0711

POPULAR COMPUTING WEEKLY

A FOCUS MAGAZINES PUBLICATION

March 17–23 1988 70p

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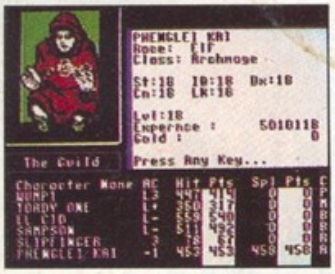

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COMPETITION

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Win a personal stereo or a Rebound game in our latest exciting competition

Budget games billed to dominate market

BUDGET games are likely to account for 75 percent of all games software sales in the next few months. That forecast was contained in the latest Gallup report on the U.K. home computer software market.

"Budget continues its inexorable march forward. Judging from past years' trends, there is every likelihood of budget reaching the 75 percent plateau sometime after summer. This would be an unprecedented figure," says the report.

Bruce Everiss, marketing manager of Code Masters, says: "Why should people pay five times more money for the same product? I am surprised it has taken so long for people to realise they are being ripped off."

Another budget software house, The Power House, sees the report as promising. Ashley Hildebrandt, managing director, says: "The effect is already being felt. Budget software is very good and full price publishers cannot get away with producing run-of-the-mill, over-priced productions any longer."

Budget games taking over market

Hildebrandt sees full-price software houses releasing less product. "They will probably produce fewer but better-value productions. This will improve the market and encourage innovation."

One full-price software house which is not too worried about the growth of budget software is Electronic Arts. Mark Lewis, director of European publishing, says: "We believe there will always be a market for premium software.

"Software artists cannot make money on budget. They may take 18 months to produce it. If you sell 100,000 units at £1.99 they will not make much money for their efforts."

Psion flotation goes ahead

PSION, maker of the hand-held Organiser II computer, entered the Unlisted Securities Market last Monday.

When dealings began Psion was valued at £16.6 million.

Originally, Psion planned to join the USM last year but this was aborted after the October crash on the Stock Exchange.

Capital raised from the flotation will be used by Psion for development and to increase production. Dr David Potter, chairman and managing director of Psion, said: "We have had a tremendous response to our products and this demand has made us decide to increase production."

Pre-tax profit in 1987 was £1.9 million. Psion is expected to report £2.75 million for the year to December.

Since the Organiser was introduced in 1986, sales have exceeded 150,000 units. Buyers have included private individuals and large corporations, such as Marks & Spencer. Overseas sales are also important. "We are very strong on exports especially in West Germany and the U.S. Currently 50 percent of our products are exported," said Potter.

David Potter.

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EDITORIAL

So Atari has increased the price of its ST range by £100. The reason given is the shortage of chips world-wide and accompanying price rises, but is that really so? Although the chip situation has undoubtedly put Atari under some strain financially, is it simply a convenient excuse to mask its plans for later in the year?

If there had been no chip shortage there would have been howls of protest about the price increases but, if there had been no chip shortage, surely the price would not have to rise?

It makes sense for Atari to raise its prices now, no matter what the reason, or even if there is no obvious one. Consider the situation.

At the end of last year, Atari had sold around 75,000 STs, taking the installed user base to more than 100,000. Because of a cautious manufacturing approach, there was a reputed world-wide shortfall of 200,000 machines in the run up to Christmas. Now, while the exact figure may well be less than that which Atari claimed, there is little doubt that demand considerably exceeded supply.

Because of the low price and its television advertising, Atari has now sold a respectable number of STs. If the demand is so great it makes sense to raise the price for a number of reasons. One is profit.

A higher price means more money in the bank, something needed if the company is to be in a strong position to push the ST later in the year. Second, supply should now exceed demand, thus enabling Atari to start stockpiling for the Christmas 1988 offensive.

It is difficult to see Atari keeping the price at £400 for the whole of 1988. With the present strategy it will certainly be within its ability to reduce the price of the 520 STFM to around £200 at this year's Personal Computer Show. The impact of such a manouevre would be felt particularly by Commodore and Amstrad. Why bother with a Spectrum when, for virtually the same price, you could have a 68000-based, 500K. GEM-based machine?

There is also the possibility of Amstrad launching its 68000-based computer later in the year. If that is the case Atari will need as much financial muscle and leeway as possible with the ST range to counter the threat. Either way, the much vaunted chip shortage could be a blessing in disguise for Atari.

Duncan Evans

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Executive Editor Francis Jago
Features Editor Duncan Evans
Production Editor Yvonne Hartland
Chief Sub-editor Harold Mayes MBE
Staff Writers Nikki Carvey, Leslie Bunder
Art Assistant Paul Ellis
Advertisement Manager David Osen
Display Executive Tim Owen
Classified Manager Susannah King
Classified Executive Robert Cole
Managing Editor Brendon Gore
Publisher Trish Phillips

Group Publisher Paul Coster
Chief Executive Richard Hease
Financial Director Brendan McGrath

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Clamp down by Huskys

DATACOM Systems has joined with the Metropolitan Police in a five-year contract to co-ordinate a computer network for wheel-clamping and vehicles removal units.

More than 80 clamping crews – equipped with Husky Hunter hand-held terminals, will be able to send information about clamping and removals, via the Racal Vodafone cellular radio data network, to the host computer, an Artemis 8000.

As "the first large-scale data network using cellular communications in the world", the system appears to offer a number of benefits to the police. Designed to save operational costs, Husky Computers claims that the Hunter terminals save 10 times more air time and also reduce transmission inaccuracies due to noise or accent variations.

Copyright of the Metropolitan Police.

The communications centre, based at Bermondsey, will enable any data to be exchanged between the Metropolitan Police clamping and removal contractors, car pounds, payment centres and police supervisors. In addition, the system will co-ordinate with the Central Command complex at Scotland Yard.

With an impounded vehicle, the system will authorise its release once the parking violator has made payments. Similarly, on payment, the system will authorise the release of a clamped vehicle and communicate the information to the de-clamping crew, who will then locate the vehicle and release the clamp.

London's parking problems are caused by the motoring activities of two million vehicles which daily invade the capital. While parking offenders must still venture to designated payment centres, the new communications network should speed the overall procedure of releasing impounded and clamped cars.

Mindscape sponsors youth

U.S. GAMES software publisher Mindscape sponsored the first national soccer youth tournament in the U.S. The finals, played last month, resulted in a team of schoolboys from Chicago beating a team from Cleveland by 4-1.

Presenting the Mindscape Cup to Chicago, Roger Buoy, president of Mindscape, said: "I am a firm believer that soccer is an exceptional way to bring young people together."

Soccer tournament sponsored.

Perfect game claim

LOGOTRON is claiming that its new game *StarRay* will feature the best arcade programming ever on the 68000 chip. Herbert Wright, publisher of the recreational division of Logotron, says: "I am not aware of any game to equal the quality of StarRay."

The game features fast and smooth parallax-scrolling. StarRay is a 32-colour shoot-'em-up with seven levels, each representing a different planet. The game will be released in May and will cost £19.95. An ST conversion is planned but there are no plans for more 8-bit versions.

"I am not particularly interested in pursuing the 8-bit market," Wright says.

Other Logotron games being developed include *Star Goose* and *Quadralien*. Star Goose is from Steve Cain and Kenny Everett, the duo responsible for the recent ST chart-topper *Black Lamp*. Both releases will be out on the Amiga and Atari ST.

Hewson goes global

NEBULOUS, the rotational 3D scrolling game from Hewson, is being converted for the Atari 8-bit machines.

Atari Corporation will shortly be releasing the game on cartridge, cassette and disc and world-wide rights to the game. Hewson is supervising the conversions.

Hewson boss Andrew Hewson is also confident of further international licensing deals in the States and Japan commenting: "Originality pays handsome dividends. We have had a number of approaches for the various conversion rights and I am very pleased."

Hewson is planning 16-bit conversions to the ST, Amiga and IBM PC.

Atari sets pace

ATARI sales in 1987 were a record $363 million, an increase of 41 percent over the previous year.

Sam Tramiel, president of Atari, said: "The computer segment of our business continued to grow at a record pace, contributing more than 51 percent of our nett sales for the year. Video game systems sales continued strongly through 1987 contributing 23 percent to our total. Retail sales contributed 26 percent. We have a well-balanced mix across our product range."

Last year Atari bought the Federated Group of retail stores. If its results are included, nett sales total $493 million, a 91 percent increase on the previous year.

Disc offer

DISC manufacturer Verbatim is offering a free Megalogic electronic organiser with every 10-box order of Datalife or Optima discs.

Action Computer Supplies on 0800 333 333 can fulfil orders with next-day delivery.

The microExplorer.

Artificial intelligence gets personal

APPLE Computers and Texas Instruments have joined forces to produce a new personal computer/artificial intelligence package. The microExplorer is the first system which uses an AI microprocessor within a personal computer, in this case on Apple Macintosh. Deliveries to Europe will start in late Spring.

Olympic trip

JAMES Yerkess of Hitchin, Herts, was the winner of Tynesoft Winter Olympiad '88 competition. The prize was a trip to the Winter Olympics in Calgary.

David Croft, head of development at Tynesoft, says: "We had a fantastic response to the competition with more than 4,000 entrants. The answers by Yerkess were the most correct."

Croft says that plans are under way to release a Summer Olympiad '88 to coincide with the Summer Olympics in Seoul. "We will probably be offering a trip to the Summer Olympics for the winner," he says.

James Yerkess in Calgary.

Smiths to increase Electric output

ELECTRIC Distribution has just signed a deal with W.H. Smith to supply *1st Word Plus* as a word processing package for the Atari ST. *1st Word Plus*, which has already been available from stores since January, offers a wide range of features. The package runs on GEM software with drop-down menus and up to four concurrent windows. It has a 500 words per second spelling checker complete with a 40,000-word internal dictionary, which gives the user the option of checking spelling as they type.

The package also has full WYSIWIG on screen print styles, search and replace functions, multi-column output, footnote facility and a mail merge system.

According to W.H. Smith computer buyer Ian Laurie, sales of 1st Word Plus have been very satisfactory and the company is considering other Electric Distribution software packages.

Electric Distribution has also developed a special printer driver for 1st Word to support the Panasonic KXP1801 printer, also stocked by W.H. Smith for use with the Atari ST. The driver is standard in the W.H. Smith package.

Science made easy

MICRO Logic Consultants has launched a new spreadsheet aimed at scientific users for IBM PCs and compatibles. *MLC-Analyze* allows the user to do complex analytical techniques such as curve fitting and statistical tests without any programming knowledge.

MLC-Analyze costs £295 plus VAT. More information from Micro Logic Consultants on 0403 700441 or write to Wisborough Lodge, Wisborough Green, West Sussex RH14 0DZ.

Microlink grows

Microlink, the electronic mail service with 10,000 subscribers, celebrated a milestone when its bulletin board carried its 20,000th message. Microlink is used as a means of sending and receiving messages. With a home computer a user can turn the machine into a Telex machine and send messages across the world.

For more information contact Microlink on 0625 878888.

BBC show

THE sixth annual Electron and BBC Micro User show will once again be taking place at UMIST in Manchester.

New products for the complete range of Acorn machines will be shown. They include a range of educational revision packages for the Archimedes from LCL, a printer driver ROM called Hyper-Drive for the BBC from Dabs Press and a new mouse from Nidd Valley.

The show runs from Friday, March 18 to Sunday, March 20. Admission to the show is £3 for adults and £2 for children.

Anglo-Soviet complex link

MANCHESTER firm Simon-Carves, has just secured a £246 million deal with Moscow-based V/O Technopromimport. Simon-Carves is to build an industrial complex to produce programmable logic controllers in the Soviet Union.

The PLCs, which are microprocessors used for the control of tool factories, have been developed from the GEC GEM 80 programmable logic controller.

The complex is expected to be completed during the first half of 1991. Once finished, the complex will be capable of producing 25,000 PLCs a year.

Tim Leader, chief executive of Simon-Carves, commented: "We are delighted at the successful outcome of these negotiations."

Alan Clark, Minister for Trade said: "This is the largest contract placed with the U.K. since the conclusion of the Credit Agreement last year. Both Governments are keen to increase the level of trade in the next year and this particular contract was pressed for by the Prime Minister at her meetings with Mr Gorbachev."

There are no plans for the Soviet Union to export the PLCs. Mike Hurn, Simon-Carves publicity director, said: "They are for internal use only."

LETTERS

Alive and kicking

I own an Atari 8-bit micro and I would like to know why every time you review a game for my machine – which is not very often – you say that the Atari is an old machine which is starved of good software. Worst of all, you think the Atari is dead. I know the Atari 8-bit does not have as many users as the Commodore and Spectrum but software is still being released for it.

Allan Porter,
Spalding,
Lincolnshire.

Going bananas

I had a bit of a shock when I woke up this morning as I discovered that my computer had turned into a banana.

Subsequently my disc drive has turned into a Robin Reliant and my printer was a cup of coffee. I sent them all to a computer repair company but it only sent them back saying something about a new virus which had that effect and there was nothing it could do.

Could this virus hit the whole computer industry unaware? I must dash as my monitor is slowly transforming into a cowpat.

Adrian Soord,
Yeovil, Somerset.

If I were you, I would go – as quickly and calmly as possible – to your nearest hospital, and ask if it has a psychiatric ward!

ST users unite

I refer to Mark Kinsella's Irish ST SOS letter in your March 3-9 issue. He is obviously not aware that a very successful ST users' group has been in existence since October 1986. Monthly meetings take place in Power's Hotel, Kildare Street, Dublin on the first Sunday of every month. The XL/XE range of Atari computers are catered for on the third Sunday of each month at the same venue. We have information posters displayed in the main Atari outlets in the city centre and, to cap it all, we advertise in the national evening newspapers a week in advance of our meetings. So Mark should purchase *Popular Computing Weekly* and read the national evening press. Both the Atari ST and 8-bit machines are very well-supported; figures show there is a large Atari users base in Ireland and it is well catered for by the Atari Users' Group of Ireland.

M. Casey,
Co. Dublin, Ireland.

Computer chaos

I would like to add my voice to the Comment article, Computer Chaos by Stuart Low, February 18–24. The purchasing of computers and ancillary equipment from chain stores is becoming more and more of a frustration.

On January 23, I bought an Olivetti DM285 dot matrix colour printer from Dixons at Doncaster. The printer was being offered at an incredibly low price, £169.95 plus VAT, and I had intended to buy the cheapest black ribbon printer available. I asked the assistant about the purchase of replacement ribbons and their price, knowing that Epson JX colour printer ribbons are retailed at £18.50 each, and was told that they had no information about the price or availability of them. I was informed that the DM280 black ribbons were about £4.00.

Unable to resist the temptation of the low price I decided to buy. I then asked about software to drive the printer; none was available. Still undaunted – I had written my own colour dump for the Epson JX80, not mine, I hasten to add – and I went ahead. The following week I returned to the shop and once more asked about the price of the colour ribbons. This time I was told an amazing £29.

I had been prepared to buy in bulk to reduce the price but at that price 12 ribbons would be £348, £150 more than the cost of the printer.

I now have a very good printer, so far as my experience to date can show, and only the life of the one ribbon in which to take advantage of its good quality output – or the option of taking a second mortgage to buy more ribbons – using colour.

The complaints I have are that the company should have ensured adequate support for purchasers before selling. The price of the necessary replacement parts should have been readily available to purchasers and shop assistants in the shop. The printer manufacturers should provide software to drive their printers so that they can be used for the purposes for which they were bought. This should cover only the most popular machines for off-the-shelf buying but other versions should be obtainable at a small cost or even freely. You would not expect a car to be sold without an ignition key and therefore a printer should not be sold without the relevant software.

Peter Doherty,
Hexthorpe, Doncaster.

"Today 75% tomorrow 100%"

Not such a bargain

When the head of my trusty Smith Corona D100 dot matrix printer recently went the way of all things, I was a little apprehensive as to the cost of replacement. Imagine the shock when I found out how much a replacement would be. Two prices were quoted; one just slightly less than and one slightly more than £150 not including fitting.

Had I known this at the time I bought the printer I may not have been so hasty.

Apparently there are only eight spare heads in the country, so I suppose I will have to make up my mind soon what to do.

Comparatively, a Mini gearbox would cost £2000.

It seems to be a good idea for a caring magazine to do a survey of replacement parts for printers and perhaps how long they are expected to last, to help readers to decide if a cheap printer is such a good bargain.

Walt Jonsen,
North Hykeham, Lincoln.

A good idea as replacement parts for all computer equipment are becoming increasingly expensive. Look for a feature on this in the near future.

Just old hat

I am really appalled at your injustice and the gross neglect regarding the 8-bit Atari. You might refer to it as the 'old Atari', but what about the 'old Spectrum', the 'old Amstrad' or even the 'old CBM 64' of which you feature unfailingly every week? You would be amazed at how many dedicated Atari 8-bit users there are, so be fair – mention us once in a while.

P. Phillips,
Stevenage.

We try to cover a wide range of machines, both 'old' and 'new'. Achieving a balance is never easy, but we cater for less popular machines, e.g., QL and Dragon, as well as the best-sellers.

Full copy

My son possesses a Spectrum 48K complete with a Fuller Pack, made by the now defunct Fuller Company.

It consists of a speech synthesiser, three channel sound generator, a joystick interface and a built-in sound amplifier and speaker. Unfortunately, he has lost the part of the instruction booklet relating to the use of the speech synthesiser and 'allo-phone' list.

I would be grateful if any of your readers could help me with a photocopy. Of course, any costs would be reimbursed.

I myself occupy myself with the use of a Tatung Einstein with two built-in disc drives.

Congratulations on your interesting magazine, which I always buy to keep abreast of new innovations in the world of home computing.

