens per dungeon level.

But anyway you look at it, *Dandy* is an excellent little game – superior to Spectrum *Druid* in the graphics and genocide dept, although it contains less in the way of puzzles and strategy.

The two player option probably gives it the edge – so if you are in the market for a fantasy coin-op clone right now – queue here.

Popular Appeal ♦♦♦♦

John Cook

Program *Dandy* **Micro** Spectrum **Price** £7.99 **Supplier** Electric Dreams, 31 Carlton Crescent, Southampton SO1 3EN.

That all-round nice guy, Richard Lang

Martin Bryant (pictured right) profiles Richard Lang, author of Cyrus and Psion Chess, and creator of the Mephisto Amsterdam chess machine

This month's column features a profile of the computer chess programmer, ex-London marathoner, and all-round nice guy, Richard Lang.

Richard is responsible for the Psion range of 16-bit chess programs, and for the Mephisto Amsterdam dedicated chess machine. During the past five years his success in many European and World championships has proved him to be probably the top computer chess programmer in Britain, and certainly one of the best in the world.

Richard started writing his first chess program in early 1981 on a home-built Nascom-2 computer with a 4MHz Z80 processor.

In September 1981 his *Cyrus* program won the European Microcomputer Chess Championships in London, winning all its five games. This gave Richard the impetus to leave his job as a research scientist, and he started work with David Levy's chess programming company Intelligent Software. Over the next few years he programmed *Cyrus* to run on several home computers and dedicated chess machines.

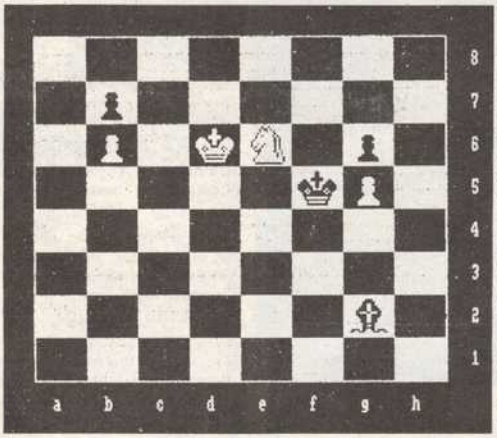
In 1984 he went freelance in order to be able to write a new program designed for 16-bit machines. The resulting program, *Psion Chess*, was a joint winner in the 1984 World Microcomputer Chess Championships, held in Glasgow as part of the Scottish Chess Federation's Centennial Year. The program was published by Psion for the Sinclair QL. As well as having outstanding chess play, it was the first to give the option of a stunning 3D-graphics boards display.

During 1985 Richard improved the program and translated it into 8086 Assembly Language. Versions of *Psion Chess* were then published for the Apple Macintosh and the IBM PC and its clones. The graphics for all the programs were designed and programmed by Psion, leaving Richard free to concentrate on the chess playing algorithms to greater effect.

Also in 1985 – a busy year – he was approached by Hegener and Glaser of Germany (manufacturers of the Mephisto dedicated chess computers) who wanted a new program for their top machine. Richard worked with German chess expert Ossie Weiner and a team of hardware engineers to produce the Mephisto Amsterdam.

This program slaughtered the opposition in the 1985 World Microcomputer Chess Championships held, appropriately enough, in Amsterdam. The team of three Mephisto Amsterdam machines scored 22 out of a possible 24 points, with 21 wins, two draws and only one lost game. They walked away with first, second and third places and, of course, the team prize.

The Mephisto Amsterdam is now regarded as the Rolls-Royce of dedicated chess computers. Its rating has been independently assessed by several sources as between 2000 and 2250 ELO. With 64K Rom, 16K Ram, it uses a 12MHz 68000 processor, and if you've got about £900 to spare, then pop along to Harrods and buy one (yes, I know it's a lot of money, but then Rolls-Royces don't come cheap).



Since the 1985 tournament, Richard has continued to improve his program and has helped to produce a version for the Atari ST computer. For development Richard uses a TDI Pinnacle computer which has a 12MHz 68000, a half Megabyte Ram, and a 10Mb hard disc.

There has always been disagreement between chess programmers about whether "brute-force-full-width" or "selective search" is the best approach. Richard has no doubts. He has always believed firmly in the selective approach. He also believes – reasonably enough – that it is important for chess programs to contain a large amount of chess knowledge.

And what of the future for programs such as *Psion Chess*, and dedicated chess machines?

Richard feels that chess programs will continue to improve as hardware gets faster and software gets better. Messrs Karpov and Kasparov can relax on their laurels for a little while though. According to Richard they will be under no threat from a computer program this century. Sighs of relief from Moscow.

One of the biggest recent improvements in chess programs has been in their endgame play. As an illustration, at a chess tournament in Helsinki the FIDE Master Harri Hurme made a speech about chess computers and stated that the machines were still "stupid", above all in endgame strategy. However, Hurme then played a demonstration match against the Mephisto Amsterdam and, unfortunately for him, lost after getting into a complicated Bishop-Knight endgame!

The final moves of the game are shown below (Mephisto playing white).

78	Ne6–c5	Kf5xg5
79	Kd6–c7	Kg5-f4
80	Nc5xb7	g6–g5
81	Nb7–d8	g5–g4
82	Nd8–c6	Bg2xc6
83	Kc7xc6	g4–g3
84	b6–b7	g3–g2
85	b7–b8/Q+	Kf4–f3
86	Qb8–b6	Kg3–f3
87	Qb6–g1	Resigns

And, as a final thought, on last year's BBC2 chess series, British Grand Master Raymond Keene stated that in his opinion he could take on a hundred chess computers simultaneously and beat them all.

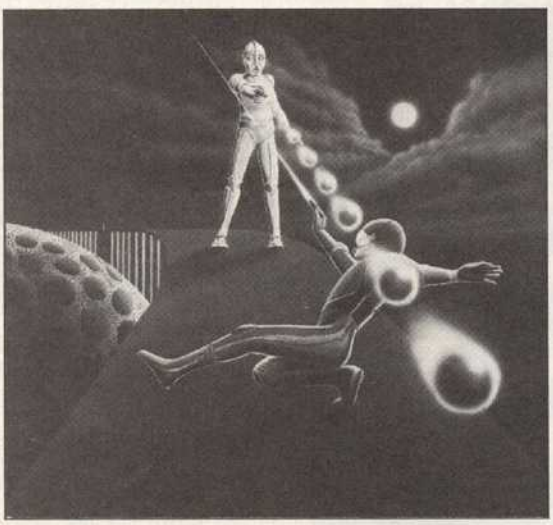
However, I wonder if he realised that during one of his simultaneous displays last year he played Richard Lang, and he lost! And Richard freely admits that he can't play nearly as well as his program!

Spot the pigeon

Tony Bridge dives headlong into Monsters of Murdac, the latest adventure from Global Software. He discovers elves, trolls, underground caverns . . . and a pigeon

From Global Software comes *Monsters of Murdac* for the Amstrad CPC and PCW machines; it sounds like one of those awful backward constructions like Murtceps from Mikro-Gen's ancient *Sorcerer's Castle*. In fact, it just comes out as cadrum – deep, huh?

This is a text adventure from John Thackeray and Jon Partington, implemented by Locomotive Software, so you know that it is going to be a goody – and so it proves to be.



There are several unusual features in this game, the first of which must be the amount of disc access that goes on throughout the story; a universal feature of American adventures, but one that has been slow to catch on here. With the steady growth in the UK of disc drives as seen in the Amstrad range, maybe games like this will become more common in the future.

Then there is a dynamic hint feature, again for disc users (tape users will have to write off to Global for a help sheet, I'm afraid); within the game, just type *Help* – each disc contains a database of hints which can be examined, from subtle nudges through to complete solutions for particular problems. Thus the player can elect how much of the final solution to see, which seems preferable to reading the answer from a sheet, with the attendant temptation to read on and see more of the answer.

Monsters is the first in what looks to be a very promising series to come from Global which includes *Philosopher's Quest* and *Countdown to Doom* – as you'll know, these excellent games are very well-respected adventures from the early days of the Beeb, and it will be good to see them on the Amstrad.

Monsters of Murdac is an adventure with its shirt-sleeves rolled up! It's a traditional story of elves, trolls, gold, underground caverns and so on, but conducted with a certain amount of humour. As Global itself says, *Murdac* contains "death-defying trolls, bloodthirsty, bricklayers and even not-so-friendly fairy godmothers". But enough of the story, which is really just a coat-hanger for the problems.

One of my favourite devices, the slow start, is employed to lull the player into a false sense of security. The start of this traditional plot is set in a tranquil garden – there is a round dozen of easily explored locations in this opening scene, and in true adventure-story fashion, there are several objects to be discovered here, some of which have obvious uses, while others are more mysterious.

The ubiquitous sword is there for the taking, although a little ingenuity and a deal of lateral thinking must be used to make it appear (remember your Arthurian legends). As a free hint, immediately go south, north, S and N again from the start (this particular routine won't work if you hesitate for a second), then pick up what you find – well, blow me down!

Something else that will make the adventurer's heart quicken is the hut, looking so inviting to anyone who has played the classic games, and it is the focal point of this part of the story – there's a silly pigeon wandering around in the hut, who doesn't seem to serve any purpose.

But I have hardly scratched the surface of this game, and I hesitate to say for certain that the pigeon is useless (he *can* be befriended, however, and it seems prudent to do so)! Every time I attempt the game I find something new, and I have a terrible feeling that I still haven't explored every part of that oh-so-innocent garden.

And is there a second chance? Can you get back from some later stage of the adventure to the start in order to pick up those things which you might eventually need?

Once beneath ground, the adventure opens up, with a cellar beneath the hut containing exits at all points of the compass, all of which lead to many more locations – again, plenty of objects to be examined and lots of neat little problems.

This part of the story is very more-ish; you'll find yourself just whizzing round and round the locations until finally coming to a halt – now a bit of deep thought must be employed!

Although the descriptions are just three or four lines long and not in themselves particularly atmospheric, nevertheless you'll find yourself drawn in to a believable fantasy. This is helped by the way in which the program recognises that you have previously passed through a location, with *You are in the garden, where you picked up the rod* being a typical response.

No bugs yet

In fact, the whole story is very well presented, which is not surprising considering its pedigree via Locomotive – needless to say, I haven't yet found a bug. Meanwhile, I have to admire the screen layout and parser, which accepts multiple commands: *Examine* is not, however, recognised, though this is so, apparently, because "the game is conceived in such a way that the puzzles are not involved in merely happening to discover things about the objects.

"It is only by manipulating them where

possible, or conjoining them that relevant features are revealed." Does this mean that the adventurer must wander around totally blind until some flash of inspiration lifts the veil?

The game play is in general conducted very professionally; we've discussed the *Help* feature, and this is well presented, with the current display scrolling smoothly away off the top of the screen to make way for the hint text.

Automatically worn

Input can be of the usual verb-noun construction, or by using multiple commands, and it is good to be able to *Drop all except the red cherry* (although it is perfectly possible to *Swipe gin bottle then go north very carefully and then kill the ogre with the bottle*, I can't see anybody actually typing in such drivel).

With the exception, as we've seen, of the *Examine* command, most of the adventure conventions are adhered to. However, *Wear* is similarly not recognised – if an object required wearing to fulfil its function, then it is automatically worn.

I'm glad to say that *Save* and *Restore* are very easily and quickly managed, at least for disc owners, although *Monsters of Murdac* suffers from the same drawback as Infocom and others in not offering a *Cat* facility to players.

You will need to make sure that you know precisely what is on your disc!

I also liked the way in which the necessary lamp, found at some early stage in the story, switched itself on and off as necessary, thus relieving the player of word-matching as in most other adventures. After all, surely even the thickest dunderhead could switch on a lantern, and it is one less worry.

I *didn't*, though, like the way in which an ignominious death can all too easily be met. For example, stumbling into the keep will bring you face-to-face with a venerable old king, surrounded by his guards.

He will allow you to retreat without harm, but only if you drop all your possessions (he's very kind, though, in allowing you to retain your lamp, without which you would fall and break your neck in the dark. An unpleasant death).

Try moving away with inventory intact and you will die an ignominious death at the hands of his guards. There are several other ways in which an abrupt conclusion may be met, so regular use of that *Save* facility is recommended.

Murdac, as I've said is an adventure with its shirt-sleeves rolled back, a no-nonsense story – but the shirt is made of the purest silk and fits the adventurer perfectly.

The tape for your CPC machine will set you back a very reasonable £7.95, with the disc available at £14.95; the adventure can also be run on the PCW for £19.95 and conversions are doubtless on the way. Global Software is at PO Box 67, London SW11 1BS.

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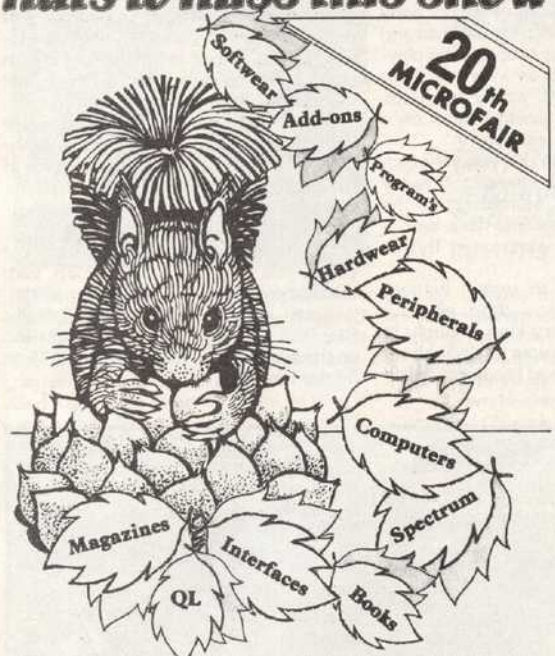

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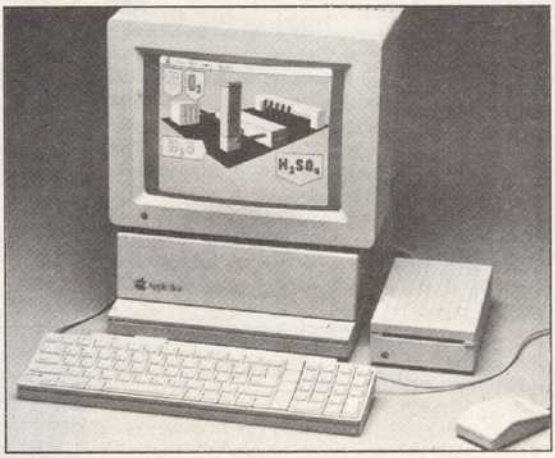
Apple II series – the story continues



Peter Worlock previews Apple's IIGS machine – to be priced at Atari ST level, but with some Amiga-like capabilities

The story of the Apple II is a long and fascinating one – apart from being, arguably, the first personal computer, it is certainly the longest lived.

Difficult to believe, but we have it on the authority of the Wall Street Journal that this venerable machine is still the world's second-best selling machine, after the IBM PC.

So when Apple launches the latest generation of IIs, known as the IIGS, it's not something to be taken lightly.

The original II line used the 6502 processor, the same as the Commodore 64, early Ataris, and the Acorn BBC Micro, among others.

The GS breaks new ground by using the 65C816 processor, the first commercial microcomputer to do so. What makes the new chip interesting is that it is completely compatible with the 6502, while at the same time being a full 16-bit processor capable of addressing 16 megabytes of memory.

This means that the new machine will run virtually all of the existing Apple II software, but holds out the promise of much more powerful programs to run in its own right.

The machine itself, as we've come to expect from Apple, looks very attractive. It comes as a three box unit: monitor, processing unit, and detachable keyboard, with the disc drive making a fourth. The white colour scheme and styling are familiar from the Apple IIc.

What you get in the basic system is a monochrome monitor, 256K Ram, a single 3½ inch, 800K disc drive, and mouse. As extras you can add another 3½ inch disc drive, two 5¼ inch disc drives, a colour monitor, and Apple has plans for 1Mb and 4Mb memory expansion boards.

But what makes the machine so striking are the items which give it the name GS: the graphics and sound.

The GS supports the old Apple II graphics modes, but adds new ones called "super hi-res". The first is 320 × 200 with 16 colours, and the second is 640 × 200 with four colours. Each colour palette can be selected from a total of 4096 colours.

If this sounds impressive enough, you ain't heard nothing yet. The clincher is that the GS can support 16 pallettes on each screen, and the palette and resolution mode can be changed on each screen line. This means that the GS can give the Atari ST and the Commodore Amiga a run for their money in the graphics department.

In terms of sound, it leaves them standing.

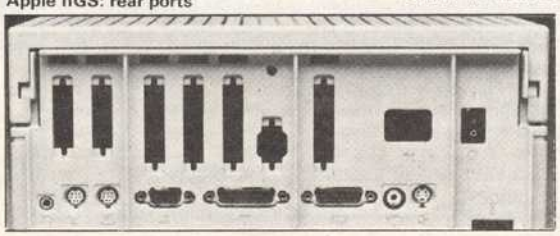
The GS's sound chip is the Ensoniq Digital Oscillator Chip which supports 32 oscillators used in pairs. One oscillator is used as a timing signal, which leaves 15 oscillator pairs for sound output.

This means 15 independent "voices", compared to the four used in, for example, the Commodore 64 or the Atari ST.

