

APRIL/MAY £1.50

**A  
T  
A  
R  
I  
  
U  
S  
E  
R**

THE ONLY MAGAZINE  
COVERING XL/XE  
AND ST  
MACHINES

*Track the sun's rays  
with Sunplotter*



**CAN THE XL/XE BEAT  
THE ST AT CHESS?  
WE TRY IT OUT**

**XL/XE**

NEW SERIES ON MACHINE CODE  
TURBO BASIC TUTORIAL  
SPARTANOS X REVIEW



**ST**

PROTEXT  
FANTASY ROLE PLAYING  
JOAN OF ARC  
HEADDACH  
MIDI FOR THE LAYMAN

# ATARI USER

LAST CHANCE  
OFFERS FINISH THIS ISSUE  
**OFFERS**

## ATARI USER BACK ISSUES

Your LAST chance to get the ATARI USER back issues for 1988 at a special price. Maybe you have just bought a 250K or a new 1000K? Maybe you missed a few issues last year? Whatever the reason here is a great chance to get a lot more programming advice, stacks of type-in listings, news of software, reviewed at all the year's releases and lots more. If want to get more from your Atari and save some money, take advantage of this offer NOW!

### ATARI USER BACK ISSUE PACK - 10 ISSUES FROM 1988 for JUST \$5!

Price includes postage in UK. Overseas add £2 for postage.  
Orders will be despatched by surface mail only.

## STARQUAKE

**BIGGEST EVER SAVINGS!**

STARQUAKE is an action packed arcade game in which you control a biologically-constructed being through 500 action packed screens to retake the unstable planet's core. Atari User gave this an excellent review and you now have the chance to get it at an excellent price!

STARQUAKE is a full-price game (yep! one of an incredible saving - you can save up to 50%)

**CASSETTE** Normally \$8.95 **OFFER PRICE \$2.95!**  
**DISK** Normally \$10.95 **OFFER PRICE \$3.95!**

## 10 OF THE BEST!

The best listings from Atari User ready to run on disk.

### GAMES Vol. 2 £3.95

Featuring Colour Puzzle, Dem Trouble, Sevens, Light Gun Boaster, Virus Runner, Breakin', Submarine Hunter, Tears of Torment, Clay Pigeon Shooting and Frog.

**TEN GREAT GAMES! FEW ONLY!**

### FIREBIRD COLLECTION

INCREDIBLE VALUE low budget titles for just \$4.95 each! less than half price! **WALLA MASTERS, BUSH WARRIORS, SPACE JUNGLE, FIRESTORM, MUCKY (3V12)**  
Five tapes for ONLY \$4.95  
**VERY LIMITED STOCK**

### THE ATARI EXECUCARD

Your last chance to get the amazing Atari 800K personal calculator at a special price. An ultra-precise pocket calculator, five functions and scientific built-in memory.

**RRP \$5.99 Offer price \$3.95**

### ATARI USER TOOLKIT SAVE \$3

A super Toolkit for programmers, both novice and experienced. Toolkit adds a number of facilities missing from Atari Basic. All these utilities included: CHECK (run the memory on or off), DELETE (erase all blocks of programs), RETURN (return your program), DISK (disk drive descriptor), WALK (convert hexadecimal to 0-9), CALCULATES Atari user checksums, LINKS (links all variables), CHANGE (Atari names of variables), EDIT (removes all blanks and replaces program size and LIBRARY addresses of all the names and Graphics character on an Epson type printer).

**Cassette** £3.95  
**Disk** £3.95

### DISK STORAGE BOX \$4.95

A handy disk storage box for up to 60 disks. Luxury padded PVC boxes are strong made to protect your disks. Complete with the Atari User logo.

**ONLY A FEW LEFT!**

### ATARI USER DUST COVERS

Protect your computer with an Atari User dust cover made in clear water resistant vinyl, specially to fit the 1000K case (fits the 650K) and 800K. Complete with Atari User logo.

**1000K/650K** \$3.95  
**800K** \$3.95

## MINI OFFICE II - SAVE \$5!

One of the best serious programs ever for the Atari. WORD PROCESSOR, DATABASE, SPREADSHEET, LABEL FORMER, MAIL CHARTS and COMMUNICATIONS all in one great package. Highly recommended in every review. This is the program to take you beyond games.

**PREVIOUSLY \$19.95  
SPECIAL OFFER FOR A  
LIMITED TIME JUST \$14.95**

## PAGE 6 OFFERS

ORDER  
FORM  
on page 41

### TURBO BASIC \$3.95

The best language for every Atari User. Speeds up your existing programs or allows you to write in structured, more easy to understand code. Also includes a compiler to give you near machine language speed without any knowledge of machine code. So simple to use, even a beginner will have no trouble. Check out the TUTORIAL series in PAGE 6, ATARI USER for details of this superb language or see back issues of PAGE 6 for some super demos.  
Only \$3.95 complete with manual listing of all the features of this great language - probably the best thing you'll ever buy if you want to program!

**SEE THE TUTORIAL THIS ISSUE**

### SPELL ME for your children

A super program to teach young children word recognition and spelling. Each word has a picture and there are several levels and options. Leave the word on the screen to allow the child to match it, turn the word off so that more effort is required or just have the picture to make things a little harder. Written by a primary school teacher for youngsters for 3 years and up, this will give your child a good start with words.

**Cassette** \$4.95 **Disk** \$6.95



**BLASTCOM**  
Another machine  
language game!

**SUBSCRIPTIONS**

Annual subscription rates (6 issues)

UK	£9.00
Europe	£13.00
USA/Canada (add)	£13.00
USA/Canada (flat)	£11.00

**PAGE 6 ON DISK**

A disk containing all of the disk programs from each issue of PAGE 6 is available either separately or as subscription. Single (in UK £2.00 per disk). Subscripton rates (6 issues)

UK	£24.00
Europe	£30.00
USA/Canada (add)	£30.00
USA/Canada (flat)	Please enquire

**SUBMISSIONS**

PAGE 6 welcomes and encourages its readers to submit articles, programs and reviews for publication. Programs must be submitted on 5.25 or 5.00 floppy disks wherever possible for submission to test thoroughly. We look to encourage your participation and do not have other fees for submissions. If you're being interested you write a program or article and submit it. Appropriate payment will be made for all published programs and articles.

All original articles, programs and other material in PAGE 6 is copyright of the author as printed. All uncredited material is copyright PAGE 6. Unless otherwise the by-line 'As Rights Reserved' any material in PAGE 6 may be reproduced by user groups and other non-profit making organisations provided that the author's name is included and PAGE 6 is mentioned on the original publisher. Permission to publish elsewhere should be obtained from PAGE 6 or the author. Editors of newsletters requesting material are requested to send a copy of the relevant issue to the Editorial address of PAGE 6. While we take whatever steps we can to ensure the accuracy of articles and programs and the contents of advertisements, PAGE 6 cannot be held liable for any errors or claims made by advertisers.

STAR (TM) is a registered trademark of STAR CORP. All other trademarks belong to their owners. PAGE 6 is an independent publication and has no connection with Atari or with any other company or publisher.

The next issue of  
**NEW ATARI USER**

will be on sale 25th May.  
Editorial copy date is 17th April

<b>BLASTCOM</b> by Karl Fenwick	13
<b>A fast and furious machine code game</b>	<b>TYPE-IN LISTING</b>
<b>CAN DAVID BEAT GOLIATH?</b> by John S. Dawson	16
<b>XL versus ST at chess</b>	
<b>FINDER</b> by Robert De Letter	18
<b>A utility to trace keywords</b>	<b>TYPE-IN LISTING</b>
<b>MACHINE CODE LIBRARY</b> by Stephen Williamson	20
<b>Add machine code routines to your programs</b>	
<b>SPARTANOS X</b> reviewed by John S. Dawson	24
<b>Great new support from KCD</b>	
<b>SUNPLOTTER</b> by Peter Scott Welch	26
<b>Trace the time and sunset across the world</b>	<b>TYPE-IN LISTING</b>
<b>UNDER STARTERS ORDERS</b>	<b>DISK BONUS</b> 29
<b>AMAZING</b> by Trevor Pennington	30
<b>Fishing up diamonds, avoiding lightning</b>	<b>TYPE-IN LISTING</b>
<b>TUTORIAL SUBROUTINES</b> by Ian Falcayon	34
<b>A cassette based database</b>	
<b>SCROLLY TEXT EDITOR</b> by Bryan Kennelley	36
<b>Can you beat the world record scroll?</b>	<b>TYPE-IN LISTING</b>
<b>RANDOM NOTES</b> by Mark Hutchinson	40
<b>TURBO BASIC TUTORIAL</b> by Gordon Cameron	42
<b>SOFTWARE REVIEWS</b>	47
<b>Speed Run .. ZAP-PAK .. Super Soccer .. Stratosphere ..</b>	
<b>Periscope up .. Leaper</b>	

**ST FILE**

<b>PROTEXT</b> reviewed by Piper	53
<b>The ST's most best word processor</b>	
<b>JOAN OF ARC</b> reviewed by John Sweeney	54
<b>JUST WHAT IS MIDI?</b> by John S. Dawson	56
<b>New series for the lay musician</b>	
<b>FLAIR PAINT</b> reviewed by John S. Dawson	59
<b>GAMES REVIEWS</b>	60
<b>Too many to mention!</b>	
<b>TIME ONLY FOR HEROES</b> by John Sweeney	68
<b>Two new Fantasy Role Playing games</b>	
<b>HEADCOACH</b> by Damian Howarth	70
<b>No flashy graphics, but a great simulation</b>	
<b>SPRITE MASTER</b> reviewed by Damian Howarth	73

<b>Editorial</b>	4	<b>Mailbag</b>	10
<b>News</b>	6	<b>Resource File</b>	24
<b>Listing Conventions</b>	8		

<b>CONTACT</b>	46	<b>BACK ISSUES</b>	50
----------------	----	--------------------	----

Editorial address: P.O. Box 54, Bedford, ST16 1DA, ENGLAND Tel: 0763 67088  
 Editor & Publisher: Les Ellingham - Advertising: Sandy Ellingham - Assistant: Nancy Mitchell  
 Printed by Stephens & George, Northey, York YO85 5SD. Typesetting by the Printing Studio 881 222 1017  
 Origination (film, plating) by Elsey 0470 4586. Wholesale Distribution: Diamond Computers, Unit 1,  
 Burgess Road, Redditch, Warks, Hedding, S. Sussex TN33 49F Tel: 0424 604021  
 PAGE 6 ATARI USER is published bi-monthly on the last Thursday of the month prior to cover date.



BONDED BOARD NEW

**ATARI 850**PARALLEL/SERIAL  
RES32 INTERFACES

New left - £55

NEW £7.95

**5.25"  
VERTICAL  
DISK RACK**  
with stationary holder**NEW  
ATARI XF551  
360K DRIVES**with service cover &  
cables (1) and printer that  
supports the special  
RES32 of the XF551**STILL ONLY  
£139.95****CONTROLLER CARD PPB II  
'BACKUP PACK'**

Includes "Backuppak" which is a utility for transferring or protecting data to the external storage device (floppy diskette). The Backuppak utility allows you to set up backup disks, transfer, copy, backup &amp; restore files in program mode, merge, compare &amp; verify, and delete files. The Backuppak utility is available in both the original 5.25" version £45.00

5.25" version £54.00

**ATARI XE130 CUSTOM**all the features of the standard  
130XE but includes a built-in printer interface, custom reset commander so you  
don't have to keep switching off the computer, 16K word, completely re-  
designed system character set with 2 page instead of the half page, high speed  
cursor routine, U.S. system colour defaults

£79.95

**THE  
SUPER ARCHIVER II**

- The only TRUE duplicator (will not perform all other drive strategies for games, tapes)
- Includes U.S. Character (Characteristics compatible)
- Special editors to repair damaged protected disc software and format diskette (for when you can't get a replacement)
- Four modules (ready) \$199.95 per piece (Plug-in module and a reader when for easy installation)

£59.95

**DISKETTES**

5.25" DS-DD 48 TP

£3.00 for 10

£25.00 for 100

**TURBOBASE™****THE INTEGRATED MODULAR BUSINESS SYSTEM  
'BIM POWER WITHOUT THE PRICE'**Write in for more information on this truly amazing  
small business package.**STAR LC-10 PRINTER**Epson compatible printer with superb 9x10 and very accurate  
features for graphics printing not normally found in the price rangeSTAR LC-10 170000 STAR LC-10 240000 SHIRT FEEDER 25000  
REORDER FROM LC-10 2500 LC-10 2500**WE NOW HAVE EX-STOCK A LARGE LIBRARY  
OF 8-BIT SOFTWARE WITH SAVINGS OF  
UP TO 75% OFF THE NORMAL SELLING PRICE  
PLEASE SEND A S.A.E. FOR LIST**

14, ROMLEY COURT, LANDBRIDGE ROAD, FULHAM, LONDON SW9 4LL

Telephone 01-731 1276

**ACCESS - MASTERCARD - EUROCARD ACCEPTED****5.25 ROM CARTRIDGES**

ARMED	14.95
BALL IN ACTION	14.95
BEAT THE BAY	14.95
BEARINGS/SHOOT FACTOR	14.95
BIG UNCLE	12.95
BOAT	12.95
COCKROACH	14.95
BOOK PARTIAL	12.95
POLE POSITION	12.95
WALLPAPER	12.95
AMERICAN FOOTBALL	12.95
WRESTLE IN FRANTICUS	14.95
WREN RUN	8.95
YIPPIE	8.95
YOUNG MANAGER	7.95

**5.25 DISKS**

AUT DRINK (RM)	14.95
BRICK	12.95
BUCK SUPER 30000 (RM)	12.95
F-14 (2 DISK) (RM) 1	12.95
FOUR GREAT GAMES 1	5.95
FOUR GREAT GAMES 2	5.95
FOUR GREAT GAMES 3	5.95
FOUR GREAT GAMES 4	5.95
GOLF BY THEWAY (RM)	14.95
MINIUS BACK (RM)	12.95
JEKILL (RM)	14.95
KNIGHT OF SPAIN	12.95
KNIGHT (RM) (RM) TEXT	12.95
LANCELOT (RM)	12.95
LEADERSHIP	12.95
MIXED FORCE	8.95
MONO DRAGON	14.95
SHARPLE	12.95
SHOOT 1 (RM) (RM)	12.95
SPY TO SPY TRAVEL	12.95
TIME & MARR (RM) TEXT	12.95
WINTER OLYMPIAD 88 (RM)	12.95

**5.25 CASSETTES**

ACE OF HEES	1.95
AMERICAN ROAD RACE	1.95
ATOMIC ADIOS	8.95
CALIFORNIA RUN	1.95
DARK RIDER	1.95
EMER SUPER SIZZLER (RM)	4.95
F-16 STRIKE SAGLE	4.95
FOUR GREAT GAMES 1	1.95
FOUR GREAT GAMES 2	1.95
GAULF (RM)	1.95
GRAND PRIX SIMULATOR	1.95
INDIAN WARRIOR	12.95
LANCELOT (RM)	12.95
LIVE BEING DRIVING	2.95
MINIUS BACK (RM)	12.95
MINIUS APPROACH	2.95
MINIUS (RM) (RM) TEXT	12.95
MINIUS (RM)	4.95
PERSONS UP	1.95
PLATFORM FRANTIC (RM)	4.95
QUARANTY GOLE	4.95
RAMBLER	4.95
SHOOT (RM) (RM) (RM)	4.95
SPY (RM)	1.95
SPY TO SPY TRAVEL	12.95
TIME & MARR (RM) TEXT	12.95
WIND CLASSICS	1.95
WINTER OLYMPIAD 88 (RM)	4.95
ZIPPER	2.95

**5.75 DISKS**

AFTERMATH	12.95
ARMORED QUEST	14.95
CLUB	12.95
FED. OF FREE TRADER	14.95
F-16 FALCON	12.95
LORDS OF THE REALM	12.95
SPYD BALL	12.95
TRIALS THROUGH HELL (RM)	14.95

**STAR RANGERS II**  
FROM £14.95

**DRAGONS**  
C £8.95 D £10.95

**SUNARO**

PREPROM, P.O. BOX 78, MACCUSSFIELD, CHESHIRE SK10 2TB

Phone for the leading name in 8-bit software  
Developers of the Sunaro range of software  
Software available in 5.25 inch floppy disks & cassette tapes

Member of the  
**Atari UK**

**ATARI**

## NEW ATARI XL/XE SUPPORT

Atari are demonstrating their support for the 8-bit machines by launching a new label which will include both existing and new software of budget prices. The label was launched initially in the U.S. but the first two titles were on their way to the UK as we went to press. Existing software such as *Thunderfox* and *Telltale World* will now be available at £2.99 and the first of the new titles at this price is *Nuclear* said to be "difficult to explain but totally addictive". Full price software will also be produced by Atari commencing with *Light Attack* at £7.99

which is said to be an XE version of the arcade game *Flying Shark*. These and other titles should be available now, especially at the Atari Games Centre and other stockists. Atari will be extending the Games Centre concept with more outlets being appointed. Meanwhile back at Atari UK headquarters in Slough a group of employees have taken over a mail order operation called *ALAN WORLD* which was apparently set up by Atari eight/even months ago to provide support for the SL/XX machines. Although not particularly prominent in the past,

*Easy!* still from Atari states that *ALAN WORLD* will be up and running shortly and promises total 6-bit support with all current software available of discount and goodies such as tee shirts, badges and posters lined up. All currently produced Atari software will be available together with any third party software including educational titles. You need to become a member to participate and you will then receive regular mailings. You can get details by writing to: R. Warner, Atari world mail Order, Atari House, Railway Terrace, Slough, Bucks SL2 2EG.

## CRASH SIMULATOR?

If you are into *Flight Simulator II*, don't get into an SFSX1 disk drive, at least not yet. Various reports say that SFS1 won't run on Atari's new drive. Soft Logic are, apparently, aware of the problem and are not too pleased that Atari didn't test the drive more fully before releasing it. Atari meanwhile are not about to start changing the drive so it looks like it's down to Soft Logic to sort it out. If you have an SFSX1, best check before buying FS2. We would be interested to hear of any other problems experienced with the SFSX1 drive.

## NEW DATE FOR ATARI SHOW

If you are all ready to trek along to Alexandra Palace at the end of April for the new Atari Show hold fire a minute because the event show has been put back to June. We are not sure exactly why the date has been changed but understand that organisers Database Publications have had long discussions with Atari over their plans for the show and it may be that a later date would be more beneficial to all concerned. More likely is the fact that Database are recently involved in launching and promoting

the first European Computer Trade Show which takes place on the weekend before the usual date for the Atari Show and it is unlikely that the organisers could do justice to two shows on consecutive weekends. Whatever, the show is on and you can come along to see FSXL 6 and other supporters of the Atari at Alexandra Palace from 23rd to 25th June. Admission is £5 with a £3 discount if you book in advance. The Atari Xmas Show is also confirmed and will again be at Ally Pally from the 1st to 3rd December.

## THE AMIGA IS DEAD ... LONG LIVE THE 8 BIT ATARI!

If you are a dedicated 8 bit owner sick of being told that the SL/XX is dead and gone then you might be very interested in a little bit of news leaked away in the back of *Computer Trade Weekly*. This major trade paper carries a weekly chart of software sales compiled by Collyer and split between various machines. For the past year or so the Atari has been languishing near the bottom out-bid by the £2 and Amiga and occasionally even by the BBC and Electron but during January sales of software for the 8 bit Atari began to creep up until the week ending 21st January saw a major triumph - Atari 8 bit sales 4.1%, Amiga sales 3.4% The £2 still just

about but only by 1%. Was it a fluke? No, the following week saw the Atari increasing sales to 4.9% still ahead of the Amiga and just a fraction behind the £1 which stood at 4%. There came a drop in sales, Atari down to 4% but the £1 and Amiga plummeted to just 2.1% each! Local charts from Atari 8 bit sales everywhere and a poke in the eye to all those software publishers that have absolutely ignored the Atari over the past year. Next time someone tries to tell you that your old Atari is obsolete, you know what you can tell them and let's hope that a lot of the software publishers take note and get some new releases out.

## OTHER SHOWS WORTH A VISIT?

A couple of other shows might prove worth a visit, especially if you happen to be near, although no details are available of what sort of support there might be for the Atari. The first is one day show called *The Alternative Home Show* held on Saturday 1st April at the New International Hall, Croydon Street, London, SW1. This is aimed at the real hobbyist and is open to all masses except the SL, AMIGA and H&M! The

organisers want to give support to those computers that are not getting all the limelight in the media and that will include the Atari 8 bit if any exhibitors are interested in running up. Over to home from the 11th to 23rd April is *The Essex Computer Show*, a show dedicated to those who just like to play games and especially aimed at the younger audience. No details of exhibitors were available at the time of

writing but the organisers have been working hard to get a wide variety of machines supported as possible and there should be some companies supporting Atari. Small shows like these were fairly common some years ago but disappeared when the PCW Show seemed to eat everything up. It is interesting that these now seem to be the demand again for the less formal show and hopefully these will pro-

vide at least a small opportunity to promote the Atari 8 bit machines. But idea, if you don't live round the corner, is to get in touch with the organisers to see if there will be any Atari exhibitions. The *Alternative Home Show* is organised by *Search Ltd*, who can be contacted on 0473 690729 and *The Essex Computer Game Show* is organised by *Comedia Promotions* whose number is 0268 644777.

## NEW SOFTWARE COMING SOON

Despite rumours to the contrary, several of the companies that became famous for their Atari titles still have plans to support the 8 bit. Some interesting new titles for the XLX are imminent including a couple that have been long removed and awaited. Typewheel should have The Last Goodbye out by now and are working on Superman which was due for release at the end of February. Zappella, up in the same part of the world, have Enemy Daigle's Football Manager on disk at £12.95 or on tape at £9.95 which has been written for the Atari by the same guy who wrote Dragon. Could be the most dynamic football manager game yet? Zappella have also finished work on an Atari version of Star Wars which has been passed over to Denmark for release so keep your eyes out in the glades to see if the Atari version gets a mention.

Level 9, who always include the Atari in their plans, have

two new adventures in the works, Scope Ghost and another one yet unnamed, which are due for early summer release. Atlantis are working on a conversion of Gunfighter although the release date is not known and in the meanwhile won't have any new Atari titles, not because they don't want to release them, but simply because they don't have any. Mike Cole from Atlantis told us "We certainly want to continue supporting the Atari 8 bit but we just don't have any new programs, if any of your readers have good quality games for the Atari cat, then let us get in touch". He added that they were quite disappointed as their Atari titles have always sold well and the Atari market is now "bigger than ever".

Frontline Pot is still awaiting delivery from Alternative and is now scheduled for "around Easter". Apparently lots of problems and delays, looks like it could be quite a good stretch-out.



I don't know, Jim, it would have been completed much earlier if we hadn't asked the Reverend James to do the programming.

## BARGAIN CORNER

At the request of one of our readers, I & H Bell Electrical went through a couple of newsletters, packed with information about cheap electrical and electronic goodies such as snapper motors, hydraulic valves, switches and probes but failed in it all were some real bargains for potential Atari owners. How do you fancy a brand new £340 for £45 plus £3 delivery? Or an X12 cassette for just £15 plus £2 postage? A new joystick for a fiver? And if you can't backing these are dozens of electrical bargains for a free look.

We've no idea if these things are still available but it might be worth your while getting in touch with I & H Bell to see they have some more Atari bargains coming up. You can find them at 240 Portland Road, Stone, Staffs, BN9 3QJ and the phone number is 0271 734448.

# NEXT ISSUE

## LOOK OUT FOR

## NEW

# ATARI USER

looking something like this ...



Working copy (Byron Bell)

From Issue 30 Page 6 will change its title, but not its style - look out for **NEW ATARI USER** at your newsagents. On sale 25th May

if you buy your copy from a newsagent tell him about the change of title and make sure that he has a copy for you

**NEW ATARI USER** is distributed by **Diamond Express** and should be at all major newsagents. Tell us if you can't find it







# MAILBAG

write to  
**Mailbag**  
P.O. Box  
54,  
Stafford  
ST16 1DR  
ENGLAND

## AILING CASSETTE

I have an Acut 8000, and a tape recorder which will take most games except Amstrads which make some very good games. I think the problem is my tape recorder because my friend has the same computer and when I plug his records into my computer all the games work. I have been everywhere looking for someone to fix it and have not been successful yet in finding a person who will stand my claim. Please would you let me know of any places that would take an interest in my computer.

### Leigh Brayford, Maiden-Tread

Alan used to spin a number of festive Christmas around the country through small retailers but these now seem to have died and the multiple stores are not going to be interested in people's little problems. One company that was always good with repairs is A.L. Weston and his who are in the Riverside Flats at the back of the magazine and another company that will repair Alan's is PM Engineering, Unit 260 Millers Lane, Stone Park, Cambridge phone 0223 428007, although we are not sure if they do cassettes. It sounds as if your cassette's fault may be out of alignment, a common problem and relatively easy to fix, but do check

the cost of repairs before sending any equipment off as repairs cost sometimes cost almost as much as a new machine! If any reader knows of a good reliable company that will repair their S-M equipment please let us know and we will include it in our directory file.

## PROGRAMMING CHALLENGES

I am a devoted Avidian as you are but there are a few things that I have to ask you. Now that Alan West has been stopped will there be any more shows? Also could we have more challenges for the few good programmers such as I. What I mean is, Page 6 could think up an idea and we readers have to write a program for that idea, you could then offer a prize for the best one in. In Alan West there was a program to produce 3-D images called 3-D DRAWER. I was really impressed by it and it gave me the idea of drawing something on the screen and then changing its position, e.g. turning it around. As I am absolutely pathetic at machine code, I thought you could find a good programmer to do this. It would be of great interest to a number of people. You could draw a shape and then that shape into a player, add a few machine code routines and get it moving? On the subject of

machine code could you recommend a book for the complete beginner as I can't say I'm willing to learn how to program later. Could you also give me general assessment to your young summer Paul Gap. What will he think up next?

### R. Hill, Coventry

Thanks for the suggestions. A programming competition would be nice but from past experience we have found that it just doesn't work. What seems to happen is that everyone thinks that their efforts will not be as good as everyone else, so nobody writes anything but some of our subscribers have tried simple programming challenges with the same result so it is unlikely that we will be doing this in the near future unless hundreds of you demand it. The idea of drawing a 3-D image and viewing it from different angles has already been done in Page 6, but in Issue 26 with Colin Atkinson, you could even animate the image, but turning images into players is more difficult than might seem. The main problem is that a player is limited in size, although you could combine several players together. There are a few public domain Player Missile diagrams around which might help but you still need to add your own code to animate them.  
A good book for machine code?

## BEGINNER'S PROBLEMS

I bought an Acut 6000 for my son at Christmas without realising the potential of such a machine. Since then I have become totally addicted, not just to software games like my son, but to programming aspects and especially the type-in listings. As a complete novice I do not expect to know anything at all about programming to could you please explain what is wrong with certain listings? I decided to have a crack at Jumble Cell from Issue 38 as my debut but when I ran it all I got was 08008 0 on line 480. Imagine my dismay, I was totally confused as I had used TPO 03 and double checked and checked again. I also typed in Mink Box from Issue 38 but as I was it it

gave 08008 even when over again in line 2000.

I would like to add that although I have had these problems, they are the only problems I have encountered with your listings.

### I.B. Ipswich

It's like to hear of anyone who gets addicted to the stuff and we like to help as much as possible with difficulties in typing in the listings, which is just why TPO 10 was developed. Now as you absolutely sure that you are using TPO correctly and not being one or two non-matching codes go by? There is no reason why you should get an error at Jumble Cell and so possible

may that TPO could give you a matching code if the line was wrong. Over 8000 does all engineers because the error is not in the line that the computer sees it is, but in data that that line is trying to read. In the example of Jumble Cell, although your error is strictly in Line 480 because the computer fails at the AS-01 B statement, the actual typing error will be somewhere in lines 800 to 900. One way to find exactly where it is when C1 D is being read by a loop is to find out how far through the loop the program has gone when it encounters the error. Take a look of line 480 and you will see a FOR...NEXT loop which counts down 7 to 0 and reads the DATA in between. When you see the program and it stops with the error, line

Unfortunately all the best books are now out of print and the only ones that are really available are Lear-john's Machine Language for Beginners and Second Book of Machine Language, both available through the Page 6 Accessory Shop. Ideally, you there will be more Atari (or others) organized by Jonathan, details are on the next page this issue.

## ELECTRICAL CIRCUITS

I have just started doing an electrical course to old me in my job. Obviously the course involves drawing circuit diagrams. I can't help seeing a program some time back that enabled you to draw electrical circuit diagrams. Do you know of such a program and if so where I could get hold of one?

### John Collins Birmingham

If you have an 80320 program you are probably thinking about is P4-CF AMANDA which has been 'opening users' for about eighteen months but is now finally available from the publishers Vektor Software and, by coincidence, is scheduled for the first time in this issue. The printers and facilities look excellent for an 8 bit machine. On the CD, there is PCB Designer from Amicus software which is also, listed by Precision Software and is

available from Precision direct or from the many software distributors who don't advertise in Page 6!

