

POPULAR COMPUTING

A FOCUS MAGAZINES PUBLICATION

Jan 19-25 1989

70p

WEEKLY

NEWS

We talk to the latest whizz kid (below, counting all his lovely lolly).



AMIGA

The latest news from Commodore and its distributors. Students can now get an A2000 on a low cost long term loan.

ATARI ST

SAM, a video digitiser for the ST, has been upgraded. Graphic artist Alan Tomkins, of Outrun Amiga fame, tries it out.

Plus . . . Ludwig, a musical composition package, gets the once over from the ever musical Tony Sacks.

SPECTRUM

A Mac-like user interface that allows iconic selection of files and applications is reviewed. Plus . . . a listing for weaving graphics patterns.

AMSTRAD PCW

We dig deep into a database - from within a Locoscript document - with LocoFile from Locomotive.

AMSTRAD CPC

Jeff Hunt's screen dumping program for the 464.

CBM BOOSTS AMIGA

AFTER seeing Atari scoop many of the honours in terms of Christmas sales, Commodore is fighting back with a clutch of promotional activities. They include following Amstrad into a student loan scheme, running an Amiga competition in the mass circulation *TV Times*, and - finally - offering, through distributor Add-Ons, a games bundle on the Amiga 500 independently of distributor SDL which has been selling a bundle for some time.

The deal with the National Union of Students, like that offered by Amstrad, involves students taking a long-term "futures" loan with the Midland Bank. This means the student can get a loan up to £1,000 for the full term of a



Amiga: clutch of promotions.

degree course but with interest one percent above the base rate. NUS will only offer the 1MB Amiga 2000, for which a complete package bundled with *The Works*, *Photon Paint* and *Instant Music* costs £1,263: "We find many students will take the full £1,000 loan and top up the rest with savings," said Ken Spencer, a sales agent at NUS Services.

TV Times, which sells some three million copies per week, will have Amiga A500 and A2000 com-

petition in its January 24 issue. The competition will form part of a feature on a new TV show called *Press Gang*, about schools magazines. The best school magazine sent to *TV Times* will win an A500 (primary school) or an A2000 (secondary school). Runners-up receive Pentax cameras and the prizes will be awarded on TV AM, according to Commodore. Jane Beaton, promotions manager at *TV Times*, told *Popular Computing Weekly* that Commodore had been chosen because it has "a large educational division."

Distributor Add-Ons will supply CBM equipment to local student unions which will then re-sell to the students. In addition, Add-ons has put together an Amiga bundle along the lines of that offered by rival SDL. Ironically, the bundle was put together by Jonathan continued on page 4 ►

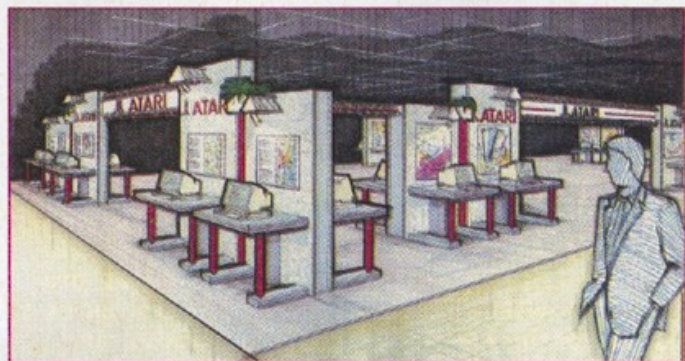
1813 virus struck as predicted

THE 1813 Virus - see *Popular Computing Weekly*, January 5-11 - has struck. Last Friday, the 13th, many people sat at their terminals in panic as something went wrong with the system.

Dr. Alan Soloman, virus investigator, had about "half a dozen reports of a virus" on the day. One of them sounded as if the problem was most definitely down to the 1813 virus, while another, according to Soloman, grew by "1792 bytes, and behaved similarly". He added that "this new virus had a different signature - the series of bytes which are detected to show whether the file is already infected."

Since our original story, the number of infected installations has increased three-fold and there are now about 15 reported cases.

Atari, CBM mean business



Atari's stand at Which: devoted to business.

BOWLER hats will be in order for the 16-bit home computing majors as they make their annual attempts to penetrate the business market. Both firms are abandoning their low-end machines for a week as they make a bid for the pin-stripe pennies.

Commodore will exhibit mainly

the Amiga 3000 and applications, along with the new A2500 Unix box launched at Comdex. Atari, meanwhile, will "have no low-end STs on show" and will concentrate on the Mega 2, Mega 4, ATW and its range of PCs.

Some of the new Commodore continued on page 4 ►



SCHOOLBOY entrepreneur David Bolton has received a consignment of Amstrad computer equipment, courtesy of Alan Sugar. The equipment, supplied by Amstrad distributor Eltec, is being put to good use by Bolton as he writes business software for his numerous clients.

Bolton's company, Associated Computer Enhancements, is based at his home in Croydon, Surrey. The growth of his business is so fast that in less than a year the turnover is well into five figures and he now employs his father and cousin.

Bolton told *Popular Computing Weekly* how he became involved with computers. "When I was nine I received a Sinclair ZX-81 for Christmas." After having it upgraded to 16K RAM, "a good deal of memory for its time", he found that his programming exercises were becoming restricted by the capacity of the computer.

A Tandy TRS-80 was bought and Bolton progressed with what he called "simple programming routines to display things on the screen."

Now he designs and writes business software for his clients, one of which is the Carousel toy group.

Using his donated Amstrad equipment, he writes stock control, financial and various other business application software using Dataease, C, and more recently dBase 4.

Bolton is confident enough to say that by the time he is eligible to drive he will be more than able to afford a £46,000 convertible Mercedes.

German reports of Nazi software

COMPUTER games are spreading right-wing extremist attitudes among youths, according to a recent report from the West German government.

The report states that computer games promoting Nazi policies are being passed through public domain channels. The games, which are illegal, have such titles as *Smash the Jews*, *Clean Germany* and *Nazi* and are all based on the extermination of foreigners in West Germany, Jews and Turks in particular.

Attached to some of the games are contacts, usually an electronic mailbox or postal box number, to where gullible gamers can write to

obtain right-wing neo-Nazi literature and so spread the propaganda further.

The report alleges that certain European computer software companies produced and promoted commercial games with the same general Nazi theme last year.

Associated Press estimates that there are about 20,000 neo-Nazi extremists in West Germany; many are young and unemployed. Computers, being a growth industry in most developed countries, are regarded as an easy way of spreading ideas and political views as part of software or disc-based magazines. Such actions are illegal under current West German law.

Atari launches new budget label

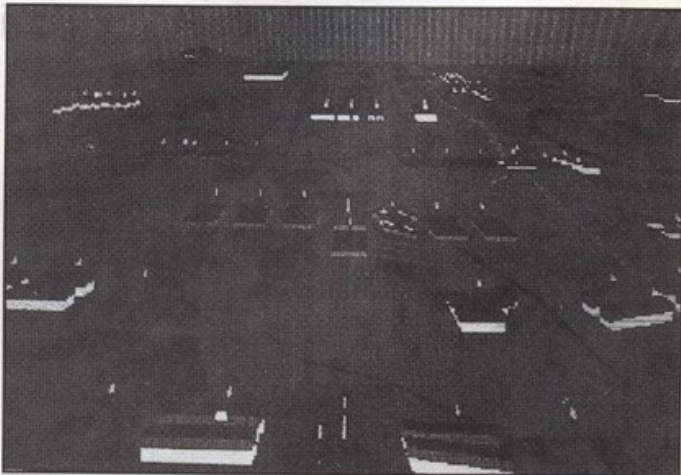
ATARI is to launch a new budget label in the next two months to strengthen its commitment to its 8-bit machines - the 65XE, 130XE and XE Games System.

The first available under the unnamed label will be *Nucleus*, a shoot-'em-up game. At present there is no firm release date although the price has been set at £2.99 and it will be on cassette only.

Also on the agenda for Atari 8-bit machines is a full-price game, *Tiger Attack*, another scrolling

blast-'em game with tendencies towards a recent arcade conversion. Both games are planned to be released at the same time.

On the ST front, *Borodino* - see review in *Popular Computing Weekly* November 24-30, 1988 - has recently been released and the first Atari ST game to be accepted for retail distribution by W H Smith. An Atari spokesperson comments: "We are very pleased to have an ST game in Smiths as we now seem to be considered a serious software company."



Borodino: ST version to make its W H Smith debut.



Dixons: customers slow in buying replacements.

Dixons profit falls 15%

THOUGH computer sales were healthy at Christmas, Dixons has reported profit of £42 million, down 15 percent against the same period the previous year. Stanley Kalms, chief executive of Dixons, said that Christmas sales were on target but that slow growth in consumer electronics in general contributed to the lacklustre performance. Kalms said that Dixons customers, who often buy replacement products, are delaying purchases, showing that increases in interest rates are having a deleterious effect on high street spending.

Tasword joins the residents

TASMAN has launched a new version of *Tasword* for the PC but functionally it is exactly the same as the old version. The difference is that the new version, *TasRes PC*, is memory-resident.

That means that while running, say, a spreadsheet, the user can skip back to *Tasword* at the press of a button; meanwhile the spreadsheet activity is suspended until it is required again.

Tasman is selling the news software to existing *Tasword* owners only for £19.95. Call 0532 438301 for details.

Foreign computer programmers exploited

CONCERN is growing about the shortage of skilled computer professionals, especially programmers. London and the south-east would seem to be worst-hit by the famine.

Consultancies are now providing Asian and Australian professionals with short-term contracts. Asian programmers are more than willing to work for greatly-reduced fees but are usually not aware of the fact.

Companies will often pay an agency up to £1,200 per week for an employee supplied by it. In most cases, all the employee receives of this money is about £500 – some as little as £100 – a massive profit for a consultancy company.

About 100 such companies have appeared in the last five years and as many as 20,000 computing va-

cancies are available in the south-east. Like other areas, there are the good, reputable firms which will give contractors a fair deal but there are those which are out to make all the money they possibly can.

It is these firms which have suddenly come under fire from their foreign contractors. Such companies give the business a bad name and some agencies are reporting a fall in the number of contractors.

Teddy Taylor, MP for Southend East, has had complaints from three Indian members in his constituency about agencies exploiting such people. They also stated that the situation was damaging to their home countries, as the British were taking away their talented workforce.

Undercover scanner for Apple Macintosh

LOGITECH has announced that its hand-held scanner, the ScanMan, is now available to Macintosh users.

The scanner is complete with full Macintosh software, in the form of a desk accessory. It allows the ScanMan to be activated from within other applications programs, such as desk-top publishers or graphics software.

The software also allows you to manipulate the image in a variety of ways, including cut and paste and re-size.

The Scanman for Mac can be programmed to scan at various

levels of clarity. Users can scan using either 100 dots per inch, 200dpi, 300dpi and even 400dpi to give good results. It also has two modes for scanning, either black and white mode for line drawings or dithering using 32 halftones. The Scanman is compatible with the Macintosh Plus, SE and II versions.

The package includes the scanner, SCSI interface with power adapter, connecting cables and full software and retails at £395. Further information can be obtained from Logitech on 0525 222211.

Sales drive for modem company

DATAPHONE, the Peterborough-based telecommunications company, has formed a new company to distribute and sell its range of modems.

The company, Modem Marketing, is part of a new sales initia-

tive, designed to "raise the profile" of Dataphone products, concentrating on the Demon II and Designer modems in particular.

Both modems are fully-approved by British Telecom and include auto-dial and auto-answer facilities. The Demon II retails at £99.95, the Designer costing £79.95. Modem Marketing can be contacted on 0733 52440.

THIS WEEK

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We begin our occasional series explaining baffling areas of computing

☐ **WIMPish Spectrums?** p. 13

John Wase reviews a Macintosh look-alike user interface for the Spectrum

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A review of a PCW database to complement the popular Locoscript

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SAM, the professional ST digitiser, has had a software upgrade

☐ **Soundcheck** p. 23

Tony Sacks "composes" a piece on the new Midi program, Ludwig

☐ **In the Public eye** ... p. 24

Public Domain software varies in quality on many machines. Barry Pickles checks out a selection of ST discs

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Dragon mag's last breathe extinguished

DRAGON User, the monthly magazine devoted to one of the earliest U.K. home micros, published its final issue this month. Founded in May, 1983, the magazine had outlived several predictions of closure since the original Dragon manufacturers, Dragon Data, went out of business in 1984.

Two attempts were made to relaunch the Dragon computer, by G.E.C. in 1984 and Eurohard S.A. in 1985. The proposed upgrades to the Dragon never reached the market but tens of thousands of pioneering computer buffs in the U.K. and Europe bought the Dragon 32 and the slightly later Dragon 64, ensuring Dragon User's survival well beyond the computer's shop life. The Dragon also inspired devotion as the only home micro based on the 6809 processor.

Dragon User restricted its circulation to private subscription in 1986 and since mid-1988 has been run by software publisher Bob

Harris. Harris took over the magazine to prevent its closure when the original publisher, Sunshine Publications, ceased publishing computer titles. Circulation continued to fall as users moved to newer computers like the Amiga, Atari ST



Dragon D6009: G.E.C. tried to revive it but to no avail.

and Archimedes. Subscription renewals fell "from 60-65 percent to a mere 20 percent" after the postal strike, said Harris, who shelved plans to invest in desk-top publish-

ing as he saw the magazine's bank account "draining like bathwater."

The demise of *Dragon User* leaves Harris and other Dragon software suppliers without a shop window. "We have tried taking joint advertisements in other magazines," said supplier Bob Preston, "but we had scarcely any response."

The torch will continue to be carried by the National Dragon User Group, which is planning a show in London this spring.

Says ex-editor Helen Armstrong: "Dragon users had an extraordinary loyalty to the machine, and I shall miss *Dragon User* readers and contributors. Several times I expected the magazine to close, but it carried on. We are handing our unpublished material to the user group, which will help to keep users in touch."

The National Dragon User Group can be contacted at 6 Navarino Road, Worthing, Sussex.

FIVE YEARS AGO

From
Popular Computing Weekly,
January 19, 1984:

Commodore chief resigns

Jack Tramiel, Commodore's founder and the driving force behind the company, has resigned as its president and chief executive.

Tramiel began his business career by repairing typewriters in Canada and built Commodore through the calculator boom of the seventies to its present position where the company holds 40 percent of the world market for low-cost microcomputers.

His decision to resign "for personal reasons" coincides with Commodore's announcement of a record trading year.

Alas poor Oric

The Oric 1 is dead. Long live the Oric Atmos.

Oric announced this week that it had ceased production of the £139 Oric 1 on Monday, January 16. Curiously enough, Oric started production of its new 65020-based 48K Atmos on the same day.

Although programs written in Basic for the Oric 1 will be compatible with the Atmos machine, the new ROM means that machine code programs may need some alteration.

EDITORIAL

BUG - noun informal - error in a computer program, which makes it run incorrectly.

Source: *Dictionary of Computing*; Peter Collins Publishing.

In our news pages this week, Activision has taken strong exception to our story of January 5 which alluded to "bugs" in the ST version of *AfterBurner*. Activision objects to in part, as I understand it, not so much that we found a problem but that we should call the problem a bug.

To refresh memories, this is what we found happened with the three samples of *AfterBurner* we tested. The game crashed when users inserted the incorrect disc at the "load high score table" prompt. Well-designed software should, in our opinion, ask for the correct disc and not crash, meaning the user has to re-boot.

The LocoScript on which I write at this moment will flag an error message if I try to edit, say, PMS Dialup files instead of LocoScript files; it will not crash the machine.

It is our contention that this is an error in the program and is, by the dictionary definition, a bug. Activision says otherwise. "We say there is no major bug in the game. The code is clean and there are no bugs in it," a spokesperson told us.

The code may well be clean but if a fail-safe mechanism for detecting the incorrect disc is missing, that is surely an error in the software design. Readers' comments, especially from programmers, would be welcome.

Paul Marks

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POPULAR COMPUTING WEEKLY

A FOCUS MAGAZINES PUBLICATION

★ STAR LETTER ★

Amiga aid

I have noticed that you are covering public domain discs and am wondering if you would mention me?