Moreover, the DOC operates on its own – it doesn't need to be programmed on interrupts – and it has its own memory to store waveforms. This makes the GS a clear leader in microcomputer sound – notably better than even the awesome Commodore Amiga.

Other notable aspects of the GS include a Macintosh-like operating system that employs the mouse with a "software desktop" incorporating icons, drop-down menus, and desktop accessories such as calculators and the like.

Apple IIGS: rear ports



The disc operating system is a development of Apple's ProDos as used in the II series, which allows you to read Apple II discs, and holds out the imminent prospect of file-compatibility with the Mac.

Conclusions

The GS is an intriguing machine, to say the least. The graphics are great, the sound is truly "state of the art", and the pricing pitches it directly against the Amiga and the top end of the ST range.

It has an instant, large software library in the Apple II range but obviously these packages will make no use of the advanced features of the machine.

Dedicated software will take a while to arrive, and how much of it there will be is open to question since software developers will be reluctant to devote their energies to such a small user base, compared to the very large existing market for old-style Apple II products.

In short, it's difficult to judge the prospects for the machine in the UK. In the US, I've no doubt, it will do extremely well, but the British division of Apple is almost somnolent compared to its US counterpart. (For example, one wonders why Apple didn't stop Acorn dead in its tracks when the educational market was up for grabs – it was well placed to do so.)

The machine will be available from January 1987 at £995, inc Vat, for the basic system.

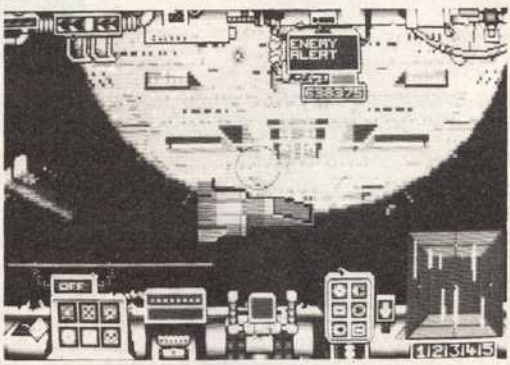
Finally, the company's insistence on high prices – while making economic good sense – means that the GS will never be a mass-market machine. You could do worse than buy one – but be prepared for a little loneliness. The odds against you stumbling across a fellow GS owner in the pub are enormous.

Product *Apple IIGS* **Price** £995
Supplier Apple Computer, Eastman Way, Hemel Hempstead, Herts HP2 7HQ.

PSYGNOSIS

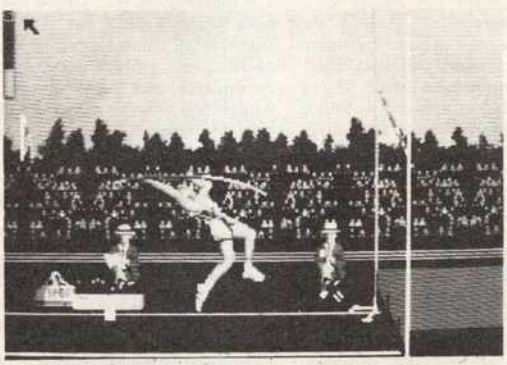
Following the unprecedented success of Brataccas, Psygnosis are pleased to announce the launch of two new products for the colour versions of the Atari ST and the 512k Amiga.

DEEP SPACE



The ultimate interstellar war game. A full 800k of machine code harnessing the raw power of the 68000 processor to bring unique 3D solid graphics to the microcomputer. Become a mercenary of the future in search for wealth; pilot an awesome fighting machine; travel star systems looking for adventure . . . the experience of deep space.

ARENA



The classic sports simulation. Humour, competition and multi-player rivalry, enhance what can only be described as graphics of unsurpassed realism. Become an athlete, compete with your friends, only the most skilled will ultimately win. No other product has managed to capture the 68000 processor to achieve this level of graphical sophistication.

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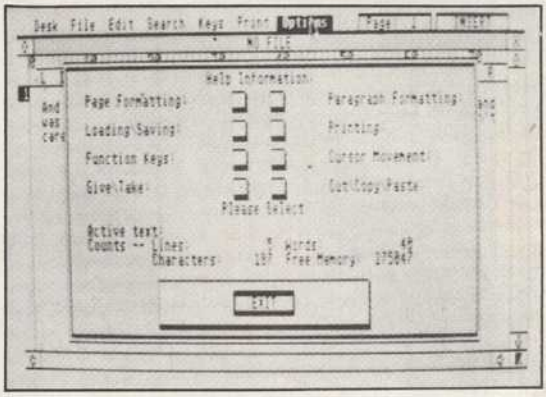
K-Word – up to the challenge?



The Atari ST is in many ways the ideal word processing machine, offering fast disc access, large file memory, mouse control and the convenience of windows and pull-down menus. It needs a good word processing package to take advantage of all these facilities, and Kuma's *K-Word* seems to be up to the challenge.

K-Word is considerably more advanced than *First Word*, the wp package included with the ST. However, since it takes full advantage of the Gem environment, it shouldn't represent much of a shock for anyone who wishes to upgrade.

Compatible with other Kuma packages such as the spreadsheet, *K-Spread*, *K-Word* can also send and receive Ascii files, so you can transfer existing *First Word* files if you so desire.

All the normal text editing features are included; you can use either the mouse, or combinations of arrow keys, to move to the end of a line, to the beginning of a line, to the next page, back one character, forward one character, and so on.

It's also possible to have four windows, with different texts, open at the same time, although only one will be active. There's a "clipboard" facility which enables you to transfer text from one window to another. The text formatting window allows you to opt for left-, right-justified or centred text, while italic, bold and underlined text can also be toggled on and off.

Margins, headers, footers, place string, definable function keys, mailmerge, auto key repeat and flexible printer tabs, indents, search and reinstallation routines are all included.

Mercifully, there's also a word-count, which is one of the notable omissions from *First Word*.

With a good, clear manual and a reasonable price, *K-Word* looks like an excellent choice for the demanding word processor user.

Chris Jenkins

Program *K-Word* **Micro** Atari ST **Price** £49.95 **Supplier** Kuma, 12 Horseshoe Park, Pangbourne, Berks RG6 7JW

PC 'thought processor'

For everyone who is on the verge of buying a shiny new Amstrad PC and wondering what programs to run on it, take my advice – get *PC Outline* first!

No matter what your main line of business is and no matter what type of program you are likely to be running 90% of the time, word processor database spreadsheet, accounts, even games, *Outline* will greatly extend the power and usefulness of your system.

Outline is strictly speaking an example of that boon to the jargon manufacturers, a 'thought processor'. It is like a word processor which, although lacking advanced features such as spelling checks, or headers and footers, has the added ability to structure your text into a hierarchy of ideas.

A document could contain several main headings, A, B, C, etc. each one of these headings can be subdivided into smaller sections, A,1, A,2, A,3, or even smaller A,3, 1,A,3,2, and so on. In a report, for example, the main headings may contain general summaries, each smaller section giving more precise details on certain topics.

A 'thought processor' allows you to create such documents and then manipulate the structure rapidly and easily – sections of detail can be moved and repositioned, promoted up a level or demoted.

> *"it really does help to structure your ideas"*

Levels of detail can be hidden so only the major headings show or revealed again at the press of a button.

Once you get used to it it really does help to structure your ideas in a more logical manner and could do as much to improve your output as word processing did for textual errors.

But the true beauty of *Outline* goes further than that – it's easily the best piece of programming I've ever seen on a PC.

For a start it is a memory resident 'pop up' program. It can sit there, invisible, until a certain key combination is pressed and suddenly there it is, ready to make notes, act as a diary, whatever you want. When finished back you go to whatever program you were running before as if nothing had happened.

Outline documents can be converted to *Newword*/*Wordstar* or Ascii files with ease, or they can be 'fed' to your current program (whatever it is) as if you had typed them at the keyboard quaranteeing compatibility with, and complementing, almost any word processor.

Outline commands are entered by pop up menus or by short cut commands when you are more proficient. Most fun of all is that the document can be displayed in a window which can be changed to any size and moved to anywhere on a screen so that you can view your other program underneath. No less than *nine* definable windows can be on screen at once, each containing a different *Outline* document and you, or your text, can jump between each one with a couple of keypresses (all done without the need for Gem).

There are so many remarkable details to *Outline* that I don't know where to stop. Everything happens instantaneously, windows appear and vanish, paragraphs re-format as you type, but so quickly you hardly notice, and so on. Try to see it. Even better, buy it.

Tony Kendle

Program *PC Outline* **Micro** IBM PC compatible **Price** £69 **Supplier** Newstar Software, 200 North Service Road, Brentwood, Essex.

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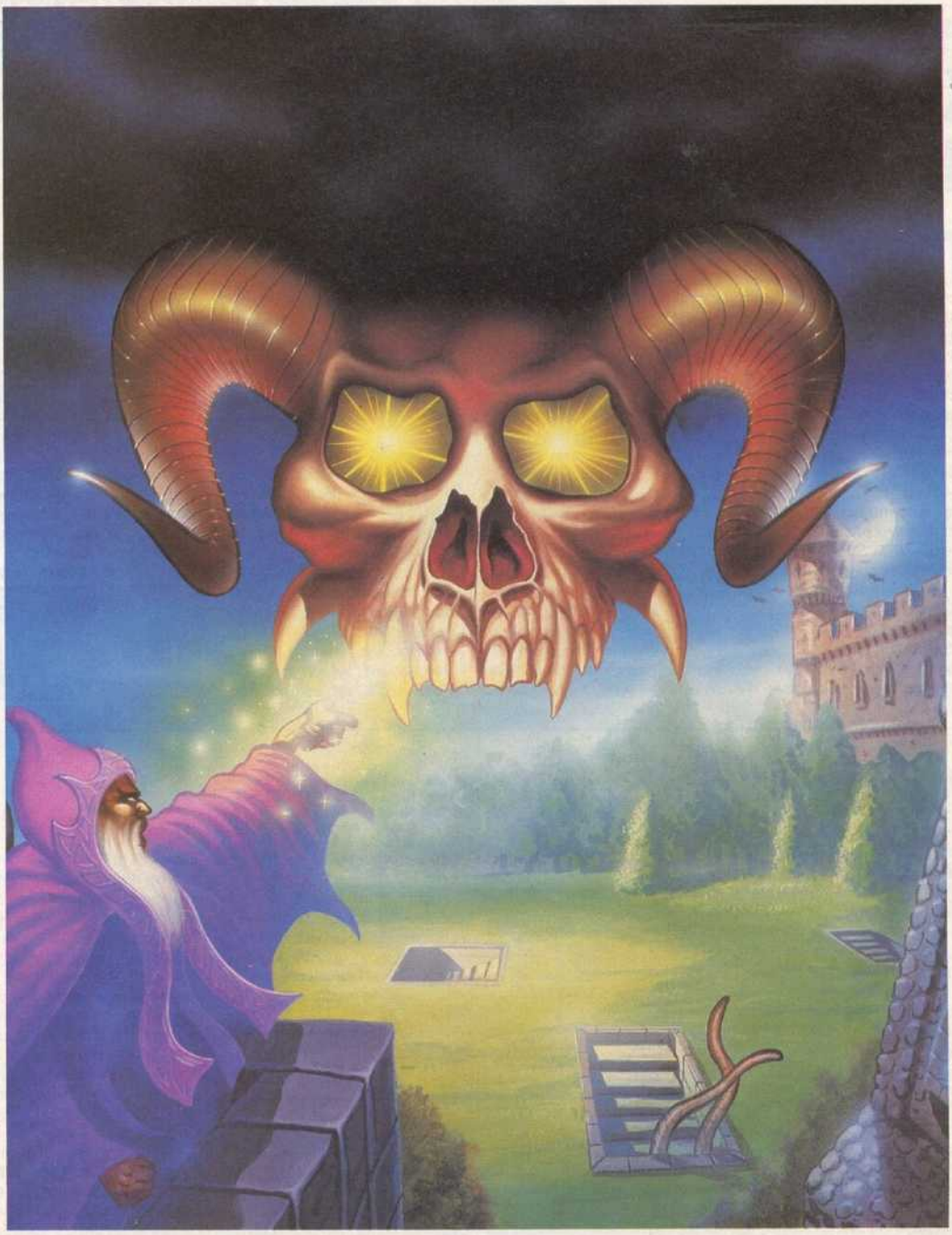

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POPULAR Computing WEEKLY

SPECIAL supplement

1986 Oct 16-22

COMMODORE 64/128

INSIDE

25
Utility cartridges
29
The Connoisseur's Compendium; a bargain or a blunder?
31
The Pawn – Rainbird's epic on the 64 at last
34
Artist 64 v. the rest of the world

36
Documents are a doddle with The Print Shop
38
Enhancer 2000 or the 1541C; disc drives slug it out

Back from the computer wasteland, once again in profit and looking forward to slugging it out with Atari and Amstrad/Sinclair, Commodore looks confident for the first time since the departure of Jack Tramiel.

The new-style 64C should be in the shops now, part of the Connoisseur's Compendium which is reviewed in this supplement. We're also looking at the spectacular Artist 64 mouse-driven graphics package and its rivals; the amazing Pawn adventure, at last translated to the 64; the latest choice in disc drives; the impressive Print Shop text/graphics producer; and much more.

We've saved our games coverage until nearer Christmas; meanwhile read about all the ways you can make your 64 work for you. ◀

The case for cartridges

BASIL COLFAX LOOKS AT THE WIDE CHOICE OF PLUG-IN UTILITY PACKS TO ENHANCE YOUR 64

For all its facilities, the Commodore 64 suffers from lots of ommissions; there are no Basic graphics commands, limited printer control, complex disc commands, no built-in machine code monitor, and so on. Although some of these drawbacks can be remedied by software, what's really needed is an extra add-on operating system, preferably in the form of an easy-to-use cartridge.

With dozens of these plug-in units available, ranging from fast disc systems to basic extensions, it's worthwhile comparing some to help you decide which is the one for you.

▶POWER CARTRIDGE
KCS/MAGNAM PRODUCTS
£39.95

The Power Cartridge, supplied in an eye-straining tomato red, is one of the latest cartridge products, and offers a wide range of facilities, though nothing unique. There are five main areas of use. The first is a Basic toolkit, offering automatic line numbering commands, colour setting for border, background and text, block line delete, variable dump, text string find, function key commands, Basic merge, and so on.

Fast disc loading, claiming improvements of five to eight times, is another useful feature; you can also display a disc directory without disturbing the program in memory, change device numbers, and perform format/scratch/initialise functions without the tedious Commodore syntax.

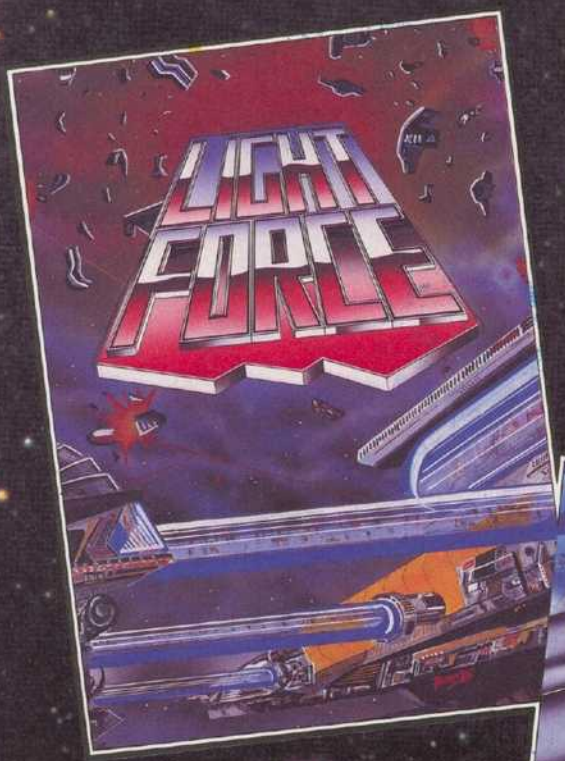
Powermon is a straightforward monitor which allows access to RAM normally hidden under the kernal ROM, and includes a full set of commands to assemble, disassemble, fill, hunt, jump, display registers and so on. The printer command section allows you to make screen dumps, in large, small, normal or inverse print, and to use centronics printers connected to the user port.

The last feature is the reset page. Pressing the Power Cartridge's reset button brings up a menu from which you can select CONTINUE, to return to the program, Basic to return to Basic with all variables retained, Reset to clear the memory, Hardcopy to provide printouts and Monitor to access machine code. The Power Cartridge is a good general-purpose device for Basic programmers and hackers.

▶TURBO 50
ROBTEK
£39.95

The first widely successful multi-purpose cartridge, the Turbo range, including the top-of-the-line Turbo 50, still stands up well to the opposition. Supplied complete with a head-cleaning tape, Turbo 50 is (so far as I have been able to make out!) software transparent; it should not interfere with any commercial program

"GAMES AT THE SPEED OF LIGHT..."