M. J. Lang,
Burnham-on-Sea, Somerset.

We hope that one of our ever-helpful readers will have the required information. If so, send it to us and we will forward it.

We are sorry but *Popular Computing Weekly* cannot guarantee to reply to *all* letters requesting a personal answer. It helps us enormously if readers are prepared to have general queries answered on these pages, so, if possible, please do not send SAEs.

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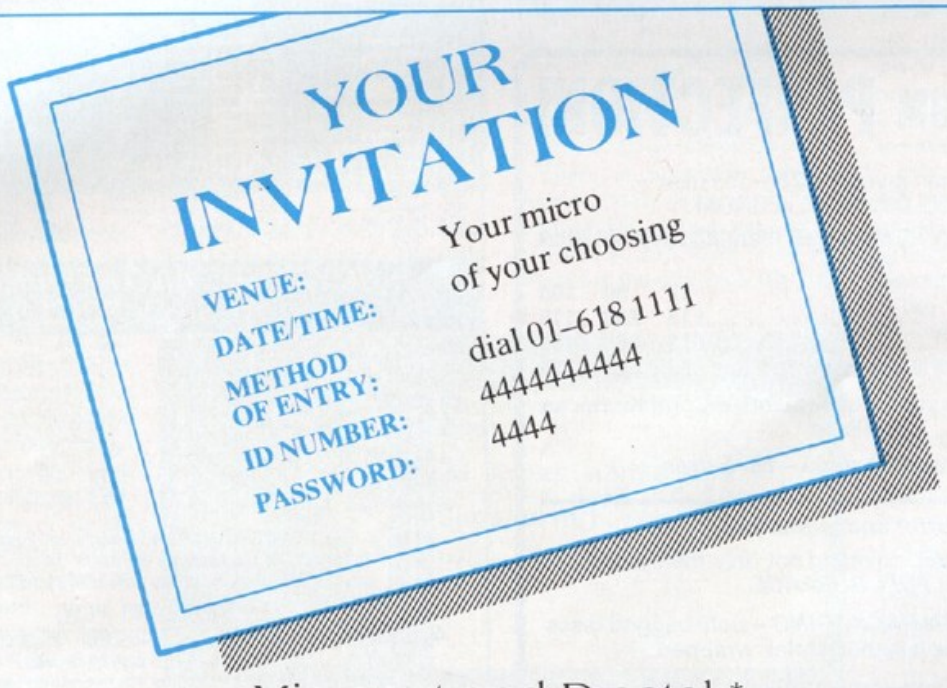

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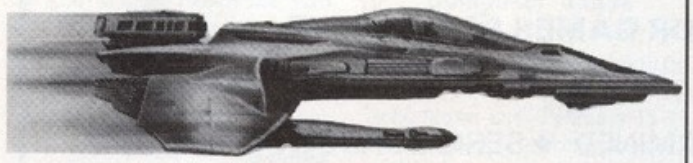

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T8	Indiana Jones	9.99	5.99	T33	220	9.99	5.99	T58	Robet	9.99	5.99
T9	Renegade	8.95	7.10	T34	Bedlam	9.99	5.99	T59	Hobbit	9.95	5.99
T10	10 Pack	9.95	5.99	T35	Flying Shark	9.99	5.99	T60	Red Hawk	8.95	7.10
T11	Star Wars	9.95	5.99	T36	Brawstar	9.99	5.99	T61	Cop Out	8.95	7.10
T12	Five Star Games 2	9.95	5.99	T37	Kids Play 10	9.99	5.99	T62	Biggles	9.99	5.99
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Going overground

Just when you thought it was safe to go back into the dungeon . . . *Bards Tale II: The Destiny Knight* is here.

It all started a long, long time ago . . . Turin was the name of an archmage who forged the Destiny Wand in the depths of Mount Krontor. The Wand has supposedly ensured peace and prosperity for the last 700 years (it did not do much about Mangar though did it?) and been the uniting force in the realm.

Recently though things have gone just a bit wrong. An evil archmage called Lagoth Zanta has, with the aid of mercenaries from the neighbouring kingdom, broken the Wand into seven pieces (why is it always seven pieces?), and placed each fragment within a snare of death. This snare is a real time puzzle that has to be solved before the party can escape again.

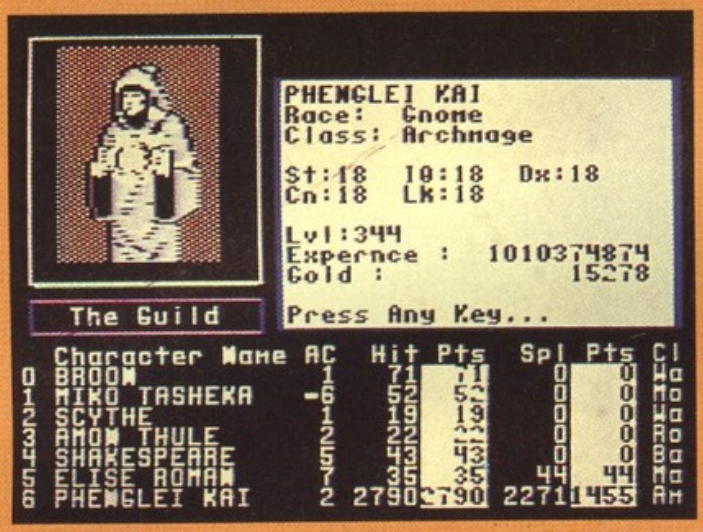
The object for the usual squad of adventurers is to locate all the pieces of the Wand, defeat Lagoth Zanta, and then reforge the Wand and save the Kingdom (cue drums and fanfare).

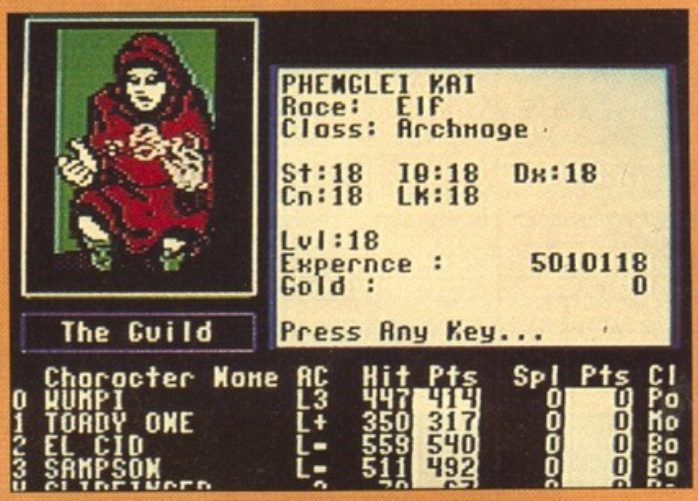
Although quite a few improvements and enhancements have been made this is still essentially the same game as *Bards Tale I*. Roll up the usual mob of characters, of various races, and the same character classes with the addition of a fifth magic user class, archmage, now being officially available once you've mastered all the others.

The spells have been reworked, reordered and expanded, to provide 79 in all. For first level magicians Quick Fix can be very handy as it restores 8 hit points to an ailing character.

Up on the higher levels there's some real corkers. Mangar's Mallet is a level 7 archmage spell, so you won't be using that for some time, that inflicts 200-800 hits on each monster that you face. Ouch! Serious damage. The trouble is the monsters are just as likely to be throwing bone crushing spells at you.

An interesting one in the manual is referred to as a mythical spell, the Dreamspell in fact, that legend has will rip the fabric of reality in half. Sounds useful.





One thing you will notice as you trog around the cities (yes, plural there are six of them), dungeons (25 of those), and the wilderness, is that the low level magic using enemies are not the big bunch of wimps that they were in the original. Their favourite is the summon wolf spell, and for a first to third level character those wolves are mean.

There is a starter dungeon near the start to get your characters going, and one very useful addition is that there is an Adventurers Guild in each city – no tramping back to the start to save games.

Out in the wilderness there is all sorts of things that can be found, including Crypts and a sage who will, for a sizeable fee, offer advise on a variety of subjects, but likes to spend most of his time talking about his last holiday.

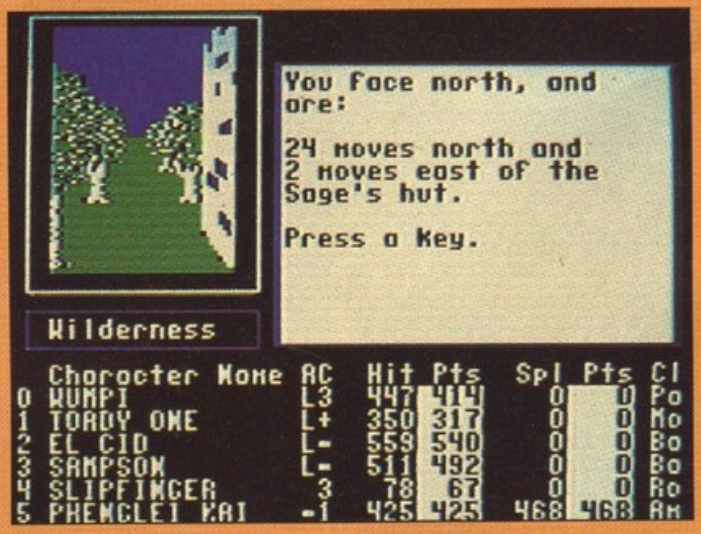
Ranged weapons and greater access to the front rank – you can have four people there now – are the main changes in the combat section. Having the otherwise useless thief firing arrows from the back gives him a reason to exist once more.

Other interesting additions are the casinos for making more money, or losing it all, and Bedder's Bank for the Bold, here you can leave spare swag.

The graphics are reasonably good for the C64, and though the general landscape and cities do not scroll, the dungeons do.

If you persevered to finish the original game then this is a gripping, more challenging experience that you are going to love. For the majority, like me, you may have to give up on the original to take up the new challenge, either on this C64 format or on the Amiga version which is close behind.

Either way, hundreds of hours of entertainment can be had when the bard goes drinking. Again.



Reviewer: Duncan Evans
Price: £14.95
Micro: C64
Supplier: Electronic Arts

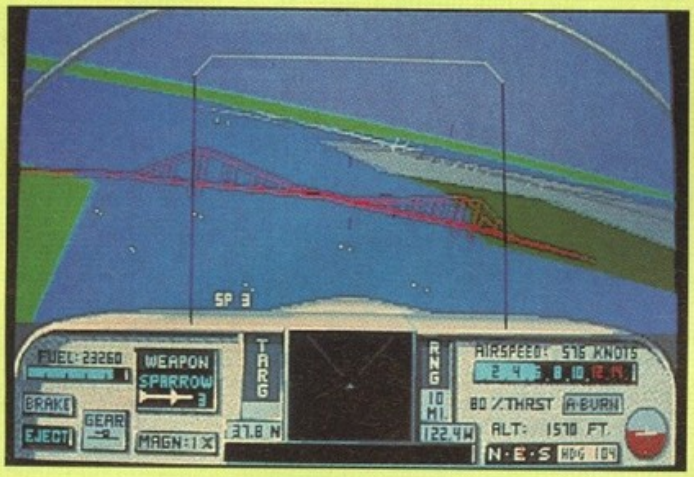
POPULAR RATING
Graphics: 17
Sonics: 14
Gameplay: 46

77

F-18 Interceptor and Verminator

Tired of the serenity of *Flight Simulator 2*? Despairing of other so called flight sims? Gnashing your teeth waiting for *Gunship*? No? Well you **will not** be interested in something Electronic Arts will be releasing in May then.

F-18 Interceptor gives you the choice of two fighter planes, an F-18 Hornet and the F-16 Falcon, and a choice of six combat missions that take place in the skies over San Francisco Bay.



Although not renowned as one of the world's trouble spots, San Francisco certainly becomes an unhealthy place to live as you fly around the city, presented in solid 3-D, and under, or over, the Golden Gate and Bay Bridges.

The missions include protecting Air Force One from enemy fighters as the President's aeroplane tries to land at San Francisco International Airport, preventing World War III by shooting down incoming cruise missiles (sounds like it has already started), saving a pilot from drowning, identifying an unknown plane that has appeared on the radar, and preventing the escape of two stolen F-16s.

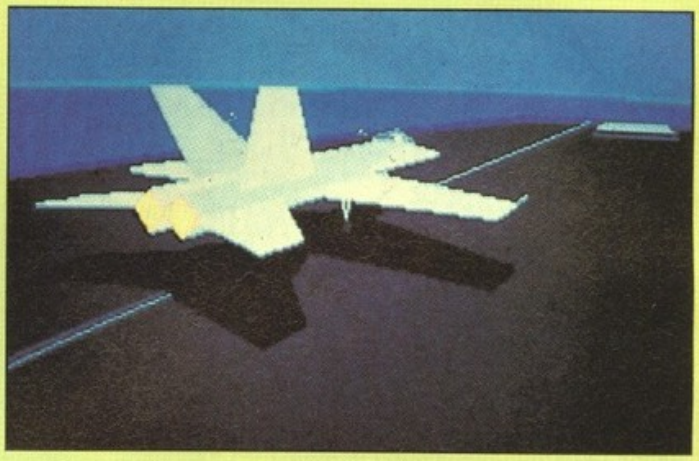
Each mission starts on the USS Enterprise (the aircraft carrier), and you can land at three real airports. After taking off you can set about the mission armed with Sidewinder and Sparrow missiles, and a Vulcan cannon.

The graphics are reasonably good and fast, though not especially smooth. With the action elements it promises to be one of the better flying games on the Amiga.

Price will be £24.95, expect *F-18 Interceptor* in May sometime.

Okay, so you thought *Black Lamp* was pretty. Fah! Take a look at these screen shots of *Verminator*, also from Rainbird.

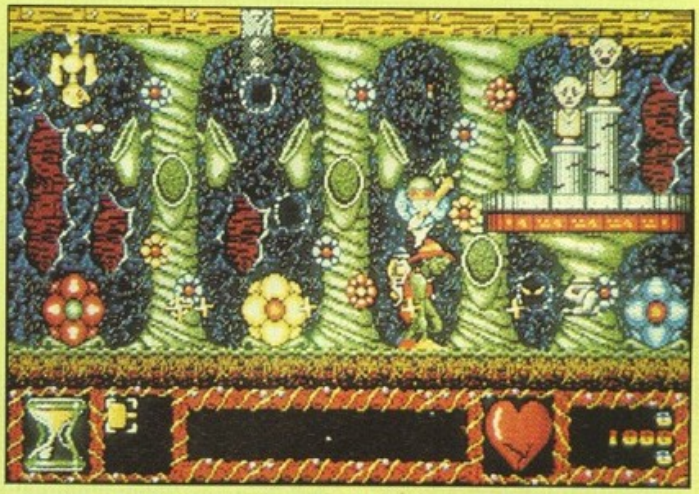
In this surreal arcade adventure you play the part of a three legged bounty hunter, out to exterminate all the vermin in a vast infested tree. There are 250 locations to investigate and stomp through, including a bank where you can invest your money, a casino where you can throw it all away, or the Brotherhood where you can borrow. That really is a last resort.



What is astonishing about *Verminator* is not only the quality and variety of the graphics, which are tremendous, but also the fact that the scrolling is pretty smooth, and your bounty hunter moves along on a pixel by pixel basis, rather than by scrolling through eight pixels, as was the case with *Black Lamp*.

The armament for your green skinned adventurer includes bricks and a mallet. Using the latter item on the head of things sprouting out of the ground may not be some pixie's cup of tea, but I found it entertaining enough.

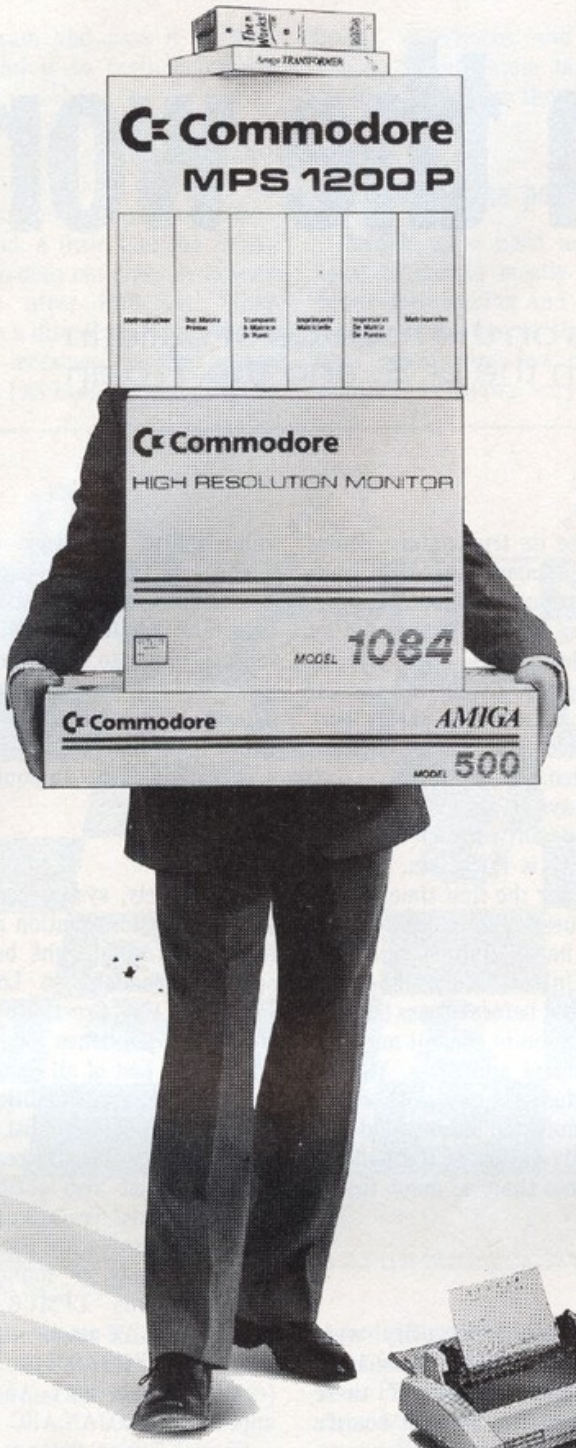
As the vermin fight back and inflict damage on the verminator,



cracks appear in a heart at the bottom of the screen. Come the fatal blow, the heart shatters into pieces.