I am disabled and, being at home all day, decided to offer my services to ICPUG.

I am the AMICUS disc copier for the group and have been doing this for some time. I often received

pleas of help on how to get certain programs/games to work which were on PD/shareware discs and decided to set up my own PD collection, mostly in an auto-boot configuration, and then offer to copy them for the members for a very low copying fee.

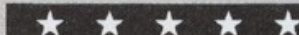
I now have a very large collection of mostly auto-booting PD/shareware discs, and have a directory disc listing their contents, called 'RAYS DIR'. There are now two directory discs and I give them to anyone who asks for a copy. All I ask is that they send a blank disc for each directory, including return post/packing, and I copy and return the directories as soon as I can, usually the next day.

I am now the official U.K. dis-

tributor for Jeff White's TBAG/Merlin Software discs from the U.S. and have a large collection of them.

I am not running this as a business and therefore I charge only a small copying fee to cover any repairs my trusty Amiga may need and to cover the electricity bill. The most important thing for me is that it keeps my brain active and keeps me in touch with fellow Amiga enthusiasts.

Ray Burt-Frost,
169 Dale Valley Road,
Hollybrook,
Southampton SO1 6QX.
Tel: 0703 785680.



Puzzling

Having been a reader since issue 1, I am very fond of the puzzle page but am I missing the point? Is the object to write the shortest possible program with the longest possible running time?

For example, in the issue of December 22-January 4, the solution given for the previous week's puzzle - Birthdates - tests every year from 1800 to 1988. It also tests every digit to see if it divides wholly into the year. Each year starts with a "1" which divides into everything and therefore does not need testing.

The 1800 series has "8" common and, of course, 1900s have "9" common; 1800 divides by 8 so that it follows that only every eighth year need be tested and then only by the last two digits; 1899 divides by nine so the increment from that point is 9. Two extra lines of programming reduces the running time to one second.

Three or four weeks earlier your puzzle was a scratchcard, basically being the sum of any four numbers from 16. Was it necessary to add each set of four numbers in each of the 24 possible combinations to get the same result 24 times?

I am looking forward to your solution to Bingo Botheration, to see if the "any 3 from 90" uses all the possible combinations of 704,880 or the lower number of 117,480 which will give the same result.

Whatever you do, keep giving us the puzzles.

M. Travers,
Nottingham.

Hamming it up

It appears there is much confusion in the popular press as to why the Amiga is better than the ST.

Custom chips and 4,096 colours on-screen at once are examples frequently mentioned. Stereo sound and synthesised speech are two other things mentioned in your Christmas buying guide.

The Hold And Modify mode has 4,096 colours on-screen at once. Each colour on the Amiga is made up from different shades of red, green and blue.

In normal graphics modes the 32 colour registers on one of the custom chips each contains three numbers corresponding to the intensities of the red, green and blue pigments in that colour.

The user then calls on the register containing the colour he wants to use. Obviously this technique would be useless for HAM mode; you would need 4,096 registers.

The way in which HAM works is that only one of the RGB values is changed from the last pixel, i.e., if one pixel had a red value of 12, a green value of 9 and a blue value of 6, the next pixel would, for example, have a red value of 1, green 9 and blue 6.

Two of the values are held while the other is modified. This rules out HAM mode for most games.

In any case, the real strength of the Amiga is not in its graphic capabilities or in its sound capabilities but in its multi-tasking operating system.

Ariadne Software Ltd.
Robert Crowther,
Kibworth,
Leics.

Discounts

Recently I found information aimed at helping students buy computer equipment at discounted prices while they were studying full-time courses. They would be expected to pay for the equipment when the course ended and they found employment and must be able to prove that the equipment was still in their possession one year after purchase.

I am at a loss as to where I learned the information, or from whom I can find details of the scheme. Can you or any readers enlighten me?

B. Birkett,
Chester-le-Street,
Co. Durham.

The low cost deal for students is run by NUS Services in conjunction with Amstrad distributor Eltec. You should be able to obtain details from your student union - or National Student magazine. Failing that, call NUS Services on 04574 68003.

Living Dragon

In the December 15-21, 1988 issue I read that it is possible to get PC word processors with spell-checkers with dictionaries of more than 78,000 words. I run a much lesser machine, according to most computer buffs, which also has a vast dictionary which is probably well in excess of the 78,000 mark by now. I can also multi-task, which a PC cannot do without a great deal of difficulty. I have spreadsheets, windows, word processing - al-

though my printer leaves a little to be desired for letter writing - databases. What is the machine? A lowly Dragon 64.

I run under OS-9 and FLEX which make the 6809 earn its keep. My only complaint about the machine is its graphics capability. Although they are very powerful, as is the rest of the machine, the graphics displayed are very poor. If Dragon Data had concentrated more on improving the display instead of pushing out 64s and 128s when the world was not ready, I am sure the Dragon would still be alive today.

I often wonder where the Dragon would be today if the company had not folded? The 6809 is a very under-used processor in small machines; this I do not understand as it is still one of the easiest chips to program in machine language and very powerful.

I am a radio amateur and I use the Dragon for many things involved with my hobby, including packet radio which is a similar type of communication system to V22, CCITT and Bell, but instead of using the telephone lines we use radio. There are full bulletin board systems all round the world which can be accessed by anyone - so long as you have a licence, of course - all done on the Dragon.

It may appear that the Dragon is dead but I assure you there are still many active users world-wide as far away as the States and South Africa. I would be interested to hear from any Dragon users who use any of the operating systems I mention.

M. E. Allen,
34 Vanguard Road,
Long Eaton,
Nottingham,
NG10 1DX.



NEW

MICRO BLASTER

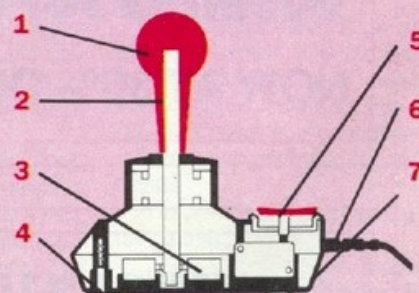
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HOTLINES

There are days when it feels like the burden of the world is upon your shoulder. Fortunately this is not such a day - so on with the frivolities.

Those naughty people at Infogrames have released a strip poker game as only the French can do. *Teenage Queen* runs on the Amiga and, rather than go for exploitive digitised images, Infogrames has taken the French approach and produced a series of pieces of hand painted artwork. The graphics are backed by a mean hand of poker. The odd thing about this game is that the program never deals a card less than a seven. This is a deliberate ploy on the part of the programmers as the "high card only" rule leads to some spectacular hands with amazing frequency, so don't go overboard when you end up with a full house - she's probably got four aces.

Teenage Queen should be available about now and retails for £19.95 on the ST and Amiga.

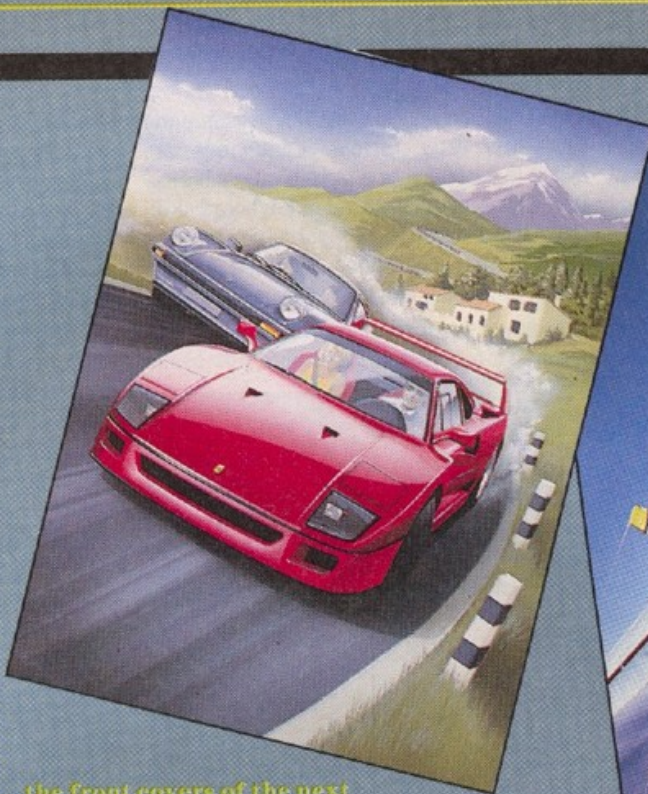
From one game to another - smooth link huh? *The Munsters*. I reviewed the game a while back on the Spectrum and since



F-16 Combat Pilot.

playing the ST version I thought I'd bring you an update on how I'm progressing. Since wandering around the Munster home as Lilly, I have progressed to a stage where I have played all the characters from the popular TV series, including Spot, when I indulged in a little bit of fry your neighbour.

You may have noticed the rather smart artwork on this page featuring an aircraft and a car. This artwork is going to grace



the front covers of the next three Code Masters games, yes I know there are only two pictures. The games are *Twin Turbo V8*, *Grand Prix II*, and *Arcade Flight Simulator*. All three games will be retailing on 8-bit formats for £2.99.

Captain Fizz meets the Blaster-trons is the unlikely title of the next shoot-'em-up to roll off the Psygnosis production line. This simultaneous 2-player strategy-blasters requires two players to pit their wits against these fiendish aliens as they work hand-in-hand to defeat the evil menace.

Available now on the Amiga and ST for £14.95.

F-16 Combat Pilot is about to hit the skies. Due for a February release on the ST and PC followed shortly afterwards by the CBM 64 and Amiga versions. The simulation features not only fast paced combat action, but hangar room briefings and weapon selection.

There are eight squadrons to work with each in an operations area of 20,000 square miles. Both night and day missions are



Captain Fizz meets the Blaster-trons.



catered for as the F-16 comes complete with its own set of infra-red weaponry and targeting systems. The simulation even caters for players who wish to connect their computers

together and play head to head.

F-16 Combat Pilot will retail for £24.95 on the 16-bit formats and £14.95/£19.95 on the 8-bit formats.

Adrian Pumphrey

PSION PSION PSION PSION

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Anyone who has played with a computer will have used an operating system, although many may not know it. Most of the newer machines, the ST or Amiga, have obvious operating systems with GEM and Workbench respectively. Others, such as the Spectrum, or BBC, have operating

uses the Unix CP/M MS-DOS, or command line interpreter format. Commands are typed in response to a prompt and generally they require some kind of keyboard skill, from two fingers to 120 words per minute.

The other contender is based on the Windows, Icons, Mouse, Programming idea.

mer to use for access to the standard devices.

Sending data to and from the screen, keyboard, disc drives and printer could all be performed in a standard way on all machines which used CP/M. The standardisation was one of the reasons which led to

WHAT THE HELL IS . . .

AN OPERATING SYSTEM?

Kenn Garroch, technical sage of Clapham, explains.

systems which are a little more obscure, since they are intertwined with a computer language, usually Basic.

Operating systems are used mainly to load programs and manage files. The facilities available vary from machine to machine and at their simplest allow files to be loaded, saved, deleted and copied. More complex systems provide a sophisticated front-end which allows the user to interact with the machine easily and quickly. They also provide facilities to check the size of

Since its introduction, there has been an explosion in its use on small personal computers. The requirements of fast processing and large memory meant that until recently WIMP systems could not be implemented easily on a small 64K, 8-bit computer. Now that computers generally have at least half a megabyte of RAM and a 16/32-bit processor, this type of system has become very fashionable.

All computers which need to fiddle with files need an operating system of some

CP/M becoming one of the most widely-used operating systems; it is still popular and alive and kicking on the Amstrad PCW machines, among others.

Besides handling files, the ability to access commonly-used system facilities is the other main purpose of an operating system. It ensures that all programs use the machine in a way defined by the manufacturer. This, in turn, ensures that upgrades of the system software will cause no problems with existing programs.

For a long time computer manufacturers did not seem to think that the computer user would be bothered with the operating system. Normally the machine boots directly into the application - word-processor, spreadsheet, database or whatever. Although it goes through the operating system to do so with an auto-executive file, the process is transparent to the user.

Communicating with the machine via its operating system was left to the people who knew about such things, but as users became more computer literate, and perhaps even a little interested in the additional functions available directly from the front-end, something had to be done about the difficulty of learning to use it. After all, some of the commands available to CP/M are not exactly mnemonic.

Attempts were made to circumvent the problem with menu-driven systems which allowed many of the functions of the operating system to be used on a single keypress basis; this situation still applies to PC/MS-DOS machines. The difficulty was that none of them ever caught on, possibly because they were not supported by the major software houses - Microsoft, Digital Research *et al*, and possibly because not enough people were aware that the operating system existed.

The solution to the difficulty of using

CP/M Plus Amstrad Consumer Electronics plc

v 1.4, 61K TPA, 1 disc drive, SIO/Centronics add-on, 368K drive M:

```
A>dir
A: J14CPM3  EMS : PROFILE  EMC : RPED  BAS : RPED  SUB : BASIC  COM
A: DIR      COM : DISCHIT  COM : ED    COM : ERASE  COM : LANGUAGE COM
A: PALETTE  COM : PAPER   COM : PIP   COM : RENAME  COM : SET    COM
A: SET24X80 COM : SETDEF  COM : SETKEYS COM : SETLST  COM : SETSIO  COM
A: SHOW     COM : SUBMIT  COM : TYPE  COM : KEYS  MP
```

Drive is A:

The old way of operating: CP/M uses command lines to organise the system files.

files, read them, run four or five programs in sequence, search text files for strings of characters, join files, deal with complicated directories, and so on.

Of the more sophisticated operating systems, there are two main types. One

kind and probably the first in wide use was CP/M. It provided a basic set of file control commands which were common to a series of machines. In addition, underneath the obvious user control, CP/M provided a selection of system calls for the program-

the operating system effectively was eventually solved by Xerox. The invention of the mouse, icons and windows system makes using the operating system so easy that it is taken more or less for granted. The first company to take the step of marketing a WIMP machine was Apple with its Lisa. It was an expensive machine and was superseded by the Macintosh. The success of the Macintosh system prompted other manufacturers to produce similar systems. GEM was the first to run on more than one type of machine, a kind of successor to CP/M. Of the two versions, 80X86 and 680XX, the latter is probably the most widely-used, as on the Atari ST, though the former is available for IBM PCs and compatibles.

From the user's point of view, operating systems are either intuitive and therefore easy to use, such as WIMP environments, or take a little learning and typing as with Unix and CP/M. From a programmer's point of view, things are a little different. It is generally a good idea to follow the guidelines given by the manufacturer and use the documented system calls. The problem is that sometimes they can be slow or they may be unable to produce the required effect. Sometimes it would be better to write alternative routines which access the hardware directly.

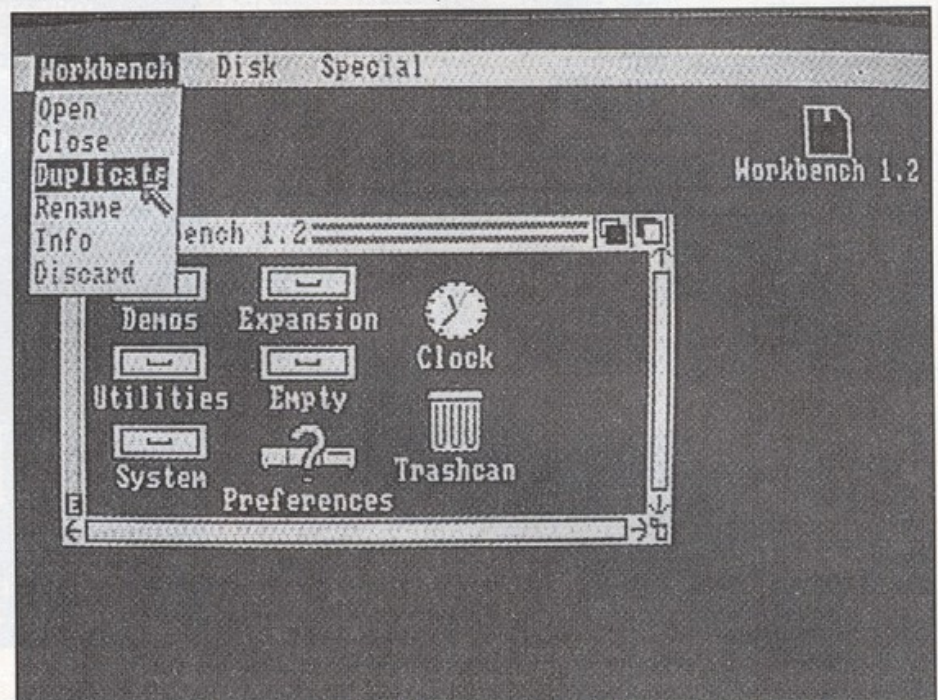
Printing characters on a screen usually would be done by putting the ASCII code of a character in a microprocessor register or pushing it on to the stack. The system would then be called with the 'print character' code and the system invoked. The operating system software would then take over and check what it is supposed to be doing, sending a character to the

printer, the screen, the serial port and so on. It would then access the correct routines and perform the required operation. The obvious disadvantage is that this takes longer than would a customised routine.