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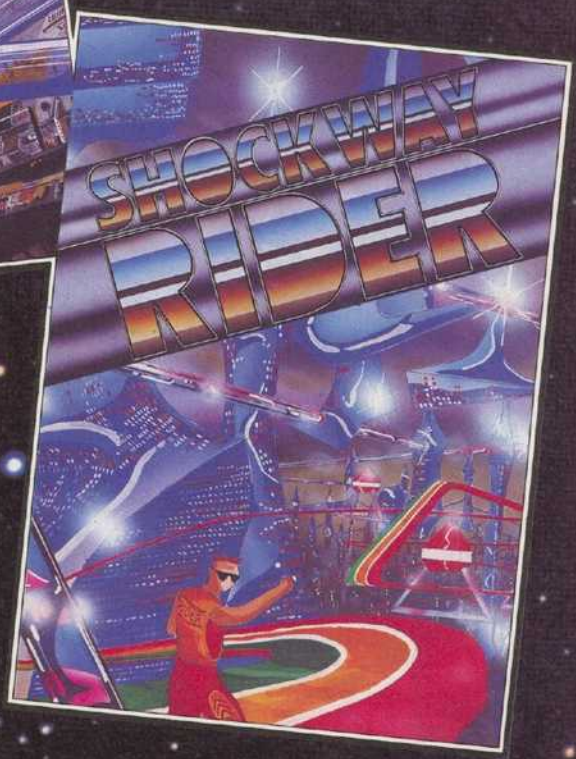

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you choose to load. It includes a rest reset button and using the SHOW command gives a full on-screen list of all the Turbo commands.

The Basic programming toolkit contains the usual auto-numbering, block delete, string find, and so on. A useful extra is HELP, which displays any errors in Basic commands just executed; a feature of the Commodore Basic 7.0 found on the C128. OLD retrieves a NEWed program; PLIST shows a listing page by page, and there are also commands to set colours and so on.

Function key presets for disc loading, listing and so on are provided; and Turbo 50 has comprehensive tape and disc speed enhancement routines, merge, and a good selection of disc commands.

Programs on tape or disc can be backed up, but protected software is often found to be uncopyable. There's a full-spec monitor, and Centronics printer facilities, including a routine to replace CBM graphics commands with easy to understand abbreviations.

Starting from £24.95, the Turbo range would appeal to the same sort of audience as the Power Cartridge – Basic programmers and hackers – and represents very good value for money.

▶THE FINAL CARTRIDGE
H&P COMPUTERS
£45.00

The Final Cartridge has always claimed to be more than just an add-on, more a whole new operating system. Certainly, it contains facilities which are difficult to find elsewhere, and is often updated using ideas, to put it politely, "inspired by" other products.

Claiming to be compatible with 98% of commercial software, The Final Cartridge includes a reset button and an on/off switch. Facilities fall into eight or nine categories, including disc turbo offering 6-8 times faster loading and saving; tape turbo, up to ten times faster; centronics printer software; screen dump facilities for hi-res and multicolour screens; 24K RAM extra made available for programming; a Basic toolkit with auto number, find, help, old; preprogrammed function keys, typewriter commands to use your printer directly; a machine-code monitor; and, in the latest versions, a sprite collision detection disable function to make gameplay easier. There's also a version available with a freeze facility, which enables programs to be backed up to disc or tape.

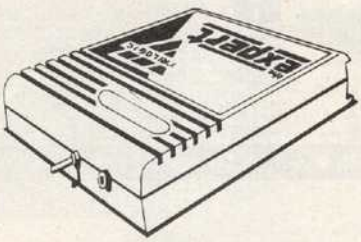
An excellent product for the more advanced computer user, and one which offers an update option as new improved versions appear.

▶THE EXPERT CARTRIDGE
TRILOGIC
£31.95

Unique in that the software operating system is loaded from disc, The Expert Cartridge is correspondingly cheaper than many of its competitors, and offers easy upgrading as new facilities become available. Instead of throwing away your cartridge and buying one with the latest ROM, you just send your operating system back to Trilogic with a small service charge, and they send you an updated disc.

Although this system makes The Expert Cartridge a little slower to use than the competition, once it's running it works very reliably.

The cartridge includes a three-position switch, OFF/PRG/ON, and the ubiquitous reset button.



The main functions of The Expert Cartridge are for preparing fast-loading backup programs, and providing monitor facilities. The operating system disc contains a fast load boot file, which is copied onto your library disc. The main program is then loaded into the cartridge, then the computer is reset.

Programs are frozen using the restore key, and can then be backed up to your library disc. The restart address is displayed on the screen.

One advantage of The Expert Cartridge is that, unlike other products, it compacts the backed-up program when transferring it to disc, saving valuable space.

Backups to tape can be performed without even having the cartridge in place (just using the master software), and the machine code monitor, which has a full range of assemble, disassemble, fill, jump, relocate and other commands, allows you to modify existing programs to your requirements (so long as you understand machine code!)

As its name suggests, a product for the more able computer user, and one which offers both value for money and longevity.

▶FREEZE FRAME 2
EVESHAM MICROS
£39.95

A straightforward program backup utility cartridge, offering amazing ease of use and high efficiency, Freeze Frame has recently been updated.

Operation is simplicity itself. On powering up, Freeze Frame displays a screen of instructions. Pressing the space bar clears the screen and resets the computer, at which stage you can load your program from tape or disc.

Freeze Frame operates by the principle of taking a "snap shot" of whatever is in the computer's memory when the cartridge's reset button is pressed. Therefore, when you load the backup program it starts at the exact stage where it was saved.

Backups can be made to tape, or to disc at either normal speed or fast-load, simply by pressing the correct key after resetting. Freeze Frame is, admittedly, wasteful of disc space; it saves each program as five separate files, making it unlikely that you will get more than three backups onto each disc.

There are a number of alternative routines available to deal with certain troublesome programs, but basically Freeze Frame 2 is incredibly easy to use and very reliable. As a bonus, the backed-up programs load three to four times faster than normal, displaying the distinctive Freeze Frame black and white flashing screen as they load.

An excellent purchase for any computer user who wishes to produce security backups of any heavily-used software package.

▶ONE-STEP
FIRSTLINE SOFTWARE
£14.95

30 useful functions on one cheap cartridge can't be bad. Produced by ShareData in the US, the One-Step cartridge has a bit of everything, including a reset button which brings up a display of all the available commands. Most of these involve two keystrokes – * followed by one other – which replace more cumbersome CBM Basic commands.

Facilities include automatic line numbering, file copy, whole disc copy, delete block, show free memory, get directory, print screen (text only), send DOS command, set screen colours, load basic program, load sequential file, change drive device number, and so on. There's also a simple text editor which can function like a word processor for short documents, setting margins, saving and loading files, and scrolling through a work area up to 481 lines long.

One Step has a lot to offer, not least economy, and may well provide all the facilities you need. Consider it carefully before splashing out on something more laborate which may include facilities you will never use. ◀

● CBM 64 AND 128 ● TRANSFER ALL MAJOR TURBOS ● AUTOMATIC ● NO USER KNOWLEDGE ●

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NEW! NEW!

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This is the one you have been waiting for! Designed and produced by Datel, using the programming skill of DoSoft, the new Action Replay Cartridge Mark Two is really two cartridges in one.

Completely self-contained, it gives you almost total back-up capability, and offers disk drive owners a superb fast loader—all independent of computer memory. Just see what it can do for you!

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We have tested literally hundreds of games—including the latest titles—and have yet to find one which will not transfer. We think that Action Replay Mark Two has more features at a better price than any other cartridge. See for yourself!

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Action Replay Mark Two cartridge also available from Datel Electronics.

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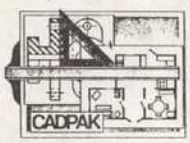

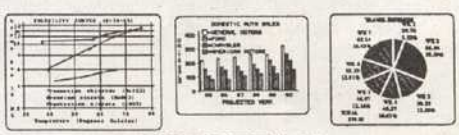

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Commodore's mixed bag

IS THE COMMODORE CONNOISSEUR'S COMPENDIUM A LUCKY BAG OR A PIG IN A POKE? ANDREW MAYFAIR STICKS HIS HAND IN

Since the dismal failure of the underpowered C16 and Plus/4, and the relative disappointment of the C128 (overpriced, and with no CP/M software emerging), Commodore has been wondering how to restore its shattered market image. The Amiga, wonderful machine though it is, is obviously not going to become the sort of ground-breaker the Apple Macintosh was.

Is Commodore's salvation, then, going to be a return to the stalwart 64? It certainly looks that way, since the latest version, the 64C, is being heavily promoted with the Connoisseur's Compendium pack, the ideal Christmas purchase at £249.

Just what do you get for your money? For a start, the basic 64C. This is internally identical to the 64, and will run all the same software and use the same peripherals. The only differences are cosmetic; the 64C is housed in a low, wedge-shaped case which makes it look like the C128, with the extra control keys and numeric keypad removed. The four function keys are found, as with the original 64, to the right of the main keyboard. The keyboard action is slightly easier, but functionally the machine is identical to the old 64.

Also included in the Connoisseur's Compendium is the standard Datasette cassette deck. Though this is the second version of the datasette (how many of us remember the original, box-shaped model?), it now looks outdated compared with the 64C, retaining the rounded corners and chunky keys.

Innovative

More innovative is the mouse and graphics package included in the compendium.

These items will be familiar to many of you as the Wigmore House MS-2000 mouse and Cheese graphics package (also sold as the NEOS mouse), normally around £50. The mouse is excellent; plugging into the joystick port, it includes a long cable, two positive-action click-switches, and a smooth-rolling rubber-coated ball. Resolution of up to one thousandth of an inch is possible using the advanced optical circuitry, and the mouse can also be used as a joystick if the left-hand button is held down when the computer is powered up.

The Cheese graphics package is equally impressive. It has three menus of icons to select drawing facilities such as line, freehand, fill, circle, square, mirror, block copy and pattern. All sixteen CBM 64 colours can be used to create detailed pictures which can then be printed out on any Commodore printer. The software is supplied on cassette (and pictures can only be saved to cassette), but a disc upgrade is available from the manufacturers. The mouse and Cheese make an excellent addition to the 64, and the Wigmore House Artist 64 software reviewed elsewhere in this supplement makes the obvious upgrade. Unfortunately, despite many promises, neither Commodore nor any other third party manufacturer has come up with any more mouse-driven software. Pity.

What else is included in the Connoisseur's Compendium? Candidly – not much. Rather than include a wide range of software products, Commodore has opted for a whole bundle of bored game – sorry, board game – conversions from Leisure Genius, and others. These include versions of the world-famous Monopoly, Cluedo and Scrabble; and Audiogenic's Grand Master Chess and Renaissance (also known as Othello). Whatever the individual merits of these programs, together they represent very little extra incentive to buy the package. A good sprinkling of arcade games plus some strategy titles and perhaps and an adventure would have done much more to indicate the versatility of what is, after all, still the world's best-selling home computer.

Last on the software list is the Pitman Typing keyboard skills program, across which I shall draw a discreet veil. Admirable though it is to give computer users some incentive to learn to type, what's the point in offering this package in a bundle which is totally unsuited to word-processing due to the absence of a printer, disc drive or word processing software? A very odd idea.

Overall, then, the Connoisseur's Collection is hardly that. The 64C, mouse and graphics software are excellent; the rest is padding. So is the compendium the ideal starter's pack for the computer neophyte? I would still recommend the Commodore 64C, even over the Sinclair/Amstrad Plus 2, which although it is £100 cheaper than this package offers inferior graphics, inferior sound, no standard disc drive, and less sophisticated software. The Compendium, though, is another matter; why not weigh the cost of the mouse and Cheese, plus a 64C, and decide for yourself whether the Compendium's other delights are what you want your Christmas present money to be spent on. ◀

commodore

128 The big news this month is Commodore's new 64C compendium, with lots of free goodies! (see below) And then there's GEOS, which will transform your 64/128 or 64C into the ultimate desk-top system! **64C**

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No yawns with the 64 Pawn

RICHARD BENSON ON THE GROUND-BREAKING RAINBIRD ADVENTURE PROGRAM, NOW CONVERTED FOR THE CBM 64/128

I normally hate adventures, for several very good reasons. For a start, the scenarios are cliched; the goblin's dungeon, the maze, the sinister castle. Secondly, the parser (text interpretation system) is limited; often to verb-noun entry, and often to responses like "I don't understand" or "You can't go that way" which make you tear your hair with frustration. Thirdly, the illustrations are usually four lines and a blob; and lastly, they have no sense of humour. The net effect is not of locking minds with a devious intellect, but of trying to communicate with a Latvian idiot in order to solve meaningless puzzles.

Enter **The Pawn.** Originally intended for 68000-based machines, the QL, ST and Amiga, The Pawn is now available for the 64/128, and does for adventures what the Huns did for the Roman Empire; it gives them a boot up the bum.

The Pawn, developed by Magnetic Scrolls and marketed by Rainbird, is a satirical adventure with all the complexity of the most fiendish titles from better-known software houses like Infocom and Level Nine, but with the addition of an incredible parser, excellent illustrations and a wonderful sense of humour. The result is an adventure for non-adventurers, and a classic for hardened orc-bashers.

The Pawn comes on two discs, complete with a novella, A Tale of Kerovnia, which acts as a scene-setter for the game. Kerovnia is a land inhabited by characters you may recognise from other games – the brave adventurer, the beautiful princess,

the wicked enchantress – but all with a subtle twist.

Kerovnia also suffers from a political crisis, as Gringo Baconburger, leader of the Opposition Party, tries to oust the ineffectual King Erik from power. Into this scenario you find yourself thrust, armed only with a pair of jeans and a shirt, with a mysterious silver wristband locked onto your arm. One of the aims of the game is to obtain help in removing the wristband; but along the way you will inevitably become involved in the plots and counter-plots of the main characters.

Apart from the jokes, which vary from the subtle Irrelevant Maze and Unimplemented Rem Statement to the broad humour of Gringo Baconburger and the whining Princess, The Pawn features very complex object handling due to a sophisticated data look-up table, which can assign dozens of qualities to each object and character.

Unlike the ST/Amiga versions, the 64 version of The Pawn doesn't have pull-down windows for selecting various display options. Above the 40-column green text is displayed a brief description of your location – "On the path" for instance – together with your current score. Dotted throughout the adventure are illustrations which faithfully recapture the charm of the ST/Amiga pictures, though obviously limited by the hardware of the 64. Still, the only 16 colours and limited resolution artist Bob Stephenson has managed to produce the best pictures I've seen in an adventure game; and to make the effect more stunning, the pictures scroll down over the text, and can be scrolled off again if you so wish, using the function keys.

Another excellent concept is the cameo, a miniature of the current scene illustration which appears at the top right hand side of the screen.

The most impressive aspect of The Pawn is undoubtedly the parser. Although the vocabulary is not unusually big (still bigger than practically any other adventure on the market, though), the way in which sentences can be interpreted is unique. For instance, up to the limit of 255 characters, sentences of any length can be entered; so you can string together dozens of movement instructions in one command. The parser can also tell from sentence position whether a word is being used as a verb, noun or adjective; for instance "plant the plant in the plant pot".

The parser copes easily with indefinite articles – "take it", "talk to him" – and also recognizes which objects you are referring to without their full description being given – for instance "the key in my pocket" rather than "the wooden key".

Moreover, it's very easy to edit your text as you enter it; using the cursors and other command keys you can delete characters, words or lines, or recall a previous line.

The forthcoming CBM 128 version will have two modes; a 40-column version similar in appearance to the 64 game, but operating faster because more is held in memory; and a text-only 80-column version which will operate even faster with the Z80 chip and fast processor.

Unless your attitude to adventures is so po-faced that you dislike the humour of The Pawn, you are bound to be stunned by its wit, invention and technical achievements. At £19.95 it's not an impulse purchase, but is certainly an investment which will give you many hours of adventuring pleasure. ◀

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Italics and good underlining along with many other print modes confirms the FACT.

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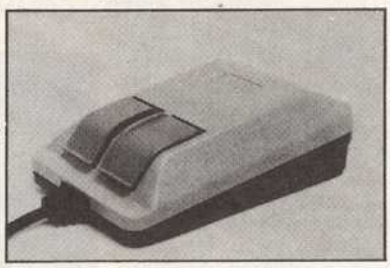

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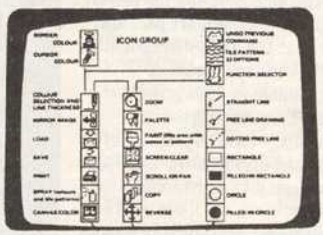

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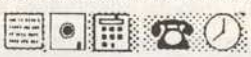

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The art of mouse

CHRIS JENKINS ARGUES THAT WIGMORE HOUSE'S ARTIST 64 OUTPERFORMS ANY OTHER COMMODORE GRAPHICS PACKAGE

Graphics packages for the 64 seem to fall into two categories; those with a few simple facilities which are relatively easy to use, and those with more complex controls which often end up baffling the user. Only with the emergence of WIMPS – window, icon, menu programs – has it really been possible to combine complexity with ease of use.

Another important factor is the emergence of the mouse. If you have ever tried using a joystick-driven art package, you will know that the eight-directional nature of joystick control makes it practically impossible to draw smooth curves. Only the free-moving control offered by a mouse – basically a kind of tracker ball turned upside down and used on a table top – can give convincing freehand effects.

The three packages we'll be looking at – Wigmore House's **Artist 64**, Rainbird's **OCP Art Studio** and **GeoPaint** (part of the First Analytical GEOS package) – all offer some very sophisticated facilities, but manage to be quite different.

Sprites, colour cycling, sprite fills and colour priorities on Artist 64

Hi-res

Art Studio and GeoPaint have several factors in common. They both operate using a sophisticated system of pull-down menus and windows, and they both work in the 64's "high resolution" mode. This gives a horizontal resolution twice that of the "multicolour mode" used by Artist 64, but due to hardware limitations of the computer (no more than two colours in any 8×8 pixel block), hi-res mode can lead to terrible problems with colour priorities. The result can be that Sinclair Spectrum-type character square colour clashes ruin your otherwise wonderful picture.