The price of this little gem will be a hefty £24.95, though it is worth every penny, and will be available inside of a month of you reading this.

Duncan Evans



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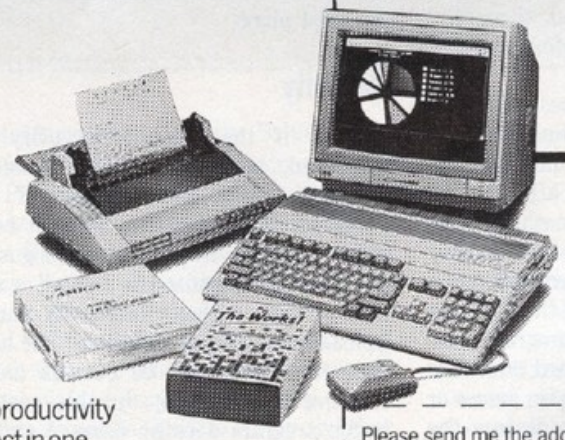

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Vandals in the works

lolo Davidson reports on the hazards of bulletin board downloading in the U.S. and the Trojan plague.

In the United States, computer bulletin board users are being warned to be on guard against a new problem. It is called bogusware and it can seriously damage your data.

Bogus software is in several varieties, the commonest being commercial copyright products which have had identifying features removed by pirates, who then upload the software to bulletin boards with a message describing it as being in the public domain.

Serious problem

This can be a serious problem to the bulletin board system operator (sysop) as the true owner of the copyright can sue for large sums in damages. It is not much of a defence to say that you were duped by persons unknown and it is very difficult to trace the original villain of the piece. Once the copyright message has been removed from a program, it may pass through a number of innocent hands before someone notices it is a ringer.

Illicitly-copied software does not worry the bulletin board users as much as it does the sysops. Human nature dictates that few people will be seriously affronted by being handed something for nothing, even if they are in fact receiving stolen goods.

What the users are worried about is a more sinister development, the "Trojan horse" or "Worm". These programs are usually found on bulletin board download areas disguised as public domain games or utilities but what they do is destroy the data on your discs. This is vicious enough where floppy discs are concerned but most Trojans are aimed at the IBM PC or its clones, where a high proportion of users have large capacity hard discs of 20MB or more. Losing all the data on a hard disc can be a major disaster.

Obviously, no-one would knowingly run a Trojan on their computer but it is extraordinarily difficult to tell what a program does without running it. The perpetrators of this software go to great lengths to disguise its true nature, sometimes giving it the same name as a well-known and popular public domain standby, or even subverting a true PD program by inserting new, destructive code into it. Every time one of these Trojans appears on a bulletin board, at least one person gets caught before the true nature of the program is revealed.

Bulletin board sysops do not allow just anyone to upload software on to their boards but security is fairly lax. Anyone who calls a board for the first time will be faced with a questionnaire asking for details like their name, address, and telephone number. Unfortunately, those details are not checked before access is given and people who intend to commit mischief give false names and addresses. Tighter security might reduce the ease with which bogusware is promulgated but it would also change the friendly nature of the bulletin boards which makes them so much fun in the first place.

Security

Even if the level of security were increased, the "worms" could make a nonsense of it. The purpose of these programs is to steal the bulletin board's password file. As with other bogusware, the program, disguised as a game or utility and perhaps with an intriguing name, is uploaded by persons unknown. The hope is that the sysop will be curious and try running the program. In this case, the bogus program does no damage and may even produce a distracting screen display but this is just to cover its real activity. While the sysop trys to get the "game" to work, it is copying the board's password file to another file with a new, innocent sounding name. A few days later, the worm's author calls the board again and downloads the new file. Thereafter he is able to pose as any one of the board's legitimate users.

Bulletin board sysops here and in the U.S. are increasingly conscious of their vulnerability to misuse and the consequences of the reaction of our primarily non-computerate populations to the resultant bad publicity. One British board recently had to close after newspaper reports of bad language being used in the board's "Adult" message area. Copyright abuse and malicious Trojan horse programs could cause an equivalent reaction.

Experts

Fortunately, sysops are experts in the exchange of information and are quick to help each other fight back against the software vandals. In Los Angeles, the sysop of the Crest RBBS board, Eric Newhouse, publishes a downloadable Program Alert List of all reported bogusware, now into its seventh edition.

Of course, a mere list of names is of limited utility, for the reasons given, but the Alert List also outlines methods of defence against Trojans and possible techniques for recovering damaged data. The Alert List may be found on some U.K. Bulletin Boards – CPMUG, ROS Southwest, and Bulletin AT among others – under the name DIRTYDOZ.007 or DIRTYD7C.ARC (compacted version). An earlier version appears as TROJAN.ARC.

Special Trojan defence utilities can be found in the public domain. They are memory-resident programs which are meant to be run before the suspect software. They remain active while the suspect program runs, intercepting all system calls which try to access the discs, thus preventing any damage. Two such utilities are called BOMBSQAD and DPROTECT. A Trojan version of DPROTECT has been found which destroys your data instead of protecting it.

A very sophisticated Trojan, aka NOTROJ, which also purports to protect against Trojans, adds a further wrinkle to this deception. It attacks only hard discs which are more than half full. This means that many users, whose discs are still mostly empty, will believe the Trojan to be

a genuine program and pass it to their friends or upload it to further bulletin boards.

When NOTROJ unsheaths its claws, it does maximum damage, simply because full discs have more data to delete. Its restraint at other times helps it to "reproduce" and spread, a little like the Amiga virus, which also does not show symptoms for some time after infection. When NOTROJ attacks a disc, it tries to cover up by printing a message on the screen claiming that it has been overpowered by the program from where it is meant to be protecting you, saying that program is attempting to format the disc!

Recovering

It is often possible to recover lost data on PC discs, because of the way the system deletes files. A simple deletion does not touch the data; it only removes the file name from the directory. A number of utilities exist which can un-delete a file, such as UNDELETE, Master Key, PC-Tools or Norton Utilities. Some of them are available in the public domain.

Other utilities can recover data from a hard disc which has been "high level" formatted. If a Trojan has "low level" formatted the disc, or scrambled the directory tracks, your only hope is to have a recent back-up copy. The writers of Trojans know all of this and generally try to arrange that their programs attack boot tracks, directories and File Allocation Tables, for maximum damage, before proceeding to format the disc, which takes longer.

Our side of the pond

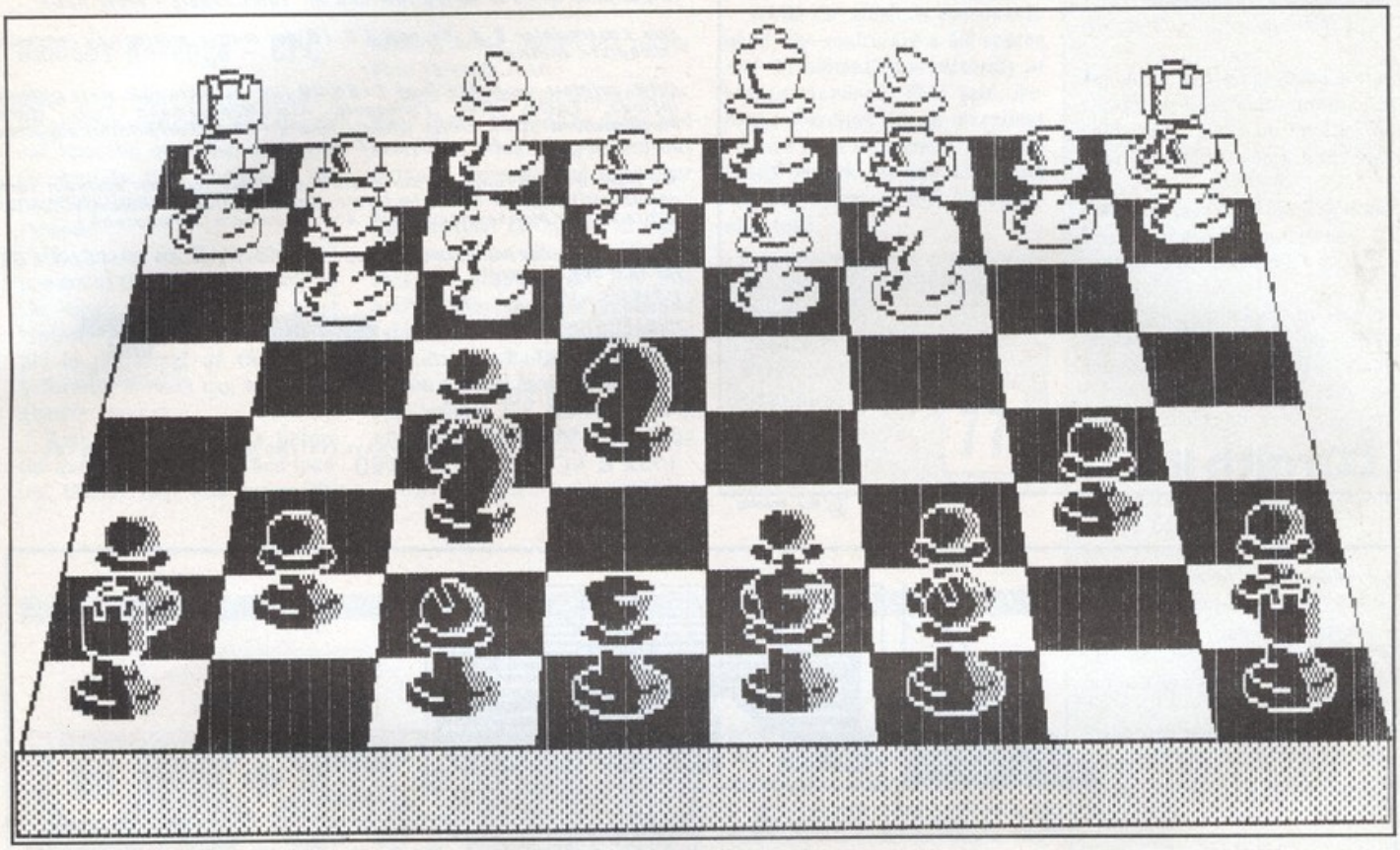
British users need not panic. Trojans seem to spread mostly through bulletin board downloading and this is much less popular here than in the U.S., where the high quality and low cost of telephone connections allows very fast modems to download programs cheaply. British users tend to get their public domain software from PD disc libraries and those organisations vet their software more carefully than a BB sysop can. I have not yet heard of any British computer user suffering data loss due to a Trojan.

The PD disc libraries in Britain are well stocked with the other kind of bogusware, though, pirated copyright material. These libraries do not do this knowingly and they are quick to withdraw any software found to be in breach of copyright but constant vigilance is necessary to combat pirates who deliberately deceive libraries about the source of programs. Much PD software originates in the U.S., and the original of a pirate copy may not be on sale here, making it difficult to spot the pirate copy as a ringer.

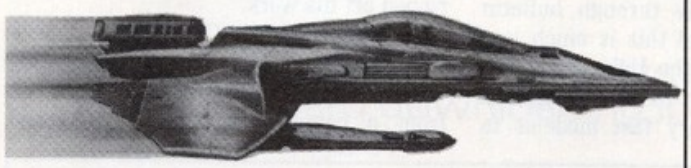
This brings us to the possible cause of the Trojan plague. It is probably true that most of the Trojan perpetrators are suffering from an excess of steam between the ears, a malady some would suggest can be cured only with a Black and Decker. Writing a Trojan requires programming ability not usually found in mere vandals and it is likely that some Trojans are the programmer's way of getting revenge on the users of the public domain who have ripped off his work.

At least one Trojan (SUG.COM) has been reported which attempts to trap people who are trying to remove copy protection from a commercial product Softguard. Instead of un-protecting the official disc, it wipes it clean, then erases any other disc it can find. Finally it prints a message scolding the user for violating the licence conditions by trying to remove the copy protection and offering to sue him if he complains. Most sources of public domain software believe that Un-protect patches and utilities have a legitimate use, in allowing people to make security back-ups of expensive programs. Obviously the producers of copy-protected software disagree.

Distributors of genuine public domain software provide a legitimate service, but it is time for the easy-going amateur habits to give way to a more alert and careful approach. If the users and suppliers do not police themselves, there will soon be an abundance of enemies demanding that they be policed from without. By then the public domain software pool may be too polluted to be safely used anyway. □



"Free" software of this quality should arouse suspicion.



Wraith II

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Demons Revenge - CPC

One day, while Merlin Junior's master was away, the clumsy oaf knocked over four jars. Unfortunately they contained the four talismans of Trodor the Demon.

Ha ha ha ha HAR! The evil powers of the Demon are loose in the castle. Merlin Junior must restore the talismans to the temple in the heart of the castle before the Demon can wreak his ghastly revenge.

Well, I was quivering before the game had even finished loading, though that was due to the heating being turned off rather than through fear.

So it's arcade adventure time. Been there, played the game and eaten the book? Maybe so, but *Demons Revenge* has a number of points in its favour to make a fight against the forces of darkness worth the effort. The first is that the graphics are not just pretty fabby, they are pretty and fabby. The other point to note is that this is a budget game.

You control Merlin Junior and run around the castle, picking up, using and manipulating objects.

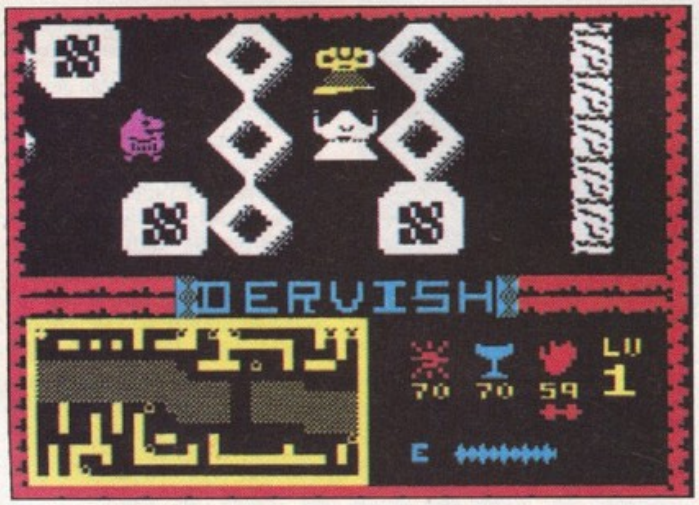
Water droplets are very effective for dispelling water sprites but not demons of the red variety. For those you will need fireballs.

Too many close encounters with Trodor's troopers and Merlin can kiss any thoughts to a sequel goodbye.

As well as those hazards, there are also locked doors and barred doorways to contend with. Room in Merlin's three object pouch has to be found for a key to enable swift travel around the castle.

While the music is reasonably good, the sonics are a bit sparse and the animation is certainly of budget standard. That said, *Demons Revenge* is an excellent release for CPC owners, and certainly makes the job of taking out the forces of evil an enjoyable task.

Reviewer: Duncan Evans
Price: £1.99
Supplier: Firebird
POPULAR RATING
Graphics: 22
Sonics: 18
Gameplay: 37
77



Dervish - Spectrum

Dervish is one of a new series of releases from the recently relaunched Powerhouse budget software label.

The brief is simple: "The Dervish way of life relies heavily on magic and mysticism. Journey through the eight levels of awareness to reach the upward path."

Exciting, isn't it?

The game is a simple move around the maze, shoot the baddies and pick up the various items scattered around. I was looking forward to seeing what the quality of Powerhouse games are like and if this is an indication, I must say that they do not even rate besides Code Masters and Mastertronic. A certain standard has been set with budget games. Powerhouse has set its own standard with *Dervish*. This standard is sub-bad.

The graphics are very simple with some colour-clashing occurring. Sound is not even worth mentioning, as there is a very basic three-second introductory tune only and as far as gameplay is concerned, it was sheer misery to play once; I could not sit through the agony of having to see it again.

Overall, it is a very poor release in all senses of the word, even down to the awful artwork of a Ninja warrior used on the cover.

A game not even worthy of a budget release. It should have been left in the computer vaults to gather dust.

Reviewer: Leslie Bunder
Price: £1.99
Supplier: Powerhouse
POPULAR RATING
Graphics: 5
Sonics: 3
Gameplay: 8
16

Your complete guide to all the software released this week

Amstrad CPC

Program *Street Machine* **Price** £1.99 **Supplier** Powerhouse, 204 Worple Road, London SW20 8PN.

Top down racing car game around various street circuits. Seven opponents don't make up for the fact that this game is years out of date.

Program *Stairway to Hell* **Price** £1.99 **Supplier** Powerhouse, 204 Worple Road, London SW20 8PN.

Platforms and ladders by the programmer responsible for *Street Machine*. Graphics are small, though cute in places they are overall rather dull.

Program *Zolyx* **Price** £1.99 **Supplier** Firebird, 64-76 New Oxford Street, London WC1.

The C64 version of this game was incredibly simple, but horribly addictive. The Amstrad version is just the same so go for it if you fancy a Qix game.

Program *Sidearms* **Price** £9.99 **Supplier** GO!, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

Decent enough blasting game that was reviewed last week on the C64.