A fairly simple machine code program can usually print a character faster and speed the application considerably but to

kept on other machines with the same operating system. Obviously, the application could be re-written for machines produced by different manufacturers but this is rather a waste of time and effort. It also makes marketing the software rather expensive.

The other disadvantage is upwards-compatibility. Manufacturers may move



The Amiga's Workbench operating system front-end shows how the Xerox WIMPs idea is catching on.

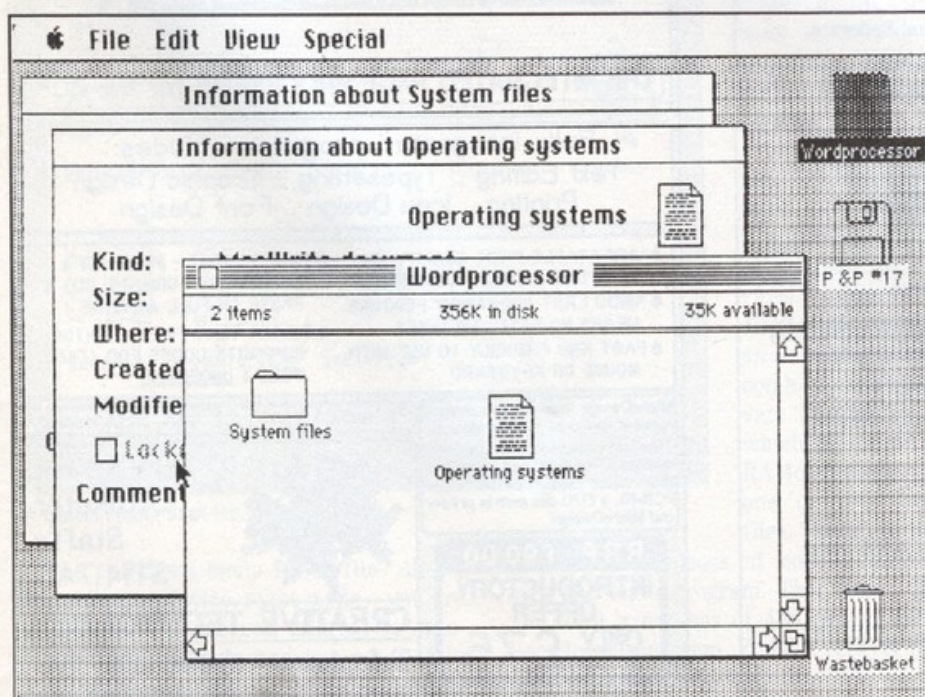
maintain portability - the ability to use the same program on a different machine using the same operating system - the decrease in speed must be suffered, since there is no way of knowing where such things as the screen and character set are

memory locations round on future machines and, unless the software is re-written for each successive version of the machine, it is better to stay with known system calls.

A machine which suffers somewhat from this difficulty is the IBM PC. The design of the circuitry and possibly memory layout may well be different on a clone; even a 100 percent-compatible machine will have differences here and there. Programs which use short cuts to speed their screen or disc accesses run into problems when running on other supposedly compatible machines. The term compatible usually means that operating system calls perform properly but the hardware may or may not do so.

An advantage for the programmer when using operating system calls is that it can save a good deal of time. Instead of having to write routines which access the common system facilities, system calls can be used instead, all the hard work having been done by the original system programmers.

Operating systems are very useful for the programmer and the user, since they provide facilities built into the machine which can save time and effort. It is worthwhile getting to know the capabilities of a system; you never know when the knowledge may be useful. □



The Apple Mac interface was the first to include the WIMPs environment master-minded at Xerox.

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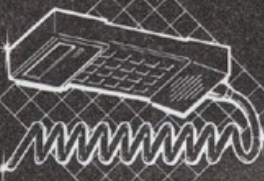
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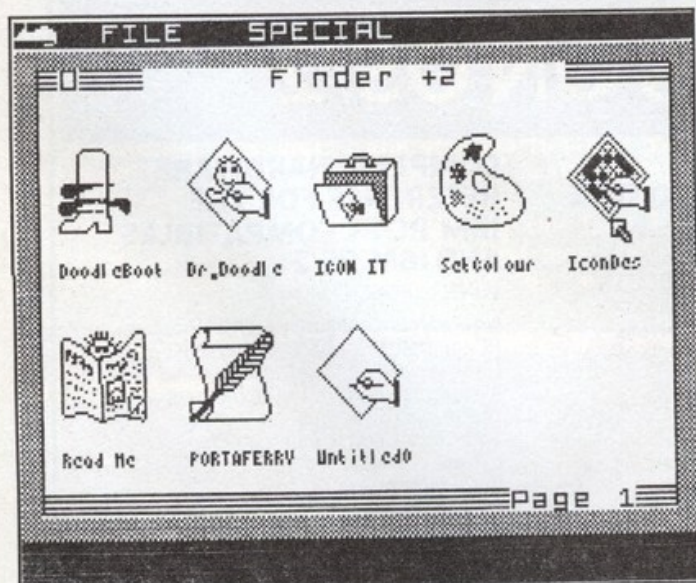
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Kempston is bundling its Spectrum mouse with a program called *Finder* - shades of the Apple Mac - and provided you have a 128K Spectrum, it acts as a front-end in much the same way as the Mac Finder and does it neatly, too. It is in a variety of versions; I had a review copy of the +2 version on Disciple/+D and I also borrowed an unfinished +3 version to play with.

You have plenty of code for your money; the +D disc catalogue has 16 entries, including the system code, and is auto-running, with a welcome screen, then a main screen with an arrow as pointer and icons of a cassette and a disc on the right-hand side. Click the mouse on the selected loading device, such as the disc, and a set of icons appears on the screen - two selectable pages, 10 icons per page complete with the name of the associated program. Move the arrow over the selected icon, double-click the mouse and the selected program loads.

Utilities

The main menu bar has a little picture of a mouse and the words "file" and "special", clicking on the picture gives a pull-down menu and clicking on it selects from a range of small utilities to do with the system. Information tells you about the finder; control panel allows alteration of colours and changes pointer shape; and there is a notepad – the notes can be saved – a calculator and a doodle for those boring moments.



A typical Finder desk-top.

The pull-down menu from "file" allows you to open a device, make a file - you are prompted for name and address to auto-run in machine code and you can put in some notes about it - or erase a file - you can protect them.

MacSpectrum from Milton Keynes

John Ware reviews a Mac-like user interface for the Sinclair Spectrum.

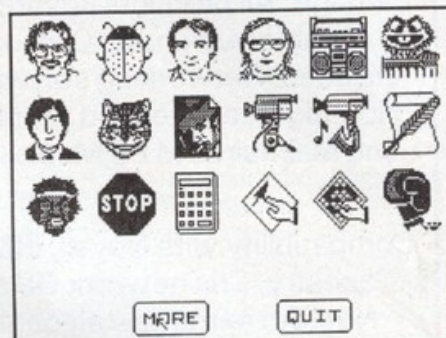
You can save an updated version of the desk-top file or save the notepad file - the one you created from the previous menu. The "special" menu lets you clear the desk-top - wipes off all the icons - selects various input/output devices - such as a second drive and the drawing appears on the main desktop screen - and initialises a disc with a blank desk-top. Copy copies the icon of a currently-selected file to memory; paste pastes an icon stored in memory back to a selected file.

Then there are the utilities, selected from the main desk-top. An icon-making program has a good grid and a small picture alongside shows the final icon. SetColour enlivens the screen. PortaFerry changes the print style. The obligatory "readme" contains details of technical help available - 54 spare icons when you are stuck for inspiration.

Last, but not least, Dr. Doodle is a simple mouse-driven doodle program allowing a selection of line types and colours - attribute clashes permitting - an erase, a fill, and with a pull-down menu for loading, saving, printing and quitting.

The set-up is neat. The main program is a massive 19.5K of Basic, easily modified for the various Spectrum disc systems, with an irritating merge-bomb/break-inactivate in the loader which is copied to RAMdisc along with one or two other files. There are also

several other pieces of code associated with the main program. This means you can store a number of 48K programs on disc, load one from Finder, recover the initialising program from RAMdisc at the end, which re-loads Finder for the next



From the library of icons.

program, and so on; 128K programs will need a quit routine incorporated.

In practice, things worked well, although there were one or two rough edges. You are not warned that the first thing to do is to write-protect the original disc and make a back-up copy. Beware - there are routes to wipe the existing icons and save a blank desk-top to the disc. Some of the 64 characters-per-line set were difficult to read and badly-spaced.

Dr. Doodle refused to print from the +D printer port - Kempston is looking into this. The utilities have a close box at top left but the menus from the bar do not. There are some spelling mistakes in the screen displays and also in the 12-page A5 manual, which is otherwise well-produced with a DTP package, and contains plenty of information.

Innovative

Overall, I found it an innovative and stimulating kit. Results on-screen attracted attention from my entire household and the whole thing was extremely smooth, especially considering that a large proportion is written in Basic.

The Kempston mouse is a pleasant one and is already compatible with a number of utilities; bundling this attractive front-end program with it clearly will enhance its appeal. □

Finder/mouse package, \$49.95 from Kempston Data Ltd, 21 Linford Forum, Linford Wood, Milton Keynes MK14 6LY. Tel: 0908 677886.

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The game starts with a 10-minute animated introduction which explains a little of the background and introduces the plot. Once past that point you start your adventure as a princess standing on the shores of an ocean, disguised as a peasant. Mov-

ing round the landscape is achieved via either the numeric keypad, mouse or a joystick.

As Rosella moves in and round each 3D screen she will encounter various characters and problems. When you finally figure what to do with any character it is not always possible to find them as they have a habit of wandering around; the only thing of which you can be really sure is that this is a big game and it will take plenty of brain power and stamina to solve. You do not just walk through 3MB of data.

Exploring the land has its perils but most can be overcome by a little

thought, such as not walking off cliffs and the like. One area spans several screens and should be avoided until you find a safer method of travel is the haunted wood. There you must beware of touching the tree roots, which is fatal; if the roots do not get you the swooping branches will. Further exploration of the land reveals a frog wearing a crown sitting on a lily pad, a shy unicorn, the minstrel, Pan and Cupid, to name a few.

There can be interaction with all those characters but initially you may find that there is nothing more than pleasant conversation. Things start to improve, however, after a visit to the evil witch's castle where you spend a little time in the dungeon before making a dastardly pact.

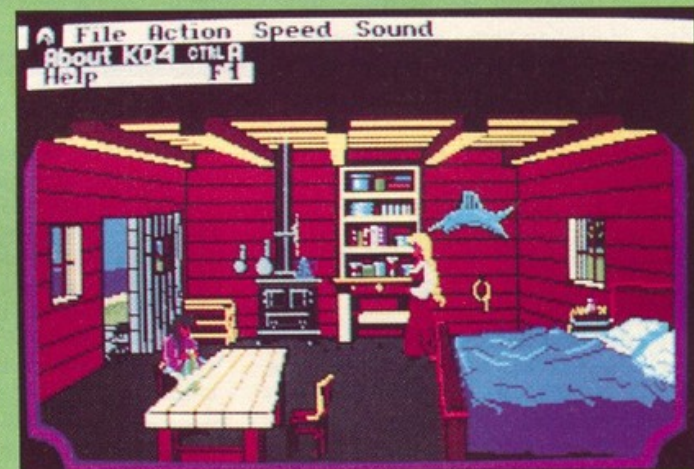
Further adventures are available by entering the sea. That is not without its dangers, because if the sharks do not get you the whales will - and being

fairy tales, which helps in their solving if you are familiar with the tale in question.

There is, however, one constraint placed on the player - time. Without the talisman the good fairy is dying and if you do not return the talisman within one day it is curtains for the fairy and bang goes your chance of returning home to cure your father the King.

The problem with the PC is that so much of the game-play depends on your machine. I tried the game on both 3.5in. and 5.25in. formats and with nine discs with the 5.25in. version and four discs with the 3.5in. version, the game should really have a subscription to disc swappers anonymous.

The CGA graphics are pleasant but compared to the EGA version they look positively crude. The only bad point about the game, apart from the continual disc access, is the music



swallowed by a whale can be a problem.

It is difficult to explain a game such as this without revealing too much of the plot and problems but a little gameplay will reveal that the game starts with many smaller puzzles, often linked with the many characters you meet, which gradually come together so that you can tackle the major issues of returning the talisman and finding the magic fruit.

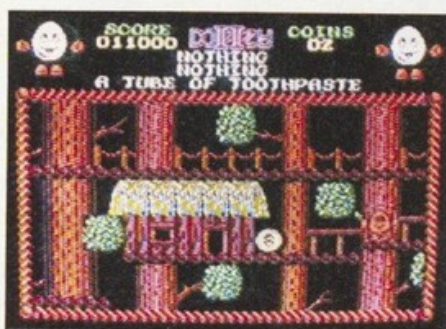
I noticed that many of the puzzles encountered seem to feature and be based on popular folk and

which is not a strong point with many PC machines, although it is possible to boost the sonics with an extra piece of hardware, supplied of course by Sierra.

Reviewer:
Adrian Pumphrey
Machine: PC
Price: £34.99
Supplier: Activision
POPULAR RATING
Graphics: 88
Sonics: 68
Gameplay: 93
Overall:

91





Treasure Island Dizzy - Spectrum

Dizzy has done it again. Instead of a quiet cruise across pirate-infested waters, Dizzy managed to get himself thrown off the ship and marooned on a desert island. He has to discover a way back to the Yolkfolk and if he is feeling particularly brave he can collect the 30 pieces-of-eight scattered round the island.

As you may or may not remember, Dizzy is an egg-type being who has a peculiar if somewhat cute habit of rolling. This often leads Dizzy into trouble, as he has an annoying habit of rolling off platforms but he seems to be hard-boiled and dropping from great heights does not lead to spilling the yolk.

As Dizzy explores the island, his main problem will be how to get from one platform to another. This is not always so simple as it

may seem, as the programmers have designed the treetop platforms so that they form a maze. In the maze you will find various objects whose use is as yet undefined.

One object for which I found a use was the snorkle. It allowed Dizzy to enter the underwater domain surrounding the island. In the domain further pieces-of-eight and objects can be found.

A word of caution. When picking up objects it is very easy to drop the snorkle by mistake; doing so is fatal but it is not the only fatal mishap which can occur to Dizzy in this underwater domain, as contact with the many oceanic lifeforms is fatal.

The puzzles in the game are fun as they rarely lead to fatal mistakes. The graphics are good, with the possible exception of the continuous sprite colour clash with the Dizzy character and he is easy to control, except when rolling. If anything this game is even better than its predecessor.

Reviewer: Adrian Pumphrey

Price: £2.99

Supplier: Code Masters

POPULAR RATING

Graphics: 87

Sonics: 76

Gameplay: 90

Overall:

89

Golf Master - CBM 64

Playing this game takes me back a few years to the heyday of the good old Pet. Although the game design resembles the classic Pet version, it is by no means the same game.

