

# 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 ►

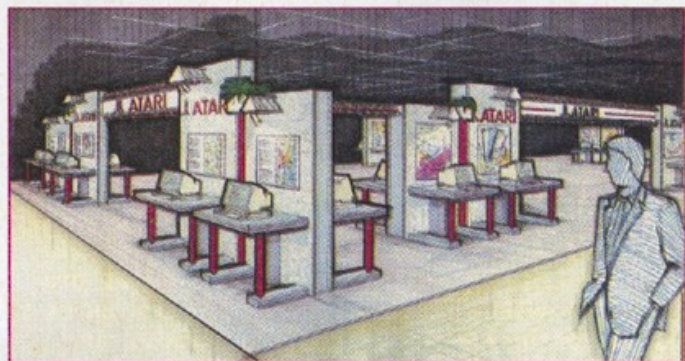
## 1813 virus struck as predicted

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

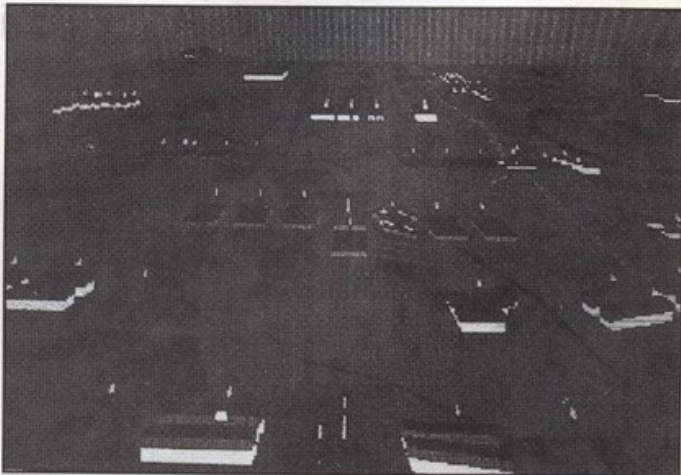
ATARI is to launch a new budget label in the next two months to strengthen its commitment to its 8-bit machines - the 65XE, 130XE and XE Games System.

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

### ☐ *What the hell is? ... An Operating System* ..... p. 10

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

### ☐ *Locofile* ..... p. 19

A review of a PCW database to complement the popular Locoscript

### ☐ *Digital Repro* ..... p. 21

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

## Regular Features

News .....	p. 1-5
Letters .....	p. 6
Hotlines .....	p. 9
Game of the Week -	
Kings Quest IV .....	p. 15
Games reviews .....	p. 16
Adventure .....	p. 17
Puzzle .....	p. 27
Bytes & Pieces .....	p. 42-43
Kenn Garroch .....	p. 44-45
Feedback/Next Week .....	p. 46



# 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.

**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.

## EDITORIAL

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

**POPULAR**  
**COMPUTING**  
WEEKLY

A FOCUS MAGAZINES PUBLICATION

Vol. 8: No. 3

Editor Paul Marks Production Editor Michael Johnson Chief Sub-editor Harold Mayes MBE Staff Writer Adrian Pumphrey  
Art Assistant Paul Ellis Group Advertising Manager Daniel Healy Assistant Advertising Manager Tim Owen  
Classified Executives Elizabeth Solanke, William Saville Managing Editor Brendon Gore Publisher Trish Phillips  
Publishing and Commercial Director Paul Coster BSC Chief Executive Richard Hease Financial Director Brendan McGrath

Typeset by Magazine Typesetters,  
6 Parnell Court, East Portway,  
Andover, Hampshire

Printed by McCorquodale  
Magazines, Andover, Hampshire

Distributed by SM Distribution,  
Streatham, London SW16.  
Telephone: 01-677 8111, Telex 261643

Subscription rates: U.K. £35 per  
year, overseas £49.95 per year.



## 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.

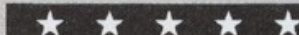
I now have a very large collection of mostly auto-booting PD/shareware discs, and have a directory disc listing their contents, called 'RAYS DIR'. There are now two directory discs and I give them to anyone who asks for a copy. All I ask is that they send a blank disc for each directory, including return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

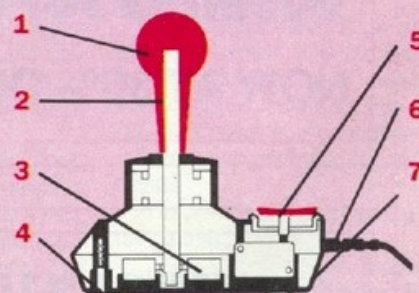
**REPLAY® PROUDLY PRESENTS...**

The New Microblaster Joystick,  
professional arcade quality, fully microswitched  
for the ultimate in game control.

**ORDER TODAY AND TAKE CONTROL!**

## FEATURES INCLUDE

1. Ergonomically designed handle and base for smooth, accurate and comfortable playing action.
2. Steel shaft for extra strength & durability.
3. 8-way arcade quality microswitches giving greater sensitivity and precision controlled movement.



4. Non-slip rubber feet on base for secure table mounted operation.
5. Large, dual-fire microswitched fire buttons for left or right hand operation.
6. Extra long 1.4 metre cable allows more choice of player position.
7. Switchable normal/rapid fire options for extra player control and higher scores.

Suitable for use with a wide range of  
computers and video game machines.

Compumart Ltd., Jubilee Drive, Loughborough, Leics. LE11 OXS. Tel: (0509) 610444



Compumart are  
the Officially  
Appointed Sole  
UK Dealer for  
Replay Joysticks.

## **GUARANTEE**

This quality Replay® joystick is fully guaranteed against material defect or faulty workmanship for a period of 12 months from the date of purchase.

**ORDER TODAY AND TAKE CONTROL!**

PLEASE RUSH ME \_\_\_\_ JOYSTICK(S) @ £12.95 each.

Total enclosed £ \_\_\_\_\_

Type of computer owned \_\_\_\_\_

Despatched same day. Allow maximum 7 days delivery.

Please deliver to:

Name \_\_\_\_\_

Date \_\_\_\_\_

Address \_\_\_\_\_

Postcode \_\_\_\_\_

Price inc. VAT, free postage & packaging U.K. only subject to availability. E. & O.E.



(0509) 610444

24 HR HOTLINE

to order using

ACCESS/VISA

or complete the

coupon and send with

a cheque/ P.O. to:

**COMPUMART LTD**

**DEPT. POP**

**FREEPOST**

**LOUGHBOROUGH**

**LE11 0BR**





## 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.

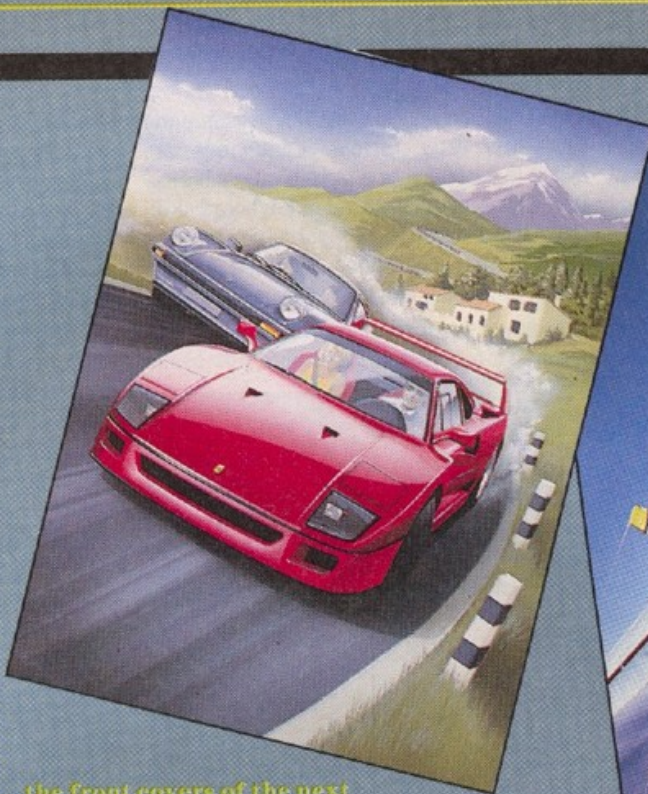
From one game to another - smooth link huh? *The Munsters*. I reviewed the game a while back on the Spectrum and since



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

	RRP	OUR PRICE
Psion Organiser II XP .....	£140	£100
Printer .....	£60	£30
64K Datapak .....	£200	£170
Comms Link (RS 232) with IBM PC/XT plug .....	£59	£48

## FREE ORGANISER POUCHES

DELIVERIES POSSIBLE OR COLLECTION  
FROM CENTRAL LONDON

PREMIER HOUSE  
SUITE 116  
77 OXFORD STREET W1

CALL: 01-734 2603  
01-539 9353  
0836 790159



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.

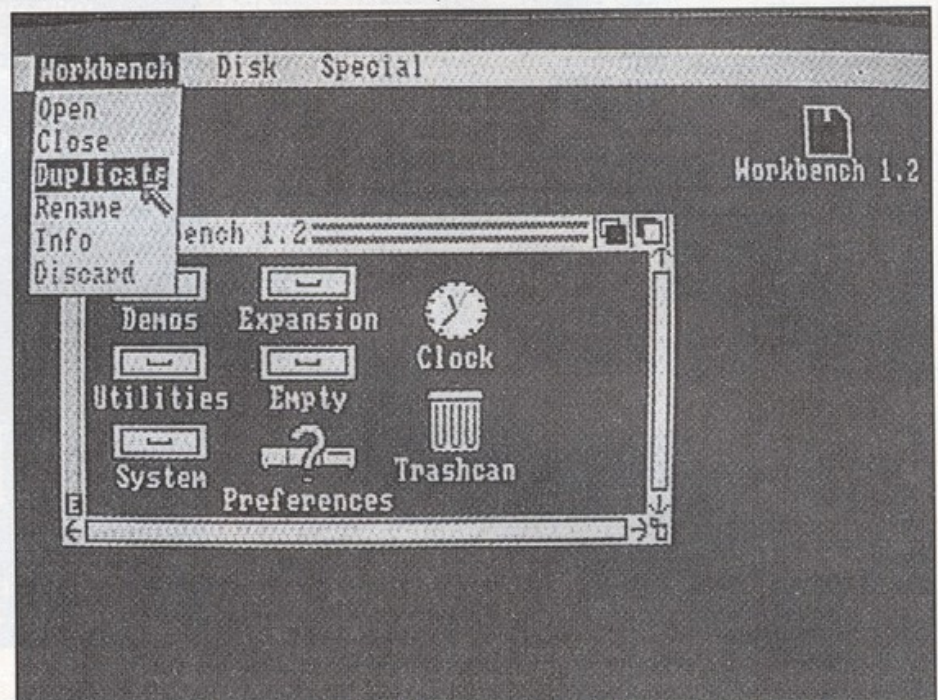
Printing characters on a screen usually would be done by putting the ASCII code of a character in a microprocessor register or pushing it on to the stack. The system would then be called with the 'print character' code and the system invoked. The operating system software would then take over and check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

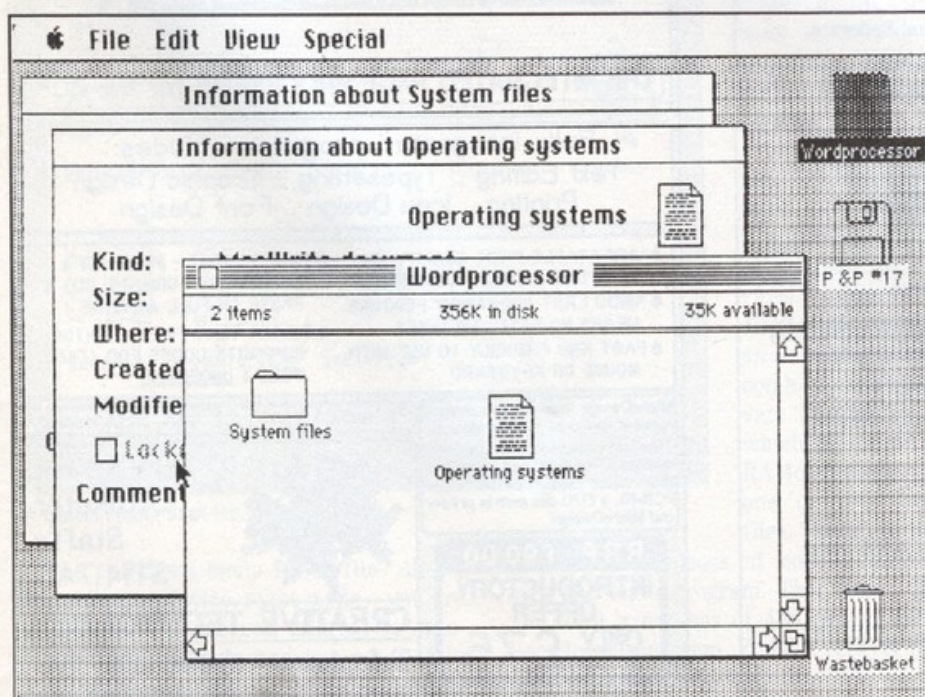
maintain portability - the ability to use the same program on a different machine using the same operating system - the decrease in speed must be suffered, since there is no way of knowing where such things as the screen and character set are

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.



# ONCE BYTTE - "THE P/X PEOPLE"

'PHONE: 01-304 2631  
TELEX: 94070538-ONCE G

## COMPUTERS

Amiga 500 + Modulator + Our NEW Super Software Pack (Ten titles inc. Ban Warriors and Buggy Boy)	£399
Amiga 500 + 10845 Monitor + Software Pack	£949
Amiga 5200 + 10845 Monitor	£1450
Atari 520ST FM 1Mb Drive + £450 Software Pack	£379
1040 ST-FM Super Pack (software as with 520 STFM super pack)	£479
Atari 1040ST-FM + VIP Professional, Microsoft Write and Superbase Personal. The Perfect Business Pack	£479
Atari 4Mb MEGA ST CPU and Keyboard	£1199
Amstrad PC1640 DD Mono + DMP4000 Printer + Wordstar + Supercalc + Accounts Master	£989 inc.
Amstrad PC1512 DD Colour + Ability	£799 inc.
Amstrad PCW6256 Word Processor	£399 inc.
Amstrad PCW9512 Word Processor	£515 inc.
Amstrad PCW9512 Word Processor	£549 inc.
Amstrad 2086 Range in stock, ring for prices	
SBC PCKT 50 Mono (Green or Amber)	£889 inc.
SBC PCKT 50 Mono (Green or Amber)	£799 inc.
SBC PCKT HD Mono 30Mb HDD (Green or Amber)	£1148 inc.
SBC PCAT 50 Mono (Green or Amber)	£1263 inc.
SBC PCAT HD Mono 40Mb HDD (Green or Amber)	£1839 inc.
(Many other SBC computer combinations available. Please ask for full details. ALL SBC computers come with FREE 12 month on-site maintenance contract)	
Commodore 64 Olympic Pack	£149
Commodore 64 Family Entertainment Pack	£199
Commodore 64 Hollywood Pack	£149
Commodore 128 + C2N	£229
Commodore 1280 (Built in Disc Drive)	£399

## PRINTERS

NEW Citizen 180C 9-pin 175cps Draft 30cps NLO	£179
Citizen 1200 9-pin 120cps Draft 25cps NLO	£137.50
Citizen MSP185 9-pin 136cps 160cps Draft 40cps NLO	£239
Citizen HDP40 24-pin 260cps Draft 66cps NLO	£399
Colour Kit for HDP40	£39.95
Citizen HDP45 136cps version of HDP40	£499

## PRINTERS - continued

Epson Printers in stock (G03500, L0500 etc.)	POA
Star Printers in stock (LC10 colour etc.)	POA
Amstrad DMP4000	£359
Amstrad DMP3250 G	£199
Seikosha SL-80AJ 24-pin 135cps Draft 45cps NLO	£339
Atari SUM804 Laser + Interface	£1249
SBC LPS Speedlaser (PC only) inc. 12 months on-site maintenance contract	£1695

## DISCS (LIFETIME GUARANTEE)

3 1/2" DSD UNBRANDED DISCS (MAXELL) including labels	
10 Boxed (in Library Case)	£11.50
100 Bulk	£89
10 Bulk	£9.95
25 Bulk	£24.50
50 Bulk	£47.00
1000 Bulk	£825

## 5 1/4" DSD UNBRANDED DISCS (MADE IN GERMANY)

10 Boxed	£5.95
25 Bulk	£10.50
50 Bulk	£18.50
100 Bulk	£32.50
250 Bulk	£80
500 Bulk	£157
1000 Bulk	£310
5000 Bulk	£1500

(ALL DISCS INCLUDE LABELS, 5 1/4" INCLUDE SLEEVES)

## SOFTWARE

ALL CURRENT GOOD QUALITY SOFTWARE FOR AMIGA, ATARI ST, AND PC IS AVAILABLE FROM US AT LARGE DISCOUNTS. WE ONLY SELL AND RECOMMEND SOFTWARE WE WOULD USE OURSELVES.

## SECONDHAND EQUIPMENT

Atari Mega ST 4Mb	£850
Atari 520STFM (1Mb)	£250
Amiga A1000 + 1081	£495
Amiga 500	£299
Philips 8852 Monitor	£199
ST 3 - 5/5 - 25 Drive	£149
Citizen MSP-15 Printer	£149
Amstrad DMP3160	£149
NEC P2200 Printer	£229
Zenith Supersport	£795
Opus PCII EGA 20Mb	£995
Apricot F1 + Mono	£199

**PART EXCHANGE - WE ARE PART EXCHANGE SPECIALISTS. FOR A REALISTIC QUOTE PLEASE RING OR WRITE. WE ALSO BUY EQUIPMENT FOR CASH.**

**PLEASE NOTE - ALL THE ABOVE PRICES INCLUDE VAT. CARRIAGE IS FREE ON COMPUTER KEYBOARDS, DISCS, DISC DRIVES AND SMALL ACCESSORIES. CARRIAGE FOR PRINTERS IS £5. CARRIAGE FOR MONITORS (WITH OR WITHOUT COMPUTER) IS £10.**

**WE WELCOME OFFICIAL ORDERS FROM SCHOOLS, UNIVERSITIES, HOSPITALS, MEDICAL SCHOOLS AND GOVERNMENT DEPARTMENTS. QUANTITY DISCOUNTS ALWAYS AVAILABLE AND EXPORT ENQUIRIES ARE DEALT WITH SPEEDILY.**

Write to: 59 SWANLEY ROAD, WELLING, KENT DA16 1LL

or 'PHONE: 01-304 2631

Cheques to AMTEN LIMITED

Callers welcome but please 'phone first We are open Mon-Sat 9am-10pm

# DON'T JOIN MATRIX!

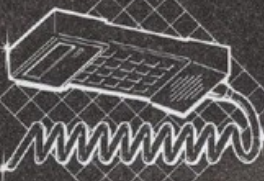
If you don't have a modem...

Matrix is the newest system to hit the Multi-User Communications market in years, and access to it will cost you less than 50 pence a week.

Join the worlds most interesting people on the system that will allow you to share your views and ideas on any subject.

One years subscription, including unlimited access to a wide range of services, costs just £24.95.

Contact us NOW for your FREE information pack.



**MATRIX**  
COMMUNICATION SYSTEMS  
LIMITED

4th Floor • Cross Keys House • 39-41 Moorfields  
Liverpool L2 2BL • Telephone: 051-236 7978

## AMIGA CENTRE SCOTLAND

41 HART STREET LANE, EDINBURGH  
EH1 3RN. Tel: 031-557 4242



## NEW PRODUCTS IN STOCK NOW!

### SCULPT 4D

Fabulous New Features, Truly Professional Software

### FORMS IN FLIGHT 2

Surface Mapping. Surface Patches and more

### Critics Choice

Superb Integrated WP/Spreadsheet/Database System

### 20-100Mb Hard Disc Cards

The very latest cards - attractive prices

### CMI Accelerator Board

Double Speed 68000 Plus Co Processor Slot

### F-BASIC SOURCE LEVEL DEBUGGER (SLDB)

The only debugger quick enough for the F-Basic system

### KINDWORDS VERSION 2

Includes the Thesaurus, new fonts and English Dictionary

### Mini GEN

Genlock for only £99 + V.A.T.

### DIGI-VIEW GOLD

All new! Hardware and Software designed for A500/2000

### PAGE FLIPPER + FX

Full screen image and special effects

MAIL ORDER DEPARTMENT

OPEN TUES-SAT 10-6 pm

Trade Enquiries Welcome

(H26)

## ..GRAPHICS.. DTP.. CAD..

..TECHNICAL DIAGRAMS.. STATIONERY.. LABELLING..

..MAPS.. GREETINGS CARDS.. CAMERA-READY ARTWORK.. PUBLICITY..



## THE INTEGRATED PAGE PROCESSOR for the PC

Fully integrated program includes:  
Text Editing .. Typesetting .. Graphic Design  
Printing .. Icon Design .. Font Design

- ◆ UNBEATABLE PRINT QUALITY ON 9-PIN DOT MATRIX PRINTERS
- ◆ "UNDO LAST OPERATION" FEATURE MEANS NO FATAL MISTAKES
- ◆ FAST AND FRIENDLY TO USE WITH MOUSE OR KEYBOARD

- ◆ PAGE LAYOUT - PORTRAIT & LANDSCAPE FORMATS, CUT & PASTE ON FULL A4 PAGE
- ◆ IMPORT TEXT FILES - EDITOR SUPPORTS CODES FOR *ITALIC* **BOLD** & UNDERLINE

MicroDesign was used to design, typeset and print its own Manual. This advertisement was entirely designed, typeset, and printed at this scale using an Amstrad PC1640, a £170 dot matrix printer and MicroDesign.

