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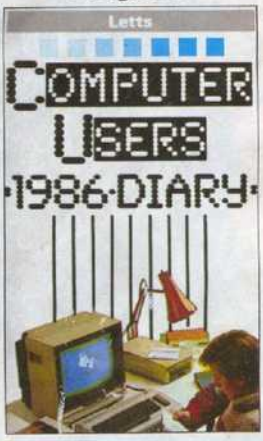
Vol 4 No 49

THIS WEEK

Wigmore's C64 Mouse

Midi Music Progress



Amstrad sets its sights on IBM

AMSTRAD is believed to be aiming to tackle IBM head-on with the launch of an IBM PC compatible machine in the Spring next year.

Much of the groundwork for Amstrad's entry into the business computer market has already been done.

The PCW 8256 word-processor model launched by Amstrad in September has established links with office equipment distributors who will be expected to take the follow-up machine.

Many of the CP/M packages being specifically designed for the 6128 and 8256 will also run on the PC. Mallard Basic, Locomotive Software's language package bundled with the 8256 has already been developed as a 16-bit version for the IBM compatible.

The model is unlikely, though, to run the IBM version of Digital's CP/M, CP/M 86. Frank Iveson, operations manager of Digital Research said, "All our discussions with Amstrad are about 8-bit machines, there is no 16-bit at all."

Locomotive has also acquired the services of Howard Fisher who was formerly in charge of Acorn's ABC product development. The ABC range, now largely dropped by Acorn, included as its flag-ship model the ABC 310, a fast IBM compatible based on the advanced 80286

continued on page 4 ▶

MICRO MAGIC

Find out if you have won an Amstrad 6128 this week or at least some special *Popular Computing Weekly* cassette labels.

Enter your personal Micro Magic number into our special computer program which is printed on page 33.

Lord of the Rings

PART 1 of Lord of the Rings, the long-awaited follow up to *The Hobbit*, is to be released this week by Melbourne House, for the Spectrum Plus.

The twin-cassette and book package costs £15.95. Full story on page 5.

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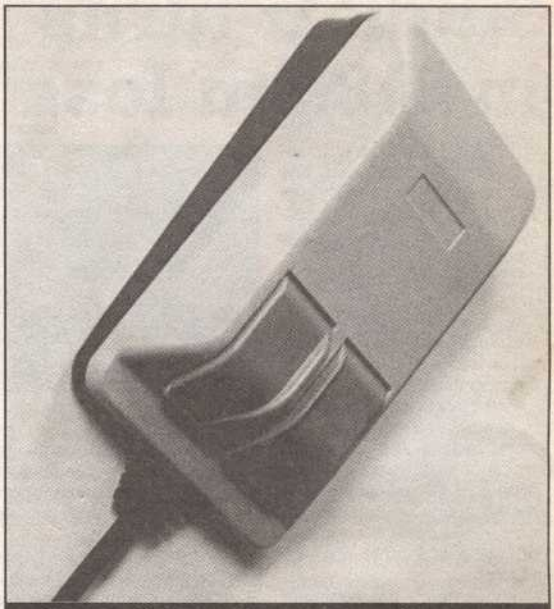

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EDITORIAL

Following the debate concerning the introduction of the Lenslok anti-piracy device on a number of prestige software products this autumn it was very encouraging to hear from Firebird that some of the expected savings are to be passed on to the software buyers themselves.

The reason Firebird's move to pass on some of the saving will be particularly welcomed is that – almost without anyone noticing – software prices have crept up over the last 18 months by almost a 100 per cent.

Remember Imagine when it first started? It was noted for its one-price policy: all its titles were £5.50. Then it became reasonable to charge higher prices depending on machine; the higher the cost of the hardware – and by association the better off the owner – the more it was acceptable to charge. So C64 software cost more than Spectrum titles, and BBC software beat the lot.

Then, first Ultimate and then Ocean/US Gold settled on the magical figure of £9.95. Since then most other software houses have followed suit and a shade under £10 is now the norm.

Yet, £10 is an awful lot to spend on a single program. How many young people can afford to fork out that kind of money once a week? Very few. And the deterrent of price alone could itself be a powerful reason to copy.

Software houses may be pricing themselves out of their livelihood.

Entertainment software prices should be pegged at roughly the same as a music cassette or record – around £6-7, because that is their perceived worth.

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Computer Trade Association Magazine of the Year

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'Having worked a lot with the Amstrad, I have found the Enterprise's 256 colours and their versatile use to be a big advantage – Ed Hickman, Mastertronic progammer

PDS370

Sinclair turns in £18.3m loss

SINCLAIR Research's financial results announced late last week show clearly the reason the company hit financial trouble during the summer.

The figures show the company made an £18.3m pre-tax loss for the year ending March 31 1985. This compares with a £14.2m profit for the previous year.

The gloomy picture results from Sinclair having to drastically reduce the estimated worth of high stocks of Spectrum and QL machines held by the company. In total Sinclair wrote down the estimated value of micros held by £22.7m.

Since March the company has taken steps to reduce its high stock levels, first through its £10m Spectrum Plus deal with Dixons, then with a dramatic price cut on the QL from £399.99 down to £199.99.

Despite the loss, however, Sinclair's turn-over continues to rise, as it has done since the company's inception. Turnover to March 31 rose to £102.8m from the previous year's £77.7m. Exports were also up; they now comprise 40% of Sinclair's sales as compared to 32%.

Sir Clive Sinclair said that profits were sharply hit by the lack of business in the final quarter (the first quarter of 1985) and the need to revalue stock downwards. He also said that the substantial provisions made by the company at the nine-month stage (at the end of 1984) proved subsequently to be inadequate in the light of the virtual cessation of deliveries to retailers in the first quarter of 1985.

Infocom's adventures out on CP/M

INFOCOM'S highly acclaimed adventures, including *The Hitchhiker's Guide to the Galaxy*, will soon be available on a much wider range of machines following UK publisher Softsel's decision to convert them to run under the CP/M operating system.

Apart from *Hitchhiker's Guide, Zork I, Seastalker, Planetfall* and *Deadline* are also to be converted. Prices have also been reduced. *Hitchhiker's Guide* will now cost £24.95 and the others £19.95.

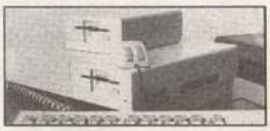
'I am certain of a huge response from users of machine like the Amstrad, BBC and Einstein," said Peter Scatchard, Softsel's marketing manager.

The conversions should be available within the next two weeks.

Sub-£1,000 Amiga?

COMMODORE'S Amiga micro, due for launch in this country at January's *Which computer?* Show (see *Popular* November 28), may yet be priced at under £1,000 for the basic model.

Commodore is apparently striving to price the Amiga, without the high resolution monitor, at between £800 and £1,000. The US price for the basic machine is $1295, which



converts directly to £877, at current exchange rates. The version with the monitor costs around $1900 (£1287).

Commodore itself would only say, however, that a price has yet to be fixed.

Program hitch for C128

IT WOULD seem that the new Commodore C128 micro is not completely software compatible with all Commodore 64 programs.

Although Commodore has advertised the C128 as being completely software compatible with the C64 in C64 Mode, it appears that some minor changes have been made to the display chip which are causing problems with a few titles.

"There are two additional registers at the end of the video chip," explained Commodore UK programmer Mark Palmer. "These were normally invisible in C64 mode, but some programs may have written over them, although they should not have. The only other problem we've come across is with some fast loaders."

One game that has been causing problems is *Frankie Goes to Hollywood*, published by Ocean and written by Denton Designs. A spokesman for Denton Designs said, "This sounds like a problem with the loader rather than the game – since as far as I know there is nothing in there that would stop the game from running normally."

Mark Palmer advised anyone having trouble running C64 games on their C128 to contact the software company first, in case an up-dated version has been prepared.

Amstrad PC

◄ continued from page 1

processor. Amstrad is expected to launch its IBM compatible micro next march – around the time that Commodore delivers its rival Amiga micro.

An Amstrad spokeswoman commented, "We have no plans for the near future to bring out any other pieces of computer equipment."

Fraud squad goes in at Medic

MEDIC Datasystems, the company which widely advertised QL peripherals such as a disc drive and a memory expansion pack, has been brought to the attention of Hampshire's Fraud Squad, apparently for non-delivery of mail-order goods.

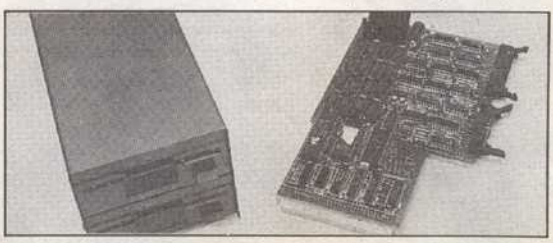
Hampshire police were first contacted by two women apparently running the company after its head, Christer Skoglund, had gone to Ireland, two months ago. The women said they were unable to get in touch with Skoglund, and had found themselves locked out of the company premises after non-payment of rent.

The Fraud Squad is now looking through all Medic's paperwork, which includes orders, cheques and letters complaining of non delivery of goods. "It is not an investigation as such," said a member of the Fraud Squad. "We won't know if the company has acted fraudulently until we have been through all the papers."

Medic's bank account has been frozen by one creditor and a winding-up order placed on the company by another.

"I would not advise anyone to order goods from the Medic at all," the Fraud Squad spokeswoman added.

Anyone who has ordered and not received goods from Medic should contact Sgt Young, Hampshire Constabulary, Orchard Lane, Alton, Hants (0420 82244).



Rings released

TOLKIEN'S *Lord of the Rings* trilogy is being published in three parts by Melbourne House. Part I released this week is based on the first book, *The Fellowship of the Ring*. The next two books, *The Two Towers* and *The Return of the King*, and their associated games are to be released next year.

At £15.95, the first game includes three adventures and a copy of the book, *The Fellowship of the Ring*. Two of the games are full scale text and graphic adventures, while the third is a 'beginner's' adventure, designed to help adventure novices and Tolkien non-afficionados become acquainted with the nature of the full games.

The parser used in the game allows much interaction between characters, and enables the player to take the part of one of four people: Frodo, Sam, Pippin or Merry. It has a vocabulary of 800 words.

Commodore, Amstrad and BBC version are all expected before Christmas at the same price, although there will be no graphics with the BBC version.

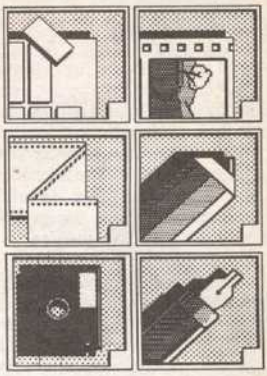
Apricot profits drop

APRICOT Computers, formerly known as ACT, has run into problems. The company's profits dropped from £3.8m in the first half of 1984 to £1.27m in the first half of this year. Added to this is a £5.1m write-down of stock, due to disappointing sales of its portable machine, leaving the company with a £4.6m loss. Apricot has also announced 120 redundancies, about 100 from UK staff and a further 20 in West Germany.

Fleet Street goes home

MIRRORSOFT has launched *Fleet Street Editor* a page layout/newsletter creation program for the BBC.

The company intends to publish *Fleet Street Editor* eventually in a number of forms. Level One includes versions for BBC, Amstrad CPCs and Commodore 128, which Mirrorsoft calls the everyday level. These versions enable users to create text in a number of fonts, select graphics to illustrate it, and arrange it on an A4 sheet, then print it out.



Level Two will be based on MSDOS, and thus run-on Apricots and IBM compatible machines. This will accept more sophisticated input and output and will directly interface with a phototypesetting system.

Level Three is designed for 68000-based machines, specifically the Amiga and Arari 520T, and will be a full photocomposition workstation.

The first *Fleet Street Editor*, the BBC version, will be released in January at a price of £39.95.

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Letters

Out of reach

Can anybody out there help me?

I have an Amstrad 6128 and a Juki 6000 printer. Everything works fine, *Tip-Ex* is a thing of the past. The secret of the microelectronic revolution is not that the things are clever but that they're so cheap.

There is however a snag: the Amstrad will only send a seven-bit character code to the printer and there is a proper pound sign and several other useful things of reach on the daisy wheel.

Does anybody make a gizmo that sets the eighth bit to the printer when sent a code (say ESC + >) and then resets it for the next character?

I know other people who have trouble getting characters with codes above 127 to their printers and some of them have gear twice as smart as mine.

Does the fix exist?

Peter Ceresole
14 Medcroft Gardens
London SW14

A cult micro

Your assertion, that the Spectrum is not a good computer, is without foundation.

Most of the micros in your survey were sawn-off business machines, sporting tiny Basics. The exceptions were the QL, Enterprise and the Spectrum.

The major ingredient of benchmarks are *For-Next* loops and, as even the Americans (who invented Basic) now agree, the programmer should be able to:

1) jump out of a for-next loop.
2) alter the value of the loop counter.
3) depend on the value of the loop counter after the loop has finished.

The Spectrum allows all three. The BBC, for instance, allows none.

As a measure of a Basic's power, you should be able to use all the micro's memory with a single direct command or a simple program, eg, 1 *Gosub* 1. Garbage collection causes problems on micros like the Amstrads and the BBC. The Spectrum simply never allows it to build up in the first place.

The Spectrum has the most efficient memory manager in the computer world.

Anyone who's learnt assembler (any chip) can instantly understand the flow of a Sinclair Basic program, and conversely, by the time the Spectrum owner has learnt Basic, s/he is half-way to learning machine-code.

Perhaps the Spectrum's greatest asset is that it is future-proof. It uses a single bank of Z80 addressable memory (bank switching has no place in future chip use). Furthermore it has a fully documented Rom which teaches by example good assembler technique.

I program on a variety of micros but develop new ideas on the Spectrum.

It is a beginner's, all-purpose machine, which will remain a cult micro for all the right reasons.

Geoffrey Wearmouth
Stoke Newington
London N17

"How did Arthur Dent and Ford Prefect get into our business software, Pemberton?"

C64 changes

It was interesting to see an article by Tim Decker (September 19) concerning changes to the C64.

I have been doing something on similar lines but have extended it to the blowing of an Eprom containing the changes and the manufacture of an adaptor to convert the 28-pin Eprom to the 24 pins of the Rom it replaces.

If anyone wants to know more perhaps they could drop me an SAE..

Robin Harvey
30 Wimborne Close
Coombe Glen
Glos

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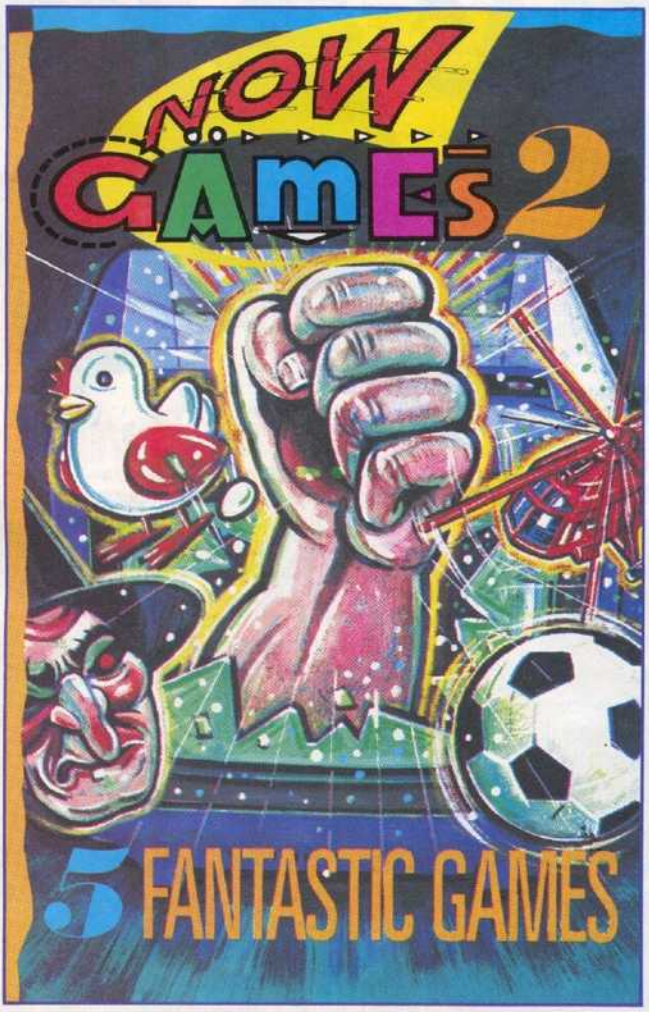

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All screenshots from the Commodore 64

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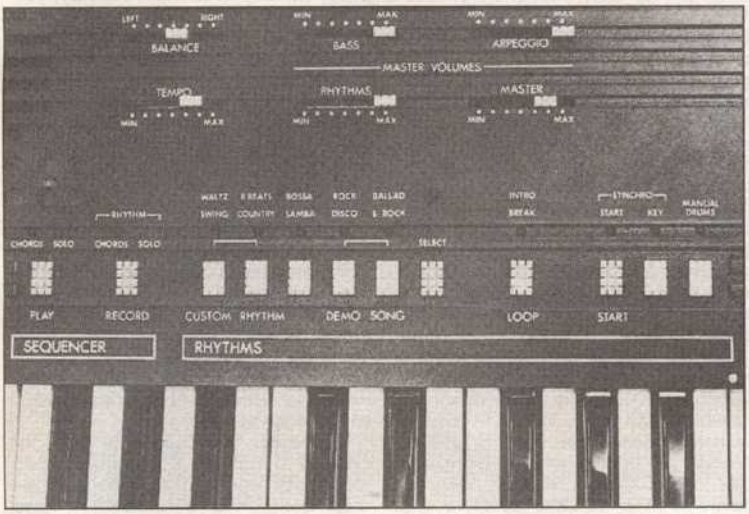
TOMY

Beyond the blip

***Graham Taylor** looks at the new sound facilities*



The noises your computer makes are becoming important. The casual blip to indicate variously, a key pressed, 'you can't do that', or 'the world has now exploded as a result of a cataclysmic atomic war', used to be enough for anyone.

Now everybody knows you beef up sales by a sizeable percentage by giving your product synthoflash multi-channel, get on down, fully-fledged music.

Real programmers don't care, of course, they occasionally moan on about such irrelevancies as music being custard on the meat of computer use, which is, of course, databases, accounts programs and number crunching as in 'let's just work out Pi to a few thousand places before lunch'.

Alan Sugar – well known computer aesthete and purist – is not, however, selling bundles and bundles of 6128s to real programmers, he's selling them to ordinary everyday people like you and I.

Music matters because a decent soundtrack on a game can give it meaning, drama and added excitement in exactly the same way that the soundtrack of a film functions. The first good example of this was *Ghostbusters* which, in its original Commodore 64 version, had a music track so good few reviewers spotted that the game wasn't really up to much – they didn't get past the funky opening credits.

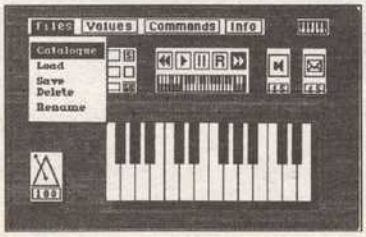
Professional musicians now use micros via the Midi communications protocol to write, arrange and record – they give (in conjunction with all kinds of clever things that have happened in music technology recently) one lone keyboard player the opportunity to manipulate sounds limited only by the imagination and perseverance. You don't necessarily even need any music skills.

The hardware companies have hardly been oblivious to these developments and it's useful to look at some of the specifications for the newer machines and see how the musical facilities of the machines are changing and growing.

Sampling

A simple idea with fundamental effects. In the long run Sampling could effectively depose the need for musicians – including orchestras – completely. It works by turning a 'real sound' like a trumpet into digital information which can then be manipulated in virtually any way you like and played back at any pitch using a keyboard.

Quite a few programs already feature sampling of a simple kind – mostly it's speech saying something like 'kkkeal the ernemych'. At some point a real person said 'kill the enemy' into a microphone a few thousand times and that information was converted using an analogue to digital device. The reason it doesn't sound too good is partly to do with 'noise' when the original recording was made and partly to do with the rate of sampling. The higher the rate the more accurate will be the sample, but more memory will be used up.



There are some simple peripherals for home micros which let you try your own sampling and a number of listings have been printed in this and other magazines which convert sound information fed in via a tape port into a digital form – the end result still sounds like a badly tuned-in radio, though.

However, things are changing, mainly thanks to Commodore. The Commodore 64 is shortly to get a Sampler with various sampling rates, clever things like harmonising and flanging and is Midi compatible. That means you will be able to play the sampled sounds from the micro on any Midi-compatible music keyboard.

The Amiga, also from Commodore, due some time early next year, promises to be the first micro with sampling of a quality equal to that of dedicated music machines built-in.

Commodore are describing it as Fairlight compatible (the Fairlight is the Cray of sampling machines) though what that means seems uncertain. Whatever else, though, the Amiga has some superb facilities. Commodore has already shown some demos of samples of such things as drums and pianos, but the crowning glory was a powerful electric guitar sound. Seeing *Smoke on the Water* played on the Qwerty keyboard is a sight I shall never forget . . .

More important still, the Amiga has the memory and hardware (four analogue-to-digital convertors) to enable polyphic sampling – that means chords.

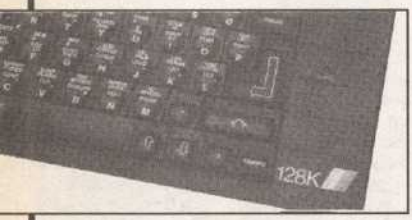
Midi

Midi is a standard. An agreement between musical instrument manufacturers over electric standards which means that the keyboard of one machine can be used to play another or a drum machine can be syncronised with another manufacturers synthesiser and so on. The important point for micro owners is that it is possible – indeed quite easy – to implement Midi on a micro.

A Midi equipped micro is, from a musician's point of view, a powerful tool. It means that the memory and programming facilities of the machine can manipulate the sounds of external Midi instruments. Thus a typical Midi software page might let you compose music on-screen, then manipulate that music in a variety of ways, somewhat like a wordprocessed document. The different music parts can then be assigned different Midi channels and played on a number of external instruments. It's really similar to the standard music packages you might find on a micro, but it lets you 'play' your music with real instruments.

The Atari ST has a Midi port as standard, but no software as yet to support it.

Even more interesting, the Spanish Spectrum 128 also has a Midi port and there is every reason to think the British version will have one too.



A Sinclair machine with Midi is an exciting prospect because it will bring this facility in as a standard on a low-cost micro and in so doing will encourage other manufacturers to follow suit. The Amiga does not have a Midi port as standard, but will have an add-on music keyboard, software and Midi package available shortly after its launch.

Synthesis

The average sound chip, found in say the Amstrad and BBC, is three channel. Each of those channels consists of an oscillator with a number wave forms and an envelope generator to define the shape of each sound (how quickly it starts and stops). This has proved adequate for the average game, creating explosions, zaps and jangly little tunes whilst you're playing.