You view the hole from above - see picture - or in some cases a section of the hole. Scrolling across the hole is achieved by pressing the space bar. The scrolling is not completely smooth but that does not matter as it has little relevance to the gameplay. Along the top of the screen there are eight small icons which are used to control the game. Two are used to select the club you require and two more icons allow you to select the power of the shot.

Other icons allow you to select the direction of your shot by moving a small cross round the outside of a square - not what I would call an accurate method as it relies more on intuition than judgment.

The final two icons are used to hit the ball, in which case they are replaced by an animated image of the man hitting the ball and selecting which hole you wish to play, in practice mode only.

The gameplay is relatively simple; once you have set up your shot and told the computer to hit the ball no further interaction is required by the player. Once past the many obstacles such as trees, bunkers and water, you finally reach the green. The

procedure does not change at that point and the only difference from this and any other part of the game is that on the green you are required to use the putter. Progressing through the three skill levels increases the sensitivity of the ball to the forces of the wind, thus making the game much more difficult to play.

An enjoyable game in a simple kind of way.

Reviewer: Adrian Pumphrey

Price: £2.99

Supplier: Hewson

POPULAR RATING

Graphics: 60

Sonics: 64

Gameplay: 72

Overall:

68



Wanted - Amiga

The wild west was lawless when right belonged to might but as times changed a new breed of man rose from the filth. Treading the razor edge between good and bad, the bounty hunter risked all for a few dollars more.

You are the bounty hunter, tolerated by some, feared by most. Roaming the land, making it safe for the respectable folks to live their hypocritical lives. At the start of the game you select one of the four skill levels by placing a bullet into the poster of the man you wish to hunt.

Each man has his own bounty which represents the level of difficulty. As you scroll vertically, across your selected level, be it deserted town or a disused railway, you must contend with the various henchmen. The gun-toting bad guys appear mainly from the top of the screen but as you progress deeper into the level they begin to appear from the sides of the screen, making life very tricky.

If it becomes a little too much for your man he can always fall back on his dynamite. When thrown, the precious sticks act as smart bombs, reducing the bad guys to a pile of bleached bones.



Further aid is given to our lone hero in the form of enchantments. They can be collected by shooting the barrels which can be found scattered round the landscape. Extras include limited invulnerability to bullets, increased speed, extra lives and increased bullet range.

At times the screen tends to become a little crowded but clearing it is essential if you hope to reach the end level, where you meet the wanted man. Clearing the screen is helped by the rather unusual method of operation of your six-gun. Instead of firing a single volley straight up the screen it fires two bullets up and one to each side.

It is a fair offering which you may find fun for a time but the action is not too hot and it soon becomes very repetitive. Infogrames has produced many far better games in its time.

Reviewer: Adrian Pumphrey

Price: £19.95

Supplier: Infogrames

POPULAR RATING

Graphics: 65

Sonics: 72

Gameplay: 68

Overall:

64

Now we are into 1989 and would normally experience a dearth of software in the wind-down after Christmas but PC players will certainly not suffer with two releases from Sierra, c/o Activision U.K., in the form of *King's Quest IV* and *Leisure Suit Larry Goes Looking For Love*.

Both titles are new episodes for a graphic adventure series which has enjoyed astonishing success, particularly in the U.S. market. *King's Quest* involves you in the struggle to find a magic talisman and charmed fruit which will save both your parent and the good fairy.

The game features more than 3MB of code on nine discs, the largest computer game ever and features a stunning 10-minute cartoon introduction.

Looking for Love is the sequel to the soft-porn adventure first seen in text on the 8-bit Atari years ago and re-vamped in *Land of the Lounge Lizards* by Sierra. Larry is searching for the girl to settle down, a task which proves far from easy.

The Adventurer's Club annual Golden Chalice Awards Presentation Ceremony is to take place on February 25 at the Sherlock Holmes Hotel, in London's Baker



The ceremony will be part of a social evening giving you the chance to meet the doyens of adventure-dom or your favourite software house but, unfortunately, is restricted to members of ACL only. Much to the club's credit, all profit from the evening will go to the Great Ormond Street Wishing Well appeal. There

He may still be able to find what was, in my opinion, the best of the adventure writing books, *How to Write an Adventure*, by Peter Killworth. It was published by Penguin and the ISBN is 0 14 00 7814 2.

While written with BBC Basic listings, the theory is very sound and could, with some work, be modified to Amiga Basic or at least give good ideas for sub-routines. Perhaps some helpful reader may have an Amiga listing?

Finally, some tips for those with ST or Amiga *Elite*. Julia from Firebird has confirmed the rumour that there are five missions in the 16-bit versions, so here are Balsak's tips to get you competent in no time - well, almost.

At the start planet, Lave, load with 16 tonnes of food and four of textiles before setting off for Zaonce.

Zaonce is a Corporate State and you should have little trouble from pirates. There you should buy one tonne each of medical supplies and computers, if funds allow. Take off then for the Poor Agricultural planet of Isinor and load with furs. Sell them on Qutiri.

You can now build your fortune on the lucrative Isinor - Qutiri run by alternating between furs/wines and computers/medical supplies which offer the highest profits.

Unfortunately, Mr. Micro has cleaned up the little bugette which allowed you to carry precious metals and gems above your cargo capacity.

A beam laser should be your first priority, followed by a docking computer and a large cargo bay. Once fully-equipped and with cash in the bank, you can set off to asteroid fields new. □

Titbits and tips

Intrepid gamesman Ken Matthews returns.

Street. Most adventure hacks will be there — Keith Campbell, Tony Bridge, Mike Gerrard, Peter Austin and me, along with representatives from most software houses producing adventures.

The awards are particularly well-regarded by the industry as they are voted for exclusively by adventurers.

is still time to join and qualify; telephone ACL on 01-794 1261.

I received an interesting letter from T. Anstis at Hayes who owns an Amiga and is trying to write a text adventure in Amiga Basic. He asks if I can suggest a publication to help or offer some listings.

Unfortunately, he may well have missed

the boat. A few years ago in the boom of home computers a plethora of such titles appeared of various qualities with complete, machine-specific Basic listings. The books seemed to disappear with the advent of adventure-writing utilities such as *The Quill*, which enabled non-programmers to produce merchantable-quality games.

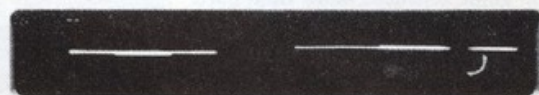
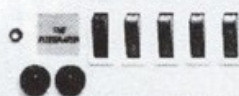


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When LocoScript was launched with the Amstrad PCW8256 in 1985, it brought the world of word processing to a new bunch of people. A low-price machine coupled with a full-function word processor was something for which many had been waiting, hence the success of the machine to date.

Since that launch, Locomotive Software has launched a steady stream of quality Loco additions, which extend further the capability of the company's workhorse word-basher - like LocoScript 2, LocoMail, LocoSpell, LocoChar and LocoFont, whose purposes are self-explanatory.

Now a new one has entered the fray and it is

Locophile's database

We overview LocoFile, the latest output from Locomotive Software for the Amstrad PCW.

font files if other than the standard printer typefaces are used.

The database is remarkably simple to understand and accessing/designing card indices is easy. Compared to something like *Cardbox* on the PCW, it is not an understatement to

looked at will appear first.

If LocoFile returns the user to a file which is not required, entering SELECT NEW FILE on the modified f1 for ACTIONS menu which appears when LocoFile is running allows the user to pick up a new datafile with the familiar LocoScript disc manager cursor.

ENTER takes the user into the record stack of the datafile, which can be indexed by up to eight of the maximum 50 items which can be placed on each card.

Few users would need to document 50 items on each entry but if they did it is comforting to note that designing the cards is not too tortuous. Selecting CREATE LOCOFILE DATA from the disc manager screen gives a blank card which can be designed with the aid of grids in the LocoFile manual, which help with field positioning. Once the layout is complete, move to indexing, to which a whole chapter in the manual is devoted - and work out the best search strategy for the data in question.

For basic databasing activities, Locomotive, true to style, has provided sample card layouts which cover most day-to-day applications. They cover general-purpose address/telephone stores and many which will interface with the mail-merge program LocoMail, a subject which also merits a chapter in the 140-page manual.

For eliminating wasted space when records are deleted from a file, LocoFile gives the option of "squashing" the file, thus saving disc space. This does not entirely eliminate space created when files or items are deleted but it minimises it. One feature of LocoFile is that the memory occupied by a record is dependent solely on how much information it contains; the record is not mapped into memory at a set size. I have no hesitation in recommending LocoFile to Locophiles everywhere.

Reviewer: Paul Marks

Product: LocoFile: £29.95

(Locoscript 2: £24.95)

Supplier: Locomotive Software

Tel: 0306 740608

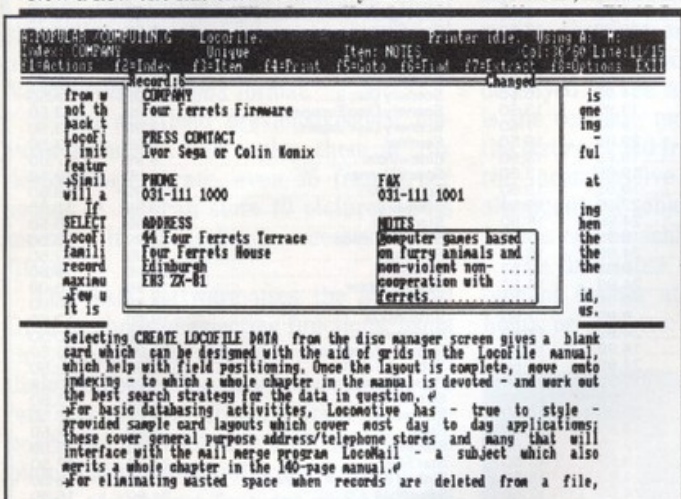


Figure 1. A LocoFile record pulled up into LocoScript word processor.

probably the one for which many Loco users have been waiting, a database which can be accessed from within LocoScript, called LocoFile.

If, like myself one month ago, you were still using LocoScript version 1.2 or - horror of horrors - version 1.0, you will have to upgrade to LocoScript 2 before you can use LocoFile. That means getting into databasing will cost you £24.95 before you have even bought the database.

Since we are dealing with a pop-up database, which works from within LocoScript, the software has to be installed on your everyday LocoScript boot disc, so that it is there when called on. This is easy. An installation program is supplied on the B-side of the LocoFile master disc which is self-booting and requires no jiggery-pokery with CP/M.

Any Loco utility on the boot disc can be retained in addition to LocoFile; the install program asks which you have/want to keep. Holding LocoScript, LocoChar, LocoMail and LocoFile on one side of a disc is acceptable, though obviously the 160K LocoSpell dictionary needs room to breathe elsewhere.

Another thing the installer does is detect and prepare LocoFile for the size of M: drive you have - LocoFile uses 24K of the M: drive. In addition, it guides the user through updating

records have been used and the user has then reverted to word processing, then decides he wants the data again, running LocoFile will take you back automatically to the last file on which you worked. Initially I thought this a poor idea but it proved to be a useful feature; the likelihood is that it is the information you want.

Similarly, when selecting a datafile afresh, the last record

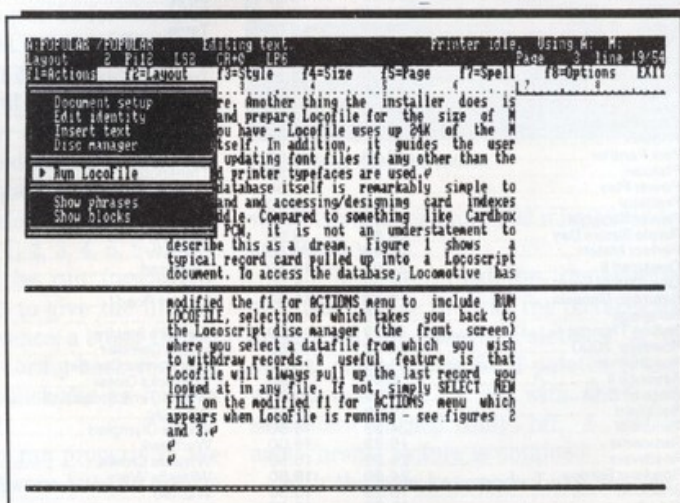


Figure 2. Select f1 in a document and run LocoFile...

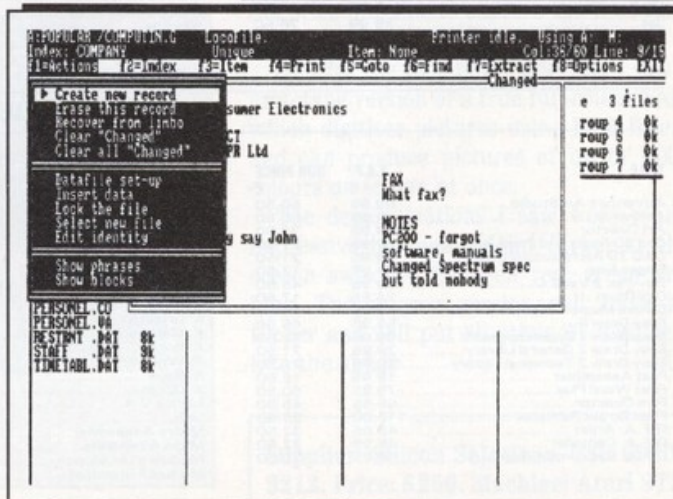


Figure 3. ... and it's back to the disc manager to select a database.



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A picture is said to be worth a thousand words and, when the SAM digitiser appeared in 1986, making a thousand words in 16 tones of grey was made easy.

Now Silicon Solutions has released an updated version of the software - 3.04. The SAM is a real-time digitiser for the ST and can accept inputs from video recorders and/or video cameras. It arrives in a metal box which plugs into the ST cartridge port and a disc with the software needed to run the digitiser.

SAM can display the incoming video signal live on to the ST low-res screen and also save the images on to disc in either *Neochrome* or *Degas* format.

It can also load previously-saved pictures from disc and replay them at any desired replay rate, even 25 frames per second. A 520 can store 10 pictures in its memory if no desk-top accessories are fitted.

The SAM software uses the standard GEM methods of selecting functions, using the mouse and drop-down menus and dialogue boxes. The new updated software lets you run the program from the keyboard, so now you can load and save a picture at the touch of a key.

One of the best features of SAM is its ability to save and load sequences; a set number of pictures - up to 10 for the 520 - can then be replayed at a user-defined rate to give the impression of a movie.

The start and end of the sequences are set up automatically on exit from the record; the last frame digitised will be the last frame of the sequence. As an added feature the current palette can be changed in record by pressing 1, 2, 3, 4, 5, 6 or 7.

The sequence can be run forward or backward, or bounced to give the illusion of a never-ending sequence; a boxer throwing a punch will now bring back his arm and throw another punch for as long as you run the sequence.

This function never ran properly in the old version of the software but the update has solved the problem perfectly; it provides many hours of pleasure trying new sequences.

The replay speed is the measure of time for which a particular frame is displayed; the current speed is displayed in the dialogue box and can be altered by using the \pm buttons.

Animate permits toggling between the two animate

Digital transfer

Alan Tomkins creates digital images using a new version of the popular SAM.

modes; the first and default mode is the normal animate with only the live video displayed on the screen. The second mode is the compare mode, which will display the last recorded frame superimposed on to the incoming live video; this is so that alignment of objects between the two frames can be achieved easily.

The time lapse option allows the grabbing of frames at intervals specified in hours or minutes. The time interval can

ALT L, Save Picture ALT S, Load Sequence Cntl L, Save Sequence Cntl S, Record Cntl R, and Animate Cntl A.

Extra functions have been added to keys mode, B or b, set the current frame as the end of the sequence and the next frame as the start; I or i, set the current frame as the start of the sequence; T or t, set the current frame as the end of the sequence.

The Quantize function allows you to save pictures in 16, eight, four or two mono colours; using quantize you can colour parts of the picture using the spare colour boxes of the palette.

While this function is useful I prefer to load a picture into *Advance Art Studio* to alter the colour boxes, as this is a more flexible way of selecting which pixels to change.