REQUIRES MSDOS 3.2, CGA, 512Kb memory

10 Park Street  
Utttoxeter  
Staffs  
ST14 7AG

**CREATIVE TECHNOLOGY**

Telephone 0889 567160

R.R.P. £90.00

INTRODUCTORY

OFFER

ONLY INC. VAT £75

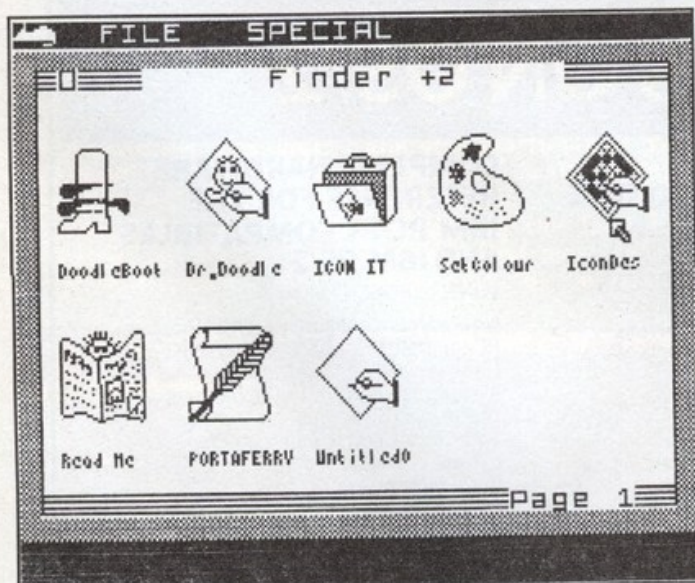


**K**empston is bundling its Spectrum mouse with a program called *Finder* - shades of the Apple Mac - and provided you have a 128K Spectrum, it acts as a front-end in much the same way as the Mac Finder and does it neatly, too. It is in a variety of versions; I had a review copy of the +2 version on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

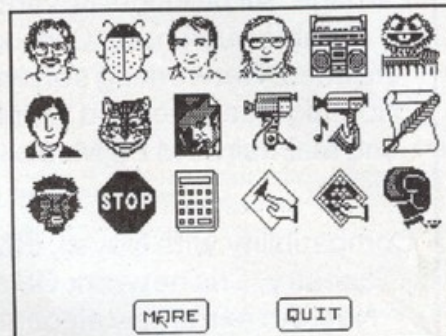
You can save an updated version of the desk-top file or save the notepad file - the one you created from the previous menu. The "special" menu lets you clear the desk-top - wipes off all the icons - selects various input/output devices - such as a second drive and the drawing appears on the main desktop 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.**



## NETWORK!

Simple Solution

Price  
Breakthrough

Per PC

PC/AT/XT Model 200 1.8Mb.....**£199.00**

PS2 Model 200/A 1.8Mb .....**£395.00**

RC/AT/XT Ethernet 10Mb .....**£375.00**

Costs are per machine excluding VAT and carriage. All products covered by 30-day no quibble guarantee. Cabling (30 feet) is included. Networking software is included. Nothing else is needed to link PCs together and maintain IBM PC Metros compatibility.

Compatibility with Novell, IBM PC Lan, Torus Tapestry, Cris network OS and Corvus PC Nos. An extremely elegant system that allows use of all disks on the network.

**WHITEHOUSE CONNECTIONS**

VISA

TO ORDER TEL: 0908 270126



## BEST PRICES ON ATARI, AMIGA & C64 PACKS

RAM DELTA JOYSTICK (R.R.P £999).....£8.95  
STANDARD JOYSTICK .....£4.99  
9 1/2" D500 BULK DISKS ..... £8.99 for 10  
5 1/4" D500 BULK DISKS ..... £3.99 for 10  
3 1/2" & 5 1/4" DISK HEAD CLEANING KITS .....£2.99

SCHNIEDER EURO PC ..... **£453.00**

STAR LC10 PRINTER ..... **£228.00**

IBM PRINTER CABLES ..... **£6.95**

**LARGE SELECTION OF SOFTWARE AT  
COMPETITIVE PRICES**

ORDERS UNDER £10 ADD £1 P&P

NOTHING EXTRA TO PAY

ALL PRICES INCLUDE V.A.T. AND DELIVERY

TRADE ENQUIRIES WELCOME



Callers 091 516 0065



OR send cheque or P.O. with your order

VAT REG: 496 0821 33

BRANDED AND  
UNBRANDED DISKS AT  
COMPETITIVE PRICES

**H.C.L.**

TEL: (091) 516 0065

FAX: (091) 516 0065

**HOBURNE CONSULTANTS LTD**

**9R RIVERSIDE ROAD, SOUTHWICK, SUNDERLAND SR5 3JG**

SPECIALISTS IN THE SUPPLY AND INSTALLATION OF COMPUTER HARDWARE, SOFTWARE AND DATA SUPPLIES



**BRADY BOOKS**

*Mean Business*

## NEW BOOKS ON OS/2

### PETER NORTON'S INSIDE OS/2

ROBERT LAFORE & PETER NORTON

Master the power of OS/2 without losing your way in the complexity. This book takes you from the simplest OS/2 functions through virtual memory management.

1989 400 pages 13-467895-8  
£21.70 Paperback

### MANAGING OS/2 Profiting from Changing Standards

MIKE EDELHART AND DAVID STROM

Microsoft's Operating System/2 licensed by IBM for their new generation of computers, is powerful, complex and confusing. Corporate managers, program developers, networkers and buyers must now cope with two standards: DOS and OS/2. This book will show you how to manage both worlds.

1989 400 pages 13-642893-2  
£21.70 Paperback

### CONVERTING APPLICATIONS TO OS/2

PRODUCTIVITY SOLUTIONS, INC.

This book will explain how to convert applications running under DOS 3.X to be able to run under Microsoft OS/2, bridging the gap between existing software and the requirements of the new operating system.

1989 300 pages 13-171943-2  
£17.35 Paperback

### ADVANCED PROGRAMMER'S GUIDE TO OS/2

THYGEN NGUYEN AND ROBERT MOSKAL

This is for OS/2 programmers who want more than a quick recap of the manual. *Advanced Programmer's Guide to OS/2* covers what programmers really need to fully exploit OS/2.

1989 600 pages 13-642935-1  
£21.70 Paperback

Prices are correct at the time of going to press but may be subject to change.

### COMPLETE HARDWARE REFERENCE FOR THE IBM PC/PC COMPATIBLES AND IBM PS/2

WINN L. ROSCH

Now you can configure your IBM PC, PC compatible for PS/2 with this easy-to-follow, step-by-step approach and hardware reference. This book comprises the total hardware resource for PCs and PS/2s. Use it to understand your current configuration or as a source for deciding how to upgrade your machine for even more power.

1989 400 pages 13-160979-3  
£19.10 Paperback

For more information on these and other titles please write to Jean Walmsley at the address below.



**PRENTICE HALL**

66 Wood Lane End, Hemel Hempstead,  
Hertfordshire, HP2 4RG, England.  
SIMON & SCHUSTER INTERNATIONAL GROUP





## Mission of mercy

The latest adventure in the *King's Quest* saga features the adventures of the King's daughter Rosella. In a quest for a healing fruit for her ailing father and a magic talisman stolen recently by the wicked witch, Rosella is transported magically to a strange land where she will encounter beings both good and incredibly evil.

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.

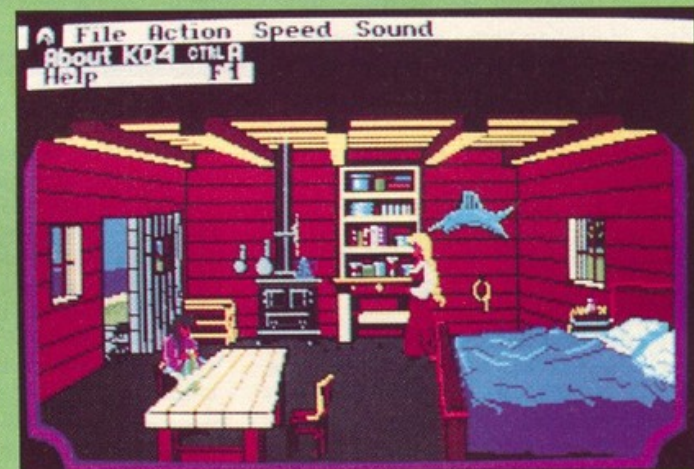
Further adventures are available by entering the sea. That is not without its dangers, because if the sharks do not get you the whales will - and being

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

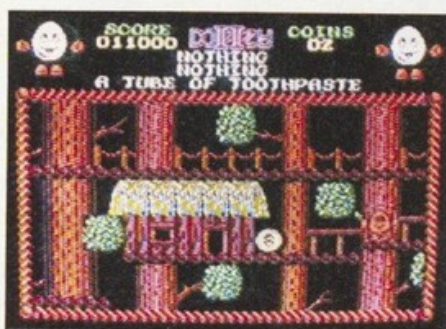
which is not a strong point with many PC machines, although it is possible to boost the sonics with an extra piece of hardware, supplied of course by Sierra.

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

**91**







## Treasure Island Dizzy - Spectrum

**D**izzy 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

**P**laying 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 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

**T**he 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.

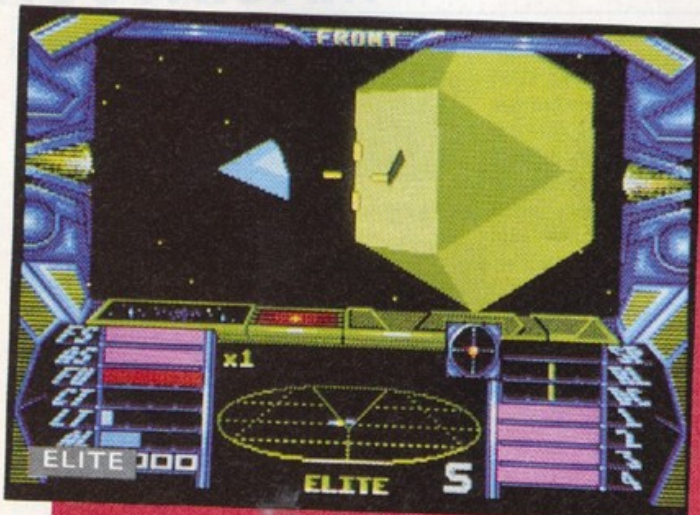
The awards are particularly well-regarded by the industry as they are voted for exclusively by adventurers.

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.



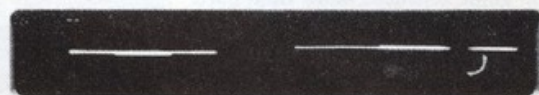
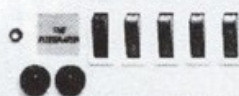


# CONDOR HARD DISK SYSTEM THE INTEGRATER

A complete hard disk system packaged in a Cabinet matching your Atari 520ST, 1040ST or Mega. The Basic 'INTEGRATER' included.

# NEW

- 20 MEGA BYTE HARD DISK
- 3.5" FLOPPY DRIVE
- REAL TIME CLOCK
- MONITOR A/B SWITCH
- MULTISYNCH MONITOR CONTROLLER
- AC POWER STATION WITH 4 SWITCH SOCKETS
- SURGE PROTECTOR
- COOLING FAN
- SOFTWARE AMP CABLES INCLUDED
- FLOPPY DISK SWITCH



**PRICE**  
**£649.00**  
+ VAT

# TROIKA

THE ULTIMATE ATARI ST OFFICE WORK STATION

**RUN ALL SOFTWARE DIRECTLY FOR**

Now run the finest software available for Atari ST, MS-DOS and Macintosh<sup>+</sup>, right out of the box on one fully integrated system.

**ATARI ST  
MS-DOS  
MACINTOSH<sup>+</sup>**

INDIVIDUAL  
COMPONENTS  
RRP

## COMPLETE SYSTEM INCLUDED

£ 500.00	• ATARI 1040 ST
£ 800.00	• XT PROCESSOR BOARD WITH 512K RAM
£1500.00	• MACINTOSH <sup>+</sup> EMULATOR
£ 600.00	• 30 MEG DISK (SCSI)
£ 100.00	• 2ND 3.5" DRIVE
£ 120.00	• 3RD 5.25" DRIVE
£ 500.00	• MULTISYNCH MONITOR
£ 40.00	• MONITOR A/B SWITCH
£ 50.00	• FLOPPY SWITCH
£ 100.00	• AC POWER STATION
£ 40.00	• REAL TIME CLOCK
<b>£4350.00</b>	



**£2499.00**



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

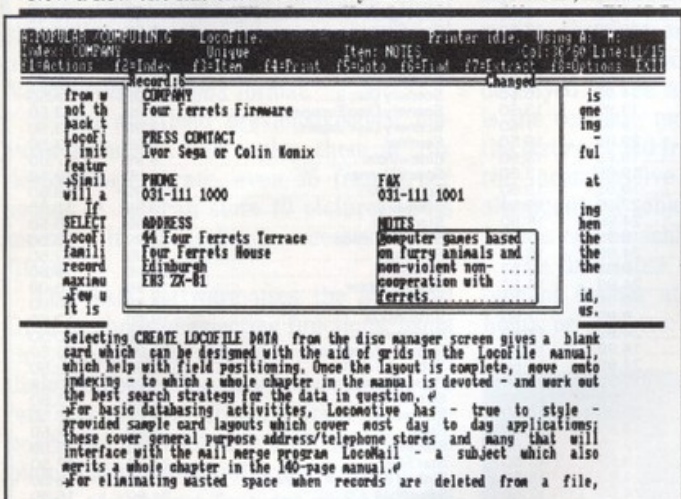


Figure 1. A LocoFile record pulled up into LocoScript word processor.

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

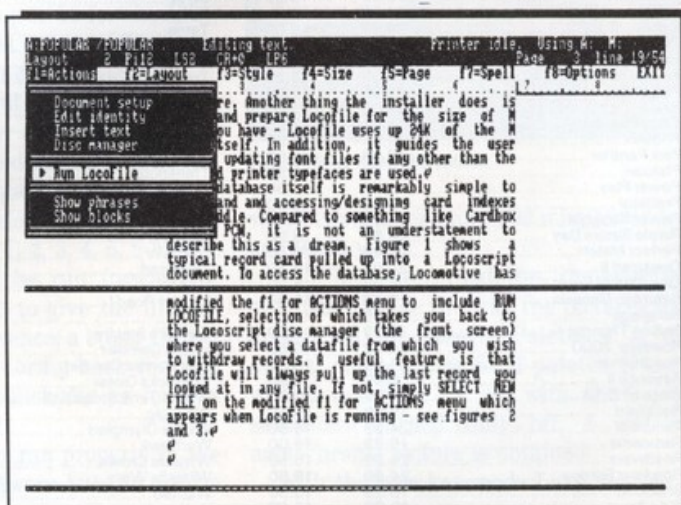


Figure 2. Select f1 in a document and run LocoFile...

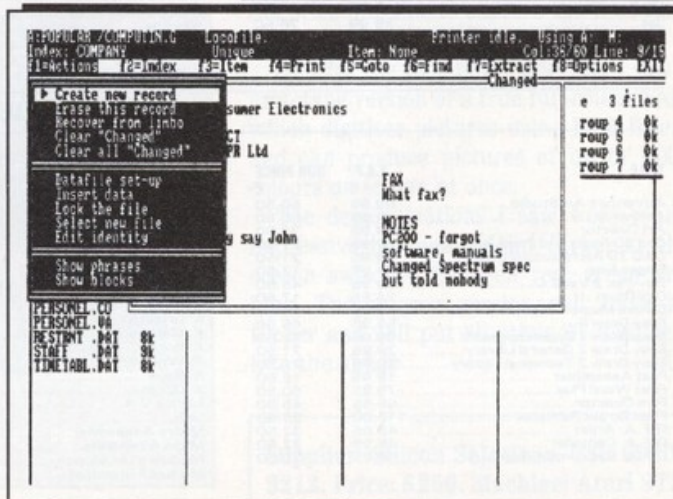


Figure 3. ... and it's back to the disc manager to select a database.





# ST SPECIALISTS

Unit 2A, Willowsea Farm, Spout Lane North,  
Stanwell Moor, Staines, Middx TW19 6BW

Telephone: 0753 683965



## NEW RELEASES

TITLE	S.S.P.	OUR PRICE	TITLE	S.S.P.	OUR PRICE	TITLE	S.S.P.	OUR PRICE
Hellfire Attack	24.99	17.50	Fahrenheit 451	24.99	16.50	Joan of Arc	19.99	13.50
Lords of Conquest	24.99	17.50	Firezone	24.99	16.50	Espionage	19.99	13.50
Starfleet	24.99	17.50	Kennedy Approach	24.99	16.50	Batman	19.99	13.50
Hostages	24.99	16.50	Munsters	19.99	13.50	Manhunter	29.99	19.50
Operation Wolf	24.99	16.50	Mini Golf	19.99	18.50	Advance Ruby Sim.	19.99	13.50
Afterburner	24.99	16.50	Night Hunter	24.99	17.50	Crazy Cars II	19.99	13.50
Falcon	29.99	19.50						

## SOFTWARE LIST

TITLE	S.S.P.	OUR PRICE	TITLE	S.S.P.	OUR PRICE	TITLE	S.S.P.	OUR PRICE
Alien Syndrome	19.95	13.50	Jewels of Darkness	19.99	13.50	Sky Fighter	14.99	10.50
Arcade Force Four	24.99	19.50	Joe Blade II	19.99	13.50	Slap Fight	19.99	13.50
Arkanoïd II	19.99	13.50	Juggler	24.99	16.50	Space Quest I	19.99	13.50
Armageddon Man	19.99	14.50	Killdozer	19.99	13.50	Star Trek	19.99	13.50
Barbarian	24.99	16.50	Knight Orc	19.95	13.50	Scenery Disc 7	19.99	13.50
Barbarian	19.99	10.50	Kings Quest Pk	24.99	16.50	Scenery Disc II	19.99	13.50
Bards Tale 1	24.99	17.50	Knightmare	19.99	13.50	Scenery Disc European	19.99	13.50
Better Dead Than Alien	19.95	13.50	Las Vegas	9.99	7.50	Scenery Disc Japan	19.99	13.50
Beyond The Ice Palace	19.99	13.50	Leather Goddess	29.99	19.50	Sentinel	19.99	13.50
Bionic Commando	19.99	16.00	Leatherneck	19.99	13.50	Sidewinder	9.99	7.50
BMX Simulator	14.99	10.50	Leisure Suit Larry	19.99	13.50	Space Harrier	19.99	13.50
Bubble Bobble	19.99	13.50	Living Daylights	19.99	13.50	Spitfire 40	24.99	16.50
Buggy Boy	19.99	13.50	Lurking Horror	29.99	18.50	Starwars	19.99	13.50
Bomb Jack	19.95	13.50	Legend of the Sword	24.99	16.50	Starglider	24.99	16.50
Borrowed Time	24.99	16.50	Mach III	19.99	13.50	Stellar Crusade	34.99	26.50
Bureaucracy	34.99	26.50	Mercenary Compendium	24.99	16.50	Str Crazy	19.99	13.50
Captain Blood	24.99	16.50	Mickey Mouse	19.99	13.50	STOS	29.99	19.50
Casino Roulette	19.99	13.50	Mind Fighter	24.99	16.50	Street Fighter	19.99	16.00
Chessmaster 2000	24.99	17.50	Metrocross	19.99	13.50	Street Gang	14.99	10.50
Chubby Gristle	19.99	13.50	Mission Genocide	9.99	7.50	Strip Poker	19.50	13.50
Corruption	24.99	16.50	Mean 18	24.99	17.50	Strip Poker II	14.99	10.50
Carrier Command	24.99	16.50	Maria's Xmas Box	14.99	10.50	Summer Olympiad	19.99	13.50
Champion Wrestling	19.99	16.00	Moebius	24.99	16.50	Super Hang-On	19.99	13.50
Champion Water Ski	19.99	16.00	Marble Madness	19.99	14.50	Super Sprint	14.99	10.50
Chess	24.99	16.50	Mind Forever Voyaging	29.99	19.50	Super Ace	19.99	13.50
Crash Garrett	19.99	13.50	Maniac's Diary	19.99	16.50	Soccer Supremo	14.99	10.50
Dark Castle	24.99	16.50	Netherworld	19.99	16.00	Staff	19.99	13.50
Defender Of The Crown	29.99	19.50	Night Raider	19.99	13.50	Stardog	19.99	13.50
Dungeon Master	24.99	16.50	Northstar	19.99	13.50	Star Fleet	24.99	17.50
Deflector	19.99	16.00	Nord and Bert	24.99	16.50	Sinbad & Throne of Falcons	24.99	16.50
Daley Thompson	19.99	13.50	Nigel Mansell's GP	24.99	17.50	Speedball	24.99	16.50
Deluxe Scrabble	19.99	13.50	Obliterator	24.99	16.50	Superman	24.99	16.50
Deja Vu	29.99	19.50	Out Run	19.95	16.00	ST Karate	19.99	13.50
Diablo	14.99	10.50	Overlander	19.99	13.50	Skrull	24.99	16.50
Dizzy Wizard	19.99	13.50	Off Shore Warrior	24.99	16.50	Tanglewood	19.99	13.50
Elf	19.99	13.50	Ogre	24.99	16.50	Tetris	19.99	13.50
Eco	19.99	13.50	Puffys Saga	24.99	17.50	Thrust	24.99	16.50
Eddie Edwards Ski	19.99	13.50	Powerdrome	24.99	17.50	Tractor	24.99	10.50
Elite	24.99	16.50	Pacmania	19.99	13.50	Turbo Cup	19.99	13.50
Empire Strikes Back	19.99	13.50	Pandora	19.99	13.50	Thundercats	19.99	13.50
Extensor	9.99	7.50	Pawn	19.99	13.50	Time and Magik	19.99	13.50
Fire & Forget	24.99	16.50	Peter Beardsley	19.99	13.50	Terramex	19.99	13.50
Flight Sim II	39.99	26.50	Phoenix	19.99	13.50	Terrorpods	24.99	16.50
Football Manager II	19.99	13.50	Pink Panther	19.99	13.50	Transputer	24.99	16.50
Flintstones	19.99	13.50	Platoon	19.99	13.50	Thunder Blade	24.99	19.50
Foundation Waste	24.99	16.50	Power Play	19.99	13.50	Techno Cop	24.99	19.50
Fernandez Must Die	24.99	16.50	Predator	19.99	13.50	Times of Lore	24.99	16.50
Formula One	19.99	13.50	Power Struggle	14.99	10.50	Ultima III	24.99	16.50
Guild Of Thieves	24.99	16.50	Purple Saturn Day	24.99	16.50	Ultima IV	24.99	16.50
Gunship	24.99	16.50	Perfect Match	24.99	16.50	Uninvited	24.99	16.50
Get Dexter II	19.99	13.50	Question II	24.99	19.50	U.M.S.	24.99	16.50
Gauntlet II	24.99	19.50	Question of Sport	19.99	16.50	Victory Road	24.99	16.50
Gary Linekers S/Skills	19.99	13.50	Return to Genesis	19.99	13.50	Virus	19.99	13.50
Gold Runner II	19.99	13.50	Rampage	14.99	10.50	Vampire Empire	19.99	13.50
Garfield	19.99	13.50	Rolling Thunder	19.99	16.50	Vegas Gambler	24.99	16.50
Hollywood Poker Plus	14.99	10.50	Roadwar 2000	24.99	19.50	War Games Con Set	24.99	16.50
Hardball	24.99	16.50	Roadrunner	24.99	16.50	Warlocks Quest	19.99	13.50
Hollywood Hijinx	29.99	19.50	Revenge II	9.99	7.50	Where Time Stood Still	19.99	13.50
Hollywood Poker	14.99	10.50	Rings of Ziffin	24.99	16.50	Whirligig	19.99	13.50
Helter Skelter	14.99	10.50	Rockford	19.99	13.50	Winter Olympiad	19.99	13.50
Hot Shot	19.99	13.50	Rambo III	24.99	16.50	Warhawk	9.99	7.50
Ikari Warriors	14.99	10.50	Ranarama	19.99	16.00	Wizards Crown	24.99	16.50
Impact	14.95	10.50	Roadwars	24.99	16.50	Wizards Warz	19.99	13.50
Impossible Mission II	19.99	16.50	Roadwar Europa	24.99	19.50	Wanted	19.99	13.50
Insanity Fight	24.99	16.50	Shackled	19.99	13.50	Xenon	19.99	13.50
Int'l Soccer	24.99	16.50	Side Arms	19.99	16.00	Xenious	24.99	16.50
1KI	24.99	16.50	Silent Service	24.99	16.50	Zynops	19.99	16.00
I Ball	9.99	7.50	Sapiers	19.99	13.50	20000 Leagues Under the Sea	19.99	13.50
Jet	39.99	26.50	Sky Fox	14.99	12.50			