However, people are starting to want more. The Sid chip, found in the Commodore 64, has somewhat better facilities than the norm despite having only three channels. For one thing it has a filter which makes things a lot more interesting because it dramatically increases the range of sounds available; it can also syncronise sounds and do other clever things. The Sid chip is arguably the single feature that distinguishes Commodore 64 titles from those of other machines – they sound better. In fact, some recent programming of the Sid chip, notably by Ron Hubbard, has produced very impressive electro-disco music with wailing guitars and electronic drums.

The Sid chip is leading the way to considerably more powerful on-board chips. So far the only real example is Yamaha's CX5 which has eight-channel synthesis, based on the FM system Yamaha use in the now semi-legendary DX7. The CX5 has recently been reduced in price to £299 complete with mini keyboard.

The Amiga uses a special four-channel arrangement which can create sounds of astounding complexity. The reason is that the concept of sampling extends to the creation of the waveforms themselves.

Thus instead of taking the sound information from an outside source (sampling) and representing it digitally, you can feed in the digital information directly and create the sound forms out of a string of numbers. These are then fed through the analogue to digital convertors and output through the stereo channels as sound.

Commodore are bringing out an FM sound device as an add-on to the Commodore 64 which will give it eight voices and 16 preset sounds of high quality. Later software will allow you to edit those sounds and sequence them.

The important thing about all these developments is not, primarily, the scope the micro gives and will be giving to musicians. The important thing is what it will do for games, which, despite all grumbles to the contrary, still form the main reason that people buy and continue to use micros.

The Amiga, for example, is perfectly capable of running a complete music soundtrack using voices indistinguishable from 'real instruments'. Once you've tried a flight simulator with sampled 737 engine noises that respond to the power level, you'll find a three channel buzz pretty unexciting . . .

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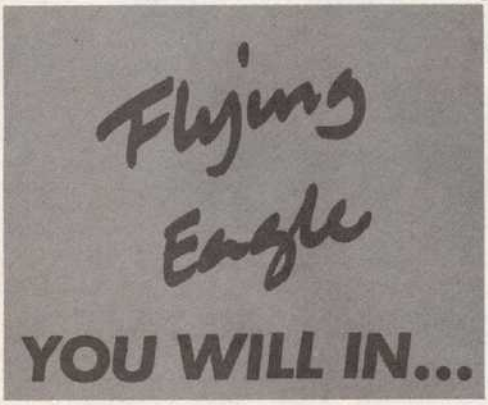

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Moving up to 16-bit

***Christina Erskine** talks to Tony (ex-Firebird) Rainbird*

A lot of people were surprised at British Telecom's first foray into the computer software market – unassuming £2.50 budget games. Firebird's product seemed rather down-market given the high tech, go ahead, image BT was promoting at the time of its privatisation.

Yet going up-market was always planned and a month ago, Rainbird was launched. This completes a trinity of software divisions, following as it does, the acquisition of Beyond.

Rainbird is being launched and established by the eponymous Tony Rainbird, who was also a co-founder of Firebird. His brief is to produce sophisticated titles on more machines, leaving budget hits on 8-bit micros to Firebird. The new division currently numbers four staff; Tony, as operations manager, Mike Anderiesz as advertisement manager and Steve Porter and Tony Gibson, project managers.

Tony is particularly interested in developing programs for the 68000 processor based micros, such as the Apple Macintosh, Atari ST, Amiga and the QL.

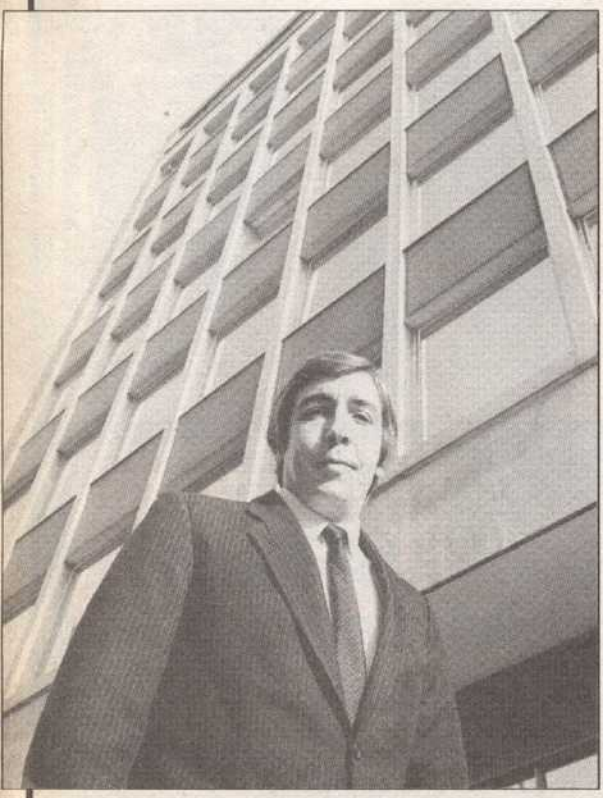
"This means we'll be doing things over a much longer time than Firebird – everything will be with a view to the future," he said.

At first sight Rainbird appears a risky, though exciting venture. After all, all the four machines named above have yet to prove themselves in this country; is it really a profitable project?

"Well, there's less risk than you might think: we want to concentrate on the processor rather than a specific machine, and of those four at least one will succeed.

"In fact, I'm expecting us to become profitable very soon because it simply isn't practical to concentrate only on developments for the future micros," he said cheerfully.

"Besides, our range is already wider than that. We have projects in progress for 8-bit micros too – the *Music System* and the *Advanced Music System* for the Commodore, and the *Art Studio* for the Spectrum. These are being converted to the Amstrad CPC micros, and the *Art Studio* also for the Commodore.



"On the adventure side, we will be releasing *The Pawn*, which is being written by Magnetic Scrolls, on the 68000 micros. Magnetic Scrolls is converting the parser used for the popular 8-bit machines as well.

"But our target for the 16-bit machines is still entertainment – we're not interested in spreadsheets and so on just yet. We will have a combination of adventure, simulation and strategy, and also what I can only really term 'megagames' – I can't think of a better word to describe them.

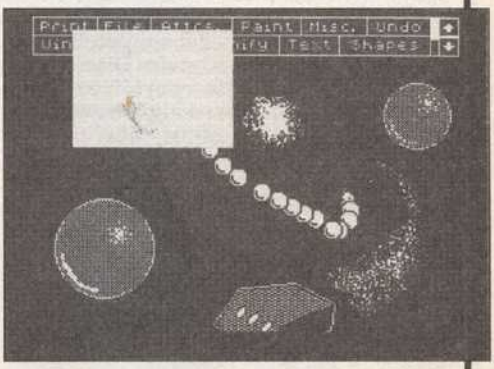
"For example, one project we have underway is *Reach For The Moon*.

It contains an icon driven 'decision maker', eight text and graphic adventures, and a vector graphic flight simulator, all in the one program."

Tony hopes that Rainbird will be able to release about one title each month in 1986.

Prices will inevitably be quite high, but according to Tony, "we'll price according to merit and, of course, the development costs."

In some respects, Firebird, Rainbird and Beyond will all be competing against each other with titles of a similar quality;



although New Information Services, the division of BT which holds all three, will ensure that the trio never, for example, bid against each other for the same licensing rights.

Rainbird will also work very closely with BT's newly set up software arm in the US, Firebird Licensees Inc.

"A good proportion of our product will be suitable for the American division, and a smaller proportion of that from Firebird and Beyond. The *Music System* is to be released over there, as is *Elite*."

Tony reckons a priority for the US is products for the Atari ST.

"They've sold between 50,000 and 60,000 over there, so it's going quite nicely. I reckon there'll be quite a few around in this country by next Christmas as well."

Plans are also afoot to export the other way – into Europe. The *Music System's* manual has been translated into German in readiness.

Rainbird is certainly a far cry from Tony's first micro venture. "I was a warehouse supervisor, writing games and setting up a label called Microgold in my spare time.

"There were five budget titles for the Vic 20, three of these games I'd written myself.

"The duplication, sticking the labels on cassettes, folding the inlay cards and selling directly to the shops was all done by me.

"Then British Telecom bought the product rights, I applied for a job to go with them, and ended up helping to launch Firebird."

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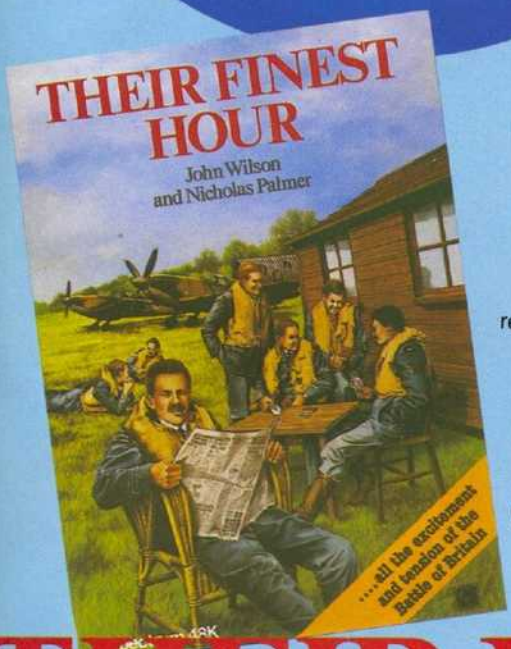
"Well, er ..."

"Right, we'd better hurry up and design a new ad before the game hits the streets on 9 December, and people start writing to and phoning Century Communications at 62-65 Chandos Place, London WC2N 4NW, Tel: 01-240 3411 and asking for copies."



THEIR FINEST HOUR

48K Spectrum

Their Finest Hour — a great strategy game simulating The Battle of Britain, by Nicholas Palmer and John Wilson. Published by Century Communications for the 48K Spectrum at £9.95.

Lukewarm

Program *Swords and Sorcery* **Micro** Spectrum 48K **Price** £9.95 **Supplier** PPS, 452 Stoney Stanton Rd, Coventry CV6 5DG.

It's been a long time coming and not surprisingly we all hoped for something special.

Opinions differ wildly on the final results. One person I know would put it at the top of his Program of the Year list without any hesitation.

I belong to the other camp. While I admire the hard work in programming *Swords and Sorcery* – and the Midas operating system which drives it – my overall reaction is lukewarm.

Perhaps I expected too much but after 18 months of promises of micro role playing, I'm sad to find the reality

less like *Dungeons and Dragons* than I'd hoped. One immediate problem is the design of the enclosed dungeon, which is rich on rooms but low on atmosphere. The succession of chambers (each with its own monster, most of which have to be fought as they don't respond to the excellent Talk option: 'Hello, Mr Snake' doesn't get you very far) is hardly inspiring and I'd question the importance of the 3D graphic when all they produce is bland line drawings that suggest nothing more than an NCP car park.

On the other hand the series of menus and submenues that guide all but your movements take no time to learn and then work very smoothly. Even so, other aspects of the display can be confusing, and at times I was unsure just what was going on. Another aspect of role playing is maintaining the logic of the game and so I couldn't see why I was allowed a map of a quarter of the level with the positions of wandering monsters marked.

So, though the game gives you the ability to train your own character in various skills, I found myself unable to empathise with him and get into the spirit of the adventure.

Perhaps the Midas system will improve as better environments become available, but at the moment it lacks the human level of playing another character.

It is all too schematic.

John Minson

Numbers

Program *Supercalc 2* **Micro** Amstrad CPC 6128/PCW 8256 (CP/M+) **Price** £49.00 **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex CM14 4EF.

I must admit that I scoffed at the idea of providing CP/M on home computers. One of my principal doubts was that a vast proportion of the software available carried enormous

price tags, explained away by the need for 'dealer support', etc, that surpassed the cost of the computers themselves. Now I have to eat my words, as Amstrad, and certain other dealers, have been remarkably successful in negotiating price cuts of important releases.

Supercalc 2 is probably one of the top five best known names in the business software world, used by companies worldwide. Now for a lowly £49 you too can run the very same thing to keep track of your home budgeting. I'm still not entirely convinced that this means that owners of the 6128 should therefore ignore the best of the cheaper software such as *Mastercalc* but it is something to think about. Perhaps more importantly it makes the 8256 even more viable as a real low-cost business system.

Unusually for a heavyweight CP/M release, it runs quite well on only one drive. Features offered include complex and very comprehensive formula options, the ability to merge several small sheets into one large one, a utility to convert files from another program into *Supercalc* readably and vice versa, calendar functions, user-defined screen formats, windowing, text look-up tables (for details not shown on screen all the time) and the ability to 'hide' selected cells.

Take my word that it can't be faulted.

Tony Kendle

A yardstick

Program *Yie Ar Kung Fu* **Micro** BBC/Electron **Price** £8.95 **Supplier** Imagine, 6 Central Street, Manchester

Not too long ago Bruce Lee, complete with flying feet and fists, was king of the silver screen. But, like many crazes, the popularity of kung fu slowly faded. The micro revolution has stimulated new interest in this most noble way of beating your opponent senseless. One fine example of a kung fu program is *Yie Ar* from Imagine.

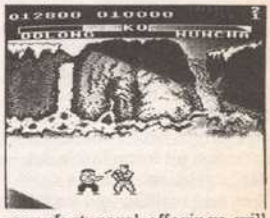
Your function in this game is to control the actions of the kung fu master Oolong. By using keyboard or joystick you clan execute over a dozen combinations of jumps, kicks and dodges.

Oolong's first opponent is a 20 stone tank named Bucha. A chest high head butt is one of this guy's favourite moves. The second opponent is rather more difficult to dispose of. In keeping with his name, Star, he launches a constant barrage of spiked missiles. Getting close to him is difficult, putting him down is even worse.

Nuncha is the third adversary, armed with two lengths of wood joined together by a chain. Once he gets that thing whirling your best bet is to keep your head down and go for the shins.

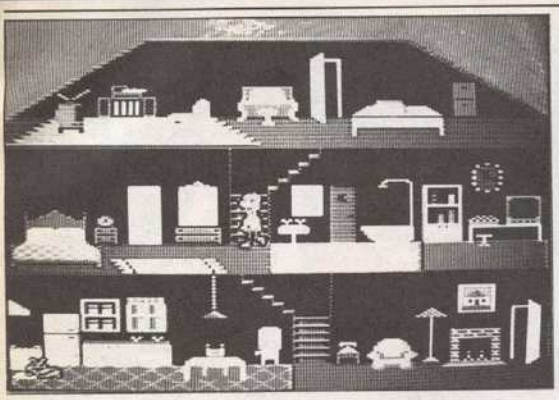
On level four your opponent is a little man with a big stick. This honourable gentleman is intent upon giving you indigestion. I reached level five and was stood waiting for my next opponent to appear when I was suddenly accosted by a swarm of flying teapots. These "feedles" were my downfall every time, no matter how I tried I just couldn't kick sufficient of them to reach the next level.

The graphics are excellent, each character's movements being tailored to his own particular discipline. This combined with the wide variety of opponents will make *Yie Ar* the yardstick to which other



manufacturers' offerings will be compared.

Hannah Frances



Little person

Program *Little Computer Person* **Micro** Commodore 64 **Price** £14.95 **Supplier** Activision, 15 Horley House, London NW1.

Dear Friend,

I am going to be very busy in my new home, so please don't think I am being rude by ignoring you, it's just that there's so many things to play and do, they will take up all my time. Please remember to keep me fed and top up my water and I'll want for nothing else.

Love,

Maxwell."

Billed as Activision's biggie for Christmas, this was how my little computer person introduced himself and his dog to me, and after moving in and having a good look around, he got down to the real business of his life – that of playing games, talking to his friends on the telephone, dancing, playing the piano and exercising.

David (*Ghostbusters*) Crane who masterminded this concept says that each little person sold will have a different name and possess his/her own particular characteristics – shy, extrovert, musical, etc.

I must admit that he is starting to bore the pants off me.

This is not a game, but an exercise in observation and however much Activision promote it as being a real live person inside your computer, it has the obvious limitation of memory and soon becomes repetitious in the extreme.

What you see on screen is a 2½ storey house with all the mod-cons, ie, TV, hi-fi, bedroom, kitchen, lounge etc, and after the initial 'moving in' sequence, which only happens the first time you load up, your little friend flutters around the house at random, ie, playing the piano which utilizes the 64's excellent sound system (and up to now I have heard five different tunes), dancing, listening to records, playing cards and typing letters to you which is his only means of communication to humans.

Using the keyboard, you can type in commands and ask him to do things which may or may not happen.

The attention to detail in the house is excellent, there is even a clock on the wall which keeps perfect time from the moment you type it in at the beginning of each session.

He will go to the toilet at regular intervals, conveniently shutting the door first and flushing of course, and makes himself meals, washes up and even cleans his teeth afterwards – a nice touch.

Playing cards with him is a bit of a let down, you get two choices of game, poker or card war, and a game of anagrams is thrown in as well, but this is not new and the card information in fact replaces the top half of the house which is quite disappointing.

My five year old daughter instantly fell in love with Max and happily played with him for a couple of hours until she lost interest with watching him go through the same sequences again and again.

Concept – totally new; presentation – brilliant; graphics and animation – superb; sound – excellent; but lasting interest? – no way. What Activision needs to do, if it's possible, is use this as a base module and introduce additional programs to it, giving your man a friend to live with or change the scenery maybe.

As it is, I'm afraid poor Max will be left to live in my daughter's bottom drawer.

Andy Moss

Boiling point

Program *Chemical Formulae* **Micro** Spectrum **Price** £9.95 **Supplier** Eclipse Software, 79 Ardrossan Gardens, Worcester Park, Surrey KT4 7AX.

I don't know about you but drawing up equations was the bane of O-level chemistry for me. All that time spent looking things up in the Periodic Table, then trying to make things balance. And I usually got it wrong.

Now Eclipse has produced a program that contains a database of elements and ions, which will produce information on formulae, valencies, structures, atomic numbers, and melting and boiling points; more importantly it will calculate formulae, so if you want to know the low down on Potassium Cyanide, just type it in.

It's mainly menu driven and despite being written in Basic works quickly enough. You have to be accurate within certain parameters when naming the elements and ions, but these are quite clearly spelled out in the instruction booklet, which also provides a brief introduction to the topic.

While hardly glossy in presentation, it is serviceable and along with the rather high price this can be excused by the program's specialist nature.

The Basic is unprotected but it's easy to rescue if inadvertently crashed.

There's little more to say. If you need such a program and don't balk at the price this should suit, despite a general lack of chrome. It's also good to see the Spectrum used for something other than alien bashing.

John Minson

Go ape

Program *The Evolution* **Micro** Spectrum **Price** £6.95 **Supplier** Ernieware, Postbus 2353, 6201 DB Maastricht, The Netherlands.

I don't know about that much heralded/bemoaned American invasion but nowadays there's a fair amount of continental software around, what with French pinball machines and Spanish boxers. Now it's Holland's chance to get in on the act and Ernieware tells us that *The Evolution* will be available over here before Christmas.

Despite its missing link cover and instructions full of talk of 'acts', this turns out to be none other than that old – and I do mean old – friend, the computerised cube. A six by four grid of numbers is 'rotated' until the original order is totally scrambled. You have to shift the rows and columns back again. Complete this within a certain number of moves and time limit and you move on to the next stage or 'act'. Difficulty levels are defined by limitations on which way the columns can move and at their hardest these make a complex task totally frustrating.

The game itself is fine if you like that sort of thing and while those of a coolly logical mind will sail through it, others will end up tearing their hair. But no way is it going to scare the producers of the big Christmas games and at the proposed price it's far too expensive for this sort of game. One can only presume that the Dutch software industry isn't so well developed as some of its European counterparts.

John Minson

F.A.B.

Program *Thunderbirds* **Micro** Spectrum **Price** £3.95 **Supplier** Firebird Software, Wellington House, Upper St Martin's Lane, London WC1.

Cue an excellent rendition of the Thunderbirds March.

"Scott. Virgil. An emergency. A team of archaeologists have crept into a crypt and gotten themselves trapped."

"Serves 'em right."

"You'll need Thunderbirds One and Two."

"Aww, no – I was gonna take TB One drag racing today."

"There's money in it. The catacombs are alive with treasure."

"And monsters too. Betcha."

"Okay, there may be the odd monster. But you can equip Thunderbird Two from the whole range of tools before you go. . . . at cost plus 25%."

"How about a pair of scissors to cut the monsters' strings?"

"Now these caverns from a giant maze. . . ."

"Bor-ring!"

"Not so. Some passages are only of a size to take one craft or another, which means you'll need to co-operate."

"I'm not co-operating with him, after last time."

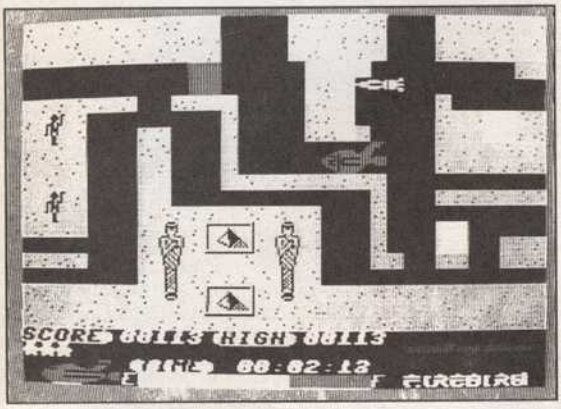
"Well, you'll have to, to clear passages by shifting blocks, most of which only one craft can do. Then there are sections with specific problems. It really takes thought."

"That rules out ole' woodenhead here."

"It's really more of an abstract problem."

If you like abstract strategies then you'll probably love it.

John Minson



Patterns

Program *Willow Pattern* **Micro** Amstrad **Price** £3.95 **Supplier** Firebird Software, Wellington House, Upper St Martin's Lane, London WC2.

Yes Grasshopper – san, it is time for you once again to defeat the forces of wickedness in the guise of Ta Jin, a wicked merchant who plans to marry

Princess Koong Shee. You enter the Mandarins' Palace, defeat his sword throwing Samurai and rescue her.

So begins the *Willow Pattern* – a pretty maze game from Firebird's budget range. Although a bit lacking on actual game play, the program makes good use of the Amstrad's colour and contains some pleasant water music to accompany the action (all water music grates after a while and this is no exception).

Still, what about the game – it's the usual maze variety with a number of nicely animated guards who throw swords at you if you venture too near, but pass them, wait till they throw the knife, dodge it, pick it up and throw it back at them.

Once the princess is rescued you have to run back through the maze and on to a boat whilst being pursued by the enraged merchant.

Not as good as some of the other silver range, but, nevetheless a pretty good Japanese take away.

Andy Moss

Rrum rrum

Program *Revs* **Micro** Commodore 64 **Price** £14.95 (tape) £17.95 (disc) **Supplier** Firebird Wellington House, Upper St. Martin's Lane, London WC2H 9DL

Whenever I hear people moan about the standard of BBC B software, I point them in the direction of that now classic from Acornsoft, *Revs*.

They invariably come back delighted or disappointed depending on what machine they own.

Now *Revs* has been converted to the Commodore 64, marketed by those bastions of private enterprise, Firebird.