## NOT SO GOOD

I own an Atari 8-bit computer and I have been a great fan of Atari User for many years. I have just received the new Page 6 Atari User and I am afraid to say that it isn't as good as the original Atari User.

At first glance your new magazine seems to be a bit too serious. Most 8-bit users are children who are looking to their Atari for fun, your magazine is just like the newspapers, for example the Daily Telegraph. Atari User used to be a fun and enjoyable magazine. I suppose that is the main reason why it was so popular. Another few things that are missing are a DOF 20-chart, software solutions, hints and tips on games, what games are next to be released and what games are reviewed. I know this is a tall order for you to undertake but as you only give Atari 8-bit users 40 pages then I do not think it would break the bank if you give us about 20- or 30 pages extra. Then Atari 8-bit users would get the coverage we deserve. I would also like to complain that most of the pages in the Atari 8-bit section are used up with type-in listings, hardly

anyone has time to type them in, or please read the copy.

### Janine Collins

You have probably spent 50% of Atari users by referring to them as 'children' (readers of Page 6 range from teenagers up to folk in their sixties and seventies with the majority in between. These people take their Atari seriously which is why the magazine is more serious. Fun with your Atari is what you make it, not necessarily just big squashes of colour and cartoon drawings. How games? This report what we can find out, but most publishers in the 8-bit field are hopeless at telling anyone what is happening and as for coverage, it is probably easier to get White House defence papers than it is to get an answer from an American software publisher! We have tried. People do type in the listings, even the long ones, it's how a lot of people learn to program. As for an extra 20 or 30 pages not breaking the bank, tell that to our bank manager. Do you know how much these things cost? As a rough guide you could buy yourself about 5,000 budget cigarettes over the next year for what it would cost to put an extra 30 pages in every issue!

## GET IT WRONG!

I have just received Page 6 Atari User and started to read it with some resignation as this was the class of a new era for the 8-bit Atari user in this country. I write on a great fan of the original Atari User, which was a superb magazine.

You ask for comments and within ten minutes of reading the magazine I have to write to you with a plea. Will Page 6 adopt the excellent Get It Right routine used extensively in Atari User for their new standard of error-checking (what programs)? The routine can either be typed in, or is available on the Atari User Toolkit disk. The reason for asking you to adopt this system is simple: TYPO IS A CRIME. I believe that all such defective Page 6 contributions would incur the speed and ease of use of the CIB program. Please take my writ-

ten seriously. I can assure you that I am writing on behalf of every frustrated Atari User who regularly hopped in programs from the old magazine.

Finally, a question - is my MSX4 double sided (as I believed was mentioned when I bought it) and, if so, can Spinrite Disc 3.2 use this facility? As the moment I am using DOS 3.5 as supplied and getting annoyed at the slow speed the drive operates at.

### John Lowe Gloucestershire

A new client? We had our client long ago before Atari User was even thought of, and don't plan on a second for a long, long time. I suppose that utilizes an subjective thing that I can't honestly say how Get It Right is better than TYPO. With TYPO you get BUBBLES and know them and then, whether the line is right - MSX4 can be faster than that, and it's barely it is easier to have the error code right on the line you are typing than have to refer to a chart that might be two pages away? The short answer is that TYPO is fine as, we have had dozens of letters and phone calls from Atari User readers saying it is brilliant, so I guess that it depends on your point of view. The SP411 is double sided, it is just that it needs the proper DOS which Atari User will not release. Spinrite will support true double density. If you can afford it get the new Spinrite 3 reviewed in this issue.

## SOME LIKE IT!

Congratulations on your take over of Atari User, the new magazine is great. Being a programmer for my father's firm requires me to gather as much information about both computers as I can. With Page 6 Atari User I have the best of both worlds, only one 8 bit magazine to buy with a 16 bit section in the price that is cheaper than 24 US\$! Brilliant, keep up the good work.

Tyren Barnett  
Sumner Island

PRINT I.e. is the variable used for the loop and a number will be printed on the screen. This number will represent the data item that is causing the problem, for example if it were 16 the wrong data statement would be the 16th number counting from line 100 up to line 500. You will probably find that you have typed a character instead of a number or maybe put a comma at the end of the line and if you did then you didn't see TYPO properly did you?

The Atari 8 bit problem is slightly different, but again should be picked up by TYPO. The line in the log to be typed in as it stands and you have probably hit the end just. Although the computer can show four lines of a program on screen you can only type in three

lines. If you are any program line in a listing that goes onto a fourth line then you must find a way to square that onto three lines. This can be done in several ways. You can type POKE #220 you line number and print returns before typing in the line, you can use abbreviations for the command words, such as CR for CLEARCR and SO for STOPSO and finally you can actually leave out nearly all the spaces! The computer will sort it all out for you. Most of these subjects have been covered in past issues of Page 6 but the main one was, mostly, out of print. As many of the good books are now also out of print maybe it's time to reprint some of the articles if there are now a number of new users enjoying the delights of programming!

## More letters overleaf

## COME DANCING!

Thinking of the superb graphics of the Atari game was an idea for a most unusual program and I think it would be a double for one of your contributors.

In recent years I've noticed a great revival among younger people in the cat of ballroom dancing, yet ballrooms dancing, like all, possessing the fringe. In a circle around a pile of handbags isn't dancing, it's loitering. So from about a program showing the basic steps in the form of flash-prints moving around the screen, both sets of prints of music, ladies and gents. Diagrams in books and their accompanying instructions can be prepared by author and the timing of the steps is not easily understood.

Who knows, maybe the staff of Page 6 would be motivated to start a dance club!

## E.G. Mitchell, West Midlands

After a most unusual special centre, I suspect that all the usual Atari programmers would find the machine quite no problem but would lose their brains trying to figure out the input. Might be a problem getting in the stored effects though, is complete. Daily takes up a lot of memory. Might someone work in by this end, I'd rather use the more modern stuff, just two computers and a whole bunch of BASIC commands! As to the other stuff, our program member of staff, Steve, is falling about on the floor laughing at the moment. Did yourself yourself, get the man in control!

## GAMES CENTRES WITH NO GAMES

Whilst reading your last issue I noticed the double page advertisement for Atari Games Centres. I was delighted to find that there was a centre close to me - I went down to Toy and Hobby in Manchester and found to my amazement that they had only three games for the Atari but a larger selection for other computers. They had no hardware at all, I'm wondering how on earth it got to be an official games centre with just three games on even my local video shop carries more Atari software.

## R. Fairhurst, Manchester

I am writing to see if Page 6 can enlighten me on one item which left me at a loss down in Buxton. I saw the advertisement in December's issue for the new Games Centres and saw Capital Computers so off I went on a 10 mile bus journey and what did I find? Four Atari 8 bit titles, no coding at all! What was I asked the attendant what was going on. He said that Atari had supplied the centre but there really isn't because Atari 8 bit games are to come from Hobby. I was shocked, stunned and not amused at all. After a chat to Silicon Centres who I thought supported Atari but only had 12 titles, I was about to give up when I saw a lad with an Atari tape, I asked him where he got it and he pointed me in the direction of

Virgin's Magazines. To my surprise they had 20 titles so I went home happy but still shocked at the state of affairs.

## Apika, Temple Cambridge

I am writing to say how misleading the new Official Atari Games Centres' ads are. The advertisement clearly shows a stand with a very amount of SE software on it and states that there are hundreds of titles in store at these centres for both SE and VC2. I thought great, loads of titles for both my machines. I already have ATARI WORLD to go to in my area plus four other 8 bit/VC2 stockists but I rang up Toy and Hobby in Manchester and to my disappointment they had only six VC2 titles and no SE titles in stock! My disappointment turned to dismay when I rang their shop-part branch to be told that they had NO SE titles and only ONE VC2 game! I am amazed at how ATARI WORLD is not listed and these shops are.

## Duncan Shaw, Suffolk

We can't really comment except to say how sad the situation is. Atari tell us that they are extending the Games Centres and producing more 8 bit software (see news pages) but it does seem a shameless. How about clearing this up Atari?

## SORRY, BUT WE CAN'T HELP

I have been having difficulties with a program published in ATARI USER back in February 1988 entitled Customising The Default Screen by Tom Hensley. I can get the program to make an auto-load cassette but when this cassette has loaded the computer just looks up. I have checked the listing with the new Get It Right but I cannot for the life of me find anything wrong with the program. Please can you or the know what is wrong?

## Simon Sawyer Manchester

This is just representative of dozens of letters we have received about problems with listings from Atari User but I'm afraid that, such as we would like to help, we just can't. All of the listings from Atari User are just as new to us as they are to those of you who have typed them in. We aren't involved in evaluating them and have not seen a working version of most of them, so how can we answer your queries about typing in stuff during summer? We would really like to help but it just isn't possible.

Maybe there are one or two readers who have got Atari User programs running who would be willing to help others out? If someone wants to volunteer to run a copy of Atari User listing helpdesk, we will gladly publish details but we simply do not have the time to help out. Apologies to all those who think that we don't care, we do, but we just don't have the resources to and help with every query.

# GENEALOGY ON THE ATARI

The letter from Paul Thomas last issue sparked-off a good response. G.C. Richards from London suggested an official program for the 512 - GENEALOGY GAP published by Flying Pig Software, P.O. Box 488, St. George, ST 14 7JF, G.L.A. cost around £29.95 - RECALL 2 which is for the 800 will sell for the £7 using PC 20ms cost £195, publisher not known - NEWGEN2 written by Mr Richards himself priced at £25. If you send a S.A.S. to him at 2 Wickham Road, London, SE 26 6XZ he will send you full

details - COMPUTE YOUR BLOOD written by Jerry Hally, Warwick Genealogical Society, 2499 West 7500 South, West Jordan, Utah 84084, U.S.A. price £29.95.

Mr Richards also suggests writing to the Society of Genealogists, 14 Charterhouse Buildings, Lovell Road, London EC1M 7BA which has a special interest group holding regular meetings to allow general use and computers. It also publishes a magazine called 'Computers in Genealogy'. The Birmingham and Midland Genealogy and

Heritage Society are also said to have a computer branch. Finally there is a book 'Computers for Family History: An Introduction' by David Haspwood published in 1981 by Thompson Computing Ltd., 26 Claxton Road, Acton, London W3 0SE.

Mr G. Moore of Exeter also wrote us for we the shop mentioned in our reply who bought the Flying Pig Software. He advises that the software and other notes supplied from Flying Pig is excellent, also to be put off by the number of paid

£42 by Access using a credit card is by far the best way to get software from overseas. He also recommends JANET 1988 magazine available from W.P. Smith or direct from the publishers at 141, Great Witley, Bury, Huntingdon, Cambridgeshire, PE27 1XP or well as the book mentioned above.

Thanks also to all the other readers who write in with advice and suggestions. There is an article on Genealogy with the 8 bit Atari in issue 83.

# B L A S T C O M

**BLASTCOM** is just what the name implies a good old fashioned blast as were upon wave of aliens come swooping down on a vertically scrolling screen. There is no storyline (unless you want to make up your own) just fast, colourful, 100% machine code arcade action. Keep shooting and avoiding contact with the aliens until your luck and your lives run out. You have four lives to start off with and play until you have no more. If you are good enough you can get your name onto the high score table. Get typing and get blasting! Plug a joystick into port 1 and fire away.

The program was written with a MAC68 Assembler and was turned from machine code to data statements using SOFT0 from ANALOG magazine's November 1984 issue. The loader routine is also adapted from a program originally published by ANALOG.

by Karl Fenwick



## TYPING IT IN

Simply type in the BASIC listing, using TYPO 1 to check the lines as you go, and then save the finished program to disk or cassette using CMAT for cassette or SAVE "D:BLASTCOM" for disk. LOAD the program back in again and type RUN. Although the program is totally Assembly language it does not create a bootable file, the loader simply reads the DATA and FORKS it into memory. As the program is just over 2K, its length there should be no problem running it on any Atari XL or XE or the older machines.

## LISTING OVERLEAF

### GETTING THE SOURCE CODE

The author is willing to make copies of the Assembly language source code for BLASTCOM available to any interested readers for a small payment. Send £2 for a tape copy or £3 for a disk copy to SARDAR'S SOFTWARE, 34 Shaw's Road, Chesham, Bucks, MK37 3BN. Make all cheques payable to ENDANGERED SOFTWARE and please specify if you want MAC68 or Atari Assembler Editor versions.

```

001 001 *****
002 002 *****
003 003 *****
004 004 *****
005 005 *****
006 006 *****
007 007 *****
008 008 *****
009 009 *****
010 010 *****
011 011 *****
012 012 *****
013 013 *****
014 014 *****
015 015 *****
016 016 *****
017 017 *****
018 018 *****
019 019 *****
020 020 *****
021 021 *****
022 022 *****
023 023 *****
024 024 *****
025 025 *****
026 026 *****
027 027 *****
028 028 *****
029 029 *****
030 030 *****
031 031 *****
032 032 *****
033 033 *****
034 034 *****
035 035 *****
036 036 *****
037 037 *****
038 038 *****
039 039 *****
040 040 *****
041 041 *****
042 042 *****
043 043 *****
044 044 *****
045 045 *****
046 046 *****
047 047 *****
048 048 *****
049 049 *****
050 050 *****
051 051 *****
052 052 *****
053 053 *****
054 054 *****
055 055 *****
056 056 *****
057 057 *****
058 058 *****
059 059 *****
060 060 *****
061 061 *****
062 062 *****
063 063 *****
064 064 *****
065 065 *****
066 066 *****
067 067 *****
068 068 *****
069 069 *****
070 070 *****
071 071 *****
072 072 *****
073 073 *****
074 074 *****
075 075 *****
076 076 *****
077 077 *****
078 078 *****
079 079 *****
080 080 *****
081 081 *****
082 082 *****
083 083 *****
084 084 *****
085 085 *****
086 086 *****
087 087 *****
088 088 *****
089 089 *****
090 090 *****
091 091 *****
092 092 *****
093 093 *****
094 094 *****
095 095 *****
096 096 *****
097 097 *****
098 098 *****
099 099 *****
100 100 *****

```

```

101 101 *****
102 102 *****
103 103 *****
104 104 *****
105 105 *****
106 106 *****
107 107 *****
108 108 *****
109 109 *****
110 110 *****
111 111 *****
112 112 *****
113 113 *****
114 114 *****
115 115 *****
116 116 *****
117 117 *****
118 118 *****
119 119 *****
120 120 *****
121 121 *****
122 122 *****
123 123 *****
124 124 *****
125 125 *****
126 126 *****
127 127 *****
128 128 *****
129 129 *****
130 130 *****
131 131 *****
132 132 *****
133 133 *****
134 134 *****
135 135 *****
136 136 *****
137 137 *****
138 138 *****
139 139 *****
140 140 *****
141 141 *****
142 142 *****
143 143 *****
144 144 *****
145 145 *****
146 146 *****
147 147 *****
148 148 *****
149 149 *****
150 150 *****
151 151 *****
152 152 *****
153 153 *****
154 154 *****
155 155 *****
156 156 *****
157 157 *****
158 158 *****
159 159 *****
160 160 *****
161 161 *****
162 162 *****
163 163 *****
164 164 *****
165 165 *****
166 166 *****
167 167 *****
168 168 *****
169 169 *****
170 170 *****
171 171 *****
172 172 *****
173 173 *****
174 174 *****
175 175 *****
176 176 *****
177 177 *****
178 178 *****
179 179 *****
180 180 *****
181 181 *****
182 182 *****
183 183 *****
184 184 *****
185 185 *****
186 186 *****
187 187 *****
188 188 *****
189 189 *****
190 190 *****
191 191 *****
192 192 *****
193 193 *****
194 194 *****
195 195 *****
196 196 *****
197 197 *****
198 198 *****
199 199 *****
200 200 *****

```



# CAN DAVID BEAT GOLIATH?

**CAN COLOSSUS ON THE XL/XE BEAT COLOSSUS ON THE ST? JOHN S DAVISON REFEREES AS THEY SLOG IT OUT**

About eighteen months ago Martin Bryant coined quite a bit when he released his Colossus 4 (C4) chess program on the Atari 8-bit machines. Its competitors it thrashed 22 other leading home computer chess programs, including White Knight, Sonnet II and Cyrene II, so it is obviously a very capable performer. I wondered how I could possibly review it, as even the old Atari chess cartridge can beat me!

The recent release of Colossus X (CX) for the ST gave me an idea. Why not use CX on the ST to tell me the moves to make against C4 on the 118K? That should (bater the old) beatprogram up a bit! And not only would it match program against program, but also that against ST - a real battle of the giants, or should that be David versus Goliath?

Both programs are very similar in features offered, but as expected the ST version is faster, and graphically and sonically superior. The description below applies to both versions unless otherwise stated.

## MULTILINGUAL CHESS

Unlike C4, CX is multi-lingual and has English, French, German, Spanish, and Italian options. The default is chosen and stored the very first time you play, but can be changed at any time if needed. There's also a language file editor provided, so you can customise it to any other language you want.

On bootup you're presented with a 3D view of the board and chess pieces, and CX allows you to tilt and rotate it to your liking. If preferred you can easily switch to a 2D view. The board edge can be tilted and numbered, providing the standard algebraic reference notation for each square. Various areas on the screen are used for action prompts, messages, and algebraic display of the computer's latest move.

A second screen, toggled via the spacebar, shows a wealth of information about the game in progress. This includes player's names, chess clocks showing elapsed times for each player's moves, and a list of each player's last seven moves.

## WATCH COLOSSUS THINK!

You can also witness the Colossus 'thought process'. This shows his prediction of YOUR next move, historical search depth to find HIS best move, current line under investigation, number of different positions considered, and best line found so far. This last item is shown in terms of physical moves plus a quantified evaluation of them, or put simply: whether he thinks he's winning or losing.

This screen, of course, provides vital information about what

course Colossus thinks the game will take. In any case he credits me with a lot more chess moves than I've got! CX does this evaluation at about 300 moves PER SECOND, while C4 works at around 500 per second. Just like a human opponent Colossus continues thinking about his moves while you're considering yours. So - ponder too long and you'll find he's had time to consider other or additional possibilities.

Obviously, when up against this level of mental horsepower, you may not win very often, far from, in any case! Thankfully, the author has provided facilities for giving Colossus a laboratory if you feel your ego threatened. These include such jolly games as time limiting his moves; forcing him to make your move for you; preventing him from thinking ahead during your turn; from predicting your next move; and from using his book of opening moves (1000 in C4, 11000 in CX). You can also interrupt his train of thought and force him to move immediately. Perhaps there's hope for me yet!

CX also has a learning capability - he can enter his book of 11,000 opening moves with, presenting new ones found during play, making him stronger the more he plays. This book is held on disk and there's a book editor provided for experts to set up their own book openings for special purposes.

## AT YOUR COMMAND

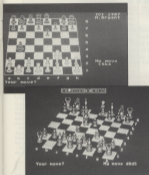
There are lots of other commands too, giving you a wide range of control. CX has extra 'cosmetics' commands to change screen colours to your taste, but with CX you're stuck with those provided.

Both programs have many commands permitting you to arrange the pieces for any legal position, to choose black or white pieces, and to change the board orientation - with CX having options for playing right-to-left and left-to-right as well as the options of C4. You can also set the playing mode, choosing from Tournament, Average, Equality, Endless and Problem modes.

Tournament mode allows you to specify the number of moves to be made in given time periods. Average mode lets you set an overall average time per move. Different values can be set for you and the computer, introducing another method of handicapping. In Equality mode Colossus tries to match his playing speed to yours, while in Endless mode he searches ALL combinations of moves (up to twelve ahead) to find the best one. This could take a long time, as there's an interrupt mechanism provided to

**COLOSSUS 4**  
8-Bit Disk £14.95, Cassette £9.95  
**COLOSSUS X**  
ST: £24.95  
Both from CDS Software





have had to use the best one found so far if you get fed up of waiting.

Problem mode is used for solving chess problems of the type often seen in newspaper chess columns. First, there's the normal 'White to move and make Black in a move's type, as handled by most chess programs. But then Colossus has the unique ability to solve the more difficult 'scholar's' and 'helpmate' problems, too. It makes maximal use of sound, being limited to a few optional beeps and burlies at appropriate points. It can do so for more thought, with a choice of beeps, music, speech, or silence. On selecting music, you can then choose to hear classical pieces by Chopin, Debussy, Beethoven, or Liszt, or playing away in the background. Personally, I found this distracting and much preferred the speech option. This uses a software-driven speech synthesizer to speak the prompts and messages appearing on the main screen, including each move. **CS**

## ACTION REPLAY

Colossus stores every move made in a game, so you can step backwards and forwards through them at will. This makes it possible to see an action replay, recover from a disastrous move, or to go back several moves and try out a different strategy. There's game save and load features so you don't have to finish a game at one sitting. It also allows you to build a library of problems and games, with 19 problems supplied with **C4** (old

version only) and 18 in **C3** to get you started. You can load them and solve them yourself, or let Colossus show you a step-by-step solution. In addition, complete games are provided (**C4** with **C4** disk only, 29 with **C3**), some from matches involving famous players like Karpis and Kasparov.

Finally, there are a few novelty features. You can give Colossus seven branches by making him play against himself. Or, you can scramble the contents of your own creation by using 'total flip' mode, making either or both sets of pieces invisible, thus simulating checkered chess.

## IN PLAY

Moves are controlled in three ways: algebraic notation, input via the keyboard, arrow keys to directly position the cursor on 'from' and 'to' squares; or with joystick on **C4** and mouse on **C3**. For beginners there's a help feature, where Colossus will show you all the legal moves available for any piece on the board. And as you'd expect, its handles casting, en passant captures and promotions without problem.

With **C4** the moves can be instantaneous, with the piece disappearing from one square and instantly reappearing in the chosen one. In **C3**, the piece slides to its chosen destination making the move easier to follow. Also, in **C3** you can change the normal cursor to a large hand which can pick up a selected piece and manually move it to the required square. Nice, but slower than the sliding method.

In play, both versions of Colossus behaved exactly as I feared, sluggish down to micro-calls hand they still wiped the floor with me when I played unaided. Actually, **C3** can be set to play to LOSS or DRAW as well as win, but I just wouldn't let me use this option.

## THE BATTLE

So, with dotted eyes I played the two machines off against each other. The first review copy of **C3** I had was very unreliable and crashed at the slightest provocation. It seemed this was on early prototype copy, which didn't work properly on older ST's like mine. **C3** promptly replaced it with the latest version which was much better, but still crashed occasionally, usually when selecting menu items. **C4** behaved impeccably.

Twelve games were played during the review period. They ranged in duration from a short game of 53 moves in 21 minutes to a fairly lengthy 186 moves in 78 minutes. I found the results surprising - **C4** won 5, **C3** won 5, and two were draws. **C3**'s victories were always provided by **C4** resigning before being checkmated, but I feared such game resigning to its conclusion as the victories were complete. When **C3** lost he always played through to the bitter end and doesn't seem to have the ability to resign.

Unexpectedly, **C3** seemed slower in response than **C4**, although this could have been the subjective effect of **C3**'s frequent reference to its disk based opening moves book during the early part of a game. **C3**'s book is memory resident, so appears quicker.

## AND THE WINNER IS ...

On the evidence found during the review there's not much to choose between these programs. However, I'm awarding a moral victory to **C4** (and chess) from the 8-bit camp) considering its performance against **C3**'s superior speed and facilities. Both programs are great fun and tremendous value for money, but the additional £39 for **C3** does buy some nice extras. I particularly liked its colour graphics, adjustable board view, and amazing speech option. Advanced players will appreciate its more exotic features too. But whether expert or beginner, ST or 8-bit user, you can buy either version confident that you're getting state-of-the-art code. If you need a chess program, you need Colossus. **CS**

# FINDER

## A utility from Robert De Letter to trace keywords and phrases in your programs

**I**n the last issue of Page 4 there was a program for Flight Simulator II that was set up specifically for a printer but the instructions stated that you could change all LPRINT statements to PRINT if you were not lucky enough to own a printer. Quite easy to do provided you can find all the LPRINT statements, but you are bound to miss some, aren't you always?

There must be many times when it would be useful to change a particular statement or wording in a listing and it would be handy to have the computer show you every occurrence of the word you are looking for. With this in mind FINDER was born. There are utilities around that will automatically change visible names for you but keywords or phrases. What FINDER does is actually change the program for you. It will find anything and allow you to enter the line number so that you can edit a program in the normal way.

Type in FINDER and save a copy. When you want to use it make a copy of the program you wish to change, in LISTed format and save that file with the filename "LISTED.FMT". If you don't like that filename you can change the two occurrences of the filename in the program to whatever you wish, use FINDER. Now run the FINDER program, answer whether you want a printed report or just to the screen, and type in whatever you want to find. All occurrences will be shown with the phrase highlighted in inverse on the screen. When you have finished the temporary LISTED.FMT program will be deleted from your disk.

I hope that you find FINDER useful in changing your programs. Don't be afraid to improve on it, for instance by allowing you to choose from several filenames. The cleverest programmers among you might also come up with a way to actually get FINDER to amend your programs for you!

```

00 1 000 *****
01 2 000 M          P100000         0
02 3 000 M          FOR ATANK BL*W   0
03 4 000 M          SW                0
04 5 000 M          ***** BY LETTER 0
05 6 000 M          *****
06 7 000 M          *****
07 8 000 *****
08 10 000 011000,011000,101000,101000
1000*****
09 11 000          *****
10 12 000 011000,011000,101000,101000
1000*****
11 13 000 *****
12 14 000 *****
13 15 000 *****
14 16 000 *****
15 17 000 *****
16 18 000 *****
17 19 000 *****
18 20 000 *****
19 21 000 *****
20 22 000 *****
21 23 000 *****
22 24 000 *****
23 25 000 *****
24 26 000 *****
25 27 000 *****
26 28 000 *****
27 29 000 *****
28 30 000 *****
29 31 000 *****
30 32 000 *****
31 33 000 *****
32 34 000 *****
33 35 000 *****
34 36 000 *****
35 37 000 *****
36 38 000 *****
37 39 000 *****
38 40 000 *****
39 41 000 *****
40 42 000 *****
41 43 000 *****
42 44 000 *****
43 45 000 *****
44 46 000 *****
45 47 000 *****
46 48 000 *****
47 49 000 *****
48 50 000 *****
49 51 000 *****
50 52 000 *****
51 53 000 *****
52 54 000 *****
53 55 000 *****
54 56 000 *****
55 57 000 *****
56 58 000 *****
57 59 000 *****
58 60 000 *****
59 61 000 *****
60 62 000 *****
61 63 000 *****
62 64 000 *****
63 65 000 *****
64 66 000 *****
65 67 000 *****
66 68 000 *****
67 69 000 *****
68 70 000 *****
69 71 000 *****
70 72 000 *****
71 73 000 *****
72 74 000 *****
73 75 000 *****
74 76 000 *****
75 77 000 *****
76 78 000 *****
77 79 000 *****
78 80 000 *****
79 81 000 *****
80 82 000 *****
81 83 000 *****
82 84 000 *****
83 85 000 *****
84 86 000 *****
85 87 000 *****
86 88 000 *****
87 89 000 *****
88 90 000 *****
89 91 000 *****
90 92 000 *****
91 93 000 *****
92 94 000 *****
93 95 000 *****
94 96 000 *****
95 97 000 *****
96 98 000 *****
97 99 000 *****
98 00 000 *****
99 01 000 *****
00 02 000 *****
01 03 000 *****
02 04 000 *****
03 05 000 *****
04 06 000 *****
05 07 000 *****
06 08 000 *****
07 09 000 *****
08 10 000 *****
09 11 000 *****
10 12 000 *****
11 13 000 *****
12 14 000 *****
13 15 000 *****
14 16 000 *****
15 17 000 *****
16 18 000 *****
17 19 000 *****
18 20 000 *****
19 21 000 *****
20 22 000 *****
21 23 000 *****
22 24 000 *****
23 25 000 *****
24 26 000 *****
25 27 000 *****
26 28 000 *****
27 29 000 *****
28 30 000 *****
29 31 000 *****
30 32 000 *****
31 33 000 *****
32 34 000 *****
33 35 000 *****
34 36 000 *****
35 37 000 *****
36 38 000 *****
37 39 000 *****
38 40 000 *****
39 41 000 *****
40 42 000 *****
41 43 000 *****
42 44 000 *****
43 45 000 *****
44 46 000 *****
45 47 000 *****
46 48 000 *****
47 49 000 *****
48 50 000 *****
49 51 000 *****
50 52 000 *****
51 53 000 *****
52 54 000 *****
53 55 000 *****
54 56 000 *****
55 57 000 *****
56 58 000 *****
57 59 000 *****
58 60 000 *****
59 61 000 *****
60 62 000 *****
61 63 000 *****
62 64 000 *****
63 65 000 *****
64 66 000 *****
65 67 000 *****
66 68 000 *****
67 69 000 *****
68 70 000 *****
69 71 000 *****
70 72 000 *****
71 73 000 *****
72 74 000 *****
73 75 000 *****
74 76 000 *****
75 77 000 *****
76 78 000 *****
77 79 000 *****
78 80 000 *****
79 81 000 *****
80 82 000 *****
81 83 000 *****
82 84 000 *****
83 85 000 *****
84 86 000 *****
85 87 000 *****
86 88 000 *****
87 89 000 *****
88 90 000 *****
89 91 000 *****
90 92 000 *****
91 93 000 *****
92 94 000 *****
93 95 000 *****
94 96 000 *****
95 97 000 *****
96 98 000 *****
97 99 000 *****
98 00 000 *****

```

## MERAK WINNERS

Not too many entries for the competition probably because I didn't actually make the first question too hard but when more a doubt, there were only three entries that were correct and the winners are probably the "old man" of the team (see the list below). I ran a raffle for a prize last minute at a PCW show (at the Barbican) showing off the third prize for the most correct answers (announced on the spot and the first big draw but it looks like only three others read along there: there seemed to be nothing there). Applies to all the youngsters who were probably only just in primary school at the time you, IRL, you are getting on! We'll be in touch if more next time.