## UTILITIES

TITLE	S.S.P.	OUR PRICE	TITLE	S.S.P.	OUR PRICE	TITLE	S.S.P.	OUR PRICE
Adventure Art Studio	69.99	50.50	G.F.A. Draft	99.99	72.50	Music Studio	24.99	21.50
Animator	79.95	60.50	G.F.A. Draft Plus	139.95	115.00	M.C.C. Pascal	89.99	69.50
Art Director	49.95	32.50	G.F.A. Sheet	45.99	32.50	Paintworks	34.95	26.50
Cad 3D Fonts and Printives	29.95	21.50	G.F.A. Vector	34.95	26.50	Power Basics	39.99	26.50
CAD 3D Architectural Design	29.95	21.50	Graphic Sheet	59.99	45.50	Publishing Partner	159.99	115.50
Degas Elite	24.95	17.50	G.S.T. C Compiler	24.95	17.50	Sage Accountant	171.95	150.50
Dev-Pac 2 Ver 2.0	59.95	45.50	K. Spread II	79.95	60.50	Sage Accountant Plus	228.85	175.50
Digi Drum	24.95	17.50	K. Data	49.99	32.50	Sage Book Keeper	113.99	85.50
Deluxe Music Construction Set	69.95	50.50	K. Graph II	49.99	32.50	Saved	29.99	21.50
Easy Draw II	59.95	45.50	K. Minstral	29.95	21.50	ST Data Manager	79.99	60.50
Easy Draw II Supercharged V	99.99	72.50	K. Roget	49.99	32.50	ST Swift Calc	79.99	60.50
Easy Draw 2 General Library	29.95	21.50	K. Word II	59.95	45.50	ST Word Writer	79.99	60.50
Easy Draw 2 Technical Library	29.95	21.50	K. Segal	49.95	32.50	ST Doctor	19.95	16.50
Fast Assembler	19.95	16.50	K. Occam	59.99	45.50	ST Replay	79.99	60.50
First Word Plus	79.95	60.50	Lattice V.4	Please ring	for details	Super Conductor	49.99	32.50
Film Director	59.95	45.50	Lisp	89.95	69.50	Superbase Personal	99.95	72.50
Fleet Street Publisher	115.00	95.50	Macro Assembler	24.99	17.50	Timeworks DTP	99.95	72.50
G.F.A. Artist	49.95	32.50	Maps & Legends	29.99	21.50	Timeworks Partner	49.95	32.50
G.F.A. Compiler	45.99	32.50	Module II Developer	149.95	110.50	Trimbase	89.95	70.50
G.F.A. Basic Interpreter V.3	45.95	32.50	Module II Standard	99.95	72.50	V.I.P. Professional	149.99	110.50
						Word Perfect	228.99	175.50



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. ☐

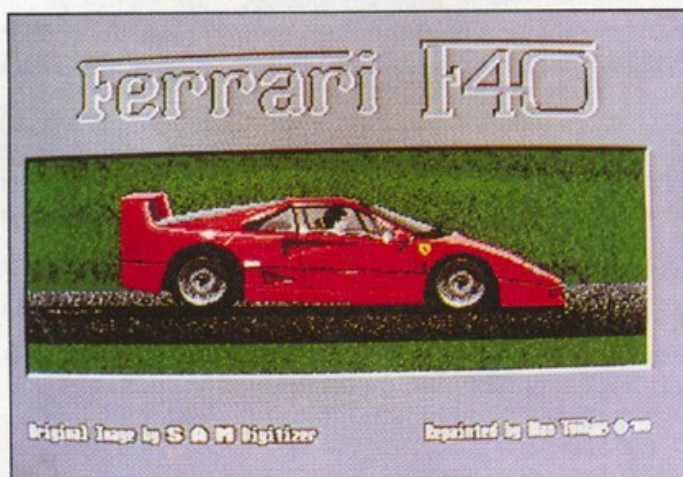


Stevie Nicks eyes the motor.

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



Better than Turbo-Dizer?

Supplier: Silicon Solutions. Tel: 0920 3212. Price: \$250. Machine: Atari ST.



# **COMPUTER TRADING COMPANY**

The First Floor, 62 Westow Hill  
Crystal Palace, London SE19  
Tel: 01-761 4687/0860 225058

## **Amiga A500**

inc. MODULATOR  
also inc. SOFTWARE £339.00 + VAT

## **Amiga A500**

inc. 1084 COLOUR MONITOR  
also inc. SOFTWARE £529.00 + VAT

**NEXT DAY DELIVERY AVAILABLE  
ON ALL COMPUTERS**

### **AMIGA**

#### *OUR PRICE*

Rocket Ranger .....	£21.95
Starglider II .....	£18.95
Daley Thompson Challenge .....	£16.95

### **ATARI ST**

#### *OUR PRICE*

Elite.....	£17.50
Five Star.....	£17.50
Starglider II .....	£18.75



(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

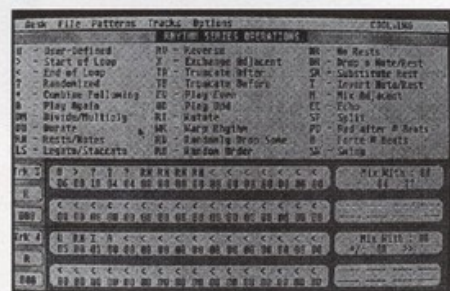
The basic building blocks of Ludwig are "user-defined patterns". These are in three types, one for each musical property. In the cases of the pitch and rhythm, each pattern can contain up to 32 items - individual notes and chords for the pitch patterns; note lengths and pauses for the rhythm patterns. 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-



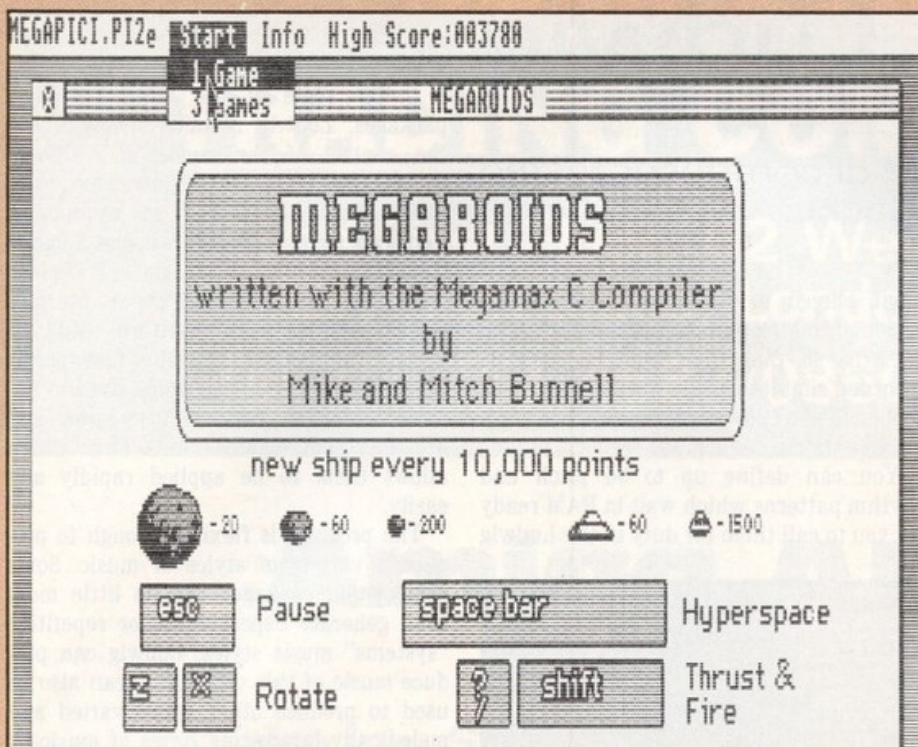
The program's canine namesake is wearing shades.

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.

**Syndromic Music, 31-36 Avenue Mews, London N18 3NP.  
Tel: 01-883 1335.**





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.

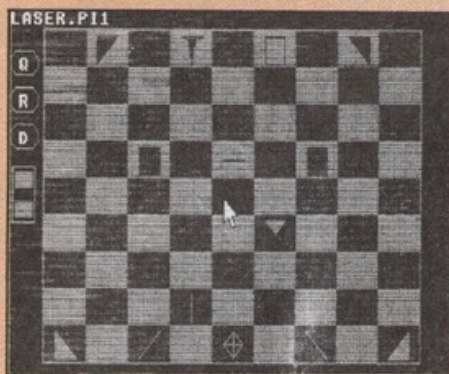
*Megaroids* is not a nasty disease but an excellent variation on the *Asteroids* theme. The graphics are very good and the game is a good shoot-'em-up example. An added bonus is that it was written in

## 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.

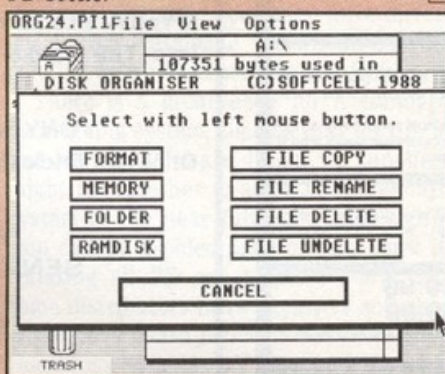
Naturally, your opponent may place his pieces to reflect your laser beam in a different way. In addition to all this, the centre square transports a piece into hyperspace and it will reappear, randomly, elsewhere on the board.

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 ►



## DESIGNMAKER LTD



GAMES SOFTWARE  
DEVELOPMENT AGENCY SEEKS:  
GAMES, PROGRAMMERS, ARTISTS  
AND MUSICIANS  
FOR 1989

TERMS: 15% FOR COMPLETED GAMES  
FREE ADVICE GIVEN

CONTACT RICHARD ON 0792-654899

OR

WRITE WITH CV TO: **DML**  
19 ST. HELENS AVENUE  
SWANSEA SA1 4ND

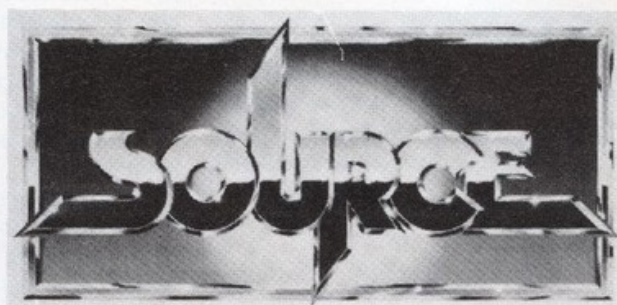
(H104)

## LEADING GAMES SOFTWARE DEVELOPMENT COMPANY REQUIRE 68000/8086/ Z80 AND 6502 ASSEMBLY LANGUAGE PROGRAMMERS

Our company is currently coding major games titles for leading publishing companies. First class development equipment, excellent salaries and relocation expenses are paid.

Source would also like to hear from  
**TALENTED GRAPHIC ARTISTS AND  
MUSICIANS.**

Telephone us now on 0943 467511 for  
further information



Lencett House, 45 Boroughgate  
Otley LS21 1AG

(H117)

## FOR SALE

### PUBLIC DOMAIN SOFTWARE AND SHAREWARE

Extensive ranges of Public Domain Software & Shareware available  
for the following Computers:

#### IBM PC & Compatibles

including Amstrads  
£2.95 per 5.25" disk £4.50 per 3.5" disk

#### Apple MACINTOSH range

£4.99 per disk

#### COMMODORE 64 & 128

at £2.95 per 5.25" disk

#### Commodore AMIGA

from £3 per disk

#### Atari ST

from £2.80 per disk

#### CATALOGUES

Catalogues and lists are available for all the above. Please send SAE or phone if you would like us to send you one, or if you would like any further details. Please state clearly which machine(s) you are interested in. Please note that we have probably the largest and fastest growing collections of PD software for the Amiga in the UK. Details are included on TWO catalogue disks which are £3 each. These can be updated in the future FREE of charge.

#### ORDERING

Please note that the above prices are FULLY INCLUSIVE of VAT and postage. Orders are normally dispatched within two working days of receipt. We cannot accept payment by credit card.

AMIGA A500..... £349.99

ATARI 520STFM ..... £259.99

Prices are inclusive of VAT. Full range of software and peripherals available. Please phone for competitive prices.

**KINGSWAY COMPUTERS**  
140 Rushdale Road, Sheffield, S8 9GE  
Telephone: 0742 588429

## Sentient Software Ltd.

(Established 1984)

### Require

#### In-House Programmers

fully conversant in at least one of the following:

Z-80 (Spectrum / Amstrad / MSX)  
6502 (Atari ST / Commodore Amiga)  
68000 (Atari ST / Commodore Amiga)  
8086 (IBM PC & Compatibles)

We Offer State Of The Art Development Systems,  
Experienced Back-Up  
And Good Remuneration For Your Services.

If You Are Looking For A Change Or A Chance To Break  
Into The Ranks Of Professional Programming Then

Contact:

TONY FAGELMAN on 0532 791136

Or Write Enclosing Your C.V. And Examples Of Your  
Work To:

**TONY FAGELMAN**  
**SENTIENT SOFTWARE LTD**  
DEPT. PCW  
BRANCH HOUSE  
18 BRANCH ROAD  
ARMLEY, LEEDS  
WEST YORKSHIRE  
LS12 3AQ

(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. □



# Micro Mountain!!



TEL 0525 853333  
24 HOUR ORDERLINE

## UNBRANDED DISCS

100% Certified & Lifetime Guarantee including sleeves, labels and WP Tabs

NO HIDDEN EXTRAS

## DISK BOXES

	D SIDE 50 TPI	PLUS DP100 DISC BOX	D SIDE 96 TPI	PLUS DP100 DISC BOX	D SIDE HD 1.6	PLUS DP100 DISC BOX
5 1/4"						
25	£9.50	£16.25	£10.50	£17.25	£23.75	£29.95
50	£17.50	£24.00	£18.50	£25.00	£46.49	£51.49
100	£33.00	£38.00	£34.00	£39.00	£89.95	£93.95
3 1/2"						
25	£22.00	£28.45	£24.00	£30.45	£61.25	£66.75
50	£40.00	£46.50	£46.00	£52.50	£120.50	£123.95
100	£75.00	£80.00	£85.00	£90.00	£238.95	£239.95

VAT INCLUDED  
FREE CARRIAGE  
ON ALL ORDERS  
OVER £10.00  
ALL PRODUCTS  
CARRY OUR  
NO-QUIBBLE  
REPLACEMENT  
FOR LIFE  
GUARANTEE.

DP020	20 x 3"	£8.95
DP040	40 x 3.5"	£4.95
DP080	80 x 3.5"	£6.95
DP050	50 x 5.25"	£4.95
DP100	100 x 5.25"	£6.95
DP140	140 x 5.25"	£7.95

## LABELS

3 1/2 X 1 7/16  
TRACTOR/FRICTION  
£4.99/1000

TO ORDER  
TEL: 0525 853333

## BRANDED DISKS, TOP BRANDS, BEST PRICES, SHIPPED TODAY.

	3M	DYSAN	VERBATIM	3" AMSOFT
5 1/4"				
	10 50 100	10 50 100	10 50 100	
DS48	£7.49 £34.45 £66.90	£9.35 £38.75 £75.49	£7.99 £36.95 £71.90	
DS96	£13.15 £62.75 £123.50	£10.15 £47.75 £93.49	£12.35 £58.75 £115.50	
DS HD	£14.25 £66.25 £130.50	£11.99 £54.95 £107.90	£14.49 £67.45 £132.90	
INCL DP100 DISC BOX	ADD ADD ADD	ADD ADD ADD	ADD ADD ADD	
	£5.95 £4.95 £3.95	£5.95 £4.95 £3.95	£5.95 £4.95 £3.95	
3 1/2"				
	10 50 100	10 50 100	10 50 100	
DS135	£15.35 £73.75 £145.49	£14.49 £69.45 £136.90	£13.85 £66.25 £130.49	£14.35 £68.75 £135.50
DSHD	£44.20 £215.95 £429.90	£38.15 £185.75 £369.45	£36.69 £178.45 £354.90	£39.99 £194.95 £387.90
INC DP080 DISC BOX	ADD ADD ADD	ADD ADD ADD	ADD ADD ADD	ADD ADD ADD
	£5.95 £4.95 £3.95	£5.95 £4.95 £3.95	£5.95 £4.95 £3.95	£5.95 £4.95 £3.95

D/SIDED  
£1.99 each  
Packed  
in 10's

WE ALSO SUPPLY RIBBONS, LISTING PAPER, IBM PRINTER CABLES FROM £7.95 AND MUCH MORE.

MICRO MOUNTAIN 0525 853333 (10 lines). FAX: 0525 850485.  
DATAPRO HOUSE, NORTH STREET, LEIGHTON BUZZARD, BEDS LU7 7EQ.

PLEASE SUPPLY.....

MY COMPUTER IS.....

I ENCLOSE CHEQUE/ PO for £.....

OR CHARGE MY ACCESS/ VISA NO. EXPIRY DATE.....

CARRIAGE £2 BUT FREE ON ALL ORDERS OVER £10.

NAME.....

ADDRESS.....

POSTCODE..... DAYTIME TEL NO. .... MCM 12/1.

# BLAKELY COMPUTER SERVICES

★ ALL PRICES INCLUDE VAT + DELIVERY ★

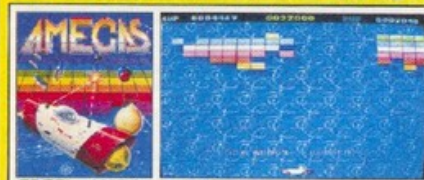
AMSTRAD PC 2000 SERIES NOW IN STOCK.

WE CURRENTLY HOLD THE CHEAPEST PRICES ON ATARI, COMMODORE, ZENITH & SHARP COMPUTERS.