The 64 version is completely faithful to the original in layout and design, and at times you'd be hard pressed to guess which machine it was running on. Admittedly, there are slight differences . . . the corners seem a touch more angular compared to the original, and the striped kerbs at the side of the track don't zoom by quite so fast, which for me removed a little bit of the drama and atmosphere. But nit picking apart, the gamesplay is virtually identical . . . and you get two tracks, Silverstone plus Brands Hatch.

A nice touch allows the use of the Commodore games paddle as a 'steering wheel' if desired . . . good thinking by somebody.

The most challenging and addictive game to hit the Commodore for quite some time. You'll love it.

John Cook

Spelling test

Program *Tas-spell* **Micro** Any Amstrad **Price** £16.50 **Supplier** Tasman Software, Springfield House, Hyde Terrace, Leeds LS2 9LN.

As a naked word processor, *Tasword/Amstrad* has recently received some extremely stiff competition with the release of Arnor's *Protext*. However, the disc versions of *Tasword* are still the best value all-round package for the Amstrad range with mail merge facilities, the *Tasprint* text-redefiner program, and now *Tas-spell*.

Tas-spell is self evidently a spelling checker and it is only accessible via a menu option of the disc releases of *Tasword* itself, it is not a 'stand alone' package. The program contains a disc with a dictionary of over two thousand words, all with the English spelling and 45K free for you to add ones of your own.

It is extremely simple to use, reading through the text currently held in memory comparing it with the dictionary data. Unrecognised words are highlighted, in context, and you are given options to *Ignore* the word, or *Change* the word that you habitually mis-spell.

An irritating feature is that it constantly throws up names, initials, etc. You would be well advised to add your name and address to the dictionary. Also it makes contextual mistakes such as 'its over their' but that is a flaw with all spell checkers and no reflection on *Tasword*.

On the whole, though, it is an essential utility for anyone who has to produce important and correctly spelt documents.

Tony Kendle

MS-2000 Mouse

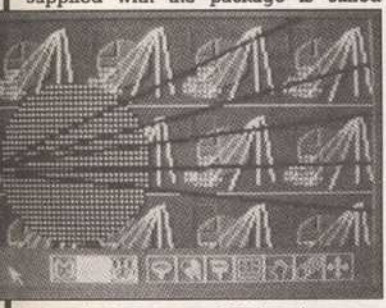
Hardware *MS-2000 Mouse* **Micro** CBM 64 **Price** £69.90 **Supplier** Wigmore House, 32 Savile Row, London W1X 1AG.

As mouse/icon/window systems become more popular, no doubt prompted by the success of the Apple Macintosh's operating system, more and more micro owners will discover the joys of using these user-friendly devices. The MS-2000, based on a product for the BBC-B, is by far the best such package for the CBM 64 so far.

The MS-2000 is comfortably small, wedge shaped, and has two oblong click switches on its nose. It connects to the 64's joystick port by a standard 9-pin D-plug. Beneath the mouse is the non-slip rubber ball, and inside, the opto-electric circuitry which gives a movement resolution of 100 points to the inch.

Like all mouse systems, the MS-2000 works by being rolled over a flat table surface, and moves a control symbol over a selection of command icons on the screen.

In the case of the MS-2000, the software supplied with the package is called



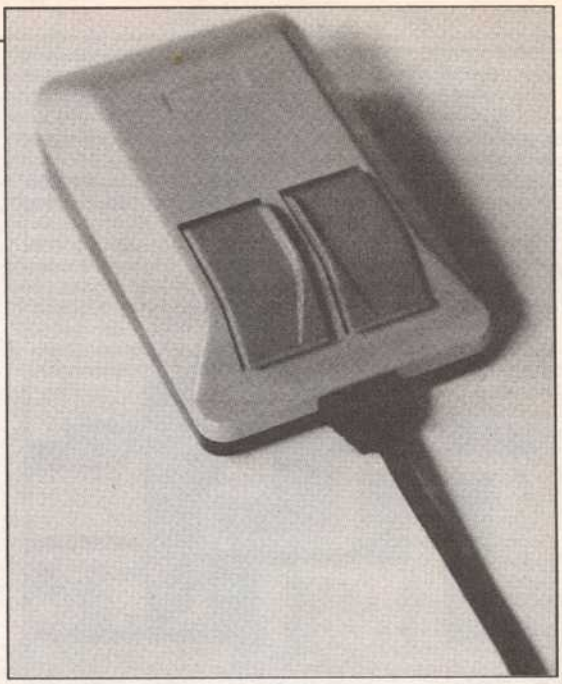
Line, Circle, Square and Fill routines

Cheese. It's a hi-res design program which enables you to utilise the powerful graphics abilities of the 64 without recourse to the awful CBM Basic.

On loading the software from cassette, you are presented with a blank screen with a selection of icons at the bottom. Rolling the mouse around moves a pencil-shaped cursor over the design area. This cursor changes to an arrow shape when it passes over the command icons. A numerical readout on the bottom left of the screen gives you the cursor's precise location, making exact positioning easy.

To select a function, you merely place the cursor over the desired icon, click the right-hand mouse button, and move the cursor to the drawing screen. I must say that the software is brilliantly programmed: all the graphics facilities are fast, smooth and precise. There are three lots of icons to select from, the two hidden pages are brought up by clicking on the mouse icon.

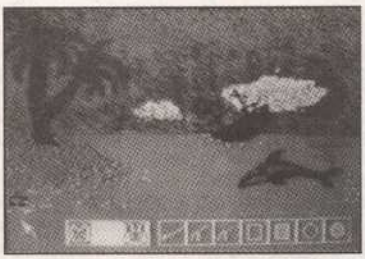
Graphics facilities include freehand draw, which is very fast and responsive; dotted line draw; straight line draw, which allows you to set a point, extend a line from it and click the button again to draw the line; a very fast circle/ellipse facility, open or filled; equally good square/rectangle drawing; paint, a very fast and efficient fill routine; three selectable "pencil" thicknesses; an excellent "airbrush", which allows you to "spray" large areas, either in solid colour or in any one of a selection of 32 patterns.



You have a choice of all 16 colours for the cursor or paint, (unlike some packages, such as the Datex Mouse, which limit you to two colours on the screen at any time). Your current drawing colour is indicated by the border colour.

Should you make a mistake at any time – for instance, allowing a fill routine to leak all over the screen by leaving a box open – you can delete the last action by clicking on the "Cat" icon.

Having drawn your basic design or pattern, there are various high-level options to modify it. You can define a box and copy the contents all over the screen; set up a line of symmetry so that patterns reflect in the horizontal, vertical, or diagonal axis, or any combination; you can change the background colour; scroll the drawing area to get at extra space; zoom in on a small area to make corrections to individual pixels;



Free-hand Draw, Pencil and Airbrush

print your design out in black-and-white on an MPS printer; and save it to cassette.

If it isn't already obvious from the description of the facilities, I must say that I found the MS-2000 wonderful to use; the hardware is excellent, the software technically stunning and well-thought out, and the graphic effects you can achieve, even if you have no real drawing skill, are extremely impressive.

Three minor quibbles, two of which should be dealt with by forthcoming software releases from Wigmore House. Firstly, given the notorious slowness of Commodore cassettes, a disc option would have been nice; apparently both disc and Rom versions of the software are on the way.

Secondly, the lack of any text imput option makes the *Cheese* software more suitable for pure graphic design, rather than for applications such as drawing bar charts or circuit diagrams. Forthcoming software will allow you to use a number of text fonts in your designs. There are also hints of other, more general, Windows/Icons/Mouse software to come.

Thirdly, unlike some packages such as Koala Pad, it's not possible to remove the icon menu from the screen to leave the bare graphics. However, this is a minor point since the menu takes up very little space.

The MS-2000 package, which comes with a helpful, clear manual, is certainly one of my favourite 64-compatible products ever.

As a bonus, powering up the micro with the mouse's left hand button held down allows you to use the MS-2000 as a "joystick"!

If you can possibly scrape the money together, do so – letting your creativity flow through the mouse is much more satisfying than zapping any number of aliens.

Chris Jenkins

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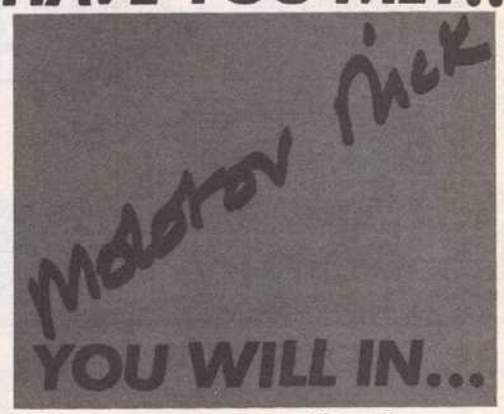

ROCK'N WRESTLE

Data Protection

by Jonathan Darks

The Data Protection Act is in the process of being implemented and in the next few months all large organisations using computers to store personal information about individuals will be required to register with the Data Protection Registrar . . . Right?

Wrong! Under the strict terms of the act, anyone holding such information should register, and anyone contravening the act may find themselves facing a fine of up to £2000, or in some cases an unlimited fine! There are very few exemptions to the act and even a simple mailing list or membership list will not escape if it contains such information as occupation, home telephone number, date of birth, etc.

All right, most impressive, but what relevance does it have to the home computer user? In my own case using a computer to record patient details, the need for confidentiality are obvious, but what about the enthusiast who keeps a membership/mailing list for the local squash club or amateur dramatic society? Not very exciting information perhaps but it will probably contain at least a name and address, home, and perhaps work telephone numbers (and therefore a clue to occupation), and maybe even a date of birth. There are very few exemptions to registration. Quote: Personal data held by an individual and "concerned only with the management of his personal, family or household affairs or held by him only for recreational purposes". Such users are unconditionally exempt from registration.

Examples of conditional exemption include, Quote: "data held by unincorporated members clubs relating only to club members" and "data held for distribution of articles or information to the data subjects and consisting *only* of their names and addresses". Note, these last two are examples of *conditional* exemption. The data subjects concerned must be consulted as to whether they object to the information being kept and must be consulted before any data is disclosed.

How then best to protect the data and, of course, yourself? Basic security is fairly obvious, don't leave discs or tapes lying around and, proud as you may be of your latest all singing and mail-merging database, be careful who you demonstrate it to! Remember also that computer *generated* material is just as important so tear up those yards of printout before you chuck them in the wastepaper bin. Finally, to make sure you are not the subject of that fascinating test case that's bound to occur before long, you can obtain full details of the act in (it is claimed) simplified form, for free, from: The Data Protection Registrar, Department 1, Springfield House, Water Lane, Wilmslow, Cheshire SK9 5AX.

Program

And now my own own small contribution to data protection. The following program, designed for use with a disc drive, will scramble ASCII text or program files, including Tasword files, and will cope with most files containing mixed numeric and string data produced by the Amstrad (not Masterfile files unfortunately, as these are in binary format). It accepts a code word of any length (letters only, these are converted to upper case for processing) and for the more paranoid this need not appear on screen. Then the ASCII value of each letter in turn is added to that of successive characters in the data file cycling repeatedly through the codeword until the whole file is scrambled. To unscramble the process is reversed. Written in Basic, the scrambling process takes a short while to complete, but any number of files can be selected for sequential processing.

```
30 REM  title & initialise
40 '
50 MODE 0:CLS:PRINT:PRINT:PRINT:PRINT:PRINT STRING$(20,"*");:PRINT"*
   GARBAGE      *";:PRINT"*  data scrambler  *";:PRINT"* ";CHR$(164);"
J.F.Danks,MCMXC *";:PRINT STRING$(20,"*");:FOR c=1 TO 2000:NEXT
60 OPENOUT"dummy":MEMORY HIMEM-1:CLOSEOUT:CLS:MODE 2:WINDOW #1,1,80,20
,25:WINDOW #0,1,80,1,20:DIM info$(2000):DEFINT a-z
70 '
80 REM  options
90 '
100 PRINT#1,"OPTIONS : A- Encode files  B- Decode files"
110 a$=INKEY$:IF a$=""THEN 110
120 IF a$="a" OR a$="A" THEN t$=" scramble":option=1
130 IF a$="b" OR a$="B" THEN t$=" decode":option=2
140 PRINT#1,"Do you wish the codeword revealed?(y/n)"
150 a$=INKEY$:IF a$=""THEN 150
160 IF a$="y" OR a$="Y" THEN hide=1 ELSE hide=0
170 CAT:CLS#1:PRINT #1,"GARBAGE - select files to"+t$:n=1
180 INPUT #1, a$(n):IF a$(n)="" THEN 240
190 PRINT#1,"Another?  ENTER to proceed, or input further file name."
200 n=n+1:limit=n-1:GOTO 180
210 '
220 REM  enter codeword, check for validity & read into array 'code(c)
'
230 '
240 CLS#1:PRINT#1,"INPUT CODEWORD (any length)";
250 IF hide=1 THEN 280
260 PRINT#1,":WAIT FOR TONE!":SOUND 2,0,1:PRINT#1:FOR x=1 TO 2000:NEXT
270 PRINT#1,"THIS WILL NOT APPEAR ON SCREEN !":PRINT#1:FOR x=1 TO 2000
:NEXT:PRINT#1,"(So make sure you get it right !)":FOR x=1 TO 2000:NEXT
:BORDER 1:PRINT CHR$(7):PRINT CHR$(21):INPUT code$:PRINT CHR$(6):CLS#1
:GOTO 290
280 INPUT #1, code$:CLS#1
290 code$=UPPER$(code$)
300 FOR n=1 TO LEN(code$):IF ASC(MID$(code$,n,1))>90 OR ASC(MID$(code$
,n,1))<65 THEN PRINT#1,"CODEWORD INVALID":FOR I= 1 TO 1500:NEXT x:GOTO
 240
310 NEXT n
320 c=LEN(code$):DIM code(c)
330 FOR x=1 TO c:code(x)=ASC(MID$(code$,x,1)):NEXT x
340 '
350 REM  read in file for processing into array 'info$(2000)'
360 '
370 FOR file=1 TO limit:z=0
380 OPENIN a$(file)
390 WHILE EOF=0
400 z=z+1:LINE INPUT #9,info$(z)
410 WEND
420 CLOSEIN
430 '
440 REM  select  subroutine for scrambling or decoding
450 '
460 PRINT#1,"PROCESSING "+a$(file)+" -PLEASE WAIT."
470 IF option=1 THEN GOSUB 630 ELSE GOSUB 710
480 '
490 REM  select suitable filetype name & save file
500 '
510 name=INSTR(a$(file),".")
520 IF option=1 THEN filetype$="&BB" ELSE filetype$="&BC"
530 name$=LEFT$(a$(file),name)+filetype$
540 OPENOUT name$
550 FOR n=1 TO z
560 PRINT#9,info$(n):NEXT n
570 CLOSEOUT
580 NEXT file
590 PRINT CHR$(7):PRINT#1:PRINT#1,"PROCESSING COMPLETE!":STOP
600 '
610 REM  subroutine for scrambling
620 '
630 FOR n=0 TO z:q=1:FOR a=1 TO LEN(info$(n)):z$=MID$(info$(n),a,1):IF
 ASC(z$)<32 THEN 660
640 number=ASC(z$)+code(q):IF number>255 THEN number=number-223
650 z$=CHR$(number)
660 MID$(info$(n),a,1)=z$:q=q+1:IF q>c THEN q=1
670 NEXT a:NEXT n:RETURN
680 '
690 REM  subroutine for decoding
700 '
710 FOR n=0 TO z:q=1:FOR a=1 TO LEN(info$(n)):z$=MID$(info$(n),a,1):IF
 ASC(z$)<32 THEN 740
720 number=ASC(z$)-code(q):IF number<32 THEN number=number+223
730 z$=CHR$(number)
740 MID$(info$(n),a,1)=z$:q=q+1:IF q>c THEN q=1
750 NEXT a:NEXT n:RETURN
```

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PICA text emphasised
True descenders on jpg etc.
ELITE mode gives 96 columns
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ENLARGED mode
SUBSCRIPTS and SUPERSCRIPTS
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54 London Street, Reading RG1 4SQ.

WILBUR

by T A Bartley

Part Two of the adventures of Wilbur, our 100% machine code, multi screen arcade game. This week, use the new loader program to enter the data into memory and save with *Save ""Code 41886, 2892*. More to look forward to next week.

In the meantime, if all that typing is getting to you, write to T A Bartley enclosing £2.00 for a copy of the game on tape: 81 Beverley Cres, Grimsby, South Humberside DN32 9TJ.

```
1000 REM     DECIMAL LOADER
1010 POKE 23609,50
1015  PRINT "START TYPING IN DUMP ONE NUMBER AT A
TIME, EACH NUMBER FOLLOWED BY RETURN"
1020 LET T=0: FOR N=41886 TO 44777
1030 INPUT J: PRINT N,J: POKE N,J: LET T=T+J: NEXT N
1040  IF T<>321152  THEN  PRINT "DATA ERROR: CHECK
 LISTING"
1050  IF T=321152 THEN  PRINT "DATA OK"
```

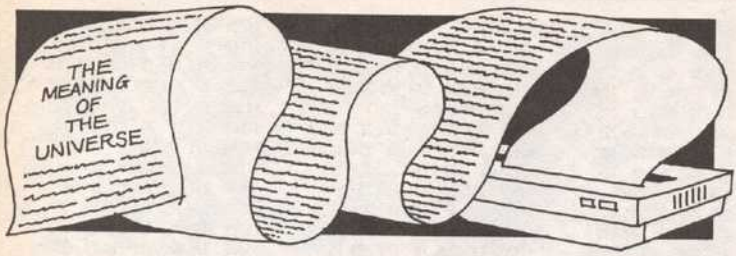
```
41886  0   0   0   0   3   0
41892  0   0   0   0   0   0
41898  0   0   0   0   0   0
41904  0   0   0   6   16  221
41910  110 14  221 102 15  124
41916  198 32  93  87  26  182
41922  119 35  19  26  182 119
41928  43  205 207 163 16  237
41934  201 37  124 230 7   254
41940  7   192 125 214 32  111
41946  230 224 254 224 200 124
41952  198 8   103 201 221 110
41958  0   221 102 1   205 33
41964  164 221 117 14  221 116
41970  15  201 17  144 226 229
41976  111 38  0   41  41  41
41982  25  235 225 201 229 197
41988  213 245 6   8   26  119
41994  37  19  16  250 241 209
42000  193 225 201 33  0   64
42006  17  1   64  1   255 23
42012  175 119 237 176 201 125
42018  15  15  15  230 31  111
42024  124 7   7   230 224 181
42030  111 124 230 7   8   124
42036  15  15  15  230 24  246
42042  64  103 8   180 103 201
42048  124 230 24  203 47  203
42054  47  203 47  198 88  103
42060  201 6   16  221 94  19
42066  221 86  20  221 110 14
42072  221 102 15  58  170 163
42078  167 32  14  26  203 65
42084  40  10  166 40  6   62
42090  1   50  166 163 201 26
42096  182 119 35  19  58  170
42102  163 167 32  14  26  203
42108  65  40  10  166 40  6
42114  62  1   50  166 163 201
42120  26  182 119 43  205 207
42126  163 19  16  201 201 205
42132  228 163 6   16  221 110
42138  14  221 102 15  221 94
42144  19  221 86  20  26  47
42150  166 119 19  35  26  47
42156  166 119 19  43  205 207
```

```
42162  163 16  239 201 17  0
42168  96  33  0   64  1   0
42174  24  237 176 201 58  128
42180  162 167 200 71  221 33
42186  129 162 197 221 203 7
42192  70  40  25  221 110 0
42198  221 102 1   221 94  3
42204  221 86  4   205 2   164
42210  221 110 5   221 102 6
42216  221 126 2   119 1   8
42222  0   221 9   193 16  216
42228  201 58  128 162 167 200
42234  71  221 33  129 162 197
42240  221 126 3   205 244 163
42246  221 115 3   221 114 4
42252  221 110 0   221 102 1
42258  205 64  164 221 117 5
42264  221 116 6   1   8   0
42270  221 9   193 16  220 201
42276  58  128 162 167 200 33
42282  159 163 58  120 92  190
42288  200 33  158 163 126 167
42294  40  2   53  201 54  5
42300  58  128 162 71  221 33
42306  129 162 197 221 203 7
42312  70  40  13  221 110 5
42318  221 102 6   126 238 64
42324  119 205 97  165 1   8
42330  0   221 9   193 16  228
42336  201 221 110 0   221 102
42342  1   221 94  3   221 86
42348  4   6   8   26  47  166
42354  40  20  217 205 85  171
42360  217 205 141 165 205 21
42366  171 33  169 163 53  221
42372  54  7   0   201 37  19
42378  16  227 201 221 110 5
42384  221 102 6   62  7   119
42390  221 110 0   221 102 1
42396  221 94  3   221 86  4
42402  6   8   26  47  166 119
42408  37  19  16  248 201 58
42414  122 163 167 200 71  221
42420  33  124 163 221 126 0
42426  205 244 163 221 115 0
42432  221 114 1   221 35  221
```

```
42438  35  221 110 0   221 102
42444  1   205 2   164 205 64
42450  164 58  123 163 119 16
42456  234 201 58  122 163 167
42462  200 71  221 33  124 163
42468  221 94  0   221 86  1
42474  197 213 221 35  221 35
42480  221 110 0   221 102 1
42486  205 254 165 209 193 16
42492  237 201 6   8   26  47
42498  166 40  6   62  1   50
42504  166 163 201 37  19  16
42510  241 201 62  61  205 244
42516  163 58  157 163 167 200
42522  71  33  128 87  205 2
42528  164 35  16  250 201 6
42534  6   17  52  166 33  128
42540  90  26  119 35  19  16
42546  250 201 65  70  67  69
42552  68  66  58  201 162 167
42558  200 71  221 33  202 162
42564  197 33  96  204 221 126
42570  2   167 40  7   71  17
42576  32  0   25  16  253 221
42582  117 11  221 116 12  221
42588  70  8   25  16  253 221
42594  117 16  221 116 17  1
42600  22  0   221 9   193 16
42606  213 201 58  201 162 167
42612  200 33  164 163 58  120
42618  92  190 200 119 221 33
42624  201 162 221 70  0   221
42630  35  197 205 241 168 221
42636  203 7   70  40  6   205
42642  147 164 205 161 166 167
42648  1   22  0   221 9   193
42654  16  231 201 205 6   169
42660  205 32  169 221 203 7
42666  78  32  18  221 203 7
42672  86  32  12  221 203 7
42678  94  32  11  221 203 7
42684  102 32  5   205 204 166
42690  24  3   205 10  167 221
42696  203 7   134 201 221 126
42702  1   221 203 7   78  40
42708  15  221 190 4   48  23
```

```
42714  221 203 7   214 221 203
42720  7   142 24  13  221 190
42726  5   56  8   221 203 7
42732  206 221 203 7   150 221
42738  203 7   78  221 70  3
42744  40  8   221 53  1   16
42750  251 195 102 167 221 52
42756  1   16  251 195 102 167
42762  221 126 0   221 203 7
42768  94  40  27  221 190 4
42774  32  56  221 126 13  167
42780  32  50  221 203 7   230
42786  221 203 7   158 205 6
42792  169 205 45  169 24  56
42798  221 190 5   32  29  221
42804  126 13  60  221 190 8
42810  32  20  221 203 7   222
42816  221 203 7   166 221 54
42822  13  0   205 6   169 205
42828  45  169 24  22  221 126
42834  13  167 32  16  62  8
42840  221 203 7   94  40  2
42846  237 68  221 134 0   221
42852  119 0   205 228 163 14
42858  1   205 77  164 205 114
42864  167 201 221 110 14  221
42870  102 15  124 230 7   254
42876  7   62  2   40  1   60
42882  8   205 64  164 229 17
42888  32  0   221 203 7   94
42894  40  14  221 126 5   214
42900  8   221 190 0   56  28
42906  35  35  24  17  221 203
42912  7   102 40  37  221 126
42918  4   198 7   221 190 0
42924  48  8   43  62  7   119
42930  167 237 82  119 221 126
42936  6   225 119 35  17  33
42942  0   119 167 237 82  8
42948  61  200 8   24  241 221
42954  203 7   78  40  13  221
42960  126 5   214 8   221 190
42966  1   56  221 25  24  18
42972  221 126 4   198 8   221
42978  190 1   48  208 8   71
42984  8   167 237 82  16  251
```