This update of SAM certainly improves the original package and I found the new keyboard additions make it easier to use; if you already have SAM, it is not to be missed and anyone who already owns a SAM should contact Silicon Solutions, Thunder Hall, Ware, Hertfordshire SG12 0PT. Tel: 0920 3212.

With the new low-price digitisers on the market, is SAM still a good first-time buy? The answer is yes; SAM is still the best in picture quality and flexibility of use but with a price putting twice as much as the new competition.

Those who have to save before buying will be tempted to plump for the cheaper models, so now is the time to try to bring the price into line to capture the first-time buyer with limited cash.

Now for the good news. Recently I saw a prototype version of a true full-colour SAM which digitises pictures using RGB filters and can produce pictures of up to 1,000 colours on-screen at once.

The demonstrations I saw were really impressive but had a faint flicker as the screen switched between red, green and blue. The release version will have no flicker and will put all other ST digitisers into the shade. ☐

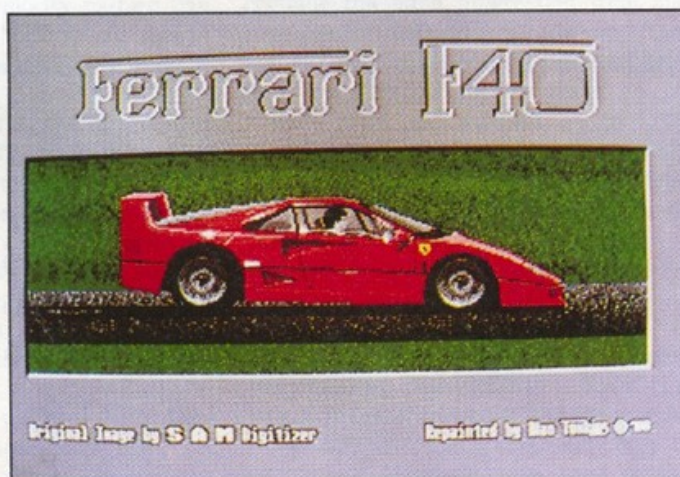


Stevie Nicks eyes the motor.

vary between one and 9,999 minutes or one and 9,999 years.

SAM has several palettes, the selection of which change the way the pictures will appear on the screen. Palette 1 is the normal monochrome SAM palette; if used with a domestic TV set with the colour saturation turned fully off, a 16-level monochrome picture is obtained.

With the new key mode Load Picture is



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(H28)

Roll over, Ludwig

Hybrid Arts 'intelligent' Midi composer tested by Tony Sacks.

If you are a Midi trend-spotter you will have noticed the proliferation of "intelligent" composer programs during the last year. The Intelligent Music pioneering Jam Factory and M packages have been followed by several others, including the Digigram Big Band and the Dr T's double offering of Fingers and Tunesmith. Now we have the Hybrid Arts contribution, Ludwig, for the Atari ST.

Apparently the package takes its name not from the long-dead composer but from a dog which puts in an animated appearance on the title screen. It is on two discs, one containing the main program, the other holding Ludwig's "bones" - example files for you to study and experiment with.

The programmer, Tom Bajoras, claims that although Ludwig may look like some of the other "algorithmic composer" packages already available, it goes much further than its rivals into the realms of real-time composition. We shall see.

At first sight, Ludwig has similarities to Dr T's Fingers program. Like Fingers, it breaks down music into three fundamental properties - pitch, rhythm and velocity, a Midi parameter similar to volume. Unlike Fingers, it presents them in a readily comprehended format.

Patterns

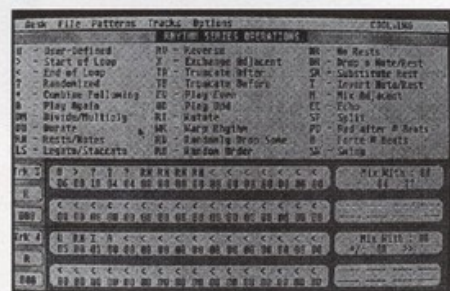
The basic building blocks of Ludwig are "user-defined patterns". These are in three types, one for each musical property. In the cases of the pitch and rhythm, each pattern can contain up to 32 items - individual notes and chords for the pitch patterns; note lengths and pauses for the rhythm patterns. A velocity pattern can contain up to 32 steps, each specifying one of eight velocity levels from very quiet to extremely loud.

There are various ways of creating patterns from the ST or from a Midi instrument connected to the computer. The pitch patterns can be defined either by using the mouse to select from an on-screen grid the notes to be played on each step, or by playing single notes or chords on the Midi instrument. In the latter case, pitch information only is recorded, not timing or velocity.

Similarly, rhythm patterns have been defined either by specifying the note lengths for each step using the mouse or by taking timing information from an instru-

ment played in real-time. There is an option of linking pairs of pitch and rhythm patterns so that their contents can be recorded simultaneously in real-time. This is the closest Ludwig goes to behaving like a conventional sequencer.

You can define up to 96 pitch and rhythm patterns which wait in RAM ready for you to call them for duty in the Ludwig



Defining rhythm patterns for two of the eight tracks.

eight tracks. Those tracks specify which patterns should play, how often, in what order, and what treatments they should undergo. You can choose from 30 types of treatment each for pitch and rhythm patterns.

Pitch patterns can be transposed, harmonised, randomised, compressed, combined, reversed, warped and much more besides. Similarly, rhythm patterns can be truncated, rotated, inverted, split, and be injected with an element of "swing".

The pitch, rhythm and velocity progressions for each track can be defined independently - in which case the resulting music is more likely to be intriguing than attractive - or the various factors can be synchronised. One amusing possibility is to combine the pitch progression from one tune with the rhythm pattern from another. Such combinations can sometimes give rise to fascinating new pieces.

Each track can contain up to 1,024 "cells" which select patterns and specify the actions to be performed on them. Usually you will need only a few dozen of those cells at most.

Controllable

All this may sound extremely complicated and daunting; potentially it is but it is a tribute to the programmer and the manual writer that Ludwig is remarkably easy to understand. What is more, most of the functions are not merely programmer's

whims but have a musically useful role, which you soon discover as you experiment with the program.

Unlike some of the other composer packages, Ludwig remains firmly under the control of the musician. Although random elements can be introduced, you can define precisely where the randomisation occurs and what effect it has. Some of the most interesting effects are derived from the more predictable permutations you can perform on your patterns using the various functions. Essentially, Ludwig has assembled many of the tools used, often sub-consciously, by the composer and brought them together in a form which allows them to be applied rapidly and easily.

The program is flexible enough to produce a variety of styles of music. Some composition packages can do little more than generate experimental or repetitive "systems" music styles. Ludwig can produce music of this type but it can also be used to produce other, more varied and melodically interesting forms of music. It can even be used to enhance existing sequencer or drum machine patterns.

Ludwig files can be loaded into the Hybrid Arts sequencer program for further manipulation or into the company's score-writing packages if you want to produce a hard copy printout of your compositions in conventional notation.

Although the program will run on all models of the ST, it appears to be a tight squeeze on the 520. This results in real-

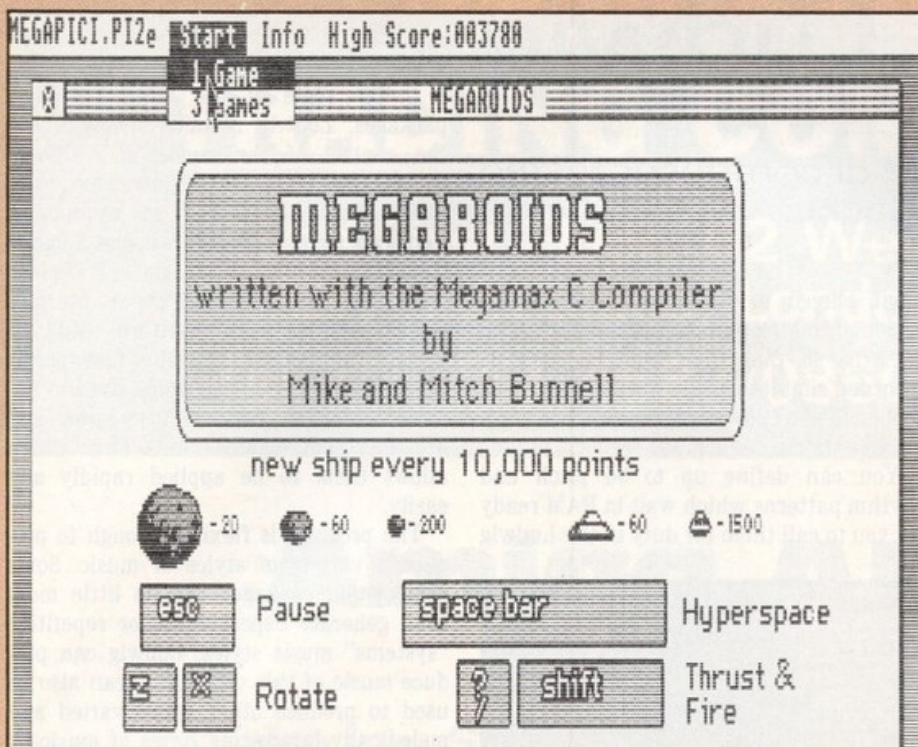


The program's canine namesake is wearing shades.

time recording sessions terminating prematurely and in buffers filling sooner than you would like. A 1MB machine is recommended as a minimum.

Ludwig is an intelligent and sophisticated program. Plenty of thought has obviously gone into it. It is a sign of its versatility that few users are likely to explore all the possibilities the program offers. If you are looking for a package of this type, the £129.95 Ludwig should be high on your shopping list.

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Diskorg - or Org - a useful and easy-to-use desk-top accessory.

Outlining the basics of PD to the right here I give you a run-down of the kind of software you can expect to find and a mini review of some of my favourites.

The first thing to strike the new ST user is the appalling lack of documentation supplied with the machine. When I bought my SDT I received a miserable excuse for a user manual, plus half a guide to ST Basic. Half? Yes. My guide consisted of the first eight pages, followed by the same pages printed upside down. Different? Yes. Impressive? No.

Had I not been well-versed in using computers I might easily have become frustrated. Fortunately, there is a PD guide to the intricacies of GEM and the ST. It is called *ST Tour* and I can heartily recommend it to new users.

Confusing

The other thing I find which confuses novices is the intricacies of disc file handling. To their rescue there is truly wonderful program called *Diskorg* - or sometimes just *Org*. It is a desk-top accessory which provides a very simple system of file copying, re-naming and deletion.

In addition it allows you to undelete files, create and remove folders and find the amount of free space on a disc or in memory. As if that were not enough, you can create Ramdiscs - temporary allocations of memory which act in the manner of a disc drive - of up to 300K and format discs, either in normal format or extended format, which can provide more than 800K of disc space.

Because *Diskorg* is a desk accessory it is available to any program running under GEM. Since finding the program, I use it almost daily. Utilities, especially desk accessories, abound in PD and there is something to suit everyone's needs.

As everyone knows, the ST excels at sound and graphics and one item which should be in everyone's software collection is a good demonstration. There are many around but I cannot think of a better one than *The Big Demo*, also known as *Tex III*.

It is a superb program which runs, in total, for five hours. It combines a host of music, taken from popular ST games software, with almost every graphics effect you can think of - scrolling, multiple colours, sprites, transformation and more. There are three very special graphics screens and the demonstration also contains five digitised tunes. If you want to astound your friends, get this one.

On the sound front, if you have a Midi instrument - and particularly if you have a Casio keyboard - there are a number of sequencers and voice files available.

On the subject of graphics, there are a number of graphic art aids, from complete drawing packages, such as *Neochrome*, to clip-art and picture samples for commercial art packages, such as *Degas Elite* and

Spectrum 512. Different packages tend to save picture screens in a slightly different and incompatible format. Some *de facto* standards have emerged. Degas format is one and the other is called Tiny (.TNY) format. It is a format which compresses screens very efficiently by as much as 75 percent.

The program *Tinystuf* provides a means of changing picture files between Tiny, Degas and Neochrome formats, while its companion program *Tinyview* provides a slideshow-type display of pictures. There are many Tiny format screens available in PD and, because you can get so many pictures on even a single-sided disc, a simple form of animation is possible.

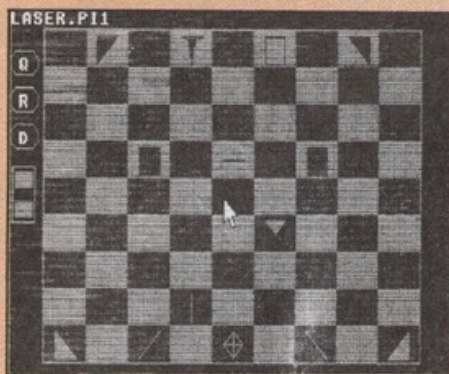
The ST is widely-praised for the quality of the games available and, again, PD reflects this. Here are three games, each of a different type worth examination.

Megaroids is not a nasty disease but an excellent variation on the *Asteroids* theme. The graphics are very good and the game is a good shoot-'em-up example. An added bonus is that it was written in

ST - share and share

Cheap at the price? Barry Pickles looks at some ST available in the public domain.





Laserchess - a space-age chess variant.

Megamax C and you get the source code with it.

Haunted is a platform-and-ladders game which seems originally to have been destined for commercial releases but did not make it. The object is to guide your man round the various rooms of the haunted castle, avoiding the ghouls and ghosties and collecting the crosses and the key to escape. Collecting mugs of cocoa gets you a bonus. The music gets on your nerves

are alike

software for the Atari
main.



after a time but the graphics are very well done. This game is on a par with many commercial releases.

Laserchess is, as you might guess, a little different. Using a standard chess-board you have number of pieces you may move individually, as in chess, but they are not ordinary pieces, since some act as mirrors, some as prisms and some as absorbers. Of what, I hear you ask?

In place of the king piece you have a laser cannon and, by careful placement of the correct surfaces, you can direct your laser beam at your opponent's team and wreak havoc.

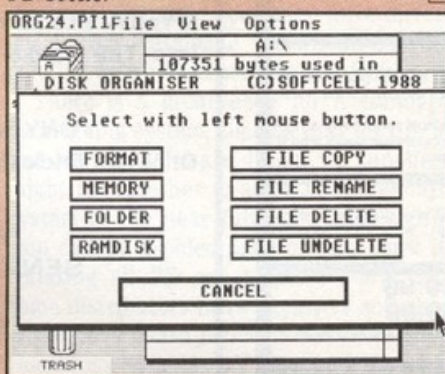
Naturally, your opponent may place his pieces to reflect your laser beam in a different way. In addition to all this, the centre square transports a piece into hyperspace and it will reappear, randomly, elsewhere on the board.

The game combines the traditional strategy element of chess with some space-age variations. I can guarantee that, if you like strategy games, this one will have you hooked.

One continual source of complaint is the inability to try software before you buy it. In the ST world, producers seem to have taken the point and there are many demonstrator versions of both games and serious software. Some just provide a continuous demonstration, while others allow you limited hands-on experience. Either way, this must be good for users.

Finally, there are a number of good program suites which run only on a monochrome ST. Again, PD has an answer in the form of the *Mono Emulator*, which now works on all ST models. The emulator is a trade-off of speed versus efficiency but it works on most mono-only programs and opens a new area for colour ST users to explore.

That is a very brief sample of the 400-odd discs of PD software for the ST user. I could fill a book describing the rest and I have not mentioned the languages and programming tools available. If you do not know what to get, try the ones mentioned as examples of the best but I urge you to explore the delightful and ever-changing PD scene. ☐



Megaroids - Asteroids-based shoot-'em-up (above) and a PD picture sample (left).

What is PD?

Many people have heard about public domain but I have found that few really know what the term means and even fewer what is available. When we talk about PD software, we mean any item available free - or for a nominal fee - and which may be freely-copied and passed to other users. The copyright, generally, remains with the author but he allows the work to be freely-distributed, so long as the distributor does not attempt to make a profit from doing so. In this way, the work receives a wide clientele but the author retains ultimate control.