Program *Druid II: Enlightenment* **Price** £8.95/£14.95 **Supplier** Firebird, 64-76 New Oxford Street, London WC1A 1PS.

Sequel to the well received *Druid*, and very nice it is too. If you were a fan of the original, or like the arcade adventure style of game then this is a goodie.

Program *Blood Valley* **Price** £9.99 **Supplier** Gremlin, Alpha House, 10 Carver Street, Sheffield S1 4FS.

Read the review in this very issue for the truth about *Blood Valley*. The CPC version has worse music but slightly better graphics.

continued on page 16 ▶

Software guide continued

◀ continued from page 15

Atari ST

Program *Skyfox* **Price** £24.95 **Supplier** Electronic Arts, Langley Business Centre, 11-49 Station Road, Langley, Berks SL3 8YN.

Good grief. This was just about palatable in its original Amiga form back in 1985, but now . . . Give it a miss.

Program *Predator* **Price** £19.95 **Supplier** Activision, 23 Pond Street, London NW3.

Nice tune that doesn't reach the main game, graphics down to the quality of the Amstrad version, foreground scrolling the like of which you never want to see again, sound effects that are completely hit and miss, ropey sprite detection. But for all that it's good fun!

Program *Get Dexter II* **Price** £19.95 **Supplier** Infogrames, Mitre House, Abbey Road, Enfield, Middlesex EN1 2RQ.

The graphics are pretty much the same as on the CPC version — no more detail, just the resolution being higher. A very nice game though, with lots of puzzles and interesting action.

Commodore 64

Program *Zip* **Price** £1.99 **Supplier** Powerhouse, 204 Worple Road, London SW20 8PN.

Fast and furious shoot 'em up, with reasonable graphics so it represents a decent value for money arcade thrash.

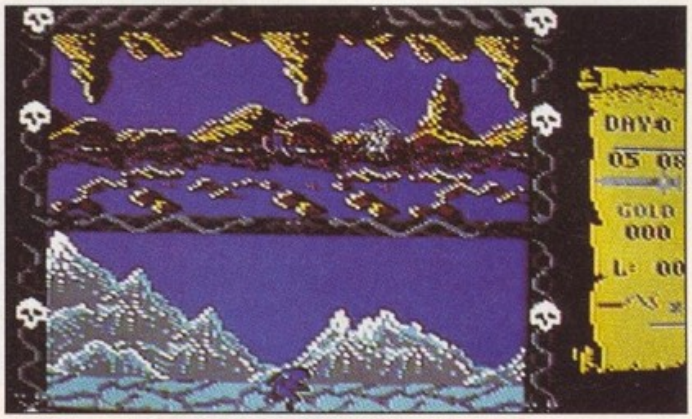
Program *Card Sharks* **Price** £9.95 **Supplier** Electronic Arts, Langley Business Centre, 11/49 Station Road, Langley, Berks.

You've got to be kidding. The only redeeming feature of this game is that you can play cards with Ronnie, Maggie and Gorby.

Program *Rolling Thunder* **Price** £9.95 **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

I expect you know all about this already. Thus, no review.

Blood Valley - C64



Played the book? Now play the game. Nope, no mistake, Blood Valley is based on the Duelmaster book of the same name by Mark Smith and Jamie Thompson.

The idea is simple enough, one or two players take the part of Archveult the hideous, local despot and all round scum bucket, and control his three cronies, or play the slave that is about to provide the afternoons entertainment.

A slave is set free you see, and the Archveults cronies get to hunt him down. Fun time for all then. As the hunted you can play a barbarian, a priest, or a scraggly looking thief. If someone is playing the bad guy, then you get to position the subordinates at various locations in the Valley of Gad.

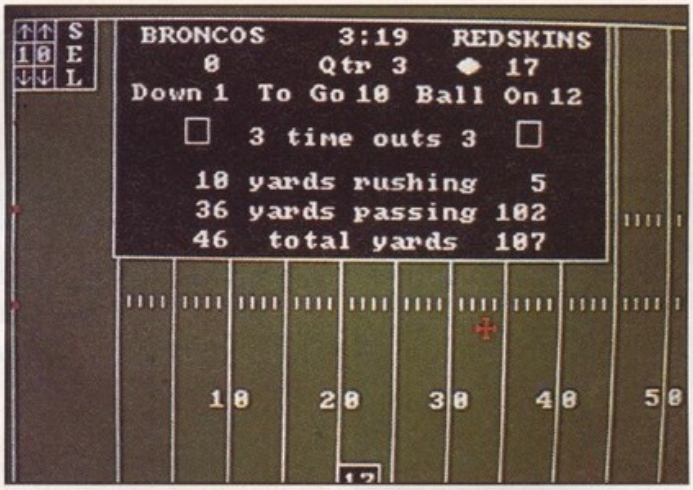
Once all this has been done, and I must say that the graphics up to this point are very good, it is hunt time. With an atmospheric piece of music setting the scene your palms are almost beginning to sweat in anticipation.

Almost.

The game begins, accompanied by some howling. From the player. A split screen is used, so on one-player games that means only half of it is used effectively, with some pretty uninspiring graphics in either half. It is not just that the characters are tiny; the scrolling is unforgivably crude and lumpy and the action is tedious in the extreme.

As a one-player game *Blood Valley* really is a waste of time. As a two player game it's a waste of two peoples time. A promising enough concept that failed utterly in its execution after a promising intro and first class music soundtrack.

Reviewer: Duncan Evans
Price: £9.99
Supplier: Gremlin
POPULAR RATING
Graphics: 11
Sonics: 21
Gameplay: 12
44



Gridiron! - Atari ST

Let's face it, the middle of March is not really the best time to release a new American Football game on an unsuspecting British public.

By now, the Superbowl is little more than a distasteful memory (especially for Broncos fans), and the new season is many moons away.

This, however, has not stopped Electronic Arts releasing GRIDIRON!, an American football game programmed by an American company, Bethesda Softworks, and available for the Amiga and ST (as long as you don't have a 520 STFM that is, as it only boots from 1MB drives).

Rather than go for an out-and-out arcade game, Bethesda have created a game that allows anyone with a detailed knowledge or interest in the intricacies of play making a free hand.

Although the game comes with 20 offensive and 20 defensive plays, the most impressive feature is the ability to create your own plays.

Using a chalk board not unlike the one the NBC commentators scribble all over the TV screen, you can design some plays that would have the defensive line of the Broncos in tears (not difficult I admit). As well as normal pass and run plays, you can do the fancy reverse-hand off-pass that never seem to work on Channel 4!

Unfortunately all this detail in the game has been included at the expense of the graphics, which are at best lack-lustre. Smallish dots running about the screen hardly put over the games brutality and skill. The sound effects are better, with some digitised effects and a few nice touches, but it is the graphics which really count, and that's where the game falls down.

Priced at £24.95, GRIDIRON! is hardly a bargain, but for dedicated American football fans who have yet to be satisfied, its sophisticated play creation options could make it a worthwhile purchase.

Reviewer: Francis Jago
Price: £24.95
Supplier: Electronic Arts
POPULAR RATING
Graphics: 7
Sonics: 18
Gameplay: 36
61

Blastaball - Amiga

From the pulsating, to the pathetic. Whereas *Sidewinder* was an example of everything that is right about the Mastertronic Arcadia project, *Blastaball* represents the flip side.

One or two players take part in an ice hockey game of the future, which essentially means that instead of having a team of players, which might stretch the old programming ability a bit, you are in command of a space ship.

True, there are ten different shapes, each reputedly having differing characteristics, but trying out the more advanced models usually means that instead of boring game, you get a really boring game. Hmmm, what a choice.

Use a joystick, or if you really want to suffer, a mouse, to rotate around, thrust and stop quickly, and send a stream of missiles towards the large puck. Forcing the puck over the opposing line results in a line goal worth one point, or try for the harder shot and go for the smaller goal area for two points.

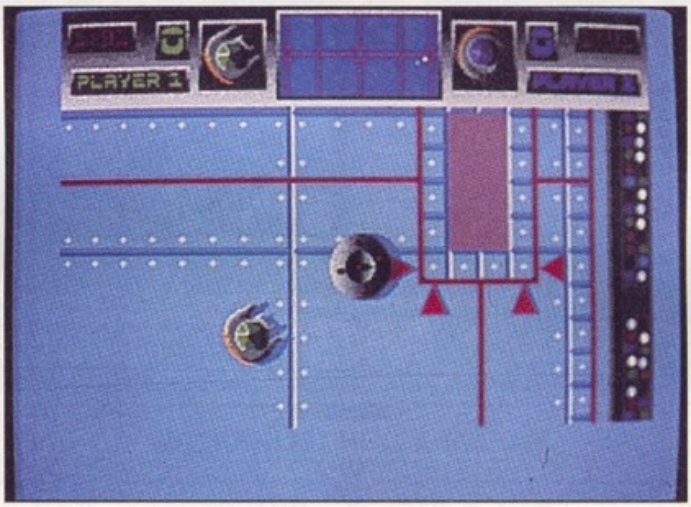
Games usually consist of driving the puck most of the way over the screen, only to have to retreat again. Slow and dull is the best description for the proceedings. One nil represents an exciting game.

The iffy scrolling and lacklustre sonics don't help matters.

To be perfectly honest, to suggest that anyone is going to play this game in an arcade, except through ignorance, is a joke, and I see no reason why anyone would want to play a game at home that would make a night out with Nigel Lawson seem interesting by comparison.

Reviewer: Duncan Evans
Price: £9.95
Supplier: Mastertronic
POPULAR RATING
Graphics: 19
Sonics: 11
Gameplay: 14

44



Art of Chess - Amiga

There is an unofficial list of software that every new purchaser of a computer has to get to give them a software base. A decent chess program is fairly high on that list. The trouble is, there aren't many chess programs for the Amiga, Electronic Arts Chessmaster 2000 being the only other one that springs to mind immediately.

Good to see another then, this time from Software Publishing Associates. For chess neophytes this is undoubtedly the better choice, as even the manual gives most of the rules for actually playing chess.

As is the current fashion the board can be displayed in 3-D, as well as in the standard format, but unusually it is possible to drag the front of the board up or down, thus changing the perspective, or even rotate the board, though it does look rather strange in some positions.

Movement is facilitated by using the mouse and dragging the pieces into position. It's good to see that there is a time travel gadget to the right of the board enabling you to move backwards and then forwards through the game and continue from any point.

For anyone learning the game this is useful for trying out different strategies.

A number of options are available including redesigning the pieces by using Deluxe Paint (if you've got a copy that is), use a performance meter, show how a square is attacked and defended, set up and play any position, and use a couple of clocks.

A very good feature is the ability to play to tournament rules, five variations are given, such as 40 moves in the first two and a half hours, 16 moves for each following hour with a session lasting five hours.

The number of skill levels is rather limited, but for anyone starting out in the game particularly, *The Art of Chess* is a worthwhile investment.

Reviewer: Duncan Evans
Price: £19.95
Supplier: S.P.A.
POPULAR RATING
Graphics: 19
Options: 16
Gameplay: 35

70

Software guide continued

IBM PC

Program *Falcon* **Price** £34.99 **Supplier** Mirrorsoft, Athene House, 66-73 Shoe Lane, London EC4P 4AB.

Pretty fab *F-16A* flight sim action combat game. Regular readers of Lee Paddon's simulations column will know what to expect.

Program *Chamonix Challenge* **Price** £19.95 **Supplier** Infogrames, Mitre House, Abbey Road, Enfield, Middlesex EN1 2RQ.

Rather an off-beat game giving you the chance to be a mountaineer. If you are interested in the sport then you'll enjoy the game.

Spectrum +3

Program *Plus 3 Biker* **Price** £9.99 **Supplier** Mastertronic, 8-10 Paul Street, London EC2.

Compilation disc consisting of Kikstart 2, Milk Race and Action Biker. Excellent value for software starved +3 owners.

Spectrum

Program *Zolyx* **Price** £1.99 **Supplier** Firebird, 64-76 New Oxford Street, London WC1A 1PS.

See Amstrad version for comment, after that rush out and buy.

Program *Disposable Heroes* **Price** £1.99 **Supplier** Powerhouse, 204 Worple Road, London SW20 8PN.

Disposable Heroes, disposable game.

Program *Demons Revenge* **Price** £1.99 **Supplier** 64-76 New Oxford Street, London WC1A.

See the review of the Amstrad version for the juicy details. However, graphics are nowhere near as good.

Program *Rastan* **Price** £7.95 **Supplier** Imagine/Ocean, 6 Central Street, Manchester M2 5NS.

Good hack and slay coin-op conversion fare for Speccy owners.

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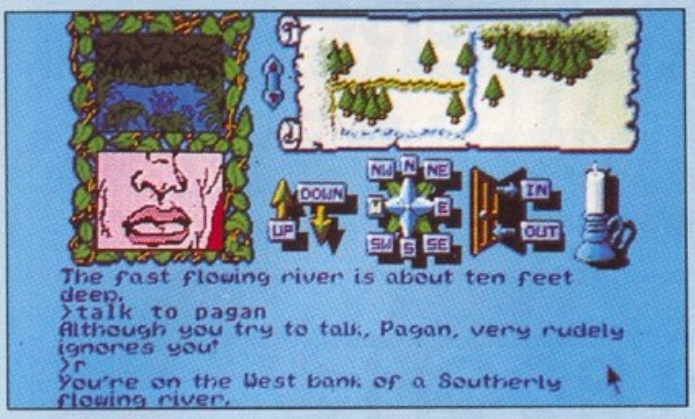
SOFTWARE HOTLINES



Legend of the Sword.

SOFTWARE HOTLINES

I'll say one thing for our Leslie, who filled this column while I was lying in a darkened room last week, he has a vivid imagination. Anyone who thinks travelling to Blackpool (4hrs trip there), spending two hours running round a hot and sweaty show, coming back straight afterwards (another 4hrs) and having to eat a British Rail sandwich (which made me feel ill incidentally), is fun, should try it.

The **Microprose** trip was something else. A dozen hacks and a couple of nervous looking prize-winners from a Sinclair magazine, made their way up to Staverton airport for an afternoon with the **Microprose** team, including Wild Bill Stealy who was here on a visit. A Cessna four-seater was the gentle introduction into flying at 1400 feet, though it got far more stomach turning in the Gazelle helicopter, as the pilot simulated the engine stopping. Remember the feeling you get going down a big dipper? It was like that, only worse.

The best was saved till last, although one journo proved that he was no 'Ace' by nearly being sick, and another begged off altogether. Yep, it was grit your teeth time in the Zlen stunt plane. Flying upside down is an experience you don't forget in a hurry.

Right, better talk about some software now. See the screenshot. That is a forthcoming ST release from **Rainbird,** called *Legend of the Sword*. Programmed by Silicon Software, it is the tale of a magical sword and shield, dark invading forces, evil wizards, King Darius and the High Council of Anar.

It is also an adventure game with over 300 cameo illustrations, though they are hardly top quality, and the option to type in text or select from a list with the mouse.

Elite and *Starglider 2* are just two of the big releases that 16-bit owners are looking forward to any day, real soon now, honest it is in the post, it will be with you next week, schedule. But, I can reveal that there is a game far more exciting than those under development. Something that sounds like the game *Elite* promised to be, and a flashy version (solid 3-D graphics) of what *Star Flight* on the PC is. It is all about a galactic war, trading, undercover plots, ruling solar systems, planets, mooncities and spaceports, fighting, trading and stealing from a huge cast of interactive characters, and flying everything in a fleet of spacecraft. It does not have a full title yet, just the working name of EPT (which was the name of a RPG from some years ago - full title being Empire of the Petal Throne). Well, it sounds unbelieveably good, but you never can tell until you've seen it, played it and eaten the book.

More details soon, after I have made the tortuous trek to **Rainbird's** offices.