Despite these problems, Art Studio excells in many ways. The top of the screen shows a selection of menus – print, file, attributes, miscellaneous, undo, windows, fill, magnify, text and shapes, plus a display of the section of the full screen currently in use and the control device. This can be the keyboard Koalapad, joystick or mouse. The control device moves an arrow around the screen, allowing you to pull down the required menu, make a selection from it, then return to painting. Purchasers can obtain a suitable mouse for around £30 from Rainbird.

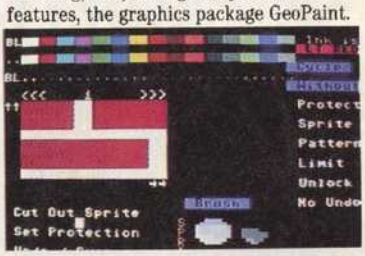
Artist 64 text, fill, patterns

All the standard drawing features – lines, boxes, circles, textures and patterns, freehand and so on – are included, but the Art Studio also offers a wide range of zoom options (from two to eight times) and printouts.

Your completed pictures can be loaded into other programs with a few simple lines of Basic, making Art Studio suitable for illustrating, say, graphic adventures.

If The Art Studio gave the option of using multi-colour mode instead of just hi-res, it would be easier to use. As it is, the "front end" is excellent, and with some preplanning good effects can be achieved. An advanced version (which may offer multi-colour mode) is on the way next year.

Very similar in its Macintosh-style icon controls, is the GeoPaint section of GEOS. For those of you unfamiliar with GEOS, it's an operating system intended to drag the CBM 64 kicking and screaming into the ST/Amiga/Macintosh world of windows, icons and menus. GEOS includes GeoWrite, a word processor, a "desktop" routine featuring icon-based disk handling, and, among many other features, the graphics package GeoPaint.



GeoPaint presents a menu bar on the left hand side of the screen, containing icons for all the standard functions; brushes, freehand, circles, fill, undo, grid, and text. GeoPaint can use any of the font shapes available from GEOS, which makes it ideal for producing, say, labelled diagrams.

Artist 64

Like The Art Studio, GeoPaint suffers from operating in hi-res mode, so expect problems with colour clashing. Otherwise it's quite powerful, despite the lack of mouse driving software which should be rectified soon.

The third package we'll look at is Artist 64, from Wigmore House. Best known in the Commodore market for the Wigmore Mouse and the Cheese graphic design package (both of which are included in

the Commodore Connoisseur's Compendium), Wigmore House has come up with what may be the best graphics package possible on the 64.

Artist 64 doesn't have pull-down menus or icons, which in some ways is a step backwards from the excellent but limited Cheese package. However, Artist 64 offers facilities which astound everyone who sees them, and which squeeze Amiga-like graphic performance out of the humble 64.

Operating either with the Wigmore Mouse or a joystick, Artist 64 has five main screens; main menu, special effects menu, input/output menu, colour priority grid and drawing screen. Two disks are provided with the package; the first contains the main program, the second some extra utilities for disk users such as a disk catalogue routine, and some demo pics and routines.

The main menu contains the list of the basic drawing features, which are highlighted when you click on them with the mouse button (or by pressing the joystick fire button). You can then move to the blank painting screen and begin.

Basic functions include line, freehand, circle, ellipse, fill, rectangle, triangle, and set colour for ink/paper/border. Also included on the main menu are options for gridlock, which limits the movement of the drawing cursor to a user-definable grid pattern, magnify, which allows a screen window to be blown up for detailed work, and options to enter the special effects and i/o menus.

The i/o menu includes a QWERTY keyboard, which you can click on to enter filenames or to write text for your painting; and a list of five types of file; picture, pattern, brush, sprite and utility, which can be loaded, saved and catalogued with their own identifying prefix.

So far Artist 64 appears to be a comprehensive but unremarkable package. The special effects (SPFX) menu, however, turns it into an incredible and unique program.

Rainbird Art Studio hi-res demo screen

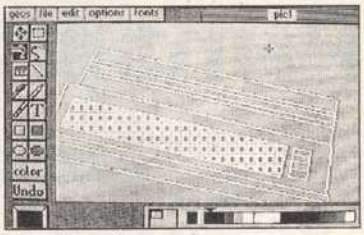
The SPFX menu revolves around some sophisticated concepts; colour priority, cycling, and block copying. Apart from being able to define your own fill patterns and brush shapes, which can create some incredible effects in itself, you can also cut out any shape you have drawn on the screen and use it as a "sprite" to draw with. The Smiley Face example shown here was drawn using the circle, fill and zoom options, then cut out using the Cut Out Sprite option, and used as a "potato print" stamped all over the screen. To make things even more impressive, you can then set a "colour cycle" option.

Previously seen only on ST's and Amigas, Colour Cycle allows you to select any of the sixteen available colours from a bar above the SPFX menu, and set a speed for the cycle. The colours in which you paint then change at the set rate as you create your picture. This facility can be used with any other routine – circles, freehand, polygons – to create instant patterns which would otherwise require hours of work.

Protect

Moving to the Set Protection page, you can then choose which colours appear above which others, by entering squares on a priority grid. When you paint now, high-priority colours will automatically overlay low-priority ones, making it possible to create incredible 3-D brush effects, and to easily place figures in the background without overpainting foreground objects.

There are lots of other feature which enable you to produce graphic effects which would be impractically complicated, or simply impossible, using The Art Studio or GeoPaint. You can store a cursor position, and draw, say, concentric circles around this central point; you can enter text in any size from 5×5 to 160×200 pixels, or in an italic style; you can substitute any given colour for any other within a definable window; you can limit the drawing window to any size of your choice; you can select SOLID to produce filled polygons rather than outlines; sprites can be flipped horizontally or vertically; two screens can be held in memory at once, so that you can either use the UNDO function, or deselect it and use the second screen as a "scratchpad"; "performances" can be recorded and played back, with all control movements and option selection faithfully recorded onto disk, for the purpose of creating demos or memorising how pictures were built up; new shades of colour can be created using multi-colour sprites, and rainbow airbrush effects can be tailored according to your needs.



Geopaint main menu

It goes without saying that your masterpieces can be stored to disk or tape, and printed out on MPS-801/803/1525/Epson printers.

Overall, Artist 64, though lacking the convenient pull-down menus of The Art Studio and GeoPaint, is without doubt the most impressive graphics package for the Commodore 64.

There are a few shortcomings; the lack of predefined brushes and fill patterns, the cumbersome jumping from one menu to another to access basic functions like UNDO; but, with the aid of the MS-2000/Neos mouse and a good deal of practice, you will soon be able to create graphics on the 64 which you thought were only to be found on the Amiga. Unless you need to use hi-res mode (for very precise technical diagrams perhaps), Artist 64 should give you everything you want, and avoids the shortcomings of The Art Studio and GeoPaint by operating in multi-colour mode.

Exciting

Having re-thought the whole concept of Commodore graphics creation, programmers Ian Bradbury and Rhys Davies are to be congratulated on coming up with the most exciting software package for the 64 since – well, since Cheese. Artist 64 is a compulsory purchase (and the obvious upgrade for anyone buying the Commodore Connoisseur's Compendium, which includes the mouse and Cheese), and cannot be praised too highly. ◀

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Print shop is font-astic

PREPARING GRAPHIC DOCUMENTS WITH YOUR PRINTER COULDN'T BE EASIER USING PRINT SHOP, SAYS KENNETH ROBESON

Since one of the computer's most obvious talents is the manipulation of text, and another popular application is graphics handling, it was only a matter of time before someone produced easy-to-use software which combined the two in a useful way. **The Print Shop** packages enable you to produce letterheads, posters, notices, leaflets and banners, complete with impressive illustrations and text faces, with absolutely no knowledge of art or design.

To give you some idea of how easy the basic package is to use, the PCW letterhead shown here was produced within five minutes of loading the software for the first time.

The Print Shop isn't exactly a "pagemaker" in the way that **Fleet Street Editor** is; it doesn't allow you to combine large quantities of different text sizes and many illustrations on a page. What it does is to give you quick and easy access to a library of preset text styles, patterns and graphics which can be combined in many different ways to produce polished "graphic documents".

The basic package is compatible with a huge range of Commodore and non-Commodore printers. It's best to start with a new ribbon, since The Print Shop is obviously very printer-intensive.

Booting the disc brings up the main menu, which invites you to indicate which printer and interface you are using. From then on it's all very non-technical and user-friendly.

Several different styles of document can be selected from the next menu; greetings cards, signs, letterheads, banners and so on. It's just a matter of using the cursor keys to highlight the type you want, and pressing RETURN to move to the next menu. Each document offers different design options. Taking as an example Greetings Card, you start by choosing a border style. Nine different borders are illustrated; just choose the one you want. The next selection is Graphic, a "cartoon" which can be selected by name, number, or from another disc (as we'll see later). The graphics cover a huge range; animals, houses, wedding bells, musical instruments, hearts, rockets, flowers and so on; and are drawn in an appealing cartoon style. You can choose one of three print sizes for your graphic.

The next task is to enter the message for the front of the card, choosing from eight sophisticated font styles which can be combined in a number of sizes and patterns. Coloured tractor-feed paper and envelopes are included with the package. Having formatted the message using the size, position and solid/outline/3-D options, you can go to the printer menu, enter the number of copies, test the paper position, then, after a short pause while the computer is thinking, watch as your greetings card rolls off the printer!

Other options such as banner and letterhead offer different screen designs and text arrangements, while the Print Magic function produces psychedelic Colourspace-type designs which can be frozen and incorporated into your documents.

Once you have exhausted the possibilities of the graphics library, which could take some time, there are two options; either use the Graphic Editor (a straightforward sort of "sprite designer" which can be used with a joystick or Koalapad), to modify existing graphics or put together new ones; or go for the Graphics Library packages.

The two packages released so far each contain 120 extra graphics; the first, of holidays, special occasions, sports and so on; and the second covering jobs, people, places, hobbies and more. Both discs are double-sided to cope with both CBM and non-CBM printers.

To get the absolute maximum from The Print Shop, you'll want the **Print Shop Companion.** This package contains yet more typestyles, borders and background designs, plus a powerful new graphics editor with features more like a full graphic design package. There's also a Tile Magic feature which uses mirror effects to produce tesellated designs, a font editor to create whole new typestyles or edit old ones, a border editor, a calendar maker, and a "creature maker" which allows you to combine sections to create bizarre monsters.

After lots of tantalising write-ups in American magazines, and limited availability through specialist importers, it's great to see the Print Shop series available at reasonable prices through Precision Software. Without doubt one of the most useful, user-friendly and intelligently designed software utilities for the 64. The Print Shop should be high on your shopping list for Christmas if not before. ◀

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Driven to discs

NOW YOU HAVE A CHOICE OF COMMODORE DISC DRIVES. JOHN RENWICK COMPARES THE "OFFICIAL" CBM 1541C AND THE "CHALLENGER", THE ENHANCER 2000

Buying a disc drive for your Commodore 64 has always been a harrowing experience. Because the unique Commodore serial interface is compatible only with CBM disc drives, the choice has always been limited, unless you want to invest in an IEEE interface and one of the heavy-duty disc units usually associated with the ancient PETs.

Flexible

For most users, the only choice has been the 1541, which is the size and weight of a breeze block and moves about as fast, or the 1570 which at least offers faster performance though no improvement in looks.

Now the choice has become more flexible; if you should buy a new 64C (identical internally to the 64 but with a more modern case), or if you wish to upgrade your existing 64 system to disc, you can either go for the latest from Commodore, or save money with the **Enhancer 2000.**

The new option from Commodore is the **1541C.** Functionally identical to the 1541, it's produced in the same new colour as the 64C, a light cream, and features an improved door system. Instead of the "pop door" found on the original 1541 and the 1570, the 1541C features a "spin door". This involves a door latch similar to that found on the C128D (and the 1571 double-sided disc drive), with the operation LED set beneath it, and an indentation which leaves the edge of the disc exposed. This makes it much easier to load and unload the discs, especially should a loose label jam the drive, and looks much more modern.

The arrangement at the back, with two serial ports, power input, on/off switch and fuse, is identical to that of the 1541. Included with the disc drive is a 100-page manual and a test/demo disc, which includes printer test, disc address change, block allocation map view, disc check, header change, unscratch and other useful routines; possibly enough useful stuff to influence your choice of what to buy. The price? A cringe-making £249, unless you can find a bulk dealer offering discounts.

Enhancer

So what's the alternative? The Enhancer 2000 is a Commodore-compatible device manufactured by an American company, and distributed over here by Firstline Software. It's smaller, neater and lighter than the 1541, and features a direct drive motor which should make it more reliable than the Commodore belt-drive system. Perhaps crucially, it's also only £148, and comes with what sounds like an excellent word processing program.

The Enhancer 2000, designed by Chinon, has a separate power transformer which eliminates most of the overheating problems experienced with the 1541. Like the 1541, the Enhancer features power and busy LEDs, two serial connectors, and a "pop door".

In a sense it's fully Commodore compatible, since you can use all the standard file, format, scratch, and other CBM DOS commands. The Enhancer, like the 1541, is an "intelligent" device, with its own 2K RAM and 6502 processor. Storage capacity is also the same as the 1541's, with 65535 records per file and 644 formatted blocks per disc.

Turbo

The Enhancer is about the same width as the 1541, but half the height and weight. Overall it's a nice little unit, and comes complete with the sophisticated Masterwriter icon-driven word processor from Sierra On-Line, all necessary leads, and a blank disc.

So what's the catch – there has to be one? Well, the Enhancer can't cope with the disc turbo loaders often used on UK games. It can manage US Epyx and many other programs, but in effect this means that it cannot be seriously considered by the ardent games player. The good news is that 99% of "serious software" – word processors, databases, spreadsheets, utility packages – don't use turbo loaders,

and will therefore work perfectly with the Enhancer. Of course, it's also ideal if all you want to do is write and store your own Basic or machine-code programs. Enhancer even claims to be faster than the Commodore 1541. So which is your choice? Complete compatibility with the expensive, bulky 1541, or economy and increased reliability with the business-oriented Enhancer? Only time will tell which option appeals more to the discless Commodore user. ◀

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The Final Cartridge II

Until last month, the Final Cartridge, together with Robocomp cartridges, were known as the best utility cartridges for the 64. Having received CCI's prestigious 'Utility of the Year' award, The Final Cartridge has been selling very well in the UK and elsewhere for nearly a year now.

Just before the Commodore Show in May, a French company, CAS Distributeur, released a cartridge called the Power Cartridge which we reviewed last month. Now, however – is the next stage in the cartridge story. H&P Computers have released a new, and if that is possible — even better, version II of the Final Cartridge.

The new final cartridge looks very nearly identical to the old one, it is small, black and pretty unobtrusive. On the back is a switch, and two innocent-looking red buttons. It is these buttons that betray the first difference between versions I and II of the Final Cartridge.

Unlike the original cartridge, the version II has a neat and very easy to use menu system. Upon pressing the right hand button you are presented with the 'FREEZE MENU'. This has four options, all controlled by the function keys. The first option allows you to 'Reset' the computer, if for example a basic program hangs but you want to get it back, you can use reset, and then 'OLD' the program. Pressing F2 jumps you into the comprehensive machine code monitor. The last two options either give you a total reset (after which everything is lost), or reset the machine into standard 64.

Freeze

On the left hand side of the cartridge you have another red button, again this time it is a 'Freeze' menu. Most people will now be aware of the idea of freezing whatever program is residing in memory, only to subsequently save it on either tape or disk. The Final Cartridge allows you to do this and it is one of the best examples of this genre that I have seen.

As well as the ability to copy almost anything to either tape or disk, the 'Freeze' menu also allows you to dump whatever is on the screen, either with H&P's own centronics cable, or more surprisingly using a serial cable. Thankfully you can also go from one menu to another using F8.

As well as these features, the Final Cartridge has all the features you would expect, a disk turbo that works about 6 times normal speed, a tape turbo capable of working at ten times normal speed, a complete basic toolkit, with some excellent additions – including Auto, Renumber, Find, Help etc.

All of the function keys are redefined to allow specialist commands such as Dload, Dsave, Catalog, Run and List. For confident programmers/hackers, the ML Monitor is both comprehensive and easy to use.

Overall, the Final Cartridge II is really very good. It has all the facilities that anyone could possibly need in the way of a cartridge, and they all appear to work very well. **If you are looking for a cartridge, you can't go wrong with the Final Cartridge II.**

Commodore Computing August 1986

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Renumber

Dr Paul Mooney

This routine features the ability to correctly reassign all *Goto, Gosub, Restore* and *List* statements, even when the reference made is to lines which do not exist or are beyond the end of the program.