42990 62 7 119 35 119 24
42996 193 221 33 215 161 221
43002 70 0 221 35 197 221
43008 126 4 205 244 163 221
43014 110 0 221 102 1 229
43020 205 58 168 225 205 28
43026 168 1 6 0 221 9
43032 193 16 227 201 205 64
43038 164 221 126 3 8 221
43044 70 2 221 126 5 229
43050 119 35 16 252 225 17
43056 32 0 167 237 82 8
43062 61 200 24 232 221 70
43068 3 197 229 221 70 2
43074 205 2 164 35 16 250
43080 225 125 254 32 48 5
43086 1 32 7 24 3 1
43092 32 0 167 237 66 193
43098 16 225 201 33 102 169
43104 17 134 163 1 22 0
43110 237 176 201 58 110 162
43116 167 200 33 165 163 58
43122 120 92 190 200 119 33
43128 127 162 126 167 40 2
43134 53 201 54 5 33 113
43140 162 58 126 162 134 205
43146 244 163 221 33 114 162
43152 58 110 162 71 197 221
43158 110 0 221 102 1 221
43164 70 2 205 2 164 35
43170 16 250 221 35 221 35
43176 221 35 193 16 231 33
43182 126 162 58 111 162 167
43188 32 10 126 254 3 32
43194 3 54 0 201 52 201
43200 126 167 40 2 53 201
43206 54 3 201 58 110 162
43212 167 200 71 221 33 114
43218 162 197 221 110 0 221
43224 102 1 205 64 164 58
43230 112 162 221 70 2 119
43236 35 16 252 221 35 221
43242 35 221 35 193 16 227
43248 201 221 126 21 221 190
43254 10 40 4 221 52 21
43260 201 221 54 21 0 221
43266 203 7 198 201 221 203
43272 7 126 40 6 221 203
43278 7 94 32 7 221 110
43284 11 221 102 12 201 221
43290 110 16 221 102 17 201
43296 221 126 9 221 190 18
43302 40 5 221 52 18 24
43308 7 221 52 13 221 54
43314 18 0 221 126 8 167
43320 40 37 221 190 13 32
43326 4 221 54 13 0 221
43332 203 7 94 40 9 221
43338 126 13 198 253 237 68
43344 24 3 221 126 13 167
43350 40 7 1 32 0 9
43356 61 32 252 221 117 19
43362 221 116 20 201 8 143
43368 2 0 0 0 71 128
43374 4 0 3 32 203 0
43380 0 0 160 203 0 32
43386 203 0 221 33 113 174
43392 58 213 161 167 40 8
43398 71 17 11 0 221 25
43404 16 252 221 110 0 221
43410 102 1 1 151 0 17
43416 215 161 237 176 221 110
43422 2 221 102 3 126 50
43428 110 162 167 40 8 1
43434 16 0 17 110 162 237
43440 176 221 110 4 221 102
43446 5 126 50 128 162 167
43452 40 18 35 71 17 129
43458 162 197 1 4 0 237
43464 176 19 19 19 19 193
43470 16 243 221 110 6 221
43476 102 7 126 50 201 162
43482 167 40 23 35 71 17
43488 202 162 197 1 11 0
43494 237 176 229 213 225 17
43500 11 0 25 235 225 193
43506 16 238 221 110 8 221
43512 102 9 126 50 122 163
43518 167 40 8 17 122 163
43524 1 12 0 237 176 221
43530 126 10 50 162 163 201
43536 33 33 161 58 213 161
43542 167 40 7 71 17 9
43548 0 25 16 253 235 201
43554 33 128 162 6 9 197
43560 1 8 0 9 26 119
43566 19 193 16 245 201 33
43572 128 162 6 9 197 1
43578 8 0 9 126 18 19
43584 193 16 245 201 33 33
43590 161 17 34 161 1 179
43596 0 62 1 119 237 176
43602 201 0 0 0 0 0
43608 0 0 0 0 0 0
43614 0 0 0 0 0 83
43620 67 79 82 69 72 73
43626 83 67 79 82 69 80
43632 79 84 73 79 78 33
43638 135 87 34 83 170 6
43644 5 33 99 170 205 190
43650 170 33 147 87 34 83
43656 170 6 7 33 104 170
43662 205 190 170 33 224 87
43668 34 83 170 6 6 33
43674 111 170 205 190 170 201
43680 33 141 87 34 83 170
43686 6 5 33 85 170 205
43692 190 170 201 33 155 87
43698 34 83 170 6 5 33
43704 90 170 205 190 170 201
43710 197 229 126 205 244 163
43716 42 83 170 205 2 164
43722 33 83 170 52 225 35
43728 193 16 235 201 17 85
43734 170 42 95 170 24 6
43740 17 90 170 42 97 170
43746 1 240 216 205 10 171
43752 18 19 1 24 252 205
43758 10 171 18 19 1 156
43764 255 205 10 171 18 19
43770 1 246 255 205 10 171
43776 18 19 1 255 255 205
43782 10 171 18 201 175 9
43788 60 56 252 237 66 61
43794 198 48 201 175 221 110
43800 3 221 102 4 1 144
43806 226 237 66 1 248 255
43812 9 60 56 252 61 254
43818 16 32 5 1 10 0
43824 24 21 254 12 32 5
43830 1 25 0 24 12 254
43836 14 32 5 1 50 0
43842 24 3 1 100 0 42
43848 95 170 9 34 95 170
43854 205 212 170 205 160 170
43860 201 22 16 14 128 24
43866 7 62 16 211 254 238
43872 24 65 16 254 175 211
43878 254 66 16 254 13 32
43884 238 201 33 0 88 126
43890 254 7 32 2 54 0
43896 35 124 254 91 32 243
43902 201 42 28 172 70 35
43908 62 63 164 103 34 28
43914 172 120 201 230 7 135
43920 95 22 0 33 30 172
43926 25 94 35 86 235 233
43932 6 24 197 205 150 173
43938 205 70 173 193 16 246
43944 201 6 24 197 205 125
43950 173 205 9 173 205 150
43956 173 205 70 173 193 16
43962 240 201 6 32 197 205
43968 125 173 205 9 173 193
43974 16 246 201 6 24 197
43980 205 125 173 205 9 173
43986 205 46 172 205 203 172
43992 193 16 240 201 6 24
43998 197 205 46 172 205 203
44004 172 193 16 246 201 6
44010 24 197 205 126 172 205
44016 151 172 205 46 172 205
44022 203 172 193 16 240 201
44028 6 32 197 205 126 172
44034 205 151 172 193 16 246
44040 201 6 24 197 205 126
44046 172 205 151 172 205 150
44052 173 205 70 173 193 16
44058 240 201 0 0 156 171
44064 169 171 188 171 201 171
44070 220 171 233 171 252 171
44076 9 172 17 224 87 6
44082 23 197 213 6 8 197
44088 213 98 123 167 32 8
44094 46 224 122 214 8 103
44100 24 3 214 32 111 1
44106 32 0 237 176 209 21
44112 193 16 228 209 123 214
44118 32 95 254 224 32 4
44124 122 214 8 87 193 16
44130 208 33 0 71 205 106
44136 172 201 6 8 197 229
44142 229 209 19 175 119 1
44148 31 0 237 176 225 37
44154 193 16 239 201 6 192
44160 17 0 64 213 225 35
44166 197 1 31 0 26 237
44172 176 43 54 0 35 35
44178 19 193 16 240 201 62
44184 8 1 0 0 17 32
44190 24 33 223 87 245 213
44196 17 32 0 4 25 16
44202 253 65 4 35 16 253
44208 209 66 241 197 6 0
44214 75 13 213 229 209 0
44220 213 35 237 176 18 225
44226 17 32 0 25 209 193
44232 16 233 201 62 8 1
44238 0 0 17 32 24 33
44244 223 87 21 245 120 130
44250 71 121 131 79 213 17
44256 32 0 4 25 16 253
44262 65 35 16 253 209 66
44268 197 6 0 75 213 229
44274 17 32 0 167 237 82
44280 209 229 237 184 225 209
44286 193 120 16 234 241 67
44292 119 43 16 252 201 62
44298 8 1 0 0 17 32
44304 24 33 223 87 21 245
44310 120 130 71 121 131 79
44316 213 17 32 0 4 25
44322 16 253 65 35 16 253
44328 209 66 4 241 197 6
44334 0 75 13 213 229 209
44340 0 213 43 237 184 18
44346 225 17 32 0 167 237
44352 82 209 193 16 231 201
44358 62 8 1 0 0 17
44364 32 24 33 223 87 245
44370 213 17 32 0 4 25
44376 16 253 65 4 35 16
44382 253 209 66 5 197 6
44388 0 75 213 229 17 32
44394 0 25 209 229 237 176
44400 225 209 193 120 16 236
44406 241 67 119 35 16 252
44412 201 6 192 17 255 87
44418 213 225 43 197 1 31
44424 0 26 237 184 35 54
44430 0 43 43 27 193 16
44436 240 201 17 0 64 6
44442 23 197 213 6 8 197
44448 213 98 123 254 224 32
44454 8 46 0 122 198 8
44460 103 24 3 198 32 111
44466 1 32 0 237 176 209
44472 20 193 16 227 209 123
44478 198 32 95 167 32 4
44484 122 198 8 87 193 16
44490 208 33 224 87 205 106
44496 172 201 33 231 90 58
44502 171 163 167 200 71 62
44508 2 197 6 5 119 35
44514 16 252 60 193 16 245
44520 58 171 163 71 33 231
44526 87 197 229 6 5 62
44532 60 205 244 163 225 205
44538 2 164 35 16 250 193
44544 16 237 201 58 171 163
44550 167 200 58 170 163 167
44556 32 20 62 253 219 254
44562 230 31 87 62 191 219
44568 254 162 254 31 200 62
44574 1 50 170 163 33 172
44580 163 58 120 92 190 200
44586 119 33 173 163 126 167
44592 40 2 53 201 54 5
44598 42 175 163 229 6 8
44604 126 203 39 119 37 16
44610 252 167 225 192 45 34
44616 175 163 58 174 163 61
44622 40 4 50 174 163 201
44628 62 5 50 174 163 58
44634 171 163 61 50 171 163
44640 33 230 87 79 135 135
44646 129 133 111 34 175 163
44652 175 50 170 163 201 144
44658 175 16 176 247 175 77
44664 175 23 176 255 85 176
44670 221 176 196 176 29 176
44676 231 176 255 54 177 174
44682 177 145 177 243 176 184
44688 177 255 248 177 128 178
44694 95 178 192 177 138 178
44700 255 228 178 112 179 75
44706 179 150 178 128 179 255
44712 183 179 57 180 48 180
44718 138 179 58 180 29 142
44724 180 18 181 245 180 64
44730 180 25 181 58 82 181
44736 198 181 185 181 26 181
44742 205 181 29 24 182 158
44748 182 121 182 213 181 165
44754 182 15 253 182 149 183
44760 124 183 175 182 156 183
44766 58 231 183 127 184 90
44772 184 164 183 137 184 60



Random words

by Richard Hoptroff

This week, the remainder of the listing for the Random Words program, plus the program notes.

Program Notes

In Line 260, the name of the main character is defined. Then, in the *Data* statements at the end, the computer is taught all the other words it knows. If a printer is to be used, the word *Remark* should be removed from Line 280.

Your own personal words can be added to the *Data* file, but the variables in Lines 10 and 40 should be altered to total thus:

NCj – Number of conjunctives (and, but. . .), minus one. These must appear at the beginning of the *Data* block, at Line 2000.

NSj – Number of subjective nouns (I, he, she. . . .), minus one. The *Data* for these starts at Line 3000.

NPs – Number of personal pronouns (my, his, her. . .), minus one. This *Data* starts at Line 4000.

NNb – Number of "numbers" (the, a), minus one. This *Data* is on Line 4990.

NNn – Number of nouns (brussel sprout, size nine chucker boot, kitchen sink. . .), minus one, This *Data* starts at Line 5000.

NVb – Number of past tense verbs (attacked, nibbled. . .), minus one. This *Data* starts at Line 6000.

NAj – Number of adjectives (homicidal, half eaten. . .), minus one. This *Data* starts at Line 7000.

NCm – Number of comments (then, meanwhile. . .), minus one. This *Data* starts at Line 8000.

NAv – Number of adverbs (frantically, suddenly. . .), minus one. This *Data* starts at Line 9000.

NQt – Number of quotes ("Go jump in a lake", "You smell like a. . ."), minus one. This *Data* starts at Line 10000.

NPh – Number of verbs of phrases of the form noun, verb, adjective, (wasn't tried hard to be. . .), minus one. This *Data* starts at Line 11000.

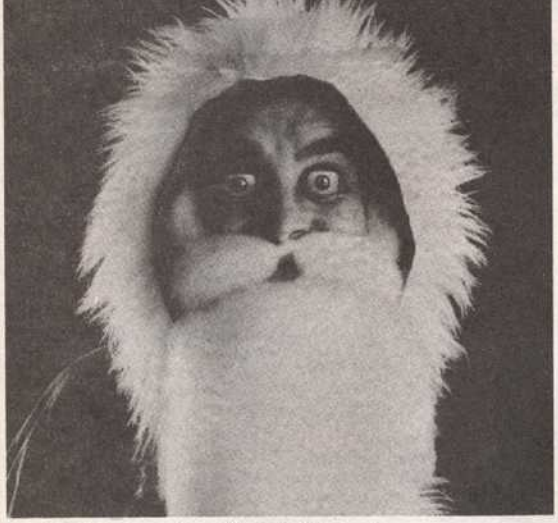
NWy – Number of reasons why (for tax reasons, for the money. . .), minus one. This *Data* comes last at Line 12000.

Ltn – Number of verbs that require a noun after them, minus one. These verbs must be at the beginning of the verb *Data*.

Snn – Number of quotes needing nouns to finish them, minus one. These quotes must be at the beginning of the quote *Data*.

```
1210 fin$='.'
1220 END DEFine
1240 DEFine PROCedure Caps(hjk$)
1250 LOCal fred$,ted
1260 IF Cpf=0 :ans$=hjk$:RETurn
1300 ted = CODE(hjk$(1)):Cpf=0:IF ted>95:ted=ted-32
1310 IF LEN(hjk$)=1:ans$=CHR$(ted):RETurn
1320 fred$=CHR$(ted) & hjk$(2 TO)
1340 ans$=fred$
1360 END DEFine
1400 DEFine PROCedure An(hlk$)
1410 IF anf=0:Caps(hlk$):PRINT !ans$!:RETurn
1420 anf=0:IF hlk$(1) INSTR "aeiouAEIOU":Caps("an"):PRINT !ans$!h
lk$!:RETurn
1430 Caps("a"):PRINT !ans$!hlk$!
1440 END DEFine
1500 DEFine PROCedure Numb
1510 Caps(NB$(RND(NNb))):IF ans$='a' :anf=1:RETurn
1511 IF ans$='A':anf=1:Cpf=1:RETurn
1520 PRINT !ans$!
1530 END DEFine
2000 DATA 'before','when','and then','but','but','after','and','a
nd','because'
3000 DATA 'I','I','Neil Kinnock','Mrs Thatcher','he','she','it','
they'
4000 DATA 'his','her','my','the','my','the','its','their','its'
4990 DATA 'the','the','a'
5000 DATA 'cowpat','chain saw','kitchen sink','parrot','Sloane Ra
nger','sperm whale','slice of lemon','wheelbarrow','brick','evang
elist'
5001 DATA 'prawn coctail','iceberg','oyster','eucalyptus tree','c
amel','Chesterfield sofa','puff of smoke','spring onion','kitten'
,'pebble'
5002 DATA 'gnome','dingo','size nine chucker boot','duckbilled pl
atypus','unknown globule','mug of hot tea','cloud','coffee percol
ator','pot of earwax','penguin'
5003 DATA 'lump','four letter word','vodka martini','teddy bear',
'philosopher','poet','bolt of lightning','broardsword','black hol
e','glass of water'
5004 DATA 'glob of mucus','brussel sprout','bottom','elephant','p
int of Guiness','wooden leg','aspidistra','moron','shady characte
r','punk'
5005 DATA 'termite','sewage works','lizard'
6000 DATA 'ate','made love to','changed into','fell into','superg
lued it to','nibbled','perplexed','created','peuked up','crucifie
d'
6001 DATA 'dispised','exorcised','reassurected','dessicated','stol
e','crashed into','escaped from','shot','looked like','smelled'
6002 DATA 'felt like','turned into','found','searched in vain for
','force fed it with','got carried to','graffitied all over','ser
enaded','hit it with','groped'
6003 DATA 'stole','gave him','aggravated','pretended to be','gave
 birth to'
6500 DATA 'snorted','started a revolution','dissappeared','tempora
rily died','went on holiday','went to jail',"tried to, but couldn
't",'refused','appeared'
7000 DATA 'green spotted','blubbery','furry','deranged','Yiddish'
,'alcoholic','enormous','docile','three-legged','angry'
7001 DATA 'horrendous','mutant','perilous','magic','ubiquitous','
dead','red striped','lumpy','infamous','stupid'
7002 DATA 'blind drunk','existential','primeval','fat','ravenous'
,'intellegent','rather large','bouncy','retarded','extremely tall
'
7003 DATA 'tempramental','smelly','carniverous','unshaven','hairy
','manically depressed','little','motionless','grotesque','becuse
d'
7004 DATA 'electronic','stylish','homocidal','nauseous','massive'
,'greasy','dirty'
8000 DATA 'then','next','soon','meanwhile','still','however'
9000 DATA 'visciously','quickly','slowly','accidently','publicly'
,'suddenly','frantically','temporarily','half-heartedly'
10000 DATA 'Go and seek the','Go and mutate into a',"Go and find
everything but the","I've got a","I wish I was a','You must slay
a','You look like a','Go stick your head in a',"I've just seen th
e","Ooh, I could really handle a'
10001 DATA 'You smell like a'
10500 DATA 'Go jump in a lake.','Go forth and multiply.',"Mine's
bigger than yours.","Pog off.","Tum te tum te tum'
11000 DATA 'was','tried hard to be',"wasn't",'looked','felt',"did
n't like being","pretended to be","knew what it was like to be'
12000 DATA ', for tax reasons.',', being in one of those moods.',
' - but then, why not?',', for the money.'," - who wouldn't?"
```

CHRISTMAS MICROFAIR



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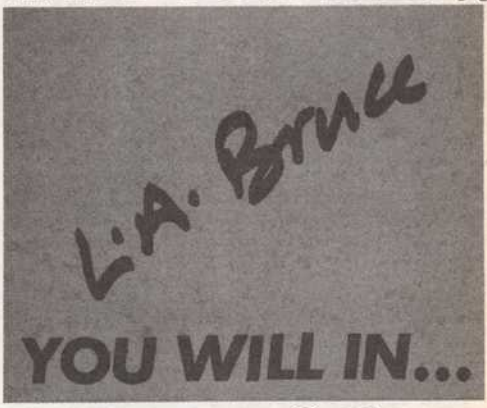
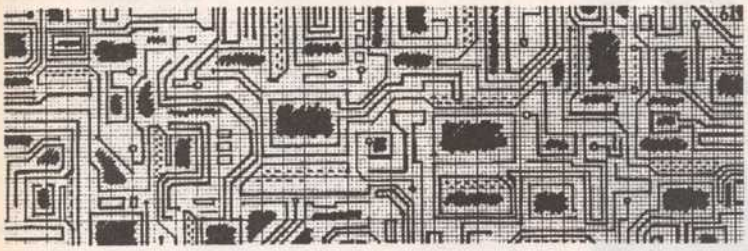


YOU WILL IN...

ROCK'N WRESTLE



BANK STATEMENT

by John Clarke

This is a program for the BBC B to provide a quick and easy Bank Statement. To run it, you'll need a disc drive (although it can be adapted for tape) and possession of an Epson (or Epson compatible) printer would be useful.

To start the program up from scratch, load and run it, type 'W' (for Write), press "1" and enter the details as requested – don't forget to Save all the entries when you have finished. Typing 'P' (for Print) will give you a copy printout from any part of the statement.