Duncan Evans

DIARY DATES

MARCH

March 18–20 1988
The Electron and BBC Micro User Show
UMIST, Manchester
Details: Displays and demonstrations of all the latest hardware, software and peripherals from Acorn computers
Organiser: Database Exhibitions, 061-456 8383

March 22–24 1988
Electro-Optics & Laser U.K.
National Exhibition Centre, Birmingham
Details: Electro-optics and laser hardware, components and applications
Organiser: Cahners Exhibitions; Sheila McGill, 01-891 5051

APRIL

April 12–14 1988
The Scottish Computer Show
Scottish Exhibition Centre, Glasgow
Details: Scotland's exhibition for professional and business computer users
Organiser: Cahners Exhibitions; Stella Hall, 061-832 4242

April 23, 11.00–18.00
Einstein Exhibition
National Motorcycle Museum, Birmingham
Details: Demonstration and sale of Einstein equipment, software, hardware and peripherals.
Organiser: UK Einstein User Group, Graham Bettany, 0473 4950

April 22–24 1988
The Atari User Computer Show
The West Hall, Alexandra Park, London
Details: Displays and demonstrations for the Atari range
Organiser: Database Exhibitions, (0625) 878888

MAY

May 13–15 1988
The Electron & BBC Micro User Show
New Horticultural Hall, Greycoat Street, Westminster
Details: Displays and demonstrations for the Acorn range of micros
Organiser: Database Exhibitions, (0625) 878888

JUNE

June 3–5 1988
The Official Commodore Computer Show
Exhibition Centre and Champagne Suite, Novotel, Hammersmith, London
Details: Displays and demonstrations of all the latest hardware, software and peripherals for Commodore computers
Organiser: Database Exhibitions, (0625) 878888

CHARTS

Top Twenty

1	(1)	Ghostbusters	Ricochet
2	(3)	Predator	Activision
3	(2)	Platoon	Ocean
4	(6)	Kik Start 2	Mastertronic
5	(5)	Way Of The Exploding Fist	Ricochet
6	(7)	Soccer Boss	Alternative
7	(12)	BMX Simulator	Code Masters
8	(9)	Trap Door	Alternative
9	(4)	Out Run	Sega-U.S. Gold
10	(10)	Popeye	Alternative
11	(11)	Fruit Machine Simulator	Code Masters
12	(8)	Grand Prix Simulator	Code Masters
13	(19)	Super Stuntman	Code Masters
14	(13)	Match Day 2	Ocean
15	(17)	Star Wars	Domark
16	(14)	ATV Simulator	Code Masters
17	(21)	LA Swat	Mastertronic
18	(23)	Rogue Trooper	Alternative
19	(24)	Football Manager	Addictive
20	(18)	I Ball 2	Firebird

All figures compiled by Gallup

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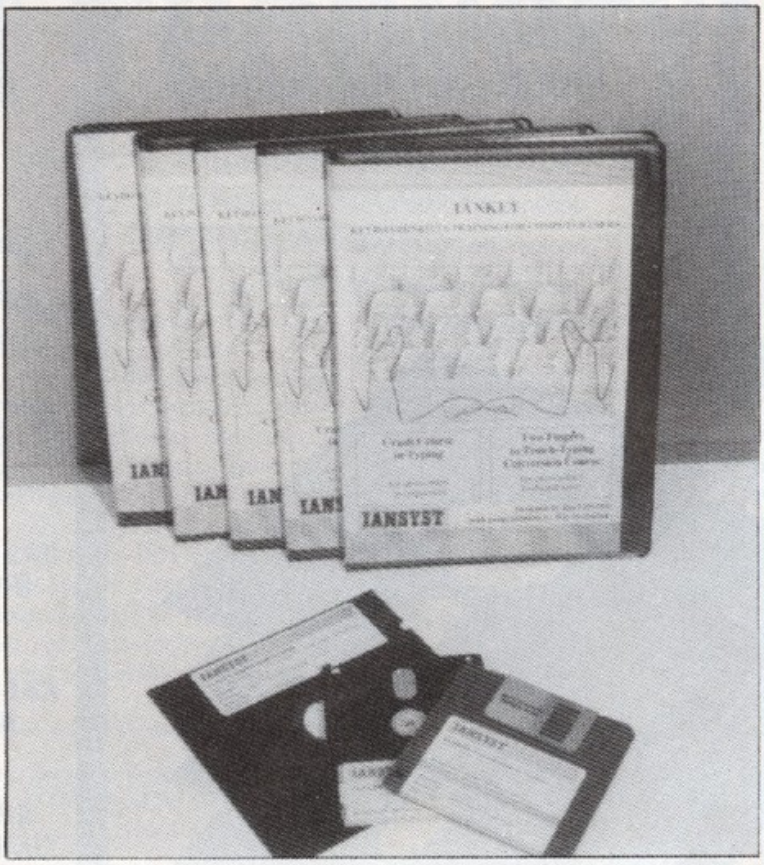

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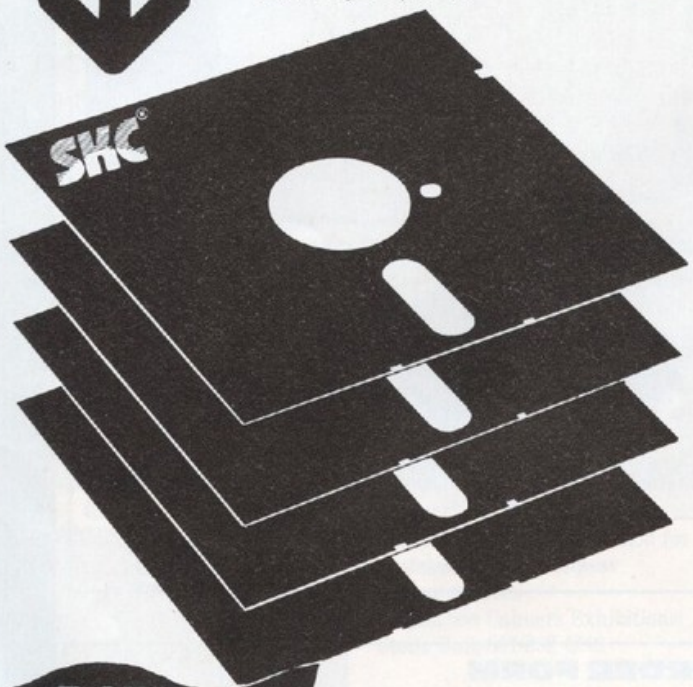

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Instant recovery

At face value File Rescue Plus seems an ideal disc repair and recovery package but there are hidden pitfalls. Barry Smith investigates.

Anyone that uses magnetic discs as a computer storage medium needs access to disc repair and recovery software. The worst time to learn how to recover files from defective media is when you have just lost a week's work which you had not backed-up. Ideally, you would have spent an hour or two practising file recovery before that untimely event.

Fortunately, PC users at least have been well served by third-party products such as the *Norton Utilities* and *PC Tools*. The latest versions of these utilities, Norton Utilities 4.0 and PC Tools Deluxe, are perhaps rather expensive at around £55 each but, if they can bring back a week's work they might seem a bargain some day.

If you are looking for something a little less expensive, however, the Hisoft *The Knife* is available for both CP/M and DOS machines at rather less than £30 and public domain or shareware equivalents such as the *Ultra Utilities* can be obtained for even less. Finally, Mirrorsoft has joined the rush to rescue your fields with *File Rescue Plus*, available at £24.99 for IBM PC/Amstrad PC compatibles.

Is File Rescue Plus a useful alternative? It has a good range of recovery and file management options and on test it seemed to work as well as any of the alternatives. FRP can be used with floppy and hard discs and you can, if you wish, install it permanently on a hard disc.

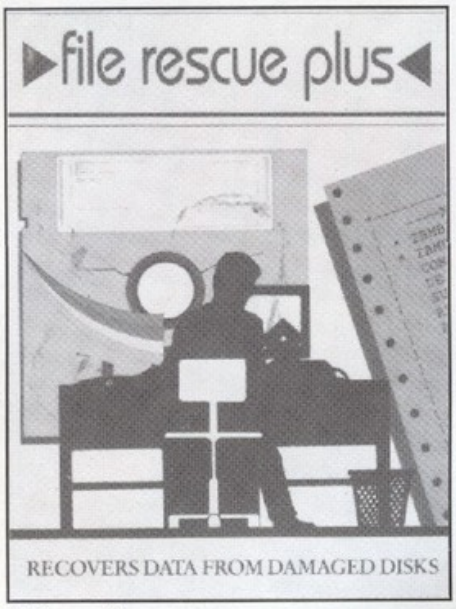
A health check section allows you to check your discs and your files for errors. You can navigate round a disc, look at files, hide and unhide them, re-name them or delete them. A disc sector editor allows you to modify the disc, or any of the files on it, directly. FRP will optimise file storage to eliminate the file fragmentation which occurs as a result of the way DOS allocates disc space and thereby improve disc performance.

Rescue module

The rescue module at the heart of FRP enables you to undelete files which have been deleted in error, or make new files out of data stored on a damaged disc. In theory, it is best to use a separate disc for the recovered files. FRP allows you to do so, but it does not go far enough; it does not recommend or even suggest that you use a separate disc for recovered data.

In addition to its file rescue facilities, FRP will display a diagrammatic representation of your discs, showing file fragmentation graphically and indicating disc problems such as bad sectors and cross-linked clusters - parts of your disc which are marked incorrectly by DOS as belonging to more than one file. As a useful complement to its undeleting role, FRP will shred files so that they cannot be undeleted.

On-line help is available and as is usual



File Rescue Plus.

it can be accessed by hitting F1. Unfortunately it is a little erratic. In some parts of the program, on-line help screens pop up unasked and must be put away deliberately before you can continue; this is useful at first but becomes irritating once you know what you are doing. In other parts of the program you have to use the space bar to get help and in some places no help is available. The help screens should be more uniform in their operation, always on hand, but out of sight until requested.

The skimpy FRP documentation does not compensate too well for the erratic on-line help. There is very little discussion of how FRP works and no systematic reference to each individual module and menu. Those parts of the program which have little or no on-line help are not covered in the manual.

On the plus side there is a very useful and not too technical discussion of how DOS stores files. It covers the main principles behind file recovery and disc management and includes material on file fragmentation, file deletion and undeletion, and DOS disc error messages.

Copy-protection

Now that most PC software houses have dropped copy-protection it is bizarre to see Mirrorsoft implement a copy-protection scheme in, of all things, a disc repair utility. The scheme allows you to install FRP once, and once only, on a hard disc. To move it to a new hard disc you must first de-install on to the supplied floppy. If the first hard disc becomes damaged before you can de-install that is hard luck!

Fortunately you can run FRP from the floppy but no working back-up is supplied and it is impossible to make one using DOS COPY or DISKCOPY commands. Back-ups, of course, are the wise man's file rescue kit. In a product based entirely on the fact that magnetic discs are fallible, a copy-protection scheme like that of FRP is an absurdity.

Disc optimisation routines such as that of FRP can damage copy-protected software and make it unusable. It is unfortunate that Mirrorsoft make no mention of the danger, which may even apply to FRP. It is conceivable that by optimising FRP either on the floppy disc or the hard disc, you might lose the program. I did not test this, partly because I will not allow copy-protection schemes to tamper with my hard disc, but I wonder how many buyers will do so?

FRP is a workable utility. It even makes some operations easier than they are with Norton or PC Tools but it lacks the breadth of the established products and it is marred by poor documentation and a weird decision to use a draconian copy-protection scheme. Not entirely recommended. □

Product: File Rescue Plus
Supplier: Mirrorsoft. Tel: 01-377 4900
Price: £24.99

Elementary, dear Watson

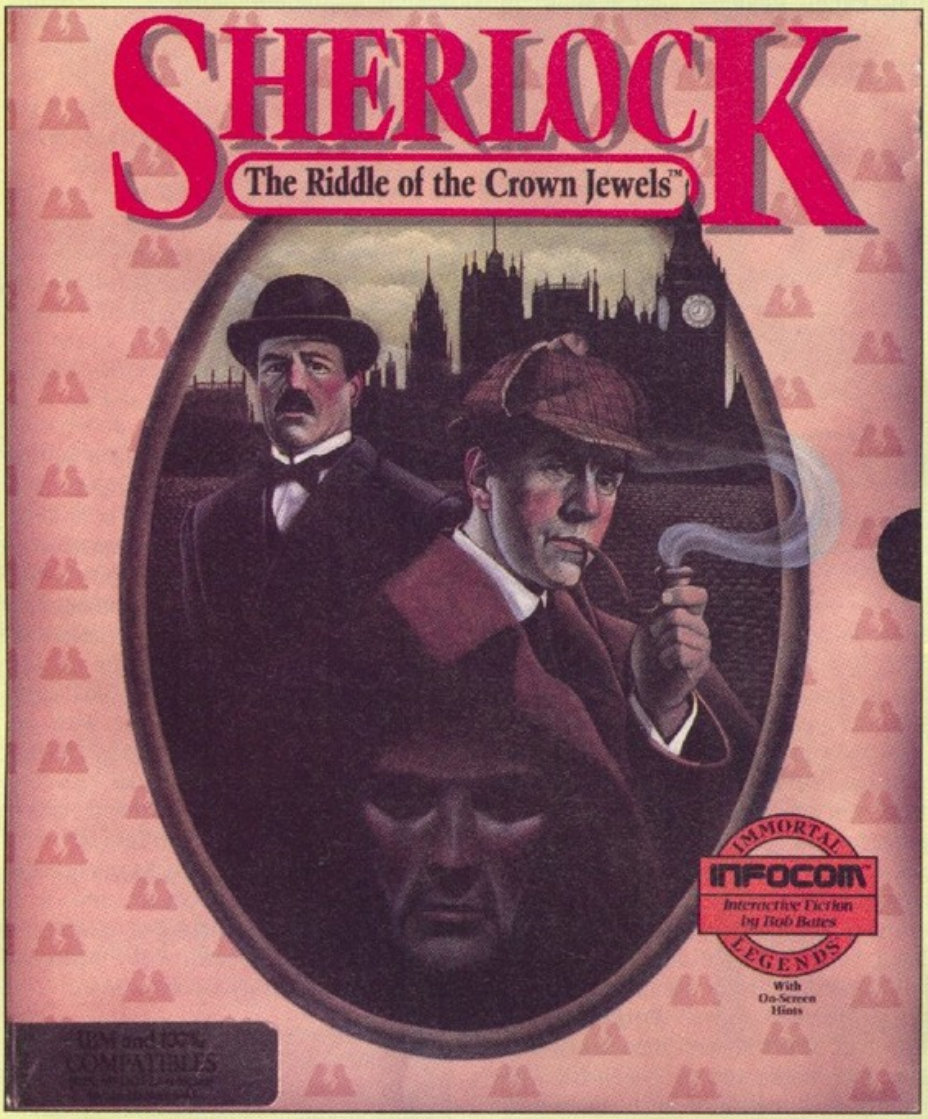
Ken Matthews reviews more adventure games, including a selection of Sherlockian themes.

You are fortunate to be seeing this column this week, as I have been given a copy of *Morpheus* by Clare Edgeley at Firebird and played nothing else since. If you missed Duncan Evans' review of it as Game of the Week it is excellent. Only C64 versions are available at present but if the game has the success it deserves other formats, including 16-bit, are inevitable. In a similar vein, *Elite* for the 16-bit micros is on schedule for a summer release.

Hot off the presses and on my doormat is the latest release from Activision/Infocom - *Sherlock, The Riddle of the Crown Jewels.* The plot is set, naturally enough, in Victorian London just before the Golden Jubilee.

The country is about to be plunged into turmoil; the Crown Jewels have been stolen. If they are not recovered before the festivities begin the Government at least will fall. Where are you now we need you, Moriarty?

Needless to say, Scotland Yard is baffled and the PM calls on The Consulting Detective to help. The brain behind the plot is that of the arch-villain Moriarty and, because of clues left at the scene of the crime, Holmes suspects a trap and hands the running of the case to you, the long-suffering Dr. Watson.



Sherlock, The Riddle of the Crown Jewels.

Playing against the chimes of Big Ben you have 48 hours to recover the jewels and save your country's honour. Sherlock is the first of the Infocom Immortal Legends Series developed by Challenge Inc, using the Infocom system but its own plots and puzzles. This is written by Bob Bates and introduces another of the new-look ideas revealed by Dave Lebling on his visit to Britain last year.

The packaging and game aids are of the usual Infocom standard - faultless. They consist of a tourist map of London published specially for the Golden Jubilee and a most interesting copy of *The Thames* newspaper for June 17, 1887, which is, in fact, largely a reproduction of *The Times* for that date. It is an interesting game just to try and pick the original items from those slipped in by the Infocom team. The Sherlock key fob has joined the badges, cards, rocks and rubber insects from other Infocom treats which bedeck my workstation.

The gameplay is of the highest standard, which we have long accepted as routine from Infocom, and the lavish descriptions are very atmospheric and often funny in the best tradition of these classics.

There is also the 'on-screen hint' to provide help when you need but I still have mixed feelings about that aspect of things. Perhaps it is a little too tempting.

If you were a little disappointed with the original *Sherlock* from Melbourne House with its parser and if the new Sherlock is available for your micro, buy it.

Cloud 99

Some of you may have heard my pleas for correspondence and Linda Wright writes from Marlin Games to offer adventures for the Spectrum. No newcomer, she having had two games published by Incentive Software for the Amstrad; her newest titles are *Cloud 99*, a light-hearted game based round a dream in which you must put right disruptions to the weather by the nasty old sprite Jack Frost. As you may

have guessed from the theme, the game is aimed at younger, more inexperienced adventurers, although when playing even old hands may need to stop and think for a time. Two versions are supplied on tape, a 48k version as text-only and a 128k version with colourful graphics.

The Jade Stone has a fantasy theme and you play Amora, daughter of Lord Senidea, whose beloved has been captured by an evil sorceror. Before you stand a chance of rescue you must obtain the mystic Jade Stone from the Guardian of Vibran Henge.

Both games are written with PAW, allow complex input and have a Ramsave/load facility. I find them well-written, entertaining and enjoyable. At only £2.95 it is well worth getting in touch with Wright at 19, Briar Close, Nailsea, Bristol BS19 1QG. Unfortunately for Spectrum owners Wright has gone to the ST, like most of the software industry seems to be doing, but we can hope to hear from her again soon on the new machine.

The Raven

Another game with a Sherlockian theme is *The Raven* from Eighth Day Software, in which Holmes visits Professor Vybes whose new techniques for treating the criminally insane are of interest to the great detective. Typically, no fewer than two murders are committed that night and it is left to Sherlock, the third intended victim, to unravel the plot.

The storyline is excellent and as details are revealed the game becomes more and more macabre in a manner which would be a credit to Conan Doyle. There is a 20-page manual accompanying the game giving full details for playing and interacting with characters. The cassette has demonstrations with tantalising glimpses of other titles from the collection. At £5.50 it is a crime not to buy one.

Eighth Day have been developing as a budget software house for a few years now and its products are often acclaimed. Not many retailers stock their products, so you can obtain details of other titles from Eight Day Software, 18 Flaxhill, Moreton, Wirral, Merseyside L46 7UH.

> "... the need to appeal to a public becoming jaded by the same old cliched themes has led to the launch of a range of games with plots varying from ancient Egypt to deepest space."