Anyway the three who got it right were G. Mitchell (Stamps, PMU) based at Westbury (shamefully not at the old one) and Jon Hacking from Harrogate. He provided a cryptic as puzzle to me slipped into the box for someone who had done well since on the West coast and the box by now was Richard Adams from Leeds University and G.

## UPDATE

**MUSIC BOX (ISSUE 36):** There was a problem with line 2373 of this listing which got chopped off at the end because the line was so long. The last character on the line should read C0000000. If you type it in you will have to use abbreviations for the keywords. Alternatively you can split the line as follows.

```

00 2373 0000 0000
01 2374 0000 00 00 00 00 00 00 00 00 00 00 00 00
02 00 00 00 00 00 00 00 00 00 00 00 00 00 00
03 00 00 00 00 00 00 00 00 00 00 00 00 00

```

# Be part of the action

at the

# ATARI

## COMPUTER SHOW

ADAPTING THE TV

### MIDI

All the latest hardware and software in the rapidly expanding scene of micro music will be on display, including keyboards, samples, sequencers and professional studio software.

With an illustrated setup you can produce top-quality music, quickly and simply - editing out mistakes in a way that's impossible with live recordings. So if you're in any way interested in making music with your micro this is the place to come to find out all about it.

### CAD

Computer Aided Design has grown to become one of the most important uses for modern computers. With a CAD system you can design houses, cars and electronic circuits - in a fraction of the time it would take you with pen and paper.

With the high speed and powerful graphics of Atari systems it's hardly surprising that bigger and better CAD programs are pushing back the frontiers all the time.

And only at the Atari Computer Show can you see all the latest systems under one roof.

### BUSINESS

Many companies will be demonstrating their latest software and hardware, specially designed to release the full business potential of Atari computers.

As well as programs for the 8008 and 512, you'll be able to try out applications for the powerful Atari PC compatible series.

And you'll also be able to get expert advice from professionals.

### DTP

The art of combining text and pictures in big business newspapers has come, with a low-cost DTP program, you can create anything from a club newsletter to a monthly magazine or book.

At the show you'll be able to try out the latest systems, software and specialised programs, and get a first-hand glimpse at the way DTP is set to develop in the future.

Alexandra Palace, Wood Green,  
London N22  
Friday to Sunday,  
June 23 to 25, 1989

Fri & Sat: 10am - 6pm,  
Sun: 10am - 4pm

The Atari Computer Show is back - with more new products and developments. Atari has games to launch at the major players in the computer world, supported by an incredible wealth of top quality applications, games and utilities - all on view at this show.



## Business



# GAMES

### GAMES

Atari computers are renowned for their ability to run fast-action, arcade-quality games.

The range of new software on show will demonstrate how the power of these machines is continuously being stretched, producing faster and even more addictive games with superb graphics.

The winning entry in the STOS Competition of the Year Award will be revealed, and several new exciting STOS accessories will be shown for the first time.

If you're a keen game player, you'll find there's so much on offer at the show - you're guaranteed a real treat!

### DON'T MISS IT

So for a great day out - whether you want to see what the future holds for Atari computer users, take advantage of the bargains on offer or get advice on specific applications - the Atari Computer Show is the place to go.

And if you want to see the company near, you'll never be off the price of a single ticket!

### SPECIAL OFFER

For the first time we are now offering a family ticket for just £31, allowing entry for two adults and two children. So you can save up to £8 off the usual entry price!

### How To Get There

Alexandra Palace is so easy to get to by car, rail, underground or bus, it has its own British Rail station, just nine minutes away from King's Cross, and there's a free bus service shuttling between station and show every 10 minutes.

If you're travelling by road, the show is only 15 minutes away from Junction 28 on the A12. Car parking is free.

### DATABASE EXHIBITIONS

### ADVANCE TICKET ORDER

POST TO: Atari Computer Show Tickets  
Database Exhibitions, FREEPOST  
Bloxmore Way, South Wey, Surrey GU8 5BB

Please supply:

- Adult tickets at £4 (adult 21+) ..... £  
 Under 16s tickets at £2.50 (adult 21+) ..... £  
 Family ticket and 11 hours £80 ..... £  
 Total £ .....

Cheque payable to Database Exhibitions

Please debit my Access/Visa card no:

\_\_\_\_\_

Expiry date \_\_\_\_\_

Signat

Authorisation at about  
£2.00 (under 16s)

Advance ticket orders  
must be received by  
Wednesday, June 14

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Postcode: \_\_\_\_\_

PHONE ORDERS: 0988 5544 (between 9.00-11.00 PM)  
 0988 5544 (11.00-11.59 PM)  
 0988 5544 (12.00-12.59 PM)  
 Please quote card ref number and full address.

# MACHINE CODE LIBRARY

Stephen Williamson starts a new series for programmers in machine code or BASIC with ready to run routines that you can use in your own programs

Most machine-code programmers build up a library of subroutines that perform frequently needed tasks such as moving sections of RAM, writing up the Atari Plus or Intellec system, saving and accessing disk files etc. This series will provide you with a library of machine code subroutines that will easily fit into machine code programs and for non-machine code programmers, I've adapted the library routines for use within BASIC programs, so that you can take advantage of the extra speed that machine code provides. It is not necessary to know anything about machine code programming to use them, but a good knowledge of BASIC helps.

All the assembly listings can be used on both the 68000 (the fast Assembler on the master for the Atari 3.0-bit) and the Atari Assembler Editor (logoffs), but I don't have the job, and can be easily adapted for use with any Atari assembler program. HEX numbers are not used in the listings as this makes it more difficult to understand for the inexperienced machine code programmer - and besides my brain likes thinking in decimal.

## CLEARING AND MOVING RAM

The first two library routines will erase sections of RAM and move portions of RAM from one address to another. There are many uses for these routines: creating and moving player missiles, clearing sections of screen RAM, resetting registers to zero, copying sections of RAM to RAM, writing up predefined character sets - and many more.

Each routine starts at memory location 20000, but can be easily changed to start at any section of RAM. The routines contain no JMP or BR instructions which means that they are completely relocatable i.e. they can be moved to any section of RAM without problems. This also means that when constructing the BASIC versions the routines can be held in string variables thus avoiding any clash with other sections of a BASIC program.

```

10 CLEARING RAM LIBRARY
20 GO TO 20000: 20000: 20000
30 FROM PAGE 2
40
50 GO TO 2 - 20000: 20000
60
61 .....
62
63 00 00 00000
64 0000 0000 0000
65 0000 0000 0000
66 0000 0000 0000
67 0000 0000 0000
68 0000 0000 0000
69 0000 0000 0000
70 0000 0000 0000
71 0000 0000 0000
72 0000 0000 0000
73 0000 0000 0000
74 0000 0000 0000
75 0000 0000 0000
76 0000 0000 0000
77 0000 0000 0000
78 0000 0000 0000
79 0000 0000 0000
80 0000 0000 0000
81 0000 0000 0000
82 0000 0000 0000
83 0000 0000 0000
84 0000 0000 0000
85 0000 0000 0000
86 0000 0000 0000
87 0000 0000 0000
88 0000 0000 0000
89 0000 0000 0000
90 0000 0000 0000
91 0000 0000 0000
92 0000 0000 0000
93 0000 0000 0000
94 0000 0000 0000
95 0000 0000 0000
96 0000 0000 0000
97 0000 0000 0000
98 0000 0000 0000
99 0000 0000 0000
100 0000 0000 0000
101 0000 0000 0000
102 0000 0000 0000
103 0000 0000 0000
104 0000 0000 0000
105 0000 0000 0000
106 0000 0000 0000
107 0000 0000 0000
108 0000 0000 0000
109 0000 0000 0000
110 0000 0000 0000
111 0000 0000 0000
112 0000 0000 0000
113 0000 0000 0000
114 0000 0000 0000
115 0000 0000 0000
116 0000 0000 0000
117 0000 0000 0000
118 0000 0000 0000
119 0000 0000 0000
120 0000 0000 0000
121 0000 0000 0000
122 0000 0000 0000
123 0000 0000 0000
124 0000 0000 0000
125 0000 0000 0000
126 0000 0000 0000
127 0000 0000 0000
128 0000 0000 0000
129 0000 0000 0000
130 0000 0000 0000
131 0000 0000 0000
132 0000 0000 0000
133 0000 0000 0000
134 0000 0000 0000
135 0000 0000 0000
136 0000 0000 0000
137 0000 0000 0000
138 0000 0000 0000
139 0000 0000 0000
140 0000 0000 0000
141 0000 0000 0000
142 0000 0000 0000
143 0000 0000 0000
144 0000 0000 0000
145 0000 0000 0000
146 0000 0000 0000
147 0000 0000 0000
148 0000 0000 0000
149 0000 0000 0000
150 0000 0000 0000
151 0000 0000 0000
152 0000 0000 0000
153 0000 0000 0000
154 0000 0000 0000
155 0000 0000 0000
156 0000 0000 0000
157 0000 0000 0000
158 0000 0000 0000
159 0000 0000 0000
160 0000 0000 0000
161 0000 0000 0000
162 0000 0000 0000
163 0000 0000 0000
164 0000 0000 0000
165 0000 0000 0000
166 0000 0000 0000
167 0000 0000 0000
168 0000 0000 0000
169 0000 0000 0000
170 0000 0000 0000
171 0000 0000 0000
172 0000 0000 0000
173 0000 0000 0000
174 0000 0000 0000
175 0000 0000 0000
176 0000 0000 0000
177 0000 0000 0000
178 0000 0000 0000
179 0000 0000 0000
180 0000 0000 0000
181 0000 0000 0000
182 0000 0000 0000
183 0000 0000 0000
184 0000 0000 0000
185 0000 0000 0000
186 0000 0000 0000
187 0000 0000 0000
188 0000 0000 0000
189 0000 0000 0000
190 0000 0000 0000
191 0000 0000 0000
192 0000 0000 0000
193 0000 0000 0000
194 0000 0000 0000
195 0000 0000 0000
196 0000 0000 0000
197 0000 0000 0000
198 0000 0000 0000
199 0000 0000 0000
200 0000 0000 0000

```

Shows CLEAR routine in Assembly

Right: Source code for CLEAR in Basic

```

10 CLEARING RAM LIBRARY
20 GO TO 20000: 20000: 20000
30 FROM PAGE 2
40
50 GO TO 2 - 20000: 20000
60
61 .....
62
63 00 00 00000
64 0000 0000 0000
65 0000 0000 0000
66 0000 0000 0000
67 0000 0000 0000
68 0000 0000 0000
69 0000 0000 0000
70 0000 0000 0000
71 0000 0000 0000
72 0000 0000 0000
73 0000 0000 0000
74 0000 0000 0000
75 0000 0000 0000
76 0000 0000 0000
77 0000 0000 0000
78 0000 0000 0000
79 0000 0000 0000
80 0000 0000 0000
81 0000 0000 0000
82 0000 0000 0000
83 0000 0000 0000
84 0000 0000 0000
85 0000 0000 0000
86 0000 0000 0000
87 0000 0000 0000
88 0000 0000 0000
89 0000 0000 0000
90 0000 0000 0000
91 0000 0000 0000
92 0000 0000 0000
93 0000 0000 0000
94 0000 0000 0000
95 0000 0000 0000
96 0000 0000 0000
97 0000 0000 0000
98 0000 0000 0000
99 0000 0000 0000
100 0000 0000 0000
101 0000 0000 0000
102 0000 0000 0000
103 0000 0000 0000
104 0000 0000 0000
105 0000 0000 0000
106 0000 0000 0000
107 0000 0000 0000
108 0000 0000 0000
109 0000 0000 0000
110 0000 0000 0000
111 0000 0000 0000
112 0000 0000 0000
113 0000 0000 0000
114 0000 0000 0000
115 0000 0000 0000
116 0000 0000 0000
117 0000 0000 0000
118 0000 0000 0000
119 0000 0000 0000
120 0000 0000 0000
121 0000 0000 0000
122 0000 0000 0000
123 0000 0000 0000
124 0000 0000 0000
125 0000 0000 0000
126 0000 0000 0000
127 0000 0000 0000
128 0000 0000 0000
129 0000 0000 0000
130 0000 0000 0000
131 0000 0000 0000
132 0000 0000 0000
133 0000 0000 0000
134 0000 0000 0000
135 0000 0000 0000
136 0000 0000 0000
137 0000 0000 0000
138 0000 0000 0000
139 0000 0000 0000
140 0000 0000 0000
141 0000 0000 0000
142 0000 0000 0000
143 0000 0000 0000
144 0000 0000 0000
145 0000 0000 0000
146 0000 0000 0000
147 0000 0000 0000
148 0000 0000 0000
149 0000 0000 0000
150 0000 0000 0000
151 0000 0000 0000
152 0000 0000 0000
153 0000 0000 0000
154 0000 0000 0000
155 0000 0000 0000
156 0000 0000 0000
157 0000 0000 0000
158 0000 0000 0000
159 0000 0000 0000
160 0000 0000 0000
161 0000 0000 0000
162 0000 0000 0000
163 0000 0000 0000
164 0000 0000 0000
165 0000 0000 0000
166 0000 0000 0000
167 0000 0000 0000
168 0000 0000 0000
169 0000 0000 0000
170 0000 0000 0000
171 0000 0000 0000
172 0000 0000 0000
173 0000 0000 0000
174 0000 0000 0000
175 0000 0000 0000
176 0000 0000 0000
177 0000 0000 0000
178 0000 0000 0000
179 0000 0000 0000
180 0000 0000 0000
181 0000 0000 0000
182 0000 0000 0000
183 0000 0000 0000
184 0000 0000 0000
185 0000 0000 0000
186 0000 0000 0000
187 0000 0000 0000
188 0000 0000 0000
189 0000 0000 0000
190 0000 0000 0000
191 0000 0000 0000
192 0000 0000 0000
193 0000 0000 0000
194 0000 0000 0000
195 0000 0000 0000
196 0000 0000 0000
197 0000 0000 0000
198 0000 0000 0000
199 0000 0000 0000
200 0000 0000 0000

```

## ADAPTING THE ROUTINES

To adapt the Clear Memory routine for your particular application (change the START and FINISH labels). These, as their name suggests, define the start and finish points of the area of RAM to be cleared. If you want to call up the routine more than once using different values for START and FINISH then you must find local locations 203 and 204 with the labels and byte values of your new start address, and locations 205 and 206 with the labels and byte values of the finish address, using a routine similar to that found in lines 140 to 156 of the assembly listing. Then copy the routine of the memory location represented by the label 21 (line 270 of the clear memory listing).

The move memory routine can be adapted in a similar way - all you need to do to customise the routine to your specifications is to alter the FROM, TO and NUMBER labels. The routine will then copy the specified number of bytes from one area of RAM to another.

## BASIC VERSIONS

The source code for the BASIC versions of the routines is similar to the pure machine code versions, except that the start and finish parameters etc. are pulled off the stack with the PLA instruction and then stored in zero page. Remember when using parameters passed from a BASIC program, the first PLA instruction gives the number of parameters, the second the label value of the first parameter, the third the label value of the first parameter and so on.

The BASIC program instructions load the machine code data into string variables and are called from within a BASIC program using the command:

```
A=CHR(ADR(STRINGS))
```

List the BASIC subroutines to disk or cassette using the LIST "C" or LIST "DISKETTE" commands, then attach them to the end of your program by simply entering them using the ENTER "C" or ENTER "DISKETTE" command. To set up the clear routine use CHR\$(2000), and CHR\$(1000) for the move routine.

To call the clear routine use the command:

```
A=CHR(ADR(CLEAR)),START,FINISH
```

where START and FINISH define the area of RAM to be cleared.

The move routine is called by

```

10 CLEAR FROM 0 TO 255
20 J=CHR(200)
30 J=CHR(100)
40 J=CHR(50)
50 J=CHR(25)
60 J=CHR(12)
70 J=CHR(6)
80 J=CHR(3)
90 J=CHR(1)
100 J=CHR(0)
110 J=CHR(0)
120 J=CHR(0)
130 J=CHR(0)
140 J=CHR(0)
150 J=CHR(0)
160 J=CHR(0)
170 J=CHR(0)
180 J=CHR(0)
190 J=CHR(0)
200 J=CHR(0)
210 J=CHR(0)
220 J=CHR(0)
230 J=CHR(0)
240 J=CHR(0)
250 J=CHR(0)
260 J=CHR(0)
270 J=CHR(0)
280 J=CHR(0)
290 J=CHR(0)
300 J=CHR(0)
310 J=CHR(0)
320 J=CHR(0)
330 J=CHR(0)
340 J=CHR(0)
350 J=CHR(0)
360 J=CHR(0)
370 J=CHR(0)
380 J=CHR(0)
390 J=CHR(0)
400 J=CHR(0)
410 J=CHR(0)
420 J=CHR(0)
430 J=CHR(0)
440 J=CHR(0)
450 J=CHR(0)
460 J=CHR(0)
470 J=CHR(0)
480 J=CHR(0)
490 J=CHR(0)
500 J=CHR(0)
510 J=CHR(0)
520 J=CHR(0)
530 J=CHR(0)
540 J=CHR(0)
550 J=CHR(0)
560 J=CHR(0)
570 J=CHR(0)
580 J=CHR(0)
590 J=CHR(0)
600 J=CHR(0)
610 J=CHR(0)
620 J=CHR(0)
630 J=CHR(0)
640 J=CHR(0)
650 J=CHR(0)
660 J=CHR(0)
670 J=CHR(0)
680 J=CHR(0)
690 J=CHR(0)
700 J=CHR(0)
710 J=CHR(0)
720 J=CHR(0)
730 J=CHR(0)
740 J=CHR(0)
750 J=CHR(0)
760 J=CHR(0)
770 J=CHR(0)
780 J=CHR(0)
790 J=CHR(0)
800 J=CHR(0)
810 J=CHR(0)
820 J=CHR(0)
830 J=CHR(0)
840 J=CHR(0)
850 J=CHR(0)
860 J=CHR(0)
870 J=CHR(0)
880 J=CHR(0)
890 J=CHR(0)
900 J=CHR(0)
910 J=CHR(0)
920 J=CHR(0)
930 J=CHR(0)
940 J=CHR(0)
950 J=CHR(0)
960 J=CHR(0)
970 J=CHR(0)
980 J=CHR(0)
990 J=CHR(0)
1000 J=CHR(0)
1010 J=CHR(0)
1020 J=CHR(0)
1030 J=CHR(0)
1040 J=CHR(0)
1050 J=CHR(0)
1060 J=CHR(0)
1070 J=CHR(0)
1080 J=CHR(0)
1090 J=CHR(0)
1100 J=CHR(0)
1110 J=CHR(0)
1120 J=CHR(0)
1130 J=CHR(0)
1140 J=CHR(0)
1150 J=CHR(0)
1160 J=CHR(0)
1170 J=CHR(0)
1180 J=CHR(0)
1190 J=CHR(0)
1200 J=CHR(0)
1210 J=CHR(0)
1220 J=CHR(0)
1230 J=CHR(0)
1240 J=CHR(0)
1250 J=CHR(0)
1260 J=CHR(0)
1270 J=CHR(0)
1280 J=CHR(0)
1290 J=CHR(0)
1300 J=CHR(0)
1310 J=CHR(0)
1320 J=CHR(0)
1330 J=CHR(0)
1340 J=CHR(0)
1350 J=CHR(0)
1360 J=CHR(0)
1370 J=CHR(0)
1380 J=CHR(0)
1390 J=CHR(0)
1400 J=CHR(0)
1410 J=CHR(0)
1420 J=CHR(0)
1430 J=CHR(0)
1440 J=CHR(0)
1450 J=CHR(0)
1460 J=CHR(0)
1470 J=CHR(0)
1480 J=CHR(0)
1490 J=CHR(0)
1500 J=CHR(0)
1510 J=CHR(0)
1520 J=CHR(0)
1530 J=CHR(0)
1540 J=CHR(0)
1550 J=CHR(0)
1560 J=CHR(0)
1570 J=CHR(0)
1580 J=CHR(0)
1590 J=CHR(0)
1600 J=CHR(0)
1610 J=CHR(0)
1620 J=CHR(0)
1630 J=CHR(0)
1640 J=CHR(0)
1650 J=CHR(0)
1660 J=CHR(0)
1670 J=CHR(0)
1680 J=CHR(0)
1690 J=CHR(0)
1700 J=CHR(0)
1710 J=CHR(0)
1720 J=CHR(0)
1730 J=CHR(0)
1740 J=CHR(0)
1750 J=CHR(0)
1760 J=CHR(0)
1770 J=CHR(0)
1780 J=CHR(0)
1790 J=CHR(0)
1800 J=CHR(0)
1810 J=CHR(0)
1820 J=CHR(0)
1830 J=CHR(0)
1840 J=CHR(0)
1850 J=CHR(0)
1860 J=CHR(0)
1870 J=CHR(0)
1880 J=CHR(0)
1890 J=CHR(0)
1900 J=CHR(0)
1910 J=CHR(0)
1920 J=CHR(0)
1930 J=CHR(0)
1940 J=CHR(0)
1950 J=CHR(0)
1960 J=CHR(0)
1970 J=CHR(0)
1980 J=CHR(0)
1990 J=CHR(0)
2000 J=CHR(0)
2010 J=CHR(0)
2020 J=CHR(0)
2030 J=CHR(0)
2040 J=CHR(0)
2050 J=CHR(0)
2060 J=CHR(0)
2070 J=CHR(0)
2080 J=CHR(0)
2090 J=CHR(0)
2100 J=CHR(0)
2110 J=CHR(0)
2120 J=CHR(0)
2130 J=CHR(0)
2140 J=CHR(0)
2150 J=CHR(0)
2160 J=CHR(0)
2170 J=CHR(0)
2180 J=CHR(0)
2190 J=CHR(0)
2200 J=CHR(0)
2210 J=CHR(0)
2220 J=CHR(0)
2230 J=CHR(0)
2240 J=CHR(0)
2250 J=CHR(0)
2260 J=CHR(0)
2270 J=CHR(0)
2280 J=CHR(0)
2290 J=CHR(0)
2300 J=CHR(0)
2310 J=CHR(0)
2320 J=CHR(0)
2330 J=CHR(0)
2340 J=CHR(0)
2350 J=CHR(0)
2360 J=CHR(0)
2370 J=CHR(0)
2380 J=CHR(0)
2390 J=CHR(0)
2400 J=CHR(0)
2410 J=CHR(0)
2420 J=CHR(0)
2430 J=CHR(0)
2440 J=CHR(0)
2450 J=CHR(0)
2460 J=CHR(0)
2470 J=CHR(0)
2480 J=CHR(0)
2490 J=CHR(0)
2500 J=CHR(0)
2510 J=CHR(0)
2520 J=CHR(0)
2530 J=CHR(0)
2540 J=CHR(0)
2550 J=CHR(0)

```

Shows MOVE routine in Assembly  
Right: Source code for MOVE in Basic.

```

10 CLEAR FROM 0 TO 255
20 J=CHR(200)
30 J=CHR(100)
40 J=CHR(50)
50 J=CHR(25)
60 J=CHR(12)
70 J=CHR(6)
80 J=CHR(3)
90 J=CHR(1)
100 J=CHR(0)
110 J=CHR(0)
120 J=CHR(0)
130 J=CHR(0)
140 J=CHR(0)
150 J=CHR(0)
160 J=CHR(0)
170 J=CHR(0)
180 J=CHR(0)
190 J=CHR(0)
200 J=CHR(0)
210 J=CHR(0)
220 J=CHR(0)
230 J=CHR(0)
240 J=CHR(0)
250 J=CHR(0)
260 J=CHR(0)
270 J=CHR(0)
280 J=CHR(0)
290 J=CHR(0)
300 J=CHR(0)
310 J=CHR(0)
320 J=CHR(0)
330 J=CHR(0)
340 J=CHR(0)
350 J=CHR(0)
360 J=CHR(0)
370 J=CHR(0)
380 J=CHR(0)
390 J=CHR(0)
400 J=CHR(0)
410 J=CHR(0)
420 J=CHR(0)
430 J=CHR(0)
440 J=CHR(0)
450 J=CHR(0)
460 J=CHR(0)
470 J=CHR(0)
480 J=CHR(0)
490 J=CHR(0)
500 J=CHR(0)
510 J=CHR(0)
520 J=CHR(0)
530 J=CHR(0)
540 J=CHR(0)
550 J=CHR(0)
560 J=CHR(0)
570 J=CHR(0)
580 J=CHR(0)
590 J=CHR(0)
600 J=CHR(0)
610 J=CHR(0)
620 J=CHR(0)
630 J=CHR(0)
640 J=CHR(0)
650 J=CHR(0)
660 J=CHR(0)
670 J=CHR(0)
680 J=CHR(0)
690 J=CHR(0)
700 J=CHR(0)
710 J=CHR(0)
720 J=CHR(0)
730 J=CHR(0)
740 J=CHR(0)
750 J=CHR(0)
760 J=CHR(0)
770 J=CHR(0)
780 J=CHR(0)
790 J=CHR(0)
800 J=CHR(0)
810 J=CHR(0)
820 J=CHR(0)
830 J=CHR(0)
840 J=CHR(0)
850 J=CHR(0)
860 J=CHR(0)
870 J=CHR(0)
880 J=CHR(0)
890 J=CHR(0)
900 J=CHR(0)
910 J=CHR(0)
920 J=CHR(0)
930 J=CHR(0)
940 J=CHR(0)
950 J=CHR(0)
960 J=CHR(0)
970 J=CHR(0)
980 J=CHR(0)
990 J=CHR(0)
1000 J=CHR(0)
1010 J=CHR(0)
1020 J=CHR(0)
1030 J=CHR(0)
1040 J=CHR(0)
1050 J=CHR(0)
1060 J=CHR(0)
1070 J=CHR(0)
1080 J=CHR(0)
1090 J=CHR(0)
1100 J=CHR(0)
1110 J=CHR(0)
1120 J=CHR(0)
1130 J=CHR(0)
1140 J=CHR(0)
1150 J=CHR(0)
1160 J=CHR(0)
1170 J=CHR(0)
1180 J=CHR(0)
1190 J=CHR(0)
1200 J=CHR(0)
1210 J=CHR(0)
1220 J=CHR(0)
1230 J=CHR(0)
1240 J=CHR(0)
1250 J=CHR(0)
1260 J=CHR(0)
1270 J=CHR(0)
1280 J=CHR(0)
1290 J=CHR(0)
1300 J=CHR(0)
1310 J=CHR(0)
1320 J=CHR(0)
1330 J=CHR(0)
1340 J=CHR(0)
1350 J=CHR(0)
1360 J=CHR(0)
1370 J=CHR(0)
1380 J=CHR(0)
1390 J=CHR(0)
1400 J=CHR(0)
1410 J=CHR(0)
1420 J=CHR(0)
1430 J=CHR(0)
1440 J=CHR(0)
1450 J=CHR(0)
1460 J=CHR(0)
1470 J=CHR(0)
1480 J=CHR(0)
1490 J=CHR(0)
1500 J=CHR(0)
1510 J=CHR(0)
1520 J=CHR(0)
1530 J=CHR(0)
1540 J=CHR(0)
1550 J=CHR(0)
1560 J=CHR(0)
1570 J=CHR(0)
1580 J=CHR(0)
1590 J=CHR(0)
1600 J=CHR(0)
1610 J=CHR(0)
1620 J=CHR(0)
1630 J=CHR(0)
1640 J=CHR(0)
1650 J=CHR(0)
1660 J=CHR(0)
1670 J=CHR(0)
1680 J=CHR(0)
1690 J=CHR(0)
1700 J=CHR(0)
1710 J=CHR(0)
1720 J=CHR(0)
1730 J=CHR(0)
1740 J=CHR(0)
1750 J=CHR(0)
1760 J=CHR(0)
1770 J=CHR(0)
1780 J=CHR(0)
1790 J=CHR(0)
1800 J=CHR(0)
1810 J=CHR(0)
1820 J=CHR(0)
1830 J=CHR(0)
1840 J=CHR(0)
1850 J=CHR(0)
1860 J=CHR(0)
1870 J=CHR(0)
1880 J=CHR(0)
1890 J=CHR(0)
1900 J=CHR(0)
1910 J=CHR(0)
1920 J=CHR(0)
1930 J=CHR(0)
1940 J=CHR(0)
1950 J=CHR(0)
1960 J=CHR(0)
1970 J=CHR(0)
1980 J=CHR(0)
1990 J=CHR(0)
2000 J=CHR(0)
2010 J=CHR(0)
2020 J=CHR(0)
2030 J=CHR(0)
2040 J=CHR(0)
2050 J=CHR(0)
2060 J=CHR(0)
2070 J=CHR(0)
2080 J=CHR(0)
2090 J=CHR(0)
2100 J=CHR(0)
2110 J=CHR(0)
2120 J=CHR(0)
2130 J=CHR(0)
2140 J=CHR(0)
2150 J=CHR(0)
2160 J=CHR(0)
2170 J=CHR(0)
2180 J=CHR(0)
2190 J=CHR(0)
2200 J=CHR(0)
2210 J=CHR(0)
2220 J=CHR(0)
2230 J=CHR(0)
2240 J=CHR(0)
2250 J=CHR(0)
2260 J=CHR(0)
2270 J=CHR(0)
2280 J=CHR(0)
2290 J=CHR(0)
2300 J=CHR(0)
2310 J=CHR(0)
2320 J=CHR(0)
2330 J=CHR(0)
2340 J=CHR(0)
2350 J=CHR(0)
2360 J=CHR(0)
2370 J=CHR(0)
2380 J=CHR(0)
2390 J=CHR(0)
2400 J=CHR(0)
2410 J=CHR(0)
2420 J=CHR(0)
2430 J=CHR(0)
2440 J=CHR(0)
2450 J=CHR(0)
2460 J=CHR(0)
2470 J=CHR(0)
2480 J=CHR(0)
2490 J=CHR(0)
2500 J=CHR(0)
2510 J=CHR(0)
2520 J=CHR(0)
2530 J=CHR(0)
2540 J=CHR(0)
2550 J=CHR(0)

```

## OVERLEAF - THE ROUTINES IN BASIC PLUS A GREAT DEMO SHOWING HOW THEY MIGHT BE USED

where FROM is the start of the RAM area to be copied, TO is the area to be copied to and NUMBER is the number of bytes to be copied.