By common usage, PD also includes user-supported software, sometimes called shareware. Here, the idea is a little different. The author allows you to copy and re-distribute such programs in the same way as true PD but he asks that, if you find the work useful, you send him a cash contribution to help support him in future work. Often, by sending a contribution and becoming a 'registered' user you get extra benefits, such as regular updates to the work and support with any problems.

The advantage to a shareware author is that he has wide distribution virtually free. The disadvantage is the 'honour' system of payment, which does not always work as planned.

In a world where, increasingly, we find that the profit motive dominates our lives, it can seem strange to find people ready to give away what may be the product of many months of hard work. So how did it happen?

PD seems to have originated in the 1960s, when mainframe programmers passed useful programming tips among themselves. Later when the microcomputer came on to the scene in the mid-1970s, it opened the field to a new category of users - people with, perhaps, little formal experience in programming but with a burning desire to find how to drive the new machines.

They were the pioneers who took the micro from being an expensive toy, used by bearded, long-haired freaks to become an accepted tool in everyday use. With little in the way of documentation to help, they banded into user groups to pool resources and experience.

At the same time, developments in computer technology made it possible for the universities to offer computing facilities to students on a much larger scale than previously. In the States, Federal law

continued on page 27 ►

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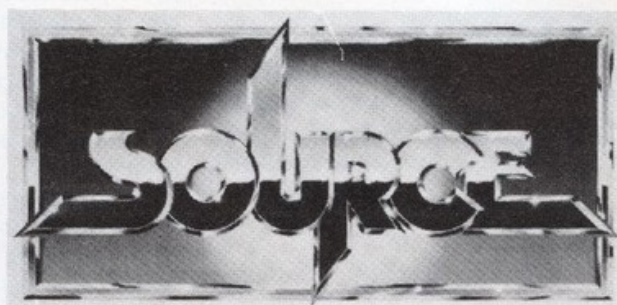
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(H99)

Arnold's New Year resolution

Arnold was going through a bad patch financially last year, so the advent of the New Year brought a resolve to be more thrifty during the next year.

"What I propose doing," announced Arnold to his wife on New Year's morning, "is to save one penny today, two pennies tomorrow,

four pennies the day after, and so on. Each day I intend to put in the bank exactly *twice* the amount I saved the day before. This way I reckon that by the end of the year I should have a few hundred pounds and, doing it in this way, I shall start with a small sum and gradually increase as the

year progresses." Arnold's wife was not too certain. Reaching for a piece of paper she soon calculated that the total sum saved would be much greater than Arnold imagined.

"I think," she replied, "you had better do your sums again. Even if we count just the first seven days, the total saved will be £1.27 and

this will rapidly get bigger."

It is perhaps fortunate that 1989 is not a leap year. Can you say how much Arnold would have saved if he could have carried out the impossible task according to his original plans? The amount required is the *exact* amount - correct to the last penny. □

Solution to puzzle of January 5-11

Answer: Tracks 1, 2, 4, 7 and 10 should be on one side; tracks 3, 5, 6, 8 and 9 on the other.

Solution: The problem is to select a certain number of tracks so that the total timing should be equal to half the running time for all 10. The times have been converted into seconds and are stored in the DATA line - 1000. They are then read into the array to facilitate a rapid totalling of certain of the times later in the program.

Extracting all permutations of the timings is done in a rather roundabout but simple way. For any given permutation a track is

```
100 DIM T(10)
110 FOR F=1 TO 10:READ Z
120 T(F)=Z:NEXT
130 FOR J=0 TO 1023
140 D$="":D=J
150 IF D=0 THEN 190
160 D=D/2
170 IF D=INT(D) THEN D$="0"+D$ ELSE D$="1"+D$
180 D=INT(D):GOTO 150
190 IF LEN(D$)<10 THEN D$="0"+D$:GOTO 190
200 T=0:FOR F=1 TO 10
210 IF MID$(D$,F,1)="1" THEN T=T+T(F)
220 NEXT
230 IF T=1118 THEN PRINT D$
240 NEXT J
250 END
1000 DATA 197,174,191,248,260,182,283,235,250,216
```

either present or it is not. Now consider the binary representation of all numbers from zero to 1023. They will be 10-bit sequences of zeros and ones from 0000000000 to

1111111111; moreover, the series will consist of *all possible* permutations of those digits. Therefore, if track 1 is represented by bit 1, track 2 by bit 2 and so

on, all possible timings can be permuted.

First, the number sequence from 0 to 1023 is converted to a 10-bit equivalent, smaller values having zeros appended to the left-hand end of the string to ensure a final string length of 10 - line 190. The conversion is done at lines 140 to 180 by a repeated process of division by 2. If the division can be done exactly, a zero is added to string D\$; otherwise a '1' is added. Once the full 10 bits have been computed the string is scanned. If any individual bit is set to '1', the corresponding time is added to the total - line 210. Finally, each total is compared to the target value for the time, i.e., half the total length of all tracks in seconds. □

What is PD?

◀ continued from page 25

dictated that the products of research conducted by public corporations - that included universities - must be freely available. Thus, as the output from university computers increased, so did the number and range of programs entering the public domain.

With the advent of CP/M and MS-DOS, public domain boomed and masses of software was issued into PD. As new machines and new operating systems emerged, so new sectors of PD software were opened.

The ST is a particularly good candidate for PD since, first, it is so badly-supported by its manufacturer and, second, the use of GEM and the C programming language makes programs convertible more easily.

Today there are thousands of PD programs available. Are they any good, you may ask? As you may imagine, plenty of software was written for esoteric applications and there is a good deal of re-inventing the wheel. It seems that almost everyone who has ever programmed has, at one time or another, written a program to display the disc directory.

Among them I keep finding little gems of software the equal of, and sometimes surpassing their commercial counterparts. The search for this hidden treasure is an adventure and I hope to share some of the excitement with you. There is something for everyone and this brief overview includes a selection of what I consider to be the best examples in their field.

Finding the software distributors is not difficult. There seem to be PD distributors all over the place and magazines contain many advertisements. Unfortunately, all the suppliers with which I have been in touch seem to be collating their own libraries.

The program disc compilations are, in the main, the same, but they have different library catalogue classifications, depending at which catalogue you look.

There is a great need for a standard cataloguing system, such as that for CP/M and MS-DOS software. I hope PD suppliers might get together to agree on a standard system in the near future, so that confusion can be avoided and the real work of collating all PD can begin. I know that some distributors have exclusive software which they guard jealously but there is no reason not to trade off some of it for that produced by another supplier.

In addition to the main sources, the local

and national user groups usually have modest catalogues and you will also find selections of PD software on computer bulletin boards, both in the U.K. and the States.

Having obtained the software you want, you load your system and away you go. Well, it is not always so easy. The program will almost always run but you often need to study the documentation. It is usually provided in the form of file called 'READ.ME' or 'PROGNAME.DOC' or some such-like. If you consider yourself to be a novice, joining a local computer club will pay dividends.

In the world of PD you will find word processors, programming aids, utilities to make using your computer easier, programs to help you communicate with other computers, new computer languages, aids to using popular commercial software, games and much more.

One major problem which besets Atari users is the version of TOS. Some of the older software had to overcome the problems created by the earlier versions of TOS. As a result, some PD software - by my reckoning about 10 percent - will not work with the new TOS ROM. All the software described here will work with all ST versions. Welcome to the world of PD software. The adventure begins here. □

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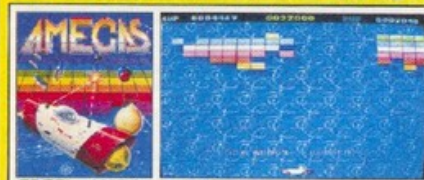
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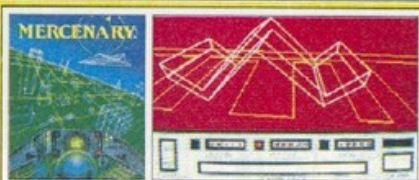
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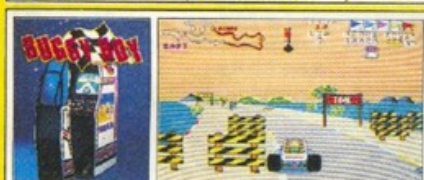
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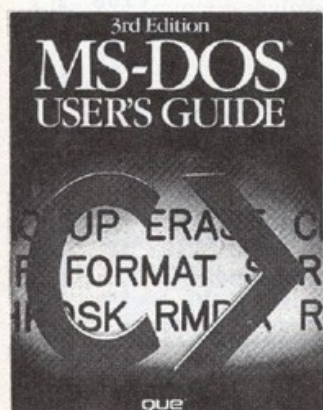
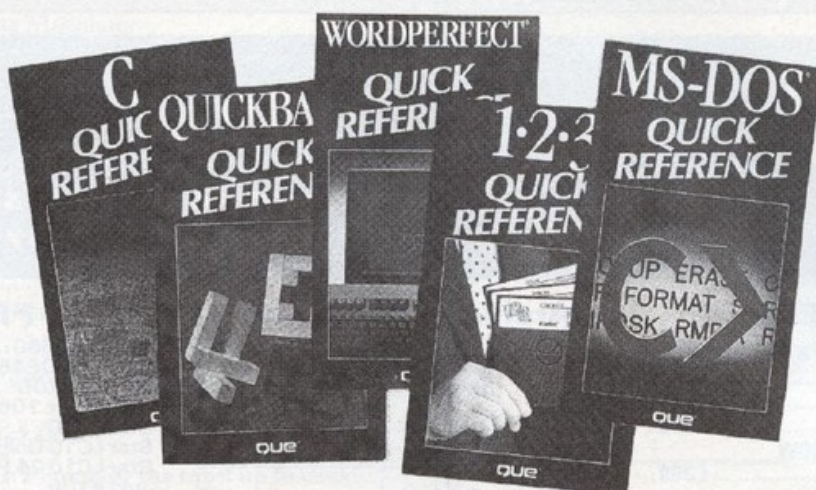
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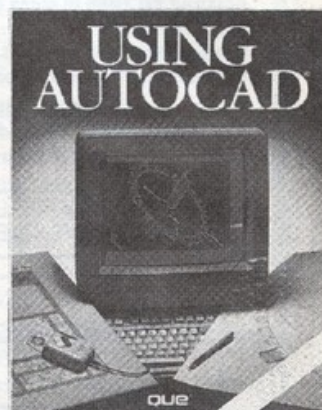
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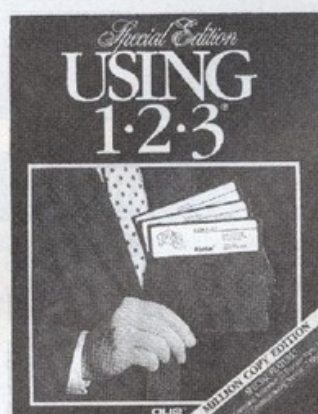
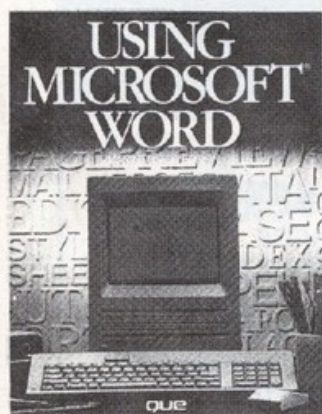
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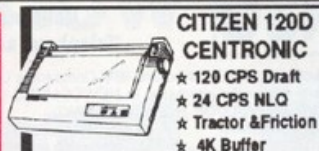
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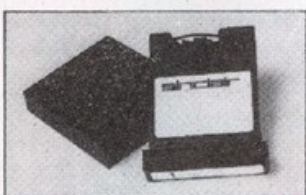
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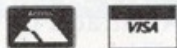
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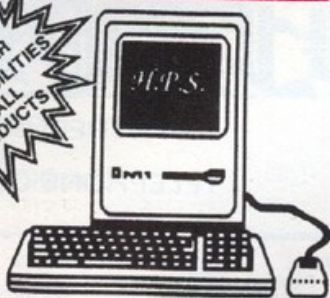
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| Black Lamp | 14.95 | 14.95 | Guantlet II | - | 14.95 | Operation Neptune | 18.75 | 18.75 |
| Black Tiger | 18.75 | 14.95 | Get Dexter II | 18.75 | 11.25 | Operation Wolf | 18.75 | 14.95 |
| Blue War | - | 14.95 | Gnome Ranger | - | 11.25 | Outrun | 18.75 | 14.95 |
| BMX Simulator | 11.25 | 11.25 | Gold Digger | - | 14.95 | Overlander | 18.75 | 14.95 |
| Bob Winner | - | 14.95 | Goldrunner | 18.75 | 18.75 | Pac Land | 14.95 | 14.95 |
| Bomb Busters | 14.95 | - | Goldrunner II | - | 14.95 | Pandora | 14.95 | 14.95 |
| Bomb Jack | 14.95 | 14.95 | Goldrunner II Scen. Disks | - | 4.45 | Paperboy | 18.75 | 14.95 |
| Bone Cruncher | 11.25 | - | Golden Path | 14.95 | - | Parsian Knights | 18.75 | 18.75 |
| Breakers | - | 22.45 | Gold Rush | - | 14.95 | Passengers in Wind I & II | 18.75 | - |
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| Brainstorm | 7.50 | - | Great Gianna Sisters | 18.75 | 14.95 | Perfect Match | - | 7.50 |
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| Bubble Ghost | 18.75 | 14.95 | Gunship | 18.75 | 18.75 | Phantasie II | - | 18.75 |
| Buggy Boy | 14.95 | 14.95 | Hacker | 7.50 | 7.50 | Phantasie III | 18.75 | 18.75 |
| Bureaucracy | - | 16.49 | Hades Nebula | - | 7.50 | Phantasm | 14.95 | 14.95 |
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| Captain America | - | 14.95 | Helter Skelter | 11.25 | 11.25 | Pinball Wizard | 14.95 | - |
| Captain Blood | 18.75 | 18.75 | Hero's of the Lance | 18.75 | 18.75 | Pink Panther | 14.95 | 14.95 |
| Carrier Command | 18.75 | 18.75 | Hill 19 | 14.95 | 14.95 | Platoon | 18.75 | 14.95 |
| Casino Roulette | 14.95 | 14.95 | Hollywood Poker | 7.50 | 11.25 | Playhouse Strip Poker | - | 7.50 |
| Chamonix Challenge | 18.75 | 14.95 | Hollywood Poker Pro | 18.75 | - | Plutos | 11.25 | 11.25 |
| Championship Cricket | 11.25 | 11.25 | Hostages | 18.75 | 18.75 | Police Quest | 18.75 | 14.95 |
| Championship Golf | 26.25 | - | Hot Ball | - | 18.75 | Pool of Radiance | 18.75 | 18.75 |
| Charlie Chaplin | 18.75 | 14.95 | Hunt for Red October | 18.75 | 18.75 | Ports Of Call | 29.95 | - |
| Check Mate | - | 7.50 | Hyperbowl | - | 7.50 | Power Struggle | 11.25 | 11.25 |
| Chess | - | 18.75 | I Ludicrus | 14.95 | 14.95 | Powerplay | 14.95 | 14.95 |
| Chess 89 | - | 18.75 | Iball | - | 7.50 | Predator | - | 14.95 |
| Chubby Gristle | 14.95 | 14.95 | Ikari Warriors | 18.75 | 11.25 | Protector | 7.50 | 7.50 |
| City Defence | 11.25 | - | Impact | 11.25 | 14.95 | Pub Pool | - | 7.50 |
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Dump - CPC 464