PCW SOFTWARE	PPC	PAPER	DISKS
Locoscript II ..... 18.50	PPC 512S ..... 430.00	ALL PAPER PRICES FOR 2000 SHEETS	ALL DISKS UNBRANDED AND GUARANTEED
Locospell ..... 18.50	PPC 512 ..... 522.00	11 x 9.5 80 gsm ..... 20.70	
Mail Merge ..... 18.50	PPC 640S ..... 516.00	11 x 9.5 80 gsm ..... 22.00	
Datatore ..... 28.50	PPC 640D ..... 610.00	11 x 9.5 60 gsm ..... 14.90	
Database II ..... 77.00		11 x 14.5 60 gsm ..... 18.50	
Mini Office Pro ..... 21.95		A4 80 gsm ..... 22.00	
Locomail ..... 25.00		11 x 8.5 60 gsm ..... 16.00	
		11 x 8.5 80 gsm ..... 20.00	
PC 1640	PCW	PRINTERS	5 1/4" DSDD 96 TPI
Single Mono ..... 520.00	8256 ..... 370.00	Panasonic ..... 179.00	PRICES INCLUDE 100 CAPACITY STORAGE BOX
Double Mono ..... 673.00	8512 ..... 470.00	Panasonic 1082 ..... 219.00	
Single Colour ..... 667.00	9512 ..... 520.00	Micro Peripherals 135 ..... 144.00	
Double Colour ..... 820.00		Micro Peripherals 165 ..... 272.50	
Single ECG ..... 814.00		Micro Peripherals 200 ..... 279.50	
Double EEG ..... 905.00		Canon 1080A ..... 314.00	
20Mb Hardrive Mono ..... 977.00		Juki 6100 ..... 316.00	
20Mb Hardrive Colour ..... 1124.00		LQ3500 ..... 299.00	
20Mb Hardrive ECG ..... 1270.00		LQ500 ..... 425.00	
1640 + 32Mb Hardcard add £300		MP 135+ ..... 155.00	
DESK TOP PUBLISHERS	RIBBONS	ACCESSORIES	AMSOFT 3" CF2
Desktop Publisher + Mouse ..... 69.50	8256/8512 Fabric ..... 3.50	Mouse Mat ..... 4.99	
Desktop Publisher ..... 27.50	8256/8512 Carbon ..... 4.75	Surge Protection Plug ..... 14.99	
Newsdesk International + Mouse ..... 77.00	9512 Multi Strike ..... 3.90		
Stop Press + Mouse ..... 77.00	DMP 2000/3000 ..... 3.45		
Fleet Street Editor ..... 59.95	DMP 4000 ..... 3.50		
	For larger quantities phone for quote.		
	DISK BOXES	HOW TO ORDER	★ ACCESS/VISA ★ TELEPHONE 08206 38779 24 HOURS
	3" 25 capacity ..... 6.75	★ CHEQUES/P.O. TO ★ BLAKELY COMPUTER SERVICES RATHFRILAND BT34 5HQ	
	3" 48 capacity ..... 8.95		
	PCW ACCESSORIES		
	1Mb Disk Drive Upgrade for all machines ..... 150.00		
	RS 232 Interface For 8000 Series ..... 62.00		



# FREE! TENSTAR PACK WORTH OVER £229!



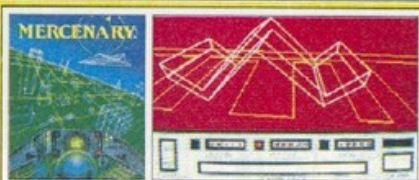
FREE! - AMEGAS - by Players



FREE! - INSANITY FIGHT - by Microdeal



FREE! - ART OF CHESS - by SPA



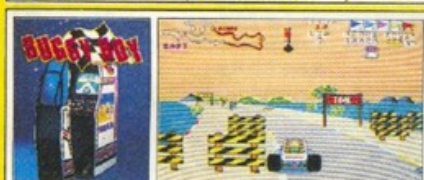
FREE! - MERCENARY COMP - by Novagen



FREE! - BARBARIAN, ULT WARRIOR - by Palace



FREE! - TERRORPODS - by Psygnosis



FREE! - BUGGY BOY - by Elite



FREE! - THUNDERCATS - by Elite



FREE! - IKARI WARRIORS - by Elite



FREE! - WIZBALL - by Ocean

# Commodore AMIGA



**ONLY £3.34 PER WEEK**  
RETURN COUPON FOR DETAILS

# £346.95

+VAT= £399  
INCLUDES FREE UK DELIVERY

The Amiga 500 is one of a new breed of technologically advanced computers, which are now emerging as the new standard for home computing, based around the new Motorola 68000 chip. The A500 has 512K RAM and a 1Mbyte double sided disk drive built-in. It can be connected directly to a wide range of monitors, or to a domestic TV set through a TV modulator. Designed with the user in mind, the A500 features a user friendly WIMP environment and comes supplied with a free mouse. And, when you buy your Amiga from Silica Shop, the UK's No1 Amiga specialists, you will experience an after sales service that is second to none, including a technical support helpline and free newsletters and price lists. Return the coupon below for our current information pack, which will give details of the Silica service and the very latest Silica Amiga offers. E&OE.

## WHY SILICA SHOP?

Before you decide when to buy your new Commodore Amiga computer, we suggest you consider very carefully WHERE you buy it. There are MANY companies who can offer you a computer, a few peripherals and the top ten selling titles. There are FEWER companies who can offer a wide range of products for your computer as well as expert advice and help when you need it. There is ONLY ONE company who can provide the largest range of Amiga related products in the UK, a full time specialist technical helpline and in-depth after sales support, including free newsletters and brochures delivered to your door for as long as you require after you purchase your computer. That one company is Silica Shop. We have been established in the home computer field for ten years and can now claim to meet our customers requirements with an accuracy and understanding which is second to none. Here are just some of the things we can offer you:

**THE FULL STOCK RANGE:** The largest range of Amiga related peripherals, accessories, books and software in the UK.

**AFTER SALES SUPPORT:** The staff at Silica Shop are dedicated to help you to get the best from your Amiga.

**FREE NEWSLETTERS:** Mailed direct to your home as soon as we print them, featuring offers and latest releases.

**FREE OVERNIGHT DELIVERY:** On all hardware orders shipped to Silica Shop customers within the UK mainland.

**PRICE MATCH PROMISE:** We will normally match our competitors offers on a 'same product same price' basis.

**FREE TECHNICAL HELPLINE:** Full time team of Amiga technical experts to help you with your technical queries.

But don't just take our word for it. Complete and return the coupon below for our latest Amiga literature and begin to experience the Silica Shop specialist Amiga service.

## PHOTON PAINT PACK

A500 Computer	£399.99
TV Modulator	£24.99
Photon Paint	£69.95
TenStar Pack	£229.50
<b>TOTAL RRP:</b>	<b>£724.43</b>
<b>LESS DISCOUNT:</b>	<b>£325.43</b>
<b>PACK PRICE INC VAT:</b>	<b>£399</b>

## 1084S MONITOR PACK

A500 Computer	£399.99
1084S Colour Monitor	£299.99
Photon Paint	£69.95
TenStar Pack	£229.50
<b>TOTAL RRP:</b>	<b>£999.43</b>
<b>LESS DISCOUNT:</b>	<b>£350.43</b>
<b>PACK PRICE INC VAT:</b>	<b>£649</b>

## FREE FROM SILICA

When you buy the Amiga 500 from Silica Shop, you will not only get a high power, value for money computer, we will also give you some spectacular free gifts. First of all, we are now including a TV modulator with every A500 stand alone keyboard, so you can plug your Amiga straight into your TV at home (the modulator is not included with the A500+A1084S pack as it is not required for use with monitors). Secondly, we have added a free copy of Photon Paint, an advanced graphics package with an RRP of £69.95. Last (and by no means least!), so that you can be up and running straight away, we are giving away the sensational TENSTAR GAMES PACK with every A500 purchased at Silica Shop. This pack features ten top Amiga titles which have a combined RRP of nearly £230! Return the coupon for details.

## FREE TENSTAR PACK

Amegas	£14.95
Art Of Chess	£24.95
Barbarian, Ult Warrior	£19.95
Buggy Boy	£24.95
Ikari Warriors	£24.95
Insanity Fight	£24.95
Mercenary Comp	£19.95
Terrorpods	£24.95
Thundercats	£24.95
Wizball	£24.95
<b>TOTAL RRP:</b>	<b>£229.50</b>

**TOTAL RRP: £229.50 INC VAT**

## DO YOU OWN AN AMIGA?

If you already own an Amiga computer and would like to be registered on our mailing list as an Amiga user, let us know. We will be pleased to send you copies of our price lists and newsletters FREE OF CHARGE as they become available. Complete the coupon and return it to our Sidcup branch and begin experiencing a specialist Amiga service that is second to none.

## SILICA SHOP:

<b>SIDCUP (&amp; Mail Order)</b>	<b>01-309 1111</b>
1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX	
OPEN: MON-SAT 9am - 5.30pm	LATE NIGHT: FRIDAY 9am - 7pm
<b>LONDON</b>	<b>01-580 4000</b>
52 Tottenham Court Road, London, W1P 0BA	
OPEN: MON-SAT 9.30am - 6.00pm	LATE NIGHT: NONE
<b>LONDON</b>	<b>01-629 1234 ext 3914</b>
Selfridges (1st floor), Oxford Street, London, W1A 1AB	
OPEN: MON-SAT 9am - 6.00pm	LATE NIGHT: THURSDAY 9am - 8pm

To: Silica Shop Ltd, Dept PCWK 12/88, 1-4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX  
**PLEASE SEND ME FREE LITERATURE ON THE AMIGA**

Mr/Mrs/Ms: ..... Initials: ..... Surname: .....

Address: .....

.....

.....

Postcode: .....

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



## So why didn't we order it from Wight Computing.

AMIGA A500 including Modulator,  
10 Blank Discs, Mouse Mat ..... £380  
ATARI 520 STFM 1Meg Super Pack, 10 Blank Discs  
..... £380  
COMMODORE 64C, Joystick, Data Cassette,  
Games ..... From £154  
1081, 1084 Commodore Monitor ..... POA  
Disc and Printers etc ..... POA  
PC IBM Compatibles Memory Upgrades, Hard Card,  
Hard Disc ..... POA  
Secondhand Machines from ..... £50

Blank Discs 5¼", 3½", 3" at Trade Prices.

Call for new prices on ST 1meg.

0983 68978

From Tapes to Networks. Phone for the most up to date  
prices or write to:

# WIGHT COMPUTING

122 High Street, Ryde, Isle of Wight

PO33 2SU

Good advice  
Given Freely

Two day delivery on orders over £100

## PC ENTERTAINMENT SOFTWARE LTD

Specialists for  
all IBM and  
IBM  
Compatibles

Send large SAE for free catalogue.

**Tel: 0437 721835**

The Royal George  
Solva  
Haverford West  
Dyfed  
W Wales SA62 67F



## THE BEST IN THE WEST - PLUS!!! THE WEST OF BRITAIN BUSINESS SERVICES

### PC's (IBM COMPATs)

CALL FOR VERY LOW PRICES FOR: AMSTRAD,  
SAMSUNG, OPUS AND MANY MORE -  
INCLUDING:  
★ THE PC10-TEN SUPER TURBO ★  
★ THE FANTASTIC HYUNDAI RANGE ★  
PHONE FOR PRICES AND DETAILS

LOCAL AUTHORITIES/GOVERNMENT DEPTS  
ETC. CONTACT US FOR PC's WITH C.C.T.A.  
APPROVAL - TOP EQUIPMENT AT THE  
LOWEST PRICES!

AKHTER - AS SUPPLIED TO M.D., G.U.,  
DEPT. TRADE & IND. ETC.

### PORTABLE PC's

AMSTRAD PPC, MICRO P PLASMA &  
CAMBRIDGE LAPTOP 288

### AMSTRAD PCW's

8258/8512/9512 c/w FREE pack

### PRINTERS

CITIZEN (WITH THEIR 2 YEAR GUARANTEE),  
AMSTRAD, STAR, NEC, EPSON, JUKI, GAXXON  
GPR2000, CANON, MICRO P, PANASONIC, OMS,  
DATA PRODUCTS, IMPACT SYSTEMS, LINDTYPE  
- AND THERE'S MORE!

### EXTRA DRIVES

3.5" 720K in 5.25" frame 139.75  
5.25" 360K - black front 114.85  
5.25" 360K - white front 114.85  
5.25" 1.2Mb - white front 174.75

### BACKUP - OR BE LOST!

#### IMAGER

PC/XT/AT TO VIDEO RECORDER! UP TO 110Mb  
ON TO A SINGLE VCR TAPE AT A TRANSFER  
RATE OF APPROX. 1Mb PER MIN. PLEASE  
PHONE FOR DETAILS - PROVEN DESIGN 199.75

### DISC STORAGE

DS40L 3.5" (40) LOCKABLE 9.75  
CT-3100 3.5" (100) LOCKABLE 11.75  
CT-5070 5.25" (70) LOCKABLE 9.75  
DS100L 5.25" (100) LOCKABLE 11.75

### IBM/PC COMPATIBLE SOFTWARE PC WORDPROCESSING

WORDSTAR EXPRESS 62.75  
PROTEXT V4 - NEW OUT! 65.75  
PROTEXT - OLD VERSION 43.50  
GEM WRITE 77.75  
FIRST WORD PLUS 59.75  
VOLKSWRITER 3 171.75  
MICROSOFT WORD 329.75  
NEW WORD 77.75  
SAGE PC WRITE 76.75  
WORDPERFECT Jr 69.75

### PC DATABASES

"AT LAST PC" - JUST OUT 29.95  
CAMPBELL MASTERFILE 42.75  
CAMBASE 34.75  
DELTA 4 68.75  
#BASE II - AMSTRAD PC ONLY 72.75  
#BASE II - v2 43 299.75  
#BASE III PLUS-ADDED UTIL 399.75  
#BASE IV 499.75  
DBXL 97.75  
DB FAST 74.75

### PC INTEGRATED PACKAGES

ABC 129.75  
MINI OFFICE PROFESSIONAL 33.75  
ABILITY 69.75  
ABILITY PLUS 3.25 & 5.25 195.75  
PSION PC FOUR 53.75  
LOTUS SYMPHONY 469.75

### PC SPREADSHEETS

AMSTRAD SUPERCALC 3.21 62.75  
BORLAND QUATRO 108.75  
CAXTON SCRATCH PAD PLUS 42.75  
VP PLANNER PLUS 118.75  
MICROSOFT MULTIPLAN Jr 51.75  
MICROSOFT MULTIPLAN 134.75

### PC ACCOUNTS

CORNIEX SIMPLE A/Cs II-NEW! 99.75  
MONEY MANAGER PLUS 31.75  
CAMSOFT FINANCIAL MANAGER 103.75  
CAMSOFT PROFITMAKER 215.75  
CAMSOFT PAYROLL 37.75  
MAP COMPLETE ACCOUNTING 269.96  
MAP INTEGRATED ACCOUNTS 145.19  
MAP JOB COSTING V.6 77.91  
MAP PAYROLL V.6 65.26  
MIGENT ACCOUNTABILITY 80.21  
SAGE BOOKKEEPER 77.05  
SAGE ACCOUNTANT 114.71

### PC D.T.P. AND GRAPHICS

TIMEWORKS D.T.P. - FANTASTIC! 89.75  
GEN DRAW PLUS 68.75  
VENTURA DTP - XEROX VER 609.50  
PC CADMASTER LIGHTPEN 17.95  
AMX FINESSE (WITH MOUSE) 147.75  
MIGENT PAGE ABILITY 154.75  
GENERIC CAD - LEVEL 1 57.75  
GENERIC CAD - LEVEL 2 114.75  
GENERIC CAD - LEVEL 3 228.75

### PROGRAM DEVELOPMENT

BORLAND TURBO PASCAL V.4 48.29  
MICROSOFT QUICK BASIC V.4 68.71

### TRAINING & EDUCATION IANSYST TYPING TUTORS

CRASH COURSE IN TYPING 24.99  
TWO FINGERS TO TOUCH TYPE 24.99

### REELTIME

AMSTRAD PC 1512/1640 34.44  
WORDSTAR 1512/EXPRESS 34.44

### SCHOOL SOFTWARE - NEW VERSIONS

MAGIC MATHS 4-8 19.99  
MATHS MANIA 8-12 19.99  
MAXI MATHS 9-15 19.99  
BETTER MATHS 12-16 19.99  
BETTER SPELLING 8-ADULT 19.99  
CHEMISTRY/BIOLOGY & PHYSICS 12-16 yrs EACH AT 19.99

### LEISURE

A.C.E 17.90  
ACE OF ACES 17.95  
ALEX HIGGINS SNOOKER 16.95  
ALTER EGO 20.75  
AMAZON 17.95  
ANNALS OF ROME 17.95  
ARCTIC FOX 16.95  
ARKANOID 19.75  
CLOUGHS FOOTBALL FORTUNES 15.95  
BRIDGE PLAYER 2000 28.75  
BUREAUCRACY 21.75  
CHESS MAKER 2000 21.75  
CHUCK YEAGERS FLIGHT SIM. 24.75  
CUTTHROATS 16.95  
CYRUS II CHESS 16.95  
DAM BUSTERS 21.75  
DEFENDER OF THE CROWN 17.95  
DREAM WARRIOR 17.95

### LEISURE (cont.)

ELITE - BRILLIANT!! 18.25  
FLIGHT SIM. (MIRROSOFT) 41.00  
FLIGHT SIM. 3 - NEW 39.75  
F15 STRIKE EAGLE 16.95  
F16 FLIGHT SIM. 28.75  
FOOTBALL MANAGER 11.95  
GRAND SLAM BRIDGE 21.95  
GUILD OF THIEVES 19.95  
GUNSHIP - BRILLIANT TOO!!! 27.00  
3D HELICOPTER SIM. 18.25  
HOLLYWOOD HUNK 24.85  
KNIGHT ORC 17.95  
LORD OF THE RINGS 17.95  
LURKING HORROR 24.75  
MEAN 18 GOLF 16.95  
ORBITOR 24.75  
PAWN 19.95  
PINBALL 24.75  
PITSTOP II 16.95  
PLATOON 17.95  
PRO GOLF 10.25  
PSION CHESS 19.55  
SCRABBLE DE-LUXE 19.75  
SUB BATTLE SIM. 24.99  
SHOGUN 17.95  
TETRIS 17.95  
TRACKER 17.95  
TRIVIAL PURSUIT 19.95  
TOMAHAWK 19.95  
TOP GUN 16.95  
ULTIMA IV 19.95  
WIZBALL 17.95  
WORLD CLASS LEADERBOARD 19.95  
WORLD GAMES 19.95  
221B BAKER STREET 19.95

MANY MORE LINES ON OFFER!!!

### CALLERS WELCOME BUT STRICTLY BY APPOINTMENT PLEASE

If you see anything we sell being sold cheaper elsewhere phone us before you buy - Prices etc subject to availability. U.K. Buyers just pay the price you see! Postage  
and VAT are included. Telephones open 1pm- 7pm MON-WED/1pm- 5pm FRIDAY/9am-12 noon SAT.

**WEST OF BRITAIN BUSINESS SERVICES, DEPT. 11/1, CAPEL TOBI, FFAIRFACH, LLANDEILO, DYFED SA19 6PR**

Cheques/P.O.'s payable to "W.B.B.S." - PLEASE STATE YOUR NEEDS CLEARLY

Tel: (0558) 823782



# MICRO-FILE

FOR SALE



## COMPUTER CARE

Tel: 0734 508099/393615 or  
01-360 3671

### COMPUTERS

Amiga A500 inc. Modulator & Deluxe Paint.....	£389
Atari 520 ST Super .....	£379
Amstrad PC's from .....	£399
Amstrad PC 2086 in stock NOW	
Commodore PC1 .....	£369
Commodore Entertainment Pack.....	£199
Commodore Hollywood Pack.....	£149

All prices inc. VAT & FREE DELIVERY in  
mainland UK. Next day delivery  
£8.00 extra

### Archimedes System

System A305	Base .....	£739
	Mono .....	£799
	Colour .....	£999
System A310	Base .....	£849
	Mono .....	£899
	Colour .....	£1049
System A310M	Base .....	£899
	Mono .....	£949
	Colour .....	£1099
System A440	Base .....	£2479
	Mono .....	£2529
	Colour .....	£2699

### PRINTERS

Epson LQ500 .....	£349
Citizen HQP45 .....	£425
Citizen 120D .....	£139
Panasonic 1061 .....	£159
Star LC10 .....	£209
Star LC10 Colour .....	£269
Star LC10 24 Pin .....	£309
Juki 6100 .....	£309
NEC P2200 .....	£329

### PHILIPS MONITORS

Model 8833 .....	£259
Model 7502 .....	£79

AMIGA A500 EXTRAVAGANZA + WITH CARRIER COMMAND, AEGIS SONIX, PHOTON PAINT, KARATE KID II, GOLD RUNNER, QUICKSHOT JOYSTICK + 23 PUBLIC DOMAIN SOFTWARE TITLES..... **£429.00**

AMIGA A500 + 1084S MONITOR .....

**£649.00**

AMIGA 1Mb 2nd DISK DRIVE .....

**£89.00**

ATARI 1Mb 2nd DISK DRIVE .....

**£99.00**

CREDIT TERMS AVAILABLE — ASK FOR WRITTEN DETAILS

PART EXCHANGE WELCOME ● COMPLETE REPAIR SERVICE FOR HOME AND BUSINESS COMPUTERS AND ACCESSORIES



**Computer Care South Ltd**  
495-499 Oxford Road  
Reading, Berkshire RG3 1HQ  
Tel: 0734 508099 or 0734 393615

or

766 Green Lane  
Winchmore Hill, London N21  
Tel: 01-360 3671



(H118)

## MAKE YOUR MICRO EARN!

Yes, making money becomes incidental when you know how. Your micro is, if only you knew it, a gold mine. The size and make is irrelevant. Make the initial effort NOW by starting your own HOME BASED BUSINESS

This may be the most important move you'll ever make!

REMEMBER: You'll never get rich by digging someone else's "ditch". Anyone in the country including you can become very rich in a relatively short period of time just by doing a few basic things! It's more rewarding than playing games. The benefits are many and varied. Full or part time. For FREE details send S.A.E. to:



### HOME BASED BUSINESS

31 PILTON PLACE (PCW 14)  
KING AND QUEEN STREET  
WALWORTH, LONDON SE17 1DR

(574)

## COMPUTER REPAIR SPECIALIST

### SALES AND SERVICE

Acorn — Amstrad — Sinclair — Commodore etc.