Although there is no doubt that fantasy books and games inspired the early development of adventure games in computing, the expansion of the home market and the need to appeal to a public becoming jaded by the same old cliched themes has led to the launch of a range of games with plots varying from ancient Egypt to deepest space. One of the more captivating has been the post-holocaust storyline, as seen in books and films such as *Planet of the Apes* and the *Mad Max* series.

Roadwar Europa on the Amiga.

This idea is the driving force behind two role-playing titles from Strategic Simulations, *Roadwar 2000* and *Roadwar Europa*.

In *Roadwar 2000* the U.S.A. has been decimated by a virus introduced by a mysterious group known as the Invaders. As order deteriorated the Invaders moved into coastal areas and, with their troops immune, were able to spread to the mainland. To complicate matters, the Old Enemy took advantage of its lack of defences to take a few nuclear potshots at major cities. The radiation has mutated the virus and the local populace which did not die outright, but every cloud has a silver lining and the Invaders are suddenly stricken by the new super-plague.

Cities are controlled by diverse groups – Invaders, Bureaucrats, Gangsters, National Guardsmen and even Satanists. The roads are ruled by the road gangs who take no prisoners.

You control a small gang at the start and if you survive and grow you will be chosen to gather the scientists scattered across the continent and deliver them to a secret underground lab where they can work on the antidote to the new virus.

Food and fuel

Food and fuel are the most important items you need to keep the gang going and they can be looted from various cities but the locals may object to you stealing the food from their mouths and shoot a few holes in your gang. You can recruit from local groups but once again you will need to guard against treachery.

When you meet an enemy gang you can choose to use quick combat to resolve it but only by using the long-winded method where each vehicle is operated individually will you be able to increase the number of vehicles your gang can use. Guns and a plentiful supply of ammunition are desirable and a good stock of medicines will allow you to trade with healers for all important antitoxins.

Strategy and tactics are the bywords. Your strategy might be to keep a small gang in fast cars with your needs for looting slight, enabling you to move quickly with minimum time spent on foraging for food and fuel. If you are unlucky enough to run into a tough gang or local militia your chances may be small.

Tactics

Tactics are very important in detailed gang fights. Positioning of your forces may make the difference between winning and losing. It is unfortunate that you cannot see what you are up against until you have selected which type of combat you will use. An enemy unit using construction vehicles will smash you by ramming in quick combat but if you use tactical combat, keep your distance and snipe at the drivers, you should win easily.

Roadwar 2000 is novel, absorbing and has a very strong plot – a very neat roleplaying/strategy game. Earlier versions suffered from graphics more at home on a Vic-20 than a modern micro but later versions have been revamped by a team at Phantasie, so if you dismissed it previously, look again. □

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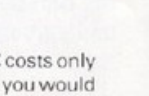


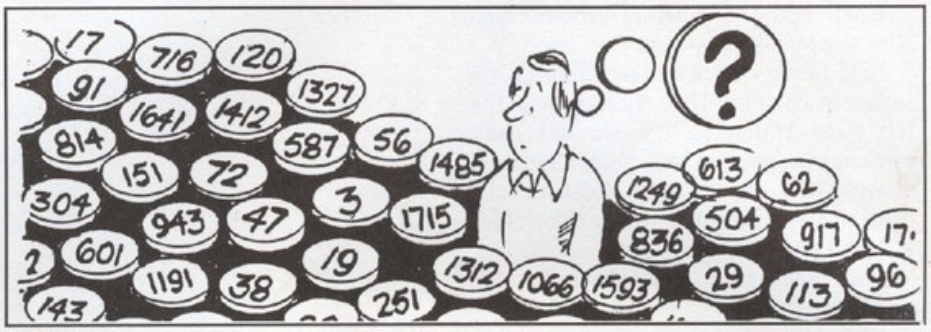
Counters flip side

For this puzzle you will require 1987 counters marked on one side only with a number from 1 to 1987 in sequence. Place them in a large circle, with the numbered faces uppermost. They should be in numerical order when read in a clockwise direction, with the final counter, 1987, finishing beside the counter numbered 1.

Start at counter 1 and turn it over. Now move two counters clockwise – to number 3 – and turn over this counter. Then move three places to counter 6 and turn it over. Continue in this way, going round and round, increasing the number of counters jumped by one each time. Stop after you have counted as far as 1987 and have turned over the final counter. This will mean you will have turned counters 1987 times. Some of the counters will have been turned more than once, some only once, and some not at all. Remember if a counter is face up when you land on it to turn it face down and if it is face down to turn it face up.

If you have done this correctly you will find that all except one of the counters is face up at the end. Can you determine the number on the one face-down counter?

Hint: You will probably find it easier to write a program if you do not possess the required number of counters. □



PUZZLE SOLUTION

Solution to Percival prime puzzle of March 10–16

Answer: Percy's telephone number was 907.

Solution: The problem was to find a three-digit number . . . such that the number is prime, as are the values represented by 3***, 13***, and 31***. In the program given the subroutine at line 1000 tests a given number, as held in variable Z, for primality. A flag (FL) is set initially to zero and is reset to 1 if a factor is found. A FOR/NEXT loop, N, is used to hold the initial value of the telephone number in the range 001 to 999. This is incremented by steps of two to ensure that only odd numbers are considered. This value is tested by the subroutine, as are those values obtained by appending '3', '13' and '31' to this number. Only if all of the tests are passed does the program print-out the result.

The subroutine works by testing the value in variable Z by repeated division by all odd numbers up to the square root of the number being tested. This is a quick way of determining if any factors exist. The value Z must be an odd number. The reason for adding a 1 to the value in line 1020 is to compensate for slight errors in computing square roots on some machines.

```
>
  10 FOR N=1 TO 999 STEP 2
  20 Z=N:GOSUB 1000
  30 IF FL=1 THEN 110
  40 Z=3000+N:GOSUB 1000
  50 IF FL=1 THEN 110
  60 Z=13000+N:GOSUB 1000
  70 IF FL=1 THEN 110
  80 Z=31000+N:GOSUB 1000
  90 IF FL=1 THEN 110
 100 PRINT N
 110 NEXT N
 120 END
1000 FL=0:REM Prime test
1010 IF Z=1 OR Z=3 THEN 1050
1020 FOR F=3 TO SQR(Z)+1 STEP 2
1030 X=Z/F:IF X=INT(X)
     THEN FL=1:F=Z
1040 NEXT F
1050 RETURN
```

COMPETITION WINNERS

Here is a list of the winners from our recent *Predator* competition:

K. Wallbank, Lancs; M. Wilton, London; R. Dhut, London; A. May, Moray; C. Dale, Torquay; M. Davies, Dyfed; M. Lyons, Wigan; D. Norton, Dublin; S. Stacey, Enfield; P. Wallace, Falkirk; L. Douglas, Blackpool; L. Wood, Peterborough; S. Adamson, Hull; P. Young, Northumberland; D. Wray, Co. Durham; S. Lee, Huntingdon; C. Spear, Penarth; G. Martich, Caerphilly; M. Bird, West Bromwich; R. Walker, Dudley; K. Ahluwalia, Swindon; M. Alexis, London; M. Owen, Gwynedd; L. Crowley, Oldham and D. Gough, Leicester.

Activision will be sending winners their games.

Manipulator – GFA Basic

M Aubury

This program enables you to contort pictures in a myriad of different ways. The images can be captured from Degas or Neochrome files and can be saved back to these for later use or put into data statements for use with GFA Basic programs.

When run, the program presents you with the following options.

Load Degas – Click on the fileselect box to choose a picture. Then click and hold the left hand button on the top left hand corner of the piece to be captured and drag down to the bottom right. Alternatively, press the right button to reduce the picture to 1/3rd size.

Load Neochrome – as above but for neochrome files.

Explode pic – automatically shatters the image.

Filter colours – gives two colour bars across the screen. Pick up the original colour from the top bar by pressing the left hand button. Place this on the final colour in the bottom bar by pressing the left button again. Right button completes.

Mirror X – reflects the image left to right.

Mirror Y – reflects the image top to bottom.

Frizzle X – randomly scatters the image left to right.

Frizzle Y – randomly scatters the image top to bottom.

Wobble X – wobbles the image left to right.

Wobble Y – wobbles the image top to bottom.

Animate pic – allows the image to be moved around the screen by using the mouse. Right button clears the screen, left completes.

Load colours – loads a previously saved colour set.

Save colours – saves the current colour set and is important because bitfiles do not have any colour information.

Original pic – allows a different section to be cut out of the loaded picture.

Print – prints the screen but needs a printer dump routine although most cases will use the Hardcopy command.

Undo – Click the note to return to the last image processed.