Jeff Hunt

This Basic program will dump a mode 2 screen to printer. The software will give you the option to save the data as a binary file. This is useful if you wish to load the code from another program. Before you load the code you will have to set memory to 39999 or lower, using the

memory command. Once the code is loaded it can be used in one of two ways. It can either be dumped using CALL 40000 or dumped in inverse using CALL 40000,1. To stop printing, hold down a SHIFT key. If the machine is not in mode 2 when dumping, the command will be ignored. □

```

10 REM *****
20 REM *MODE 2 DUMP PROGRAM BY J.HUNT.*
30 REM *****
40 CLS
50 PRINT "PLEASE WAIT..."
60 RESTORE:MEMORY 39999
70 FOR F=40000 TO 40194
80 READ A$:POKE F,VAL("&"+A$)
90 NEXT F
100 CLS
110 INPUT "DO YOU WISH CODE TO BE SAVED (Y/N) ";A$
120 IF UPPER$(A$)<>"Y" THEN 160
130 CLS:INPUT "NAME TO SAVE UNDER ";N$
140 SAVE N$,B,40000,194
150 PRINT:PRINT N$;" HAS BEEN SAVED."
160 PRINT:PRINT "TO USE CALL 40000."
170 PRINT:PRINT "FOR AN INVERSE DUMP CALL 40000,1."
180 PRINT:PRINT "TO STOP PRINTING PRESS THE SHIFT KEY."
190 REM MODE 2 DUMP:OR6 40000
200 DATA 32,F8,9C,CD,11,BC,FE,02,C0,06,55,0E,01,CD,DF,9C,06,33,0E,02,CD,DF,9C,21
,8F,01,22,F9,9C,21,FF,9C,22,FD,9C,21,00,00,22,F8,9C,EB,2A,F9,9C,CD,FO,BB,CD,D4,9
C,2A,FD,9C,77,23,22,FD,9C,2A,FB,9C,23,7C,FE,02,20,E2,7D,FE,80,20,DD,06,2A,0E,04,
CD,DF,9C
210 DATA 3E,7F,CD,ED,9C,3E,02,CD,ED,9C,21,FF,9C,01,7F,02,7E,CD,ED,9C,0B,23,7B,B1
,20,F6,06,2A,0E,04,CD,DF,9C,3E,01,CD,ED,9C,AF,CD,ED,9C,7E,CD,ED,9C,3E,0A,CD,ED,9
C,3E,02,CD,1E,BB,CB,69,C0,2A,F9,9C,2B,7C,B5,20,87,C9,6F,3A,F8,9C,B7,2B,02,AD,6F,
7D,C9,3E
220 DATA 1B,CD,ED,9C,7B,CD,ED,9C,79,CD,ED,9C,C9,F5,CD,2B,BD,38,03,F1,18,F7,F1,C9
,00,00,00,00,00,00,00,00,00,00

```

Screen Sava - ST

Darryn Lavery

◀ continued from last week

Send your routines/programs to Andrew Banner, Listings Editor, *Popular Computing Weekly*, Focus Magazines, Greencoat House, Francis Street, London SW1P 1DG. We will pay for each item published.

```

/*****
/* Initialise Desk Accessory */
/*****

void main()
{
    memory=(WORD *)Malloc(32034);

    rez=Getrez();
    ap_id=apl_init();
    handle=graf_handle(&dummy,&dummy,&dummy,&dummy);
    handle=v_opnvwk(work_in,&handle,work_out);

    /*****
    /* Put program on desk menu */
    /*****

    menu_id=menu_register(ap_id," Screen Saver");

    /*****
    /* Wait for a AES message if our desk accessory is called do it */
    /*****

    while (1)
    {
        evnt_mesag(pipe);
        if (pipe[0]==AC_OPEN && pipe[4]==menu_id) save_screen();
    }
}

```


Under and Over - Spectrum

Ken Rendell

Perhaps not many readers will be familiar with the process of weaving but it is seldom a case of alternating "over & under" interlacing as I used to think. The program, if examined carefully, will illustrate this, since it is based on the common twill weave.

The nature of the weave pattern of the yarns for this type of fabric can be examined by looking at the binary patterns represented by the first eight data bytes in line number 5060, defining the first User

Defined Graphic symbol.

The "mask" of the weave pattern is printed, though invisibly, with PAPER 0 and INK 0, on-screen by repetitive printing of this character, the later "weave" subroutine serving only to inject colour into the screen image by operating on the attribute bytes alone.

Twill was chosen as the demonstration weave since it is the commonest form, featured in the tartans of Scotland as well as in most tweeds. On the other hand, there is no reason why the curious should not experiment with the almost equally well-known forms of herringbone or houndstooth, or almost any other pattern which will distribute ink and paper pixels in more or less equal numbers in each character square.

Since the program provides a manual

facility for the do-it-yourself weaver, it is necessary to design your own pixel pattern and alter the bytes already referred to in accordance with this bit-pattern. Take care that your character pattern will join in all four directions without dislocation of the overall pattern. Suggestions for herringbone and houndstooth are given as a footnote.

Thoughtful readers will appreciate the need for the ink and paper attributes to be interchanged when switching from weaving horizontally to vertically. Lines 3050 and 3080, if examined, will show this being done.

It is by this means that it is possible to define the weave pattern by use of only one UDG. Otherwise a second character, which might be called the complement of the first, would need to be defined. □

```

10 REM "COLOUR WEAVER"
20 REM © Ken Rendell, 1988
30 LET menu=1000: LET mask=2000: LET weave=3000: LET prompt=4000
40 LET start=5000: LET abort=6000: LET cursor=7000
50 GO SUB start
60 GO SUB menu
100 RUN
999 STOP

1000 REM *** MENU ***
1010 CLS : RESTORE 8000: PRINT PAPER 0: INK 7:AT 8,6:"KEY A for AUTO"
1020 PRINT PAPER 0: INK 7:AT 10,10:"M for MANUAL":AT 12,10:"X for EXIT"
1030 POKE 23658,8: PAUSE 0
1040 LET choice=CODE INKEY$
1050 IF choice<>65 AND choice<>77 AND choice<>88 THEN RUN
1060 CLS
1070 IF choice=88 THEN STOP
1080 GO SUB 1000+10*choice: REM 1650 for AUTO, 1770 for MANUAL
1090 RETURN

1650 REM *** AUTO ***
1660 FOR t=1 TO 30
1670 READ n$
1680 PRINT #0:AT 1,0:s$;s$;s$;s$
1690 GO SUB mask
1700 PRINT INK 7:AT 8,0:"G":AT 10,0:"TO":AT 12,0:"QUIT"
1710 PRINT #0: INK 7:AT 1,INT ((31-LEN n$)/2);n$

1720 FOR n=0 TO 21: GO SUB abort
1730 READ c: LET col=CODE (STR$ c)-48
1740 GO SUB weave
1750 NEXT n: PAUSE 100: NEXT t
1760 CLS : RETURN

1770 REM *** MANUAL ***
1780 GO SUB prompt
1790 GO SUB cursor
1800 GO SUB mask
1810 FOR n=0 TO 21
1820 PRINT PAPER 0: INK 7: FLASH 1:AT 18,1:"ANY KEY": FLASH 0
1830 PRINT PAPER 0: INK 7:AT 20,2:("0-7") AND n<22
1840 PAUSE 0
1850 PRINT AT 18,1:s$;AT 20,2:s$
1860 PRINT #0:AT 1,0:CHR$ 32
1870 LET col=CODE INKEY$-48
1880 IF col<0 OR col>7 THEN GO TO 1820
1890 GO SUB weave
1900 NEXT n
1910 PAUSE 200
1920 CLS : RETURN

2000 REM *** MASK ***
2010 LET d=(1 AND choice=65)+(0 AND choice=77)
2020 FOR n=0 TO 21
2030 PRINT AT n,10-5*d;g$;g$

2040 NEXT n
2050 RETURN

3000 REM *** WEAVE ***
3010 IF choice=77 THEN GO SUB cursor
3020 IF col=0 THEN GO TO 3100
3030 LET s=23210-5*d: LET m=s-672: LET f=s-651: LET x=-32
3040 FOR b=s TO a STEP x
3050 POKE b+n,PEEK (b+n)*col
3060 NEXT b
3070 FOR b=m TO f
3080 POKE b+32*(21-n),PEEK (b+32*(21-n))+8*col
3090 NEXT b

```

```

3100 RETURN

4000 REM *** PROMPT ***
4010 PRINT PAPER 0: INK 7:AT 1,0:"BLACK":TAB 8;"0":AT 3,0:"BLUE":TAB 8;"1"
4020 PRINT PAPER 0: INK 7:AT 5,0:"RED":TAB 8;"2":AT 7,0:"MAGENTA":TAB 8;"3"
4030 PRINT PAPER 0: INK 7:AT 9,0:"GREEN":TAB 8;"4":AT 11,0:"CYAN":TAB 8;"5"
4040 PRINT PAPER 0: INK 7:AT 13,0:"YELLOW":TAB 8;"6":AT 15,0:"WHITE":TAB 8;"7"
4050 RETURN

5000 REM *** START ***
5010 RESTORE 5000: LET g$="": LET s$=""
5020 BORDER 0: PAPER 0: INK 0: CLS
5030 FOR b=USR "A" TO USR "A"+15
5040 READ n: POKE b,n
5050 NEXT b

5060 DATA 51,102,204,153,51,102,204,153,16,40,68,130,0,0,0,0
5070 LET f$=CHR$ 144: LET r$=CHR$ 32
5080 FOR j=1 TO 8
5090 LET g$=g$+f$: LET s$=s$+r$
5100 NEXT j
5110 FOR j=1 TO 3
5120 LET g$=g$+f$
5130 NEXT j
5140 RETURN

6000 REM *** ABORT ***
6010 LET quit=CODE INKEY$
6020 IF quit<>81 THEN GO TO 6030
6030 IF quit=81 THEN RUN
6040 RETURN

7000 REM *** CURSOR ***
7010 PRINT #0:AT 0,n+10: INK 7:CHR$ 32:CHR$ 145:AT 1,0:CHR$ 32
7020 RETURN

8000 DATA "BARCLAY",1,4,4,4,2,4,4,4,1,1,1,4,1,1,4,4,4,2,4,4,4
8010 DATA "BRODIE",2,0,2,2,2,0,0,0,0,0,0,0,0,0,0,0,0,2,2,0,2,2
8020 DATA "BRUCE",2,2,6,2,2,4,4,2,4,4,2,4,4,2,4,2,2,7,2,2,2
8030 DATA "CAMERON",2,6,2,2,2,4,4,2,4,4,2,4,4,2,4,4,2,2,6,2,2
8040 DATA "CAMPBELL OF BREADALBANE",0,1,1,0,0,4,4,6,4,4,0,0,4,4,6,4,4,0,0,1,1,0
8050 DATA "CAMPBELL OF CAMDOR",5,0,4,4,4,0,0,0,1,1,1,2,1,1,1,0,0,0,4,4,4,0
8060 DATA "COLGOUN",1,0,1,1,1,0,0,0,7,4,4,4,2,4,4,4,7,0,0,0,1,1
8070 DATA "CRAWFORD",2,7,2,2,2,4,4,2,4,4,2,4,4,2,4,4,2,2,7,2,7

8080 DATA "DAVIDSON",4,0,4,4,4,4,1,4,1,1,2,1,1,4,1,4,4,4,0,4,4
8090 DATA "DOUGLAS",1,1,7,1,1,1,4,4,4,5,0,0,5,4,4,4,4,1,1,7,1,1
8100 DATA "DUNBAR",2,0,2,2,2,0,0,4,4,4,2,4,4,2,4,0,0,2,2,0,2,0
8110 DATA "FARGUHANSON",6,4,4,4,0,0,0,1,1,1,2,1,1,1,0,0,4,4,6,4,4
8120 DATA "FRASER",7,2,2,2,2,4,4,2,1,1,2,1,1,2,4,4,2,2,2,7,2
8130 DATA "GRAHAM",1,0,1,1,0,0,4,5,4,4,4,5,4,0,0,1,1,0,1,0,0
8140 DATA "GUNN",4,2,4,4,4,0,0,4,0,4,0,4,0,4,0,4,0,4,4,4,4
8150 DATA "HAMILTON",2,2,7,2,2,2,1,1,2,1,1,2,1,1,2,2,2,7,2,2,1
8160 DATA "HENDERSON",4,0,0,6,0,0,4,0,4,4,4,4,4,4,1,1,1,7,1,1,4
8170 DATA "KEITH",4,0,4,4,4,1,1,0,0,1,1,0,0,1,1,4,4,4,0,4,4
8180 DATA "LAMONT",4,7,4,4,4,0,0,0,1,0,1,0,1,1,1,1,0,1,0,1,0
8190 DATA "MACARTHUR",4,6,4,4,4,0,0,4,4,0,0,0,0,4,4,0,0,4,4,6,4
8200 DATA "MACDONALD OF CLANRANALD",4,2,4,2,4,4,4,7,0,0,2,1,1,2,1,2,1,2,1,2,1
8210 DATA "MACDONALD OF SLEAT",2,4,2,4,4,2,4,2,2,2,2,2,2,4,2,4,2,4,2,4,2
8220 DATA "MACDUFF",2,1,1,0,0,4,4,2,0,2,0,2,0,2,4,4,0,0,1,1,2
8230 DATA "MACFIE",2,7,2,2,2,2,4,2,4,4,4,4,4,2,4,2,2,2,6,2
8240 DATA "MACGREGOR",2,2,2,2,2,4,4,2,4,4,7,4,2,4,4,4,2,2,2,2,2
8250 DATA "MACINTYRE",4,7,4,4,4,1,1,2,1,1,4,1,1,2,1,1,4,4,7,4,4
8260 DATA "MACLEOD",2,6,6,6,6,0,0,0,0,0,0,0,0,0,0,0,0,6,6,6,6
8270 DATA "MACQUEEN",6,0,0,0,0,2,2,0,2,2,0,2,2,0,2,2,0,0,0,0,0
8280 DATA "MORRISON",4,0,0,0,0,4,1,1,1,1,2,1,1,1,1,4,0,0,0,0,4
8290 DATA "WALLACE",2,0,2,2,2,0,0,0,0,0,0,0,0,0,0,2,2,2,0,2,2
9000 SAVE "WEAVER" LINE 30
9999 PAPER 6: INK 0: BORDER 1: CLS : LIST

```




Signal recognition

A. Jeenes, of Malvern, Worcs, writes:

Q I use a 48K Spectrum and, being a radio amateur, use it frequently for the transmission and reception of radioteletype and morse. The programs to deal with these were written by professionals.

Most books and magazines appear to avoid mention of the usage of the ear input. I now know sufficient programming to write a machine code routine to transmit Morse but when I attempted to do the same for receive, I had problems. I started with:

```
IN A,(254)  Read port 254
RRA        Rotate and keep
AND 32     the ear bit
CP 0       Compare with zero
expecting a zero if the signal was
present at the ear socket and 32
if quiescent. I added the neces-
sary code to repeat the test a few
hundred times, printing the re-
sult on to the screen and then
poking it into memory. In both
cases there was a liberal sprink-
ling of zeros and ones whether
the signal was present or not.
```

Efforts to assess the frequen-
cy of the input tone were also
resoundingly futile. So, among
the programming aces, could
someone contribute an article or
program on the subject?

A contributory reason to my
lack of success may possibly be
the fact that I am approaching
my 45th birthday and my exper-
tise spans only two years.

| | | |
|-------|-------------|------------------------------------|
| start | ld bc,65278 | Port address in bc reg |
| | ld hl,store | Address of store for data |
| | ld d,len | Number of bits to read (mult of 8) |
| loop | in a,(c) | Read port to a |
| | and 191 | Isolate EAR bit |
| | jz loopc | Bit zero |
| | set 1,e | And set bottom bit |
| loopc | sla e | And shift left 1 place |
| | dec d | Count bits total |
| | jz fin | Until zero |
| | ld a,d | Get count |
| | and 7 | And check bottom 3 bits |
| | jnz loop | For 0-8 i.e. bits per byte |
| | ld (hl),e | Store byte |
| | inc hl | Move to next store |
| | jr loop | And start next |
| fin | ld (hl),e | Store last byte |
| | ret | And finish |

Figure 1 - EAR monitor program for Spectrum.

A Looking at the Spectrum manual - page 160 - it seems that you have things the wrong way round. The MIC and EAR connections refer to the relevant sockets on the tape recorder,

not on the computer. So the port you want to read is 65278 or one of the other keyboard half rows, but 6 should be isolated by anding the result with 255-64 - bit numbers start at 0.

A possible monitor program is shown in figure one. Note that I have not tried this, but it should give you some idea and if anyone has a better way, please do not hesitate to get in touch.