Enter the hexadecimal code and the checksums line by line using the hex-loader provided, and save it with *Save "Renumber" Code 64000, 542.*

To call the routine enter *Randomize Usr 64000* and enter your first desired line number followed by the line number increment. Simply pressing *Enter* results in the routine defaulting to a value of 10.

```
    BASIC listing for Hexloader


   10 CLEAR 63999: POKE 23658,8
   20 FOR i=64000 TO 64536 STEP 8
   30 LET cs=0
   40 INPUT "Input the 8 bytes of
 line";STR$ i;AT 1,25;"  ";" LIN
E a$
   50 IF LEN a$<>16 THEN GO TO 13
0
   60 FOR n=0 TO 7: GO SUB 140
   70 LET cs=cs+b: POKE i+n,b
   80 LET a$=a$(3 TO )
   90 NEXT n
  100 INPUT "checksum"; LINE a$
  110 GO SUB 140: LET cs=cs-256*I
NT (cs/256): IF b<>cs THEN GO TO
 130
  120 NEXT i
  130 BEEP .4,1: INPUT "Error. Re
-enter line";STR$ i;AT 1,20;"  "
;" LINE a$: GO TO 50
  140 LET y=CODE a$(1)-48: IF y>9
 THEN LET y=y-7
  150 LET z=CODE a$(2)-48: IF z>9
 THEN LET z=z-7
  160 LET b=16*y+z: RETURN
```

HEXADECIMAL CODE FOR RENUMBER

```
000:06 18 CD 44 0E 3E 02 CD (4A)
008:01 16 01 21 10 CD D9 0D (FC)
016:11 DA FB 01 20 00 CD 3C (10)
024:20 CD AE FB ED 43 CE FB (8F)
032:C5 3E 02 CD 01 16 11 FA (F4)
040:FB 01 20 00 CD 3C 20 CD (12)
048:AE FB ED 43 D0 FB E1 A7 (2C)
056:ED 42 22 D6 FB 09 D9 2A (2E)
064:53 5C ED 4B 4B 5C 23 23 (D4)
072:5E 23 56 23 19 D9 09 D9 (CE)
080:A7 ED 42 09 38 F0 D9 11 (F1)
088:10 27 A7 ED 52 D2 00 FA (E9)
096:2A 53 5C E5 DD 21 1E FC (D6)
104:2A D6 FB ED 5B D0 FB 19 (27)
112:22 D6 FB EB E1 46 72 23 (9A)
120:4E 73 23 DD 71 00 DD 70 (7F)
128:01 DD 73 02 DD 72 03 DD (82)
136:23 DD 23 DD 23 DD 23 5E (81)
144:23 56 23 19 E5 ED 5B 4B (2D)
152:5C A7 ED 52 38 CA E1 DD (02)
160:03 00 80 2A 53 5C 2B CD (54)
168:D4 FA 23 7E FE 0E CC CE (15)
176:FA FE 0D CC D4 FA FE EC (89)
184:CC E8 FA FE ED CC E8 FA (47)
192:FE F0 CC E8 FA FE E5 CC (4B)
200:E8 FA 18 DE CF FF 11 05 (BC)
208:00 19 AF C9 23 ED 4B 4B (37)
216:5C A7 ED 42 09 D2 CC FA (D3)
224:23 23 22 D8 FB 23 AF C9 (D6)
232:E5 23 7E FE 0E 28 15 01 (D0)
240:01 00 CD E8 19 D9 2A D8 (AA)
248:FB 7E D6 01 77 30 02 23 (1C)
256:35 D9 18 E6 E5 23 CD B4 (95)
264:30 CD A2 2D DD 21 1A FC (E3)
272:11 0F 27 ED 43 D2 FB DD (21)
280:22 D4 FB 3E 80 DD BE 00 (4A)
288:28 23 DD 6E 00 DD 66 01 (DA)
296:ED 4B D2 FB A7 ED 42 38 (13)
304:0A ED 52 30 06 19 EB DD (60)
312:22 D4 FB DD 23 DD 23 DD (CE)
320:23 DD 23 18 D6 DD 2A D4 (EC)
328:FB DD 6E 02 DD 66 03 DD (BB)
336:E1 DD E5 DD 23 AF DD 77 (A6)
344:00 DD 77 01 DD 75 02 DD (86)
352:74 03 DD 77 04 D9 E1 16 (9F)
360:00 D9 11 E8 03 CD 85 FB (22)
368:11 64 00 CD 85 FB 11 0A (DD)
376:00 CD 85 FB 11 01 00 CD (2C)
384:85 FB E1 AF D9 3E 2F A7 (ED)
392:ED 52 3C 30 FB 19 D9 F5 (6D)
400:FE 30 28 13 CD 52 16 E5 (83)
408:2A D8 FB 34 20 02 23 34 (AA)
416:E1 F1 23 77 23 D9 C9 AF (E0)
424:AA 20 E9 F1 D9 C9 CD B0 (C3)
432:16 AF CD 01 16 CD 2C 0F (B1)
440:2A 59 5C 22 5D 5C 7E CD (05)
448:3B 2D CD A2 2D 38 E7 78 (9B)
456:B1 C0 01 0A 00 C9 43 00 (68)
464:20 00 5A 00 42 FC E3 04 (5F)
472:F7 60 20 20 20 20 49 4E (5E)
480:50 55 54 20 46 49 52 53 (4D)
488:54 20 4C 49 4E 45 20 4E (0A)
496:55 4D 42 45 52 20 20 20 (DB)
504:20 20 20 20 20 20 20 20 (00)
512:49 4E 50 55 54 20 4C 49 (45)
520:4E 45 20 49 4E 54 45 52 (35)
528:56 41 4C 20 20 20 20 20 (63)
536:20 20 0F 27 0F 27 00 00 (AC)
```

Race Advisor

Nicky Morris

This program, which runs on all Amstrad CPCs, analyses, from the data entered, and then displays ratings for each horse in the race leaving the operator to choose which to back.

To use the program effectively it is necessary to have the racing section of a newspaper, or better still a racing paper.

When entering course conditions enter good, good to soft, soft etc. The distance must be entered as decimal, one mile four furlongs being 1.4, for example.

Form is usually entered as a number between one and 100 but if your paper simply puts a dot beside a horse give that horse 100 and the others 80.

If a horse's preferred ground is not known then simply press enter.

An overall percentage of wins using this system worked out at 71% over a trial period.

If you would like a copy of the program, presented over two weeks, plus data for several famous race tracks, then send £3.25 to me Nicky Morris, at 22 Richard Street, Dunstable, Bedfordshire LU5 4BH.

```
5 ON BREAK GOSUB 3000
60 DIM A$(49),RUNNERS(49),FORM$(49),FORM
(49),TRAINER$(49),JOCKEY$(49)
70 DIM WEIGHT(49),AGE(49),age$(49),weigh
t$(49),RESULT(49),TOT(49),TOTAL(49),RESU
LT$(49),ground$(49)
80 MODE 1:BORDER 0
90 PEN 5:INK 0,0
100 PLOT 10,10,5
110 DRAW 10,390
120 DRAW 630,390
130 DRAW 630,10
140 DRAW 10,10
150 PLOT 20,20
160 DRAW 20,380
170 DRAW 620,380
180 DRAW 620,20
190 DRAW 20,20
200 PAPER 0:PEN 5
210 LOCATE 11,10:PRINT"THE RACE ADVISOR.
"
220 A$=" THE ULTIMATE HORSE TIPSTER. "
230 PRINT:PEN 7:LOCATE 6,13
240 FOR N=1 TO LEN(A$):FOR Y=1 TO 40
250 NEXT Y:SOUND 1,175,1,15
260 PRINT MID$(A$,N,1);:NEXT N
270 LOCATE 10,16:INK 2,16,0:PEN 2
280 PRINT"** PRESS ANY KEY **"
290 Z$=INKEY$
300 IF Z$="" THEN 290
310 INK 2,20,20
320 MODE 1
330 INK 0,25:BORDER 6
340 LOCATE 2,12:PEN 7
350 PAPER 2
360 LINE INPUT" ENTER COURSE : ";COURSE$
370 course$=UPPER$(course$)
380 IF LEN(COURSE$)>12 OR COURSE$="" THE
N 340
390 MODE 1
400 INK 0,25:INK 2,20,20:BORDER 6:PEN 7:
PAPER 2
410 PRINT:PRINT
420 PRINT"          FORMULATOR MENU:
"
430 PAPER 0:PRINT
440 PRINT" ";COURSE$;" RACING."
450 FOR V=1 TO LEN(COURSE$)+9
460 PRINT"-";:NEXT V
470 PRINT:PRINT
480 PRINT" 1 ... SAVE TRACK DATA"
490 PRINT:PRINT" 2 ... LOAD TRACK DATA"
500 PRINT:PRINT" 3 ... CREATE TRACK DATA
"
510 PRINT:PRINT" 4 ... FORMULATE RACE RE
SULTS"
520 PRINT:PRINT" 5 ... EXIT RACE ADVISOR
 PROGRAM":LOCATE 1,20:PAPER 2
530 PRINT" PLEASE ENTER APPROPRIATE CHOI
CE: "
540 C$=INKEY$:IF C$="" THEN 540
550 LOCATE 34,20:PRINT C$;
560 FOR W=1 TO 150:NEXT W:LOCATE 34,20:P
RINT" "
570 A=ASC(C$):IF A<49 OR A>53 THEN 540
580 C=VAL(C$)
590 ON C GOTO 1010,630,710,1090,3010
600 LOCATE 34,20:PRINT" ";:LOCATE 1,20
610 GOTO 530
620 GOTO 400
630 'LOAD TRACK DATA
640 PAPER 0:PRINT
650 OPENIN course$+" DATA"
660 FOR N=1 TO 9:INPUT #9,JOCK$(N)
670 INPUT #9,TRAIN$(N):NEXT N
680 INPUT #9,COURSE$:INPUT #9,DRA$
690 CLOSEIN
700 GOTO 390
710 MODE 1:PAPER 0
720 PRINT
730 PRINT"    TRACK DATA ENTRY ADMINISTR
ATOR:"
740 PRINT"    ------------------------
-----"
750 PRINT
760 INK 2,4,4:PEN 2
770 PRINT" ENTER TOP 9 JOCKEYS DECREASIN
G IN       QUALITY RIDING AT ";COURSE$;"
:"
780 PEN 7:PRINT
790 FOR N=1 TO 9:PRINT N;:LINE INPUT" ..
. ";JOCK$(N)
800 JOCK$(N)=UPPER$(JOCK$(N)):PRINT:NEXT
 N
810 MODE 1
820 PRINT
830 PRINT"    TRACK DATA ENTRY ADMINISTR
ATOR:"
840 PRINT"    ------------------------
-----"
850 PRINT:INK 2,4,4:PEN 2
860 PRINT" ENTER TOP 9 TRAINERS DECREASI
NG IN      QUALITY AT ";COURSE$;":"
870 PEN 7:PRINT
880 FOR N=1 TO 9:PRINT N;:LINE INPUT" ..
. ";TRAIN$(N)
890 train$(n)=UPPER$(train$(n)):PRINT:NE
XT N
900 MODE 1
910 WINDOW 10,30,7,18:PAPER 7:CLS
920 WINDOW 11,29,8,17:PAPER 5:CLS
930 LOCATE 5,3:PRINT"TRACK DATA"
940 LOCATE 8,5:PRINT"ENTRY":LOCATE 6,7:P
RINT"COMPLETE!"
950 TD=VAL(D$)
960 FOR N=1 TO 2000:NEXT N:GOTO 390
970 GOTO 1000
980 LOCATE 28,18:PRINT" ";:LOCATE 1,18
990 GOTO 1010
1000 GOTO 390
1010 'SAVE TRACK DATA
1020 PAPER 0:PRINT
1030 OPENOUT course$+" DATA"
1040 FOR N=1 TO 9:PRINT #9,JOCK$(N)
1050 PRINT #9,TRAIN$(N):NEXT N
1060 PRINT #9,COURSE$:PRINT #9,DRA$
1070 CLOSEOUT
1080 GOTO 390
1090 MODE 1
1100 PRINT:INPUT" Enter course condition
s";gro$
1110 gro$=UPPER$(gro$):MODE 1
1120 PRINT
1130 PRINT"      ENTER BEST DRAW POSITIO
N;      "
1140 PAPER 0
1150 PRINT:PEN 7:PRINT"          1.....
LOW DRAW"
1160 PRINT:PRINT"          2.....HIGH D
RAW"
1170 PRINT:PRINT"          3.....NO EFF
ECT"
1171 PAPER 7:PEN 2
1180 A$=INKEY$:IF A$="" THEN 1180
1190 LOCATE 19,11:PRINT A$;:A=ASC(A$)
1200 FOR W=1 TO 150:NEXT W
```

continued on page 44 ▶

◀ continued from page 43

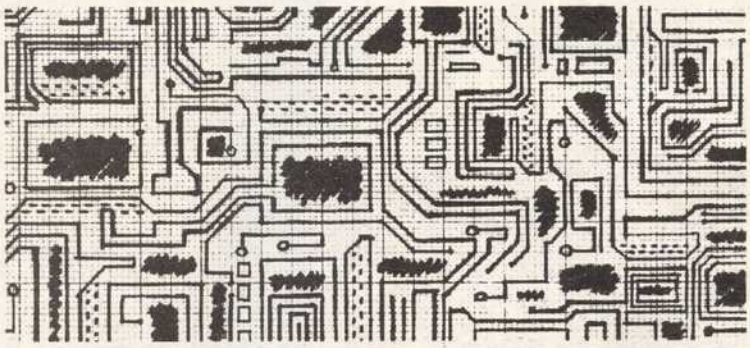
```
1210 LOCATE 19,11:PRINT" "
1220 IF A<49 OR A>51 THEN 1180
1230 IF A$="1" THEN DRA$="LOW"
1240 IF A$="2" THEN DRA$="HIGH"
1250 IF A$="3" THEN DRA$="NULL"
1260 MODE 1:PRINT
1270 LOCATE 2,3:LINE INPUT"ENTER DISTANC
E ? ";D$
1280 IF D$="" THEN 1270:TD=LEN(D$)
1290 MODE 1:PAPER 0:PEN 7
1300 PRINT
1310 PAPER 2:INPUT" How many runners";ru
nners
1320 IF runners<3 OR runners>49 THEN 123
0
1330 MODE 1:PAPER 0:PRINT
1340 PRINT:PEN 2:PRINT" Enter name's:";
1350 FOR n=1 TO runners
1360 PRINT
1370 PEN 5:LOCATE 2,4+N:PRINT"Runner no.
";n;"'s name=";
1380 INK 0,0:PEN 2:LINE INPUT"";a$(n)
1390 a$(n)=UPPER$(a$(n)):IF a$(N)="" OR
LEN(A$(N))>17 THEN 1370
1400 NEXT n
1410 CLS
1420 PEN 2:PRINT:PRINT" Enter form:"
1430 FOR n=1 TO runners:PRINT:PEN 2:PRIN
T" Enter ";:PEN 5:PRINT a$(n);"'s';
1440 PEN 2
1450 LINE INPUT" form=";form$(n):FORM(N)
=VAL(FORM$(N))
1460 NEXT n
1470 CLS:PRINT
1480 PRINT:PRINT" Enter results of last
3 races:"
1490 PRINT
1500 FOR n=1 TO runners
1510 PEN 5:LOCATE 2,4+N:PRINT N;" ";A$(N
);"= ";
1520 PEN 2:LINE INPUT RESULT$(N)
1530 IF LEN(RESULT$(N))<>3 THEN 1510:A$=
MID$(result$(N),1,1)
1540 IF a$="1" THEN tot(n)=tot(n)+4.5
```


Brother Width

Steven Gray

If you have a Brother EP44 (or certain other printers) then you will have discovered that the QL *Width* command doesn't work when listing Basic programs. This routine not only allows you to define the line length but also where on the page the listing is to be printed. Also, the program separates line numbers and program text to make it easier to read.

To use the procedures the following command must be used, *flist (tab setting, line length, mdv1_filename)*



Users of printers other than the EP44 should omit lines 220 and 360 since these substitute an ordinary EP44 zero with a slashed zero (Ascii 237). Also, the baud and channel definitions on line 110 may need to be altered.

```
100 DEFine PROCedure flist (tabset,li
nelen,d$)
110 BAUD 1200:OPEN#3,ser1c:newline=1
120 IF tabset<1 OR tabset>80:PRINT#0;
'Tab setting outside range':RETurn
130 IF tabset+linelen-6>80:PRINT#0;'L
ine length outside range':RETurn
140 OPEN_IN#6,d$
150 REPeat loop
160 line$=''
170 IF newline:linenum
180 FOR n=1 TO linelen-6
190 IF EOF(#6):EXIT loop
200 i$=INKEY$(#6)
210 IF i$=CHR$(10):newline=1:EXIT n
220 IF i$=CHR$(48):i$=CHR$(237)
230 line$=line$&i$
240 newline=0
250 END FOR n
260 IF line$<>'':PRINT#3,TO tabset+6,
line$
270 END REPeat loop
280 CLOSE#6
290 END DEFine
300 :
310 DEFine PROCedure linenum
320 lno$=''
330 FOR i=1 TO 6
340 IF EOF(#6):RETurn
350 i$=INKEY$(#6):IF i$<'0' OR i$>'9'
:EXIT i
360 IF i$=CHR$(48):i$=CHR$(237)
370 lno$=lno$&i$
380 END FOR i
390 PRINT#3,TO tabset,lno$;
400 FOR j=i TO 5:PRINT#3,CHR$(32);
410 END DEFine
```

Soccer

by Mark Slater

This week features the final part of Soccer for the BBC/Electron. The program is well documented with *Rem* statements so should not only be easily adaptable to other computers, but also easy to expand and build upon.