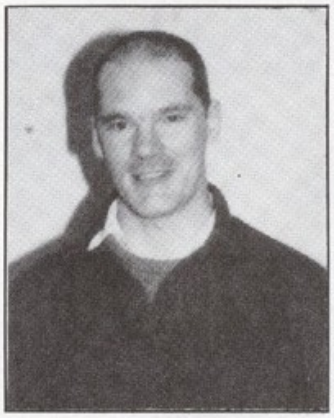
Note that it is best not to have Ramdisks installed as the program is prone to run out of memory. □

```
' The Manipulator      **** MAIN LOOP ****
'
' Image Manipulator by Matthew P. Aubury
'
Gosub Setup_manipulator
Repeat
  Gosub New_screen
  Gosub Main_menu
Until Exit%=True
'
Procedure Load_pic(Offset%,Color%,Prefix$)
  Let Colours%=Color%
  Fileselect "A:\*.*"+Prefix$,"",Fi$
  If Fi$<>"" Then
    If Right$(Fi$,4)<>"."+Prefix$ Then
      Fi$=Fi$+"."+Prefix$
    Endif
    Bload Fi$,Xbios(2)-Offset%
    Void Xbios(6,L:Xbios(2)-Color%)
    Sget Original$
    Gosub Capture
  Endif
Return
'
Procedure Capture
  Repeat
  Until Mouse<>0
  If Mouse=2 Then
    For Y1%=0 To 199 Step 2
      For X1%=0 To 319 Step 2
        Color Point(X1,Y1)
        Draw X1/2,Y1/2
      Next X1
    Next Y1
    Sx1=158
    Sy1=100
    Get 1,0,Sx1,Sy1,Start$
    Cls
    @New_screen
    Put 0,50,Start$
  Else
    Mouse Ax1,Ay1,Bu%
    Define 2
    Color 1
    Repeat
      Mouse Bx%,By%,Bu%
      If Bx1<>Lx% Or By1<>Ly% Then
        If Bx1-Ax1>160 Then
          Bx1=Ax1+160
        Endif
        If By1-Ay1>160 Then
          By1=Ay1+160
        Endif
        Vsync
        Sput Original$
        Box Ax1,Ay1,Bx1,By1
        Lx1=Bx1
        Ly1=By1
      Endif
    Until Bu%<>1
    Define 1
    Sput Original$
    Get Ax1,Ay1,Bx1,By1,Start$
    Cls
    Sx1=Abs(Bx1-Ax1)
    Sy1=Abs(By1-Ay1)
    @New_screen
    Put 80-(Sx1/2),100-(Sy1/2),Start$
  Endif
Return
'
Procedure Overlay_pic(Offset%,Color%,Prefix$)
  Let Colours3=Color%
  Sget Before$
  Fileselect "A:\*."+Prefix$,"",Fi$
  If Fi$<>"" Then
    If Right$(Fi$,4)<>"."+Prefix$ Then
      Fi$=Fi$+"."+Prefix$
    Endif
    Bload Fi$,Xbios(2)-Offset%
    Void Xbios(6,L:Xbios(2)-Color%)
    Sget Overlay$
    Define 2
    Color 1
    Repeat
      Mouse Ax1,Ay1,Bu%
      If Ax1<Lx% Or Ay1<Ly1 Then
        Vsync
        Sput Overlay$
        Box Ax1,Ay1,Ax1+Sx1,Ay1+Sy1
        Lx1=Ax1
        Ly1=Ay1
      Endif
    Until Bu%<>0
    Define 1
    Sput Overlay$
    Get Ax1,Ay1,Ax1+Sx1,Ay1+Sy1,End$
    Sput Before$
    Before$=""
    Put 240-Sx1/2,100-Sy1/2,End$
    For Y1%=-Sy1/2 To Sy1/2
      For X1%=-Sx1/2 To Sx1/2
        C1%=Point(80+X1,100+Y1)
        If C1%<>0 Then
          Color C1%
          Draw 240+X1,100+Y1
        Endif
      Next X1
    Next Y1
    Get 240-Sx1/2,100-Sy1/2,240+Sx1/2,100+Sy1/2,End$
    Sput Overlay$
    Put Ax1,Ay1,End$
    Bsave Fi$,Xbios(2)-Offset%,32000+Offset%
  Endif
Return
'
Procedure Load_bit
  Fileselect "A:\*.BIT","",Fi$
  If Right$(Fi$,4)<>".BIT" Then
    Fi$=Fi$+".BIT"
  Endif
  If Fi$<>""
    Open "I",#1,Fi$
    A$=Input$(5,#1)
    Sx%=Asc(Mid$(A$,3,1))+256)+Asc(Mid$(A$,2,1))
    Sy%=Asc(Mid$(A$,4,1))
    Close #1
    Get 0,0,Sx%,Sy%,Start$
    Bload Fi$,Varptr(Start$)
  Endif
Return
'
Procedure Save_bit
  Fileselect "A:\*.BIT","",Fi$
  If Right$(Fi$,4)<>".BIT" Then
    Fi$=Fi$+".BIT"
  Endif
  If Fi$<>""
    Bsave Fi$,Varptr(Start$),Len(Start$)
  Endif
Return
'
Procedure Resize
  Sget Nora$
  Define 2
  Color 1
  Repeat
    Mouse Ax%,Ay%,Bu%
    If Ax%<Lx% Or Ay%<Ly% Then
      Nx%=Abs(Ax%-80)
      Ny%=(Sy%/Sx%)*Nx%
      If Nx%<160 And Ny%<160 Then
        Vsync
        Sput Nora$
        Box 80-(Nx%/2),100-(Ny%/2),80+(Nx%/2),100+(Ny%/2)
        Lx%=Ax%
        Ly%=Ay%
      Else
        If Nx%>159 Then
          Nx%=159
          Ny%=(Sy%/Sx%)*Nx%
        Else
          Ny%=159
          Nx%=(Sx%/Sy%)*Ny%
        Endif
        Vsync
        Sput Nora$
        Box 80-(Nx%/2),100-(Ny%/2),80+(Nx%/2),100+(Ny%/2)
        Lx%=Ax%
        Ly%=Ay%
      Endif
    Endif
  Until Bu%<>0
  Define 1
  Sput Nora$
  C=Sx%/Nx%
  For Y1=0 To Ny%
    For X1=0 To Nx%
      Color Point(80+(Sx%/2)+(X1*C),100-(Sy%/2)+(Y1*C))
      Draw 240-(Nx%/2)+X1,100-(Ny%/2)+Y1
    Next X1
  Next Y1
  Swap Nx%,Sx%
  Swap Ny%,Sy%
  @Swap_screens
Return
'
Procedure Reproportion
  Sget Nora$
  Define 2
  Color 1
  Repeat
    Mouse Ax%,Ay%,Bu%
    If Ax%<Lx% Or Ay%<Ly% Then
      Nx%=Abs(Ax%-80)
      Ny%=Abs((Ay%*2)-100)
      If Nx%<160 And Ny%<160 Then
        Vsync
        Sput Nora$
        Box 80-(Nx%/2),100-(Ny%/2),80+(Nx%/2),100+(Ny%/2)
        Lx%=Ax%
        Ly%=Ay%
      Else
        If Nx%>159 Then
          Nx%=159
        Else
          Ny%=159
        Endif
        Vsync
        Sput Nora$
        Box 80-(Nx%/2),100-(Ny%/2),80+(Nx%/2),100+(Ny%/2)
        Lx%=Ax%
        Ly%=Ay%
      Endif
    Endif
  Until Bu%<>0
  Define 1
  Sput Nora$
  C1=Sx%/Nx%
  C2=Sy%/Ny%
  For Y1=0 To Ny%
    For X1=0 To Nx%
      Color Point(80+(Sx%/2)+(X1*C1),100-(Sy%/2)+(Y1*C2))
      Draw 240-(Nx%/2)+X1,100-(Ny%/2)+Y1
    Next X1
  Next Y1
  Swap Nx%,Sx%
  Swap Ny%,Sy%
  @Swap_screens
Return
'
Procedure Rotator
  Define 2
  Color 1
  Box 79-(Sx%/2),99-(Sy%/2),81+(Sx%/2),101+(Sy%/2)
  Repeat
    Repeat
      Lx%=X1
      Ly%=Y1
      Mouse X1,Y1,B%
    Until Lx%<>X1 Or Ly%<>Y1 Or B%<>0
    An=(Mouse/320)*360)+180
    C1=0
    W1=0
    @Rotate_point(0,0,An)
    C1=0%+A1
    W1=W1+B%
    @Rotate_point(Sx%,0,An)
    C1=0%+A%
    W1=W1+B%
    @Rotate_point(Sx%,Sy%,An)
    C1=0%+A%
    W1=W1+B%
    @Rotate_point(0,Sy%,An)
    C1=0%+A%
    W1=W1+B%
    C1=240-(C1/4)
    W1=100-(W1/4)
    Vsync
    Deffill 0
    Pbox 160,10,320,190
    Define 2
    Color 1
    @Rotate_point(0,0,An)
    Draw A1+C1,B%+W1
    @Rotate_point(Sx%,0,An)
    Draw To A1+C1,B%+W1
    @Rotate_point(Sx%,Sy%,An)
    Draw To A1+C1,B%+W1
    @Rotate_point(0,Sy%,An)
    Draw To A1+C1,B%+W1
    @Rotate_point(0,0,An)
    Draw To A1+C1,B%+W1
    Define 1
  Until Mouse<>0
  Deffill 0
  Pbox 160,10,320,190
  Lx%=320
  Ly%=200
  For Y1=0 To Sy%
    For X1=0 To Sx%
      @Rotate_point(X1,Y1,An)
      Color Point(80-(Sx%/2)+X1,100-(Sy%/2)+Y1)
      Add A1,C1
      Add B%,W1
      Draw A1,B%
      If A1<Lx% Then
        Lx%=A1
      Endif
      If B%<Ly% Then
        Ly%=B%
      Endif
    Next X1
  Next Y1
  Sx%=Abs(Lx%-240)*2
  Sy%=Abs(Ly%-100)*2
  @Smoothout
  @Swap_screens
Return
'
Procedure Filter
  Deffill 0
  Pbox 0,10,320,200
  Define 1
  Line 0,40,320,40
  Line 0,60,320,92
  Line 0,100,320,100
  Line 0,140,320,140
  For C1%=0 To 15
    Deffill C1%,1,1
    Color 1
    Pbox 20+C1%,41.20+(C1%+1),79
    Box 20+C1%,40,120+(C1%+1)-1,80
    C1%(C1%)=C1%
  Next C1%
  For C1%=0 To 15
    Deffill C1%(C1%),1,1
    Color 1
    Pbox 20+C1%,121.20+(C1%+1),139
    Box 20+C1%,100,(20+C1%+1)-1,140
  Next C1%
  Repeat
    Repeat
    Until Mouse<>0
    Mouse X%,Y%,B%
    If Y%>40 And Y%<80 Then
      N1%=X%/20
    Endif
    If Y%>100 And Y%<140 Then
      C1%(X%/20)=N1%
      Deffill C1%(X%/20)
      Pbox 20+Int(X%/20),100,20+(Int(X%/20)+1),140
      Box 20+Int(X%/20),100,(20+(Int(X%/20)+1))-1,140
    Endif
  Until B%<>2
  Cls
  Put 80-(Sx%/2),100-(Sy%/2),Start$
  For Y1=-Sy%/2 To Sy%/2
    For X1=-Sx%/2 To Sx%/2
      Color C1%(Point(80+X1,100+Y1))
      Draw 240+X1,100+Y1
    Next X1
  Next Y1
  @Swap_screens
Return
'
Procedure Rotate_point(X1,Y1,Q)
  R=Sqr((X1^2)+(Y1^2))+0.00001
  S=Y1/R
  If S<1 And S>-1 Then
    N=Atn(S/Sqr(-S*S+1))+(Q/180*Pi)
  Endif
  A1=-(R*Sin(N))
  B1=R*Cos(N)
Return
'
Procedure Smoothout
  For Y1=100-Sy%/2 To 100+Sy%/2
    For X1=240-Sx%/2 To 240+Sx%/2
      If Point(X1,Y1)=0 And Point(X1,Y1+1)<>0 Then
        Color Point(X1,Y1-1)
        Draw X1,Y1
      Endif
    Next X1
  Next Y1
Return
'
Procedure Explode
```

```
  For Z%=1 To 4
    @Frizzlex
    Cls
    Put 80-(Sx%/2),100-(Sy%/2),Start$
    @Frizzley
    Cls
    Put 80-(Sx%/2),100-(Sy%/2),Start$
  Next Z%
Return
'
Procedure Restore_original
  Sput Original$
  Gosub Capture
Return
'
Procedure Cutout
  Repeat
    Mouse Ax%,Ay%,Bu%
  Until Bu%=0 And Ax%>(80-Sx%/2) And Ax%<(80+Sx%/2) And Ay%>
    (100-Sy%/2) And Ay%<(100+Sy%/2)
  Defline 2
  Sget Norm$
  Repeat
    Mouse Bx%,By%,Bu%
    Color 1
    Vsync
    Sput Norm$
    Box Ax%,Ay%,Bx%,By%
  Until Bu%=0 And Bx%>(80-Sx%/2) And Bx%<(80+Sx%/2) And By%>
    (100-Sy%/2) And By%<(100+Sy%/2)
  Sput Norm$
  Get Ax%,Ay%,Bx%,By%,Start$
  Sx%=Abs(Bx%-Ax%)
  Sy%=Abs(By%-Ay%)
Return
'
Procedure Mirrorx
  For X%=-Sx%/2 To Sx%/2
    Get 80-X%,100-(Sy%/2),79-X%,100+(Sy%/2),Line$
    Put 240+X%,100-(Sy%/2),Line$
  Next X%
  @Swap_screens
Return
'
Procedure Mirrory
  For Y%=-Sy%/2 To Sy%/2
    Get 80-(Sx%/2),99-Y%,80+(Sx%/2),100-Y%,Line$
    Put 240-(Sx%/2),100+Y%,Line$
  Next Y%
  @Swap_screens
Return
'
Procedure Frizzlex
  If Sx%+8<159 Then
    Put 240-(Sx%/2),100-(Sy%/2),Start$
    For Y%=-(Sy%/2) To Sy%/2
      Get 80-(Sx%/2),120-Y%,80+(Sx%/2),99-Y%,Line$
      Put 240-(Sx%/2)+(Int(Rnd(1)*4)-Int(Rnd(1)*4)),100-Y%,Line$
    Next Y%
    Add Sx%,8
    @Swap_screens
  Endif
Return
'
Procedure Frizzley
  If Sy%+8<159 Then
    Put 240-(Sx%/2),100-(Sy%/2),Start$
    For X%=-(Sx%/2) To Sx%/2
      Get 80-X%,100-(Sy%/2),79-X%,100+(Sy%/2),Line$
      Put 240-X%,100-(Sy%/2)+(Int(Rnd(1)*4)-Int(Rnd(1)*4)),Line$
    Next X%
    Add Sy%,8
    @Swap_screens
  Endif
Return
'
Procedure Wobblex
  If Sy%+1.07<159 Then
    P=(Rnd(1)+Pi)*2
    O%=(32+Rnd(1)*32)
    For X%=-(Sx%/2) To (Sx%/2)
      Get 80-X%,100-(Sy%/2),79-X%,100+(Sy%/2),Line$
      Z=(Sy%/2)+(Sy%/15)*Sin((X%/(Sx%/O%))+P)
      Put 240-X%,100-Z,Line$
    Next X%
    Mul Sy%,1.07
    @Swap_screens
  Endif
Return
'
Procedure Wobbley
  If Sx%+1.07<159 Then
    P=(Rnd(1)+Pi)*2
    O%=(32+Rnd(1)*32)
    For Y%=-(Sy%/2) To (Sy%/2)
      Get 80-(Sy%/2),100-Y%,80+(Sy%/2),99-Y%,Line$
      Z=(Sx%/2)+(Sx%/15)*Sin((Y%/(Sy%/O%))+P)
      Put 240-Z,100-Y%,Line$
    Next Y%
    Mul Sx%,1.07
    @Swap_screens
  Endif
Return
'
Procedure Load_colour
  Fileselect "A:\*.COL","",Fi$
  If Fi$<>"" Then
    If Right$(Fi$,4)<>".COL" Then
      Fi$=Fi$+".COL"
    Endif
    Bload Fi$,Xbios(2)-Colours%
    Void Xbios(6,L:Xbios(2)-Colours%)
  Endif
Return
'
Procedure Save_colour
  Fileselect "A:\*.COL","",Fi$
  If Fi$<>"" Then
    If Right$(Fi$,4)<>".COL" Then
      Fi$=Fi$+".COL"
    Endif
    Bsave Fi$,Xbios(2)-Colours%,32
  Endif
Return
'
Procedure Save_merge
  Fileselect "A:\*.LST","",Fi$
  If Fi$<>"" Then
    If Right$(Fi$,4)<>".LST" Then
      Fi$=Fi$+".LST"
    Endif
    Ob$=Start$
    Repeat
      Print At(1,3);"Procedure name";
      Input Pr$
    Until Pr$<>""
    Repeat
      Print At(1,5);"Sprite variable name";
      Input Sp$
    Until Sp$<>""
    Open "O",#1,Fi$
    Print #1,"Procedure "+Pr$
    Print #1,"For I%=1 To "+Str$(Len(Ob$))
    Print #1,"Read A$"
    Print #1,Sp$+"$="+Sp$+"$+Chr$(A$)"
    Print #1,"Next I%"
    Print #1,"Data ";
    O%=0
    For I%=1 To Len(Ob$)/16
      For Q%=1 To 16
        Add O%,1
        If O%<>16 Then
          Print #1,Str$(Asc(Mid$(Ob$,O%,1)));",";
        Else
          Print #1,Str$(Asc(Mid$(Ob$,O%,1)))
        Endif
      Next Q%
      Print #1,"Data ";
    Next I%
    For I%=O%+1 To Len(Ob$)
      Print #1,Str$(Asc(Mid$(Ob$,I%,1)));",";
    Next I%
    Print #1,"-1"
    Print #1,"RETURN"
    Close #1
  Endif
Return
'
Procedure Print
  Cls
  Put 160-(Sx%/2),100-(Sy%/2),Start$
  ' INSERT PRINTER DUMP ROUTINE HERE
  Pause 100
Return
'
Procedure Swap_screens
  If Sx%<159 Then
    Sx%=159
  Endif
  If Sy%<159 Then
    Sy%=159
  Endif
  Get 240-(Sx%/2),100-(Sy%/2),240+(Sx%/2),100+(Sy%/2),Start$
Return
'
Procedure Undo
  Sx%=Ux%
  Sy%=Uy%
  Start$=Undo$
Return
'
Procedure New_screen
  Cls
  Deffill 1,3,3
  Pbox -1,10,320,200
  If Start$<>"" Then
    Color 1
    Box 159-(Sx%/2),99-(Sy%/2),161+(Sx%/2),101+(Sy%/2)
    Put 160-(Sx%/2),100-(Sy%/2),Start$
  Endif
Return
'                                        ***** THE FUN ROUTINE! *****
Procedure Animate
  Cls
  Hider
  Repeat
    Mouse X%,Y%,Z%
    If X%<Lx% Or Y%<Ly% Then
      Lx%=X%
      Ly%=Y%
      Vsync
      Put X%,Y%,Start$
    Endif
    If Z%=2 Then
      Cls
    Endif
  Until Z%=1
  Show
Return
'                                        **** MAIN MENU ****
Procedure Main_menu
  Menu Ma$()
  Menu Off
  On Menu  Gosub Menu_selection
  Repeat
    On Menu
  Until Menu(2)<>0
Return
'                                        **** MENU SELECTION HANDLING ****
Procedure Menu_selection
  Si%=Menu(0)
  Menu Kill
  Si$=Left$(Right$(Upper$(Ma$(Si%)),Len(Ma$(Si%))-2),Len(Ma$(Si%))-4)
  Cls
  If Start$<>"" Then
    Put 80-(Sx%/2),100-(Sy%/2),Start$
    If Si$<>"
" Then
      Let Undo$=Start$
      Let Ux%=Sx%
      Let Uy%=Sy%
    Endif
  Endif
  Color 1
  Defline 1
Line 0,9,320,9
Print At((42-Len(Si$))/2,1);Si$
If Si$="QUIT" Then
  Alert 1,"QUITTING DESTROYS|EVERYTHING. DO|YOU REALLY WANT TO?",2,"Yes|No",Bu%
  If Bu%=1 Then
    Setcolor 0,7,7,7
    Setcolor 15,0,0,0
    Edit
  Endif
Endif
If Si$="ABOUT THE MANIPULATOR" Then
  Alert 2,"|    The MANIPULATOR    |      | (c) M. P. Awbury 1987 ",2,
                                                  "I know|Thanks|Wave",Dummy%
Endif
If Si$="LOAD DEGAS" Then
  Gosub Load_pic(34,32,"PI1")
Endif
If Si$="LOAD NEOCHROME" Then
  Gosub Load_pic(128,124,"NEO")
Endif
If Si$="OVERLAY DEGAS" Then
  Gosub Overlay_pic(34,32,"PI1")
Endif
If Si$="OVERLAY NEOCHROME" Then
  Gosub Overlay_pic(128,124,"NEO")
Endif
If Si$="RESIZE PIC" Then
  Gosub Resize
Endif
If Si$="REPROPORTION PIC" Then
  Gosub Reproportion
Endif
If Si$="ROTATE PIC" Then
  Gosub Rotator
Endif
If Si$="FILTER COLOURS" Then
  Gosub Filter
Endif
If Si$="CUTOUT SECTION" Then
  Gosub Cutout
Endif
If Si$="FRIZZLE 'X'" Then
  Gosub Frizzlex
Endif
If Si$="WOBBLE 'X'" Then
  Gosub Wobblex
Endif
If Si$="FRIZZLE 'Y'" Then
  Gosub Frizzley
Endif
If Si$="WOBBLE 'Y'" Then
  Gosub Wobbley
Endif
If Si$="EXPLODE PIC" Then
  Gosub Explode
Endif
If Si$="MIRROR 'X'" Then
  Gosub Mirrorx
Endif
If Si$="MIRROR 'Y'" Then
  Gosub Mirrory
Endif

  If Si$="SAVE BITFILE" Then
    Gosub Save_bit
  Endif
  If Si$="LOAD BITFILE" Then
    Gosub Load_bit
  Endif
  If Si$="LOAD COLOURS" Then
    Gosub Load_colour
  Endif
  If Si$="SAVE COLOURS" Then
    Gosub Save_colour
  Endif
  If Si$="
  Then
    Gosub Undo
  Endif
  If Si$="ANIMATE PIC" Then
    Gosub Animate
  Endif
  If Si$="ORIGINAL PIC" Then
    Gosub Restore_original
  Endif
  If Si$="PRINT" Then
    Gosub Print
  Endif
  If Si$="SAVE ASCII" Then
    Gosub Save_merge
  Endif
Return
'                                        ****** SETUP ROUTINE *******
Procedure Setup_manipulator
  Dim Ma$(100)
  Dim Ci%(15)
  Let Colours%=32
  Restore
  Z%=0
  Repeat
    Read Ma$(Z%)
    If Left$(Ma$(Z%),1)<>"-" And Ma$(Z%)<>"" And Ma$(Abs(Z%-1))<>"" Then
      Ma$(Z%)="  "+Ma$(Z%)+"  "
    Endif
    Add Z%,1
  Until Ma$(Z%-1)="  I  "
  Sub Z%,1
  Ma$(Z%)=""
Return
'                                        ***** MENU DATA *****
'
Data DESK,About the MANIPULATOR,----------,1,2,3,4,5,6,
Data FILE,LOAD Degas,LOAD Neochrome,----------,OVERLAY Degas,
OVERLAY Neo,----------,LOAD Bitfile,
SAVE Bitfile,----------,SAVE Ascii,----------,QUIT,
Data ACTION,RESIZE pic,REPROPORTION pic,ROTATE pic,CUTOUT section,
EXPLODE pic,FILTER colours,MIRROR 'X',MIRROR 'Y',FRIZZLE 'X',
FRIZZLE 'Y',WOBBLE 'X',WOBBLE 'Y',
Data OPTIONS,ANIMATE pic,LOAD colours,SAVE colours,ORIGINAL pic,PRINT,
Data UNDO,
,X,,
```

KENN GARROCH



Like a Mickey Mouse

Richard Clapp, of Wimbledon, London, writes:

Q Recently I bought the PD V1.0 *Neochrome* for the ST and soon discovered the hidden animation function appearing like a Mickey Mouse in the second from left lower box menu. Unfortunately a few days later I could not seem to activate this by clicking one of the Bs in the GRABBER heading as before.

Does some previous function need to be used first or is it a one-off. If the latter, how can this be when the disc is write-protected? I also tried the original Neochrome disc in case the back-up I had used originally was at fault but I had no luck as in at least 10 minutes it was clicking around the Bs.

A I have only version 0.5 of Neochrome and so the only hidden function of which I know is the use of the right button when drawing lines. Perhaps readers know of the hidden sections in the program, and how to access them? If so, it would be helpful to be able to let everyone else have the details.

Mix and match

Garry Whitta, of Chingford, London, writes:

Q I am the owner of an Amiga 500 and am toying with the idea of buying an Atari 520 STFM as well so that I can benefit from the large software base of both machines. I need answers to some questions before I can decide.

Can the Amiga 1081 monitor be used with the ST? Is there an ST emulator available for the Amiga which gives compatibility with most ST software? Can the ST mouse be used with the Amiga and vice versa? Can the 1081 monitor be used with the Sega Master system?

A The Amiga puts out an RGB analogue signal which has the same format as the ST so you should be able to get both the low- and medium-resolution modes of the ST on it. Hi-res on the ST requires a 70Hz scanning rate and thus a special monitor – SM125 or NEC Multisync and so on.

I do not know of an ST emulator for the Amiga and I should think that it is unlikely that one will become available. Emulating an ST is not outside the bounds of possibility but I should think it would be fairly difficult. On the face of it, the Amiga and ST mice pinouts appear to be the same but they don't work when swapped – the buttons are satisfactory but the movement encode wheels appear to put out different signals. On the ST it may be possible to use the Amiga mouse by altering the keyboard microprocessor settings but I have not tried it.

I do not know a great deal about the Sega Master System but unless it puts out an RGB signal – unlikely since it is designed for use with a TV – it probably will not work with the 1081.

Out the window

I. A. McDougal, of Pitlochry, Tayside, writes:

Q I have a Commodore 64C which is giving very odd results with programs written in Basic and saved on cassette. When I load a program which starts with line 10 REM FILE NAME, on the first listing it reads as above, on the next it is changed to 32883. A further listing produces 21057. If you enter the original line 10, it becomes correct but the next line 20 has now been changed to 32833. If you re-enter line 20, you find that the following line 30 has now become 5128. If you try to remove any of these numbers by entering the number followed by the return key, the computer screen changes colours and locks up. By using RUN/STOP RESTORE you can get it listing but the program has then been reduced to random garbage.