NO FIXED PRICE FOR REPAIR

we charge just £15.00 labour  
plus the parts cost

E.G.: Com 64, 1 ram chip faulty

PARTS..... £2.00

LABOUR..... £15.00

TOTAL COST..... £17.00

Please phone before posting

### P & J ENTERPRISES

18 ANSTON AVENUE, WORKSOP, NOTTS S81 7HT

**Tel: 0909 483255**

(H115)

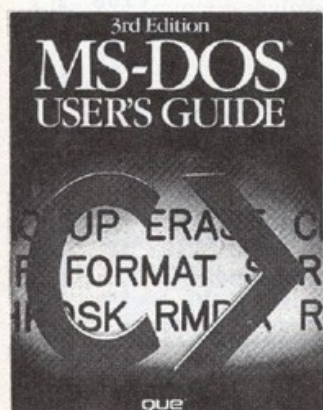
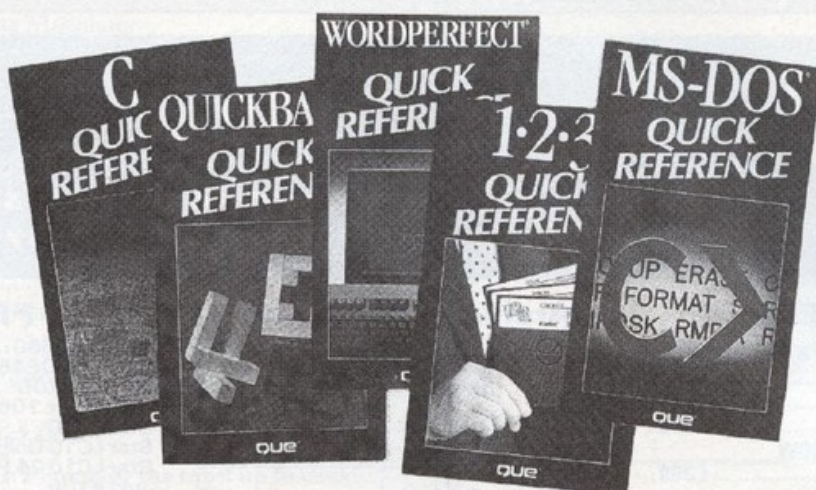
## ADVERTISING RATES FOR MICRO-FILE

Semi Display £10 per single column centimetre (+VAT)  
Lineage 40p per word (+VAT)

CALL WILLIAM SAVILLE or ELIZABETH SOLANKE on  
01-834 1717 FOR SEMI DISPLAY ADVERTISING



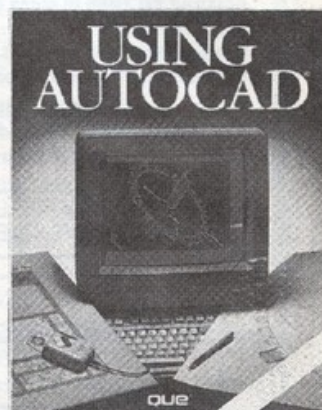
# There's something you ought to know about your PC ...



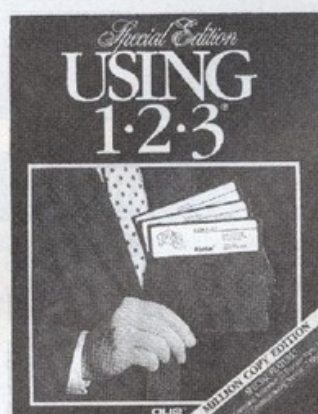
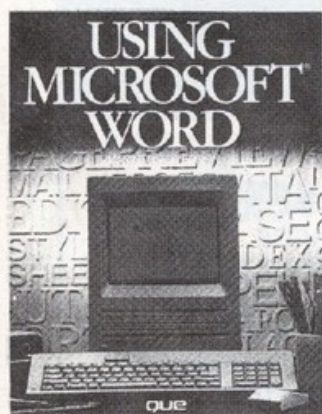
And whatever it is there is a very good chance that we have a book which will tell you all about it.

Novice or Professional, we are all learning all the time. And Computer Manuals' range of more than **1300 books** on PC computing supports all users with Tutorials, References, Advanced Techniques and Ready Reference Guides.

Why struggle with dry manuals or second-hand advice when all the information you need is available in a portable, user-friendly format.



**Call us today for your FREE catalogue**



Artificial Intelligence, Ability, Accounting, Ada, Agenda, Amiga, Amstrad, Apple, Archimedes, Assembler, Atari, BASIC, BBC, C, Quick C, Turbo C, CAD/CAM, CD ROM, Chips (6502, 68000, 68020, 6809, 80286, 80386, 8086, 8087, Z80), Cobol, Commodore Comms and Interfacing, CP/M, DEC/VAX, Dataease, Dataflex, DB Master, DB2, dBASE II, III, III PLUS and IV, Desktop Publishing, Dictionaries, DisplayWrite, Embedded Systems, Enable, Excel, Expert Systems, Flight Simulator, Forth, Fortran, 4GLs, Framework Freelance, GEM, Graphics, Hal, Hard Disk, IBM 370, Investment, Javelin, Lisp, Lotus 1-2-3, Lotus Manuscript, Midi, Modula 2, MS-DOS, Multimate, Multiplan, Networking, Neural Networks, Occam, OS/2, Pagemaker, Paradox, Pascal, Turbo Pascal, PC AT/XT, PC-DOS, Pick, Postscript, Printers, Prolog, PS/2, Q&A, Quattro, R:Base, Rapidfile, Reflex, Samna, Sanyo, Sidekick, Smalltalk, Smart, Spectrum, Spreadsheets, Sprint, SQLs, Superbase, Supercalc, Symphony, Theos/Oasis, Unix, Ventura, Viruses, VM/CMS, Windows, Word, Wordperfect, Wordstar, Works, Z88.

## Computer Manuals Ltd

Tel. 021 706 6000

Fax 021 706 3301

Dept A14, 30 Lincoln Road, Olton, Birmingham B27 6PA



## PREMIUM SOFTWARE

0704 840569

# BUMPER DISK!

CONSISTING OF OVER 10,000  
DESCRIPTIVE PROGRAMS

60p(REFUNDABLE ON FIRST ORDER)

PLEASE RUSH ME BUMPER  
DISK 60p EACH. I ENCLOSE  
CHEQUE/PO FOR £..... MADE  
PAYABLE TO: PREMIUM SOFTWARE  
24 STATION ROAD, BARTON,  
HALSALL NR ORMSKIRK, LANCs.

## PUBLIC DOMAIN & SHAREWARE SOFTWARE for IBM PC & CP/M

You can have access to the largest range of PD & Shareware. More than 2000 disks choice of high quality programs at low cost, all

### Available from stock

We support most CP/M & MSDOS 5.25, 3.5, 3.0 & 8 inch disk formats.

PDSL is one of the longest established libraries in the UK (1982) and contains the widest selection of PD & Shareware available in Europe. If you would like access to the whole of the public domain, not just the limited selection held by other libraries, contact us today. Access and Visa accepted.

Send two first class stamps for full catalogue to:

**The Public Domain Software Library**

Winscombe House, Beacon Road, Crowborough, Sussex TN6 1UL

Tel: 0892 663298

(H120)

## ATARI ST PUBLIC DOMAIN

Why reinvent the wheel? We have a large selection of languages, demo's, utilities, comm's and games etc, available. A stamp for our list will save you hours of frustration.

**Discs from £1.50**

**MCISOFT**

21 Purbrook Road, Tadley  
Hampshire RG26 6PR

(178)

### SPECTRUM TAPE TAPE - TAPE UTILITY B

Yes TUB will back up most of your TAPE based software, including most of the recent jerky loaders and those programs with a counter - converts for reliable loading. Can measure speed of faster loaders, manages 100% accurately many blocks over 51k, etc. etc. **Unrivalled. On tape at £7.50.**

### SPECTRUM TAPE TO DRIVE - TDS

A complete software package (includes TUB) to transfer hundreds of programs to your drive - manages some that hardware devices can not reach! Jerky and counter loaders managed easily, but program not for the novice. **Only £12 (+£1 on m/drive cart).** **INFORMATION BOOK** covering over 400 transfers, including many top 20 hits **£2.50 extra with TDS.**

### M/DRIVE OWNERS - MICROMATE

The only complete package for m/drive owners, and it pays for itself! These are just some of its features: Format (up to approx 104k), Clone, sector editor, reconditions cartridges, repairs and gives condition of files, 'boot' program, multiple ERASE, rename, true CAT. Copies tape to drive (unsecured), drive to drive, drive to tape. It has so many features and is unique. **YOU MUST HAVE THIS PROGRAM IF YOU HAVE A M/DRIVE! £13.99 on m/drive cartridge.**

### CODE COMPRESSOR, Z80 TOOLKIT

Code compressor - compresses machine code - many uses, but ideal with hardware devices that don't compress code. **Only £4.50. Z80 Toolkit** - An superb assembler (full screen editor), fast disassembler, single step to see how m/c works, loader, hex/dec toggle, tutorial - ideal for ALL particularly beginners - **only £7.99.** State TYPE OF SPECTRUM + drive system when ordering. E.g PLUS 3 or 128k with Opus disc drive. **M/drive cartridges £1.75 each (min 4).**

**ALL PROGRAMS CARRY OUR MONEY BACK GUARANTEE** (not updates - phone for prices of these). All prices inclusive except add £1 Europe, £2 others. SAE for full details. LERM DEPT PCW, 11 BEACONSFIELD CLOSE, WHITLEY BAY, NE25 9UW. (Tel: 091-2533615)

**NSG**

## NORTHERN PC SOFTWARE GROUP

Collieston, Aberdeen, AB4 9RT.

Telephone and Help-Line: 035887-336

NSG offer to ALL Amstrad and IBM Compatible Users a Personal Service. We are especially interested in NEWCOMERS to COMPUTING. OUR NON-PROFIT MAKING SERVICES INCLUDE THE FOLLOWING:

**PUBLIC DOMAIN:** Fine programmes available on 5.25" and 3.5" disks. IBM Compatible Material is offered for ALL USERS, on 5.25" Disks at a maximum of **£3.50 per Disk**, inc VAT & Post. We hold the largest PD Library in the North of Britain, which is being increased monthly.

**24 HOUR HELPLINE:** Use this Service at any time of Day or Night for instant assistance to any Member. Especially valuable to newcomers to these excellent PD programmes. **Help available on any aspect of Computing, at all times.** INFORMATION. BBS, COMMS, NETWORKING, DISK EXCHANGE, NEWSOFTWARE, CONSULTANCY

**OTHER SERVICES:** Special Interest Groups encouraged. Share your expertise with other enthusiasts, through our News Letter.

**Send for information today without delay.**  
**This is a service for all beginners, and the enthusiast.**  
**Modest registration fee £20.00.**  
**Includes credit for £10.00 PD software.**  
**Special terms for OAP/students/unemployed.**



## B-SOFT

PUBLIC DOMAIN SOFTWARE PACKS  
FOR THE ATARI ST SERIES



**HOME OFFICE PACK:** Superb 3 disk pack consists of FIRST WORD word processor, WORD COUNT, SPELL CHECK, MAIL MERGE, all fully integrated. Also 350K DATABASE and SPREADSHEET, many others, full documentation. If you specify OPTION 2 for this pack I will supply the pack as above but with ST WRITER ELITE word processor, has Mail Merge option built in. Either option £7.50. Available separate. Phone for details

**ACCESSORY PACK:** Another superb three disc pack, too many programmes to mention all, but includes: A BACKPACK style programme with programmable calculator, notebook, phone book, calendar, file copier etc. A BOOT from DRIVE B and accessory loader programme. A utility that, amongst other things, will allow you to repair and reformat disks without losing your data. Also a VIRUS checker and killer, a text reader - reads word processed files out loud. Others. Superb pack £7.50

**ART PACK:** Excellent two disk pack, includes three excellent drawing packages including NEOCHROME, pictures, a 3-D drawing package, and a programme to turn your pictures into a jigsaw. Full instructions included. £5.00

**ARCADE PACK:** Another three disk pack includes space shoot-em-ups, a superbly implemented MAZE game, a very playable version of JOUST, an excellent vertical scrolling space shoot-em-up, and others. £7.50

**BOARD GAMES PACK:** A two disk compilation of board game favourites. Includes CHESS, MONOPOLY, BACKGAMMON, OTHELLO etc. £5.00

**GENERAL GAMES PACK:** Three disk pack includes FIRSTM, rescue people from a planet surface. BRIDGET, two player board game very well implemented. PAC-MAN, need I say more. A SLOT MACHINE type programme. An ARCANOID/BREAKOUT clone,

has screen designer capability. MASTERMIND, classic implementation of popular game. And a superb one or two player shapes dominoes type game £7.50

**MUSIC AND GRAPHICS DEMO:** EXCEPTIONS superb sound demo and BALLITT, a lovely demo of a translucent ball bouncing on a mirror surface. £2.00 special offer.

**SOUND AND MUSIC PACK, SPECIAL OFFER:** (Mono only but emulator supplied). Two disk pack includes a programme to generate a variety of sounds, helicopter etc and MUSIC programme - a MUSIC STUDIO type programme, write your own music on screen and play it back. Lots of tunes included. Instructions in German. Only £4.00

**STRATEGY DISK SPECIAL OFFER:** A single disk includes CELEST, a one or two player space strategy game. OGRE, tank warfare in the 21st century. STARTREK, not the recent release but the old classic. TWIST, one or two player. BATTLESHIPS and a CONNECT 4 type game. £2.50

**ADVENTURE PACK:** Another three disk pack of my favourites. Includes HACK, a simple graphics but massive adventure. COLLOSAL CAVE adventure, the classic. COLUMBUS, adventure aboard a space ship, and WIZARDS LAIR, a graphics and text adventure £7.50

**KIDS DISK PACK:** One for the younger members of the family. Simple but excellent art programmes, music, piano, and games such as a PACMAN type, SLOT MACHINE type game. Two disks. £5.00

**BEST OF BASIC:** One disk of the best of the BASIC games around. Includes arcade type games, board games, strategy, adventures, and many others. Includes BASIC language. NEW TOS compatible. £3.00

Price includes P&P. Overseas orders add £1.50  
**SEND PAYMENT, MADE PAYABLE TO B-SOFT, TO**  
**33 CORSHAM ROAD, CALCOT,**  
**READING, BERKS RG3 5ZH.**  
**TEL. READING (0734) 416492**

## Disks, DS, price per 10 with labels

5.25" tpi 48..... £3.60 3.5" 135 tpi..... £9.50  
Disk Notcher for 5.25"..... £3.50

### Ribbons, fabric unless stated otherwise

BUY Five, get ONE free if you enclose a copy of this advert

Amstrad DMP 2000.....£2.45	Citizen 120D.....£4.05
Amstrad DMP 3000.....£2.45	Epson FX80.....£3.15
Amstrad PCW 8256.....£4.35	MPS 801.....£2.85
Apple Imagewriter II.....£3.35	MPS 803.....£2.95
4023 m/s.....£3.35	VIC 1515.....£2.50
6400 m/s.....£2.30	VIC 1525.....£2.50
6400.....£3.05	Star NL10.....£4.70

## T-SYSTEMS LTD

The Signal Cabin, 61 High Street, Orpington, Kent BR6 0JF

ACCESS Card accepted. Tel: 0689 22196

ALL PRICES INCLUDE VAT AND DELIVERY

(H3)

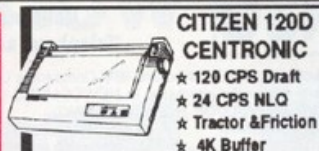


## JANUARY SALES HAS STARTED NOW

A

C

E



**CITIZEN 120D  
CENTRONIC**  
★ 120 CPS Draft  
★ 24 CPS NLQ  
★ Tractor & Friction  
★ 4K Buffer

£120 + VAT = £139.00

**HQP  
45**  
★ 24-Pin Printer  
★ Wide Carriage 136  
★ 200 CPC 66 NLQ  
★ 24K Buffer

£399.00 + VAT = £485.85



**NEC P2200  
CENTRONIC**  
★ 140 CPS Draft  
★ 47 CPS NLQ  
★ 24-Pin  
★ Tractor & Friction Feed  
★ Optional C.S.F.

£260 + VAT = £299.00

**Archimedes**

<b>305 Series</b>	• Base	£699	inc
	• Mono	£769	inc
	• Colour	£939	inc
<b>310 Series</b>	• Base	£799	inc
	• Mono	£859	inc
	• Colour	£1049	inc
<b>440 Series</b>	• Base	£2470	inc
	• Mono	£2528	inc
	• Colour	£2700	inc

PC Emulator £79 inc. Prices inc VAT

**PHILIPS MONITORS**

Mono 7502 .....£68 + VAT = £79  
Colour 8833 .....£225 + VAT = £259  
Colour 8852 .....£259 + VAT = £297

**EPOS SYSTEMS**



**TITINK**



**star LC-10  
CENTRONIC**  
★ Built in Fonts  
★ 120 CPS Draft  
★ 30 CPS NLQ  
★ 4K Buffer  
★ Optional C.S.F.

£173 + VAT = £199.00

LC-10 Colour .....£225 + VAT = £259  
LC-24-10 .....£279 + VAT = £310  
NX-15 .....£289 + VAT = £332  
IN STOCK NOW  
Commodore LC-10 and Colour at the same price

**Panasonic KXP  
1081**  
★ 120 CPS Draft  
★ 24 CPS NLQ  
★ IBM/Epson C  
★ Tractor & Friction Feed  
★ Centronics

£138 + VAT = £159.00

**LASER PRINTERS**

**PANASONIC KXP 4450**

★ 1 Year on site Warranty  
★ 300 DPI  
★ 512K  
★ Serial/Parallel

£1564 + VAT = £1799.00

**CANNON LBP-8**

★ 300 DPI ★ 512K  
★ Serial/Parallel

£1474 + VAT = £1699.00

**HARD DISKS & CARDS**

21 MEG + VAT = £219  
32 MEG + VAT = £249  
44 MEG + VAT = £299

All hard cards come formatted & ready to plug in with free XTrec Software Worth £40

**COMMODORE AMIGA**

**A500 +**

• Modulator  
• Carrier Command  
• Aegus Sonix  
• Photon Paint  
• Karate Kid II  
• Gold Runner  
• Quickshot Joystick

23 Public Domain inc Arcade, Guard Games & Adventure

£389.00 inc

+ FREE HOLIDAY DRAW

ACE High Quality 1 Meg Disc Drive

£82.00

**ATARI**

**520 STFM  
Super Pack**

Inc £400 FREE SOFTWARE

£348.00 inc

High Quality Ace  
1 Meg Disk Drive

£82.00 inc

**COMPATIBLES**

**ATARI PC 3**

20 Meg, Floppy disk MS DOS 3.2, GEM Software, GEM Word, GEM Paint, Mouse

£899 inc

**SAMSUNG**

**S330 XT**  
20 Meg £899 inc

30 Meg £929 inc

40 Meg £979 inc

**S500 AT**  
20 Meg £1099 inc

30 Meg £1129 inc

40 Meg £1179 inc

All Samsungs come with mono monitor, DOS 3.2 and manuals for EGA on the above P.C.'s add £300

**COMPUTERS LTD. WHERE TOP NAMES COST LESS!**

**MAIL ORDER**

FROM BRISTOL  
ADDRESS ONLY

PRICES SHOWN INC. VAT  
AND FREE DELIVERY

BRISTOL: 42 Cannon Street, Bedminster .....Tel: 0272 637981  
BRISTOL: 3 North Street, Bedminster .....Tel: 0272 66634

CARDIFF: 87 City Road .....Tel: 0222 483069

SWINDON: 31 Faringdon Road .....Tel: 0793 512074/3

If you would like to run your  
own Franchise Business

Write to:

42 Cannon Street,  
Bedminster, Bristol BS3 1BN





# BATH COMPUTER SHACK

## YOU CAN'T AFFORD TO GO ELSEWHERE

### \*\*\*ATARI SUPER PACK\*\*\*

Atari 520stfm, 1 meg drive, 22 games and a joystick **ONLY £349.00**

Atari 520 stfm 1meg Drive **£260.00**

Atari 1040stfm now with modulator **ONLY £419.00**

Atari 1040stfm with SM124 high resolution mono monitor **ONLY £529.00**

Atari SH205 Hard Disc **£529.00**

Atari SM124 High Res Monitor **£119.00**

Atari SC1224 Colour Monitor **£249.00**

Atari SLM802Lazer Printer **£1049.00**

### ATARI MEGA'S AND PC'S

Please call for our very best prices, you won't be disappointed.

### MONITORS

Philips CM8833 **£259.00**

Philips CM8852 **£299.00**

\*NB: All above prices include lead.

### PRINTERS

Citizen 120D **£159.00**

Panasonic KXP1081 **£175.00**

Epson LX800 **£199.00**

Star LC10 (with spare ribbon) **£215.00**

Star LC10 colour **£265.00**

Star LC24/10 **£339.00**

Star NB24-15 (free sheetfeeder) **£599.00**

\*NB: All above prices include lead.

### ACCESSORIES

Handykap Keyboard Cover **£7.95**

Monitor Stand **£24.95**

Mouse Mats **£4.50**

Monitor Master (ST Only) **£35.00**

Mouse Master (ST & Amiga) **£24.95**

All prices include VAT & Delivery.  
All Hardware is sent by next day courier.

### COMMODORE

Amiga 500 **£369.00**

Amiga 500, Deluxe paint, 5 games **£389.00**

Amiga 500, Deluxe paint, 2 games, 1084 Colour stereo monitor **£619.00**

Amiga 500, Deluxe paint, 2 games, modulator **£399.00**

Amiga 500, Photon paint, modulator **£389.00**

Commodore 1084 colour stereo monitor **£259.00**

Full range of PC's in stock please call for our best prices.

### AMSTRAD

Amstrad PC1640 DD Mono **£669.00**

Amstrad PC1640 SD Mono **£559.00**

Amstrad PC1640 HD ECD **£1099.00**

Amstrad PC1512 DD Colour **£725.00**

\*\*\*\*\*

Amstrad PC1640 DD Mono, DMP4000 Printer, Wordstar, Supercalc 3.1, Accounts Master **ONLY £899.00**

\*\*\*\*\*

All other models available, please call for our very best prices.