If you would like a copy of Soccer on cassette then send £2 to Mark Slater of 54 Leverhouse Lane, Leyland, Lancashire PR5 2XN.

```
3380REM**** Double Height Routine ****
3390REM
3400DEFPROCdouble_height(word$,x,y)
3410FORloop=1TOLEN(word$)
3420ascii=ASC(MID$(word$,loop,1))
3430?&70=ascii
3440Y%=0:X%=&70:A%=10
3450CALL&FFF1
3460VDU23,250
3470FORloop2=1TO4
3480VDU?(&70+loop2),?(&70+loop2)
3490NEXTloop2
3500VDU23,249
3510FORloop2=5TO8
3520VDU?(&70+loop2),?(&70+loop2)
3530NEXTloop2
3540PRINTTAB(x,y);CHR$(249)
3550PRINTTAB(x,y-1);CHR$(250)
3560x=x+1
3570NEXTloop
3580ENDPROC
3600REM** END OF SEASON COMMENTS **
3610
3620DEFPROCend_of_season
3630CLS
3640COLOUR2
3650PROCdouble_height("End of Season",1
,3)
3660count=0:flag=0
3670REPEAT
3680pos=order(count,0)
3690IF pos=team THEN position=count+1:f
lag=1
3700count=count+1
3710UNTILflag=1
3720IFposition>9 AND division=4THEN PRO
Cendgame
3730IFposition=1 AND division=1THEN PRO
Cgamewon
3740PRINTTAB(1,5);"You have finished in
position ";position;" and"
3750div=0
3760IF (position>3 AND position<10) OR
(division=1 AND position>1) THEN sentenc
e$="your team will remain in its present
    division next season"
3770IF position<4 AND division>1 THEN s
entence$="this means that your team is p
romoted  to division "+STR$(division-1)
:div=-1
3780IF position>9 AND division<4 THEN s
entence$="your team will be relegated fo
r next    season":div=1
3790PRINTTAB(1,6);sentence$
3800division=division+div
3810PROCspace
3820ENDPROC
3840REM******** INSTRUCTIONS ********
3850
3860DEFPROCinstructions
3870COLOUR129:COLOUR0
3880VDU28,0,5,39,0:CLS
3890PROCdouble_height("INSTRUCTIONS",14
,3)
3900VDU26
3910COLOUR128:COLOUR1
3920PRINTTAB(0,7);"The OPTIONS"
3930PRINT'"The option page gives you 4
choices , ofwhich this is the first.You
may return  to the option page any time
by pressing the 'ESCAPE' key."
3940PRINT'"The second option allows you
 to choose  the name of your team.You ma
y only use  the names that the computer
displays."
3950PRINT'"The third option starts the
actual game which is explained fully on
the next    page."
3960PRINT'"The last option ends the pro
gram and    returns you to BASIC."
3970PROCspace
3980VDU28,0,31,39,6:CLS
3990PRINTTAB(0,1);"The GAME"
4000PRINT'"The first screen will displa
y your team with each players individual
 skill      rating and his strength. Pla
yers can be removed or added to the team
 by choosingthe change team option (by p
ressing 'C')"
4010PRINT"For each game a player plays
in he will lose one unit of strength but
 he will   gain four units if he is rest
ed."
4020PRINT'"The strengths of each of you
r team areas(defence, midfield & attack)
, are shown at the bottom of the screen.
 In the red box at the bottom right of t
he screen isyour opponents name and thei
r strengths."
4030PRINT"The game will end when you ei
ther finishfirst in the first division,
winning thegame, or finishing in the las
t three of the forth division, losing th
e game."
4040VDU26
4050PROCspace
4060ENDPROC
4070REM******** ERROR ROUTINE ********
4080DEFPROCerror
4090IF ERR=17 THEN RUN
4100REPORT:PRINT" at line ";ERL
4110END
4120DEFPROCendgame
4130PRINTTAB(0,5);"You have finished in
 the bottom three ofthe forth division a
nd you have been    kicked out of the le
ague."
4140PRINT'"Would you like to apply for
re-election into the league ? (Y/N)"
4150REPEAT
4160key$=GET$
4170IFkey$="Y"THEN RUN
4180UNTILkey$="N"
4190CALL&D01
4200DEFPROCgamewon
4210PROCdouble_height("Congratulations!
",12,6)
4220PRINTTAB(0,8);"You have won the lea
gue , well done."
4230PRINTTAB(0,10);"Would you like to p
lay again ?"
4240REPEAT
4250key$=GET$
4260IFkey$="Y"THEN RUN
4270UNTILkey$="N"
4280CALL&D01
4290DEFPROCmachine_code
4300P%=&D01
4310[OPT0
4320JMP(&FFFC)
4330]
4340ENDPROC
4350DEFPROCsquad
4360RESTORE4460
4370FOR1=1TO16
4380READsquad$(1):stren(1)=RND(10)
4390NEXT
4400 FOR1=1TO11:READplayer(1):NEXT
4410FORk=1TO16:READskill(k):NEXT
4420FORk2=1TO30
4430g1=RND(16):g2=RND(16)
4440temp=skill(g1):skill(g1)=skill(g2):
skill(g2)=temp
4450NEXT
4460DATA"d  P. Shilton","d  T. Butcher"
,"d  K. Samson","d  A. Martin","d  M. St
ater","m  R. Wilkins","m  B. Robson","m
 G. Stevens","m  K. Dalglish","m  G. Sou
ness","m  K. Keegan","a  K. Dixon","a  G
. Lineaker","a  I. Rush"
4470DATA"a  P. Macaveny","a  D. Speedie
```

continued on page 46 ▶

Programming: BBC & Electron

◀ continued from page 45

```
"
 4480DATA1,2,3,4,6,7,8,9,12,13,14
 4490DATA2,2,2,2,2,3,3,3,3,3,4,4,4,4,4
 4500ENDPROC
 4510DEFPROCchange
 4520VDU28,0,31,39,29
 4530CLS
 4540PRINTTAB(1,0);"Enter number to be r
emoved :";
 4550INPUT""rm
 4560plflag=0
 4570FOR1=1TO11:IFplayer(1)=rm THEN plfl
ag=1:plnum=1
 4580NEXT
 4590IFplflag=0 OR rm=0 THEN 4530
 4600PRINTTAB(1,1);"Enter number to be a
dded  :";
 4610INPUT""ad
 4620plflag=0
 4630FOR1=1TO11:IFplayer(1)=ad THEN plfl
ag=1
 4640NEXT
 4650IFplflag=1 OR ad=rm OR ad<1 OR ad>1
6  THEN PRINTTAB(1,1);STRING$(38," ");:G
OTO 4600
 4660player(plnum)=ad
 4670VDU26
 4680PRINTTAB(7,rm+6);" ";PRINTTAB(30,rm
+6);stren(rm);" ";TAB(24,rm+6);skill(rm)
;" "
 4690PROCon
 4700PRINTTAB(7,ad+6);"*";PRINTTAB(30,ad
+6);stren(ad);TAB(24,ad+6);skill(ad)
 4710IFstren(ad)<10THENPRINTTAB(31,ad+6)
;" "
 4720PROCoff
 4730VDU 28,0,31,39,29:CLS
 4740VDU26
 4750ENDPROC
 4760DEFPROCcommentary
 4770result$=team$(team)+" 0  0 "+team$(
match):tab=17-LEN(team$(team))
 4780PROCdouble_height(result$,tab,7)
 4790com=1
 4800IF score1=0THEN4850
 4810FOR1=1TOscore1
 4820com(com)=match+1
 4830com=com+1
 4840NEXT
 4850IFscore2=0THEN4900
 4860FOR1=1TOscore2
 4870com(com)=team+1
 4880com=com+1
 4890NEXT
 4900com=com-1
 4910FOR1=1TO10
 4920s1=RND(com)
 4930s2=RND(com)
 4940temp=com(s2):com(s2)=com(s1):com(s1
)=temp
 4950NEXT
 4960co1=0:co2=0
 4970las=RND(5):lr=0
 4980REPEAT
 4990PROCon
 5000VDU28,1,14,38,10
 5010CLS
 5020VDU26
 5030g=RND(2)
 5040IFg=1 THEN te=team ELSE te=match
 5050PRINTTAB(2,11);team$(te);" have pos
session,"
 5060PROCwait
 5070PRINTTAB(2,12);"they run at goal, s
hoot and...."
 5080PROCwait
 5090g2=RND(2)
 5100g3=0
 5110IF(co1=score1) AND g=1 THEN g2=2
 5120IF(co2=score2) AND g=2 THEN g2=2
 5130IFg=1 AND g2=1 THEN co1=co1+1
 5140IFg=2 AND g2=1 THEN co2=co2+1
 5150IFg2=1 THEN pr$="it's a GOOAAALLLL
!!!!!!!!!!!!!!":SOUND0,-1,20,10
 5160IFg2=2 THEN g3=RND(4)
 5170IFg3=1 THEN pr$="it's saved by the
keeper."
 5180IFg3=2 THEN pr$="it's put over the
top."
 5190IFg3=3 THEN pr$="it's kicked wide o
f the post."
 5200IFg3=4 THEN pr$="it hits the woodwo
rk and is cleared."
 5210PRINTTAB(2,13);pr$
 5220PROCoff
 5230PROCdouble_height(STR$(co1),18,7)
 5240PROCdouble_height(STR$(co2),21,7)
 5250PROCwait
 5260IF (score1=co1) AND (score2=co2) TH
EN lr=lr+1
 5270UNTIL(score1=co1) AND (score2=co2)
AND las=lr
 5280SOUND1,-1,120,10
 5290PRINTTAB(11,2);"   (Full Time)
"
 5300VDU28,1,14,38,10:PROCoff:CLS:VDU26
 5310ENDPROC
 5320DEFPROCwait
 5330FORj=1TO1350:NEXT
 5340ENDPROC
```

Programming: Commodore 64

Disc Help

Gary Mayhew

After running the program two menus are displayed, Disc and Printer. Press either D or P.

From this menu you will be offered a variety of options which are explained as follows.

Directory displays the contents of a disc. *Scratch* deletes a file. *Initialise* reads disc ID etc (after disc change).

Validate collects all the files to free unused blocks.

Format prepares a blank disc for use.

Rename gives a file a new name.

Error is used when the red light flashes, to check the error.

Blocks checks how many free blocks there are on the disc.

Quit disc returns you to the main menu.

As this is a two part listing details of the Printer menu will be given next week.

```
100 POKE 55,0:POKE 56,36:CLR
110 GOSUB 2120
120 POKE53280,0:POKE53281,0
130 PRINT "■□";CHR$(8);
140 DIM X$(30)
150 SP$=" "
160 X=13:Y=1:WX=11:WY=3:CO=7:GOSUB 270
170 PRINT"□□□";TAB(15);"UTILITIES"
180 X=21:Y=5:WX=16:WY=1:CO=2:GOSUB 270
190 X=1:Y=5:WX=16:WY=1:CO=3:GOSUB 270
200 PRINT"□□";TAB(8);"■DISK";TAB(27);"■PRINTER"
210 X=1:Y=21:WX=36:WY=1:CO=6:GOSUB 270
220 PRINT"□□▶▶▶▶ PRESS FIRST LETTER OF THE OPTION"
230 GETKE$:IFKE$<>"D"ANDKE$<>"P"THEN230
240 IF KE$="D" THEN GOSUB 330
250 IF KE$="P" THEN GOSUB 1660
260 END
270 PRINT"■";:POKE 646,CO
280 FORL=1TOY:PRINT:NEXT
```

```
290 PRINTTAB(X);"■";:FORA=1TOWX:PRINT"■";:NEXT:PRINT"■"
300 FORL=1TOWY:PRINTTAB(X);"■";:PRINT(SP$,1,WX);"■";:NEXT
310 PRINTTAB(X);"■";:FORA=1TOWX:PRINT"■";:NEXT:PRINT"■"
320 RETURN
330 X=1:Y=8:WX=16:WY=10:CO=5:GOSUB 270
340 OPEN 8,8,15
350 PRINT"----------":
360 PRINT"■■■■DIRECTORY"
370 PRINT"■■■■SCRATCH FILES"
380 PRINT"■■■■INITIALISE DISK"
390 PRINT"■■■■VALIDATE DISK"
400 PRINT"■■■■FORMAT DISK"
410 PRINT"■■■■RENAME FILES"
420 PRINT"■■■■COPY FILES"
430 PRINT"■■■■ERROR STATUS"
440 PRINT"■■■■BLOCKS FREE"
450 PRINT"■■■■QUIT DISK"
460 POKE255,0:SYS49152
470 GETKE#:IFKE#=""THEN470
480 IFKE#="D"THEN GOSUB 600:REM POKE255,0:SYS49152:GOSUB 600
490 IFKE#="S"THEN GOSUB 910
500 IFKE#="I"THEN PRINT#8,"I0":GOSUB840
510 IFKE#="V"THEN PRINT#8,"V0":GOSUB840
520 IFKE#="F"THEN GOSUB 990
530 IFKE#="R"THEN GOSUB 1120
540 IFKE#="C"THEN GOSUB 1230
550 IFKE#="E"THEN GOSUB 840
560 IFKE#="B"THEN GOSUB 1540
570 IFKE#="Q"THEN CLOSE1,8,15:PRINT"■":GOTO160
580 GOTO 470
590 REM DIRECTORY
600 PRINT"■";:FI=0
610 X=1:Y=2:WX=36:WY=19:CO=2:GOSUB270
620 X=13:Y=1:WX=11:WY=1:CO=7:GOSUB 270
630 PRINT"■■■";TAB(15)"■DIRECTORY";CHR$(13)
640 PRINT#8,"I0":OPEN1,8,0,"$0":FORK=1TO2:GET#1,X#:NEXTK:D=1:DC=2
650 IFD=2THEND=0:PRINT
660 PRINTTAB(C20*D)+2;:FORK=1TO4:GET#1,X#:NEXTK
670 IFST OR DSTHENCLOSE1:PRINT:GOTO730
680 GET#1,X#:IFX#=""THEND=D+1:GOTO650
690 IFF1=20THEN730
700 IFKE#=CHR$(34)THENO=NOTO:FI=FI+.5:GOTO680
710 IFOTHENPOKE646,DC:PRINT"■";X#;
720 GOTO680
730 X=12:Y=23:WX=14:WY=1:CO=7:GOSUB 270
740 PRINT"■■■TAB(13)"■SPACE FOR MENU";
750 GETKE#:IFKE#<>" "THEN750
760 POKE255,1:SYS49152:RETURN
770 X=12:Y=20:WX=14:WY=1:CO=5:GOSUB 270
780 PRINT"■■■TAB(13)"■CONTINUE (Y/N)"
790 GETKE#:IFKE#<>"Y"ANDKE#<>"N"THEN790
800 DC=6:IFKE#="N"THENPOKE255,1:SYS49152:CLOSE1:RETURN
810 X=1:Y=8:WX=36:WY=17:CO=4:GOSUB 270
820 PRINT"■■■■
```

Starfield

A W R Crawford

for any Atari 8-bit micro

This program for any eight bit Atari machine will produce, when run, an interrupt driven scrolling starfield which can easily be incorporated into your own games to give them that professional look.

```
   10GRAPHICS 7:M=PEEK(741)+256*PEEK(742
)-1
   20P=INT((M-2048)/2048)*2048:M=P+768
   30POKE 54279,P/256:POKE 53255,0:POKE
53277,3
   40FOR X=M TO M+255:POKE X,0:NEXT X
   50FOR X=M+32 TO M+190 STEP 2:POKE X,6
4:NEXT X
   60FOR X=1536 TO 1554:READ D:POKE X,D:
NEXT X
   70FOR X=1664 TO 1791:POKE X,PEEK(5377
0):NEXT X
   80D=PEEK(560)+256*PEEK(561):POKE D+3,
205:FOR X=D+6 TO D+84:POKE X,141:NEXT X
   90POKE 559,62:POKE 512,0:POKE 513,6:P
OKE 623,8:POKE 707,14:POKE 54286,192
  100POSITION 0,0:PRINT "SCROLLING STARF
IELD DEMONSTRATION":STOP
  110DATA 72,138,72,174,11,212,189,128,6
,141,7,208,222,128,6,104,170,104,64
```

Fast Printer

Arnt Gulbrandsen

for the Amstrad CPCs

This machine code routine for any Amstrad CPC speeds up screen printing in *Mode 2* by around 35%. Note however, that transparent printing is disable. As this routine uses locations *&BE80* to *&BEA3* you should avoid using this area.

```
10 CALL &BB51:FOR n=0 TO 35:POKE n+&BE80,
VAL("&"+MID$("f55d54cd1abc78c1fe0178ebc2
0000cda5bbcd06b901ff073e08eda00ceb09eb3d
20f7c9",n*2+1,2)):NEXT:POKE &BE8D,PEEK(&
BDD4):POKE &BE8E,PEEK(&BDD5):POKE &BDD3,
195:POKE &BDD4,&80:POKE &BDD5,&BE
```

Disc Turbo

Arnt Gulbrandsen

for the Amstrad CPCs

This routine for the Amstrad CPC series, sits at *&BE80* and speeds up the disc drive by 10%–30%. It is compatible with any piece of software which does not use memory at location *&BE80*.

```
10 CALL &BD37:|DISC:FOR n=0 TO 33:POKE &
BE80+n,VAL("&"+MID$("2d00640001040a01030
0000082210cbecdd4bcd02209be79320bbe2100b
edf09bec9",2*n+1,2)):NEXT:CALL &BE8D
```

We want your programs

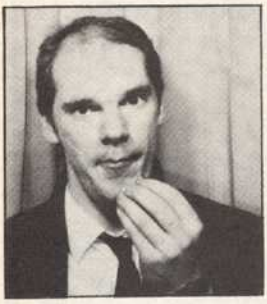
Yes, this is your chance to get rich and famous. Well, famous anyway, as *Popular Computing Weekly* is looking for contributions to the Programming pages.