## THE ROUTINES IN USE

The demonstration program is an example of how to use the subroutines in a BASIC program. The screen is filled with hearts and a message printed on the centre of the screen. The move machine-code routine then copies the whole of the screen display to a buffer, or temporary store

area. The clear routine then clears the screen display, before the move routine fetches the screen data from the buffer and re-displays it.

The second part of the program copies the standard heart character set to a section of RAM starting at location 20004. The character set pointer is changed to point to this address (line 200) and then portions of the character set are copied from RAM to ROM to give the scrolling effect.

I hope that these routines prove useful to you. Check out the demonstration listing and try to adapt it to your own use. Next time I'll bring you some more routines that will enhance your programs whether written in Assembly or Basic.



# Compumart

A Great Deal More  
For a Good  
Deal Less!

Free  
FAST  
DELIVERY



**FREE**  
Only From Compumart!  
A FUJIFILM SLR CAMERA KIT  
WORTH £399.99  
AND  
50 FREE AIR WALK  
when you purchase the  
Atari 520 STFM Superpack  
Only from Compumart!

- Complete with Film, Strap and Battery
- High quality Zeiss Fujinon glass lens
- Built in flash
- ISO Film speed setting
- Shutter speed setting
- Lens in sliding



Phone for other great  
ST deals!!

## ATARI 520 STFM SUPERPACK

Buy the lovely Atari pack now and you get a 520 STFM with better resolution, 11 Megabyte, 16 Megabyte, instruction manual and a mouse with...

- Free 21 exciting action games WORTH £400
- Free Organizer integrated business software WORTH £49.99
- Free Atari joystick WORTH £9.99

Only **£399**

## PRINTERS

From as little  
as **£199.95** and...

**WORTH OVER £50**

Printer	Resolution	Print Speed	Price
HP LaserJet 4	300 x 300	4 ppm	£199.95
HP LaserJet 5	300 x 300	4 ppm	£249.95
HP LaserJet 6	300 x 300	4 ppm	£299.95
HP LaserJet 7	300 x 300	4 ppm	£349.95
HP LaserJet 8	300 x 300	4 ppm	£399.95
HP LaserJet 9	300 x 300	4 ppm	£449.95
HP LaserJet 10	300 x 300	4 ppm	£499.95
HP LaserJet 11	300 x 300	4 ppm	£549.95
HP LaserJet 12	300 x 300	4 ppm	£599.95
HP LaserJet 13	300 x 300	4 ppm	£649.95
HP LaserJet 14	300 x 300	4 ppm	£699.95
HP LaserJet 15	300 x 300	4 ppm	£749.95
HP LaserJet 16	300 x 300	4 ppm	£799.95
HP LaserJet 17	300 x 300	4 ppm	£849.95
HP LaserJet 18	300 x 300	4 ppm	£899.95
HP LaserJet 19	300 x 300	4 ppm	£949.95
HP LaserJet 20	300 x 300	4 ppm	£999.95

## QUALITY BLANK DISKS

Why buy unlabelled disks when you can have  
labelled quality at prices like these!!

CHOOSE  
YOUR...



	14 Tracks	15 Tracks	16 Tracks
3.5" 95	14.99	13.99	12.99
3.5" 120	18.99	16.99	16.43

Not all labels 100% when you visit other in-store retailers

Please note price £799 or £849 when including

## SUNDRIES

LETTER PAPER  
200 sheets  
11" x 17"  
Weight  
**£14.95**

KEYCHAINS  
For your Removable  
Diskette from REPEAT,  
color labels and  
Eject Control!  
**£12.95**

SHRINK MARKS  
High quality Shrink  
Mark  
**£5.95**

DISK STORAGE  
MS-DOS, packable 3 1/2" disk  
storage box, holds  
up to 70 disks.  
**£12.95**

WITH 2 FREE 3 1/2" DISKS

MONITORS  
Phosphor, 14" color  
Atari 520 ST, 12" mono  
**£274.95**  
**£128.95**

WITH 2 FREE 3 1/2" DISKS WORTH £10

DISK SAVED  
At 11" long, with integral power supplies  
**£799**

TRAILBLAZER  
SUMMER  
POWER  
**£799**  
**£109**

**24HR ORDER HOTLINE (0509) 610444**

**Swift Service**

**Great Guarantees**

**Best Back-Up**

**Compumart**

- 8 Usually more than 100 items in stock
- 8 24hr order service, no need to wait
- 8 24hr delivery, no need to wait
- 8 Large choice for immediate delivery
- 8 24hr delivery service

- 8 2 year warranty on most computers
- 8 3 year warranty on most printers
- 8 1 year warranty on most software
- 8 1 year warranty on most peripherals
- 8 1 year warranty on most accessories

- 8 Friendly advice and after sales support
- 8 Free postage service (subject to our conditions)
- 8 Special offers & money discounts
- 8 Special offers & money discounts

10 Great Deal More For a Good Deal Less

COMPUMART LTD  
FREEPOST WJUP  
LEIGHBOROUGH  
LEIC LS17 9BP  
TEL: 0509 610444  
FAX: 0509 610338

Prices/delivery subject to availability and only applicable to UK mainland. In Ireland and BPP's. ©1992 Compumart are licensed credit brokers. Simply call for further details.

# SpartaDos



New products from ICD always send shock waves of excitement around the Atari 8-bit world, and this one is no exception. It's the long rumored development of ICD's excellent SpartaDOS 1.1, reviewed in issue 32) called SpartaDOS X, which takes Atari disk users to new heights in terms of facilities, performance, and operational convenience.

For the uninitiated, SpartaDOS X is designed as a replacement for Atari DOS, the disk operating system you would normally use with an Atari disk drive. A disk operating system is a collection of special programs which enable you to store, retrieve, and manage programs and data on disk. Atari DOS is adequate for general purpose use, but more advanced users often wish to beat those facilities - which is exactly what SpartaDOS X has in abundance.

ICD have been shipping SpartaDOS X with a temporary manual in the USA, pending the completion of the fully detailed final version. The review copy had the temporary version too, but Frontier Software tell me that all UK copies of SpartaDOS X will be supplied with the final version. If this is anything like previous SpartaDOS documentation it should be first class.

## CARTRIDGE BASED

SpartaDOS X is totally different from Atari DOS. Even its storage medium is different - it's CARTRIDGE based, and it's a very special cartridge at that! It uses a whopping 64K of built-in-wired ROM to hold the code. You've heard of ROMs? Well, this is more like a ROM-like ROM of the ROM is mapped out like a disk drive, so if you perform a directory list or if you're shown a list of program files - just as if they were held on disk. As it's a ROM (Read Only Memory) cartridge you can't write anything to it, though.

The main advantages of the cartridge approach over the normal disk are fast access speed, disk space savings, and sheer convenience. Atari DOS systems keep their component programs on disk and these get loaded in when required. If you have only one disk drive you have to either copy the DOS components onto your working disk (taking up valuable disk space) or swap your working disk (making up valuable disk space) or swap your working disk every time something needs loading.

With SpartaDOS X there's none of that, as everything is available from the cartridge. It's like having an addition of high speed disk drive just for SpartaDOS.

The top of the cartridge contains a cartridge slot, so you can plug and/or cartridge into it. This is really intended for use with programming language cartridges, but I

reviewed

by

John S Davison

found my original Asatruwite cartridge and all my old favourite game cartridges worked fine. The only failure was ACARUSH, which although it would run, seemed unable to do any disk I/O to saving and loading games. ICD do warn you that there may be old programs that won't work with SpartaDOS, so if you have a particularly important program you want to use with it, check before buying.

## IBM COMMAND COMPATIBILITY

Unlike Atari DOS, SpartaDOS X is essentially command driven. In use, previous versions of SpartaDOS resembled use of IBM PC-DOS (or just MS-DOS if you really insist), although its command names were different. ICD have now taken this to its logical conclusion and provided additional extensive command names identical to those in PC-DOS. Note - this does NOT mean SpartaDOS X can run IBM PC programs, just that both systems use the same commands to perform similar functions. Command syntax is very similar too, so even if you know SpartaDOS X you'll soon feel at home with an IBM PC. This could provide useful experience for people who move on to a PC later in their education or employment.

To prove the point, my seven year old son Peter (admittedly an obsolete computer freak) was able to happily operate my IBM PC Convertible laptop computer after just a few hours use of SpartaDOS X - something he's never done before. This included working with subdirectories, a topic which tends to confuse or even frighten many PC users.

## ATARI XFSII SUPPORTED

One of SpartaDOS's great strengths has always been its support of many different kinds of disk drive. SpartaDOS X can handle single sided disks of 90K single density, 127K 9056 enhanced density, and 1 MBK double density. It also handles double sided, double density 360K drives, including the new Atari XFSII drives which even Atari don't fully support yet! 640Kbit/s and hard disk are supported, and for the adventurous it will also handle 8" and 3.5" drives, assuming you can find an interface with which to attach them. Up to 99M drives may be used at once, in any combination of speed, density, and format.







## ICD show that the 8-bit Atari is still at the top with the most comprehensive DOS yet

High speed modifications aren't forgotten either, with support provided for the Happy board and ICD's own US Doublet (discussed in Issue 12). It even supports high speed operation on the rarely seen Indian GT drives. And for even more performance it can use the 1024K's bank switched memory as a disk cache!

You don't have to worry about using different format disks, as SportDOS automatically recognises them. It had no problems reading any of my disks, and switched between single, enhanced, and double density disks in SportDOS and Atari DOS formats completely transparently. It also coped with standard and skewed sector tracks for US Doublet high speed disks without trouble.

At disk level SportDOS X uses volume labels, and also provides support for subdirectories (like folders on the XT) nested to any level you want, with up to 4,095 entries in each - great for hard disk users. Commands are available to create and delete subdirectories, and to set the access path through to the level needed. Files can then be freely created, copied, and deleted in any subdirectory as required.

Subdirectory operations may be performed by directly entered commands or via a menu system, itself invoked by a command. This displays several available windows showing a disk's subdirectory 'tree' structure and the files contained in any chosen 'branch' of it. Menu selections are available for viewing, printing, renaming, deleting, and copying any file shown. Files can be handled singly or as a batch, so you can selectively logrolling files in the list and then perform a given operation on the whole group - a really useful facility. Menu selections are also available for creating and deleting subdirectories on any level.

SportDOS has time and date stamping for files, provided by an internal software driven clock. Current time and date can be permanently displayed on an extra line at the top of the screen, where it's updated every second. Unlike earlier versions of Sport-

systems, ICD can also supply a battery driven clock cartridge called B-TIME 8. This plugs into the SportDOS X cartridge, removing the need to set the date and time at every bootup.

### BUILT-IN ARCHIVING

Another feature in SportDOS X is its ARC facility, based on and compatible with the system used on the IBM PC, and many other systems. It can take a group of files and compress them into a single archive file which takes up far less disk space than the originals. You can even encrypt them if needed. When required to use, they can be decompressed and split back into their original form. You're likely to meet this particularly if you deal in bulletin board systems, where much of the material is held in ARC format to save space and cut download times.

Amongst its many other features are commands for file protection, for hiding files from prying eyes, for finding files you've stored somewhere in a subdirectory structure, but can't remember where, for unsetting files you've accidentally deleted, and for displaying files in hexadecimal and ASCII form. You can use batch files to execute sequences of SportDOS commands, to which up to nine user defined parameters can be passed. I/O redirection is also available for routing command input and output to devices other than the defaults. The cartridge also contains a file called SIFPRO.SPL, which presumably means you can use SportDOS X in 80-column mode using the Atari SEPIB! The documentation did not mention this feature but Frontier Software have since confirmed that the SIF 80 is supported. Most commands available in previous versions of SportDOS are here, although a few are missing or replaced by new functions. It's still possible to run external commands from disk, so you could run old disk based SportDOS commands or even write your own, if you wished.

For later release there's also the possibility of a SportDOS Text Kit, supplying additional utility programs such as a disk sector editor. And, if necessary, ICD will provide cartridge upgrade chips at nominal cost if the base code has to change to correct bugs, etc. Both should be available through Frontier software.

### CONCLUSIONS

Once again ICD have triumphed, bringing us yet another superb product that opens up a whole new world to the 8-bit user. They deserve the support and loving gratitude of every serious Atari user in the land, as do Frontier Software for making ICD products available in the UK at such reasonable prices. If you're thinking about upgrading your Atari's disk facilities, then make SportDOS X a priority purchase. It's probably the shrewdest money you'll ever make.

**SportDOS X**  
**Published by ICD**  
**Distributed by Frontier Software**  
**Price £49.95**

# sunplotter



## find out where the sun shines and what time it is anywhere in the world

**S**unplotter is a somewhat different application that may be used for educational study and, hopefully, it will give you some insight into how to draw detailed maps without using huge amounts of precious memory.

Sunplotter will show the passage of the Sun over the earth and the user can discover the latitude and longitude of any place in the world and also discover the local time. When the date and time of day are entered, the program will show an outline map of the world showing all the areas covered by the Sun's light. These areas, you will find, are only those according to the time but, as the map is based on the Mercator projection, the Sun's "footprint" will change its shape according to the season. The program will show sunlight land in yellow and sea in blue, while night-time land will be in black with the sea in grey. These colours should give clear reminders if used with a black and white screen.

Once the map is shown a cursor will appear which can be moved about with a joystick while the text window will show the latitude and longitude under the cursor plus the time of sunrise and sunset at that place on the particular day chosen and by how many hours ahead of, or behind, GMT the local time is.

### WORKING OUT THE MAP

In redrawing the map for the program the lines of latitude and longitude were made equidistant in order to make calculation easier. The area of the world included ran from 67 degrees North to just over 63 degrees South which avoids the problem of deciding whether it is day, night or twilight at the Poles at certain times of the year. The modified map was divided into 140 squares across by 80 squares down, making each 2.125 degrees of longitude wide by about 1.63 degrees of latitude high. These squares were allocated to land or sea but to fill in some of the black areas some islands were designated land although smaller than half a square.

To understand how the map is drawn by the computer you may like to enter the following one line program:

```
10 GRAPHICS 0: FOR I=1 TO 4: PRINT #0, CHR$(1), CHR$(1), CHR$(1)
which will give you three coloured squares plus one square for
```

some colour as the back ground.

We could store the map by putting into data a series of 1's and 2's according to whether we want to show land or water for that particular square but if we use Graphics 7, which gives reasonable detail, we would need to store 140 by 80, or 12,800 digits. Instead we store a number saying how many times either of the two colours is to be printed and the switch

from one colour number to the other every time the colour rate is completed. This switching is done by the expression  $K+R$ . Each a method reduces typing time and memory requirements though at the cost of some screen printing time.

With regard to showing the change between sunlight and darkness, since we still have two colours to play with (including the background colour), we shift the colour number up and down two places while the map is being drawn, the position at which the shift is to take place being calculated at the beginning of each line. The formulae used together with the destination calculation at the start of the program gives times and positions within about 15 minutes of those quoted in a manual almanac. Greater accuracy would require a much longer program which would delay the map-drawing process considerably.

### LISTS OF SUNPLOTTER

Both Amateurs and beginners will find that having a complete picture of the earth and dark areas of the world helps tremendously in formulating propagative paths on the short and medium wave bands. Others will no doubt find interesting use for this type of information and maybe others will be able to come up with some more applications using the programming techniques given.

I would like to offer my thanks to those whose useful suggestions were not always involved at the time with the country they derived.

by Peter Scott Welch

```

00 1 SUN *****
01 2 SUN *      SUNPLOTTER      *
02 3 SUN *      FOR AT&T LSI/LSI *
03 4 SUN *      SUN      *
04 5 SUN *      PAPER BOARD MODEL *
05 6 SUN *      *****
06 7 SUN * PAGE 8 MAGAZINE - ENGLAND *
07 8 SUN *****
08 9 SUN
09 10 SUN MODEL NUMBER, PART NO., COLOR, &
    (L)
10 11 SUN *****
12 12 SUN *****
13 13 SUN *****
14 14 SUN *****
15 15 SUN *****
16 16 SUN *****
17 17 SUN *****
18 18 SUN *****
19 19 SUN *****
20 20 SUN *****
21 21 SUN *****
22 22 SUN *****
23 23 SUN *****
24 24 SUN *****
25 25 SUN *****
26 26 SUN *****
27 27 SUN *****
28 28 SUN *****
29 29 SUN *****
30 30 SUN *****
31 31 SUN *****
32 32 SUN *****
33 33 SUN *****
34 34 SUN *****
35 35 SUN *****
36 36 SUN *****
37 37 SUN *****
38 38 SUN *****
39 39 SUN *****
40 40 SUN *****
41 41 SUN *****
42 42 SUN *****
43 43 SUN *****
44 44 SUN *****
45 45 SUN *****
46 46 SUN *****
47 47 SUN *****
48 48 SUN *****
49 49 SUN *****
50 50 SUN *****
51 51 SUN *****
52 52 SUN *****
53 53 SUN *****
54 54 SUN *****
55 55 SUN *****
56 56 SUN *****
57 57 SUN *****
58 58 SUN *****
59 59 SUN *****
60 60 SUN *****
61 61 SUN *****
62 62 SUN *****
63 63 SUN *****
64 64 SUN *****
65 65 SUN *****
66 66 SUN *****
67 67 SUN *****
68 68 SUN *****
69 69 SUN *****
70 70 SUN *****
71 71 SUN *****
72 72 SUN *****
73 73 SUN *****
74 74 SUN *****
75 75 SUN *****
76 76 SUN *****
77 77 SUN *****
78 78 SUN *****
79 79 SUN *****
80 80 SUN *****
81 81 SUN *****
82 82 SUN *****
83 83 SUN *****
84 84 SUN *****
85 85 SUN *****
86 86 SUN *****
87 87 SUN *****
88 88 SUN *****
89 89 SUN *****
90 90 SUN *****
91 91 SUN *****
92 92 SUN *****
93 93 SUN *****
94 94 SUN *****
95 95 SUN *****
96 96 SUN *****
97 97 SUN *****
98 98 SUN *****
99 99 SUN *****

```

```

00 101 T *****
01 102 T *****
02 103 T *****
03 104 T *****
04 105 T *****
05 106 T *****
06 107 T *****
07 108 T *****
08 109 T *****
09 110 T *****
10 111 T *****
11 112 T *****
12 113 T *****
13 114 T *****
14 115 T *****
15 116 T *****
16 117 T *****
17 118 T *****
18 119 T *****
19 120 T *****
20 121 T *****
21 122 T *****
22 123 T *****
23 124 T *****
24 125 T *****
25 126 T *****
26 127 T *****
27 128 T *****
28 129 T *****
29 130 T *****
30 131 T *****
31 132 T *****
32 133 T *****
33 134 T *****
34 135 T *****
35 136 T *****
36 137 T *****
37 138 T *****
38 139 T *****
39 140 T *****
40 141 T *****
41 142 T *****
42 143 T *****
43 144 T *****
44 145 T *****
45 146 T *****
46 147 T *****
47 148 T *****
48 149 T *****
49 150 T *****
50 151 T *****
51 152 T *****
52 153 T *****
53 154 T *****
54 155 T *****
55 156 T *****
56 157 T *****
57 158 T *****
58 159 T *****
59 160 T *****
60 161 T *****
61 162 T *****
62 163 T *****
63 164 T *****
64 165 T *****
65 166 T *****
66 167 T *****
67 168 T *****
68 169 T *****
69 170 T *****
70 171 T *****
71 172 T *****
72 173 T *****
73 174 T *****
74 175 T *****
75 176 T *****
76 177 T *****
77 178 T *****
78 179 T *****
79 180 T *****
80 181 T *****
81 182 T *****
82 183 T *****
83 184 T *****
84 185 T *****
85 186 T *****
86 187 T *****
87 188 T *****
88 189 T *****
89 190 T *****
90 191 T *****
91 192 T *****
92 193 T *****
93 194 T *****
94 195 T *****
95 196 T *****
96 197 T *****
97 198 T *****
98 199 T *****
99 200 T *****

```



# sunplotter

87 1290 T 787  
 88 1291 T 787  
 89 1292 T 787  
 90 1293 T 787  
 91 1294 T 787  
 92 1295 T 787  
 93 1296 T 787  
 94 1297 T 787  
 95 1298 T 787  
 96 1299 T 787  
 97 1300 T 787  
 98 1301 T 787  
 99 1302 T 787  
 00 1303 T 787  
 01 1304 T 787  
 02 1305 T 787  
 03 1306 T 787  
 04 1307 T 787  
 05 1308 T 787  
 06 1309 T 787  
 07 1310 T 787  
 08 1311 T 787  
 09 1312 T 787  
 10 1313 T 787  
 11 1314 T 787  
 12 1315 T 787  
 13 1316 T 787  
 14 1317 T 787  
 15 1318 T 787  
 16 1319 T 787  
 17 1320 T 787  
 18 1321 T 787  
 19 1322 T 787  
 20 1323 T 787  
 21 1324 T 787  
 22 1325 T 787  
 23 1326 T 787  
 24 1327 T 787  
 25 1328 T 787  
 26 1329 T 787  
 27 1330 T 787  
 28 1331 T 787  
 29 1332 T 787  
 30 1333 T 787  
 31 1334 T 787  
 32 1335 T 787  
 33 1336 T 787  
 34 1337 T 787  
 35 1338 T 787  
 36 1339 T 787  
 37 1340 T 787  
 38 1341 T 787  
 39 1342 T 787  
 40 1343 T 787  
 41 1344 T 787  
 42 1345 T 787  
 43 1346 T 787  
 44 1347 T 787  
 45 1348 T 787  
 46 1349 T 787  
 47 1350 T 787  
 48 1351 T 787  
 49 1352 T 787  
 50 1353 T 787  
 51 1354 T 787  
 52 1355 T 787  
 53 1356 T 787  
 54 1357 T 787  
 55 1358 T 787  
 56 1359 T 787  
 57 1360 T 787  
 58 1361 T 787  
 59 1362 T 787  
 60 1363 T 787  
 61 1364 T 787  
 62 1365 T 787  
 63 1366 T 787  
 64 1367 T 787  
 65 1368 T 787  
 66 1369 T 787  
 67 1370 T 787  
 68 1371 T 787  
 69 1372 T 787  
 70 1373 T 787  
 71 1374 T 787  
 72 1375 T 787  
 73 1376 T 787  
 74 1377 T 787  
 75 1378 T 787  
 76 1379 T 787  
 77 1380 T 787  
 78 1381 T 787  
 79 1382 T 787  
 80 1383 T 787  
 81 1384 T 787  
 82 1385 T 787  
 83 1386 T 787  
 84 1387 T 787  
 85 1388 T 787  
 86 1389 T 787  
 87 1390 T 787  
 88 1391 T 787  
 89 1392 T 787  
 90 1393 T 787  
 91 1394 T 787  
 92 1395 T 787  
 93 1396 T 787  
 94 1397 T 787  
 95 1398 T 787  
 96 1399 T 787  
 97 1400 T 787  
 98 1401 T 787  
 99 1402 T 787  
 00 1403 T 787

01 1404 T 787  
 02 1405 T 787  
 03 1406 T 787  
 04 1407 T 787  
 05 1408 T 787  
 06 1409 T 787  
 07 1410 T 787  
 08 1411 T 787  
 09 1412 T 787  
 10 1413 T 787  
 11 1414 T 787  
 12 1415 T 787  
 13 1416 T 787  
 14 1417 T 787  
 15 1418 T 787  
 16 1419 T 787  
 17 1420 T 787  
 18 1421 T 787  
 19 1422 T 787  
 20 1423 T 787  
 21 1424 T 787  
 22 1425 T 787  
 23 1426 T 787  
 24 1427 T 787  
 25 1428 T 787  
 26 1429 T 787  
 27 1430 T 787  
 28 1431 T 787  
 29 1432 T 787  
 30 1433 T 787  
 31 1434 T 787  
 32 1435 T 787  
 33 1436 T 787  
 34 1437 T 787  
 35 1438 T 787  
 36 1439 T 787  
 37 1440 T 787  
 38 1441 T 787  
 39 1442 T 787  
 40 1443 T 787  
 41 1444 T 787  
 42 1445 T 787  
 43 1446 T 787  
 44 1447 T 787  
 45 1448 T 787  
 46 1449 T 787  
 47 1450 T 787  
 48 1451 T 787  
 49 1452 T 787  
 50 1453 T 787  
 51 1454 T 787  
 52 1455 T 787  
 53 1456 T 787  
 54 1457 T 787  
 55 1458 T 787  
 56 1459 T 787  
 57 1460 T 787  
 58 1461 T 787  
 59 1462 T 787  
 60 1463 T 787  
 61 1464 T 787  
 62 1465 T 787  
 63 1466 T 787  
 64 1467 T 787  
 65 1468 T 787  
 66 1469 T 787  
 67 1470 T 787  
 68 1471 T 787  
 69 1472 T 787  
 70 1473 T 787  
 71 1474 T 787  
 72 1475 T 787  
 73 1476 T 787  
 74 1477 T 787  
 75 1478 T 787  
 76 1479 T 787  
 77 1480 T 787  
 78 1481 T 787  
 79 1482 T 787  
 80 1483 T 787  
 81 1484 T 787  
 82 1485 T 787  
 83 1486 T 787  
 84 1487 T 787  
 85 1488 T 787  
 86 1489 T 787  
 87 1490 T 787  
 88 1491 T 787  
 89 1492 T 787  
 90 1493 T 787  
 91 1494 T 787  
 92 1495 T 787  
 93 1496 T 787  
 94 1497 T 787  
 95 1498 T 787  
 96 1499 T 787  
 97 1500 T 787  
 98 1501 T 787  
 99 1502 T 787  
 00 1503 T 787

# UNDER STARTERS ORDERS

The Atari Racetrack  
by Barry Challis

A great horse racing program for up to four players

Under Starters Orders is a flat racing game covering 34 meetings with seven races per meeting. At the start of the game all horses have an equal chance of winning at a starting price of 5/1 but after the first meeting, the starting price reflects the horses performance in previous races. Alternatively you have the option to create form at the start of each game.

There are extensive features in the game including

- Computer betting for 1 - 4 players
- Full colour animated race graphics
- Save game facility
- Multiple betting
- 34 flat meetings at all the major courses
- 7 races per meeting
- 1/2/3 form sheets for current distances
- Joystick controlled
- Mouse betting alternative
- Print your own betting slips
- Name your own horses
- Photo finish

## PLAYING THE GAME

Boot up with the disk which will automatically run the program. Leave the disk in your drive when playing the game and be sure to remove any write protect tabs if you want to save games (it is best to make a copy of the full program onto another disk). When the opening options screen appears use the START key to select: COMPUSER (ALL) (2) or (3) and then press the fire button. If you select COMPACT then you will be asked how many players (up to 4). Use a joystick in port 1 to select the type of bet from Single, Double or Triple by moving the stick right or left. Press the trigger to select. Next move the joystick left or right to select the amount you wish to bet. Pressing the fire button explains your bet best. If you want to bet the same amount of £1 just leave the amount as 1 and press the trigger.

Next use the joystick up or down to choose your horse for the flat race. The previous wins of each horse are shown to the right of the horse name and as you move the joystick the second and third places of the highlighted horse are shown. When all players have entered their bet, the race begins.