I gave the computer to a local repair man who swapped a motherboard from another C64 but it made no difference. I am now at the stage that the computer and the rest is almost going out of the window, so can you help me?

A As a first approximation, I would say that the problem is with your cassette recorder. Either the heads are dirty or are out of line. Cleaning the record and play heads is the first thing to try; some cotton buds – or a matchstick with some cotton wool twisted round the end – coated with some spirit – methylated spirit is best but anything which evaporates quickly will do as you must make sure it does not leave any sticky coating – wiped across the heads and the transport mechanism should do the trick.

After cleaning the heads, save a program on a new tape and try reloading it. If that still produces the same problem you may have to realign the heads, which is a little more difficult. There should be a small hole in the cassette recorder casing just above the heads. When the play button is pressed, a small alignment screw can be accessed through the hole. Use, if possible, a non-metallic screwdriver to adjust this a little. Then try saving, loading and adjusting, until the program loads correctly. If all else fails send the tape player to the repair man.

Correction

Douglas Turvey, of Newcastle-upon-Tyne, writes:

Q Re Converted, *Popular Computing Weekly* Feb. 11–17. Your answer is inaccurate and makes more of the problem than exists. The ST power supply is rated at a maximum of 3A. The only time when that much power is drawn from the PSU is when two drives are in operation and, even then, that figure is not reached. The real current drawn by the STM is considerably less – approximately .5A. The figure could be found by connecting an ammeter between the 5V pin of the PSU and the ST. At the same time a test could be done as to whether the ±12V lines are required for correct operation. The monitor output has a 12V pull-up so this may need to be connected, although the current drawn will be negligible.

As Ian has no intention of using the disc drive while on battery power, this figure is the one which should be used in the calculation. Also, as most hotels have some form of mains, the batteries would really be needed only while the computer is being transported. At all other times it could be "plugged in" and the batteries recharged.

Using the current drainage figure given, the ST could survive a journey of up to eight hours with 4×400mAH ni-cads and could then be recharged. A word of warning if you are considering joining ni-cad batteries in parallel. Because of the recharging effect if two batteries of different charge states are joined a high current can flow which will cause serious depreciation of the batteries, cause heating, and possibly cause the batteries to explode. All this means that you still have to take a power supply with you so that the ST can be plugged in when in use.

Re From QL to ST, Feb. 18–24. Having made the same transition, I feel that I must tell my story. It is possible to have a TTL RGB monitor converted to take analogue RGB. It involves taking out the TTL interface board inside the monitor. This interface should be on a small additional board inside the box. You will also have to change the scanning frequency of the monitor which involves tuning a pre-set variable resistor on the main board.

My monitor was manufactured by Microvitec, which made the conversion for me. So I suggest contact with the manufacturer of the monitor for the conversion. If it has some competent engineers it should be possible to make it switchable between OL and ST modes so that it will work with either machine.

A Thanks to Mr Turvey for pointing out a rather glaring error in my reasoning. I suspect that I was carried away with the thought of carrying all of those batteries.

Amiga colour

A In the 25th Feb. edition of *Popular*, I stated that it was not possible to obtain a colour picture from the Amiga on the CBM 1901 monitor. I have since been informed that this is possible if you have a modulator expansion since this produces the correct signal – it needs to be connected to both of the video inputs of the monitor.

Another method of getting colour from the 1901 is to get it converted to RGB Analogue. Trilogic, Unit 1, 253 New Works Road, Lowmoor, Bradford BD12 0QP (Tel: 0274 691115) will do this for £29.99 incl. postage although they will collect and deliver for an extra £24.

Cured

S. Gordon, of Holbury, Southampton, writes:

Q I own an Amiga 500 which recently contracted the virus but has now been cured. In the process my Workbench disc became infected. This, I thought, was the reason why the RAM disc was 100 per cent full with 1K of memory used but that was not so!

Since I administered the virus killer the RD remains 100 per cent full with 1K of memory used. Should this be so? Also when I am transferring files and directories to the RD the amount of memory I can use varies between 240K and 319K. Should I not be able to use the full 512K before it becomes full?

A The Amiga is very sophisticated in the way it uses its memory and it is not surprising that the RAM disc is also 'clever'. It takes up only as much of the Amiga RAM as necessary for the job starting with a minimum of 1K. Since the Amiga needs some of its 512K of memory to run the operating system, e.g., for the screen, various system pointers, nodes, housekeeping duties and so on. the RAM disc can never get up to 512K.

Programming

Paul Jones, of Cardiff, S. Wales, writes:

Q I have recently started to learn 68000 assembly language on the Amiga 500. Unfortunately, after many years of experimenting and much stress on my bank account, I have come to the conclusion that no one writes assembly language examples in assembly language, they only use C which, unfortunately I have not, as yet, learnt.

I would be most grateful if you could supply me with a few examples or, failing that, put me in touch with someone who can help me.

The areas that I am having trouble with are graphics (setting up rasterports and viewports etc) and input via the keyboard.

A I can quite sympathise with your feelings about the Amiga since I had much the same trouble when I started playing around with machine code. At least three manuals are needed – firstly, the Amiga Hardware Reference Manual, secondly, the ROM Kernal Reference Manual Libraries and Devices and, finally, the ROM Kernal Ref. Manl. Exec: all published by Adison Wesley. These are quite expensive but will give you a pretty good background from which to work. The hardware manual has its examples in machine code and although they are not very complete, they will give you some idea of how to get at all of the fancy hardware chips i.e. the blitter, copper, sprites, sound, etc.

The ROM Kernal manuals do have their examples in C but in the appendices all of the 68000 registers are defined for the calls so it is fairly easy to convert to machine code. The Exec manual contains the offsets and register names but to find out what the routines do, in detail, the Libs and Devices manual is needed. A lot of rooting around the manuals is necessary if you do not have an assembler that contains all of the libraries.

The main problem when programming the Amiga in machine code is that its operating system is a little complicated compared to other machines, e.g. the ST which in comparison is child's play. One way to get things working is to ignore the system calls as much as possible and go directly to the hardware, i.e. ignore the multitasking, nodes, and all the other things that make life hard and program the hardware directly – see the hardware manual. Unfortunately, you will need to use a few system calls to get started but, depending on the assembler you have, these are pretty basic, and easily accessed in library format – at least with Devpac Amiga.

As a simple example, the following program prints a message to the screen and reads the keyboard; it also shows how system libraries are opened and then accessed. Basically, the first thing to note is that the only constant address in the system is at memory location 4. This address is used with all exec calls and the method is to put the address in a6 and then use the indirect addressing plus displacement to get the correct function e.g. jsr – 552(a6) where A6 holds the address in 4, a1 holds the address of the library name and d0 holds 0 (any version) – will open a library which then gives access to a number of other functions.

All of this messing around with libraries is all right for simple things like file i/o but when it comes to screen handling things get rather complicated. The February issue of *Amiga User International* has a nice example of the copper set up and although *Popular* is, of course, the best mag around, it is sometimes necessary to get a specialist mag for intimate details.

Hopefully I will able to do a longer article on the subject of using the Amiga in the future (if there is any demand). As it is, there is not really space to provide any in-depth programming methods for the machine in Peeks and Pokes. What I will try and do is fit in an Amiga program in the programming section when I have time to write one and the space to include it.

```
sysbase   equ   4              The only constant address in the machine
openlib   equ   -552           Offset to open a library
closelib  equ   -414           Offset to close a library
input     equ   -54            DOS get input handle
output    equ   -60            DOS get output handle
read      equ   -42            DOS read file (handle)
write     equ   -48            DOS write file (handle)

go        bsr   opendos        Open the DOS library
          bsr   getout         Get console output handle
          bsr   getin          Get console input handle

          lea   mess,a0        Point to message
          bsr   print          And print it
          bsr   gmess          Read chars from kbd
          lea   kbuff,a0       And print it
          bsr   closedos       Close the DOS library
          rts                  Return to system
print     move.l a0,d2         D2 is start address of string
          move.l #0,d3         D3 will be length of string
printl    addq.l #1,d3         Find length of string
          tst.b (a0)+          Which ends in zero
          bne.s printl         Keep on till zero
          move.l hout,d1       Handle in d1
          move.l dosbase,a6    Dos base address in A6
          jsr   write(a6)      Jump to write subroutine
          rts                  String printed so return

gmess     move.l hin,d1        Console input handle
          move.l #kbuff,d2     Address of input buffer
          move.l #10,d3        Number of chars to read
          move.l dosbase,a6    DOS base address
          jsr   read(a6)       Read the keyboard
          rts                  Done - 10 chars in kbuff

getout    move.l dosbase,a6    DOS base address
          jsr   outpout(a6)    Get output handle to D0
          move.l d0,hout       And store in hout
          rts

getin     move.l dosbase,a6    As before
          jsr   input(a6)      Get input handle
          move.l d0,hin        And store
          rts

opendos   move.l sysbase,a6    Exec uses address in loc 4
          lea   dosname,a1     Name of lib to open
          move  #0,d0          Any version
          jsr   openlib(a6)    Open the dos library
          move.l d0,dosbase    Save the base address
          rts

closedos  move.l sysbase,a6    System base address
          move.l dosbase,a1    Base address to close
          jsr   closelib(a6)   Close the dos library
          rts

mess      dc.b  'This is a message',13,10,0
          even
kbuff     ds.b  15             Keyboard input buffer
          dc.b  13,10,0        CRLF+0 for print
          even
dosname   dc.b  'dos.library'  System dos lib name
          even
dosbase   ds.l  1              Space to save address
hout      ds.l  1              Space for output handle
hin       ds.l  1              Space for input handle
          end
```

On the rebound

Rebound has just re-released three back catalogue games from Gargoyle Games and we have 200 copies to give away, plus a personal stereo.

Dun Darach involves you wandering through the secret city of Dun Darach. Your object is to search and find the kidnapped Loeg. Tir Na Nog has you trying to locate the fragments of the Seal of Calum.

Marsport is set in the year 2494 on the planet Mars and involves you trying to gain access to a sphere of force plans.

All games are released on the Spectrum and Amstrad and feature cartoon-style graphics with very smooth animation.

● Win a personal stereo

All you have to do to win a copy of the game is answer the following questions correctly:

1. What is the first name of Mr Hewson who runs Hewson Consultants?
a, Nigel; b, Andrew; c. Henry.

2. In which game does the character Cuchlainn appear?
a, Tir Na Nog; b, Dun Darach; c, Marsport.

3. When was Tir Na Nog first released?
a, 1983; b, 1984; c, 1986.

Answers on a postcard with your name and address to: Rebound Competition, *Popular Computing Weekly*, Greencoat House, Francis Street, London SW1P 1AG.

Competition closes on Monday April 5, 1988.

Please state which game you would like and which machine you own.

Rules: Correct answers do not guarantee a prize. Names of all winners will be published in a future issue of *Popular Computing Weekly*. The competition will be judged by the Editor of *Popular Computing Weekly*. Multiple or incomplete entries will be disqualified. The judge's decision is final and no correspondence will be entered into.

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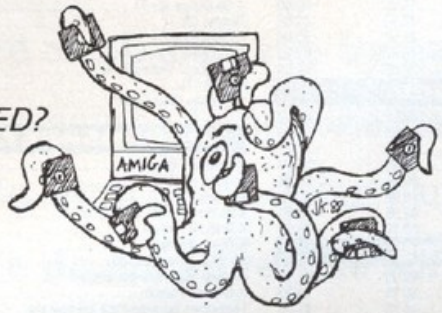

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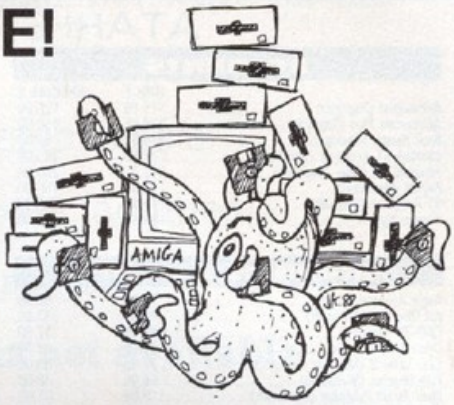

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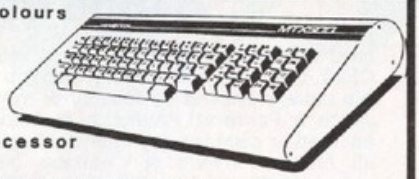

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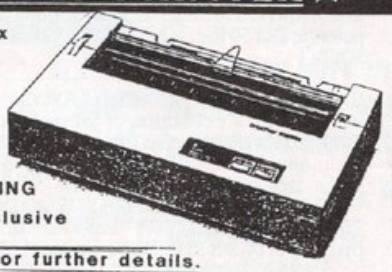

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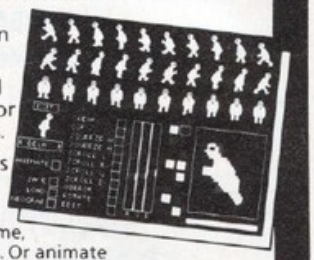

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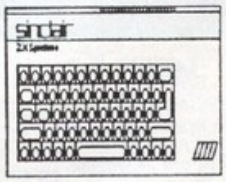

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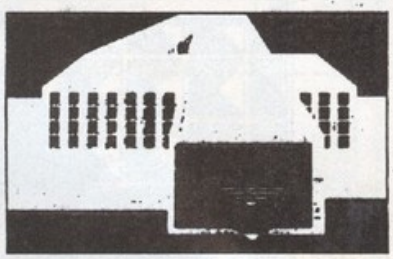

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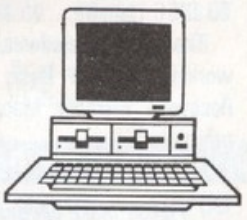

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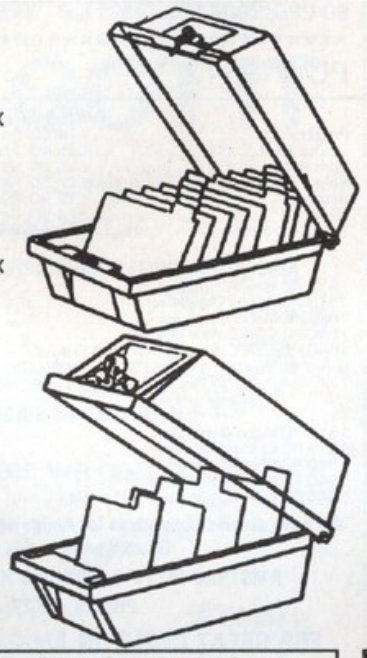

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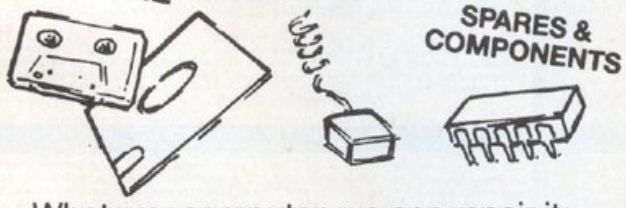

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Those who are keen readers of computer magazines will have noticed many advertisements for, and features on, Dell Computer Corporation. The company usually attracts attention because of its whizzkid founder, 22-year-old American Michael Dell, who started by souping up IBM PC-compatible machines and selling them at a profit and then proceeded to expand the operation into a $70 million company in three years. A little more research reveals that the company makes extremely good and competitively-priced IBM-compatible machines.

What is really interesting, however, is the fact that the company operates entirely by mail order.

None of its machines are available, or will be available, in the shops. Dell claims that eliminating dealers cuts out their margins and so reduces the price of the machine and that if any problems are encountered the user can deal with the company direct rather than having to go through a middle man. In the U.S. the idea has been a success. The question now is will the British public, whose trust in mail order has been abused in the past, be prepared to send money to the company when they could walk into the nearest computer dealer and buy an Amstrad PC.

That is a difficult question to answer but, judging by the advertising and comments written about the machines, Dell deserves to succeed. He is launching well-built, powerful and good value machines with good advertising and, above all, plenty of support. In addition to the normal guarantee, there is a telephone hotline and a year's on-site maintenance contract with promised next working day service included in the price.

No British company has combined all those attributes, especially the user support element.

Sinclair always hid behind distributors, while Amstrad has something of a poor reputation for responding to telephone enquiries.

So we see a difference of attitude. Where British companies may seem to launch machines and then fail to supply them on time, or supply unfinished or unreliable items and appear to show contempt for the customer, an American company supplies good machines and support at a reasonable price.

It is a question of getting everything as it should be, something which all too few British companies seem able to achieve. Amstrad is possibly the closest to doing it but it has largely failed to penetrate the U.S. market in which Dell clearly is succeeding.

Why so many American firms succeed while so many from Britain may not is interesting but it is probably the result of the American 'go for it' attitude.

It is to be hoped that British companies see what Dell and other firms are doing and improve.

Acorn, for example, cannot afford any problems with its RISC machines or, good as they are, they may disappear, while there must be no repetition of early Sinclair difficulties. □

Robert Halliday

HACKERS

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In addition, we at Silica would like to see you get off to a flying start with your new computer, so we have put together a special **ST STARTER KIT** worth over £100, which we are giving away **FREE OF CHARGE** with every ST computer purchased at our normal retail prices. This kit is available **ONLY FROM SILICA** and is aimed at providing users with a valuable introduction to the world of computing. We are continually upgrading the ST Starter Kit, which contains public domain and other licensed software, as well as books, magazines and accessories all relevant to ST computing. Return the coupon below for full details.

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