Fast Basic info

David Raywood, of Goole, North Humberside, writes:

Q Some time ago I bought Fast Basic by Computer Concepts for my ST. As a beginner to programming I found it very bewildering. Are there any books on this language?

I decided to buy a language which has been around for a time in the form of a BBC emulator from a public domain company. I thought it was the solution until I tried to store data. The program

would not acknowledge the ST internal drive, either for loading or storing information. Can you suggest any way I might be able to make the program read or write to my drive from within Basic? If it is possible, do you know anywhere I can buy a BBC Basic manual?

A You might try contacting Computer Concepts - 0442 63937 - and ask for suggestions. I tried, but there was no-one available who could answer my questions.

I know of no books specifically

about Fast Basic but I remember all the reviews said that it was similar in some ways to BBC Basic.

Unfortunately, without playing with the BBC Basic emulator, I cannot be sure that the disc access works; PD software is not usually guaranteed in any way. You might try the standard BBC Basic file-handling procedures, e.g., to write to a file called test use:

```
10 A=OPENOUT("TEST")
20 PRINT #A,"THIS IS A TEST FILE"
30 CLOSE #A
To read this back use:
10 FILE=OPENIN("TEST")
```

```
20 INPUT #FILE,A$
30 PRINT A$
40 CLOSE #FILE
```

If this does not work the emulation is not very good. Obtaining a BBC manual may be a little difficult but an Acorn dealer may be able to help or you might try your local computer book store. Another possibility is your local library, since many beginners' books are based on BBC Basic.

As a last resort, you might contact your local secondary school, as it probably still uses BBC micros for teaching purposes and will have manuals.

Amiga Colour

N Maynard, of Wimbledon, London, writes:

Q I have just bought an Amiga 500 and have tried connecting it to my composite colour monitor. The trouble is that there is no colour. Is there something wrong with my hardware or do I have to alter the preference settings to get the colour to work?

A Unfortunately, there is no colour burst included in the composite video output on the Amiga. A composite colour signal consists of the synchronisation pulses coded with the picture information and, for colour, includes a burst of data to tell the monitor which guns to use. The Amiga 500 does not use this colour burst signal, even though according to the hardware manual it can be turned on and off by one of the hardware chips. So far as I can ascertain the colour output is not connected inside the machine.

You will have to use RGB to get a colour picture and this may mean getting your monitor converted so that it will accept these signals. Look through the small advertisements to find a computer repair company and telephone to see if it can effect the conversion

C64 power supply

G. A. Flanagan, of Hove, writes:

Q I am having trouble with my Commodore 64 and I wonder if you can help? I had to replace the fuse in the power supply as the machine would not

come on and eventually I traced the fault to the power supply. When I switched it back on all I saw was gibberish on the screen. I cannot understand why this should be, since replacing the fuse should have cured the trouble. Do you know what is wrong?

A I presume you have the older 'shoe'-type power supply. This usually runs hot and eventually fails; the problem you are experiencing is that the power supply is not producing the correct voltage for the machine to operate correctly.

The solution, unfortunately, is to obtain a new power supply. You should be able to obtain one from any good Commodore 64 dealer. Look through the back pages of *Popular Computing Weekly* and check the various repair agencies; they should be able to help. If possible, try the 64 with the new supply before buying it, as it is possible that you have broken the VIC II chip as well.

Prism Address

M. Fitzsimmons, of Sunderland, Tyne & Wear, writes:

Q Could you tell me where I can buy an operating manual/instruction book about a Prism Modem 1000 and a comms pack which I recently acquired free when I bought a secondhand disc drive? I understand that the modem manufacturer, A.C. Electronics Cumbria, is no longer trading.

A I can find no trace of an address. Any suggestions?

Back issue

Frank Wilcox, of Bracknell, Berkshire, writes:

Q I noticed a reference to an article written by you in *Popular Computing Weekly* dealing with the subject of fractals.

Could you tell me which back copy of *Popular* to order for the article?

A I presume you mean the Mandelbrot Set feature I did recently. See *Popular* November 17-23, 1988 Vol. 7 No. 46. You should be able to get this back issue from *Popular Computing Weekly*, Focus Magazines Ltd, PO Box 74, Tonbridge, Kent TN12 6DW. Tel: 0892 834783.

Amiga machine code

Justin Philips, of Clacton-on-Sea, Essex, writes:

Q I own an Amiga A500 and I would like to start programming it in machine code. Could you give me the names of some machine code or assembly language books on this subject?

A Programming Amiga in assembler is not so easy as it may seem and I know of no books which cover the subject explicitly. With a little effort and some or all of the following books/software, it is reasonably easy to get started.

Amiga Hardware Reference Manual, Addison Wesley, is essential for accessing the hardware directly from machine code. It gives all the relevant addresses of

the specialised chips and details how they should be used. There are also a few machine code examples.

68000 Assembly Language Programming by Kane, Hawkins & Leventhal, Osborne McGraw Hill, gives full details of the 68000 machine code instructions, plus some examples, though many are not applicable to the Amiga.

Devpac Amiga editor/assembler/monitor, HiSoft, is a full macro assembler with the complete selection of library files which permit access to all the system facilities by name.

Addison Wesley also publishes the other Amiga technical reference manuals but most of the examples are in C. The indices contain plenty of information of interest to the assembler programmer. See: *Amiga instruction manual*, *ROM Kernel reference: Libraries and Devices* and *ROM Kernel reference: Exec*.

You really need only the first three to get started; buy the others as and when you can afford them.

Start-up

D Herries, of Glasgow, writes:

Q I received an Atari 520 ST computer from a kind relative for Christmas. I wonder if there is any advice you can offer about setting it up and getting it going?

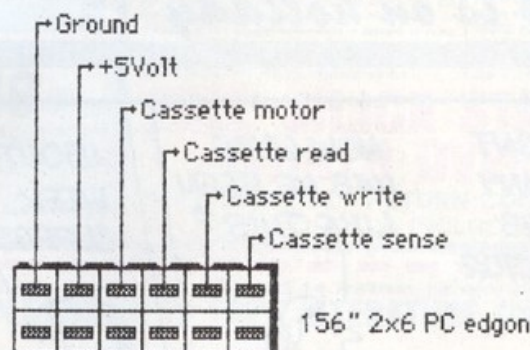
A Not a bad pressie. The best place to start after removing it from its box is to read the manual, since this gives step-by-step instructions on getting the machine up and running. This page will self-destruct in five seconds. Good luck.

C64 tape connector

John Ridge, of Glasgow, writes:

Q I have accidentally broken the cassette connector on my Commodore 64 - I stood on it. Do you know where I can get a replacement and could you show me the wiring?

A Maplin - 0702 554161 - sells the edge connector, a .156in. pitch 2x6-way PC Edgecon No. FG24B. See figure one for the connections. I do not know the colours exactly, since my cassette was not made by Commodore. If you trace back the wires you should be able to find which goes where.



Looking into back of plug

Commodore 64 cassette connector

As any avid adventure player will be aware, there is nothing more enjoyable than forsaking hours of priceless slumber to slot a Babel fish in your much-neglected ear. After all, what could be more natural?

Babel-bunging, as it is known to the initiated, is something you have to do when you play the Infocom *A Hitchhiker's Guide to the Galaxy*, arguably the best adventure game known to self-inflicted torture. How you get a Babel fish in your ear is, of course, not so easy as it sounds. First you must put the **** in the ****, the other **** in the **** and several other items in various ***** then the fish is in your ear and your understanding of Vogonese poetry is second to none.

What has happened more recently worthy of report? In the last year or so Rainbird has released some well-tuned adventures - *The Pawn*, *Jinxter*, *Guild of Thieves* - accompanied by polished graphics. Similarly, Mandarin releases have been of a high standard, too, with *Time and Magik* and, recently, *Lancelot*.

There is no doubt that such companies have sought to extend the frontiers of the art of adventure, providing sophisticated parsers, more powerful commands and increasingly more elaborate packaging. Can we say more? The graphics do well in helping to create an appropriate atmosphere but they do nothing for the game-play except, perhaps, slow it. It would be good to see graphics providing hidden clues which could help in solving the puzzles.

Unfortunately, the adventure game has not, as yet, come of age.

The keying-in of repetitive commands leads to finger cramp and can also be very tedious. Is it not time adventures dropped their antiquated geographical commands of N, S, E, W and so on for something a little more sophisticated?

It is interesting to speculate on what an adventure game of the 21st century might be like. After all, the possibilities are tremendous. For one thing there will be none of the tedious keying-in of instructions and commands. You will be able literally to tell your computer character what to do, where to go and to whom to speak. Moreover, the computer will be able to answer you, so instead of

protagonist to jump in the dragon's cesspit he might - justifiably - retort: 'Not likely, Grundlebuts, this is not a twentieth century hero you're dealing with'.

The way you talk to your protagonist will become particularly important. The computer will be able to pick up the tone of your voice - irritation, anger, relief - triggering an appropriate response from the character under your control. In this way tact, diplomacy and obsequious flattery will become just as important as they are in everyday life. An adventure would not be an adventure without a wealth of puzzles. Consequently, the 21st century adventure will contain the usual number of puzzles. The difference will reside in a 'randomiser', a standard routine which will form a part

of every adventure program. This will enable you to scramble the whole game once you have completed it so that you will have a new matrix of locations and a new set of puzzles. In that way, each adventure you buy will provide an inexhaustible source of fun and frustration.

No doubt there will be purists who would like things to remain unchanged well into the 31st century. Their arguments will sound not dissimilar from those advocates of radio who said that TV would never catch on. As I gaze into my crystal monitor, however, I foresee a time when adventure playing will be more popular than *Neighbours*. Instead of watching passively you will be able to participate actively in a fictitious world; it might one day be possible to give up real life altogether. □

Julia Runciman

NEW FRONTIERS

reading the message 'You can't do that, Brain-dearth' you will hear such responses.

Additionally, not only will you be able to speak to the game's protagonist - the character you are directing - but you will also be able to get him to speak to other characters, who will be able to respond in an intelligent or pseudo-intelligent manner:

'Where did you hide the treasure, Baldalf?'

'Mind it Grabchit, the dough's mine!'

Of course, to help matters you will be able to see all the characters in fully-animated 3D colour, presented realistically and meticulously. All characters will have fully-developed personalities capable of experiencing a range of emotions. They will also be capable of some measure of independent thought. Thus, when you tell your

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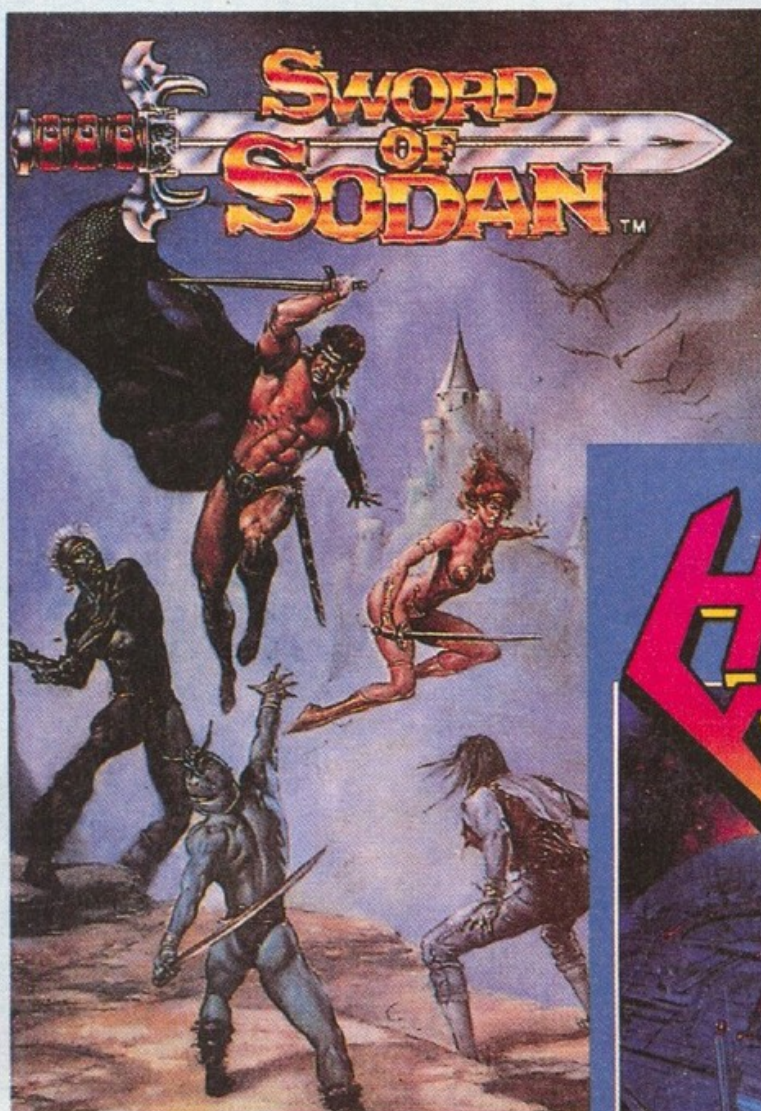
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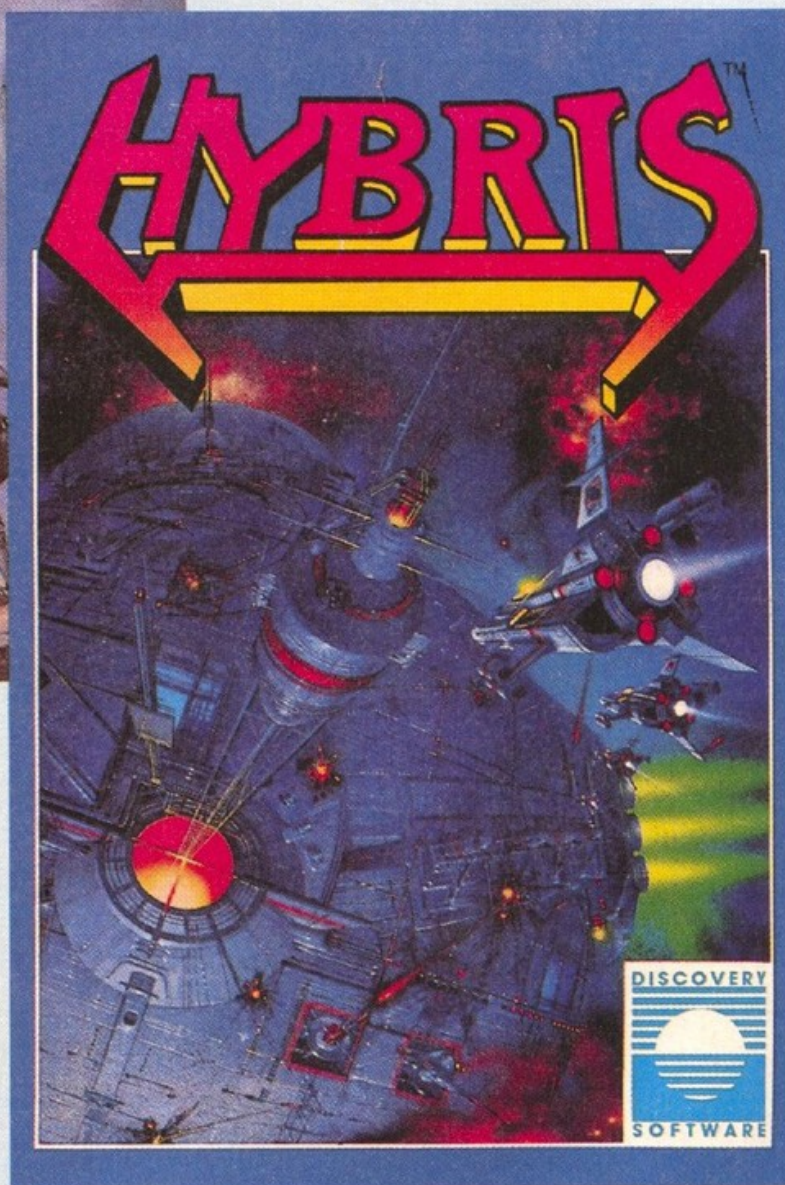
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