If you did not select COMPACT the computer will print the results at the end that will run up and down the field automatically showing each runner form. When you are ready to race press the fire button.

## FULLY ANIMATED GRAPHICS

The race proper will show five horses from top to bottom with the names of each and the bet placed at the top of the screen. In the top right hand corner of the race screen the letters CJ will show a computer form analysis and tips who should win the race. Study of

this will give some indications of form and how it affects horses and will also take into account other factors unknown to the punter. Unfortunately favourites don't always win! The other label 'POST' shows the distance left to the finishing post.

## SAVE GAME INSTRUCTIONS

The option of saving your current game is offered at the end of every meeting. Up to four games can be saved on the game disk and the current horse database is saved automatically when you save a game.

## EDITOR INSTRUCTIONS

The program has 8 horse databases on disk of which 4 are user definable and there are 708 horses in total! It is possible to alter the details of each horse on the definable databases and save these changes to disk. Just press SELECT on the main title page for the editor. There are 78 horses in each database and on entering the editor you will be asked which horse you wish to edit. Just enter the number and type the new name. Use the arrow keys (without the COMPACT key) to change the colour of that horse. You can change all of the horses if you wish or just a few. Arrows will allow you to exit the editor.

That's about it. Play Under Starters Orders with a few friends and we guarantee that it will having you laughing aloud and cheering as your horse crosses the line! This is one of the best multiple player games we have ever featured in Super 8 (it is also playable by 1 player) and will give you hours of play. Keep one in a while a great games along!

Under Starters Orders is the bonus on this issue's disk and Disk subscribers will have received their copy with the magazine. The disk also contains all of the other programs from this issue ready to run and it may be purchased individually for just £2.95. Send your cheque or Postal Order to PAGE 6, P.O. Box 34, Stafford, ST16 1DE. Overseas readers should add 50p to cover postage.









# WANNA JOB?

(for a couple of weeks)

We are so far behind in going through all the programs submitted for publication that we need someone to help us out for a couple of weeks. If you are interested then you need to be fully conversant with the NI/NI (with some understanding of the ST if possible) and be able to program quite well in BASIC. You need to be extremely quick at picking things up and very meticulous in your work. You also need to be able to work on your own without supervision.

The job is only temporary, a couple of weeks at most, remuneration will be modest (to say the least) but we will pay travel and accommodation expenses while you are here. The job will only suit someone who is totally addicted to the Atari, maybe as a temporary job during University or College holidays, and although it may be fun it will also be hard work!

If you are interested (you must be over 16) please drop me a line or give me a ring. Write to Les Ellingham, PAGE 6 Atari USER, P.O. Box 34, Stafford, ST16 1DR. Tel. 0784 213928

1986  
LATEST  
SOFTWARE  
COURTESY

## COMPUTERWARE

1986  
TRUCK  
LOADS  
COURTESY

PO BOX 310, STAKE-OAK-TRENT, ST5 6UJ

ALL ITEMS USUALLY DESPATCHED WITHIN 24HOURS

ITEM	ITEM NO	ITEM TITLE	ITEMS	PRICE	ITEMS	PRICE
A3111000000	174	A3111000000	174	199	A3111000000	174
A3111000001	175	A3111000001	175	199	A3111000001	175
A3111000002	176	A3111000002	176	199	A3111000002	176
A3111000003	177	A3111000003	177	199	A3111000003	177
A3111000004	178	A3111000004	178	199	A3111000004	178
A3111000005	179	A3111000005	179	199	A3111000005	179
A3111000006	180	A3111000006	180	199	A3111000006	180
A3111000007	181	A3111000007	181	199	A3111000007	181
A3111000008	182	A3111000008	182	199	A3111000008	182
A3111000009	183	A3111000009	183	199	A3111000009	183
A3111000010	184	A3111000010	184	199	A3111000010	184
A3111000011	185	A3111000011	185	199	A3111000011	185
A3111000012	186	A3111000012	186	199	A3111000012	186
A3111000013	187	A3111000013	187	199	A3111000013	187
A3111000014	188	A3111000014	188	199	A3111000014	188
A3111000015	189	A3111000015	189	199	A3111000015	189
A3111000016	190	A3111000016	190	199	A3111000016	190
A3111000017	191	A3111000017	191	199	A3111000017	191
A3111000018	192	A3111000018	192	199	A3111000018	192
A3111000019	193	A3111000019	193	199	A3111000019	193
A3111000020	194	A3111000020	194	199	A3111000020	194
A3111000021	195	A3111000021	195	199	A3111000021	195
A3111000022	196	A3111000022	196	199	A3111000022	196
A3111000023	197	A3111000023	197	199	A3111000023	197
A3111000024	198	A3111000024	198	199	A3111000024	198
A3111000025	199	A3111000025	199	199	A3111000025	199

Prices include post & packing (orders of less than £5.00 in total please add 5% handling charge and 7% V.A.T. for items over £50 for cash orders only. Bank orders in sterling, all orders to country despatched within 24 hrs. Please note - Receipts only possible for "COMPUTERWARE"

## Upgrade from Tape to Disk!

with the new Atari XF551 Disk Drive and Transdisk IV



Upgrading from the slow Atari cassette system to a fast, reliable disk set-up is certainly desirable but what do you do with all the games you have on cassette? Wouldn't it be nice if you were able to transfer your collection of tapes to disk for faster, more reliable loading? With the new Atari XF551 disk drive and Transdisk IV you can do it!

### Atari XF551 Disk Drive Features:

- Double-Sided, Double Density for maximum data storage
- Easy connection and quiet operation
- Smart styling to match your Atari Computer
- Suitable for 8008, 8080 and 1020 Computers

### Transdisk IV Features:

- Easy transfer of latest cassette games to disk
- Allied to the fast-time disk user
- Step-by-step instruction booklet supplied
- Completely self-contained - No other programs required
- For more info see Ad elsewhere in this issue

To Order phone with credit card no., or make Cheque or P.D. payable to Digicom Computer Services Ltd. and send to:

**DIGICOM**, Unit 36, Wharfside,  
Fenny Stratford, MILTON KEYNES MK2 2AZ



Credit Card Orders 0908 78008



Normal Price for XF551 Disk Drive £149.99  
Normal Price for Transdisk IV £ 19.95  
Together Normally £169.94

Atari XF551 Disk Drive +  
Transdisk IV Our Offer Price = **£165.00**

Inclusive of VAT and Next Day Delivery

# CREATING A DATABASE

In this article and subsequent articles I am going to change the format of the Tutorial Subroutines a bit and, instead of providing individual subroutines with detailed analysis, I am going to work up a program in stages. My aim is to write a name and address database for cassette tape users. The idea came from a reader in Brighton who wrote to me to ask if I knew of such a program. At first I thought it would be easy to cobble bits of one of the programs I had used in the past, but when I went searching I found that they were all disk based (so are the majority of 'serious' programs for the Atari 8-bit range). I would have liked to fully develop this program in subroutines if it were to appear strictly knowledgeable when describing and documenting a completed program, but I have not had time for that and so I will have to be strictly honest and develop the program as I go. In order to leave plenty of memory for the data itself the program will have to be straightforward and fairly short so I will write it specifically for the address book function rather than try to develop a general database program to do the job. It is always more difficult to write a program which is general and takes account of every varied use than to write for a specific application, but having said that I will ensure that the program is documented well enough for you to customise it for other applications without too much difficulty.

## DATA BASE FUNCTIONS

The first thing that is needed before a start is made on actually writing a program is to decide in detail what we want it to do. For our address database I will include the following functions:

- Creating a database
- Loading a data set
- Deleting records from the database
- Printing a record or records
- Setting the data
- Saving a data set
- Adding records to the database
- Updating/locking changes to the data
- Quit the program.

For the time being I have treated each of these functions as being separate, but as we develop the program they will probably fall into groups, for example loading and saving data will probably have quite a lot in common. Also there are other possible functions that could be included, and which I may add when we have a better idea of the size of the program and whether there is enough memory. An example is the ability to log a record or group of records to print or save on a separate set.

## FLOW CHART

It is important to establish a firm idea of how the different parts of the program will interact, this may well change when the program is more developed, but if there is no guideline to work from the start it is easy to get tied up in detail and it becomes difficult to find a way through the whole program. Before starting the main part of the program there will be a need to initialise variables etc. and to provide some instructions for the first three runs. Initialisation can include a title screen, and it would be nice to have a set of instructions that can be deleted

## Ian Finlayson shows you how to put together several subroutines with a database program specifically for cassette users

from the program when they are no longer needed so this will release a bit of memory for data. Still I am getting ahead of myself - the instructions will not be written until later on we will need to know how the program works before writing instructions for others!

Having decided earlier what functions are to be included in the program it is necessary to look at the way they will interact. For this database program each function can be considered to be independent and it will be quite easy to link them through a main menu. From the main menu the program will branch out to any selected functions and when that is complete loop back to the main menu again; the exception to this is the quit function which will terminate the program.

The easiest way to visualize the interrelation of the various modules within a program is to draw them out in a flow chart. This means that you know where you are all the time and where conditional branches go. I have drawn up a flow chart of the prime functions of this program which can be seen in the figure.

## THE PROGRAM

The actual program part of this issue's tutorial does nothing more than provide a framework for the modules to fit in. It will run and does prove the flow of the program as a whole.

**Lines 10-30** - I have started by defining a whole series of line numbers. This will help to keep the program readable. It is much easier to understand `GOTO 2087` than `GOTO 2080` - in the latter case it is necessary to scan the listing to find what the subroutines are. You will see that the lines are spaced 1000 apart to leave plenty of space for the program lines that have to go in between.

**Lines 40-50** - These lines call the initialisation and instructions subroutines. The subroutines themselves will be in a later article but I have put a little conditional branch in the instructions subroutine to try it out.

**Line 999** - is a ROM statement banner for the Main Menu. I will put one of these in before any major program block and will ensure they are on the line before the start of the routine. This allows all the ROM statements to be deleted at a later date to release additional memory without changing the program flow (it is bad practice to `GOTO` or `GO SUB` to a ROM statement). These banners make the program much more readable and help during program development, but do not affect its operation.

**Lines 1000-1100** - These lines print the main menu screen - it is not on a single or flashy screen but will serve the purpose.

**Line 1100** calls the bypass subroutine. This is a general purpose subroutine which checks a key being pressed and returns the value of the key in variable KEY. In this case we expect a number between 1 and 9 (key codes 49 and 58) and if a wrong

```

00 1 000 *****
00 2 000 *          SUBROUTINE          *
00 3 000 *          *****          *
00 4 000 *          *****          *
00 5 000 *          *****          *
00 6 000 *          *****          *
00 7 000 *          *****          *
00 8 000 *          *****          *
00 9 000 *          *****          *
00 10 000 *****

00 11 000 *****
00 12 000 *****
00 13 000 *****
00 14 000 *****
00 15 000 *****
00 16 000 *****
00 17 000 *****
00 18 000 *****
00 19 000 *****
00 20 000 *****
00 21 000 *****
00 22 000 *****
00 23 000 *****
00 24 000 *****
00 25 000 *****
00 26 000 *****
00 27 000 *****
00 28 000 *****
00 29 000 *****
00 30 000 *****
00 31 000 *****
00 32 000 *****
00 33 000 *****
00 34 000 *****
00 35 000 *****
00 36 000 *****
00 37 000 *****
00 38 000 *****
00 39 000 *****
00 40 000 *****
00 41 000 *****
00 42 000 *****
00 43 000 *****
00 44 000 *****
00 45 000 *****
00 46 000 *****
00 47 000 *****
00 48 000 *****
00 49 000 *****
00 50 000 *****
00 51 000 *****
00 52 000 *****
00 53 000 *****
00 54 000 *****
00 55 000 *****
00 56 000 *****
00 57 000 *****
00 58 000 *****
00 59 000 *****
00 60 000 *****
00 61 000 *****
00 62 000 *****
00 63 000 *****
00 64 000 *****
00 65 000 *****
00 66 000 *****
00 67 000 *****
00 68 000 *****
00 69 000 *****
00 70 000 *****
00 71 000 *****
00 72 000 *****
00 73 000 *****
00 74 000 *****
00 75 000 *****
00 76 000 *****
00 77 000 *****
00 78 000 *****
00 79 000 *****
00 80 000 *****
00 81 000 *****
00 82 000 *****
00 83 000 *****
00 84 000 *****
00 85 000 *****
00 86 000 *****
00 87 000 *****
00 88 000 *****
00 89 000 *****
00 90 000 *****
00 91 000 *****
00 92 000 *****
00 93 000 *****
00 94 000 *****
00 95 000 *****
00 96 000 *****
00 97 000 *****
00 98 000 *****
00 99 000 *****
00 100 000 *****

```

```

01 000 * "PRESS A KEY TO CONTINUE"*****
02 000 * "*****"
03 000 * "*****"
04 000 * "*****"
05 000 * "*****"
06 000 * "*****"
07 000 * "*****"
08 000 * "*****"
09 000 * "*****"
10 000 * "*****"
11 000 * "*****"
12 000 * "*****"
13 000 * "*****"
14 000 * "*****"
15 000 * "*****"
16 000 * "*****"
17 000 * "*****"
18 000 * "*****"
19 000 * "*****"
20 000 * "*****"
21 000 * "*****"
22 000 * "*****"
23 000 * "*****"
24 000 * "*****"
25 000 * "*****"
26 000 * "*****"
27 000 * "*****"
28 000 * "*****"
29 000 * "*****"
30 000 * "*****"
31 000 * "*****"
32 000 * "*****"
33 000 * "*****"
34 000 * "*****"
35 000 * "*****"
36 000 * "*****"
37 000 * "*****"
38 000 * "*****"
39 000 * "*****"
40 000 * "*****"
41 000 * "*****"
42 000 * "*****"
43 000 * "*****"
44 000 * "*****"
45 000 * "*****"
46 000 * "*****"
47 000 * "*****"
48 000 * "*****"
49 000 * "*****"
50 000 * "*****"
51 000 * "*****"
52 000 * "*****"
53 000 * "*****"
54 000 * "*****"
55 000 * "*****"
56 000 * "*****"
57 000 * "*****"
58 000 * "*****"
59 000 * "*****"
60 000 * "*****"
61 000 * "*****"
62 000 * "*****"
63 000 * "*****"
64 000 * "*****"
65 000 * "*****"
66 000 * "*****"
67 000 * "*****"
68 000 * "*****"
69 000 * "*****"
70 000 * "*****"
71 000 * "*****"
72 000 * "*****"
73 000 * "*****"
74 000 * "*****"
75 000 * "*****"
76 000 * "*****"
77 000 * "*****"
78 000 * "*****"
79 000 * "*****"
80 000 * "*****"
81 000 * "*****"
82 000 * "*****"
83 000 * "*****"
84 000 * "*****"
85 000 * "*****"
86 000 * "*****"
87 000 * "*****"
88 000 * "*****"
89 000 * "*****"
90 000 * "*****"
91 000 * "*****"
92 000 * "*****"
93 000 * "*****"
94 000 * "*****"
95 000 * "*****"
96 000 * "*****"
97 000 * "*****"
98 000 * "*****"
99 000 * "*****"
100 000 *****

```

key has been pressed a prompt is printed and the program loops back to the beginning of the line for another try.

**Line 1100** - This line causes the branching out into the various subroutines; when 1 is selected this line will GOSUB 2000, 2 gives GOSUB 3000, 3 gives 4000 and so on.

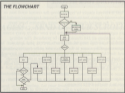
**Line 1200** - When the program returns from the information to line 1100 this line will loop back to the beginning of the Main Menu routine; this loopback will always occur until the Quit option is selected.

**Lines 1300-1400** - These lines set up the ROM banners ahead of each subroutine followed by two lines of non-printing program which, in each case, prints a short statement of which subroutine will go in the space and then calls for a keypress; any key will do - take you back to the Main Menu.

**Lines 1500-1600** - Again this is a temporary subroutine; it prompts for a Yes/No answer to check you really mean to exit; follow 'Y' (89) or 'N' (13) will END the program, any other key will return to the main menu.

**Lines 1700-1800** - This is the place for the instruction and initialization subroutines.

**Lines 1900 and 2000** - This is the subroutine which checks for key presses. As it stands it is very simple and will not deal with the most obscure situations (such as if the inverse key has been accidentally or deliberately pressed). I will put a more comprehensive subroutine here later. Explained input was dealt with fairly thoroughly in one of my previous articles (Issue 11).



That's all this issue. If you type in the listing above here it will run, and I will try and add piece by piece in future articles in such a way that the whole will always run. If you want more information or wish to have a say in the content of future articles please write to Ian Hinchey, of 68, Roundstone Crescent, East Preston, West Sussex, BN16 1RX.

# SCROLLY TEXT

## ZCBOGGY LEXL

by Bryan Kennerley

Over the years the scrolling message has become something of an institution, maybe not so much on the Atari 8-bits but certainly on the Commodore 64 and Atari ST. Games and especially device feature scrolling text which are sometimes taken to extremes just to prove a point. At the time of writing, the record length of a scroll is 4388 in the ST "B.L.G. demo" which takes over five hours to read!

Until now Atari 8-bit owners have had to make out on the delights of the infamous scrolling message but now all that will change for the Scrolly Text Editor will enable anyone to get together with their very own message that can be passed on to thousands of other Atari users.

A few weeks ago, having nothing better to do, I started creating a scrolling message on my Atari but immediately hit upon the problem of how to enter the text into the computer. It turned out to be easier to write a program so like the lovely Text Editor was born. It slowed down the creation of my message by over a week but once completed simplified the text entry so real. What's more there is now an scrolling message editor for the Atari so that anyone can create their own message.

The Scrolly Text Editor is a machine code program that can be created by the BASIC listing shown, but type in the listing, checking it with TIPS 2 as you go and HAVE a copy to disk. Now insert a disk with at least 40 free sectors into Drive 1, and RUN the listing. It takes about a minute and a half to create the machine code file so go and buy yourself half an egg and when you come back you will find a file called SCROLLY.DM on your disk. This file can be run by calling up DOS and using Option 1, on the DOS menu.

### CREATING YOUR MESSAGE

Text is entered simply by typing along the central scroll bar, as you would expect, but to avoid the "Escape" keypresses needed for some of the special characters, the seven alternatives have been moved to the "Control-Number" positions. All the CAPS codes are supported, although the inverse key now affects every screen code resulting all 256 characters to be produced. The editing facilities have also been modified so that CTR, plus up/down arrows moves the cursor to the start or end of the text, respectively and the TAB and SHIFT/TAB keystrokes move the cursor forward or back by ten spaces. One final point to note is that although the CTR, plus INSERT/DELETE functions work in the usual manner, the auto-repeat will slow down considerably at times because of the large amount of memory that has to be shifted in longer messages. This can be minimised by setting the repeat rate to 1 via the OPTION menu.

The function keys produce a few effects worthy of mention. The START key enables or disables the smooth scroll facility so that you can get some idea of spacing and of what the final scroll will look like. Pressing the SELECT key switches between the two different scroll systems available. If the BIG SCROLL is enabled, any successive scroll will use Graphics 2 instead of graphics 0 and will also include a pretty nifty special effect to create a kind of shadow on the letters but because of the limitations of the

graphics mode, lowercase and inverse letters will be displayed as different coloured uppercase characters. Control characters will give unpredictable results, so if you plan to use expanded text in your scroll you should select this option to check on the desired effect before saving the message.

### FURTHER OPTIONS

The OPTION key will bring up a menu of further options and also exit back to the main editing screen. Here you can choose the options you want by using the up and down arrow keys and select that option with the RETURN key as instructed on the screen. You can modify the auto-repeat on the keys (i.e. the number of 50ths of a second before the repeat starts) and the time between each successive repeat - this is similar to the effect of memory locations 719 and 730 on the SLOTT. The best values of basic are 40 and 1 which I find annoyingly slow. I personally prefer 12 and 2 which speeds things up considerably and have used these in the default on this program. If the hooping lines in the header text on the main screen make your eyes ache you can double them from this menu and, if you like music while you work, you can even switch the tape motor and key click on or off.

### LOAD AND SAVING MESSAGES

The load and save options, once selected, bring up a filename window at the bottom of the screen which can be closed again by pressing the ESCAPE key. You need only enter the 8 character name of the file and not the device name or the extender - all files are saved to Drive 1 with a .TXT extension. If the cassette motor is on when you access the disk, it will be temporarily stopped during the process. Should you just want to erase the current message in memory just select either option and type WIPESH - don't try to use that as a filename!

### THE WORLD RECORD!

From the main screen you may have noticed that you have 2746 for your message, but if you load the editor without bank, an extra 64k is freed giving a maximum of 3446. Not quite enough for the world record but, if you wanted it, you could always attempt the world record for an 8-bit machine which I have been told is 2188 in a program for the Commodore 64.

Whatever you write about in your message, you are bound to succumb to the temptation that has plagued the demo writer throughout history - the superfluous WILLO concept. I certainly have never seen a scroll without a greeting but so if you are going to follow this age old tradition, at least mention my name in a good context please! Since nobody has ever done this before (check!) and you can always put it out with your name, in brackets (and why not?), they can make a message more entertaining. In any case, it is always best to remember that if you enjoy writing the message, it is a safe bet that people will enjoy reading it.

Have fun!

# EDITOR EDILOB

```

00 1 000 *****
00 2 000+ *****
00 3 000+ *****
00 4 000+ *****
00 5 000+ *****
00 6 000+ *****
00 7 000+ *****
00 8 000+ *****
00 9 000+ *****
00 10 000+ *****
00 11 000+ *****
00 12 000+ *****
00 13 000+ *****
00 14 000+ *****
00 15 000+ *****
00 16 000+ *****
00 17 000+ *****
00 18 000+ *****
00 19 000+ *****
00 20 000+ *****
00 21 000+ *****
00 22 000+ *****
00 23 000+ *****
00 24 000+ *****
00 25 000+ *****
00 26 000+ *****
00 27 000+ *****
00 28 000+ *****
00 29 000+ *****
00 30 000+ *****
00 31 000+ *****
00 32 000+ *****
00 33 000+ *****
00 34 000+ *****
00 35 000+ *****
00 36 000+ *****
00 37 000+ *****
00 38 000+ *****
00 39 000+ *****
00 40 000+ *****
00 41 000+ *****
00 42 000+ *****
00 43 000+ *****
00 44 000+ *****
00 45 000+ *****
00 46 000+ *****
00 47 000+ *****
00 48 000+ *****
00 49 000+ *****
00 50 000+ *****
00 51 000+ *****
00 52 000+ *****
00 53 000+ *****
00 54 000+ *****
00 55 000+ *****
00 56 000+ *****
00 57 000+ *****
00 58 000+ *****
00 59 000+ *****
00 60 000+ *****
00 61 000+ *****
00 62 000+ *****
00 63 000+ *****
00 64 000+ *****
00 65 000+ *****
00 66 000+ *****
00 67 000+ *****
00 68 000+ *****
00 69 000+ *****
00 70 000+ *****
00 71 000+ *****
00 72 000+ *****
00 73 000+ *****
00 74 000+ *****
00 75 000+ *****
00 76 000+ *****
00 77 000+ *****
00 78 000+ *****
00 79 000+ *****
00 80 000+ *****
00 81 000+ *****
00 82 000+ *****
00 83 000+ *****
00 84 000+ *****
00 85 000+ *****
00 86 000+ *****
00 87 000+ *****
00 88 000+ *****
00 89 000+ *****
00 90 000+ *****
00 91 000+ *****
00 92 000+ *****
00 93 000+ *****
00 94 000+ *****
00 95 000+ *****
00 96 000+ *****
00 97 000+ *****
00 98 000+ *****
00 99 000+ *****
00 100 000+ *****

```

```

01 1 000 *****
01 2 000 *****
01 3 000 *****
01 4 000 *****
01 5 000 *****
01 6 000 *****
01 7 000 *****
01 8 000 *****
01 9 000 *****
01 10 000 *****
01 11 000 *****
01 12 000 *****
01 13 000 *****
01 14 000 *****
01 15 000 *****
01 16 000 *****
01 17 000 *****
01 18 000 *****
01 19 000 *****
01 20 000 *****
01 21 000 *****
01 22 000 *****
01 23 000 *****
01 24 000 *****
01 25 000 *****
01 26 000 *****
01 27 000 *****
01 28 000 *****
01 29 000 *****
01 30 000 *****
01 31 000 *****
01 32 000 *****
01 33 000 *****
01 34 000 *****
01 35 000 *****
01 36 000 *****
01 37 000 *****
01 38 000 *****
01 39 000 *****
01 40 000 *****
01 41 000 *****
01 42 000 *****
01 43 000 *****
01 44 000 *****
01 45 000 *****
01 46 000 *****
01 47 000 *****
01 48 000 *****
01 49 000 *****
01 50 000 *****
01 51 000 *****
01 52 000 *****
01 53 000 *****
01 54 000 *****
01 55 000 *****
01 56 000 *****
01 57 000 *****
01 58 000 *****
01 59 000 *****
01 60 000 *****
01 61 000 *****
01 62 000 *****
01 63 000 *****
01 64 000 *****
01 65 000 *****
01 66 000 *****
01 67 000 *****
01 68 000 *****
01 69 000 *****
01 70 000 *****
01 71 000 *****
01 72 000 *****
01 73 000 *****
01 74 000 *****
01 75 000 *****
01 76 000 *****
01 77 000 *****
01 78 000 *****
01 79 000 *****
01 80 000 *****
01 81 000 *****
01 82 000 *****
01 83 000 *****
01 84 000 *****
01 85 000 *****
01 86 000 *****
01 87 000 *****
01 88 000 *****
01 89 000 *****
01 90 000 *****
01 91 000 *****
01 92 000 *****
01 93 000 *****
01 94 000 *****
01 95 000 *****
01 96 000 *****
01 97 000 *****
01 98 000 *****
01 99 000 *****
01 100 000 *****

```

```

02 1 000 *****
02 2 000 *****
02 3 000 *****
02 4 000 *****
02 5 000 *****
02 6 000 *****
02 7 000 *****
02 8 000 *****
02 9 000 *****
02 10 000 *****
02 11 000 *****
02 12 000 *****
02 13 000 *****
02 14 000 *****
02 15 000 *****
02 16 000 *****
02 17 000 *****
02 18 000 *****
02 19 000 *****
02 20 000 *****
02 21 000 *****
02 22 000 *****
02 23 000 *****
02 24 000 *****
02 25 000 *****
02 26 000 *****
02 27 000 *****
02 28 000 *****
02 29 000 *****
02 30 000 *****
02 31 000 *****
02 32 000 *****
02 33 000 *****
02 34 000 *****
02 35 000 *****
02 36 000 *****
02 37 000 *****
02 38 000 *****
02 39 000 *****
02 40 000 *****
02 41 000 *****
02 42 000 *****
02 43 000 *****
02 44 000 *****
02 45 000 *****
02 46 000 *****
02 47 000 *****
02 48 000 *****
02 49 000 *****
02 50 000 *****
02 51 000 *****
02 52 000 *****
02 53 000 *****
02 54 000 *****
02 55 000 *****
02 56 000 *****
02 57 000 *****
02 58 000 *****
02 59 000 *****
02 60 000 *****
02 61 000 *****
02 62 000 *****
02 63 000 *****
02 64 000 *****
02 65 000 *****
02 66 000 *****
02 67 000 *****
02 68 000 *****
02 69 000 *****
02 70 000 *****
02 71 000 *****
02 72 000 *****
02 73 000 *****
02 74 000 *****
02 75 000 *****
02 76 000 *****
02 77 000 *****
02 78 000 *****
02 79 000 *****
02 80 000 *****
02 81 000 *****
02 82 000 *****
02 83 000 *****
02 84 000 *****
02 85 000 *****
02 86 000 *****
02 87 000 *****
02 88 000 *****
02 89 000 *****
02 90 000 *****
02 91 000 *****
02 92 000 *****
02 93 000 *****
02 94 000 *****
02 95 000 *****
02 96 000 *****
02 97 000 *****
02 98 000 *****
02 99 000 *****
02 100 000 *****

```

## SEND US YOUR SCROLLING MESSAGES! ... SEND US YOUR SCROLL

Everybody loves to read a scrolling message no matter how bad it is and here is your chance to become famous and have your very own scrolling message read by hundreds of other Atari owners. What's more, when you send in your scrolling message we'll send you back a whole disk full of other people's interesting, unusual, funny or just plain silly scrolls!

All you need to do is use the **SCROLLY TEXT EDITOR** to make up your own message, save it on a disk and send it into **PAGE 6**. As soon as we have enough scrolling messages it makes up a full disk we will send that disk to you in exchange for yours. You can then spend hours musing at all the crazy things that other Atari users want to say.

What do you put into it scroll? Anything you like really. The big challenge of doing a really good scrolling message is to think up enough to say without repeating yourself or getting totally and utterly boring. Let your imagination run free and come up with a better scroll than anybody else! Write about anything, but please keep the language clean and keep away from naughty things! A lot of younger Atari users will be reading in their messages.