Amstrad PPC512S **£429.00**

Amstrad PPC512D **£549.00**

Amstrad PPC640S **£549.00**

Amstrad PPC640D **£629.00**

### DISCS & BOXES

At UNBEATABLE Prices

10 x 3.5" DS DD Discs in Box **£9.95**

25 x 3.5" DS DD Discs in Box **£25.00**

25 x 5.25" Discs **£8.50**

100 x 5.25" Discs **£29.95**

Above Discs Certified & Guaranteed

40 Cap 3.5" Lockable Box **£4.99**

80 Cap 3.5" Lockable Box **£7.99**

120 Cap 3.5" Lockable Box **£9.99**

Access & Visa orders welcome

Mail order address below E & OE

**SHOW ROOM**  
8c Chelsea Road  
Lower Weston  
Bath  
Avon  
BA1 3DU

TEL: (0225) 310300 FAX: (0225) 446827

**MAIL ORDER**  
Units 11/12 White Hays South  
West Wilts Trading Estate  
Westbury  
Wilts  
BA13 4JT

TEL: (0373) 858031 FAX: (0373) 8580312



# E.E.C. LTD

YOUR LAST CHANCE TO BUY!  
ZX EXPANSION PACK

ZX EXPANSION PACK WITH INTERFACE, 1 MICRO-DRIVE,  
FLEX AND NETWORK LEADS, INSTRUCTION BOOK AND  
DEMO CART. **£69.95**



**ZX MICRODRIVE - EEC PRICE £24.95 ONLY (2 for £44)** Including one cartridge with sample program and solid connector.

**Function:** Fast-access mass-storage device, storing programs, blocks of code, screens, arrays, and data files on interchangeable cartridges, each cartridge with at least 85K bytes capacity.

Cartridges are initialised with the **FORMAT** commands; and contents may be read with the **CAT** command, which displays the cartridge name, up to 50 files on the cartridge in alphabetical order, and the free space in kilobytes. Files may be deleted with the **ERASE** command.

If the first command entered into the Spectrum after switch-on is **RUN**, then the Microdrive will automatically load a program.

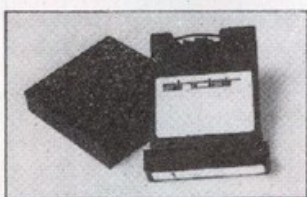
**Supplied with:** Microdrive connector, instructions, and sample cartridge carrying demonstration program (which may be erased), and an order form for blank Microdrive cartridges.

**ZX Microdrive Cartridge - 10 for £16 loose. In transform storage box £22.45. Box with 20 £39.95.**

**Function:** Storage medium for ZX Microdrive. Capacity at least 85K bytes.

**Physical:** Push into Microdrive. Detachable lug prevents erasure of contents if required.

**Supplied:** Singly with an order form for repeat purchases.



## FLEX LEADS:

Solid connectors, instruction books and Demo cartridge all £3.50 each.

Minimum order £10 - Under £35 add £2 P.&P. - Overseas add £4. Terms C.W.O. or Visa. Orders to:

**EEC LTD, 18-21 Misbourne House, Chiltern Hill, Chalfont St. Peter, Bucks SL9 9UE.**  
Tel: 0753 888866 (717)

## The BEST service at the LOWEST prices

We will usually **BETTER** any other bona fide offer

Atari 520 STFM Super Pack: 1 Mb disc drive, 21 quality games, Wordprocessor and Spreadsheet, free joystick	<b>£349</b>
520 STFM with 1Mb disk drive	<b>£279</b>
Atari 1040ST-FM V.I.P., MS Write, Superbase, BASIC	<b>£435</b>
Atari 1040ST-FM + mono monitor, V.I.P., MS Write, Superbase, BASIC	<b>£520</b>
Atari SM124 monochrome monitor including cable	<b>£135</b>
Atari SC1224 colour monitor including cable	<b>£265</b>
Triangle 1Mbyte ST compatible disc drive with built-in power supply	<b>£109</b>
Atari MEGA ST and DTP packages please enquire	<b>POA</b>
Amiga A500: 1Mb drive, 1/2Mb RAM, mouse, + free modulator, Photon Paint	<b>£370</b>
Amiga A500: mouse, Photon Paint, A1084 colour monitor	<b>£599</b>
Amiga A501 RAM expansion board with clock	<b>£132</b>
Amiga A1084s colour monitor including cable	<b>£321</b>
Amiga A1900 monochrome monitor including cable	<b>£119</b>
Triangle 1Mbyte Amiga compatible disc drive	<b>£99</b>
Philips CM8833 14" med-resolution colour monitor, two speakers	<b>£270</b>
Philips CM8852 14" hi-resolution colour monitor, one speaker	<b>£295</b>

Leads for these monitors; free for ST and S6 extra for Amiga

**SOFTWARE:** see our other advertisements or phone to discuss your requirements.

Amiga 2000 Archimedes and PC/XT/AT systems and expansions; please enquire **POA**

**MODEMS:** Other makes, models and PC card based modems please enquire.

Miracle WS2000, V21, V23, manual	<b>£115</b>
Miracle WS4000, V21, V23, V22 optional, Hayes compatible, multispeed	<b>£169</b>
Pace 'Nightingale', V21, V23, low cost manual	<b>£105</b>
Pace 'Linnat', V21, V23, Hayes compatible, multispeed	<b>£134</b>
Pace series four 21235, V21, V23, Hayes compatible, multispeed	<b>£253</b>
Pace series four 12005, V21, V23, Hayes compatible, multispeed	<b>£371</b>
Pace series four 24005, V21, V23, V22bis, V23, Hayes compatible, multispeed	<b>£469</b>
RS232 Modem cable	<b>£13.80</b>

**PRINTERS:** Other makes and models please enquire.

Citizen 120D	<b>£159</b>	Printer cable Centronics	<b>£13.80</b>	NEC P6 + (P660)	<b>£595</b>
MP135+	<b>£159</b>	parallel	<b>£13.80</b>	Star LC-10 colour	<b>£253</b>
Epson LX800	<b>£265</b>	NEC P2200	<b>£369</b>	Star LC-10 mono	<b>£230</b>
Star LC-24-10	<b>£357</b>	MP165+	<b>£217</b>	NEC P7 + (P760)	<b>£764</b>

Discs - Discs - Discs -

**ALL DOUBLE SIDED AND ALL WITH WARRANTY** new lower prices per 10

3.5" 135tpi **£9.99** Unbranded  
5.25" 48tpi **£6.40** 5.25" 96tpi **£7.50** Goldstar branded

On Site Service Contracts - Full After Sales Support - Consultancy and Software Development

\*\*\*\*\*

**NOTE:** Prices include courier delivery on computers, printers and monitors.

Cables welcome, by appointment only please. All prices fully inclusive of VAT and first class delivery anywhere in UK, Eire, Overseas orders welcome; please email in writing. Europe; no extra delivery charge, outside Europe at cost. Cheques/POs should be made payable to 'Cygnus Trading Company' and sent to:

**Cygnus Trading Company**

Dept PCW, 77 Mayes Road,  
London N22 6TN  
Tel: (+44-1) 01-889 4233 (H61)

## The Instant Catalog

ALL TITLES IN STOCK

SPECTRUM	CASS	COMMODORE 64	CASS	DISK	ATARI ST	DISK
10 Great Games Vol 3	8.95	10 Great Games Vol 3	9.99	11.99	5 Star Compilation	14.75
4 Soccer Simulators	6.45	Afterburner	6.95	9.99	Action ST Compilation	11.99
After Burner	6.45	Armalyte	6.45	8.75	After Burner	13.99
Batman - Caped Crusader	5.95	Barbarian II	6.45	8.75	Bombuzal	14.75
Cyberoid II	5.50	Batman - Caped Crusader	6.45	9.45	Chrono Quest	17.49
Echelon	6.95	Bombuzal	6.45	8.75	Daisy's Olympic Challenge	11.99
Fists 'N' Throttles	8.75	Captain Blood	6.45	9.99	Double Dragon	11.99
Frank Bruno's Big Box	8.75	Caveman Ugh-Lympics	7.25	10.50	Dungeon Master	14.75
Game Set and Match 2	8.75	Cyberoid II	6.45	9.99	Eliminator	13.99
Giants	9.99	Echelon	9.99	10.99	Elite	14.75
Gold Silver Bronze	9.99	Emlyn Hughes Int Soccer	6.45	8.75	Falcon	14.75
Guerilla War	5.25	Fists 'N' Throttles	8.75	9.99	Flying Shark	14.75
History in the Making	16.95	Frank Bruno's Big Box	8.75	9.99	Garfield	11.99
In Crowd - Compilation	8.75	Game Set and Match 2	8.75	11.99	Heroes of Lance AD&D	17.25
Laser Squad	6.25	Games: Summer Edition	9.99	11.99	Hostages	14.75
Last Ninja II	8.95	Giants	9.99	11.99	International Karate (IK+)	11.99
Leader Board Par 3	9.99	History in the Making	17.95	21.99	Leadboard Birdie	13.99
Maria's Christmas Box	6.99	Last Ninja 2	7.75	9.99	Lombard RAC Rally	14.75
Mega Games Vol 1	9.95	Leader Board Par 4	10.99	12.99	Mickey Mouse	13.99
Mickey Mouse	5.25	Maria Whittaker's Big Box	6.45	8.99	Munsters	11.99
Operation Wolf	5.50	Mega Games Vol 1	9.99	10.99	Nebulus	13.99
Pacmania	5.95	Menace	6.75	12.95	Night Raider	13.99
Question of Sport	9.99	Mickey Mouse	6.45	9.99	Obstructor	14.75
R-Type	6.45	Microprose Micro Soccer	9.95	12.99	Operation Wolf	11.99
Rambo III	5.95	Operation Wolf	6.45	9.99	Pacmania	11.99
Return of the Jedi	6.45	Pacmania	6.45	9.99	Powderdrome	17.25
Road Blasters	5.99	Pool of Radiance AD&D	N.A	17.99	Puffy's Sags	17.25
Robocop	5.25	Question of Sport	9.50	12.50	Purple Saturn Day	14.75
RoboCop	5.25	Rambo III	6.45	9.99	R-Type	17.25
Roy of the Rovers	5.95	Return of the Jedi	6.45	8.75	Rambo III	11.99
Savage	5.95	Robocop	6.45	9.99	SDI	13.99
Spitting Image	6.45	SDI	6.95	10.99	STOS Games Creator	19.49
Supreme Challenge	8.75	Spitting Image	6.45	8.75	Speedball	14.75
Tailo Coin-op Hits	8.95	Sports World 88	9.99	10.99	Spitting Image	11.99
Techno Cop	5.50	Supreme Challenge	8.75	11.50	Star Ray	11.99
Thunder Blade	6.50	Tailo Coin-op Hits	9.99	12.99	Thunder Blade	13.99
Tiger Road	6.25	Thunder Blade	6.95	10.99	Triad Vol 1	17.49
Total Eclipse	6.45	Tiger Road	6.95	10.99	Trivial Pursuit - ANB	11.99
Ultimate - The Works	8.95	Total Eclipse	6.45	8.75	Where Time Stood Still	17.25
We are the Champions	6.95					



INSTANT, Boston House, Abbey Park Road, Leicester LE4 5AN

Mail Order Only. State Computer's make and model.

P&P: 50p on orders under £5. EEC 75p per title.

Whole World £1.50 per title for Air Mail.

New titles sent on the day of release.



**0533 510102**

FOR DISK PRICES & NEW RELEASES PLEASE RING US.

## COMPUTER REPAIR SERVICE

Amstrad CPC 464	£30	Amstrad PCW 8256	£37
Sinclair Spectrum +	£18	IBM PC Compatible	£60
Acorn BBC B	£32	Atari 520 ST	£35
Commodore 64	£27	CBM disc drive	£30

Come along or post with payment, Please phone before posting.

Turn around 1 week - 3 months warranty  
Open Weekdays 9.30-5.30  
and Saturdays 10-4.30

## WYNTER ELECTRONICS

Unit 30F Atlas Village  
Oxgate Lane  
Staples Corner  
London NW2 7HU  
Tel: 01-452 5660

We also upgrade units - please phone for details (H114)

SERIOUS SPECTRUM OWNERS wanting UTILITIES  
PROGRAMMING HELP, PRACTICAL software and  
USEFUL articles, GRAPHICS, INFO, IDEAS and MORE  
from LIKE-MINDED THINKERS, TRY...

**OUTLET monthly on MDRIVE,  
OPUS, DISCIPLE, PLUS D, TAPE**

£2 gets YOUR FIRST issue! A blank disc or  
cartridge (not cassette) gets a FREE demo!

CHEZRON SOFTWARE, 605 LOUGHBOROUGH  
ROAD, BIRSTALL, LEICESTER LE4 4NJ (H57)

400/800 **LOOK** NOW  
XL/LE **ATARI OWNERS** ST

Are you having difficulty finding suitable software. If so, then look  
no further. We have available for both hire and purchase one of  
the largest selections of both the UK and American titles to  
choose from. Games and Utilities for all ages. Hardware and add-on  
utilities at discount prices and special deals regularly being offered.  
If you would like further information please send a large A4 A10-  
CHARNOOD PRODUCTS AND GAMES  
30A Warwick Avenue, Gurnee, Loughborough  
Leicestershire LE12 8HD  
Tel: 0509 412604 (H65)

**ALL COMPUTERS WANTED  
FOR CASH OR EXCHANGE**

**Tel: 01-727 0424**

(867)

## ATARI ST PUBLIC DOMAIN

Wordprocessors, Utilities, Games,  
Music, Languages and Stunning  
Graphics. Why not TRY BEFORE  
BUY. No one is disappointed so  
send a 19p stamp for our Unique  
FREE Premier PD list.

**ALPHA COMPUTING**

32 Meadow Drive, Halifax, W. Yorks HX3 5JZ  
(H121)

**COMMODORE 64 PADDLES**  
(£14), Analogue Joystick, Auto-file  
Units. Write to: PWB, 27 Eastern  
Road, London N22 4DD.



# **One Stop Micro Service Ltd**

## **Computer Repairs and Spares**

# **STOP PRESS!**

***Has your computer broken down?***  
**Don't despair, we'll repair!**

**Our experienced technicians undertake  
ultra fast repairs on all makes of  
8, 16 and 32 bit machines.**

### **WE REPAIR:**

**Atari ST 520/1040**

**Commodore Amiga 500/1000/2000**

**Commodore 64**

**Sinclair 48K Spectrum & the full Spectrum range**

**Amstrad 464/664/6128**

**All IBM and compatible machines**

**Hard disk and drive installation  
(spares and Commodore also available)**

**and many many more . . .**

*Come and visit us at:*

**GALAXY AUDIO VISUAL**

**(1st FLOOR)**

**230 TOTTENHAM COURT ROAD, LONDON W1**

**Tel: 01-631 0139**



## THE BEST REASON FOR BUYING AN ATARI ST

## POOLS - SYSTEM!!™

MAIL ORDER ONLY

INCORPORATING (POOLSBUSTER &amp; POOLSPLANNER)

TRADE WELCOME

OTHERS CALL THEIR POOLS PROGRAMS ULTIMATE, WE CALL OURS "THE" POOLS PROGRAM

There are still a couple of pools programs for the Atari ST that guarantee to you performance better than chance (?) or promise to you power? to forecast the pools the way you want. Others are asking you for disk for free demos while weeks are going by and you are missing your chance for a dividend. Nevertheless **POOLS-SYSTEM** still remains the only one in the market that delivers the goods. Lets have a look at some facts. Fact, user friendly and still the only one that does not require you to be some kind of a football expert or hot shot system analyser. Fact, **POOLS-SYSTEM** is the only one that performed even slightly during the difficult & unpredictable Australian season. **Fact, 13/8/88.** 4 away out of the recommended first 6. 10 homes out of the recommended first 15. 20/8/88, start of the English season, the system trapped 9 out of the 14 score draws & all 4 no score draws. **27/8/88.** 9 out of the 12 score draws & 3 out of the 6 no score draws. 4 homes out of the recommended first 6. **3/9/88.** 6 homes out of the recommended first 7, 4 away out of the recommended 6. 5 out of the 7 score draws & 2 out of the 3 no score draws. 40 correct results out of the 58 possible. Fact, all forecasted printouts available at any time for any checks. So do not waste your time with any other programs or systems. They are not going to entertain your hopes or wishes. And to top all the facts, we guarantee that **POOLS-SYSTEM** performs better than any other pools program in the market on any computer, because we guarantee to you that using the **POOLSBUSTER** in cooperation with **POOLSPLANNER** you are going to win the pools more than once a year. **STOP PRESS!!** what does the customer say: "I was very impressed with the general standard of the programs & their ease of use. I had a look around the program & worked out how to input the data without the use of the manual, which shows just how good the program structure is set out. To get to the point. The very first entry I did came up trumps with 2 lines of 211/2 points. It bought me a win of £11.80. Not bad for a first attempt. Thanks for an amazing program. **Regards P.J.L.-Solihull.** (Name & address with held for obvious reasons.)

## POOLS SYSTEM (POOLSBUSTER+POOLSPLANNER) COSTS £40.00 INCLUSIVE.

APOLONIA SOFTWARE(TM) PRESENTS: **COMPUSHOP1** THE BEST PRICES FOR THE ATARI ST AND THE AMIGA HARDWARE AND SOFTWARE. JUST HAVE A LOOK AT SOME POST-XMAS PACKAGES:

## Atari 1040 Games pack

Atari 1040STFM + FREE games software  
worth over £400 + compushop1  
Business Starter Pack.

£459.00

as above + Pools System £469.00

## Atari 1040 Business Pack

Atari 1040 STFM + VIP Professional +  
Microsoft Write + Superbase Personal +  
mouse mat + four compushop1 Starter Disks.

£449.00

as above + Pools System £459.00

Atari 1040STFM as above + mono monitor:

£539.00

as above + Pools System £549.00

Atari Mega ST DTP  
Pack

Mega ST4 + Mono Monitor + Laser  
Printer + Fleet Street Publisher +  
Timeworks Desktop Publisher + VIP  
Professional + Microsoft Write +  
Superbase Personal + First Word +  
Megafile20 + compushop1 Starter Kit.

£2699.00

as above + Pools System £2710.00

## Atari 520 Superpack

Atari 520STFM + FREE £400 worth of  
software + one extra microswitch  
joystick + mouse mat + compushop1  
Business Starter Pack.

£349.00

as above + Pools System £359.00

TRIANGLE 1MB 2ND DRIVE-ATARI/SINGLE ..... £114.95  
TRIANGLE DOUBLE 3.5" DRIVE-ONLY FOR THE ATARI STS AND  
STMS-NOT FOR THE STFXS ..... £199.95  
TRIANGLE 5.25" DRIVE-40/80 TRACK ATR ..... £149.95  
TRIANGLE 5.25" WITH PC-DITTO/ATARI ..... £229.95  
TRIANGLE 1MB 2ND DRIVE- AMIGA ..... £99.95  
TRIANGLE INTERNAL A2000 31/2"KIT ..... £89.95  
CUMANA 1MB 2ND DRIVE ATARI ..... £144.95  
CUMANA 1MB 2ND DRIVE-AMIGA ..... £139.00  
ATARI 20MB HARD DISK DRIVE(SH205) ..... £599.99  
SUPRA 20MB HARD DRIVE ..... £599.95  
"30MB" ..... £849.95  
MIRACLE WS2000 MODEM(ATARI-AMIGA) ..... £125.00  
MIRACLE WS4000 MODEM(ATARI-AMIGA) ..... £194.95  
LINNET MODEM(ATARI-AMIGA) ..... £159.85  
SERIES FOUR 2123S MODEM(ATARI-AMIGA) ..... £304.75  
NIGHTINGALE MODEM(AMIGA)MAN DIAL ..... £113.85  
RS232 MODEM CABLE(ATARI-AMIGA) ..... £19.95  
ATARI SLM804 LASER PRINTER+SLMC804 ..... £1299.99  
EPSON LX800 DOT MATRIX/9 PIN PRINT ..... £316.25  
STAR LC10-MONO/DOT MATRIX/9 PIN ..... £297.85  
STAR LC10-COLOUR/DOT MATRIX/9 PIN ..... £343.85  
STAR LC24-10/24 PIN MULTIFONT ..... £458.85  
STAR LASERPRINTER 81MB STANDARD/2524.25 ..... £1740.89+VAT  
EIDERSOFT GRAPHIC TABLET-ATARI/AMIGA/£343.85/£239.03+VAT  
MICRON 2MB MEM EXP.-A500/A1000 ..... £565.00  
MICRON 2MB MEM EXP.-A500/A1000 ..... £275.00  
PRO RAM2000(8MB RAM)UNPOP. ..... £198.00+VAT  
FLICKER FIXER ..... £396.75  
GENLOCK A500/A2000 (A8802) ..... £299.00  
PROF.GENLOCK A500/A2000 (A8806) ..... £362.50  
PERFECT VISION(REAL TIME V.DIGIT) ..... £199.00

A1010 1MB 2ND DRIVE(ALL AMIGAS) ..... £159.99  
MIDI INT.FACE (STANDARD SER.)-AMIGA ..... £29.95  
PHILIPS CM8833 STEREO COL MON ..... £314.95  
"CM8852 HIGH RES COL MON ..... £343.85  
AMIGA 1900M MONO MONITOR ..... £99.99  
ATARI SM125 TILT & SWIVEL BASE ..... £149.99  
MONITOR MASTER(THE BEST IN THE MARKET-FOR ANYATARI  
ST,520,1040,MEGASTS ..... £125.00  
COLOUR/MONO SWITCH BOX) ..... £35.00  
MOUSE MASTER/UNIQUE MOUSE & JOYSTICK SWITCH-ALLOWS  
CONNECTION OF 2 JOYSTICKS & A MOUSE OR ANY OTHER  
CONTROLLER-WITH ANY COMBINATION THAT YOU REQUIRE-NO  
UNPLUGGING CABLES-BEST MOUSE/ ..... £24.95  
JOYSTICK/CONTROLLER(JATARI/AMIGA) ..... £21.00  
MOUSE PATH-THE BEST MOUSE MAT AROUND,SPECIAL ANTI-  
STATIC & UNIQUE SURFACE FOR A BETTER GRIP & SHORT  
DISTANCE TRAVEL PERFECT FOR ANY MOUSE ON ANY  
COMPUTER) ..... £5.96  
MONITOR STANDS/VERY ELEGANT AND SPECIALLY MADE TO  
FIT ANY ATARI OR AMIGA COMPUTER ..... £29.95  
UNISTAND PRINTER STAND ..... £11.95  
PVC DUST COVER-MEGA STS ..... £8.95  
PVC DUST COVER-520STFM,1040STFM ..... £4.95  
PVC DUST COVER-SC1224,SM125 ..... £5.95  
DISK BOXES, 40"3.5" DISKS ..... £8.95  
80"3.5" DISKS ..... £10.95  
100"3.5" DISKS ..... £12.95  
120"3.5" DISKS ..... £13.95  
50"5.25" DISKS ..... £8.95  
120"5.25" DISKS ..... £13.95

CLOCK SPEED-4.77MHZ OR 5MHZ 8088 MICRO  
PROCESSOR EGA,CGA+HERCULES MODES BUILT  
IN.TWIN DRIVE 640 K RAM MS DOS 3.2 OPERATING  
SYSTEM.OPTIONAL 8087 MATHS CO-PROCESSOR  
SOCKET.DETACHABLE XT STYLE KEYBOARD.INCLUDES  
PARALLEL & RS232 SERIAL PORTS.256K SCREEN  
RAM SUPPLIED WITH MOUSE MONO SCREEN RESOLUTION OF  
720"350 COLOUR SCREEN RES 640"350 PALETTE OF 64 COL-  
OURS.16 CAN BE DISPLAYED AT THE SAME TIME WORKS WITH  
ANY CGA,MDA,EGA OR MULTI-FREQUENCY MONITOR COMES  
WITH FREE SOFTWARE & FREE MANUALS. R.R.P.-£647.49 OUR  
PRICE IS A JOKE, ONLY ..... £580.00 INCLUSIVE!!! ATARI PC3 AS  
ABOVE + EGA MONO MONITOR R.R.P. .... £747.49. OUR PRICE  
IS ONLY £670.00 INCLUSIVE!!! ATARI PC3 + EGA MONO MONITOR  
+ 30MB HARD DISK R.R.P. .... £1092.49/OUR PRICE IS ONLY  
£819.99+VAT!!!