You are limited to 99 entries, which should last most people for a year more or less. But by altering the two lines 630 and 760 to 'BANK2' instead of 'BANK1' then a continuation statement is available, and continues over as many discs as required.

```
  10 REM BANK STATEMENT
  20 REM by John Clarke
  30 REM Emax3:D$max8:M$max10:Dmax8:Cmax8:
     Bmax8
  40 @%=&0002020E
  50 *TV255,0
  60 MODE7:VDU15
  70 PRINT''"WHITE letters on BLUE....A"''
     "BLACK letters on YELLOW....B"''"CHO
OSE by PRESSING the letter required":A$=GET
     $:IF A$<>"A" AND A$<>"B" THEN 60
  80 IF A$="A" THEN MODE3:VDU19,0,4,0,0,0
  90 IF A$="B" THEN MODE3:VDU19,1,0,0,0,0,
     19,0,3,0,0,0
 100 DIMT$(99),M$(99),D(99),C(99),B(99),P$
     (10)
 110 I%=99
 120 PROCload
 130 ON ERROR GOTO 140
 140 IF ERR=17 THEN 170
 150 IF ERR=222 THEN CLOSE£0:GOTO 170
 160 ON ERROR REPORT:PRINT" error line
     "ERL:GOTO170
 170 PROCheading
 180 REPEAT
 190 PROCinfo
 200 UNTIL FALSE
 210 END
 220     DEFPROCheading:VDU28,0,1,79,0
 230 PRINT"No";TAB(6)"DATE"TAB(17)
     "METHOD"TAB(37)"DEBIT"TAB(50)"CREDIT
     "TAB(63)" BALANCE"
 240 ENDPROC
 250     DEFPROCinfo
 260 PROCbase_window
 270 PRINT" L-LOAD   S-SAVE   P-PRINT
     R-READ   W-WRITE   E-END   A-ALTER an
     entry"
 280 A$=GET$:IF A$="R"PROCread
 290 IF A$="W"PROCwrite
 300 IF A$="S"PROCsave
 310 IF A$="P"PROCprint
 320 IF A$="L"PROCload
 330 IF A$="A"PROCalter
 340 IF A$="E" CLEAR:MODE7:PRINTTAB(14,8)
     ;"STOPPED":FOR L= 11 TO 12:PRINTTAB(8,
L);CHR$141;CHR$134;"HAVE YOU SWAPPED":NEXT:
     FOR L= 15 TO 16:PRINTTAB(9,L);CHR$141
;CHR$131;"HAVE YOU SAVED":NEXT:END
 350 ENDPROC
 360     DEFPROCtop_window
 370 VDU28,0,21,79,2:CLS
 380 ENDPROC
 390     DEFPROCbase_window
 400 VDU28,0,24,79,22:CLS
 410 ENDPROC
 420     DEFPROCread
 430 PROCheading
 440 PROCtop_window
 450 FOR N%=1 TO I%
 460 N$=STR$(N%)
 470 PRINTTAB(0);N$TAB(6);T$(N%)TAB(18);M$
     (N%),D(N%),C(N%),B(N%)
 480 NEXT N%
 490 ENDPROC
 500     DEFPROCwrite
 510 PROCheading
 520 PROCbase_window
 530 CLS:INPUT"Item no:"I%:CLS
 540 PROCentry_date:CLS
 550 PROCentry_method:CLS
 560 PROCentry_debit:CLS
 570 PROCentry_credit:CLS
 580 IF I%=1 B(1)=C(1)
 590 IF I%>1 B=B(I%-1):B(I%)=G-D(I%)+C(I%)
 600 PROCread
 610 ENDPROC
 620     DEFPROCsave
 630 X=OPENOUT"BANK1"
 640 *FX200,1
 650 FORN%=1 TO I%
 660 PRINT£X,T$(N%),M$(N%),D(N%),C(N%),B(N%)
 670 N$=STR$(N%)
 680 PRINTTAB(0);N$TAB(6);T$(N%)TAB(18);M$
     (N%),D(N%),C(N%),B(N%)
 690 NEXT N%
 700 CLOSE£X
 710 *FX200,0
 720 ENDPROC
 730     DEFPROCload
 740 *FX200,1
 750 PROCtop_window
 760 Y=OPENIN"BANK1"
 770 N%=1
 780 REPEAT
 790 INPUT£Y,T$(N%),M$(N%),D(N%),C(N%),B(N%)
 800 N$=STR$(N%)
 810 PRINTTAB(0);N$TAB(6);T$(N%)TAB(17);
     M$(N%),D(N%),C(N%),B(N%)
 820 N%=N%+1
 830 UNTIL EOF£Y:I%=N%-1
 840 CLOSE£Y
 850 *FX200,0
 860 ENDPROC
 870     DEF PROCentry_date
 880 LOCAL A$,B$
 890 PRINT"DATE:";
 900 A$=""
 910 B$=GET$
 920 IF B$=CHR$13 THEN T$(I%)=A$:PRINT:
     ENDPROC
```

```
 930 IF B$=CHR$13 AND A$<>"" THEN =A$
 940 IF B$=CHR$127 AND A$<>"" THEN VDU127:
     A$=LEFT$(A$,LEN(A$)-1):GOTO910
 950 IF LEN(A$)=6 THEN VDU7:GOTO910
 960 A$=A$+B$:PRINT B$;:GOTO 910
 970     DEF PROCentry_method
 980 LOCAL A$,B$,C$
 990 PRINT"METHOD:";
1000 A$="":C$="      "
1010 B$=GET$
1020 IF LEN(A$)<5 AND B$=CHR$13 THEN
     A$=A$+C$:M$(I%)=A$:ENDPROC
1030 IF B$=CHR$13 THEN M$(I%)=A$:ENDPROC
1040 IF B$=CHR$13 AND A$<>"" THEN =A$
1050 IF B$=CHR$127 AND A$<>"" THEN VDU127:A$
     =LEFT$(A$,LEN(A$)-1):GOTO1010
1060 IF LEN(A$)=10 THEN VDU7:GOTO1010
1070 A$=A$+B$:PRINT B$;:GOTO 1010
1080     DEF PROCentry_debit
1090 LOCAL A$,B$
1100PRINT"DEBIT:";
1110 A$=""
1120 B$=GET$
1130 IF B$=CHR$13 THEN D(I%)=VAL(A$):
     PRINT:ENDPROC
1140 IF B$=CHR$13 AND A$<>"" THEN =A$
1150 IF B$=CHR$127 AND A$<>"" THEN VDU127:
     A$=LEFT$(A$,LEN(A$)-1):GOTO1120
1160 IF LEN(A$)=7 THEN VDU7:GOTO1120
1170 A$=A$+B$:PRINT B$;:GOTO 1120
1180     DEF PROCentry_credit
1190 LOCAL A$,B$
1200 PRINT"CREDIT:";
1210 A$=""
1220 B$=GET$
1230 IF B$=CHR$13 THEN C(I%)=VAL(A$):
     PRINT:ENDPROC
1240 IF B$=CHR$13 AND A$<>"" THEN =A$
1250 IF B$=CHR$127 AND A$<>"" THEN VDU127:
     A$=LEFT$(A$,LEN(A$)-1):GOTO1220
1260 IF LEN(A$)=7 THEN VDU7:GOTO1220
1270 A$=A$+B$:PRINT B$;:GOTO 1220
1280     DEFPROCprint
1290 LOCAL N%,P%
1300 PROCbase_window
1310 CLS:INPUT"Print from which no:-";P%
1320 VDU2:*FX200,1
1330 PRINT"No:"TAB(8)"DATE"TAB(18)"METHOD"
     TAB(37)"DEBIT"TAB(50)"CREDIT"TAB(63)"
BALANCE":PRINT''
1340 FOR N%=P% TO I%
1350 N$=STR$(N%)
1360 PRINTTAB(0);N$TAB(8);T$(N%)TAB(18);
     M$(N%),D(N%),C(N%),B(N%)
1370 NEXT N%
1380 VDU3:*FX200,0:ENDPROC
1390 DEFPROCalter
1400 S%=I%
1410 PROCbase_window
1420 PRINT"Altering an item Y/N"
1430 A$=GET$:IF A$="N" THEN ENDPROC
1440 PROCwrite
1450 FOR N=I% TO S%-1
1460 I%=I%+1
1470 B(I%)=B(I%-1)+C(I%)-D(I%)
1480 NEXT
1490 PROCread
1500 ENDPROC
```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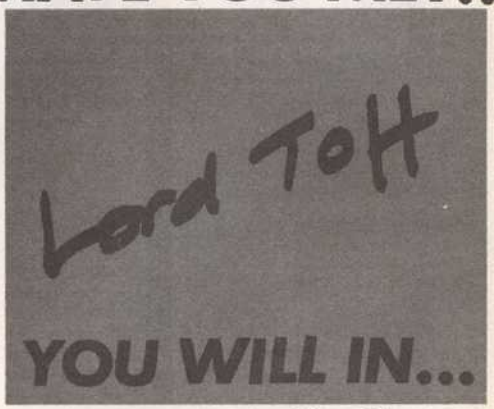

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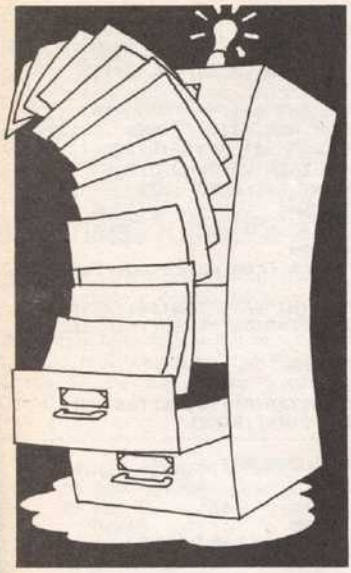

VERSATILE FILE

by Wail Sabbagh

This week we present your final helping of listing plus the rest of the explanation of the Primary Menu Two.

4) Load/open a new data file
This option simply moves the user to Central menu (primary menu 1).

5) Sort data file
This option will sort the data file in ascending order, upon any field.

6) Save data file
This option will save any changes or addition to tape or disc. If these changes are not saved then any update will not be recorded. This option offers the following choices:

1) Format new disc.
2) Validate disc.
3) View disc directory.
4) Save file to disc.
5) Save file to tape.
6) Return to control menu.

7) Edit menu
This menu is concerned with updating the current data file. Records can be edited or deleted, the file name can be changed, file pointers can be zeroed (deleting the file while maintaining current structure), and the password can be changed or deleted (before any chance is made to the state of the password, the old password must be stated). This option offers the following:

1) Edit one record.
2) Delete one record.
3) Reset file pointer.
4) Change file name.
5) Change delete password.
6) Return to control menu.

8) File data
This option will explain to new users the structure of the file, it also displays the current status of Com File. It gives the following information:

1) Name of file.
2) Number and name of fields in file.
3) Number of records used so far.
4) Amount reserved for current data file.
5) Type of protection to data file.

9) Calculation menu
This option allows the user to numerically manipulate the data file. It must be noted at this point that non numeric fields are given the value 0. This option offers the following:

1) Find total and average of a field.
2) Add/delete a percentage – most useful in cases such as adding 15% VAT to all items in file. This option moves to a second level secondary menu which offers addition or subtraction.
3) +, –,/,* a constant to a field. A constant value can be added, subtracted, etc to all records. This option also moves to a second level menu offering addition, subtraction, multiplication or division.

10) Exit com file
End the session and returns to Basic.

```
10070 PRINT:PRINTR
10080 PRINT:PRINT
10090 PRINT"■PRESS■ A KEY TO RETURN TO CONTROL MENU"
10100 GET A$
10110 IF A$=""THEN 10100
10115 IF RO=1THEN RO=0:GOTO 1000
10120 GOTO 2000
11000 REM******EDIT MENU******
11010 PRINT"□□■OPTION■ 7",,"■EDIT FILE■"
11020 PRINT"----------------------------------------";
11030 PRINT:PRINT:PRINT
11040 PRINT"      ■PLEASE SELECT CHOICE■"
11050 PRINT
11060 PRINT"       ■1■ EDIT 1 RECORD":PRINT
11070 PRINT"       ■2■ DELETE 1 RECORD":PRINT
11080 PRINT"       ■3■ RESET FILE POINTER":PRINT
11090 PRINT"       ■4■ CHANGE FILE NAME":PRINT
11100 PRINT"       ■5■ CHANGE/DELETE PASS WORD":PRINT
11110 PRINT"       ■6■ RETURN TO CONTROL MENU"
11120 GET A$
11130 IF A$<"1" OR A$>"6"THEN 11120
11140 A=VAL(A$)
11150 ON A GOTO 11200,11400,11600,11700,11800,2000
11200 REM**EDIT 1 RECORD**
11210 PRINT"□"
11220 PRINT"  >,■ENTER RECORD NO TO EDIT■.<"
11230 PRINT:PRINT:INPUT"■D,■";R
11240 IF R>CO OR R<1THEN ER$="RECORD NO OUT OF RANGE":GOTO 10000
11250 PRINT"□□■RECORD NO■ ";R
11260 PRINT"----------"
11270 FOR X=1TONF
11280 PRINT"■";X;"■    ■";F$(X);"■   ";A$(R,X)
11290 NEXT X
11300 PRINT"----------------------------------------"
11310 INPUT"■ENTER■ NO TO EDIT / 0 TO MENU";F:IF F=0THEN 11000
11320 IF F<1ORF>NF THEN GOTO 11250
11330 PRINT:PRINT"  ";A$(R,F)
11340 PRINT"□";:IF LEN(A$(R,F))>38 THEN PRINT"□□"
11350 INPUT A$(R,F)
11360 GOTO 11250
11400 REM**DELETE 1 RECORD**
11410 PRINT"□"
11420 PRINT"  >,■ENTER RECORD NO TO DELETE■.<"
11430 PRINT:PRINT:INPUT"■D,■";R
11440 IF R>CO OR R<1THEN ER$="RECORD NO OUT OF RANGE":GOTO 10000
11450 PRINT"□□■RECORD NO■ ";R
11460 PRINT"----------"
11470 FOR X=1TONF
11480 PRINT"■";F$(X);"■   ";A$(R,X)
11490 NEXT X
11500 PRINT"----------------------------------------"
11510 PRINT"ARE YOU SURE (■Y■/■N■)"
11520 GET A$:IF A$=""THEN 11520
11530 IF A$="Y"THEN 11550
11540 GOTO 11000
11550 PRINT:PRINT"■OK■ DELETING RECORD ";R;" FROM "NA$
11560 FOR X=R+1TOCO:FORY=1TONF
11570 A$(X-1,Y)=A$(X,Y)
11580 NEXTY,X:CO=CO-1
11590 GOTO 11000
11600 PRINT"□□THIS OPTION WILL DELETE ALL DATA IN FILE"
11610 PRINT:PRINT:PRINT"ARE YOU SURE (■Y■/■N■)"
11620 GET A$:IF A$=""THEN 11620
11630 IF A$<>"Y"THEN 11000
11640 CO=0:GOTO 2000
11700 PRINT"□□■CHANGE FILE NAME"
11710 PRINT:PRINT:PRINT"CURRENT FILE NAME IS ";NA$
11720 PRINT:PRINT"■ENTER■ NEW FILE NAME"
11730 PRINT:INPUT"■D,■";NA$
11740 IF LEN(NA$)<1 OR LEN (NA$)>10 THENNA$="******":GOTO 11700
11750 GOTO 11000
11800 PRINT"□"
11805 IFP$="COM SALAM"THENER$="NO PASS WORD PRESENT":GOTO 10000
11810 PRINT"□PLEASE ENTER FORMER PASS WORD"
11820 PRINT:PRINT:PA$=""
11830 INPUT"■D,■";PA$
11840 IF PA$<>P$THEN11800
11845 PRINT:PRINT"■DE■LETE OR ■C■HANGE PASS WORD"
11850 GETA$:IFA$=""THEN11850
11860 IF A$="D"THENP$="COM SALAM":GOTO 11000
11870 IF A$<>"C"THEN 11850
11890 PRINT"□□■ENTER■ NEW PASS WORD"
11900 PRINT:PRINT:INPUT"■D,■";P$:IFLEN(P$)<1ORLEN(P$)>12THEN 11890
11910 GOTO 11000
12000 REM****OPTION 9******
12010 PRINT"□□■OPTION■ 9",,"■CALCULATION MENU■"
12020 PRINT"----------------------------------------";
12030 PRINT:PRINT:PRINT
12040 PRINT"      ■PLEASE SELECT CHOICE■"
12050 PRINT
12060 PRINT"       ■1■ FIND TOTAL & AVARAGE":PRINT
12070 PRINT"       ■2■ ADD / DELETE  A % ":PRINT
12080 PRINT"       ■3■ +,-,/,*, A CONSTANT":PRINT
12090 PRINT"       ■4■ RETURN TO CONTROL MENU"
12120 GET A$
12130 IF A$<"1" OR A$>"4"THEN 12120
12135 IF A$="1" OR A$="2" OR A$="3" THENXX=0:GOSUB 12950:IF XX=1THENGOTO 10000
12140 A=VAL(A$)
12150 ON A GOTO 12200,12300,12500,2000
12200 REM ****FIND AVARAGE*****
```

```
12210 PRINT"□"
12220 PRINT"NON NUMERIC FIELDS WILL BE TREATED AS 0"
12230 T=0:FORX=1TOCO
12240 T=T+VAL(A$(X,FL)):NEXTX
12250 PRINT:PRINT:PRINT
12260 PRINT"■AVARAGE AND TOTAL OF ";F$(FL)
12270 PRINT:PRINT"■TOTAL■ =";T:PRINT
12280 PRINT"■AVERGE■=";T/CO
12290 GOTO 13190
12300 REM ■■■ADD/SUBTRACT/******
12310 PRINT"□"
12320 PRINT"  ■A■DD      ■S■UBTRACR      ■R■ETURN"
12330 GET A$:IFA$<>"A"ANDA$<>"S"ANDA$<>"R"THEN12330
12340 IF A$="R"THEN 12000
12350 IFA$="A"THEN OP=1:
12360 IFA$="S"THEN OP=2:
12370 PRINT:PRINT"■ENTER■ PERCENTAGE (0-999)":PRINT:INPUT"■D,■";PR
12380 IFPR<0ORPR>999THENPRINT"□":GOTO12370
12385 PRINT:PRINT:PRINT"■OK WORKING"
12390 FORX=1TOCO:V=VAL(A$(X,FL))
12400 IF OP=1 THENV=100+PR
12410 IF OP=2 THENV=100-PR
12420 Y=(Y■V)/100:A$(X,FL)=STR$(Y)
12430 NEXTX
12450 GOTO 12000
12500 REM■■■ +-/■ ******
12510 PRINT"□"
12520 PRINT"■A■DD  ■S■UBTRCT  ■D■IVIED  ■M■ULTIPLY  ■R■ETURN"
12530 GETA$:IFA$="S"THENOP=1:GOTO12600
12540 IFA$="A"THENOP=2:GOTO 12600
12550 IFA$="D"THENOP=3:GOTO 12600
12570 IFA$="M"THENOP=4:GOTO 12600
12580 GOTO 12530
12600 INPUT"□■ENTER■ CONSTANT ";PR:PRINT"■■■■■■■■WORKIN"
12610 FORX=1TOCO:V=VAL(A$(X,FL))
12620 IFOP=1THENY=V-PR
12630 IFOP=2THENY=V+PR
12640 IFOP=3THENY=V/PR
12650 IFOP=4THENY=V■PR
12660 A$(X,FL)=STR$(Y):NEXT:GOTO 12000
12950 REM■■■■SELECT FIELD■■■■■
12960 PRINT"□"
12970 PRINT"  >, ■ENTER FIELD TO BE USED■.<"
12975 PRINT:PRINT:INPUT"■D,■";FL
12980 IF FL>NF ORFL<0THEN ER$="FIELD VALUE OUT OF RANGE":XX=1
12990 RETURN
13000 PRINT"□"
13005 PRINT"■OPTION■ 8",,"■FILE DATA"
13006 PRINT"----------------------------------------"
13010 PRINT"NAME OF FILE ";NA$
13020 PRINT"IT CONSIST OF ";NF;"FIELDS"
13030 PRINT"NO OF RECORDS RESERVED FOR ENTRY";RE
13040 PRINT:PRINT"----------------------------------------";
13050 PRINT"NUMBER OF RECORDS USED SO FAR ";CO
13060 PRINT:PRINT"----------------------------------------"
13070 IF P$="COM SALAM" THEN PRINT NA$;" IS NOT PROTECTED BY PASS WORD"
13080 IF P$<>"COM SALAM" THEN PRINT NA$;" IS PROTECTED BY PASS WORD"
13090 PRINT:PRINT:PRINT,"■HIT A KEY FOR NEXT PAGE"
13100 GET A$:IF A$=""THEN 13100
13110 PRINT"□■OPTION 8",,"■FILE DATA"
13120 PRINT"----------------------------------------"
13130 PRINT"┌──────────┐"
13140 PRINT"│■FIELDS USED IN FILE■│"
13150 PRINT"└──────────┘"
13160 PRINT:FORX=1TONF
13170 PRINT"■FIELD■ ";X;" IS CALLED ";F$(X)
13180 NEXTX
13190 PRINT:PRINT"  ■HIT A KEY FOR CONTROL MENU"
13200 GET A$:IF A$=""THEN 13200
13210 GOTO 2000
14000 GOTO 14000
60000 REM READ DIRECTORY SUBROUTIN
60005 OPEN 1,8,0,"$0":CLOSE1:IFRO=0THENGOSUB 61000
60006 IF RO=1THEN GOSUB 1900
60010 PRINT"□";:OPEN1,8,0,"$0":GET#1,Y$,Y$
60020 I=0:GET#1,Y$,Y$,Y$,X$:IF Y$<>""THENI=ASC(Y$)
60030 IF X$<>""THEN I=I+ASC(X$)*256
60040 PRINT RIGHT$("  "+STR$(I),3);" ";:I=0
60050 GET#1,Y$:IF ST GOTO 60140
60060 IF Y$=CHR$(34) THENI=I+1!PRINT CHR$(34);:GOTO 60050
60070 IF I=0THEN 60050
60080 IF I=1 THEN PRINT Y$;:GOTO 60050
60090 IF I=2 THEN PRINT TAB(22);:I=I+1
60100 IF I=3RNDY$=" "GOTO60050
60110 IF Y$<>""THEN PRINTY$;:GOTO 60050
60120 PRINT:GETY$:IFY$<>""THEN GOSUB 60160
60130 IF ST=0THEN60020
60140 PRINT"BLOCKS FREE":CLOSE1
60150 PRINT:PRINT"■HIT A KEY"
60160 GETY$:IFY$=""THEN 60160
60170 RETURN
60500 IF PA$<>P$THENPRINT"□ILLIGAL ENTERY TO ";NA$:END
60510 RETURN
61000 REM■■■■READ ERROR CHANNAL■■■■
61010 OPEN15,8,15:INPUT#15,ER,ER$:CLOSE15
61020 IF ER=0THEN RETURN
61030 ER$="■DISK ERROR■  "+ER$
61040 GOTO 10000
```


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To find out if you are a prize winner this week this is what you must do:

1) Key in the computer program listing printed here into your micro and *Run* the program.

2) Input your special **Micro Magic** number as data in the program when requested and press *Enter*.

3) The program will tell you if you have won a prize this week and what it is.

4) If you have won a prize you can claim it by filling in the coupon on the back of your special **Micro Magic** card. **Then send the completed card off to: Micro Magic, Popular Computing Weekly, 12-13 Little Newport Street, London WC2H 7PP.**

```
5 PRINT "Input your personal Micro
  Magic Number"
10 INPUT x
15 FOR z=1 TO 3
20 LET x=2 * (x-27)
30 LET x=x * 27
40 LET y=2 * z + 1050
45 NEXT z
46 PRINT y
50 IF y=515896 THEN GOTO 80
55 IF y=1387480 THEN GOTO 70
60 PRINT "Your matching Micro Magi
c number is";y
61 PRINT "Better luck next week!"
65 GOTO 60
66 STOP
70 PRINT "Your matching Micro Magi
c number is";y
71 PRINT "You have won an Amstrad
A1281"
75 GOTO 70
76 STOP
80 PRINT "Your matching Micro Magi
c number is";y
81 PRINT "You have won cassette la
bels!"
84 GOTO 80
85 STOP
```

Micro Magic: Week 9 Program listing

Don't forget to fill in both your name and address, and also both your winning **Micro Magic** answer from this week *and* your special **Micro Magic** number.

5) If you haven't won this week, don't give up hope. Keep your **Micro Magic** card and use it to find out if you win with next week's **Micro Magic** computer program. The same card will last you right through to Christmas, so don't throw it away – you could miss the opportunity to win.