Go to it! Send your disk (sorry we can't cope with cassettes) to **ONE PAGE 6 SCROLL, P.O. Box 54, Stafford, ST20 2JH**. You'll probably have to wait a few weeks for us to get enough scrolls to fill a disk but as soon as we have enough, a disk will be on its way back to you.



04 1358 8382 854 857 859 860 861 862 863 864  
 865 866 867 868 869 870 871 872 873 874  
 875 876 877 878 879 880 881 882 883 884  
 885 886 887 888 889 890 891 892 893 894  
 895 896 897 898 899 900 901 902 903 904  
 905 906 907 908 909 910 911 912 913 914  
 915 916 917 918 919 920 921 922 923 924  
 925 926 927 928 929 930 931 932 933 934  
 935 936 937 938 939 940 941 942 943 944  
 945 946 947 948 949 950 951 952 953 954  
 955 956 957 958 959 960 961 962 963 964  
 965 966 967 968 969 970 971 972 973 974  
 975 976 977 978 979 980 981 982 983 984  
 985 986 987 988 989 990 991 992 993 994  
 995 996 997 998 999 1000 1001 1002 1003 1004  
 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014  
 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024  
 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034  
 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044  
 1045 1046 1047 1048 1049 1050 1051 1052 1053 1054  
 1055 1056 1057 1058 1059 1060 1061 1062 1063 1064  
 1065 1066 1067 1068 1069 1070 1071 1072 1073 1074  
 1075 1076 1077 1078 1079 1080 1081 1082 1083 1084  
 1085 1086 1087 1088 1089 1090 1091 1092 1093 1094  
 1095 1096 1097 1098 1099 1100 1101 1102 1103 1104  
 1105 1106 1107 1108 1109 1110 1111 1112 1113 1114  
 1115 1116 1117 1118 1119 1120 1121 1122 1123 1124  
 1125 1126 1127 1128 1129 1130 1131 1132 1133 1134  
 1135 1136 1137 1138 1139 1140 1141 1142 1143 1144  
 1145 1146 1147 1148 1149 1150 1151 1152 1153 1154  
 1155 1156 1157 1158 1159 1160 1161 1162 1163 1164  
 1165 1166 1167 1168 1169 1170 1171 1172 1173 1174  
 1175 1176 1177 1178 1179 1180 1181 1182 1183 1184  
 1185 1186 1187 1188 1189 1190 1191 1192 1193 1194  
 1195 1196 1197 1198 1199 1200 1201 1202 1203 1204  
 1205 1206 1207 1208 1209 1210 1211 1212 1213 1214  
 1215 1216 1217 1218 1219 1220 1221 1222 1223 1224  
 1225 1226 1227 1228 1229 1230 1231 1232 1233 1234  
 1235 1236 1237 1238 1239 1240 1241 1242 1243 1244  
 1245 1246 1247 1248 1249 1250 1251 1252 1253 1254  
 1255 1256 1257 1258 1259 1260 1261 1262 1263 1264  
 1265 1266 1267 1268 1269 1270 1271 1272 1273 1274  
 1275 1276 1277 1278 1279 1280 1281 1282 1283 1284  
 1285 1286 1287 1288 1289 1290 1291 1292 1293 1294  
 1295 1296 1297 1298 1299 1300 1301 1302 1303 1304  
 1305 1306 1307 1308 1309 1310 1311 1312 1313 1314  
 1315 1316 1317 1318 1319 1320 1321 1322 1323 1324  
 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334  
 1335 1336 1337 1338 1339 1340 1341 1342 1343 1344  
 1345 1346 1347 1348 1349 1350 1351 1352 1353 1354  
 1355 1356 1357 1358 1359 1360 1361 1362 1363 1364  
 1365 1366 1367 1368 1369 1370 1371 1372 1373 1374  
 1375 1376 1377 1378 1379 1380 1381 1382 1383 1384  
 1385 1386 1387 1388 1389 1390 1391 1392 1393 1394  
 1395 1396 1397 1398 1399 1400 1401 1402 1403 1404  
 1405 1406 1407 1408 1409 1410 1411 1412 1413 1414  
 1415 1416 1417 1418 1419 1420 1421 1422 1423 1424  
 1425 1426 1427 1428 1429 1430 1431 1432 1433 1434  
 1435 1436 1437 1438 1439 1440 1441 1442 1443 1444  
 1445 1446 1447 1448 1449 1450 1451 1452 1453 1454  
 1455 1456 1457 1458 1459 1460 1461 1462 1463 1464  
 1465 1466 1467 1468 1469 1470 1471 1472 1473 1474  
 1475 1476 1477 1478 1479 1480 1481 1482 1483 1484  
 1485 1486 1487 1488 1489 1490 1491 1492 1493 1494  
 1495 1496 1497 1498 1499 1500 1501 1502 1503 1504  
 1505 1506 1507 1508 1509 1510 1511 1512 1513 1514  
 1515 1516 1517 1518 1519 1520 1521 1522 1523 1524  
 1525 1526 1527 1528 1529 1530 1531 1532 1533 1534  
 1535 1536 1537 1538 1539 1540 1541 1542 1543 1544  
 1545 1546 1547 1548 1549 1550 1551 1552 1553 1554  
 1555 1556 1557 1558 1559 1560 1561 1562 1563 1564  
 1565 1566 1567 1568 1569 1570 1571 1572 1573 1574  
 1575 1576 1577 1578 1579 1580 1581 1582 1583 1584  
 1585 1586 1587 1588 1589 1590 1591 1592 1593 1594  
 1595 1596 1597 1598 1599 1600 1601 1602 1603 1604  
 1605 1606 1607 1608 1609 1610 1611 1612 1613 1614  
 1615 1616 1617 1618 1619 1620 1621 1622 1623 1624  
 1625 1626 1627 1628 1629 1630 1631 1632 1633 1634  
 1635 1636 1637 1638 1639 1640 1641 1642 1643 1644  
 1645 1646 1647 1648 1649 1650 1651 1652 1653 1654  
 1655 1656 1657 1658 1659 1660 1661 1662 1663 1664  
 1665 1666 1667 1668 1669 1670 1671 1672 1673 1674  
 1675 1676 1677 1678 1679 1680 1681 1682 1683 1684  
 1685 1686 1687 1688 1689 1690 1691 1692 1693 1694  
 1695 1696 1697 1698 1699 1700 1701 1702 1703 1704  
 1705 1706 1707 1708 1709 1710 1711 1712 1713 1714  
 1715 1716 1717 1718 1719 1720 1721 1722 1723 1724  
 1725 1726 1727 1728 1729 1730 1731 1732 1733 1734  
 1735 1736 1737 1738 1739 1740 1741 1742 1743 1744  
 1745 1746 1747 1748 1749 1750 1751 1752 1753 1754  
 1755 1756 1757 1758 1759 1760 1761 1762 1763 1764  
 1765 1766 1767 1768 1769 1770 1771 1772 1773 1774  
 1775 1776 1777 1778 1779 1780 1781 1782 1783 1784  
 1785 1786 1787 1788 1789 1790 1791 1792 1793 1794  
 1795 1796 1797 1798 1799 1800 1801 1802 1803 1804  
 1805 1806 1807 1808 1809 1810 1811 1812 1813 1814  
 1815 1816 1817 1818 1819 1820 1821 1822 1823 1824  
 1825 1826 1827 1828 1829 1830 1831 1832 1833 1834  
 1835 1836 1837 1838 1839 1840 1841 1842 1843 1844  
 1845 1846 1847 1848 1849 1850 1851 1852 1853 1854  
 1855 1856 1857 1858 1859 1860 1861 1862 1863 1864  
 1865 1866 1867 1868 1869 1870 1871 1872 1873 1874  
 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884  
 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894  
 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904  
 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914  
 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924  
 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934  
 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944  
 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954  
 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964  
 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974  
 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984  
 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994  
 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004  
 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014  
 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024  
 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034  
 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044  
 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054  
 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064  
 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074  
 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084  
 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094  
 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104  
 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114  
 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124  
 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134  
 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144  
 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154  
 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164  
 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174  
 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184  
 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194  
 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204  
 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214  
 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224  
 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234  
 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244  
 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254  
 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264  
 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274  
 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284  
 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294  
 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304  
 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314  
 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324  
 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334  
 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344  
 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354  
 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364  
 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374  
 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384  
 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394  
 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404  
 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414  
 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424  
 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434  
 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444  
 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454  
 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464  
 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474  
 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484  
 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494  
 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504  
 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514  
 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524  
 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534  
 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544  
 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554  
 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564  
 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574  
 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584  
 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594  
 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604  
 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614  
 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624  
 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634  
 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644  
 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654  
 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664  
 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674  
 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684  
 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694  
 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704  
 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714  
 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724  
 2725 2726 2727 2728 2729 2730 2731 2732 2733 2734  
 2735 2736 2737 2738 2739 2740 2741 2742 2743 2744  
 2745 2746 2747 2748 2749 2750 2751 2752 2753 2754  
 2755 2756 2757 2758 2759 2760 2761 2762 2763 2764  
 2765 2766 2767 2768 2769 2770 2771 2772 2773 2774  
 2775 2776 2777 2778 2779 2780 2781 2782 2783 2784  
 2785 2786 2787 2788 2789 2790 2791 2792 2793 2794  
 2795 2796 2797 2798 2799 2800 2801 2802 2803 2804  
 2805 2806 2807 2808 2809 2810 2811 2812 2813 2814  
 2815 2816 2817 2818 2819 2820 2821 2822 2823 2824  
 2825 2826 2827 2828 2829 2830 2831 2832 2833 2834  
 2835 2836 2837 2838 2839 2840 2841 2842 2843 2844  
 2845 2846 2847 2848 2849 2850 2851 2852 2853 2854  
 2855 2856 2857 2858 2859 2860 2861 2862 2863 2864  
 2865 2866 2867 2868 2869 2870 2871 2872 2873 2874  
 2875 2876 2877 2878 2879 2880 2881 2882 2883 2884  
 2885 2886 2887 2888 2889 2890 2891 2892 2893 2894  
 2895 2896 2897 2898 2899 2900 2901 2902 2903 2904  
 2905 2906 2907 2908 2909 2910 2911 2912 2913 2914  
 2915 2916 2917 2918 2919 2920 2921 2922 2923 2924  
 2925 2926 2927 2928 2929 2930 2931 2932 2933 2934  
 2935 2936 2937 2938 2939 2940 2941 2942 2943 2944  
 2945 2946 2947 2948 2949 2950 2951 2952 2953 2954  
 2955 2956 2957 2958 2959 2960 2961 2962 2963 2964  
 2965 2966 2967 2968 2969 2970 2971 2972 2973 2974  
 2975 2976 2977 2978 2979 2980 2981 2982 2983 2984  
 2985 2986 2987 2988 2989 2990 2991 2992 2993 2994  
 2995 2996 2997 2998 2999 3000 3001 3002 3003 3004  
 3005 3006 3007 3008 3009 3010 3011 3012 3013 3014  
 3015 3016 3017 3018 3019 3020 3021 3022 3023 3024  
 3025 3026 3027 3028 3029 3030 3031 3032 3033 3034  
 3035 3036 3037 3038 3039 3040 3041 3042 3043 3044  
 3045 3046 3047 3048 3049 3050 3051 3052 3053 3054  
 3055 3056 3057 3058 3059 3060 3061 3062 3063 3064  
 3065 3066 3067 3068 3069 3070 3071 3072 3073 3074  
 3075 3076 3077 3078 3079 3080 3081 3082 3083 3084  
 3085 3086 3087 3088 3089 3090 3091 3092 3093 3094  
 3095 3096 3097 3098 3099 3100 3101 3102 3103 3104  
 3105 3106 3107 3108 3109 3110 3111 3112 3113 3114  
 3115 3116 3117 3118 3119 3120 3121 3122 3123 3124  
 3125 3126 3127 3128 3129 3130 3131 3132 3133 3134  
 3135 3136 3137 3138 3139 3140 3141 3142 3143 3144  
 3145 3146 3147 3148 3149 3150 3151 3152 3153 3154  
 3155 3156 3157 3158 3159 3160 3161 31

# Mark Hutchinson's Random Notes on the Atari

**S**ometimes ago I enquired in this column about the use that people put their ATARI to. It was only a general question and I did not really expect a lot of response. How wrong could I be about our dedicated band of PXL 4 readers? Many of the uses to which Atari owners put their machines are interesting but most people seem to think that they are the only ones interested in using their Atari in a particular way. They are probably wrong, there is someone, somewhere in the Atari world who is also interested. Here are just a few examples of the letters that gave my postman his terms, maybe you could get a few people together!

## A MYRIAD USES

Are you retired? Mr Ronald Bennett of 916 Dorset Close, Exeter, Somerset, TA2 6AA would like to set up a group for retired or elderly people. He would be quite surprised at the numbers of letters I get from people in their mid seventies! I think this is an excellent idea and I wholeheartedly encourage him. Why not write to him and see what can be accomplished for 14p plus an SAAI 4 or two Mains of Bourton, (this just happens to be retired himself) was so pleased with Williams' first article on producing a book that he has now produced his own book and scored a few hundred pounds.

My thanks to Nigel Holliman for the three queries, and apologies for the wait! Jack Taylor of Cambria has written a program to help him with stocks and shares and he interests me that he also uses it for football pools, with 'moderate success'. He also uses a financial analysis program which, he states modestly, has not made him more than a few hundred pounds. Any offers for the program?

I bet you thought that professors had an easy time, didn't you? Just a few sessions on Sunday and a few visits here and there, right? Wrong! John Jarvis writes to me about his use of the computer and it is quite extensive. If there are any other members of the club who might be interested in a utility program that John wrote to help him with his duties then you can contact him at 288, Canal Wharfe, Cleckheaton, Bucks, HP5 2LQ.

All the way from Italy, on what looks like test bond made paper (can it be true?), comes a letter from Paul and Lado Clark. They run a hotel and were not so impressed by Mini Office 2. Like many other people who have written over the past few months, they would like to see a good database that works fast time, but preferably one that can be tailored to fit most needs. If we had someone to start this program then it could become a series of updates each issue.

## WRITING PROGRAMS FOR SUBMISSION

This brings me to the issue of programs submitted by readers. OK, you have a great program that needs for you, fine. But will it be useful for others, or it stands? Does it need follow up to run down an arbitrary usage? What about ROM? If someone wants to use it then they may also want to extend it. Where most programs fall down is in the documentation. I know the old code, and we all do it. "When all else fails, read the manual" however, when all else fails the manual needs to be there. Try to send your programs as a LISTED file as well as an arbitrary LABEL. Also, use single density, DOS 2.0 or 2.1 format not DOS 3.0.

## LETTERS AT LAST!

I have had an amazing response to this column since the change of format, and I have to apologise here and now to those of you who may be waiting a reply. I really do have a backlog of

## The Ways you use your Atari ... Submitting programs ... Lots of Letters

mail to catch up on. Who said, "Work expands to fill the available time."? It is true, I seem to have even less time now, however those that included on SAAI will get their reply just as soon as I can get it out.

Nice to hear from Paul Kison again with (after how many years?) an answer to the "Coors brach" question asked so long ago in this column. It is a technique of 3-D surface representation pioneered by L.A. Coors. We finally get there in the end, folks! He also told me of his disappointment in the so-called ATARI Games Centre. Anyone else had this? (Lots of other letters saying the same thing, lol)

Paul, along with a lot of other readers, has complained about the lack of 8-bit software. Probably the best thing would be to start some sort of petition at the next Atari Show, signed by all who want some 8-bit stuff on the market. At the end of the show, copies could be given or sent to as many software producers or publishers. If they see the demand they might well try to produce more software. The alternative is to get your hands on older software. I know that many of you have had your ATARI's for years, but what about the new owners of two to three years? How many of them have played "BusterBlaster", is my mind the best puzzle game ever for the 8-bit? Crypts of terror? Wizard of War? Labyrinth? I could go on and on. Why can't these programs be brought out again on budget labels? These games were all available in the UK and were excellent for their time and most of them still stand up well today. There are many more that appeared only in the USA and have not been seen for some years, including a game and a utility for the AMTIC mode-4 and 5 screens - something seldom fully used over here.

I believe the future of 8 bit software is in your hands, starting with the next issue (I write this in February). I know you will read and think hard about this suggestion, but will one of the software houses or vendors take the chance with older, and in my humble opinion sometimes much better, software? Time will tell.

## RAMBLING ON ...

Next issue I would like to ramble on about moving from an Atari to a bit-bit system and how traumatic it can be for some of us. If something else does not grab your attention (believe me!), if any of you have bought an AT can immediately get rid of it, please let me know why. I have one or two comments to write at the moment and I can see that you can gain that at least one will be involved in ATARI UK themselves. I will really try not to be too verbose however!

Don't forget to write about anything interesting in the Atari world to Mark Hutchinson, I. Holliman, K. Swales, Finaghy, Belfast BT10 0GL.



### Expand The Capabilities Of Your 8 Bit Atari...



#### Atari Double

Expanding the storage possibilities available to you is an important part of any computer system. Atari Double Disk provides you with a powerful new means of expanding your system's storage capabilities. You can store up to 300 K of data on one disk. The new double disks for Atari 400, 600, and 800 are the only system to be introduced that support all the features of the original Atari disk and can be used interchangeably with standard Atari disks.



#### StarForce

StarForce is the most powerful file compression software available for the Atari 400, 600, and 800. It allows you to store up to 100,000 files on a single disk. StarForce is the only software to be introduced that supports all the features of the original Atari disk and can be used interchangeably with standard Atari disks. StarForce is the only software to be introduced that supports all the features of the original Atari disk and can be used interchangeably with standard Atari disks.

StarForce and Atari Double Disk... Only \$10.00



#### Atari Atari

The Atari Atari software is the most powerful Atari software available for the Atari 400, 600, and 800. It allows you to store up to 100,000 files on a single disk. Atari Atari is the only software to be introduced that supports all the features of the original Atari disk and can be used interchangeably with standard Atari disks.

The Atari Atari software is the most powerful Atari software available for the Atari 400, 600, and 800. It allows you to store up to 100,000 files on a single disk. Atari Atari is the only software to be introduced that supports all the features of the original Atari disk and can be used interchangeably with standard Atari disks.



#### Atari Atari

The Atari Atari software is the most powerful Atari software available for the Atari 400, 600, and 800. It allows you to store up to 100,000 files on a single disk. Atari Atari is the only software to be introduced that supports all the features of the original Atari disk and can be used interchangeably with standard Atari disks.

The Atari Atari software is the most powerful Atari software available for the Atari 400, 600, and 800. It allows you to store up to 100,000 files on a single disk. Atari Atari is the only software to be introduced that supports all the features of the original Atari disk and can be used interchangeably with standard Atari disks.

# ATARI USER OFFERS

See inside front cover for details  
NOTE: Items marked \*\* are in short supply please check availability first

**BACK ISSUE PACK	£3.00	<input type="checkbox"/>
Overseas add £3 for surface mail only		
**50 OF THE BEST GAMES Vol. 2	£3.00	<input type="checkbox"/>
EXECUCARD	£3.99	<input type="checkbox"/>
**FISHING COLLECTION	£4.99	<input type="checkbox"/>
STARBUCK		
Cassette	£2.00	<input type="checkbox"/>
Disk	£3.99	<input type="checkbox"/>
ATARI USER TOOLKIT		
Cassette	£2.99	<input type="checkbox"/>
Disk	£3.99	<input type="checkbox"/>
MINI OFFICE II	£14.95	<input type="checkbox"/>
**DISK STORAGE BOX	£4.99	<input type="checkbox"/>
ATARI USER DUST COVER		
1300E	£3.00	<input type="checkbox"/>
800XL	£3.99	<input type="checkbox"/>

## PAGE 6 OFFERS

TURBO BASIC	£3.99	<input type="checkbox"/>
SPELL ME		
Cassette	£4.00	<input type="checkbox"/>
Disk	£5.99	<input type="checkbox"/>

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Check/Postal Order enclosed for £

I wish to pay by Access/Master card/Visa/Amex

Card No.

Please debit my credit card above with £ \_\_\_\_\_ Expiry date

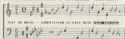
Signature \_\_\_\_\_

Send your order to  
**PAGE 6 ATARI USER**  
P.O. BOX, 64, STAFFORD, ST16 1GR  
Please allow up to 14 days for delivery

### DESKTOP PUBLISHING NOW ON XL-HE

#### RECOVER THE FULL INFORMATION YOU CAN GET FROM YOUR COMPUTER

When your computer is used to create documents, the documents are often...  
We produce...  
We produce...  
We produce...



#### PROFESSIONAL DOCUMENT DESIGN

... ..

#### FOR PROFESSIONAL DOCUMENT DESIGN AS A PART OF YOUR



FOR DESIGNING... ..

URLAR SOFTWARE, 115 URLE ROAD, PORTSLADE, SUSSEX BN40 1GE U.K.

### SCRAM

- The Scram Multi-Utility Kit
- Features 6 Games: Chess, Snake, Tron, Space Invaders, Asteroids, and Asteroids II
- £14.99

### PROFIT

- The Profit Line Graphing System
- Aimed for all Atari Home Based Systems
- Requires Atari 400/600/800
- £19.99

- Other titles in this bundle
- Book to Text Converter
- Book to Text Converter
- Advanced Graphic Converter
- Mathematics Explorer
- A Free Mouse Pointer for Atari
- Available in only 240x240 pixels

FOR MORE INFO... ..

# 2. GOING ON TO PROCEDURES

Did you spot the deliberate mistakes in the last article? I certainly neglected to put in the line '45 GO TO 10', in the Atari Basic program on Page 30, column 2, doing the longpage on-line: it didn't deserve! The eagle-eyed amongst you will also notice that I broke the rule stated to hold eye to the left - I should NOT have the word 'THEN' after the IF statement on line 30, in the GOAL/GOE-example on Page 31, column 2. Also, a line '45 Y=8\*X', would certainly enhance the program, if you spotted these little 'overs', but mistakes. If not, pay a bit more attention this time! I'm very sorry, won't let it happen again!

Last time, I tried to cover the language in general, as well as trying to introduce the structured commands available. I'll try to continue in this last vein this time, by talking about another structured idea - that of the procedure. Procedures are supported to a certain extent in Turbo Basic, and can help improve readability and understandability, as well as making doable programs easier to write.

There are many times when it is tempting to write the same piece of code many times in the same program. This is wasteful of space, and confuses your program. In such a case, you could write the bit of code which is used repeatedly as a **PROCEDURE**. Procedures can be used to do specific tasks, and having this in mind, programming becomes simpler. Normally, when you write a program, you are probably tempted to write the whole thing at once - I know, as this is what I used to do! It is simpler, however, to break a problem (which your program will eventually solve) down into a set of smaller tasks, which in turn can be broken down, and so on.

For example, when writing an art package, it would be easier to sit down and write separate procedures to, for example, draw a line, fill an Area, Plot a Point, Detect a movement, Load a picture etc., rather than attempt to write the whole thing from scratch. This approach means that, at each step, you concentrate on that task ONLY, and work on it until it works. You don't worry about how it'll interact with the rest of the program, or the modules to work individually, and they'll hopefully work when put together.

## PROCEDURES IN TURBO-BASIC

The above examples can all very well, but what does it actually mean in practice? You have probably written lines or Procedures at your own, without knowing it. If you've ever used subroutines in Atari Basic, then there are very similar indeed. You write a subroutine which does something, and your program uses GOSUB to call this subroutine. At the end of the subroutine,

ended by RETURN, the main program carries on where it left off. Instead of GOSUB, you use the following syntax to use a procedure in Turbo Basic:

```

110 PROC-procedure name-
120 _____
130 'body' of procedure -
140 _____
150 ENDPROC
    
```

The body of the procedure is the program instructions. These lines are automatically indented. To call the procedure, you use it's name, and NOT its line number i.e.

**NAME-procedure name**

When the procedure is finished, and your computer gets to the line **ENDPROC**, the program will then continue running from the place where **EXEC** called the procedure.

When programming, you may have a commonly used bit of code which, say, clears the screen and this gets called whenever your program needs to clear the screen. You can implement this in Atari Basic with the subroutine of line 9000, for example. Thus, 'GOSUB 9000' will clear the screen. Alternatively, in Turbo Basic, you could write a procedure. The main differences are:

1. Procedures have a name, and you call them by their name, and NOT by a line number (e.g. 'GOSUB 9000' becomes 'EXEC CLEAN').
2. The code in your procedure is automatically indented, so you know what code is done by that procedure. In subroutines, it is often difficult to know what refers to what.

I'd better give you some concrete examples. The following procedure, and corresponding subroutine in the old basic, will draw a border on the 128x19 screen:

TURBO-BASIC (with procedures)	ATARI-BASIC (subroutines)
130 PROC BORDER	130 SUB Start Border Border
140 FOR O, LPRINT " *08 "m"	140 FOR O, LPRINT " *08 "m"
150 FOR L=0 TO 19	150 FOR L=0 TO 19
160 FOR I, L, PRINT " *"	160 FOR I, L, LPRINT " *"
170 FOR M, L, PRINT " "	170 FOR M, M, LPRINT " "
180 NEXT L	180 NEXT L
190 FOR O, GO, PRINT " *08 "m"	190 FOR O, GO, LPRINT " *08 "m"
200 ENDPROC	200 RETURN

You could call it by having lines like the following:

TURBO-BASIC Procedure Call	ATARI-BASIC subroutine
400 EXEC BORDER	400 GOSUB 130
430 STOP	430 STOP

There is not a lot of difference to the above examples but you

TURBO  
BASIC

# TURBO BASIC DEMO Listing 2

can begin to see the advantages that the structuring and indentation make in Turbo Basic. I am sure you will agree that it is much easier to follow and read the TB program. The fact that the procedure is called by name, and not line number, also makes the language more "English-like".

To make your programs even more readable, I recommend putting a couple of empty lines before and after every procedure (remember, type 2 whites as a line to get this effect.) Listings 1 and 2 demonstrate this quite well, and the comment lines have the effect of "spanning out" the individual parts of the program.

Note that, in Turbo Basic, you are not allowed to let the program pass over a procedure definition, an error will occur just as in Acorn Basic if you let your program run right through a subroutine without calling it. In Turbo Basic you need to put your main program at the beginning, with the procedures listed later on, and you must have a STOP before the start of your procedures. Unless, that is, you make use of ...

## THE GOTO COMMAND

You can leave the procedure first, with the main program at the end. To do this, many programmers use the GOTO command at the start of their program. This is a Turbo Basic command which, like GOTO, jumps to a bit of code. Amazingly, I bet you say "many jumps, GOTO is better however, as it goes to a LABEL, and NOT a line number. That way, if you remember a program, you don't affect where the program jumps to. So, if you HAVE to jump somewhere, use GOTO. For the destination of one of these jumps, you need to have a line on its own, with the label name, preceded by a # sign. For example

```
10 GOTO MAIN
-----
0000 # MAIN
0010 FROM MAIN PROGRAM STARTS HERE
```

If you use this to skip past your procedures, you have the following structure:

```
Go to the Main Program
Procedure 1
Procedure 2
-----
Procedure n
Main Program
```

with the procedures that your program uses listed before the main program. The first procedure is commonly a setup one. Listings 1 and 2 show how the GOTO command skips past the procedure to get to the main code. Remember, if you start running out of lines, you can always use **RENUM**, as described in the last issue.

## STARTING TO USE PROCEDURES

You now know enough to start writing some procedures of your own, perhaps to do such simple tasks such as setting up the screen, drawing borders, and so on. Remember - you can put any code in a procedure that you would normally put in your program. That includes loops, tests and other control structures, as well as the normal commands. As a general guide, if you have to write a bit of program to do a particular job then put it in a procedure if

the bit of program is used more than once  
it is more than, say, a page in length, and  
if you expect the use of a procedure will improve the look and readability of your program.

```
10 10 GOTO G.MESSAGESCREEN
10 20 GOTO MAIN
10 30 -----
10 40
10 50 FROM STARTUP
10 60 GOTO PRO.1
10 70 SCREENON 1,0,0
10 80 SCREENON 1,14,14
10 90 FROM "
10 100 STOP
10 110 -----
10 120
10 130 FROM BORDER
10 140 POSITION 0,0:IT " 000 #10"
10 150 FROM 0,0 TO 10
10 160 POSITION 0,10:IT ""
10 170 POSITION 10,1:IT ""
10 180 FROM 1
10 190 POSITION 0,0:IT " 000 #10"
10 200 STOP
10 210 -----
10 220
10 230 FROM LABEL
10 240 SCREENON,SCREENON
10 250 FROM SCREENON TO 10
10 260 SCREENON,SCREENON,IT ""
10 270 LABEL
10 280 FROM 10
10 290 FROM LABEL SCREENON
10 300 SCREENON,SCREENON,SCREENON
10 310 FROM SCREENON TO 10
10 320 SCREENON,SCREENON,SCREENON
10 330 POSITION 1,10
10 340 FROM LABEL SCREENON,IT
10 350 FROM 10
10 360 STOP
10 370 -----
10 380 # MAIN
10 390 FROM STARTUP
10 400 FROM BORDER
10 410 GOTO G.MESSAGESCREEN:ITERS MAY GET TO SCREEN
10 420 FROM LABEL
10 430 END
```

Listing 2

You do not HAVE to use procedures. Turbo Basic will quite happily allow you to go on using subroutines, as in Acorn Basic, and, if you want, you can go on using GOTO's all over the place, and creating spaghetti code. Turbo Basic merely gives you the option to put a bit of structure into your programs.