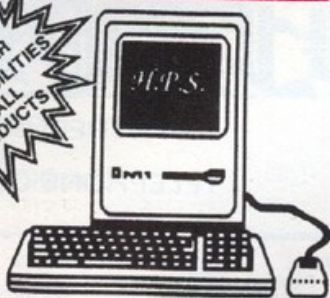
ALL PRICES ARE INCLUSIVE OF VAT & DELIVERY UNLESS  
OTHERWISE STATED. THESE ARE ONLY SOME EXAMPLES, FOR  
MORE INFORMATION CALL COMPUSHOP1 AT 01738-8400. IF  
YOU DO NOT SEE IT, IT DOES NOT MEAN WE DO NOT HAVE  
IT.PLEASE CALL US AND YOU WILL NOT REGRET IT. PRICES  
ARE ALWAYS FLUCTUATING UP OR DOWN.PLEASE CALL FOR  
THE LATEST INFORMATION AND FOR AVAILABILITY. STOP  
PRESS. LOOK  
31/2" DISCS(DSD): 10 FOR ..... £11.00.  
20 FOR ..... £21.00.  
40 FOR ..... £40.00.  
AND 50 FOR ..... £47.50  
FOR THE BEST PRICES FOR ALL ATARI-AMIGA HARD-  
WARE(COMPUTERS,PERIPHERALS AND ACCESSORIES) CALL  
COMPUSHOP1,AT 01-738 8400.

Make cheques/Postal Orders payable to: Apolonia Software, and send to Apolonia Software, Dept PCW, South Bank Business  
Centre, Unit 25(M), Thames House, 140 Battersea Park Road, London SW11 4NB. Mail order only. Speedy delivery. No hidden extras!

**Apolonia Software The company that cares!**



# FOR SALE



**H.P.S. FOR ALL YOUR COMPUTER NEEDS!**

**H.P. SOFTWARE**  
1 ALDER CLOSE,  
THORLEY,  
HERTS. CM23 4JX



(0279)  
506601/  
506602  
Visa Card  
Holders  
Welcome

**All orders add 15% V.A.T. CARRIAGE FREE !!!!!!!!!**

## WORD PROCESSING

Sage PC Write	65.00
Wordperfect Personal	130.00
Wordperfect Junior	60.00
Wordperfect V.5	239.00
Top Copy Plus	70.00
Volkswriter 3	89.00
Wordstar 2000 + Rel 3	250.00
Wordstar Prof V.4	220.00
Microsoft Word V.5	295.00
Lotus Manuscript	245.00
Multivriter II	65.00
Sprint	128.00
Total Word	240.00
Smart	179.00
Gem Write	63.00
Gem First Word Plus	50.00
Protext	38.00

## SPREADSHEETS

Logistix	64.00
Supercalc 3.21	55.00
V.P. Planner Plus	92.00
Kuma K Spread 2	52.00
Lotus 123	250.00
Supercalc V.4	219.00
Borland Quattro	115.00
Plan Perfect	195.00
Lotus Hal	85.00
Lotus Metro	55.00
Sage PC Planner	65.00
Multiplan	120.00

## DESKTOP PUBLISHING

Fleet Street Editor V.3	99.00
Aldus Pagemaker	445.00
Page Ability	125.00
Timeworks	89.00
Ventura Publishing	495.00
Fantasy	45.00
Font 1 - Bookface + Title	33.00
Font 2 - Decorative + Ornate	33.00
Font 3 - Display	30.00
Fantasy Toolkit	15.00
Gem Desktop Publisher	190.00
Tassign	25.00

## INTEGRATED PACKAGES

A.B.C.	92.00
Ability	65.00
Ability Plus	110.00
Psion PC Four	47.00
Smart System	385.00
Lotus Symphony	340.00
Mini Office Pro	25.00
Microsoft Works	110.00

## ACCOUNTING

Sage Accountant Plus	135.00
Sage Accountant	105.00
Financial Controller	199.00
Payroll II	99.00
Compact Accounts	130.00
Compact Accounts Plus	165.00
Sage Bookkeeper	68.00
Map Integrated Accounts	95.00
Map Payroll	55.00
Map Complete Accounting	229.00
Comsoft Financial Manager	89.00
Ability Accounts	65.00
Money Manager Plus	25.00

## NETWORKS

Sage Starter Pack	230.00
Sage Extension Pack	115.00
Financial Controller	480.00

## UTILITIES

PC Tools Delux	35.00
XTree Professional	75.00
Copy II Option Boards	89.00
Copy II PC	19.00
Hard Back	68.00
Norton Utilities	50.00
File Rescue	18.00
VP Expert	65.00
Sage Desktop	62.00
Gem Diary	25.00
Gem Wordchart	67.00
Autoroute	110.00
Flight Simulator II	33.00
Norton Advanced	69.00
Windows	50.00

## STATIONERY

Sage Payslips (1,000)	22.00
Sage Invoices 3pt (500)	26.00
Sage Statements (1,000)	22.00

## CABLES

E.g. 2 Metre Parallel Printer Cable	6.00
--	------

## DATABASE

Rapidfile	167.00
Sage Retrieve	61.00
Datamanager	47.00
Reflex Database	55.00
Dbase 3 Plus	299.00
Dataperfect	255.00
Dbase 3 Plus	299.00
Superbase Pro	149.00
VP Info	62.00
Tas Plus Developers	175.00
Dbase 2 (1512)	62.00

## GRAPHICS

Freelance Lotus (plus)	250.00
Turbo Cad	72.00
Turbo Pascal Graphic Box V.4	42.00
Gem Draw Plus	65.00
Delta Graph	52.00
VP Graphics	66.00
Auto Sketch	59.00
Chart	185.00
Draw Applause	360.00
Davrelle	POA
First Graphics	POA
Gem Presentation Team	265.00
Graph in a box	47.00
Graph Writer II	260.00
Harvard	265.00
VCN Concord	485.00

## HARDWARE

AMSTRAD PC:	
PC1640 SDM	475.00
PC1640 SDG	600.00
PC1640 DDM	585.00
PC1640 DDC	730.00
PC2086 SD12M	585.00
PC2086 SD14C	735.00
PC2086 SD12HRC	805.00
PC2086 SD14HRC	905.00
PC2086 DD12MD	705.00
PC2086 DD14CD	850.00
PC2086 DD12HRCD	945.00
PC2086 DD14HRCD	1040.00
PC2086 HD12MD	945.00
PC2086 HD14CD	1105.00
PC2086 HD12HRCD	1205.00
PC2086 HD14HRCD	1305.00
2286 DD12MD	945.00
2286 DD14CD	1105.00
2286 D12HRCD	1205.00
2286 DD14HRCD	1305.00
2286 HD12MD	1305.00
2286 HD14CD	1449.00
2286 HD12HRDC	1549.00
2286 HD14HRDC	1649.00
2386 HD12MD	2599.00
2386 HD14CD	2749.00
2386 HD12HRDC	2849.00
2386 HD14HRDC	2949.00
AMSTRAD PORTABLES:	
PPC512S	385.00
PPC512D	475.00
PPC640S	450.00
PPC640D	555.00





# History

21 WHERNSIDE AVENUE,  
LANCASHIRE  
TELEPHONE 061-330 9939

TITLE	AMIGA	ST	TITLE	AMIGA	ST	TITLE	AMIGA	ST
16 Bit Compilation	-	18.75	Deja Vu	18.75	18.75	Kill Dozers	-	14.95
19	14.95	14.95	Deskwrite	-	11.25	King of Chicago	22.45	-
1943	18.75	14.95	Desolator	-	14.95	King's Quest 3 Pack	18.75	18.75
221b Baker Street	-	18.75	Diablo	-	14.95	Knight Orc	14.95	14.95
4 Way Football	-	14.95	Digi Drum	-	18.75	Knightmare	-	18.75
4 & 4 Off Road Racing	18.75	-	Disk Library	-	7.50	L'Affaire	-	14.95
5 Star Compilation	-	18.75	Double Dragon	14.95	14.95	Leaderboard	18.75	18.75
500cc Grand Prix	-	14.95	Dreadnought	14.95	14.95	Leaderboard collection	18.75	11.25
Action Service	14.95	14.95	Dungeon Master	18.75	18.75	Leaderboard tournament	-	7.50
Action Sports Pack	-	14.95	E.P.T.	-	18.75	Leatherneck	14.95	14.95
Advanced Art Studio	-	18.75	Eco	18.75	14.95	Lee Enfield in Amazon adv.	-	11.25
Afterburner	14.95	14.95	Eddie Edwards Super Ski	-	14.95	Lee Enfield in Space Age	-	11.25
Airball	14.95	-	Elf	14.95	14.95	Lee Enfield tourn. of Dea	-	14.95
Alien Syndrome	14.95	14.95	Eliminator	14.95	14.95	Legend of the Sword	18.75	18.75
Alternative World Games	-	14.95	Elite	18.75	18.75	Leisure Suit Larry	22.45	14.95
Altair	18.75	-	Emerald Mine	14.95	-	Leviathan	-	11.25
Amazon Adventure	-	14.95	Empire Strikes Back	14.95	14.95	Little Computer People	7.50	7.50
American Pool	-	7.50	Enduro Racer	-	14.95	Live and Let Die	14.95	14.95
American Pool Simulator	-	7.50	Enforcer	-	7.50	Livingstone	-	11.25
Annals of Rome	18.75	18.75	Enlightenment (Druid II)	14.95	-	Lode Runner	-	14.95
Aquaventureur	18.75	18.75	Epyx on ST Ed. 2	-	18.75	Macadam Bumper	18.75	-
Arcade Classics Vol. I	-	14.95	Espionage	14.95	14.95	Mach III	14.95	14.95
Arcade Classics Vol. II	14.95	-	Exolon	14.95	14.95	Mad Mix	-	11.25
Arkanoids	18.75	11.25	Extensor	-	7.50	Masters of the Universe	-	14.95
Arkanoids II	-	14.95	F15 Strike Eable	-	18.75	Mean Streak	18.75	18.75
Army Moves	14.95	14.95	F16 Combat Pilot	-	18.75	Mercenary Compendium	18.75	18.75
Art Directors	-	37.45	Faery Tale Adventure	18.75	-	Metro Cross	-	18.75
Astoroth	14.95	14.95	Federation of Free Traders	22.45	22.45	Mickey Mouse	-	14.95
Atrurus	-	14.95	Film Director	-	39.95	Mind Fighter	18.75	18.75
B24	-	18.75	Final Assault	18.75	14.95	Mindshadow	7.50	7.50
Backlash	14.95	14.95	Final Frontier	-	18.75	Mission Genocide	-	7.50
Bad Cat	18.75	14.95	Fire & Forget	18.75	18.75	Moebius	18.75	18.75
Balance of Power	22.45	22.45	Fire Blaster	7.50	7.50	Mortville Manor	18.75	18.75
Ballblazer	-	14.95	Flight Sim. II	29.95	29.95	Motorbike Madness	7.50	7.50
Ball Breaker II	-	14.95	Flintstones	14.95	14.95	Motor Massacre	14.95	14.95
Ball Raider	14.95	-	Football GFL	18.75	18.75	Mouse Trap	11.25	11.25
Barbarian (Psygnosis)	18.75	18.75	Football Manager	-	11.25	Nebulus	14.95	14.95
Barbarian (Palace)	14.95	11.25	Football Manager II	14.95	14.95	Netherworld	14.95	14.95
Barbarian II	14.95	14.95	Formula One Grand Prix	14.95	14.95	Ninja	-	7.50
Battle Probe	-	11.25	Foundations Waste	18.75	-	Nord & Bert	18.75	-
Battleships	14.95	11.25	Fright Night	18.75	14.95	North & Star	18.75	18.75
Bermuda Project	18.75	18.75	Frost Byte	11.25	11.25	North Star	-	14.95
Better Dead Than Alien	14.95	14.95	Gambler	-	11.25	Not a Penny More	-	14.95
Beyond The Ice Palace	18.75	14.95	Garfield	14.95	14.95	Obliterator	18.75	18.75
Beyond Zork	18.75	18.75	Gary Lineker Super Skill	-	14.95	Ogre	18.75	18.75
Bionic Commando's	18.75	14.95	Gato	-	22.45	Oids	-	14.95
Bismark	-	18.75	Guantlet	18.75	18.75	Oops	-	14.95
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	-
Bridge Player 2000	-	14.95	Gorilla Wars	18.75	14.95	Pawn	18.75	18.75
Brainstorm	7.50	-	Great Gianna Sisters	18.75	14.95	Perfect Match	-	7.50
Bubble Bobble	14.95	14.95	Guild of Thieves	18.75	18.75	Peter Beardsley Football	14.95	14.95
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
California Games	18.75	14.95	Hardball/Mean 18	18.75	18.75	Phoenix	-	14.95
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
Classiques I	-	14.95	Impossible Mission II	18.75	14.95	Quadrailen	14.95	14.95
Colonial Conquest	-	22.45	Insanity Fight	18.75	-	Quartet Gold	-	14.99
Colossus Chess 4	18.75	14.95	Indiana Jones	-	14.95	Questron II	-	18.75
Computer Hits	22.45	22.45	Indoor Sports	-	18.75	Rally Simulator	14.95	14.95
Corruption	18.75	18.75	Inside Outing	-	14.95	Rambo III	18.75	14.95
Crack	14.95	-	International Karate+	14.95	14.95	Rampage	-	11.25
Craps Academy	18.75	-	International Soccer	14.95	14.95	Realm of Darkness	-	14.95
Crash Garrett	18.75	11.25	Into the Eagles Nest	14.95	-	Realm of the Trolls	18.75	14.95
Crazy Cars	18.75	14.95	Jet	29.95	29.95	Retrogue	-	14.95
Cyberoid	14.95	14.95	Jet Scenery Disks	14.95	14.95	Return to Genesis	14.95	14.95
Cyberoid II	14.95	14.95	Jet Boys	-	14.95	Revenge II	-	7.50
D.T. Olympic Challenge	18.75	14.95	Jewels of Darkness	14.95	14.95	Rings of Zilfin	-	18.75
Daley Thompson Superfest	18.75	14.95	Jinks	18.75	14.95	Ringwars	-	14.95
Darius	-	14.95	Jinxter	18.75	18.75	Road Blasters	18.75	14.95
Dark Castle	18.75	18.75	Joan of Arc	18.75	-	Roadrunner	-	18.75
Death Strike	-	11.25	Joe Blade	7.50	7.50	Roadwar 2000	18.75	18.75
Deep Space	26.75	26.25	Jump Jet	11.25	11.25	Roadwar Europa	18.75	18.75
Defender of the Crown	22.45	22.45	Karate Kid part II	18.75	18.75	Roadwars	14.95	14.95
Deflektor	-	14.95	Karate King	11.25	-	Rocket Ranger	22.45	-
			Karnov	-	14.95	Rockford	14.95	14.95
			Kennedy Approach	-	18.75	Rogue	7.50	7.50
						Rolling Thunder	18.75	14.95



# SOFT LTD.

ASHTON-UNDER-LYNE  
OL6 8UY  
(9.00am to 6.00pm)



TITLE	AMIGA	ST	TITLE	AMIGA	ST	TITLE	AMIGA	ST
Rugby League	11.25	11.25	Star Glider II	18.75	18.75	Tiger Road	18.75	14.95
S.O.I.	-	14.95	Star Trek	-	14.95	Time & Magik	14.95	14.95
Sapiens	-	14.95	Star Ray	18.75	-	Time Bandit	14.95	14.95
Scrabble Deluxe	14.95	14.95	Star Wars	14.95	14.95	Tracers	18.75	-
Screaming Wings	11.25	11.25	Starquake	-	14.95	Trackers	18.75	-
Scraples	-	14.95	Stellar Crusade	-	26.25	Trantor	-	14.95
Seconds Out	14.95	14.95	Steve Davis Snooker	14.95	14.95	Trash Heap	-	14.95
Seige on London	14.95	14.95	Stir Crazy (BoBo)	14.95	14.95	Trauma	-	14.95
Sentinel	14.95	14.95	Stockmarket	14.95	14.95	Triv Pursuit new beg.	14.95	14.95
Shackled	-	14.95	Stone Breaker	-	11.25	Trivia Challenge	-	14.95
Shadowgate	18.75	18.75	Storm Lord	14.95	14.95	Trivia Trove	7.50	7.50
Shard of Spring	-	18.75	Strange New World	11.25	-	Trivial Pursuits	-	14.95
Sherlock	18.75	18.75	Streets Sports Basketball	18.75	-	Typhoon	18.75	14.95
Shiloh	22.45	18.75	Street Fighter	18.75	14.95	Ultima III	18.75	18.75
Shuffleboard	-	7.50	Streetgang	11.25	11.25	Ultima IV	-	18.75
Side Arms	18.75	14.95	Strike	-	7.50	Ultimate Golf	14.95	14.95
Sidewinder	7.50	7.50	Strike Force Harrier	18.75	18.75	Uninvited	20.20	18.75
Silent Service	18.75	18.75	Strip Poker II+	11.25	11.25	Universal Military Sim	18.75	18.75
Silicon Dreams	14.95	14.95	Stuntman	14.95	14.95	Vampire Empire	14.95	14.95
Sinbad	18.75	18.75	Sub Battle Sim	18.75	18.75	Vectorball	11.25	11.25
Sky Rider	-	11.25	Summer Olympiad	-	14.95	Verminator	-	18.75
Skyblaster	14.95	14.95	Sundog	-	11.25	Victory Road	18.75	14.95
Slapfight	14.95	14.95	Super Cycle	-	18.75	Virus	14.95	14.95
Slaygon	14.95	14.95	Super Hang-On	-	14.95	Wanderer	18.75	14.95
Soccer	-	7.50	Supersprint	-	11.25	War Hawk	-	7.50
Soccer Supremo	11.25	11.25	Swooper	7.50	-	War in Middle East	14.95	14.95
Soldier of Light	18.75	14.95	TT Racer	-	18.75	Wargame Const Set	18.75	18.75
Solomons Key	-	14.95	T.N.T.	-	14.95	Warlock	-	11.25
Sorcery	-	11.25	Tai Pan	-	14.95	Warlocks Quest	14.95	14.95
Space Baller	7.50	7.50	Tanglewood	14.95	14.95	Warship	-	22.45
Space Harrier	18.75	14.95	Technocop	14.95	14.95	Way of the Little Dragon	14.95	-
Space Harrier II	-	14.95	Tee Up	-	7.50	Wec Le Mans	18.75	14.95
Space Quest II	-	14.95	Terramex	14.95	14.95	Where Time Stood Still	-	14.95
Space Race	-	18.75	Terrorpods	18.75	18.75	Whirligig	14.95	14.95
Space Ranger	14.95	14.95	Tetra Quest	14.95	14.95	Winter Games	18.75	18.75
Spidertronic	14.95	14.95	Tetris	14.95	14.95	Winter Olympiad	14.95	14.95
Spinworld	14.95	-	The Deep	18.75	-	Wizard Wars	14.95	14.95
Spitfire 40	-	18.75	The Games Summer Edition	18.75	14.95	Wizards Crown	-	18.75
Spitting Image	14.95	14.95	The Games Winter Edition	18.75	-	Wizball	18.75	14.95
Spy Vs Spy	-	18.75	The President is Missing	18.75	-	World Class Leaderboard	-	14.95
ST Compilation	-	14.95	Them	11.25	-	World Darts	11.25	18.75
ST Wars	-	18.75	Theodor	18.75	-	World Games	18.75	-
Stac	-	29.95	The Three Stooges	22.45	-	World War II	26.25	26.25
Staff	-	14.95	Thrust	-	7.50	Xennon	14.95	14.95
Star Glider	18.75	18.75	Thundercats	18.75	14.95	Xevious	-	18.75

**WANTED - PROGRAMMERS, MUSICIANS AND GRAPHIC ARTISTS FOR ALL 8-BIT AND 16-BIT MACHINES, IN A DYNAMIC NEW DEVELOPMENT HOUSE. BOTH ESTABLISHED AND GOOD QUALITY NEWCOMERS REQUIRED. PLEASE CALL OR WRITE WITH ANY DETAILS OF CURRENT OR PAST PROGRAMS. TOP QUALITY CONTRACTS ON OFFER TO THE RIGHT PEOPLE.**

## PRIZE DRAW INFORMATION

With every £10 spent with us the customer will receive one entry into GIFFORD SOFT PRIZE DRAW. All purchases for the draw must be accompanied with the coupon provided in the advert. All entries must be received by us NO LATER than the 31st December to enable the draw to be held on the 4th January. The prizes are as follows: 1. An ATARI STFM Summer Pack with over £400 of software, plus the current top three games in the Gallup chart at the time of the draw. 2. A £100 software voucher to be redeemed against any software of your choice. 3. A £50 voucher to be used against any software to your liking, and all other entries will receive a 10% discount voucher.