This week's winning Micro Magic Numbers: 515896 and 1387480

If you think you've won complete the form on the back of your Micro Magic card and send it to: Micro Magic, Popular Computing Weekly, 12-13 Little Newport Street, London WC2H 7PP.

Micro Magic cards can only be obtained in line with the criteria outlined by Scot Press. Participants are entitled to only one card each. Cards and accompanying documentaton can be obtained free of charge by writing to Scot Press, 12-13 Little Newport Street, London WC2H 7PP.

MICROVOX

is a professional sound sampler (Feargal Sharkey uses one!)

However it doesn't cost £20,000 or even £2,000 but a mere £229.95

You'll need a Commodore 64 or 128 with a disk drive. A MIDI – compatible keyboard is useful, but not essential.

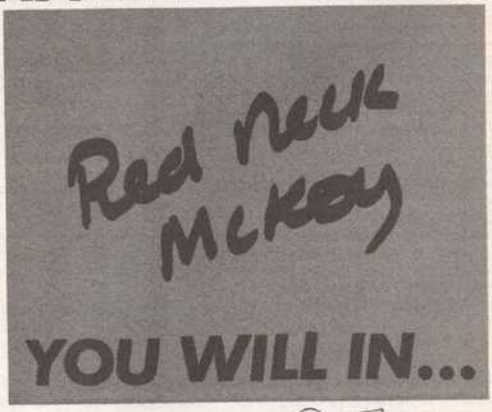
The extensive MICROVOX software allows you to edit waveforms and save sounds to disk. It has a 2000 note sequencer, a digital delay line and much more!

SUPERSOFT

Winchester House, Canning Road, Wealdstone, Harrow, HA3 7SJ
Tel: 01-861 1166 for further details and our free catalogue

PD404A

HAVE YOU MET...



YOU WILL IN...

ROCK'N WRESTLE

Breaking into the BIG time!

Do not confuse this product with other inferior products offering less value for money.

At last it's here, the product that lets you do what BBC, C64 and Spectrum owners have been doing for ages. Access to the whole world over the telephone.

SKYWAVE MULTI-PORT

Multiport is supplied with "SKYCOM", a menu-driven, window-based communications ROM package which will drive any standard modem, and lots more!! Other ROMS are scheduled for release soon!!

SKYCOM is a full "Foreground" ROM communications package, and runs without the use of BASIC, thereby releasing large amounts of RAM for the user. One benefit is a 32k+ Spooler.

Just see what the specialists have to say about Multiport...

"A product that should appeal to a large number of Amstrad Users." *Computing Age, Oct '85.*

"Includes the most sophisticated communiciations software available for the Amstrad." "Multiports sophistication makes it a very attractive product." "An excellent piece of kit." *Amstrad Action. Nov 85.*

Have you heard about "AMSNET", the NEW section on PRESTEL* 25864 # run by Viewfax just for Amstrad owners? Multiport is the only interface which is Viewfax/Micronet approved, (granted 18/7/85) and you can download software using the telesoftware format developed by us in conjunction with Viewfax 258. This means that you can access the many free Amstrad programs currently on the system and all the other programs about to be put up.

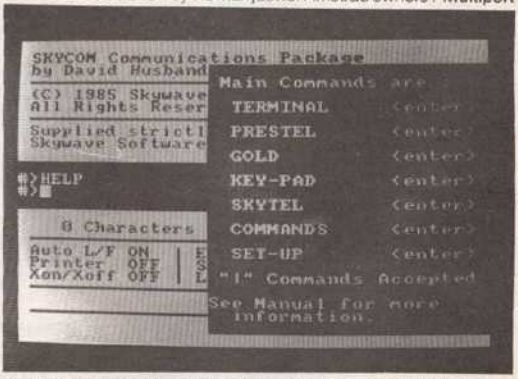
If you have a PROTEK or AMSTRAD interface, or similar make of interface which will not download telesoftware, we are prepared to offer a generous trade-in deal against our Multiport and/or Modem Package. Do not miss out... Call our office for details!!

Multiport will also access Bulletin Boards, and Telecom Gold. An upgrade is available to permit access to the Open University System for use with O.U. Comms courses.

Multiport has many features, too numerous to mention in one ad., please call our office for an Information Pack to be sent to you.

Multiport is really 3 interfaces in 1.. Its... A full RS232 Serial Port, a 24-bit parallel port, & a "Sideways" ROM card (takes 2 ROMs).

Modem Package deals are available for all popular modems and include Modem, Multiport, Manual and Connecting lead. From £ 129.95 all inc.



A Nightingale or WS2000 Package is currently £ 169.95. If you already have a modem, Multiport is available for including Manual. **£99·95**

Our policy is of continuous development and support, and to this end, we have set up SKYCLUB on PRESTEL* 25886 # to support our customers with Multiport/SKYCOM. This is the first of a complimentary range of products based around the Multiport. Trade Enquiries: Modem House 0392 213355.

Please send me Skywave Multi-port to fit the ☐ Amstrad 464 – ☐ Amstrad 664 * ☐ Amstrad 6128 * ☐ I enclose a cheque for £99.95 ☐ Please debit my Access Barclaycard account. * Fits 664 & 6128 with adaptor, available F.O.C.

☐ Please send me more information.

Name _____

Address _____

_____

_____Postcode_____

Items sent subject to availability.

Send to Skywave Software, 73 Curzon Road, Bournemouth BH1 4PW, Dorset, England. Tel: (0202) 302385.

☐ Please supply Multi-port & modem to fit my Amstrad as above @ £169.95.

☐ I enclose cheque for £169.95, or

☐ Please debit my Access – Barclaycard account, as above.

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We normally operate a world wide return of post service for our mail order customers with credit cards, Access or Barclaycard. Cheques expect 7 days delivery. Please telephone our sales office for details (0202) 302385 or post the coupon today.

Telecom Gold 72: DTB 10181 Prestel Mail Box 202302385 SKYCLUB on Prestel* 25886 # Telex 295141 TXLINK G Attn MBX 202302385

3-D plotter on Spectrum by Paul Rhodes

This machine-code routine produces a '3D' picture of the graph of a function. Whilst the program draws the graph fairly quickly, the user still has to set up the values to be plotted – a slow job even in machine code, as the pattern generator listed here shows.

The 3D effect is simple but effective, and is produced by using the value to be plotted as a displacement added on to the height of a point on a predetermined diagonal line. So if all values are 0, a parallelogram is produced.

Values to be plotted are stored in a table after the program – the address of the start of the table can be found by: *Peek 50998+256*Peek 50999*, and changing the values of these two locations will make the program use any area you choose for the table. The table consists of a 40*40 array: the first 40 bytes are the top line of the graph, the next 40 are the second line, and so on.

To enter the program, either use an assembler or type in the hexloader, enter C736 as the start address and C7C6 as the finish, and type in the bytes from the listing, up to eight at a time (not separated by spaces). Do not enter the checksums until asked for them. Save the code with: *Save "3Dplot" Code 50998,150*

To run the program: *Randomize Usr 51000*. The other listing can be entered in the same way, using FF58 and FFAO as start and finish. To run it (make sure you already have the 3Dplot routine in place); *Randomize Usr 65368*.

After a delay of five minutes, a 'wave' pattern should appear.

```
HEX LOADER

 1 DEF FN B(A$)=CODE A$-48-7*(A$>"9")
 2 DEF FN H(A$)=FN B(A$(1))*16+FN B(A$(2))
 3 DEF FN B$(A)=CHR$(A+48+7*(A>9))
 4 DEF FN H$(A)=FN B$(INT (A/16))+FN B$(A-16*INT (A/16))
 5 POKE 23658,8 :REM CAPS LOCK ON
10 INPUT "START?";LINE A$:LET START=FN H(A$)*256+FN H(A$(3 TO))
15 INPUT "FINISH?";LINE A$:LET FINISH=FN H(A$)*256+FN H(A$(3 TO))
20 FOR A=START TO FINISH STEP 8
25 PRINT FN H$(INT (A/256));FN H$(A-256*INT(A/256));
30 LET C=0
40 INPUT LINE A$:LET A$=A$+" "
50 FOR G=0 TO 7:IF A$(1)=" " THEN INPUT LINE A$:LET A$=A$+" "
60 LET Z=FN H(A$):LET A$=A$(3 TO):POKE A+G,Z:PRINT " ";FN H$(Z);:LET
C=C+Z
70 NEXT G:INPUT "CHECKSUM:";LINE A$:IF FN H(A$)<>C-256*INT (C/256)
THEN PRINT "CHECKSUM INCORRECT":GO TO 25
80 PRINT: NEXT A
```

```
HEX FOR 3D GRAPH PLOT, WITH CHECKSUMS
C736 CD C7 21 00 40 11 01 40 =47
C73E 01 FF 17 36 00 ED B0 D9 =C3
C746 E5 D9 11 CB C7 3E 28 12 =D9
C74E 2A 36 C7 2B 22 C9 C7 2A =2E
C756 C9 C7 23 22 C9 C7 7E 32 =15
C75E CB C7 1A B7 C6 44 B6 47 =07
C766 1A B7 C6 13 4F 3E 28 13 =42
C76E 12 C5 D5 CD E5 22 D1 C1 =12
C776 2A C9 C7 23 22 C9 C7 3A =C9
C77E CB C7 3C ED 44 86 47 7E =47
C786 32 CB C7 0E 03 CD A0 C7 =06
C78E 11 CB C7 21 CC C7 35 2B =B7
C796 20 DE 35 C2 55 C7 D9 E1 =CB
C79E D9 C9 79 1E 01 CB 7F 28 =AC
C7A6 05 ED 44 1E FF 4F A7 20 =69
C7AE 02 1E 00 16 01 7B CB 7F =F9
C7B6 28 05 ED 44 16 FF 47 A7 =61
C7BE 20 02 16 00 C5 CD BA 24 =A8
C7C6 C1 C9 00 00 00 00 00 7C =06

HEX FOR 3D WAVE SET-UP, WITH CHECKSUMS
FF58 06 29 0E 28 C5 79 CD 28 =98
FF60 2D 3E 14 CD 28 2D EF 03 =93
FF68 31 04 38 C1 C5 78 CD 28 =60
FF70 2D 3E 14 CD 28 2D EF 03 =93
FF78 31 04 0F 28 A3 05 1F A4 =D7
FF80 A2 04 04 38 CD D5 2D C1 =72
FF88 2A 36 C7 11 28 00 A7 ED =F4
FF90 52 08 78 19 3D 20 FC 59 =9D
FF98 19 08 77 0D 20 BE 10 BA =4D
FFA0 C3 38 C7 38 BD 36 FF 23 =0F
```

Assorted Graphics Routines on Sinclair QL by Dave Barnett

Here are a selection of short graphics routines for the QL. None of them break new programming ground, but some of the results are quite interesting.

```
100 REMark "circle",program by an Dave Barnett (1984)
10 PAPER 0:CLS
20 INK RND(255):PAPER RND(255)
30 CIRCLE RND(150),RND(50),RND(40),RND(4),RND(300)
40 IF RND>.95 THEN RUN
50 GO TO 120
100 REMark "sig8",program by and Dave Barnett (1984)
10 REMark After running the program,try changing line 120 to fill 0
30 FOR x=1 TO 255
40 INK RND (255)
50 LINE TO 100+40*SIN(x*2),50+40*COS(x)
60 END FOR x
100 REMark "flash",program by and Dave Barnett (1984)
10 CLS
20 INPUT "what resolution do you want (medium or high)";res$:IF "m" INSTR res$<>
0THEN MODE 255:ELSE MODE 512
30 PAPER 0:INK 7:CLS
40 INPUT "Do you want fill on or off ?(Y or N) ";a$:IF a$="y" THEN FILL 1:ELSE F
IL 0
50 CLS:PRINT"Press (esc) at any time to exit program"
60 PRINT "After you have read the message press space to continue "
70 IF INKEY$<>CHR$(32) THEN GO TO 170
80 INK 7:CLS
90 CIRCLE RND(150),RND(50),RND(40),RND(4),RND(300)
00 IF INKEY$=CHR$(27) THEN STOP
10 GO TO 180
```

3-D Cube on Amstrad by Glen Campbell

This program calculates the rotation of a cube in 3D and projects it on to the screen in real-time. The maths is quite ingenious, but the screen does flicker as the cube rotates – however, the result is still quite nice. *n* governs the square size, *m* governs the speed of rotation.

```
10 INK 0,0:BORDER 0:DEG:MODE 2:ORIGIN 320,200:n=150:m=5
20 FOR x=0 TO 360 STEP m
30 a=n*COS(x):b=0:c=n*SIN(x)
40 d=-(c*c)/n:e=a:f=a*c/n
50 g=f:h=c:i=-d-n
60 CLS:INK 1,0
70 MOVE (a+d+g)/2,(b+e+h)/2:DRAWR -d,-e:DRAWR -g,-h:DRAWR d,e
80 MOVE (-a-d+g)/2,(-b-e+h)/2:DRAWR d,e:DRAWR -g,-h:DRAWR -d,-e
90 MOVE (a-d+g)/2,(b-e+h)/2:DRAWR -a,-b:DRAWR -g,-h:DRAWR a,b
100 MOVE (-a+d+g)/2,(-b+e+h)/2:DRAWR a,b:DRAWR -g,-h:DRAWR -a,-b
110 INK 1,26:NEXT x
```

Book Ends

Book *Microholics* **Price** £1.95 **Micro** Any **Supplier** Unwin Paperbacks, 40 Museum Street, London WC1A 1LU.

A man stands by a micro with disc drives and printer, running a home computer accounts package. He holds a yard or so of printout and says to his wife, "Or in other words, we've spent a small fortune just to tell us we're broke."

Microholics is a collection of cartoons, some sexist, most unfunny, by Richard Howell who, according to the blurb, possesses an 'acute eye'. There's no hint of it here nor sign of the artistic talent.

Strangely, Mr Howell's 'jaundiced look' fails to see as far as opportunistic publishing like this, aimed fairly and squarely at the Christmas gifts market. The theory is that the non-computerate half of the population will buy it for their micro-obsessed friends in the belief that they will find it funny.

I'm going to make sure my aged aunt knows not to, well in advance.

John Minson

Book *Peeks and Pokes for the Commodore 64* **Price** £7.95 **Micro** C64 **Supplier** First Publishing, Unit 20B, Horseshoe Road, Horseshoe Industrial Estate, Pangbourne, Berks.

That owners of the C64 have special needs for Peeks and Pokes, in particular those concerned with graphics and sound owing to the machine's inadequate Basic, is one of computing's great truisms.

This book, another of First Publishing's English editions of German Data Becker volumes, deals with these and many other reasons for directly addressing the micro's memory. In fact, there's so much in its hundred odd pages, culminating in a machine code simulator and discussion of assembly language, that clarity is sacrificed.

Text which definitely reads like a translation plus transposed sections and typographical errors neither help nor instill confidence.

There are many other books which will fill the needs of the novice Poker better, although it's just possible more experience programmers will find the odd useful tip here.

John Minson

Book *Graphics Programming Techniques on the Amstrad CPC 464* **Price** £7.95 **Micro** Amstrad CPC 464 **Supplier** Micro Press, Castle House, 27 London Road, Tunbridge Wells, Kent.

Don't be put off by the fact that this book contains rather a lot of listings; it's far more serious than it first appears.

Wynford James uses the listings to demonstrate various techniques that can exploit the CPC 464's graphics capabilities starting from Basic.

From the very beginning – the modes of screen display and ink colours – he uses examples and hands-on experience to illustrate the theory, and commendably covers relatively complex topics such as Fill.

He makes a logical progression through the problems and solutions involved in such topics.

There are chapters on shape drawing, animation, graphs and charts and pattern making, avoiding the old myth that graphics from Basic will let you create arcade games or artistic masterpieces.

It's a much more practical approach that will teach a good deal of programming technique.

John Minson

Code Words

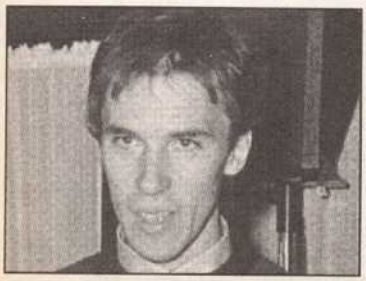
Name: Sandy White

Author of Ant Attack and I, of the Mask

"I used to build electronic projects in magazines and when the Sinclair Mk 14 came along I built that – my first computer.

I learnt to program using the manual supplied with it – it was awful! The Mk 14 used a simple National Semiconductor chip and so when the Z80 came along it looked horribly complicated as did Rodney Zaks' book – it was so thick!

I think the best advice for anyone who wants to learn about machine-code programming is to begin with just a few simple instructions – gradually try a few more as you need them. It's useful to have someone who already knows a bit of code around to help. Despite its difficulty I'd say the Rodney Zaks' book on the Z80 is a vital purchase.



I don't really use any utilities, I have a *Picturesque Assembler* but don't use it much. More useful is networking Spectrums together to keep the code secure. I also have a hex development system which puts in the code as a memory map and is thus crash-proof.

I don't really play other people's games so I can't comment technically on their work but I do like Jeff Minter.

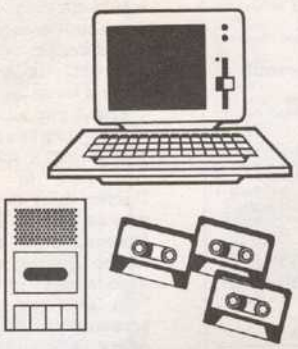
I think my own greatest achievement was to create a full screen of solid perspective graphics and move them around at ten times a second. My ideal program, my ambition if you like, is a development of what I've already done it would be like looking at reality as filmed by a roving video camera that you could control."

Name: **Sandy White**
Age: **25**
Favourite Programs:
I can't think of any games I really like although I have lots of them. The only exception is *Scrabble* – I set it to play against itself and watch it make crosswords. I like and use *Melbourne Draw* a lot.
Favourite Machines:
I think my favourite machine is the Amstrad just because it's a complete package and has decent sound. I have a couple of Spectrums and look forward to the 128K especially because of the Midi. I also use a Commodore 64 with a Midi package.
Software:
***3D Ant Attack, Zombie,* and *I, of the Mask*.**
Hobbies:
Music: I have a DX 7. I play the drums and have fantasies about being a pop star, but I can't play it properly, only by programming music via computer. I also like chemistry, blowing things up and making nasty smells. I also make films – at one time I used to enter them for a children's program called *Screen Test* but they'd always send back a form letter telling me to use a tripod or something. Actually I always did use a tripod, I think it was the chopping people's heads off and spurts of blood from squeezy bottles that caused the problems.

MAKE MONEY WITH YOUR MICRO !

you could earn over £50 per week-in your spare time-and you don't need any special programming skills...

Although you may at present only use your micro to play games, your computer is in fact a very sophisticated business machine which you could use to make yourself a very substantial full or part time income. Whatever your age opportunity exists. You may be a schoolboy looking for a school business project. You may have left school and be looking for a viable business idea. You may have a good job, but you would like to have an extra income. Whatever your circumstances, if you want to make some money, you can turn your micro into a money making machine.



FORGET ABOUT GAMES

Of course it is possible to make money as a games designer, but unless you understand machine code, and have lots of original ideas, you might as well leave games designing to the professionals. After all games design is a very competitive area, and there are lots of easier ways to make money with your computer.

ANY COMPUTER WILL DO!

Whatever your micro, Spectrum, Commodore, Electron, Amstrad etc. all the business ideas in this report are applicable to all home micros, no matter how humble or sophisticated.

HOW TO GET STARTED

We have compiled a special report which provides you with all the information you need to start a small part time business, which you can operate from home, using your micro. The report contains hundreds of business ideas which give you the possibility of earning thousands of pounds from your micro. Each idea is explained in detail, you need only the simplest of programming ability, if you can write simple basic programmes you can operate any of these ideas. (When we say simple basic programmes we mean very simple) some of the ideas require no programming but even the ideas that have the greatest potential are very simple and easy to operate.

TRY THIS SIMPLE TEST

When the report arrives select one idea that appeals to you.
Try out the idea for three months, read the directions carefully, start in a small way, remember to begin slowly.
At the end of this trial period calculate how much income you've made, if you're not satisfied with the results simply return the report and we will REFUND YOUR MONEY IN FULL.

You are free to use each idea, to establish your own part or full time business. All the ideas are viable business opportunities, which don't require any special expertise or skill, just a few hours of your time each week can bring you an income of £50 or more. Many of the ideas are capable of development to provide you with a very substantial income indeed, and each idea will grow and develop as you operate the business. The business you start will be totally your own and can be started with just one micro, and perhaps £5 or £10 start up expenses.

WHAT ELSE WILL YOU NEED

You will need to be prepared to work to make your business grow, each idea requires time and effort, and like any one who runs a business you will need to take advantage of the money making opportunities which develop. You will need to adapt to the challenges, and stick at your project.
A telephone would be helpful, and a computer printer would be a great asset (if you do not own a printer don't worry, you can buy one from your first profits).
You won't have to wait, most of the projects can be started within 14 days.

EASY TO FOLLOW

Our special report is easy to follow, all the ideas provided are honest straight forward methods of making money from your micro. To prove that you can make money from your micro we offer a no quibble money back guarantee. Keep the report for three months, try one or more of the ideas, and if you don't make any money, just return the report. We'll send you a full refund, within three working days, we won't quibble, we'll just return your money.
We are not trying to take advantage of you, we want to present you in a fair way with the information you need to start making money from your micro.

To: P.W. PROMOTIONS
Please send me your report 'MAKING MONEY FROM YOUR MICRO'. I enclose £9·95 in full payment.

Name .....

Address .....

..... Post Code .....

I understand I am free to use the ideas in this report to start my own full or part time business or business project.

Signed ..... Date .....

Postal Address: P.W. PROMOTIONS, P.O. BOX 21, MANCHESTER M16 8EA.

Starion kips

To start off this week here, as promised, is the invincible man routine for *Fairlight* from Chris Allen. To use it type in the code, wind the original game tape past the first header of the first program (ie, the part that prints FL on the screen). *Run* the program you have typed in and start the tape when it tells you to. The program uses the screen at some points so don't worry about the blue border or the mess that you see.

Four sectors

Now then, I must thank everyone for all the help they gave in response to our pleas for *Starion* tips. It isn't really worth anyone else sending any more in for a while. I am hoping to dedicate a special issue of the Avenue to the new games from Melbourne House, which seem to be getting better and better including *Starion* and the tips you have sent in for *Fist*.

I've thought long and hard about the *Starion* tips. I don't want to give much away since solving the anagrams does a lot to stop the game from being just another boring shoot up, but it can be extremely frustrating if you pick the wrong time zone with your hard won word and have to fight your way out again. For now we will restrict the answers to just the first four sectors to make sure that people can get started.