What sort of thing are we looking for? You name it – anything original from games to utilities, applications and the like, written in Basic, machine code or anything else you can think of.

Programs for any computer will be considered, not just the old faithfuls (Spectrum, Amstrad, QL, Commodore, etc), so send your listings in for your favourite micro. What we need is a working copy of the program on tape or disc, plus an accompanying article or documentation that you would anticipate going with the piece, normally not over 2000 words.

Alternatively, send in your short programs to the Bytes and Pieces page – what could be easier? In return, we'll pay the princely sum of £25 per page for the main programming pages and £10 for each Bytes & Pieces contribution we publish. Plus the fact that your name will be indelibly carved in the *Popular* Programming Hall of Fame till time immemorial. What more could any true programmer ask?

Just send your masterpieces in to **Duncan Evans, Technical Editor, *Popular Computing Weekly*, 12–13 Little Newport St, London WC2H 7PP** and he'll assess them post haste.



With Kenn Garroch

Machine code multiplication

P Andrews, of Dover, in Kent, writes:

Q I am writing a computer game in machine code and need to multiply a selection of numbers together. Could you tell me how this is done in machine code (6502) and how to implement it on a Commodore 64?

A The fastest method of multiplying numbers on a computer is to create a table of all the possible answers and look up the answer using the two numbers to be multiplied. The problem here is that if you have a lot of answers, too much memory is taken up with the table. The other answer is to use the shift and add method which is a lot faster than adding a number to itself the number of times specified by the other.

Take two numbers – 10x5 for example. In binary these are 1010 and 0101 (I'll use four-bit numbers here but the same rules apply to larger eight- or 16-bit solutions). To multiply them together, shift the smaller right one place (LSR). If the carry is set then add the larger number to the result (currently zero). If the carry is not set then don't add and carry on.

Now shift the larger number left one place, ie, multiply by two (ASL). Then go back and shift the smaller one right. In the example the carry would not be set, so shift the larger one left again and shift the smaller right. Now the carry is set so add the shifted larger number to the result. If the smaller number is now zero, the multiplication is done.

Step 1

1010; 0010 C=1 (small shifted right one place)
Add 1010 to result; result=1010
Is small zero? No, so continue . . .

Step 2

10100; 0001 C=0 (big shifted left, small right)
No add since C=0)
Is small zero? No, so continue . . .

Step 3

101000; 0000 C=1 (big shifted left, small right)
Add 101000 to result; result=110010
Is small zero? Yes, so end.
Answer is 110010, or 50, which is correct.

The reason for using the small number to check for additions is that it will reach zero sooner than larger number.

Implementing this in 6502 will result in the subroutine for 8 x 8 bit given here.

```
MS      .BYTE   0       ; MS SMALL, MB BIG, MR RESULT 16BIT
MB      .WORD   0       ; THESE NEED TO BE IN ZERO PAGE
MR      .WORD   0       ; FOR GREATEST SPEED.
MULT    LDY #0          ; Y USED FOR COMPARE AND ZEROING
        STY MB+1        ; ZERO HI BYTE OF MB
        STY MR          ; ZERO THE RESULT LO
        STY MR+1        ; ZERO THE RESULT HI
MULTL   LSR MS          ; SHIFT SMALL RIGHT
        BCS ADD1        ; IF CARRY THEN ADD BIG TO RESULT
MULTL1  CPY MS          ; IF SMALL ZERO THEN END
        BEQ FIN
        ASL MB          ; SHIFT BOTH LO AND HI
        ROL MB+1        ; BYTES OF MB LEFT INCL CARRY
        JMP MULTL       ; CONTINUE SHIFTIN AN ADDIN
ADD1    CLC             ; CLEAR CARRY FLAG FOR ADDITION
        LDA MB          ; GET MB AND ADD
        ADC MR          ; TO ACCUM AND
        STA MR          ; THEN RESULT
        LDA MB+1        ; SAME WITH HI BYTE INCL
        ADC MR+1        ; CARRY
        STA MR+1
        JMP MULTL1      ; JUMP TO BIG SHIFT AND CONTINUE
FIN     RTS             ; RESULT IN MR AND MR+1 LO HI BYTES
```

Numbers only

Lee Short, of Cathays, in Cardiff, writes:

Q I have recently written a program for my firm on my Amstrad 464 computer. My problem is that I would like to disable the *Escape* key and, at the beginning of the program, the user is asked to input a number between one and 12. If a letter is typed, I get a redo from *Start?* – how can I adapt my program to accept only numbers when required?

A The *Escape* key is disabled by including the *On Break GoSub* command as the first line of the program. For example:

```
10 ON BREAK GOSUB 100
20 PRINT "THIS PROGRAM IS UNSTOPPABLE"
30 GOTO 20
100 PRINT "YOU HAVE PRESSED BREAK"
110 FOR T=0 TO 1000:NEXT
120 PRINT "BUT TO NO AVAIL"
130 RETURN
```

Your second problem can be solved by use of the following subroutine. Instead of *Input A*, use *GoSub 1000* and include this:

```
1000 LOCATE 1,10: INPUT "ENTER NUMBER (1–12)";N$
1010 IF VAL(N$)=0 OR VAL(N$)>12 THEN GOTO 1000
1020 N=VAL(N$) N IS THE NUMBER ENTERED
1030 RETURN
```

This gets a string and then checks whether the first characters are numerical and less than 13. Otherwise the input is requested again, but by using *Locate*, it is not too obvious to the user that a mistake has been made, ie, you don't fill up the screen with unwanted *Inputs*.

Linking Atari and Amstrad

A Harvey, of Worcester Park, Surrey, writes:

Q I own a CPC 464 and a printer, but recently, a friend got an Atari STM, and it impresses me so much that I am seriously considering buying one. Is it possible to link the Amstrad CTM 640 colour monitor to an Atari 520 STM?

A The Atari ST colour output is standard RGB and its socket has the following pinout:

1) Audio out, from the internal amplifier.
2) Not connected.
3) General purpose output from port A, bit 6, of the sound chip, uses TTL levels.
4) Monochrome detect. If this pin is low, the computer enters high res monochrome mode. Obviously, for colour, you'll need to tie it high.
5) Audio in to the internal amplifier, mixed with the output of the sound chip.
6) Green output for RGB.
7) Red output for RGB.
8) Ground.
9) Horizontal sync output.
10) Blue output for RGB.
11) Monochrome intensity output.
12) Vertical sync output.
13) Ground.

Amstrad connection is:

1) Red input for RGB; 2) Green input for RGB; 3) Blue input for RGB; 4) Sync; 5) Ground; 6) Lum;

So to connect the two together, red goes to red, green to green, blue to blue, and the two grounds are connected together. Pin six on the monitor needs to be held high as does pin four on the ST, I think the sync for the monitor goes to the vertical sync on the ST. If this does not work, try the horizontal sync.

As far as I know, there is no plug available to fit (see illustration) the 13 pin connector on the ST. It is possible to construct one from perforated board with ½" pitch. Solder in the array of twelve pins and ignore pin 13 which is out of order and uneccessary since pin 8 is also ground. You will need an in-line 6 pin Din socket to make the connection to the monitor.

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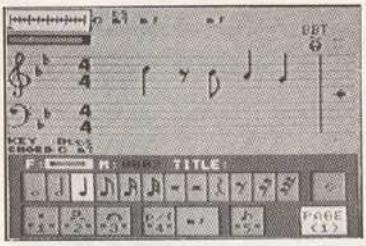
Music for the MSX

Mark Jenkins looks at the packages available to help you get started on the MSX machines.

▲ *Odyssey-K* ▼ *Musiwriter*



Despite the relative failure of the MSX system over there, worldwide the standard is quite active, particularly in France, Germany and Japan. A recent visit to the Paris Music Fair certainly showed that MSX is finding a lot of musical applications, along with the Thomson computers and a couple of other models not generally available in the UK.

The most professional packages available for the MSX series are the Yamaha CX5-related Midi packages – the new SFG-01 Tone Module and its related software for drum machine and synthesiser composition, sound editing and so on. An MSX sampler is on its way and several small independent companies are developing improved software which overcomes some of the limitations of Yamaha's orignial designs.

One of these limitations is that the Yamaha CX5 Music Computer stood outside the MSX convention by adding a cartridge port underneath the machine – this is where the FM synthesiser module fits. However, it's now possible to buy a synth module separately and fit it using a small interface card, which you have to build yourself using about three pounds' worth of circuit board and etching fluid. The Yamaha X-Series Owners' Club have a free sheet giving information on how to do this.

So there's now a good path into MSX computer music – start with a cheap machine (a Canon, Sony, Mitsubishi or other model with two cartridge slots is best, and many of these are now available at knock-down prices). Add an inexpensive software package which makes use of the micro's built-in three voice sound chip, and if your interest in music continues, go for the Yamaha tone module, which features Midi and so allows you into the world of professional synthesisers, too.

Two new packages from Rittor Music are worth looking at. The cartridge-based *PSG Musiwriter* (£24.95) starts with a screen display of a stave with treble and bass clefs, key and chord name and a data box on the bottom of the screen. You can compose tunes using three voices by entering notes one at a time; five main pages are used in the data box to vary: 1) musical notation, 2) repeat symbols and rhythm, 3) chord, 4) time/key/title/load/save, and 5) display colour and volume mix.

The pages are accessed using the function keys 1–5; a green bar at the top of the screen shows memory remaining. To write a piece you choose a voice and note length, enter notes using the cursor up-down arrows and return key (the notes sound as you're entering them and the pitch is displayed to the right of the screen), and choose a volume from the dynamics page. Of course, it's possible to erase notes you don't want simply by using *Delete*, and you can type in a tempo using the number keys.

You can insert and delete entire bars, and choose from any of seven backing rhythms (only waltz can't be used when programming in 4/4 time) which play with a selection of white noise bursts. PSG has a very clear handbook but unfortunately there's no demo program, and the suggested 'music input example' in the handbook looks pretty complex.

But it's easy enough to punch notes in, and the backing chords and rhythms give a fairly complex end product. The screen displays are colourful and the handbook good, so the package represents a fine way into music and should be highly educational. It's for 16 to 64K machines.

Odyssey-K (£11.95) is a little more unusual, and loads from tape. It's a real-time recorder which uses four banks of the computer's keys as a four-octave double music keyboard, and there's a metronome bleep to play along to as you record each of the three available tracks.

Compositions can be saved and reloaded and there's a good demo of (what else?) *The Entertainer*. A 32K machine is needed for this program and, of course, once you've learned music theory from PSG, this is an ideal way to begin to stretch your 'live' playing abilities.

The pitch of each track can be transposed, you an erase and re-record a track, adjust tempo and volume mix, repeat sections, and change tones to some extent, using the *Env* command.

A pity that *Odyssey* won't be compatible with a clip-on mini-keyboard such as the *Music Maker*, but it's still good fun, with a neat screen display of an impressive-looking double keyboard and a very simple command layout.

DX7 owners will be interested to learn that Rittor also markets two Rom cartridges in the Shofuku series; Part 1 has 2 x 32 sounds including some good guitars, basses, metallic keyboard sounds, special effects, strings and winds, while Part 2 has another 64 sounds including more modern FM presets, Eastern sounds and synth effects.

Yamaha X-Series Owners' Club, Mount Avenue, Milton Keynes MK1 1JE, Tel 0908 71771.

If you have any queries or tips for this column, please write to Mark Jenkins at *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP. Mark would also welcome examples of your own music on audio or program tape, or disc.

Bulletin boards for ST owners

David Wallin consults his mailbag, and explains ROS, discovers two BBs for the ST, and shows you how to transmit hi-res pictures over the PSTN

More correspondence to go through this week, and it appears that I have an apology to make. It's to Compunet: the price of the Commodore modem has been £49.95 all year, apparently I must have said otherwise at some time. Sorry Compunet about this, and I hope it has not caused any problems.

Now for some information on a new BB operating on the Amstrad PCW 8256. First the board itself, and then the ROS system that it runs under.

The board is called PCW ROS, the sysop is Mark Gregory, hours are 8am to 5.30pm, 8pm to 5.30am (24 hours soon). Catch it on 0902 788683 and at these rates: 300/300 (1200/75 soon).

ROS: the system

The BB runs under the Steve Fox ROS system. ROS is a new BBS written in Turbo Pascal. The Amstrad PCW8256 is one of the many computers which can use ROS, a friendly and nice piece of BBS, which new users should find logging on to easy. PCW ROS runs on a two-drive, Ram upgraded Amstrad PCW8256. This gives 368K of Ram disc and 1.2Mb of floppy disc storage.

The advantage of using the Ram disc to store the main code of the program, menus and messaging section is that it makes the speed of the board fantastic, with access time almost instant. The floppies are used for storing download software only. The board is probably the fastest in the country.

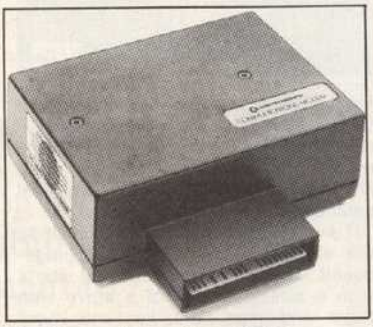
While PCW ROS does specialise in the 8256, it also contains information for other computers and subjects, including amateur radio, IBMs, Spectrums, Commodores, aircraft enthusiasts and more.

The sysop, Mark Gregory, can supply an installed version of the ROS system for the Amstrad PCW8256 at a cost of £15. For this he will require details of your modem and serial port. The cost is only to cover disc, copying, compiling and the two overlays required. Profit is not made as the program is public domain.

More details on buying the program will be available from Mark if you log on to PCW ROS and ask him. One problem with buying a compiled version rather than the source code is that you will not be able to make any modifications to it. Turbo Pascal is expensive to buy and so the compiled version may be the only option for most people.

He will also supply a copy of UKM7 on a disc for £7, which is cheaper than the download costs at 300/300, and again details will be available from Mark if you log on. He is also working on enabling *Mail232* users to download it, because *Mail232* does not have proper download facilities. This will enable people to download the software without needing further expensive software to do it.

Bulletins boards are popping up all over the place for the Atari ST, including two which I've had correspondence about. The information about these two



The Commodore modem: £49.95

boards was sent in by Harvey Mills of Slug, the ST London users group. The first board is ST London BBS which includes Slug.

Stephen Page is the sysop, and the board runs from midnight to 9am. The phone number is 01-443 2432, and speeds are 300/300 and 1200/75.

This board is purely for the ST and has downloads, etc, dedicated to it.

He also sent me some information on another BB on the ST, run by Microdeal (the software company). This is not an ST dedicated board, though it does contain a lot of ST relevant information and some IBM stuff as well. This is the Microdeal BBS, running 24 hours, on 0726 65422, 300/300 and 1200/75.

Finally it was also pointed out to me that both these boards have the public domain (free!) program *XModem*, for the ST, available for download.

Now for some answers to questions left on Prometheus, the BB where you can contact me directly. Firstly, from Mike Lang: "Is it possible to transmit high-res pictures from an Amstrad over the PSTN?"

Yes it is, Mike, but some knowledge of the serial port and memory map of the computer(s) involved will be required. A program will have to be written to perform two simple tasks, read the value of a pixel and transmit it. This is enclosed in a simple loop to include the entire screen.

In pseudo code, the transmit program would look something like this:

```
10 LOAD in screen
20 FOR loop-start to finish
30 A=PEEK (loop)
40 SEND A
50 NEXT
```

Line 10 loads in a high-res screen.
Line 20 sets up a loop, from the start of screen memory (start) to the end of screen memory (finish).
Line 30 reads the location of the screen.
Line 40 sends the vlaue of A to the serial port (modem).
Line 50 loops.

The receiving program is similar and looks something like:

```
10 FOR loop-start to finish
20 RECEIVE A
30 POKE loop, A
40 NEXT
```

Line 10 sets up the loop.
Line 20 gets a value from the serial port (modem).
Line 30 pokes that value to the screen.
Line 40 loops.

The *screen memory* is the location in the computer's memory in which the information about the screen is stored. The technical or hardware reference manual for the computer should give the screen memory addresses. In theory it should be possible to send any computer's screen (Amstrad, BBC, etc) to any other computer (Commodore, Spectrum, etc). The receive program would need adaptions as the resolutions of the screens are likely to be different.

Although it may seem quite complicated, it isn't really, a simple program does all the complicated stuff. One point, even at 1200/1200 full duplex, sending a screen does take quite a long time. I hope the above is of some use to you, Mike, and anyone else who wishes to send high-res screens over the PSTN.

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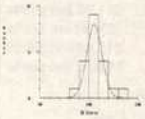

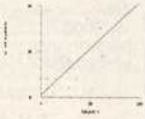

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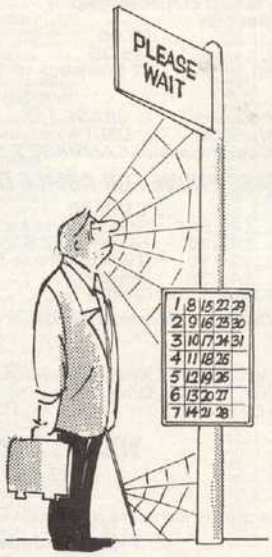

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AMSTRAD PCW 8512 never used. Bought in August, leaving country. Everything included, £520. Tel: 01-993 1928.