## A QUICK INTERLUDE

As a bit of light relief, before I continue ranting on about procedures, the following two commands will be of use if you have ever used the ON ... GOTO or ON ... GOSUB commands in Turbo Basic. I've been trying desperately to plug procedures, and the use of GOTO instead of the normal GOTO, however, what if you need to use the ON ... GOTO-type of expression? The not best, Turbo Basic has the following commands

```
ON variable EXEC procedure1, procedure2, ... procedure n
ON variable GOSUB label1, label2, ... label n
```

What the above will actually do will be obvious to those of you who have used the standard Basic equivalents. Otherwise, a brief description is in order. The first command means that if the value of variable is 1, then procedure1 will be executed. If variable has the value 2, then procedure2 will be executed, and so on. As a quick example, suppose that, depending on the  
continued overleaf

value of a variable chosen, you want to

1. Call a procedure to add
2. Call a procedure to subtract
3. Call a procedure to multiply
4. Call a procedure to divide

the list of program might look like

#### 10 ON CHOICE ERRO ADD, SUBTRACT, MULTIPLY, DIVIDE

If CHOICE is 1, then add will be executed, if CHOICE is 2 then subtract will be executed, and so on. When the procedure has been completed, the program will return to the line after the **DO ... ENDO** line.

The **ON ... DO** command works in an identical fashion.

### DUMP and TRACE

To stand off this little occasion, these two commands will be of use when you start experimenting with Turbo Basic. The command **DUMP** is usually typed after a program has stopped running, whether it be after a crash or a successful run. You type it in on its own, and press Return - no line number. What **DUMP** does is to give you a list of ALL variables and their values at the point when the program stopped. It also, handily, lists the names of all procedures and labels, together with the line where they are located. Numeric arrays are shown along with the DIMed values plus one. Strings names are followed by their current length, then the filtered one. Don't worry if you don't follow it by it! The details tend to scroll past quite quickly, so use CTRL-I to pause, and home at will.

The second useful command is **TRACE**. When you type this, and execute a program, as well as the program executing, the computer will also output the last line number completed success fully. In this fashion, you can determine when the computer is when it contains 'thing' is done. It's great but don't take my word for it - try for yourself. When you are finished 'tracing' the program, the command **TRACE -** will disable the feature, and allow programs to run without the line numbers being displayed. Anyway, I've been wretched long enough - back to procedures!

## HOW DO I USE PROCEDURES EFFECTIVELY?

As you have probably noticed, the procedures I have talked about do the same thing EVERY time - e.g. always draw a border or, like the following extract, always set up the screen.

```
80 PROC STARTUP
80 FORN 784, 1
75 SCREENCOLOR A, S, O
80 SCREENCOLOR I, DA, DA
90 PRINT "Clear screen character"
100 ENDPROC
```

This is useful to itself, but what if you want to influence what goes on inside the procedure (for example, scroll a message)? Simple! You can use variables. Indeed, the procedure that can read **SHOWHERE** due to the program. If you've used Pascal or other structured languages, you will recognise this as meaning that what we have is global variables - Turbo Basic has no local variables. This means that if, say, your main program uses a variable X, then the procedure can use and alter that variable too. In Listing 1, the procedure **SCREEN** uses the variable **G, MESSAGE**, which is set in the main program, and it manipulates this string to achieve the scrolling effect. How can set **G, MESSAGE** to whatever text string you please, up to a limit of 254 characters.

This freedom, however, leads to a problem. I've been trying to describe procedures as being separate entities, independent of one another, that, if all variables are available to all procedures, it is all too easy to inadvertently alter a variable's value somewhere in your program, not realising that it has affected another part. For example, say you have written a procedure that you use in many different programs. This procedure uses a variable X, which it initialises and changes. This is fine, unless your main program or another procedure happens to also use a variable X. Then, if you alter it in one place, you alter it everywhere. This may or may not be what you want. Is it wanted?

I suggest that you use certain names of the time, everywhere, for values that you use to control FOR loops, and as temporary values. The example, use variables with single letters, or with names such as **LOOP** and **TEMP**. For all other variables in your procedures, adopt some sort of naming convention. A good idea is to use some sort of prefix. If you have a procedure, **PL01**, which uses its own variables, then you would be better to use variable names like **PL01\_A** and **PL01\_Y**, rather than X and Y. Using the underscore ( \_ ) in variable names helps to avoid ambiguity.

Finally, if you wish to pass values from your main program to a procedure, use some other convention. I use the prefix **G**, in Listing 1 - the **G** applies globally, which reminds me that the value is being passed from the main program. I assume Listing 1, and you will see that I have used **G, MESSAGE**, as I mentioned earlier. The value of this is set in the main program, before the procedure call, hence the **G**, prefix.

The above is just an outline - do what you find easiest. I understand that the last bit may seem a bit vague and difficult to follow. DON'T WORRY! Experiment for yourself, and you'll most likely master the procedure within a few hours of following **After all - it's only a glorified subprogram!**

## TO FINISH OFF

I've included one program (Listing 1) which sets up a screen and border, then scrolls a message until a key is pressed. This is a good example of procedure use, as is the other program (Listing 2) which demonstrates what structuring and use of procedures can do for a program. In Listing 2 you might not, and in fact do not need to, understand what the actual code IN the procedures does, but the procedure names and labelling should help in understanding what each bit does. I hope!

The program is just something I came up with after thinking for a bit with the **MOVE** command, which I hope to describe in a later article. It draws some pretty patterns on the screen, then proceeds to scroll the top half upwards, and the bottom half downwards. These various fancy screen borders/wedges are executed, before the whole process repeats. You don't need to understand it to make it work, so give it a go. It should give you a good idea of what Turbo Basic is capable of.

## UNTIL NEXT TIME

Well, I guess that about wraps it up for another issue. I hope I haven't let any of you this time round. I try to write on informally as I can, to keep the articles readable, without getting too technical, but I don't know if I succeed or not. I also find I have gone on at too great length some more. I can see the Editor shaking his head, even so I write!

Anyway, write to me if you have any questions, and if you want me to cover any particular area in the future. If nobody writes, then I don't know what anyone wants, or thinks, so per pet to paper, I'll be all too pleased to reply.

Next time, I'll try to cover some of the new commands available in Turbo-Basic, such as those for Graphics, Memory and Arithmetic.

Write to me Gordon Cameron, of 18 Muir Bank, Seacroft, Pontefract, WF8 3RT, SCOTLAND.





## PUT THE RACING GLOVES ON

It's weird! Initially advertised in late 1983, Red Rot's **SPEED RUN**, billed as the most realistic rally game on low wheels, has finally been released on the Atari 8 bit.

Unlike previous run simulations, this one features a "behind the driver" view from inside a Nissan Commodore rally car. This display is most impressive, with mechanical parts having been taken to re-create the car's interior and dashboard. In the right, the driver is seen to drive and change gear, smoothly and realistically, as you race continents via the joystick. Through the windshield, a familiar grey track with red and white kerb lines runs into the distance, with a backdrop of countryside and occasional track-side buildings. Sound isn't quite so spectacular but Red Rot have included an audio tape in the package for you to play in your 8-bit while



you try out the game.

From the main title screen you can select automatic or manual gearchange mode. Automatic is recommended for beginners whilst manual mode will give those expert drivers a real run for their money as they grapple with the game's 3-gear 4-wheel gearbox. Keeping on the circuit may seem a challenge enough though as the car slides skidily through each corner. Observing the track through the windshield doesn't really give much of a clue as to your position, and an indicator just below the car's view mirror is therefore provided as an alternative. Don't get too near the edge or you'll crash and have to wait around seconds for the car to be repaired! Crash

more too often and your car is disqualified from the rally. Don't worry get an additional bonus in the form of a workshop menu, from which they are able to select either extra tyre grip, fuel injection or a super-efficient repair crew. The latter option is perhaps the most useful as the delay encountered cost otherwise become rather frustrating.

Certain aspects of the game are a little disappointing. For example, there is no indication of your progress in the race and the game simply stops when you have travelled the required distance without any prize warning. There only appears to be one circuit, and after a few goes you begin to long for a bit more variety. There also seems to be a problem - at least with the disk version - which sometimes causes corruption of the top of the screen, obscuring somewhat from the otherwise brilliant graphics. Presumably the amount of memory needed to produce four incredible cockpit view scenes that sometimes had to be made in other departments.

Despite a few problems, **SPEED RUN** is still an essential component of any software collection, if only because it illustrates the superb graphic capabilities of the Atari. If you're willing to persevere with manual gearchange mode then the game should also bring you hours of enjoyment. In narrative stuff, as usual, from Red Rot.

Paul Allen

**Title:** SPEED RUN

**Publisher:** Red Rot

**Price:** £8.95 com., £12.95 disk

**Players:** 1

**Control:** Joystick



Budget priced software has traditionally been produced in cassette-only format and this has left a sizeable number of disk drive owners feeling deprived and forgotten. If you are one of these, you'll be pleased to learn that Players have taken the initiative and re-released two of their budget cassette titles - **BUBBLE TROUBLE** and **EXCISION** - on a disk back to 'Zap-Pak'.

Original ideas on fire and far between consoles but **BUBBLE TROUBLE** is quite unlike any other game on the market. For a start, it's set in a bath tub where you assume the coveted role of a leisure bubble. Yes, it bubbles but is eager to escape from the dangers lurking within! The aim is to collect a number of smaller bubbles enclosing you to boost to safety, whilst avoiding a multitude of vicious bathfoam accessories from a plastic duck to a floating nail brush which can all set to blast you! Extra points are obtained by eating

## ITS OLD BUT IT'S A BARGAIN!

bars of soap (not a dot! Ed says!) but speed is of the essence as each level has a strict time limit imposed.

Graphics have been tastefully devised in a futuristic fashion to coincide with the bathfoam theme. For example, the play area - or bath - fills up with water from an overhead tap which empties through the plug hole when your lives are diminished. Adequate sound, lots of colour and some pleasant special effects add up to make a simple but addictive game that is sure to appeal to younger Atlantans.

**EXCISION** has been programmed by the same author as **BUBBLE TROUBLE** and it shows in the distinctive rainbow shading technique used to create a colourful display. No bath tub here though - the year is 2118 and the discovery of molecular travel has finally put a miraculous stop to Britain's traffic problems. No more queuing up on the M1, now you can travel anywhere in a matter of seconds! Unfortunately, Alien forces are at work and they've developed a method of capturing human souls during the transportation process, suspending them in pure Nexus energy on 'soul steers'. As one of the few remaining humans, you must do your

best to escape! Joystick and attempts to free the souls before the Aliens capture you!

It's not a bad story, as matters for about 1000 yrs go, and you'll have realised by now that each level in the game is essentially a case of collecting a set number of soul stars whilst avoiding, or eliminating, the Aliens and other malevolent forces that serve to hinder your progress. Hours of fast action is created and some good sound and music effects are included for good measure. **EXCISION** is certainly one of the better budget games currently available.

Full marks to Players for showing some understanding and letting disk owners get a taste of the bargains for a change. Budget priced disks are something I'd like to see a lot more of. Other companies take note!

Paul Allen

**Title:** Zap-Pak

**Publisher:** Players

**Price:** £4.95 on disk

**Players:** 1

**Control:** Joystick

## BUT DON'T PUNCH THE REF!

Of all the sports in existence, football has got to be one of the hardest to computerize. Just how can you simulate a team combination involving twenty-two players with only one or two joysticks? Not very realistically in the traditional manner to that one, and for this reason most of the football games released in the past have simulated the managerial aspects rather than the sport itself. Team Ball were the first to have a go at something different with a cracking life game called, somewhat unattractively, Soccer and Tynesoft recently added their contribution in the form of EUROPEAN SUPER SOCCER. So how does it measure up?

SUPER SOCCER opens up with a well-designed title sequence, complete with an appropriate musical accompaniment. One or two player mode is selected at this stage by a press of the OPTION key. You are

next required to select your team nationally from a choice of six alternatives by positioning a cursor over the flag of the desired country. An opposing team is then randomly appointed. In fact, it doesn't really seem to make much difference which country you select, as the team colours do not feature in the game themselves and subsequent reference to either side is simply made by specifying "home" or "away". Once the selection procedure is complete, the players emerge onto the pitch, a whistle sounds and a timer starts counting downwards for the first half of play. In the background, an atmospheric hiss of the crowd is heard which later increases in volume when a goal appears imminent.

The pitch scrolls horizontally over about three screens while in a rather busy manner. Each team's players - distinguished by their contrasting kits and light skirts - can quite lose in size, and although this initially seems attractive it is clearly delivered at the expense of playing speed. A white square around a player's body indicates that he is the one currently under joystick command. This may change if another player of the same side happens to be in



the path of an incoming ball. Unbelievably, some of the computer-controlled players on your team seem less than committed to seeing their side win, and can sometimes hinder rather than help your progress! When an opposing player approaches your goal, a game of the fire bucket sends the goal keeper into a hairless dire - not always in the right direction but occasionally making a smart corner, knock-in and goal kicks are automatic. As for fouls, these aren't any as the ball seldom travels higher than chest height.

In a one player match, SMP's Soccer is, in my opinion, eminently more playable than the Tynesoft game but for two players, SUPER SOCCER would appear to be a worthwhile alternative. If you're tired of staring at league tables and want a slice of the real action, this is probably the ideal game for you.

Paul Allen

**Title:** EUROPEAN SUPER SOCCER  
**Publisher:** Tynesoft  
**Price:** £8.95 com./£12.95 disk  
**Players:** 1/2 with joystick(s)

## UP ABOVE THE EARTH SO HIGH

STRATOSPHERE is, in effect, the sequel to ESCORT which is reviewed elsewhere in this issue. According to the plot, it's five years on and the battle to save humanity from an alien invasion has almost been won. Make the "alien" - due entirely to a number of hypothetical Motherhips that have somehow survived the previous encounter and are now menacingly orbiting the Earth. And guess who's job it is to get up there and finish them off, once and for all? This time you abandon the Escorb prototype joystick and head for the stars in a craft described as a "dark bi-wing fighter".

The Motherhips are protected by layers of optical shielding, and you are expected to break these down by repeatedly firing missiles at them. Avoiding the deadly "ball-eaters" on patrol in the vicinity is an added complication. The action takes place on a single screen - there isn't any scrolling as your craft simply swoops around it year after it crosses a screen boundary. A Motherhip is located in the centre of the playfield, surrounded by three rings of shielding and various static obstacles which together turn the game into a sort of three-galactic pin-ball machine in some ways the graphics are



reminiscent of first Star's excellent Astro-Chase, but the much criticized rainbow colouring technique has been over-used in an attempt to disguise an otherwise rudimentary screen construction.

Your ship is poorly defined, more coloured and travels rather quickly relative to the size of the play area. It can move in all eight joystick directions - an ability that can quickly lead to utter confusion, especially in such a small arena. It's not made any easier by the ship's irritating habit of becoming stuck between the obstacle eliminating (those pursuing) matter is certainly not the efficient job it seems or first. Once the shielding has been successfully disposed of, the motherhip is quickly eli-

minated and the preceding level of play begins. The screen design differs throughout the levels but the underlying task remains identical.

STRATOSPHERE is an extremely simple game and I'm afraid the content is just insufficient to maintain a player's interest for any length of time. Playability is a most important quantity for an arcade game and on this occasion I could sense no power of addiction willing me to have "just one more go". Players have produced some top quality software for the Atom in the past and have more lined up for the future so I guess this momentary lapse of standards shouldn't be viewed too harshly. Best give this one a miss and see what the next offerings are like.

For those who are interested, nonetheless, the game is also available on a disk based "Top-Pak 2" at £4.95. It is paired with Dump-Dog, a brain machine simulation that was reviewed fully in PAGE 4 issue 11.

Paul Allen

**Title:** STRATOSPHERE  
**Publisher:** Players  
**Price:** £1.99 on cassette  
**Players:** 1  
**Control:** joystick



## UNDERWATER ESCAPADES

When you've jumped a thousand platforms, annihilated countless Aliens and piloted innumerable helicopter gunships through the mill tycoon's fortress, the arrival of a new £1.99 arcade game tends to be greeted with less than an outburst of enthusiasm. Let's face it - these budget 'bits' are all made of a meekness, aren't they? Well that's what I thought until I started playing **PERISCOPE UP**. Little did I know that it would turn out to be Atlantis Software's best release to date.

Why? Graphically the game is unlikely to raise any eyebrows, sound is of the lowest, attempting mature synchronization with software of this type and the concept is anything but original. But what it does have, most importantly perhaps, is that one essential ingredient that can make or break any arcade game - addictions.

**Title:** PERISCOPE UP  
**Publisher:** Atlantis Software  
**Price:** £1.99 on cassette  
**Players:** 1  
**Control:** joystick



Put simply, you'll always want 'just one more go', even if the thing frustrates you or your favourite TV set is just starting.

For those who keep track of twenty day century predictions, as concocted by the staff writers at Atlantis, it's now the year 2003 and disaster looks imminent as Britain's VAX 3000 Super Deluxe Computer has malfunctioned (obviously not an Atari model). Consequently, hundreds of nuclear missiles could be launched across the world, triggering global thermo-nuclear war. Being a crucial element of the nation's defence, the VAX 3000 is heavily protected against infiltration and the only way for you to save the day, it seems, is by traversing the miles of underwater con-

crete tunnels remaining from the time of its construction. All you've got to do is to navigate the underground passages in your submarine, locate and destroy six warlike pods and collect eight digits of a password which will eventually shut down the computer.

There are certain similarities with interactive's Powerdown here as the tunnels are frequently blocked by doors and have gates which must be skillfully dodged or opened using numbered keys accumulated en route. There are various other obstacles too and any contact with these or the surrounding walls is naturally fatal. All this and you may forget to keep an eye on the fuel tanks, but don't because the result is equally catastrophic. Joystick controls are simple but slightly unusual in that a press of the trigger passes command over to a small second unit which is used for the collecting of articles and for shooting at the warlike pods. The submarine is unable to perform either of these tasks but the next can only move within the boundaries of the current screen. There are three screens allocated to each submarine and two submarines in reserve. A fair provision of extra lives is my opinion.

At first glance it seemed like **PERISCOPE UP** would be just another of those tedious caves games but experience has proved otherwise.

Paul Dixon



Alternative Software have a habit of re-releasing old Atari software from a variety of different companies, but this time they've obtained a game that hasn't actually reached the shelves before. **LEAPSTER** was originally intended to be a full-priced title at publication, but the one reason or another, never quite made it.

In the game you play the part of school-boy Henry Leaper, whose quest is a strange, but straightforward one - to get to school on time! Unfortunately the authors of the game were unable to dream up a suitable plot so you've just got to accept that this journey involves travelling through a mistle bog and a giant yard for reasons unknown. Henry can't progress from one location to the next without first collecting a certain number of objects such as balloons, keys and multicoloured question marks<sup>73</sup>. These are located in various inaccessible places such that

## HENRY THE LOONY LEAPER

Henry must jump into other objects - most notably cars travelling along the high street - to reach them. Accurate timing is a necessity as Henry can only get followed by the passing vehicles, and he must also avoid missiles, troops and zombies among various other adversaries that you certainly won't recall from your school years. There's a time limit to each screen too - presumably the headmaster is in his parson with his cane!

Made on the title screen is quite pleasant but this continues into the game of a much slower pace, the ability to turn it off therefore being much appreciated. Graphics are quite good - the vehicles especially so, being recognisable models - although the background colouring did bring back long-forgotten memories of Who Does Who? (i.e. lots of brown). Henry himself is quite nicely animated and responds quickly to the joystick.

Apart from the ludicrous plot, my only major criticism concerns the lack of any status information. For instance, we're not informed on the title screen whether the music is currently switched on or off, despite the necessity to select the desired state before the game itself commences,

and there is also no indication of the number of objects required to complete each screen. This makes it necessary to reposition from Henry towards the right hand edge of the playfield to see whether the next location will fit on or in. As the vehicles also appear from this side of the display, the procedure does have potentially illogical consequences!

Overall it's not hard to see why I had but had several thoughts about adding **LEAPSTER** to their range but in this revised budget format from Alternative Software it's got to be worth the effort. Alternative is perhaps the operative word as there aren't many other games quite like this one!

Paul Dixon

**Title:** LEAPSTER  
**Publisher:** Alternative  
**Price:** £1.99 on cassette  
**Players:** 1  
**Control:** joystick



# The ST FILE

Do you want to be a  
**HERO?**  
Two new Fantasy Role  
Playing games compared  
see pages 68 and 69



**BALLISTIC** -  
Feygnoids invite  
you to the ball

**CAPTAIN JACK  
MEETS THE  
BLASTER TRONS**



**STARFOX II** from  
Electronic Arts

**3D POOL** from Fire-  
bird - let's hope that  
it's faster than Eddie  
Cueball!



**FERRARI FORMULA ONE** gaining them  
points

## ST NEWS

Electronic Arts are getting busy again with **FERRARI FORMULA ONE** according to my around all 16 circuits of the 1992 Grand Prix season with driving and strategy based on actual events of the 1992 season, you can through nylon fenna for just £24.95. Up in the air, EA have **STARFOX II** also at £24.95 with a new plot, enhanced graphic animation, better sounds, faster action and a more realistic sensation of flying (that's what the press release says), can you afford to miss it? **3D POOL** from Firebird at £19.99 looks interesting with the ability to actually walk around the table and take shots from different positions and featuring 'Molitor Joe Barbano who apparently is a real person and European Pool Champion to boot' Jeff Minter is back and blasting with **ANDREAS APFELER** full of frantic action, fast, colourful and only slightly weird but guaranteed to leave you smug and all for just £9.95! The main reason £20 for a game that takes a relatively short time to write is a rip off as **Manassah Man** is at a more realistic price, pity a few others don't (think **Just do it!**) Minter ... **CRASHBURNER** is coming next. Cascade have **D.N.A. WARRIOR** where you pilot a micro-manipulator through the blood stream to stop the erratic growth of a second brain (yuck), it says the price is £19.95 (very penny counts). The ultimate pinball game is **TIMECANNER** from Electric Dreams for £19.99 with two levels to each level and each level only accessible from a time tunnel on the previous level (or was that three levels with ...?). From Activision come **REAL GHOSTBUSTERS** at £19.99 and **MILLENNIUM 2.0**, a strategy game set in the year 2100 with tactical strategy, arcade type 3D action and puzzle solving with graphics of 'sheer beauty', announced as 'coming soon' is **GOLD BEER** from Sierra, not announced (and continuing rumors) that Infocom is pulling out of the ST market is **JOHN CERO**. Finally, close the page a bit, nobody looking? Okay, Sony come **HeadCore Software's** Oh, it's only a MIDI program and that's the name of the company. Well, if you are into music you can get **DATA EXPLOSER** for the Ramoel 83 synthesizer for £29.95 with a version for the Casio CZ and Yamaha DX series to follow.

# Protex

## Serious word processor's do it without GEM

**I**n the world of the ST word processor, Protex is different. You can tell as soon as you load it up - while text on a black background, Clearcut and more exciting, I thought, especially on a TV, but this, and just about every other default setting imaginable can be changed to suit your own needs and temperament if you don't happen to like it.

The next thing you realize, with a slight burst of panic, is that the program is sitting there waiting for you to TYPE IN a command. Yes, really. No menus, no windows, just like the way our great grandfathers did it. At first, this is a bit daunting, since you have to learn the commands and enter them in a command area, and then you can even take another memory test by learning the combinations of key presses that let you access the commands directly. It looks like you might have to read the manual after all. Arise and very understanding about this. In their own words, "manuels are items that come with programs, are intended to be used to prep the keyboard at a better angle and are only to be read when all else fails". Realizing this, they have tried to make them as can be read, offering as readable and useful as possible, and generally they've done a very good job with it, pointing the user to the sections which demonstrate how to make use of the program before trying to inspire him with some of the more intricate functions. The tutorial documents supplied on disk are similarly well thought-out, being simple without giving the impression that you must have recently had a lobotomy. If you spend half an hour or so with the tutorials, you'll be in a position to use the most basic parts of Protex, with help available on-screen to prompt your memory.

### THE FASTEST AROUND!

The point of all these typewritten commands is that, by using them, GEM can be bypassed. Now GEM is very nice, very pretty and so easy the cat can use it, but it just isn't very fast. It was invented so that people could execute complex operations using simple mouse movements instead of command lines. In one sense, Protex is a step backwards since it relies on the user putting in some extra work to get anything out. On the other hand, it allows Protex to carry out operations such as scrolling at speeds beyond those of any other word processor on the ST - Tempus is reputedly faster but it isn't a full fledged word processor.

As an example, one area which benefits from Protex's speed is the search and replace facility (see table 1).

Not only does it zip through a document and give a report of how many words were found, it's also able to cope with command codes, so that, for instance, as well as normal word or phrase replacement, any unwanted blank lines can be replaced by searching out the code for a hard return. Control codes, hard

returns and the like can be shown on screen if you wish at the expense of the WINDOW display, appearing as inverse video characters.

To go through every single command available in Protex would be much too boring to read (and far too much like hard work to write) so instead I'll just say that it has all the normal, basic facilities you'd expect from a good word processor, usually with a few extra bits tacked on, and I'll only touch on some of the more unusual features.

One of these is the Box command. Using this it is possible to construct pseudo multi-column documents. It works similarly to the normal Block commands, but will actually deal with any area that a box can be drawn around, so if you format a document on one column, you can place a box around the second page and move it up next to the first, giving the layout of a two-column page. Any further editing will, unfortunately, destroy the format, so make sure everything is finished before you try moving it around. Another way of achieving the same thing is to use Protex's extensive print commands to print only the odd numbered pages, rebind the paper, change the margin and ask it to print the even numbered pages, also useful when you want to print on both sides of the paper.

Typewriter mode lets you send text directly to the printer, which is ideal for writing the occasional envelope at short notice. Masked blocks can also be printed directly, so any small sections of text that you want to check the look of can be printed independently. Similarly, a block can be saved to disk, either in Protex format or as ASCII.

### AN EXTENSIVE DICTIONARY

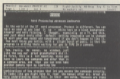
The spell checker is incredibly versatile, being able to search for wild cards of any length and in any order. This means that it can solve anagrams, help you out with the crossword puzzle or tell you all the words in its (updatable) dictionaries that have a certain or more letters and what words of any length have two a's in it - it's also incredibly fast, as long as you have enough memory to put the dictionaries onto a RAM disk. If you only have a 510 with floppy drive, then the disk is consulted for every word, and speed drops considerably. One strange thing about the 76,000 word dictionary is that it recognizes words that I didn't even know existed: it can understand the inclusion of 'ps', but have you ever heard of the word 'ts' for instance? There is also a German dictionary available and doubtless other languages will be catered for at a later date. Unfortunately, there is no thesaurus, something I find invaluable and would have expected to find in a program of this quality. Hopefully this will be available in future versions.

Text management is possible with one fairly major omission: No forecasting. Again, this will hopefully be included later. The catalogue command does, however give the remaining disk space, and the top information line gives a continual update on the size of the document, so you should always know if you have enough space to save your work. Also, the latest version of Protex gives you access to disk accessories, so a small format accessory will solve that problem.

#### TABLE 1

Time taken to replace 57,000 o's with 57,000 e's

WordPlus 3 363 seconds  
 Leo Linkator 119 seconds  
 Protex 46 seconds



Protex's usual WPCWTC display



An separate command mode from which features like search and replace and spell checking are performed

## reviewed by Piper

### OTHER FEATURES

Protex includes a calculator mode which has options to treat the result of any calculation directly into the text with up to nine decimals. Addition, subtraction, multiplication and division are supported, with brackets forcing the order of calculation away from the normal BODMAS.

Mail merging with Protex is almost a language unto itself, containing conditional clauses like IF, ELSE and even UNTIL. Using these means that you can treat your data file almost like a data base, only sending out letters to those addresses which fulfil a certain condition, inserting variables and deciding how many decimal places should be included in calculations. The printing itself can be proportionally spaced by using the corresponding command, even if your printer doesn't support proportional printing, and the background printing facility allows you to carry on working whilst the printer is still thumping out your last document.

Special characters can be accessed directly from the keyboard, in fact, Protex allows you to almost completely redefine the keyboard, allowing whole phrases to be stored as one key press. These phrases, along with any special formats and screen settings can be saved on EXOC files, and loaded up into any other document thereafter, very useful if you spend half your time writing in a language other than English, and temperately want to use 'non-standard' characters. For long phrases, or strings of commands, there is a 'record' mode, which will remember each keystroke, then 'play back' that same sequence whenever you call it up. These macros can be up to 255 characters long and include commands, text and calculations. If 255 characters isn't enough for you, the end command of one macro can be used to call another macro, the linked pairs being performed as one operation. Used sensibly, macros can greatly extend the usefulness of the package, for example by enclosing search and replace operations on a series of words which you abbreviate while writing, but which you want in full in the end product. One macro can also be used to convert files in other formats over to Protex format, replacing all the 'alien' control codes with 'native' Protex ones. Once you're satisfied with your key definitions, they can be saved to a separate EDI file, which can be reloaded at any time.