## POSTAL DETAILS

All prices inc. V.A.T. and first class recorded delivery in the U.K. Overseas please add £2.00 extra. Please send S.A.E. for a free price list stating machine used. Please do not send cash through the post and if you must please send it recorded delivery. If you require an up-to-date, information list on the latest releases please phone the above telephone number for immediate attention. We are open six days a week till 6.30 p.m.

## OTHER DETAILS

All software is guaranteed and will be replaced without question. We also supply software for the following machines. AMIGA, SPECTRUM, CBM64, BBC, ELECTRON, MSX, SEGA, NINTENDO, ATARI 8 BIT PC & COMPATIBLES, APPLE, AMSTRAD C16. Also with every order over £20 we will give you a free disk. All orders will be dispatched within 24hrs (subject to availability). We also supply a full range of computers and peripherals and all hardware needs.

**To: GIFFORD SOFT, DEPT PCW,  
21 Whernside Avenue,  
Ashton-under-Lyne, Lancs. OL6 8UY**

Please send me copies of.....

Format ..... Price £ .....

Name .....

(BLOCK CAPITALS)

Address .....

.....Post code.....

Cheques payable to GIFFORD SOFT



## 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:ORG 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,FB,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,F1,1B,F7,F1,C9
,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00

```

## 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(&dumny,&dumny,&dumny,&dumny);
    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",1,4,4,4,2,4,4,1,1,1,4,1,1,4,4,4,2,4,4,4
8010 DATA "BRODIE",2,0,2,2,2,0,0,0,0,0,0,0,0,0,0,0,2,2,2,0,2,2
8020 DATA "BRUCE",2,2,6,2,2,4,4,2,4,4,2,4,4,2,4,2,2,2,7,2,2,2
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",2,7,2,2,2,4,4,2,4,4,2,4,4,2,4,4,2,2,2,7,2,7

8080 DATA "DAVIDSON",4,0,4,4,4,4,1,4,1,1,2,1,1,4,1,4,4,4,4,0,4,4
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",2,0,2,2,2,0,0,4,4,4,2,4,4,2,4,0,0,2,2,2,0,2,0
8110 DATA "FARGUHANSON",6,4,4,4,0,0,0,1,1,1,2,1,1,1,0,0,4,4,4,6,4
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",4,0,4,4,4,1,1,0,0,1,1,0,0,1,1,4,4,4,0,4,4,4
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",2,7,2,2,2,2,4,2,4,4,4,4,4,2,4,2,2,2,2,6,2
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",2,6,6,6,6,0,0,0,0,0,0,0,0,0,0,0,6,6,6,2,6
8270 DATA "MACQUEEN",6,0,0,0,0,2,2,0,2,2,0,2,2,0,2,2,0,0,0,0,6
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

```



# KENN GARROCH



Your technical  
queries  
answered

## 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 frequency 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 expertise 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?

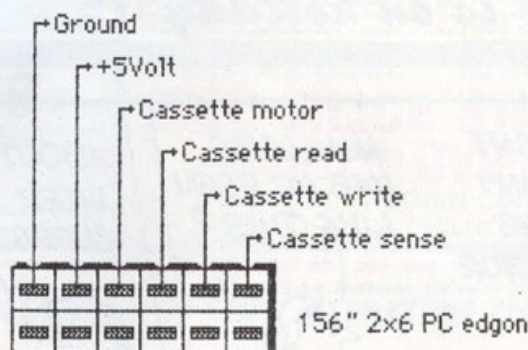
**A** Not a bad pressie. The best place to start after removing it from its box is to read the manual, since this gives step-by-step instructions on getting the machine up and running. This page will self-destruct in five seconds. Good luck.

## 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

## NEXT WEEK

On sale Thursday,  
January 26

### Communications supplement

Comms afficianado Steve Gold gets back to his roots and describes:  
What a modem is?  
How to choose a modem?  
BT vs. Mercury  
Bulletin Boards  
E-Mail  
Multi-user games  
Packet switch networks  
International systems

### Amiga basics

Kenn Garroch differentiates between two new basics for the CBM Amiga.

### Simulations

Lee Paddon reckons F-19 Stealth Fighter to be the most intelligent challenge yet faced by sims fans.

## HACKERS is on holiday





## 520ST-FM SUPER PACK



### 1Mb DISK DRIVE £450 OF SOFTWARE

#### ARCADE GAMES

Arkanoid II	Imagine	£19.95
Beyond The Ice Palace	Elite	£19.95
Black Lamp	Firebird	£19.95
Buggy Boy	Elite	£19.95
Chopper X	Mastertronic	£9.99
Ikari Warriors	Elite	£14.95
Marble Madness	Electronic Arts	£24.95
Quadrathlon	Logotron	£19.95
Ranarama	Hewson Consultants	£19.95
Return To Genesis	Firebird	£19.95
Roadwars	Melbourne House	£19.95
Starquake	Mandarin	£19.95
Test Drive	Electronic Arts	£24.95
Thrust	Firebird	£9.95
Thundercats	Elite	£19.95
Wizball	Ocean	£19.95
Xenon	Melbourne House	£19.95
Zynaps	Hewson Consultants	£19.99

#### SPORTS SIMULATIONS

Eddie Edwards Super Ski	Elite	£19.95
Seconds Out	Tynesoft	£19.95
Summer Olympiad '88	Tynesoft	£19.95

#### PRODUCTIVITY SOFTWARE

Organiser	Triangle Publishing	£49.95
-----------	---------------------	--------

#### JOYSTICK

Atari CX40 Joystick	Atari Corp	£4.99
---------------------	------------	-------

FREE ATARI BUNDLE VALUE: £458.97

The Atari Super Pack is ideal for you if you want to get off to a flying start with the best in entertainment software. The Pack includes a 520ST-FM with 5Mb RAM, a built-in 1Mb disk drive, over £450 of top games and a joystick. If you buy the Super Pack at Silica Shop, we will add our own ST Starter Kit (worth over £200), Free Of Charge. Return the coupon for details.

# £399

INCLUDING VAT

With SM124 mono monitor: £498 INC VAT With SC1224 colour monitor: £698 INC VAT



## ST COMPUTERS

The range of Atari ST computers offers something for everyone. From the games enthusiast who wants the challenge of the very best in arcade action, to the businessman who wants to make financial forecasts or faultless presentations. The ST offers high quality graphics, sound and speed for the gamer, whilst providing a fast, user friendly and affordable solution to business. The ST is now firmly established in the home environment and boasts a wealth of users in education, local government, television, and a variety of different businesses. Software for the range stretches to cover applications as diverse as ENTERTAINMENT, ACCOUNTS, ART, COMMUNICATIONS, COMPUTER AIDED DESIGN, DATABASES, DESKTOP PUBLISHING, EDUCATION, MUSIC, PROGRAMMING, SPREADSHEETS, WORD PROCESSING and more. For a full list of the software available, as well as details of the ST range, complete and return the coupon below.

All prices correct at the time of going to press. £80C.

## 520ST-FM EXPLORER PACK WITH BUILT-IN 1Mb DISK DRIVE



The value for money offered by the Atari ST range is reflected in the Explorer Pack featuring the 520ST-FM computer with 512K RAM. The 520ST-FM computer now comes with a built-in 1 Mb double sided disk drive as well as a free mouse controller and a built-in TV modulator. The new 520ST-FM Explorer Pack includes the 520ST-FM computer, the arcade game Ranarama, a tutorial program and some useful desktop accessories. In addition, if you buy the Explorer Pack from Silica, we will give you the Silica ST Starter Kit worth over £200, FREE OF CHARGE. Return the coupon for details of our Starter Kit and of the full ST range.

# £260

ONLY £2.51 PER WEEK  
RETURN COUPON FOR DETAILS  
+VAT= £299

+ SM124 mono monitor: £398 INC VAT + SC1224 colour monitor: £598 INC VAT

## 1040ST-FM PROFESSIONAL PACK

### NOW WITH TV MODULATOR

For the serious home user and the small business, we are pleased to announce a new package based around the 1040ST-FM. The 1040ST-FM has 1Mbyte RAM and a 1Mbyte built-in disk drive. In addition, the 1040ST-FM now comes with a TV modulator built-in. (The previously available 1040ST-F was designed for use with a monitor only and did not come with a modulator.) This modulator allows the 1040ST-F to be plugged directly into any domestic TV set, and comes complete with a lead to allow you to do so. The new 'Professional Pack' from Silica includes the new 1040ST-FM with modulator plus four high quality software packages including a spreadsheet, database, word processor and programming language. This 'Professional Pack' software will enable you to get straight down to business with your new computer. In addition to this software (worth £384.84), if you buy the Professional Pack from Silica Shop, you will also receive the Silica ST Starter Kit (worth over £200), Free Of Charge. Return the coupon for further information.



ATARI 1040ST-FM	(Computer)	£499.99
VIP PROFESSIONAL	(Spreadsheet)	£149.95
MICROSOFT WRITE	(Word Processor)	£149.95
SUPERBASE PERSONAL	(Database)	£59.95
BASIC DISK & MANUAL	(Language)	£24.98

NORMAL RRP: £884.82

LESS DISCOUNT: -£385.82

PROFESSIONAL PACK PRICE: £499.00

# £499

INCLUDING VAT

With SM124 mono monitor: £598 INC VAT

With SC1224 colour monitor: £798 INC VAT

## 2Mb & 4Mb MEGA ST

The MEGA ST computers are styled as a lightweight keyboard with a separate CPU, connected by a coiled telephone style cable. There are two versions of the MEGA ST, one with 2Mbytes of RAM and the other with 4Mbytes. Each version has a 1Mbyte double sided disk drive built-in to the CPU unit. The MEGA ST's do not come with modulator built-in and must therefore be used with a monitor. With every MEGA ST purchased, we will add the 'Professional Pack' software (worth £384.83) detailed above, plus the Silica ST Starter Kit (worth over £200) both Free Of Charge. Return the coupon for further details.

### 2Mb MEGA ST

£899 INC VAT

+ mono monitor = £998

+ colour monitor = £1198

### 4Mb MEGA ST

£1199 INC VAT

+ mono monitor = £1298

+ colour monitor = £1498



## DTP PageStream £149 +VAT = £171.35

Desktop Publishing (DTP) is one of the fastest growing applications for personal computers. We are pleased to announce a powerful low cost package for the Atari ST called PageStream. PageStream costs only £149 (+VAT=£171.35) and, because it works with an Atari 1040ST and a Seikosha SP-180AI printer, you can be up and running with a complete system for less than £1000. Some of the features of PageStream are listed to the right. If you would like further information on this program, complete and return the coupon below, ticking the DTP box in the corner.

- \* TEXT-FLOW AROUND GRAPHICS
- \* ROTATION OF TEXT & GRAPHICS
- \* SLANT OR TWIST ANY OBJECT
- \* POSTSCRIPT COMPATIBLE
- \* TAG FUNCTION
- \* AUTO-MANUAL KERNING & HYPHENATION
- \* GROUPING OF OBJECTS

## WHY SILICA SHOP?

Before you decide when to buy your new Atari ST computer, we suggest you consider very carefully WHERE you buy it. There are MANY companies who can offer you a computer, a few peripherals and the top ten selling titles. There are FEWER companies who can offer a wide range of products for your computer and expert advice and help when you need it. There is ONLY ONE company who can provide the largest range of Atari ST related products in the UK, a full time Atari ST specialist technical helpline and in-depth after sales support, including free newsletters and brochures delivered to your door for as long as you require after you purchase your computer. That one company is Silica Shop. We have been established in the home computer field for ten years with an annual turnover in excess of £5 million and can now claim to meet our customers' requirements with an accuracy and understanding which is second to none. But don't just take our word for it. Complete and return the coupon below for our latest literature and begin to experience the Silica Shop specialist Atari service.

**SILICA STARTER KIT:** Worth over £200, FREE with every Atari ST computer bought from Silica.

**PROFESSIONAL PACK:** Free business software with 1040ST-FM and MEGA ST's bought from Silica.

**DEDICATED SERVICING:** 7 full-time Atari trained staff with years of experience on Atari servicing.

**THE FULL STOCK RANGE:** All of your Atari requirements from one place.

**AFTER SALES SUPPORT:** The staff at Silica are dedicated to help you get the best from your ST.

**FREE CATALOGUES:** Mailed direct to your home as soon as we print them, featuring offers as well as all of the new releases.

**FREE OVERNIGHT DELIVERY:** On all hardware orders shipped within the UK mainland.

**PRICE MATCH PROMISE:** We will match competitors on a same product same price basis.

**FREE TECHNICAL HELPLINE:** Full time team of Atari technical experts always at your service.

## FREE SILICA STARTER KIT WORTH OVER £200

WITH EVERY ST - RETURN COUPON FOR DETAILS  
ALL PRICES QUOTED INCLUDE FREE UK DELIVERY

## DO YOU OWN AN ATARI ST?

If you already own an Atari ST computer and would like to be registered on our mailing list as an ST user, let us know. We will be pleased to send you copies of our price lists and newsletters FREE OF CHARGE as they become available. Complete the coupon and return it to our Sidcup branch and begin experiencing a specialist ST service that is second to none.

### SILICA SHOP:

**SIDCUP (& Mail Order)** 01-309 1111

1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX

OPEN: MON-SAT 9am - 5.30pm LATE NIGHT: FRIDAY 9am - 7pm

**LONDON** 01-580 4000

52 Tottenham Court Road, London, W1P 0BA

OPEN: MON-SAT 9.30am - 6.00pm LATE NIGHT: NONE

**LONDON** 01-629 1234 ext 3914

Selfridges (1st floor), Oxford Street, London, W1A 1AB

OPEN: MON-SAT 9am - 6.00pm LATE NIGHT: THURSDAY 9am - 8pm

To: Silica Shop Ltd, Dept PCWK 1288, 1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX  
**PLEASE SEND FREE LITERATURE ON THE ATARI ST**

Mr/Mrs/Ms: ..... Initials: ..... Surname: .....

Address: .....

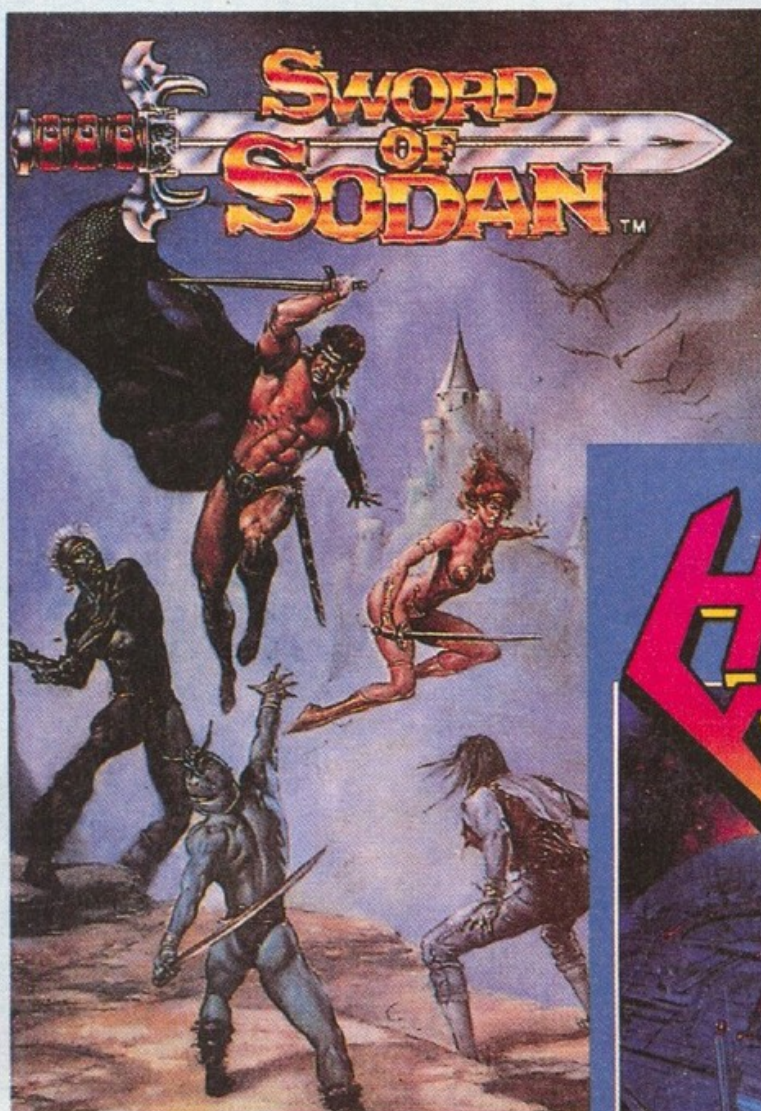
Postcode: .....

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

DTP ☐

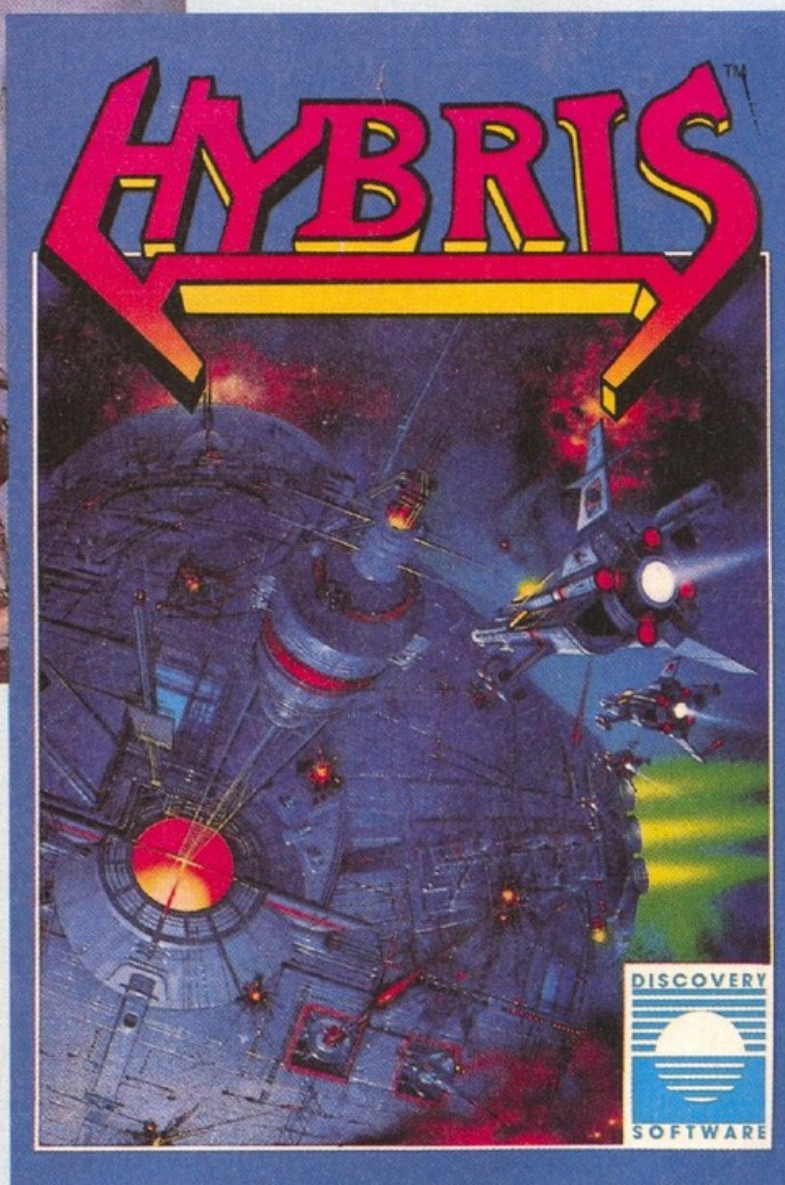


# BOTH FOR THE AMIGA!



**EXCEPTIONAL  
GRAPHICS  
+ Gameplay**

**PHONE NOW FOR DETAILS ON:  
0252 877431**



*"Distributed in collaboration with MIRRORSOFT"*

**Sales Department, Unit 1, Rear of 7 Wellington Road,  
Sandhurst, Surrey GU17 8AW Tel: 0252 877431**