New Releases

Pick of the week

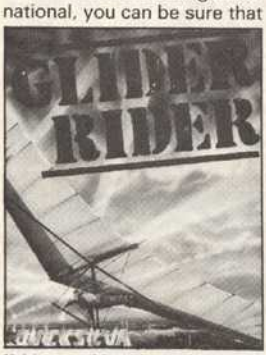
John Cook looks through this week's new arrivals

Amstrad CPC

Program *Miami Dice* **Type** Simulation **Micro** Amstrad CPC **Price** £12.99 **Supplier** Bug Byte, Argus Press Software, Victory House, Leicester Place, London WC2H 7NB.

Program *Glider Rider* **Type** Arcade **Micro** Amstrad CPC **Price** £8.95 **Supplier** Quicksilva, Argus Press Software, Victory House, Leicester Place, London WC2H 7NB.

If I was trying to knock out the HQ of a highly suspect arms manufacturing multinational, you can be sure that



I'd be packing more than one motorbike/hanglider and nine hand grenades – but still, in show biz, them's the breaks. This is the Amstrad version of the Spectrum game that has the best sound ever on the 128/Plus 2, sampled effects and all. No such luck on the CPC, but the well designed 3D graphics and smooth scrolling are still there.

Program *Colossus 4.0 Bridge* **Type** Strategy **Micro** Amstrad CPC **Price** £11.95 (tape), £14.95 (disc) **Supplier** CDS Software, CDS House, Berkett Road, Doncaster DN2 4AD.

Program *Eidolon* **Type** Arcade **Micro** Amstrad CPC **Price** £9.99 (tape), £14.99 (disc) **Supplier** Activision UK, Activision House, 23 Pond Street, Hampstead, London NW3 2PN.

Program *Streethawk* **Type** Arcade **Micro** Amstrad CPC **Price** £8.95 **Supplier** Ocean Software, 6 Central Street, Manchester M2 5NS.

Program *Lightforce* **Type** Arcade **Micro** Amstrad CPC **Price** £8.95 **Supplier** Faster Than Light, Sedgley Road East, Tipton, West Midlands DY4 7UJ.

Another Amstrad version of a Spectrum title – but wow, is it good or what?

Colourful graphics without hideous attribute problems aren't as rare on the CPC as they are on the Spectrum – so the effect isn't, initially, as mind blowing, but again, it is the graphic design that makes this program really stand out.

Bright, detailed and fast – OK, so it's autofire on, brain off (mostly) but shoot 'em ups don't usually come this good. "FTL – the company that makes games as good as its sweatshirts". Catchy, eh? I was in advertising in my last reincarnation, you know.

Atari

Program *Starquake* **Type** Arcade **Micro** Atari XL/XE **Price** £8.95 tape, £12.95 disc **Supplier** Bubble Bus, 87 High Street, Tonbridge, Kent TN9 1RX.

Atari ST

Program *Starglider* **Type** Arcade **Micro** Atari ST **Price** £24.95 **Supplier** Rainbird, 74 New Oxford Street, London WC1.

Program *Mighty Mail* **Type** Application **Micro** Atari ST **Price** £29.95 **Supplier** Microdeal, Box 68, St. Austell PL25 4YB.

If you're running a business or a club, then a mailing list is probably one of the most useful applications you can have. Now, from Micro-

deal, exclusive UK importers of Michtron ST product, comes a computerised mailing list for your ST, *Mighty Mail*.

Essentially, the program is a database type program (with numbers of records only limited by space – that's around 1,400 on a floppy, up to 65,000 on a hard disc) in which you can assign 'flags' to each file. For instance, if it was a database of computer users, you'd set flags according to which computers and peripherals were owned by individuals. *Mighty Mail* has up to 16 user defined flags.

The clever bit comes when you want to print out, say, address labels for a particular mail shot. What about if you want to hit QL owners only? Or maybe QL owners that have disc drives? Simple, you simply set the program to print out files with these flags set, and away you go.

As with all good ST software, the whole thing is run under Gem, so is fairly straightforward and easy to use – although, as with many Michtron manuals, I found the content and design a little under par for the money.

Living the American

Program *Hardball* **Type** Arcade **Micro** Spectrum **Price** £8.95 **Supplier** Advance, 17 Staple Tye, Harlow, Essex.

It's a well known fact that the Americans alone are responsible for the serious moral decline in this country.

First they bring us that American Football business with people giving each other five all over the place, messages from sponsors and that nasty amber coloured fluid with wood chips in, or something that is probably the second worst lager in the world. And now? Now, rounders.

But being Americans, they don't call it rounders. Never let it be said that the Yanks don't miss an opportunity to call a spade a manual excavating implement, given half the chance. No. They call it hardball.

Good grief. Grown men dressed in very very, silly clothes, all with genetically manipulated hands, standing around, not playing cricket. It's a scandal . . . still, at least you don't have to wear any silly clothes at all or be genetically defective to play the computer version.

Hardball on the Spectrum is an excellent version of the US Gold game that made the

Commodore 64

Program *Soldier One* **Type** Arcade **Micro** Commodore 64 **Price** £9.95 (tape), £14.95 (disc) **Supplier** American Action AB, Box 10090, 200 43 Malmö, Sweden.

It's always nice to see offerings from beyond these shores – quite often they have a flavour strikingly different from the run of the mill English games – take Ere Infomatique and Infogrammes for example.

Not so with *Soldier One* I'm afraid – it draws heavily from *Beachead I* and *II* to produce as bland a number I've seen in many a day.

It consists of seven screens which, from 'Behind the Cannon' (deserving of a Mike Yarwood award for originality, alone) to 'Enter the Island' (so

Dream

charts earlier this year. The graphics on the pitching (bowling to you) screen are almost identical to the Commodore, and although the fielding screen is relatively poor, the gamesplay is identical.

It's for one or two players, so if you're getting into the game on the telly, then this must be the one to play during the commercials.

Get down. Stay down. Rock and roll. Cool it. Nuke the Reds. Coke is it. God Bless America. Is there no hope for the youth of today? I'm convinced it's all a Channel 4/CIA conspiracy.

primitive that it would be funny, apart from the fact that you're being asked to pay £9.95 for the deal) simply fail to inspire.

State-of-the-art in Sweden doesn't seem to stretch to disabling *Restore* either.

Passable at budget price – at a tenner this is a big no-no.

Program *Herakles – The Early Years* **Type** Adventure **Micro** Commodore 64 **Price** £6.95 **Supplier** Tunstallsoft, 17 Victoria Park Road, Tunstall, Stoke-on-Trent ST6 6DX.

Program *Streethawk* **Type** Arcade **Micro** Commodore 64 **Price** £8.95 **Supplier** Ocean Software, 6 Central Street, Manchester M2 5NS.

Program *The Great Escape* **Type** Arcade/Adventure **Micro** Commodore 64 **Price** £8.95 **Supplier** Ocean Software, 6 Central Street, Manchester M2 5NS.

Program *Fist II – The Legend Continues* **Type** Arcade **Micro** Commodore 64 **Price** £9.95 **Supplier** Melbourne House, 60 High Street, Hampton Wick, Kingston upon Thames, Surrey KT1 4DB.

Program *Trap Door* **Type** Arcade **Micro** Commodore 64 **Price** £7.95 **Supplier** Piranha, 4 Little Essex Street, London WC2R 3LF.

You've seen the TV program – at last – now why not play the Commodore version of this offbeat lateral thinking title.

Lots of large colourful sprites and puzzles that'll get you thinking. A refreshing change from the kill and maim routine.

Program *The Archers* **Type** Bookware **Micro** CBM 64 **Price** £9.95 **Supplier** Mosaic Publishing, 187 Upper Street, Islington, London N1 1RQ.

The Archers. Surely one of the great British institutions? Personally I feel that anyone that hasn't experienced this wondrous parody of the English Way of Life is missing a very significant experience.

Will David and Sophie ever have a full 'adult' relationship? Isn't it about time that Brian was knocked down by a bus? When is Nelson going to make his first million? Is Jack ever going to propose to Caroline? These and other questions constantly come up in that grand-daddy of all soap operas that makes EastEnders look like a story of everyday London folk.

The problem is, whatever did Mosaic think it was doing turning this ancient cornerstone of the Establishment into a computer game?

Long memories will recall that *Adrian Mole* was a product of Mosaic/Level 9, and it is unfortunate that *The Archers* suffers from the same lack of memory problems.

The whole of the 'Bookware' concept is not that you have complete control over events, but you 'guide' a character through a particular situation after the scenario has been described, via a series of three choices.

Thus, the thing acts a little like an expert system – but immediately, on systems that are predominantly tape based, runs straight into memory problems.

In the case of *The Archers*, the solution to this problem is to have four parts to the thing – in each part you (as a trainee scriptwriter) take on the role of one of four characters and must guide them through various trials and tribulations, with a sharp weather eye on the audience ratings.

Keep the ratings high and the controller of Radio Four happy, and you progress onto the next character. If the audience declines, or the BBC deems you have done something too naughty to be put on air (like lacing David's and Sophie's drinks) you're fired.

Great though *The Archers* is (and any fan of the program will love it), memory has been wasted on average graphics, and the limited choices that remain allow you to finish the

game in an easy afternoon.

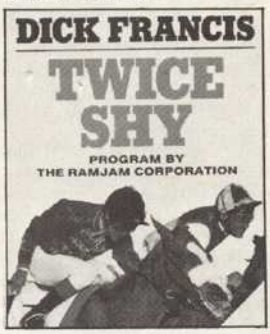
One afternoon's entertainment is just not good enough for the average person – so unless you are an avid Archers' fan, you might do better to save your tenner and spend it down The Bull on a few pints of Shires.

MSX

Program *Football Manager* **Type** Strategy **Micro** MSX **Price** £8.95 **Supplier** Endurance Games, 28 Little Park Gardens, Enfield, Middx EN2 6PG.

Spectrum

Program *Twice Shy* **Type** Adventure **Micro** Spectrum **Price** £9.95 **Supplier** Mosaic, 187 Upper Street, London N1 1RQ.



Program *Colossus 4.0 Bridge* **Type** Strategy **Micro** Spectrum **Price** £11.95 **Supplier** CDS Software, CDS House, Beckett Road, Doncaster DN2 4AD.

Program *The Great Escape* **Type** Arcade/Adventure **Micro** Spectrum **Price** £7.95 **Supplier** Ocean Software, 6 Central Street, Manchester M2 5NS.

Program *Dragon's Lair* **Type** Arcade **Micro** Spectrum **Price** £9.95 **Supplier** Software Projects, Bearbrand Complex, Allerton Road, Woolton, Liverpool L25 7SP.

Program *Streethawk* **Type** Arcade **Micro** Spectrum **Price** £7.95 **Supplier** Ocean Software, 6 Central Street, Manchester M2 5NS.

Program *Dandy* **Type** Arcade **Micro** Spectrum **Price** £7.95 **Supplier** Electric Dreams, 31 Carlton Crescent, Southampton SO1 2EH.

Pseudo-hobbitry in adventures

Suddenly I found myself in a small, damp and malodorous drungeon, facing the hideous claws and scarlet teeth of a leering banshee. To defend myself, I had nothing but an unlit torch, a sausage roll and a small length of string. Frankly, I felt extremely bored.

Don't tell Tony Bridge, but I've become rather impatient with adventure games. They seemed to show such promise once, back in the days when the first mainframe adventures appeared. In those days arcade games were still at the stage when a small square crept between two rectangles, and they called it ping-pong.

Since then, arcade games have developed almost unrecognisably, but some of those earliest adventures still sell – because the latest products are not significantly better.

Of course, there have been one or two developments; input parsers have marginally improved, and graphics have been added (to limit the imagination?). But the only really serious novelty has been the development of multi-user systems, which mean that any time you play you stand a good chance of being knocked about the head by any interfering wally who happens to be idling at the modem that afternoon pretending to be an orc.

There's something about wizards, and orcs that brings out the wally in everyone, and there's apparently something about the imagination of programmers that won't let them escape from the cliches of pseudo-hobbitry.

It was a clever person who first saw that a data array could represent a maze of rooms, and that players could have fun exploring it with manifold dangers on the way.

Why have so few programs tried to develop or enlarge this concept, though? Why, for example, do games still mostly consist of plodding from one location to another, as though the choice between N, E, S and W was an interesting one?

Why can't the locations of the array represent subtly different emotional or moral situations, through which players must pick their way with care? In early days, memory limitations meant that if a game was to last for any time, locations needed to be revisitable.

Now, though, large memories are the norm on new machines, and vaster stores are easily accessible from disc. Counting the kilobytes is no longer a major worry.

It won't be long, surely, before someone with a taste for words takes advantage of this new freedom, and fills a whole floppy with a labyrinth of words, revelling in the knowledge that they now have the space to go beyond the simplicities of orc-avoiding and warlock-zapping.

When they do I hope they have the courage to jettison the "You-are-there" convention, too. Once, this must have seemed a brilliant idea for actually involving the player in the action, but by now it's become rather limiting.

Most people must become rather weary of the computer's untruthfulness in claiming that they're in the middle of a desolate moorland, when they're actually quite snug in their own front room.

More seriously, this convention has prevented adventure games from producing any memorable characters. When "you" is at the centre of the story, this makes for a pretty bland and faceless protagonist, I'm afraid. Other characters may make their appearance, but generally as ciphers. The player hardly thinks of them except as possible helps or hindrances. At worst, they will waste your time by continually sitting down and singing, like that infuriating Thorin.

When a genuinely original piece of interactive fiction appears, we will recognise it as new and exciting because it will find a way of letting a distinct personality speak through the computer.

You will offer advice, maybe, which will sometimes be accepted and sometimes rejected. The illusion will be created of a whole, complex and probably rather difficult person – someone you can care for, worry about, and occasionally become infuriated with.

When this character arrives, we'll have the germ of a computer novel, and the program will find an audience far wider than the current band of pixie-freaks.

George Simmers

NEXT WEEK

Competition

Got an ear for a tune and a way with words? If so, you could win a copy of *The Archers*, the computer soap opera from Mosaic.

Jet Man

From David Jones, author of Ultimate's *Jet Pac* for the BBC, comes *Jet Man*, a follow-up for you to type in and play.

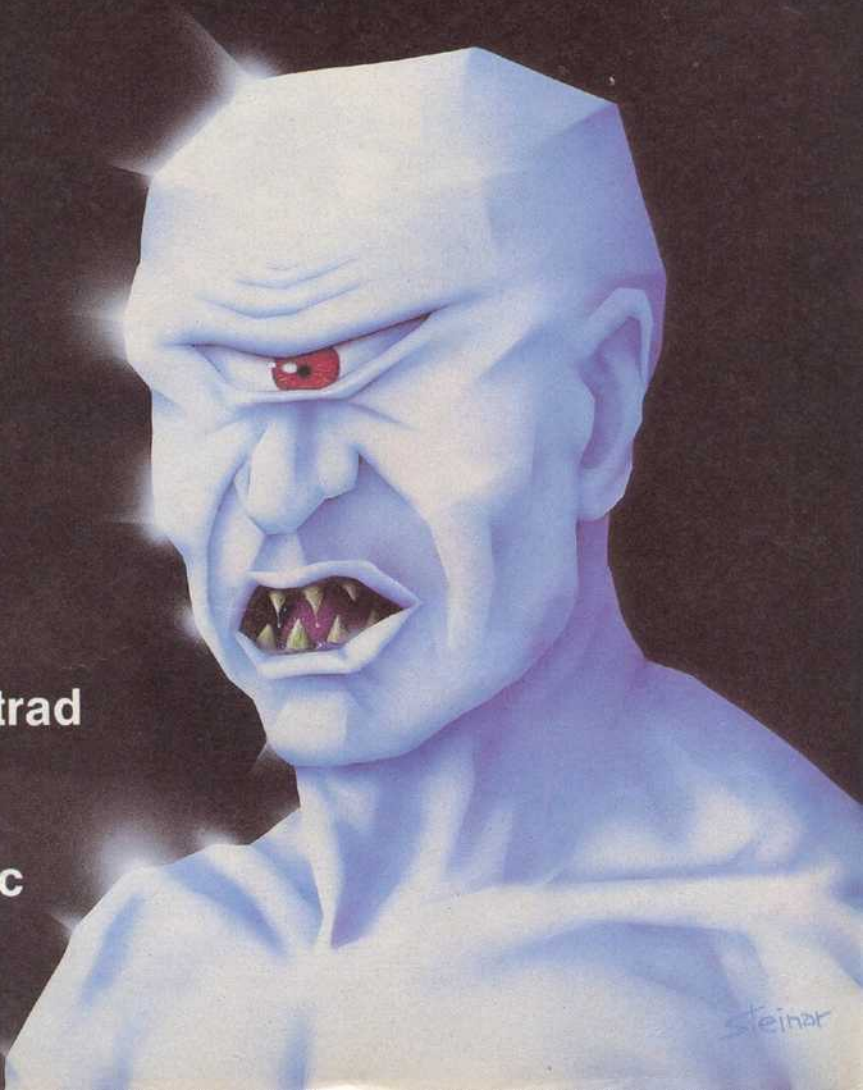
Games

Hot off the duplicating machines comes the Spectrum version of Software Projects' chart-topper *Dragon's Lair*, Red Max, the follow-up to The Last V8 from Code Masters, and more golf simulations, in the form of *Mean 18* from US company Accolade.

FROST BYTE

by

Mikro GEN



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