Sector 1 – Redbreast
Asprin – 1893
Telegram – 1858
Starion – 1985
Electricity – 1831
Bible – 1968
EEC – 1957
Diamonds – 1897
Reativity – 1905
Rhodesia – 1980
Sector 2 – Spacewalk
Coal – 1764
Krakatoa – 1883
Preface – 1086
Leonov – 1965
Armada – 1588
Axe – 1587
Seal – 1764
Egbert – 0814
Wellington – 1815
Sector 3 – Establish
Treaty – 1919
Atom – 1942
Hitler – 1924
Spectrum – 1982
Ivan – 1547
Ballast – 1783
S – 1901
Lamp – 1889
Eiffel –
Sector 4 – Parachute
Avon – 1983
Tobacco – 1565
Umbrella – 2222 BC
Rubber – 1888
Penny – 1840
Cakes – 1789
Halley – 1986
Aerial – 1896
Everest – 1953

Anthony Torak of Leicester has written to claim to be the first to reach Elite status on the Commodore version of the game. We certainly haven't heard of anyone else doing so but probably only Firebird can say for sure.

Brilliant kick

Anthony offers some tips on the game, which we would be grateful for particularly now that many more people will be playing it, but the same applies to anyone who is doing well with the game. We would be most interested in tips about the new aspects of the different versions since the BBC copy has been around for some time.

Thank you all also for your *Blackwyche* tips and these too will go into a special column dedicated to the game. Darren Riley is one of those who has written in but he also has some more special codes for the CBM version (and perhaps others) of *Bounty Bob*. "On the game adjustment screen enter 57502 and then press 'A' and F3 together. You can then play the game as normal or you can go to any screen you wish to by typing the number on the keyboard. For example '21' takes you to screen 21 and '09' takes you to screen 9. You can wrack up massive scores this way. Other codes to try are 5, 6, 40, 49, 69, 100, 66, 815, 1000, 2049 (surprise surprise!). You just press F3 to activate them. My high score without cheating is 91890 on screen 10."

This thing with *Bounty Bob* strikes me as a brilliant trick, it doesn't make it too easy to cheat since there is still a challenge to find all of the codes but it still means that ultimately everyone can get to see all screens.

While on the subject of platform games Stephen Trill of Sidcup wants tips and pokes for Mirrorsoft's brilliant *Dynamite Dan*. It's quite a relief now that platform games are beginning to drop off in number to see that good new versions of the idea are still possible. D Moison of Jersey asks if it is possible to actually rescue Esmeralda on the Amstrad version of Ocean's *Hunchback*. Well, you can't on the Spectrum version but as people have complained in the past I did hope Ocean may have added this to new versions.

Record times

Another Ocean game, *Decathlon*, is the subject of a letter from Jason Hall who tips that you can get record breaking times by jiggling two joysticks at once. Of course the presence of a close friend helps here.

Finally here's a letter from Brian Thompson of Beckenham who has completed the CCS wargame *Arnheim*. We occasionally get wargame letters full of long complicated solutions but no one here quite knows what to do with them.

They don't fit into the arcade or adventure columns as they stand, so I'm throwing this open to the readers. Let *Popular* know if you would like wargames covered.

Tony Kendle

```
1 REM        ** FAIRLIGHT INVINCIBLE MAN **
2 REM
3 REM         *  HACKED BY CHRIS ALLEN  *
4 REM
5 REM         ...NOTHING IS IMPOSSIBLE!...
7 LET B=0
8 CLS
10 FOR T=0 TO 217:READ A:POKE (T+163840),A
20 LET B=B+A:NEXT T
30 IF B<>23495 THEN PRINT "ERROR IN DATA!":STOP
40 PRINT AT 19,4;"Play the tape."
50 RANDOMIZE USR 16569

100 DATA 221,33,40,209,17,0,176,33,40,209,1,18,12,26,172,173,170,171,221,119,0,221,35,19,35,11,120,177,32,239,49,255

101 DATA 90,221,33,174,210,33,0,69,221,126,0,119,254,195,40,111,254,90,40,33,254,32,32,24,33,221,35,221,126,0,119,254

102 DATA 224,58,13,221,229,33,54,201,205,0,69,221,220,33,255,68,221,33,33,24,211,221,126,255,254,237,32,244,42,136,64,35

103 DATA 34,136,64,6,9,221,33,16,252,126,42,1,69,237,75,4,69,245,241,245,174,119,35,11,241,195,9,203,191,245,120,177

104 DATA 32,240,241,33,0,69,24,180,137,64,30,17,46,41,107,7,57,28,100,62,34,3,43,19,85,120,7,11,23,25,79,33

105 DATA 33,0,34,205,220,33,0,34,34,202,230,33,231,241,34,204,220,62,201,50,206,220,195,223,218,221,33,203,92,17,93,5

106 DATA 62,255,55,205,86,5,33,15,245,34,26,97,33,129,122,34,39,97,62,203,50,41,97,195,130,194
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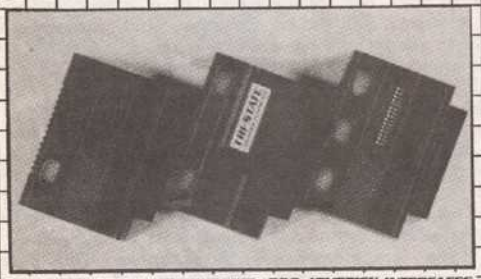

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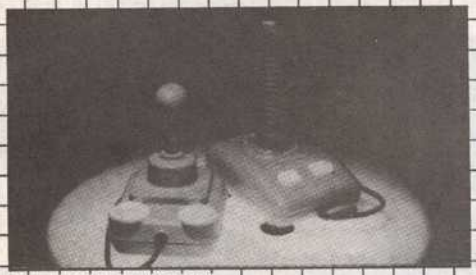

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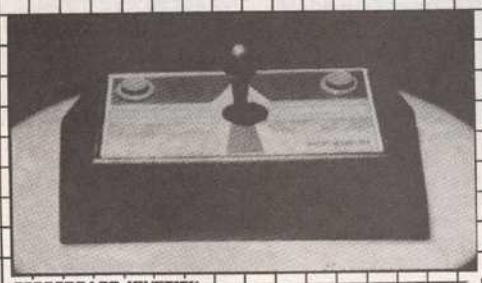

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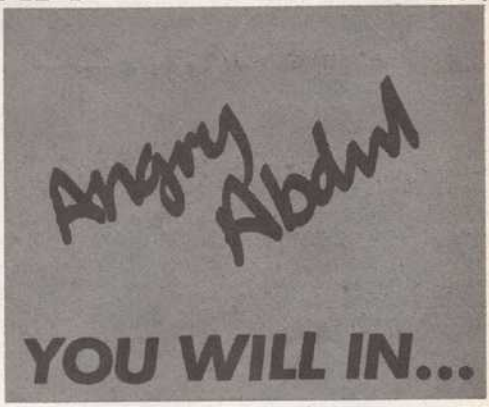


ROCK'N WRESTLE

M

Tony Bridge's Adventure Corner

Deflated

Melbourne House and Adventure International are two of the biggest adventure-writing outfits around at the moment, and much of their success has been gained by taking themselves very seriously in the market-place. Their programs are very clever and can certainly stand a little deflation.

Which is where Delta 4 and Silversoft come in: *Sherlock* and *Robin of Sherwood* are good candidates for a bit of gentle leg-pulling, a challenge very quickly taken up by Fergus McNeill and all the other loonies at Delta 4.

One can only guess at what goes on in a mind obsessed with Penguins and Judith (I haven't met any penguins, myself) but as long as it keeps coming up with parodies such as *Bored of the Rings* and now *Robin of Sherlock* who are we to argue? The Jester with his henchperson, The Desperado, has once again turned from thoughts of fish to extracting the Michael from respected adventures.

There's a certain atmosphere present in all Delta 4 (now marketed by Silversoft) adventures – the player has the definite feeling of being followed, if not by a slavering ghoul, at least by a laughing clown. The puzzles included in the typical Jester adventure are not mind-searing, but rather giggle-provoking, and those met in the present program are more of the same: hardly demanding, but nevertheless interesting and creating echoes of other, maybe more well-known adventures.

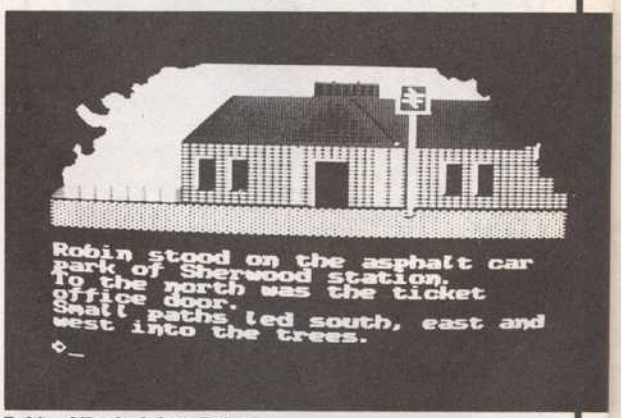
The location descriptions are also in the usual McNeill mould – right at the start, for example, you'll find that good old Friar Gorbachetnik succumbs to a surfeit of Venison-burgers in a rather spectacular fashion (resulting in 'lots of bits of Friar'!). Not far from here lies the Kentucky Fried Squirrel House, with copious amounts of Squirrel 'n' Fries (but no Penguinburgers), and a definitely dodgy Convent (don't forget to get the habit!).

On and Off

Robin of Sherlock is *Quill'd*, *Illustrated* and *Patch'd* (all acknowledged, I'm glad to say) and thus features good split-screen graphics/text, weird sound effects and the very useful Ram save and load – so progress is very quick. Particularly as the graphics can be switched on and off at will and, anyway, pictures are only drawn on the first visit to a location (unless otherwise instructed).

With the rustic character set and the good use of colour, this is an attractive adventure to play – as I've said, the puzzles are not numerous, and neither are they particularly taxing, but there are many useable objects, and these will keep you occupied for some while. Characters, unusually for a *Quill'd* game, carry on their own existence (it says here), and you are encouraged to indulge in deep conversation with them. Here is the joke at the expense of *Sherlock* – characters may be asked to supply their alibi or to split on another character, but there seemed to be a standard, non-helpful response to my questions, and much of the character 'interreaction' seemed to consist of Dorothy (her from *Wizard of Oz*, don't ask me why) or Marion wandering in and out of the scene. However, it should be possible to ask them about a certain aspect of the adventure, although you run a good risk of getting your ear chewed off for your pains!

The adventure is very pretty, though, with a nice character set, occasionally highlighted in cyan, contrasting with the normal white-on-black. The graphics are quickly-drawn, with much use of repeated blocks (subroutines as experienced *Illustrators* will know them) and as there isn't much shading, the whole process is nicely speeded up.



Robin of Sherlock from Delta 4

A good laugh

Delta 4 adventures all suffer from the author's devotion to style rather than content: absolutely nothing wrong with this approach as long you want a good laugh and a few rib-nudging references to some of the old favourites – a good time be had by all, but don't expect brainteasers of the Level 9 standard.

While we're wandering about in this neck of the adventuring woods (the 'let's treat this thing as a lark' neck), let me mention that dubious seat of learning in County Donegal, St Bride's School. I'm always glad to receive the regular newsheet (rather like a school magazine sent out to old pupils) from this establishment which is for the education of, it seems, rather mature gentlewomen. It's actually an extreme form of torture which said mature gentlewomen submit themselves to as their ideal of a way to spend a holiday, and pretend that they are back in the '30s.

Black on cyan

The Secret of St Bride's is the latest software product of the school, and it's been well received by many magazines. I've just had my first glimpse of the adventure – pretty standard *Quill'd* and *Illustrated* stuff, with a nice black on cyan layout and objects picked out in light colours. You wake up one morning in your dorm, along with the other girls, only to find that the others, dotty as they are, seem to believe that they are actually living in the 1930s – you know of course that this is actually the 80s, so what is going on?

Being a good adventurer, you must find out *The Secret* . . . By examining everything, many objects will be found and then it is a matter of finding the right place to use the objects. So the adventure can be worked through quite logically, with not too many big surprises. And, thanks to Audiogenic's influence, the program is implemented quite professionally.

I look forward to the next adventure from St Bride's, if only to see another of its bizarre press releases!

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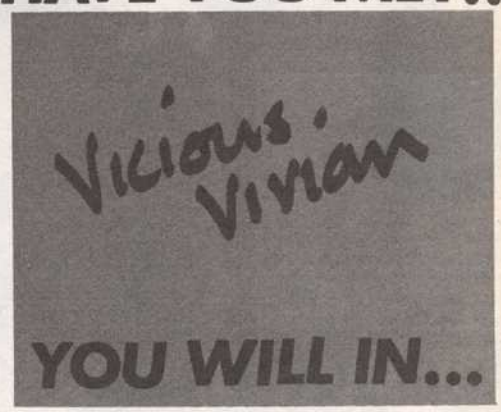

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Peek & Poke

Kempston compatible

Colin Watts of Newcastle upon Tyne writes::

Q Is the Spectrum + upgrade kit compatible with a Kempston joystick, on an issue 2 Spectrum, as I have heard there may be a problem?

A All the connection problems with the plus are caused by the interface slot being 'guarded' by a lightly raised portion of the keyboard casing. In order to check whether your existing interfaces will fit into the new slot, it should only be necessary for you to look closely at the back of a plus. In terms of other types of compatibility, I have not heard of any problems with it.

Language programming

S A Taheri of Canterbury, Kent, writes:

Q I have recently obtained a degree in Maths, Stats and Computing, and I would now like to buy a computer to do language programming (Pascal or Fortran).

I can spend up to £1,000, including a printer and monitor. Could you help me find something suitable?

A There are not many Fortran packages produced for the home micro market, but there are Fortran implementations which run under CP/M.

Amstrad's CPC 6128 is CP/M compatible. The micro costs £299 complete with disc drive and monochrome monitor, and £399 complete with disc drive and colour monitor. Amstrad's DMP 2000 printer costs just £159, so you would be well within your price limit.

Commodore's new 128 machine will also run CP/M programs, but ideally you will need its new 1570 disc drive and 1901 80 column monitor. Neither of the latter are yet available, but have been promised before Christmas. For the 128, 1570, 1901, and Commodore's own printer, the MPS 801, expect to pay just under £1,000.

Interestingly enough, there is a Fortran program for the Sinclair QL which doesn't need CP/M. It is from Prospero Software at 190 Castlenau, London SW13. A QL would cost £199, and Sinclair's own monitor £299.

Two printers which can be used are Mannesmann Tally's dot matrix (with centronics interface) at £250, or Brother's HR5 (RS232 interface) at £157. There is a comparatively large number of languages available for the QL, particularly from Metacomco and HiSoft.

Implementations of Pascal can be found for almost all home micros.

Disabled keyboard

Pamela Sellick, of Abingdon, writes:

Q I have a Spectrum approximately 18 months old. After being on for a short time, the keys in the end columns cease to work. Gradually the other keys also fail. Switching the computer off for a while seems to temporarily remedy the problem. I would like to know whether the problem would disappear by fitting one of the new 'official Spectrum upgraders' to turn the machine into a Spectrum Plus. If not how can the computer be repaired?

A It sounds to me as if the fault lies in the keyboard membrane, which sits underneath the rubber keypad. It would seem as if this has split or worn in such a way that when the machine heats up the connection(s) are broken, thus effectively disabling your keyboard!

The Spectrum up-grade, as it involves fitting a new membrane (owing to the different keyboard layout), should indeed cure your problem.

Dragon repairs

A T Edwards, of Ystradgynlais, Powys, writes:

Q While loading a program into my Dragon 32 it suddenly crashed, after leaving the din plug in the socket I turned the machine on and off. This resulted in a screen with characters strewn all over it. Many attempts to clear the screen have failed.

Do I require a new chip? If so do Dragon Data do such repairs, if not where can I get it repaired?

A It sounds to me as if you need a new something, but exactly what is difficult to determine. I think that if you asked Dragon Data about repairing your machine you might have a long wait for an answer!

You could try a firm called Mi-Crowe of 49 Wykenham Road Drive, Basingstoke, Hants RG23 8HW (0256 23858). They repair Dragon 32's for £15 plus the cost of parts. Alternatively, try Compusense, PO Box 169, 286a Green Lanes, London N13 5XA (01-882 0681).

Screen messages

I Stokes of Rhyl, Clwyd, Wales, writes:

Q Can you please tell me how to eliminate *Program name* or *Bytes name* appearing on the screen? I have assembled programs with a *Screen* picture only to find that when the next part is loading I get these messages displayed across the screen. I have tried to fill the screen with *Print* statements but to no avail, since it then scrolls the screen up to put out the message. Is it possible to change its colour? I own a Spectrum.

A One very simple way is not to print on the bottom line of the user screen, but to issue a *Print At* statement for line 21, column 32 (*Print at 20,31*). This has the effect of forcing the message to be printed on the 22nd line of the screen.

Then by setting *Ink* to be the same colour as paper, you will achieve the desired effect without scrolling. It must be remembered that the *Print At* statement must be executed before each *Load* statement.

Lynx characters

Terry Stevens of Plymouth, writes:

Q Firstly, I own a Lynx (remember them?). I want to be able to display large characters on the screen (two or even three times normal height.) Is there any way that this can be done?

As you can imagine it's not easy to fnd much information on my machine these days.

A I may be able to help you here. VDU24 and VDU25 will give you double height characters. For even large ones try *Poke* &6273,96 (*Poke* & 6273,32 puts things back to normal).

Screen copies

M Payne of Coventry, writes:

Q Is there a way of getting a full screen copy of any picture? If you load in a commercial tape, eg, *Lunar Jetman*, you then have to *Break* to *Copy*, which then loses the bottom few lines.

A Firstly, I guess that you have a Spectrum.
Secondly, try this:

```
10 LOAD "" SCREEN
20 COPY
```

When this Basic program is entered and *Run*, it will search a cassette for a screen picture, which when loaded is then dumped to the printer (intact).

If you want to copy to cassette, then use *Save "" Screen* instead of *Copy* on line 20.

TOUCH PAD SCREEN ARTIST

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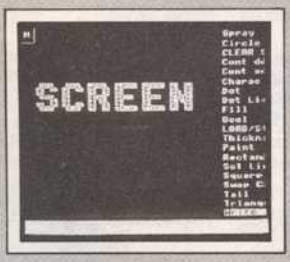

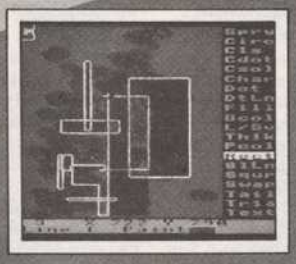

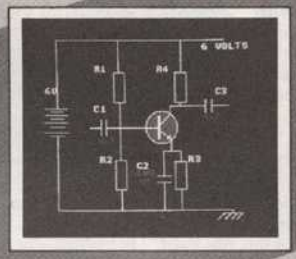

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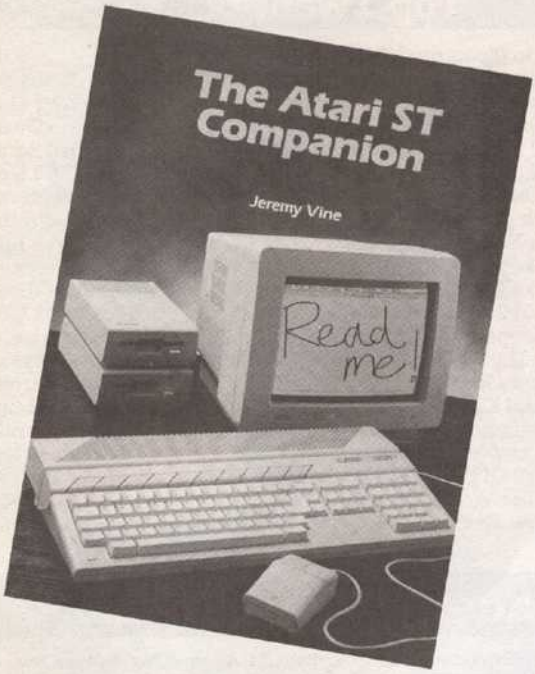

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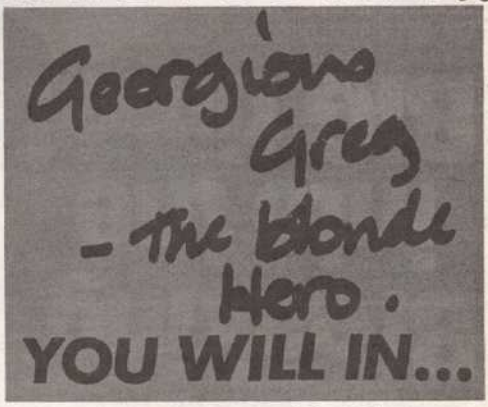

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Bubbling Under

Gyroscope/**Spectrum (Melbourne House)**;Computer Hits (8)/**Spectrum (Beau Jolly)**; Scarabaeus/**C64 (Ariolasoft)**; Tau Ceti/**Spectrum (CRL)**; Waterloo/**C64/Spectrum (Warmaster)**; Imhotep/**C64 (Ultimate)**; I of the Mask/**Spectrum (Electric Dreams)**; Spike/**Spectrum (Firebird)**; Battle of Britain/**Amstrad (PSS)**.

All figures compiled by Gallup/Microscope

Top Twenty

1	(-)	Commando *(Spectrum/C64)*	**Elite**
2	(1)	Elite *(Spectrum/C64/Spectrum)*	**Acornsoft**
3	(4)	Winter Games *(C64)*	**US Gold**
4	(-)	Rambo *(Spectrum/C64)*	**Ocean**
5	(3)	They Sold A Million *(Spectrum/C64/Amstrad)*	**Hit Squad**
6	(-)	Fight Night *(C64)*	**US Gold**
7	(2)	Formula One Simulator *(Various)*	**Mastertronic**
8	(-)	Tomahawk *(Spectrum)*	**Digital Integration**
9	(8)	Computer Hits (10) *(Various)*	**Beau Jolly**
10	(16)	Back To Skool *(Spectrum)*	**Microsphere**
11	(6)	Way Of The Exploding Fist	**Melbourne House**
12	(11)	Beach Head 2 *(Spectrum, C64, Amstrad)*	**Access/US Gold**
13	(5)	Finders Keepers *(Spectrum, C64, Amstrad)*	**Mastertronic**
14	(10)	Monty On The Run *(Spectrum/C64/Amstrad)*	**Gremlin Graphics**
15	(10)	BMX Racers *(Spectrum, C64)*	**Mastertronic**
16	(15)	International Karate *(Spectrum)*	**System 3**
17	(12)	Frank Brunos Boxing *(Spectrum, C64, Amstrad)*	**Elite**
18	(9)	Action Biker *(Spectrum, C64)*	**Mastertronic**
19	(-)	Arcade Hall Of Fame *(Spectrum, C64)*	**US Gold**
20	(7)	Robin Of The Wood *(Spectrum, C64)*	**Odin**

Figures compiled by Gallup/Microscope

Readers' Chart No 53

1	(1)	Way of the Exploding Fist *(Spectrum/C64/Amstrad)*	**Melbourne House**
2	(2)	Fairlight *(Spectrum)*	**The Edge**
3	(3)	Hypersports *(Spectrum/C64)*	**Imagine**
4	(5)	Monty on the Run *(Spectrum/C64)*	**Gremlin Graphics**
5	(4)	Red Moon *(Spectrum/C64/Amstrad/BBC/Electron)*	**Level 9**
6	(-)	Elite *(Spectrum/C64/BBC/Electron)*	**Firebird/Acornsoft**
7	(6)	Nightshade *(Spectrum)*	**Ultimate**
8	(7)	Spy vs Spy *(Spectrum/C64)*	**Beyond**
9	(-)	Daley Thompson's Supertest *(Spectrum)*	**Ocean**
10	(-)	Flight Simulator II *(C64)*	**Sub-Logic**

Winnng Phrase No 53: "Why do I try? I fail so often" from Darren Gregory, Bispham, Blackpool, Lancs who receives (to his surprise no doubt) £25. Honourable mentions to Andrew Gallagher of Altringham, Chesire with "Who has tight fist on Soft Aid?" and Andrew Toy of Crawley, Sussex with "Terry Wogan raises lots of gelt".

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1.....

2.....

3.....

My phrase is: .....

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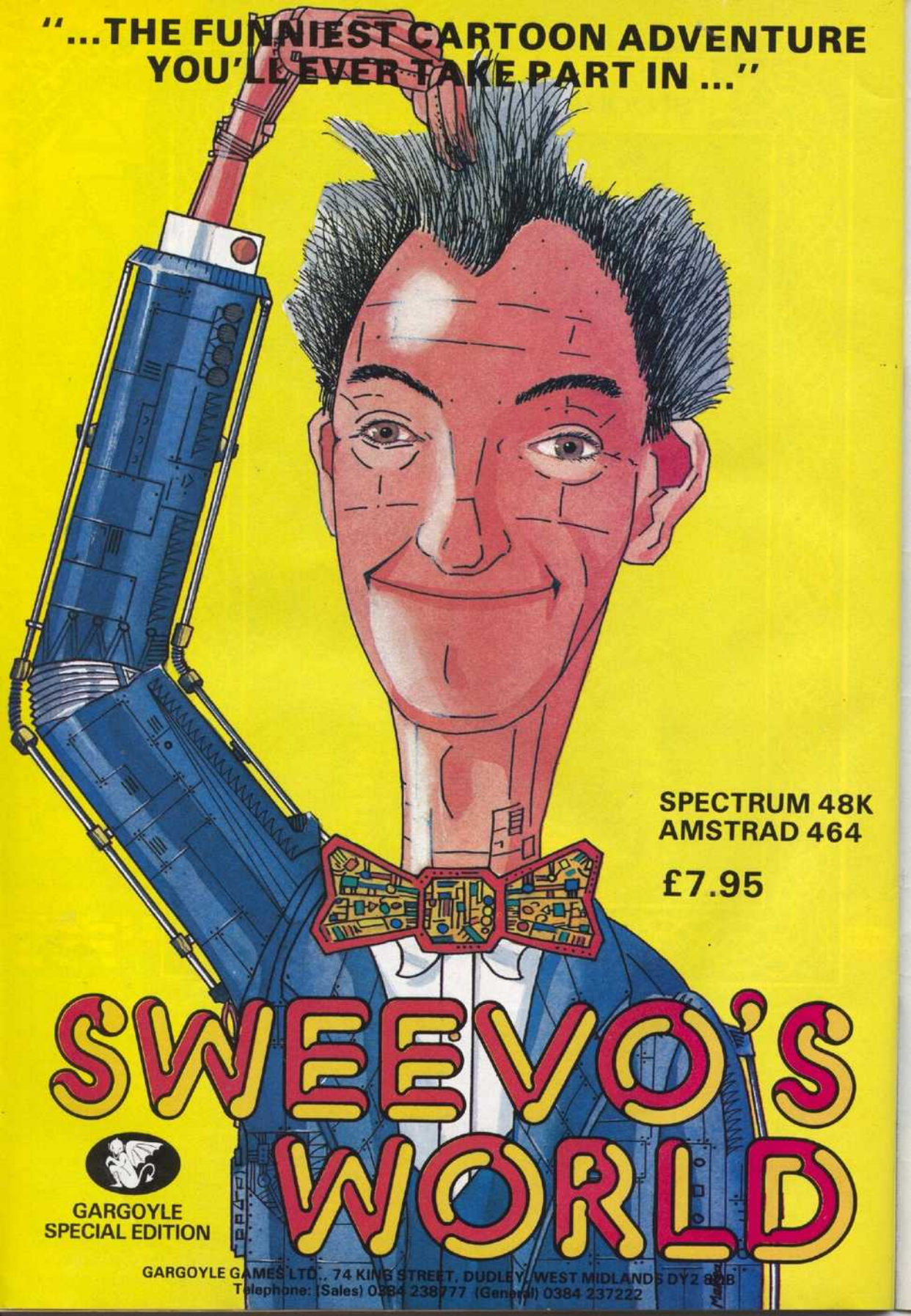

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I particularly liked *Paradise in Microdot* which is one of the more bizarre adventures I've ever played, and *Pi in the Sky* is the sort of entertaining arcade game that exemplifies what a budget game ought to be.

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Getting the pages involves finding your way around the various rooms of the castle and finding and using a variety of objects.

The graphics are, in places, excellent; almost *Sorcery* like in detail and design, on the other hand sometimes when sprites pass one another you get what almost seems to be attribute problems – a nasty flickery effect.

In some ways this is like *Manic Miner* played on a grand scale, but with the bonus of some intelligence being required to know what to do where to get from one room to another. My criticism would be that the game lacks a certain spark.

Perhaps that's an overly personal judgement, though, which comes from seeing too many such games. Worth a look for sure.

Program *Tombstowne*
Price *£8.95*
Micro *Amstrad*
Supplier *Amsoft*
169 Kings Road
Brentwood
Essex

RIGHT LEVEL

Versions of, well let's be careful and say games like *Trivial Pursuit*, since TP isn't the only grand quiz game, are beginning to crop up on computer. Mostly they are dire.

One that isn't dire, although it still suffers some of the basic failing of this sort of computer replication, is *Quiz Quest* from Alligata Software. It's neatly presented and easy to use and, best of all, the questions seem to have been set at the right level for averagely well informed (British) adults – you have to stretch your brain a bit.

The basic idea is simple, a main program to handle the presentation and then a number of files on tape contain 1,000 questions on pop, TV, general knowledge and sport etc. Questions are answered using a multiple choice format and there is a facility to enter your own files.

As quiz programs go this is one of the best, though for what it's worth I think I prefer question cards over computers every time.

Program *Quiz Quest*
Price *£4.99*
Micro *Amstrad*
Supplier *Alligata Software*
1 Orange Street
Sheffield

The Rogue Program

Created entirely using a BBC micro and an AMX mouse

continued next week

New Releases

À DROITE

More goodish educational software from Chalksoft. After their excellent economy simulation comes *Centre Ville*, a disc based Fench language teaching program. Actually it is three programs in one, all intended for beginners in the language.

Centre Ville, the title game, is all about issuing simple direction instructions to the hapless M. Chou who comes to Centre Ville sans map and who wants to visit just about every sight in the town. If M. Chou were for real I think I'd have murdered him pretty quickly; his chirpy smile and waving hand remind me of those born-again Christians who try to stop you in the street.

Nevertheless, in issuing M. Chou with his instructions, quite a lot of French is tested and surreptitiously taught. Using a menu option, where a large number of directions indications are printed (in French), M. Chou must be guided around the streets of Centre Ville, eg, go straight on, turn right, straight on, turn left, etc, etc.

Get M. Chou to his chosen destination and there he is grinning inanely at you. It isn't only a matter of getting the directions right, you also have to be as economic as possible in your directions – the less commands the higher the score – this, of course, means knowing your French.

The other programs are concerned with colours and telling the time; both are well designed and neatly presented but, for me, lack the unforgettable quality of M. Chou and his interminable requests for information.

Program *Centre Ville*
Price *£17.50*
Micro *BBC*
Supplier *Chalksoft*
PO Box 49
Spalding
Lincs PE11 1NZ

EXOTIC BUGS

The Young Ones has been turned into a computer game. Impossible, you say?

Yep, dead right; Orpheus has tried it, and what a mistake it has turned out to be.

Here are the good points: it does feature little animated figures who look vaguely like the characters in the TV programme and Orpheus seems to have spent a lot of time trying to inject wild wacky anarchic humour into the game. I mean, Neil begins all his utterances with 'Oh Man' and Rick uses the word 'girly'

Pick of the week

CLASSIC VIRTUES

Ariolasoft's most recent release *Think!* is the sort of program you might easily miss or ignore.

Not an arcade game or an adventure, almost totally lacking in animation, it is a board game for the computer. A board game in the sense that you move pieces on a board which is a six by six grid of squares and where the kind of strategy, brains and cunning you might use in chess are paramount.

The virtues of *Think!* are really nothing to do with computers or computer programming, it is simply a wonderfully addictive and ingeniously designed game. It has dim connections with *Connect 4* but only in terms of the overall objective – to get four pieces in a row either vertically, horizontally or diagonally.

Pieces are placed, turn by turn, on either the bottom or right-hand edges of the board, existing pieces in the same row or column are moved along one space as each piece is placed. It has the classic board game virtues – simple rules which can nevertheless lead to astoundingly complex board positions. Furrowed brows and intense concentration required.

The game is nicely presented, with hint and puzzle-solving options, record of moves made, instant replay and a host of different display options. You can, of course, play against the computer and at the highest levels it will show you it thinking, by a flashing cursor that whizzes around the perimeter of the board indicating possible moves. The Spectrum, is, at the highest levels, almost unbeatable (that 'almost' is important – so far as the authors of the game know, there is no logical, algorithmic reason why the computer should be unbeatable).

The ideal program with which to intimidate the family at Christmas.

Program *Think!*
Price *£7.95*
Micro *Spectrum*
Supplier *Ariolasoft*
Asphalte House
Palace Street
London SW1E 5HS

This Week

Program	Type	Micro	Price	Supplier
Deathwake	Arc	Amstrad	**£7.95**	Quicksilva
Renegade	Arc	Amstrad	**£7.95**	Kuma
Strangeloop	Arc	Amstrad	**£8.95**	Virgin Games
Stock Market	Ed	Amstrad	**£14.95**	Collins
Time Manager	Ed	Amstrad	**£14.95**	Collins
The Worm in Paradise	Ad	BBC	**£9.95**	Level 9
Astro Plumber	Arc	BBC	**£2.50**	Blue Ribbon
Citadel	Arc	BBC	**£9.95**	Superior
Diamond Mine II	Arc	BBC	**£2.50**	Blue Ribbon
Dr Who + Mines	Arc	BBC	**£19.95**	Micro Power
Joey	Arc	BBC	**£2.50**	Blue Ribbon
Ravage	Arc	BBC	**£2.50**	Blue Ribbon
Artist	Ut	BBC	**£2.50**	Blue Ribbon
Play and Read	Ed	BBC B	**£28.95**	Prisma Soft
The Worm in Paradise	Ad	Commodore 64	**£9.95**	Level 9
Deathwake	Arc	Commodore 64	**£7.95**	Quicksilva
Fight Night	Arc	Commodore 64	**£9.95**	US Gold
Friday the 13th	Arc	Commodore 64	**£8.95**	Domark
Gyroscope	Arc	Commodore 64	**£7.95**	Melbourne House
Scaletrix	Arc	Commodore 64	**£9.95**	Leisure Genius
Starion	Arc	Commodore 64	**£8.95**	Melbourne House
The Young Ones	Arc	Commodore 64	**£7.95**	Orpheus
Zorro	Arc	Commodore 64	**£9.95**	US Gold
Commando	Arc	Elite	**£7.95**	Elite
Q-Calc	Ut	QL	**£9.95**	Psientific
The Worm in Paradise	Ad	Spectrum	**£9.95**	Level 9

– this is called character independence in the trade.

The game looks vaguely like *Frankie*, since the characters wander about the rooms of the Young Ones' student house, displayed as double storey. Your view depends on where things are happening – you see whichever room your chosen character is in and another room where a lot is going on.

Commands are all issued via the joystick, *à la Frankie*, using a series of menus headed *Action, Walk, Talk*. The first leads to options such as opening cupboards and picking up objects, *Talk* leads the character to offer suggestions about what he should do and what he wants, eg, "I'd really like to smash the video" and *Walk* enables you to move the character to another room. The game revolves around acting in characters eg, Vyvyan tends to like destroying things.

So it goes and as such the game would merely be dull. However, the whole thing is chock full of bugs and bad programming. Bad programming takes the form of speech bubbles that flicker wildly if too much is going on at once, and become illegible.

Bugs are more exotic: the syntax logic in the speech bubbles appears to have downed a few too many dodgy pills leading to such remarkable utterances as *I think I should Open the Mikes Bed* (sic). Sometimes these descriptions disappear over the borders of the screen.

The whole thing is a mess and clearly isn't ready for release, although it is redeemed by some excellent music which will entertain you for around ten minutes. The question that creeps into my mind now is, what have all those magazines which have previewed and raved about this game been looking at?

Program *The Young Ones*
Price *£7.95*
Micro *Spectrum*
Supplier *Orpheus*
The Smithy
Church Farm
Hadley St. George
Beds SG19 3HP

MANKIND

Hypa Raid is one of the latest batch of budget titles from Atlantis Software who were in there fighting at the beginning with Mastertronic. *Hypa Raid* is, if not completely original, at least a variation of some game ideas not so done to death as usual.

It reminds me a little of *Frank n Stein*, a venerable game by PSS where you had to use your reasoning and timing to use a cleverly constructed series of lifts. It's also like *Booty* in that you have to collect coloured keys.

Combine those two elements and you have a game in which you have to find your way around various screens using a series of up and down lifts and collect a series of key and data cards needed to get you through a number of differently coloured doors. All this in a *Miner* like scenario of guards who wander back and forth. Certainly the game requires more thought than the usual budget effort.

The point of all this is to collect all the parts of the Mig Starfighter, a nasty Russian device which may well be their answer to Star Wars. In any event your task is to aggressively share their technology for the good of mankind and keeping the Latin American countries Christian. One of the most ingenious budget games I've seen in a long while.

Program *Hypa Raid*
Price *£1.99*
Micro *Spectrum*
Supplier *Atlantis Software*
19 Prebend Street
London
N1 8PF

INGENIOUS

Time Sanctuary is an unusual program from MC Lothlorien – computer wargames from way back. This, though, is an adventure in a style all of its own, although there are touches of *Lords of Midnight* about some of the ideas.

The plot is quite clear, involving injustice and an AWOL time machine. Your main objective is to find out where it went and get it back. This involves wandering around a strange land (which reminds me faintly of Pepperland with its various garish colour clashes.) The game features a kind of simplified *LOM* landscaping, where objects first seen in the distance grow in size as you move towards them.

The interaction is kept to single key presses for the most part, but an ingenious series of scrolling commands means that quite complex and specific instructions can be issued. There are various other characters in the game with whom you must deal, whose interaction with you is a key feature of the game. Their impression of you matters if you seek their help.

I think *Time Sanctuary* has plenty of imagination but lacks programming skill and slickness, the graphics have that user defined look and the character set has not been redesigned. The game looks like it is in Basic (although it probably isn't) though those are, to be fair, just the kind of comments that 'true adventurers' tell me are irrelevant to a true assessment of an adventure. I'll shut up and say it looks ropey, but shows signs of much original thought.

Program *Time Sanctuary*
Price *£7.95*
Micro *Spectrum*
Supplier *MC Lothlorien*
56A Park Lorne
Poynton
SK12 1RE

Alladins Cave	Arc	Spectrum	**£6.95**	Artic
Back to Skool	Arc	Spectrum	**£6.95**	Microsphere
Deathwake	Arc	Spectrum	**£7.95**	Quicksilva
The Living Body	Ed	Spectrum	**£14.95**	Martech
Think!	S	Spectrum	**£7.95**	Ariolasoft
Cammac One	Ut	Spectrum	**£5.95**	Micro Zeighty
Cammac Three	Ut	Spectrum	**£19.95**	Micro Zeighty
Cammac Two	Ut	Spectrum	**£11.99**	Micro Zeighty
Romaze	Arc	ZX81	**£3.95**	C Wehner

Ariolasoft, Retail. **Artic,** Main Street, Brandesburton, Driffield YO25 8RL, 0401 43553. **Blue Ribbon,** Silver House, Silver Street, Doncaster, South Yorkshire DN1 1HL, 0302 21137. **C Wehner,** 9 Upper Park, NW3 2UN. **Collins,** 8 Grafton Street, London W1X 3LA. **Domark,** 204 Warple Road, London Sw20 8PN, 01-947 5624. **Elite,** 55 Bradford Street, Walsall WS1 3QD, 0922 611215. **Kuma,** Kuma Computers, 12 Horseshoe Park, Pangbourne RG8 7JW, 07357 4335. **Leisure Genius,** 3 Montagu Row, London W1H 1AB, 01-935 4622. **Level 9,** 229 Hughenden Road, High Wycombe, Bucks HP13 5PG, 0494 26871. **Martech,** Martech House, Bay Terrace, Pevensey Bay, East Sussex BN24 6EE, 0323 768456. **Melbourne House,** 39 Milton Trading Estate, Abingdon, Oxon OX14 4TD, 0235 835001. **Micro Power,** Northwood House, North Street, Leeds LS7 2BB, 0532 434006. **Microsphere,** 72 Rosebury Road, London N10 2LA, 01-883 9411. **Psientific,** 37 Cottesmore Road, Hessle, North Humberside HU13 9JQ, 0482 649187. **Quicksilva,** Palmerston Park House, 13 Palmerston Road, Southampton, Hampshire SO1 1LL, 0703 20169. **Superior,** Regent House, Skinner Lane, Leeds LS7 1AX, 0532 459453. **US Gold,** Unit 10 The Parkway Ind Centre, Heneage Street, Birmingham B7 4LY, 021 359 3020.

Alternative World

It seems to be fashionable to be sniffy about computer games.

A writer in one recent report I read said that young people who owned computers and used them mostly for games-playing had no significant advantage when starting computer studies at school.

I wonder. At the simplest level, my own experience suggest that children with home-computers gain at the very least a basic knowledge of the Qwerty keyboard. While the typing rooms in schools are still too likely to be seen, however erroneously, as low-status 'female' ghettos, home computers are among the few ways in which the intelligent young are likely to be made familiar with an important part of their future working environment.

Then I wonder about the computer studies that these pupils are starting. Are they learning to program? Are they being given general computer awareness courses? Are they plugging away at some of the dreaded 'education' software?

Watch young people playing a good computer game together and the first thing you realise from their cryptic comments is that they share an intimate knowledge of an alternative world. Games-playing is not the solitary activity that some of its critics claim. Players like to share their insights, knacks and dodges with fellow devotees.

Language, in fact, is what it's all about. They are immersed in the game's symbol-system, and are reading it on various levels.

First, maybe, there's the fictional level, the pretext of the game, the stuff it talks about on the cassette inlay. "You are alone on a monster-ridden planet and being attacked . . ." or "Miner Willy has had a party and must collect . . .". That sort of thing. This level seems to matter the first time you play a game, but is soon forgotten. Its relative insignificance is often signalled by jokiness – mutant camels, flying hairspray, etc.

Next comes the manipulative level, where the player learns how the joystick or keyboard relates to the screen. Every good game has its own feel, and the hand on the joystick trigger must learn to react faster than the conscious mind.

Then comes a deeper level where you attune to the programmer's wavelength – where consciously or unconsciously you find the patterns in the game, and suddenly realise how particular problems can be coped with.

This interconnects with a more technical level, where the player gets to know how sprites behave.

There can also be a hacking level, where useful *Pokes*, often communicated as folklore on an informal network, help you to beat the system by playing it on its own machine-code terms. All's fair in computer-gaming.

Games are absorbing because players can operate on all these levels simultaneously, enjoying a rich and multi-layered experience.

Too often educational programs present the machine as the all-knowing expert that marks you right or wrong and penalises you if you step outside its often all too rigid categories. (Stories of programs grimly rejecting intelligent input that hasn't been anticipated are, of course, legion.) The computer is cast as rigid tyrant that humans must bow before. Fit in or fail.

In a game, on the other hand, the program is a system that challenges you to beat it, by fair means or foul, where you probably discover the best strategy by ganging up with your friends.

I know which I think offers the best preparation for life.

George Simmers

Puzzle No 186

Can seven plus eight ever equal 12? Yes! – if the sum is in the form of an alphamatic as shown below:

```
  S E V E N  +
    E I G H T
  -----------
  T W E L V E
  -----------
```

As is usual in puzzles of this type, each letter stands for a digit, the same letter representing the same digit whenever it occurs. Can you find the original sum – though you may find more than one possible answer!

Solution to Puzzle No 181

The correct sum is: $17 \times 4 = 68 + 25 = 93$.

```
10 FOR A=1 TO 9
20 FOR B=1 TO 9
30 IF A=B THEN GOTO 250
40 FOR C=1 TO 9
50 IF C=A OR C=B THEN GOTO 240
60 LET Z=(A$10+B)*C
70 Z$=STR$(Z):Z$=MID$(Z$,2)
80 LET V=VAL(MID$(Z$,1,1)):LET W=VAL(MID$(Z$,2,1))
90 IF V=A OR V=B OR V=C OR V=W THEN GOTO 240
100 IF W=A OR W=B OR W=C OR W=0 THEN GOTO 240
110 FOR D=1 TO 9
120 IF D=A OR D=B OR D=C OR D=V OR D=W THEN GOTO 230
130 FOR E=1 TO 9
140 IF E=A OR E=B OR E=C OR E=D OR E=V OR E=W THEN GOTO 220
150 LET Y=(D*10+E)+Z
160 IF Y>99 THEN GOTO 220
170 LET Y$=STR$(Y):Y$=MID$(Y$,2)
180 LET T=VAL(MID$(Y$,1,1)):LET U=VAL(MID$(Y$,2,1))
190 IF T=A OR T=B OR T=C OR T=D OR T=E OR T=V OR
    T=W OR T=U THEN GOTO 220
200 IF U=A OR U=B OR U=C OR U=D OR U=E OR U=V OR U=W
    OR U=0 THEN GOTO 220
210 PRINT A,B,,C,,D,E,,Y
220 NEXT E
230 NEXT D
240 NEXT C
250 NEXT B
260 NEXT A
```

The program works by generating the first three digits (A, B, and C) and calculating the resulting product (A*10+B)*C. This gives the result of the first stage of the calculation. The digits of this product are then checked to see that they have not already been used (lines 80 to 100). A further two values are then generated in two FOR/NEXT loops, again checking for duplication of digits (lines 110 to 140). These digits represent the number which is to be *added*. When this is done (line 150) the final result is again checked for duplication.

Line 210 prints any solution which passes these tests.

Winner of Puzzle No 181

The winner is E J Sargeant of Long Eaton, Nottingham, who will be receiving £10.

Rules

The closing date for Puzzle No 186 is January 1.

The Hackers

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