The graphics capabilities of Protex are its greatest limitation, consisting solely of a line drawing facility with which sections of text can be outlined, nice for giving tables a more professional look, but little else.

The price of Protex puts it firmly in the 1st Word Plus range, so now you're probably expecting some sort of comparison and for me to say which I think is the best buy. Tough, although they are both word processors, their approach is totally different, and it's going to be down to individual preference as to which is best for you. Protex is, I believe, the most powerful and versatile word processor currently available in its price range, and there are in the process of releasing other pieces of software designed specifically to interface with it, such as Protex Office, and they already include with Protex a file conversion program so that if you have documents created on other word processors, including 1st Word Plus, you don't have to start all over again just because you bought something new.

Protex is not, however, the easiest piece of software to get the hang of, simply because of the amount of information that has to be assimilated to make use of even half of its facilities, and it is not always the most friendly either OS's possible to get the ever-popular 'PC has error' message by asking it to do things which the manual specifically forbids. Here 1st Word, and just about any other GEM based program, wins hands down. If you bought your ST in order to get away from command lines, Protex is not going to hold much appeal to you, but if you want full control and facilities that you don't even realise you need until you've got them, then a little effort with Protex will leave you happy for a very long time.

**PROTEX**  
Published by Amos  
Price: £79.95

Points for: Gives almost complete control, very fast, very versatile

Points against: Lots to memorise, no Windows, not exempted on a 125% no disk format command

# JOAN OF ARC

**J**oan of Arc is basically a Defender of the Crown clone from France, fortuitously for those who like that sort of game, both the arcade sequences and the underlying strategic elements are significantly better than Defender, but it retains some of the worst features of that program, namely the tedious pauses while it shows you pretty pictures or loads the next sequence, and the lack of balance between the arcade and strategy elements. The game tests both mouse and joystick. All selection is done with the mouse, but you have to use the joystick for most of the arcade games.

It is May, 1428. You are Charles, the Dauphin of France, soon, hopefully, to be Charles the VIII, King of France. The main screen shows a map of France, indicating which provinces belong to the French and the English, and also those belonging to Burgundy and Brittany, both of which are rebelling. Your objective is to turn the whole map French.

Selecting one of the two prime icons gives you a map showing the weather and another showing how friendly the French provinces are to you. The other prime icon brings up a menu of seven options. Once you have been crowned you can use all of these. For the moment you have just one small army led by Joan so you select "Start a Campaign" and head for Orleans. The instructions are atrocious, you actually need to select "Deployment", point at Joan's flag, point at Joan's name, and point at your destination. None of that is in the instructions! This is further complicated by the fact that often it will display a large box with a message in it. If you press the mouse button to get rid of the box, you will discover that you have also unintentionally selected a province as well - use the joystick button to get rid of boxes!

Once you have moved to an enemy province you can start attacking towns. In each town you have to play two joystick-driven arcade games, first back you may put enemy soldiers in a disadvantage and enter the town (you can look in three directions with your mouse), then take the leaders to reach the battlements - you can climb, jump sideways, or raise your shield to avoid falling rocks, but the battling all is deadly!

The first problem with the arcade games is working out how to use the controls, the first two aren't too bad, but the other two are terrible. One involves you debanking the tops of the battlements with sword combinations of button and direction - at last I found a use for my direction button joystick! The other is one-on-one mounted combat where the instructions are completely wrong: attack is push, slash is pull, charge is pull and keep pulling, and left and right both turn you and make you ride - you don't need to keep pointing left or right - five errors in one paragraph!

The second problem is the pauses - once you have crossed the drawbridge you get to watch little men run across for 20 seconds then wait for a 30 second load, if they only take you 3 seconds to climb the battlements, then another 20 seconds of little men

climbing up walls, followed by another 30 second load - you can't suppose any of it - you have to watch the little men - and there are a lot of towns to capture!

The third problem is the difficulty level - none of the arcade sequences are all that difficult once you have mastered them, but when you do lose one you can never be quite certain whether it is because you have insufficient skill, too small an army, or just some unlucky "dice thrown" by the computer.

You will also meet enemy armies in the open - here you get another little game to play, mouse-driven this time. The battlefield is displayed with a row of icons beneath it to allow you to command your archers to fire or move left or right, your troops to move left or right, your cavalry to charge, or your bombardiers to move down on the other cannons. The terrain and weather varies, the armies are shown as scores of tiny stick men marching or riding over the plain, and the bombs and arrows fly overhead most noticeably - good fun to play, but again difficult to tell how much of your success is due to skill and how much to superior numbers or luck.

Once you have freed Orleans and Bourges, you get crowned and can start to use all the other options: Diplomacy (Armistice, Peace Treaty, Alliance), buying towns, Ransoming Prisoners - an excellent source of income, Espionage (spying out Castles or Armies), Helping Hand (Assassination or Kidnapping - you have a number of really pieces of work in your employ!), Taxation (both yearly taxes and special taxes - watch out though they have them the wrong way round on the menu!), Royal Justice (Arrest, Pardon, or Execution, and Banning of the Royal Army).

The concept is great, the implementation not so good in places, some of the selections require numerous choices, for example if you are trying to ransom one of your prisoners back to the crown, you need to select an amount to negotiate with, a prisoner, a ransom amount, a location for the negotiations, and two ambassadors. Although this gives the game a lot of depth, it takes a long time to select (about one and a half minutes, mainly because of the superb graphics it insists on displaying EVERY time), there is no way to cancel anything if you make a mistake (this applies to the whole game), and, should you be spotted, there is no indication of why you failed - did you ask for too much, or maybe you sent the wrong ambassadors, or was it just the wrong you chose for the negotiation? The lack of feedback makes you wonder what the point of a lot of it is. Fortunately there is a nice speedy save/reload facility so you can recover from your mistakes!

Despite all these niggles, the game does have quite a lot to it. The graphics are superb throughout and there is plenty of variety - you can even get your mother-in-law betrothed for wretched if you like - complete with fully full-screen animated graphics! If you like the combination of strategy and arcade game and are of a temperament such that you don't get too upset by having to make coins fall into a box for 45 seconds every time you collect those (and I thought washing paint dry was boring), then Joan of Arc is certainly worth looking at. I must prefer it to Defender of the Crown, and if it was actually better to play (and one of those games with real people, then one day we may get a superb game of this genre - how can a game of this depth not have a FINAL button?)

**Created by Chip/Softgold/GO/U.S. GOLD**

**Priced at £19.99**

**Reviewed by John Sweeney**

# SETTING THE ST APART

▶ LINOTRONIC 300 POSTSCRIPT  
BUREAU SERVICE - OUTPUT YOUR  
PAGES FROM DISC OR MODEM

▶ ATARI, IBM & APPLE MAC  
SUPPORT & OUTPUT

▶ SEE PAGE 6 MAGAZINE!  
OUTPUT BY US ON AN ST!

▶ PAGE SIZES OF UP TO A3  
(Fleet Street Publisher only)

▶ OUTPUT AT RESOLUTIONS OF  
UP TO 2540 LINES PER INCH  
(Standard res is 1240dpi  
not 600dpi as many others!)

▶ SALES, TRAINING AND  
CONSULTANCY SERVICE

▶ ACCESS TO THE FULL ADOBE  
POSTSCRIPT TYPE LIBRARY

Why invest thousands of pounds on a typesetting system, or pay high typesetting charges, when you can achieve the same high standards on your ST? Sales brochures, business forms, newsletters, all can be produced on the Atari, using any DTP program capable of producing PostScript files. For example: Pagestream, Fleet Street Publisher and Publishing Partner. We are the only bureau able to offer a large selection of typefaces for the ST together with quick turn-around and professional advice. Please phone for further details.



• T • H • E •  
S • E • T • T • I • N • G  
S • T • U • D • I • O

# 1. Just what is MIDI?

Anyone interested in popular music can't have failed to notice the impact of computer technology over the last five years. Electronic musical instruments use similar hardware technology to computers, and it was inevitable that computers would eventually be incorporated as a music-making aid. Two major events helped make this possible. One was the advent of MIDI, the Musical Instrument Digital Interface. The other was the arrival of the Atari ST, which came ready-equipped to exploit it.

Before 1983 each electronic instrument manufacturer tended to use his own pet method of internally controlling and externally interconnecting his keyboards and sound sources. This was fine if all your gear came from one manufacturer, but posed problems if it didn't. And it usually didn't!

To complicate the issue, many of the early electronic instruments were "monophonic", i.e. could only sound one note at a time (like a clarinet, for instance). "Polyphonic" sound with two or more notes sounding simultaneously (like a piano, for example) required a separate sound source for each note, and separate keyboards to play them. The result was often a heap of equipment interconnected by a spaghetti-like mass of cabling, which the poor musician needed six hands to play and a degree in electrical engineering to understand.

## KEYBOARDS AND SYNTHESISERS

Today, the term keyboard generically describes anything having a piano-style key layout. As well as piano keys, electronic keyboards also normally have a plethora of control buttons, wheels, and switches to activate various functions. Usually, but not always, there's a small screen built into the main case. Often there's a built-in amplifier, speaker, and various automatic chord and rhythm features too, making it a completely self-contained instrument well suited to home use - hence the term "home keyboard". Good keyboards also have the all important MIDI ports.

A sound source is a means of electronically creating sound and is usually known as a synthesiser. It may be built into a keyboard or exist as a separate unit, when it's known as an

A new series in which John S Davison shows that you don't need to be a professional musician to enjoy making music with your Atari

'sequencer' or 'rack mounter' module, connecting to a keyboard via its MIDI ports. A true 'synth' allows you to custom build sounds to your own specifications. These are usually known as 'patches' and have to be programmed into the synth, often an arduous task involving manipulation of dozens of parameters. Other forms of sound source include various types of 'pre-set' sound generation designed to provide a fixed range of specific sounds, or 'timbre', usually push-button selectable. Modern synths usually include many such pre-sets in addition to synthesised tones.

## THE BIRTH OF MIDI

In 1983 the major manufacturers collaborated in the design of a standard interface and communication protocol for electronic musical instruments. The aim was to simplify interconnection and provide standard control messages which suitably equipped instruments could send to each other and act upon. In simple terms it allowed you to play anybody's sound source from anybody else's keyboard, back manufacturers could still use unique INTERNAL design for his instruments, but INTERNAL communication would conform to the new standard.

To keep the link simple and inexpensive they fixed it on a shielded twisted-pair cable terminating in 15-pin degree five pin DIN plugs (as found on many hi-fi systems). When used with a serial digital interface this approach allowed many different control messages to be transmitted via the same cable connection. Previously, each cable had usually been dedicated to a specific control function.

Polyphonic operation was a prime requirement, so the link had to be fast enough to play musical chords, achieved by rapidly transmitting the individual notes of the chord in sequence. For the technically minded the agreed standard specified a 10mA current loop to communicate asynchronously at 31.25 kilobits or using one start, one stop, and eight data bits.

Another requirement was for 'multi-timbral' operation, that is, polyphonic sound with each note potentially having a different timbre, to sound like a group of different instruments playing together. This was implemented via sixteen MIDI 'channels', each capable of handling a separate timbre. A sound source can be set to respond to messages for a given channel and to ignore others. This allows the musician to selectively play a particular sound source in an interconnected group, or to play several sound sources simultaneously from one keyboard.

## MIDI MESSAGES

MIDI keyboards don't simply activate switches to turn sound on and off. They generate short (usually three bytes or less) digital control messages which are then transmitted to and acted upon.



One of several 6000 MIDI keyboards available



by other components of the MIDI system. These components could include the keyboard's own built-in sound source, or external sound sources linked to the keyboard via MIDI ports, which we'll hear about shortly.

The most fundamental message sets *Note-On* and *Note-Off*. Press a key and a *Note-On* message is sent. It contains the note number, velocity value, and channel number. Note number tells the sound source the pitch of the note to be played, while velocity value specifies how loud it should sound. Pitch range is 128 octataves (128 octaves), each semitone corresponding to a note number. The note is played by any attached sound source set to respond to messages with that channel number. It sounds as if you release the key, when a *Note-Off* message is sent to silence it.

The next most important MIDI message is *Program Change*. This causes the sound source to switch between any of 128 'programs' on a given channel, where a program is usually a preset timbre or your own custom designed patch. It's generated by pressing a selected button on the keyboard.

Other common messages include those created by various keyboard controllers, the most common of which is the 'pitch bend' wheel used for varying the pitch of a note around its nominal value. Then there's the 'modulation' wheel, and the varying some other aspect of the sound such as amount of vibrato. Some keyboards also have 'aftertouch' capability and send messages relating to further pressure applied to keys after their initial depression. This can be used to trigger additional effects.

There are also system messages, which affect the system operation as a whole rather than specific notes, channels, or controllers. Prominent amongst these is the System Lockable message, which provides a way for manufacturers to implement their own extensions to the basic MIDI standard. It's also a means of saving and loading patch data for your custom built sounds, other to other compatible MIDI equipped essential instruments or storage/editing devices such as computers.

## MIDI PORTS

Messages are passed between interconnected components of a MIDI system via the MIDI ports, of which there are three types: **MIDI IN**, **MIDI OUT**, and **MIDI THRU**. You may find one, two, or all three of these on MIDI equipment, depending on its function.

**MIDI IN** accepts MIDI messages from elsewhere, so you'll find it on anything capable of reacting to MIDI messages, such as synthesizers, drum machines, and computers. It connects to the MIDI OUT (or sometimes THRU) port of other equipment.

**MIDI OUT** makes MIDI messages available to the outside world, so is found on equipment capable of generating them, such as keyboards and computers. MIDI OUT connects to the MIDI IN port of other equipment.

**MIDI THRU** provides a 'through connection' for 'chain chaining' together several pieces of MIDI equipment. It works in conjunction with the MIDI IN port, providing a duplicate of the messages input there. By connecting the MIDI THRU of one sound source to the MIDI IN of another, MIDI messages from a single keyboard or computer can be presented to several sound sources at once. If each is set to respond to different channels you can selectively play sounds from any of them by changing the channel numbers the keyboard transmits on.

For all three, the OUT socket is actually a non-standard computerized OUT and THRU, but don't ask me why! If you really need THRU, it's available on pins 1 and 5 (the outermost connections) of the OUT socket.



One of dozens of MIDI related public domain programs

## ENTER THE ST

So far we've really only talked about communication between keyboards and sound sources. The beauty of MIDI is that communication can extend beyond these to include other devices capable of handling MIDI messages, the most important being the computer. Most of MIDI ports are similar to any other I/O port in that a program running in the IT can write/read data via them in the form of MIDI messages.

If you connect a keyboard's MIDI OUT to the IT's MIDI IN, then the MIDI message sequence generated by playing the keyboard may be read and stored by a suitable program in the IT. If the IT's MIDI OUT is connected to a sound source's MIDI IN and the same message sequence sent to it, then the sound source will behave UNACTIVELY as though the sequence had come directly from the keyboard.

The IT acts like a tape recorder, but instead of reproducing a copy of the sound, it RECREATES the sound on the instrument which originally produced it. The stored MIDI messages can also be written to disk if required, for replay at any future time. This is the basis of the software 'sequencer', a fundamental part of any computer based MIDI system.

## GETTING STARTED

To get started with MIDI you'll need a minimum of the following: an IT, a suitable sequencer program, a home keyboard equipped with MIDI IN and OUT ports and two MIDI leads. The home keyboard provides both the piano keyboard and sound source, and allows you to hear what you're playing through its built-in amplification system.

Actually, the IT isn't mandatory. There's a MIDI interface and sequencer software available for the 8-bit machines from Audio Visual Research (previously Two Bit Systems). I hope to have more details of this in the next issue, when I'll be covering the musical hardware aspects of MIDI systems. Also included will be details of the best low cost keyboards I've come across for the MIDI beginner - the fantastic Yamaha PS4400 and PS4400 home keyboards.

Until next time I hope that your understanding of the combination of keyboard and computer has been enhanced a little and when you read about specific keyboards next issue, maybe you will be tempted to get your computer to start playing music in your own home.

# LADBROKE COMPUTING INTERNATIONAL



This company has given years of full support to Atari users from their retail premises at 33 Crossinck Road, Preston. Now from their Mail Order premises they can offer this "second to none" service to users countrywide. All Software/Hardware is in stock and fully tested prior to purchase to ensure that customers receive total satisfaction, returned goods are sure a thing of the past. All hardware is supported by our on site engineers so that the quick turn around on all repairs is guaranteed. There are no hidden extras, ALL PRICES INCLUDE VAT and delivery (next day delivery \*\*E.C. are correct at time of going to press and are subject to change without prior notice.



## Midistudio £99.99

Midistudio is a 20 track Mid Studio Studio. This Mid software package is a completely great application to help create, produce and distribute your finishing business.

It tracks each separate one of 16 real channels each can be manipulated up or down 12 semitones, the main console features full tape style controls with individual volume sliders for each track, auto mixing facilities including cutting of peak, sustain, attack and velocity, you full real console capabilities. Real time clock etc. Full control over phrases to enhance timing (sequencing) and other arrangement programs. The arrangement facilities offers mixing and copying phrases on any of the 20 tracks. The package is easy to use and is running compatible with PC.

*"Out performs Pro-24 v2.1 in almost every way"*  
Atari ST User Jan 89



## IMAGE SCANNER ONE YEAR ONLY £99.99

The Image Scanner is a program for the ST which can scan in large quality graphics digitally for a wide range of other displays. The image gets placed into the window part of the ST and various window adjustments via a special editor which is available from any system. Images can be used to create titles, logos and graphics. Images. The software supports scanning resolutions of 70, 110, 140, 180, 240 and 300 dots per inch respectively. An example disk to enable other systems to view images is included with this product. The cost of this disk and a CD-R, £2.50 of which is refundable on purchase of a system.  
**IMAGE SCANNER ONE YEAR ONLY £99.99**



## Add With Charms £12.99

Add With Charms is a fully screen controlled educational game with full colour screens and sound for spelling, addition, subtraction, multiplication and division addition. This program has educational difficulty levels and a 30-page table.

## EDUCATIONAL SOFTWARE

## Spell With Charms £12.99



Spell With Charms is a game which teaches spelling, featured skills and screen presentation in terms of objects (over 1000) covers the games and the spell should spell the words of the object which then checks for mistakes. Spell also incorporates colour slide displays, touch and 3D mouse with. Does also have 3000.

## Quick List Plus

Quick List Plus is a utility that compares a directory of your disks. List an disk or make, make use disks including hard disk. Drive setup for hardcopy of folders.

## Mastermat

Mastermat is a hardware that operates with space allows two standard word and track features' text and format.

## Plotstrip

Plotstrip is a utility that operates with part of a picture file file use in other programs, supports VGA, EGA, SVGA and ST Screen and 3 Dega, Neochrome and 32 colours compatible.

## TRILOGY £12.99



## AB Animator £14.95

AB Animator is a utility for creating and animating graphics. It supports CGA, SVGA and VGA fonts and is compatible with dos and neochrome packages. Use the full text control to animate up to 16 big boxes of 26 stroke with by 25 stroke high.



## ALL HARDWARE AVAILABLE EX-STOCK. PHONE FOR OUR NEW LOW PRICES.

For example:

MISCABLE 30 30MB HARD DRIVE	1495	1 MB COMAMA SECOND DRIVE	189.99
320 STERN SUPER PACK	1399.99	STAR LC10 PRINTER	1199.99
320 STERN EXPLODER PACK	1279.99	STAR LC10 COLOUR PRINTER	1349.99
1048 STERN - CHOICE OF SOFTWARE PACKS	1449	STAR LC 2400 PRINTER	1329.99

## PHONE FOR OUR LOW PRICES ON THE FOLLOWING ITEMS ALL EX-STOCK.

Upgrader 1.2 and 2.5 Megabyte memory expansion boards, 1 Megabyte memory expansion 1, Printers, Hard drives, 1MB second drives, Monitors, TVs, ST packages, Atari Peripherals. Please for information on our incredible value software club which offers up to 60% discounts and a free monthly disk magazine for only £15.

Ladbroke Computing International,  
33 Crossinck Road, Preston, Lancs.,  
PR1 2QP. Open Monday-Saturday  
10 am to 5.30 pm. Dealer enquiries welcome.

**ORDER BY PHONE**  
Call for our catalogue before you pay with your credit card.  
0772 038448/08.12476

**ORDER BY POST**  
Money orders (P.O.) payable to Ladbroke Computing International, 33, Road 33 for full catalogue.

Designing with

# FLAIR

Another paint program? Will it topple Degas?

John S. Davison reaches for his brushes

**A**nother 3D paint program? Yes, but this one's aimed primarily at the user needing high-quality pictures for use in desktop publishing applications, although it could be used as a general paint program if required. It runs in low resolution colour or monochrome, and while it works in 32K you may need one megabyte or more to fully exploit its capabilities.

The package contains two single-sided disks, one for program code and GDSs, the other for GDSs fonts, printer drivers, and three sample pictures. The 85-page spiral-bound manual is a little weak on some topics, like GDSs for example, which hardly gets a mention.



less you're working with large chunks of the picture, when response becomes slower and control more difficult.

but they aren't really needed for DTP work.

## PAINT ON A CANVAS

There are two major features which differentiate Flair from other paint packages. The first is its ability to create canvases larger than screen size. This enables you to produce a picture sized to match the resolution of your printer. For instance, if your AT had enough memory (2MB) you could create a monochrome canvas to take an A4 size picture or 500 dpi (that's about 2500 x 1500 pixels) for printing on a laser printer - with every pixel editable by scrolling the canvas through the screen window.

The second feature is that Flair can operate on a GEM desktop accessory alongside a suitable GEM based desktop publishing program (again, memory permitting). The user is then able to quickly flip from DTP page composition into Flair to create/edit a picture and lock again. Obviously, the two programs have to use compatible picture file formats, but Flair should work with most DTP programs as it handles DREAM (Intercomp), Finematrix, and Art Director file formats in addition to its own.

Another unusual feature is its real-time display of graphical transformations. You control the amount of rotation, resizing, shearing, and mirroring applied to an area of the picture by moving the mouse and watching the transformation happen on the screen. When you see the effect you want, you capture it with a click of the mouse. It responds remarkably quickly and

## INTERNAL ACCESSORIES

Flair is also supplied with its own 'accessories' including a notepad, clock, control panel, and calendar, plus an optional RENAME, and printer spooler if you have the memory to spare. These are internal features of the program and can't be used elsewhere like normal accessories.

On the functional front it's got most of the drawing, pointing, and editing facilities found in other good paint programs, plus a few more besides. These include the ability to draw arcs and smooth Bezier curves, lines of adjustable thickness, with square, rounded, or beveled ends, and a useful selection of colour fill operations. These perform such things as fill to a boundary colour, fill all areas except those in selected colour, and to swap and selectively replace colours.

There are nice features for defining your own brushes and fill patterns, including a 'snapshot' function which turns any part of the screen into a pattern. Interactive painting is possible, where the new colour will only 'take' over areas of selected colour, and the variable rate airbrush option in patterns as well as solid colour. It has a good grid-lock system, and there's an excellent variable power magnify feature for locally detailed work ... but stop! There's just not space here to cover everything.

Flair's designers did miss a few features. For instance, you can load several pictures

into one canvas, but can only use one fill colour palette between them - so flipping between alternate pictures and palettes here. Also, there's no quick way of zooming all or part of a picture. You have to point or fill with an appropriate colour to find out the offending area. There is an Undo feature, though. I found Flair's file handling timesome too. You can't get a complete disk directory listing, and it seems to take a lot of clicking and mousing around to get to the files you want. No attraction or colour rotation facilities are provided, but they aren't really needed for DTP work.

## TABLET DRIVEN

The program's functions are accessed through a system of 'tablets' - graphical menus which can be positioned anywhere on the screen. Despite IBM's claim, this system is by no means intuitive and I found myself referring to the manual rather more than I should.

Flair is not without its problems, either. The canvas size realisation process just wouldn't work on my elderly 512K 286/386, causing program crashes when using anything but a screen sized canvas. It worked perfectly on a friend's new 20MB/386, but memory shortage meant the problem. Operating system incompatibility, perhaps? Users of older machines beware!

Flair Paint is undoubtedly an innovative product and although possessing a few rough edges it could be of great interest to someone with specialised DTP/printing requirements. The typical home user, though, would probably be better served by one of the more general purpose paint programs such as Degas File, Art Director, or Spectrum 3D. Think carefully about your requirements before buying.

**Title:** Flair Paint  
**Publisher:** Advanced  
Memory Systems  
**Price:** £34.95

**FISH!**

**Magnetic Scrolls/  
Rainbird  
ST £24.95**

*Reviewed by  
John Sweeney*

I haven't had so much fun for ages! FISH is probably the best adventure of 1988. Basically it is a text adventure - you type in what you want to do and it responds with some text telling you what happened (and maybe a new puzzle - excellent graphics if you like that sort of thing). There are, on second, lots of nice facilities to make playing easier: command editing, function key definitions, item save/restores to disk, variable macros, macro screen support, etc. The packaging is good - background information, instructions, puzzles, hints, and a free Deer Walk Translated for the Hypercube Underground Civilization Company! The puzzle and vocabulary are excellent, and it is full of enjoyable text - as long as you can stand all the fish jokes that the game itself is what matters. It is truly superb - absolutely packed full of



humour and puzzles.

The game is called FISH because you ARE a fish. An intelligent fish, mind you, from another dimension. You are in fact a feature inter-dimensional espionage operative with the ability to warp your mind into the body of living things in other dimensions. As the game starts you are enjoying a well-deserved vacation in a fish bowl when you are summoned to find the three missing components of a focus wheel, stolen from another dimension by your arch-enemy, the leech Deadly Fish (I did mean you about the fish jokes).

Finding each of these components is a separate little adventure which gives you a relatively easy introduction to the game - you can tackle them in any order and they are not inter-related in any way. Once you have succeeded with all of them you get

into the main game - now you warp into the body of a merman and must locate both your enemies and various devices you need in order to save this world from destruction.

The Magnetic Scrolls have packed FISH with superb puzzles, some fairly straightforward, others quite complex, but all highly logical and supported by plentiful clues. Try everything even if it seems to be wrong at the time - you never know where it will lead - these guys have diverse minds! And they have been careful to think of most of the oddball ideas you might have, so that when you try them you get interesting results (usually humorous or misleading) - even if it doesn't get you any closer the solution!

There is one minor flaw - the very last command in the game is fairly obvious, but unfortunately not programmed accordingly - if you can stand try **SLA UPHOLD-HEED ZURE WURE!** (take 1 from each letter).

That aside, this is one of 1988 great games - highly recommended - watch out for the real one as well - **ALICE BY THE WOODS**, especially in May. (I WAS going to tell you lots more about some of the puzzles and jokes and especially the 'meat' in *The Dimensions* - now that's WEIRD, but the editor says I can only allowed 500 words! Best game of the year and they limit you to 500 words!) (wonder)

**GARFIELD ..BIG,  
FAT, HAIRY DEAL  
The Edge  
£19.95**

*Reviewed by  
John S Davison*

Disaster. It could only happen to a cat on a Monday, especially if his name is Garfield. Garfield's girlfriend Arlene has been captured by some unspeakably inhuman character and taken to the City Pound. This has had a miraculous effect on our fat feline friend - it's galvanised him into ACTION. Yes, the world's laziest cat is contemplating a rescue mission, and it's up to you to help him by guiding him through his comic strip world in search of his beloved.

The game takes the form of an arcade adventure, the layout being the Archieville household and garden, and the town in which it's situated. Scattered around this world is usual arcade adventure fixtures are a number of objects, most of which



will help Garfield in some way with his quest. The trick is to find the right one for each object. There aren't that many objects, so seasoned adventurers will find the game very easy.

You'll find several of your favourite characters from Garfield's world in this game. As well as Garfield himself you'll get to meet Odie, the world's most stupid dog, Nermal, the world's mean kitten, and of course there's Arlene - when you eventually find her. Jon Arbuckle, Garfield's owner, appears very briefly as a couple of the game's locations.

As usual, Garfield gets hungry very quickly so you have to ensure he stays well fed. There are plenty of opportunities to eat, as his world is scattered with food of various kinds. Make sure you ponder to his hunger pangs, as failure to do so eventually re-

sults in a Map Attack where he'll suddenly fall flat on his face and go to sleep, holding up the action somewhat.

The game's strength is in its excellent graphics, looking as if they've come straight from the mind of Jim Davis, Garfield's creator. The backgrounds are clearly and colourably drawn, the characters are unmistakable, looking exactly as you'd expect, and the animation of them is so delightful to see. Many of Garfield's expressions and movements are caught perfectly, such as the way he grins, or gobbles his food, or looks Odie or Nermal around his apartment part of the game. Odie, too, lives up to expectations, chattering and howling around doing his best to help Garfield (but often hindering him). And I found the new Nermal strikers back and forth across the screen really amusing.

The program's sound file isn't quite so good, consisting of a choice between continuous music or sound effects (plus odd musical flourishes). The music is competently done but becomes monotonous quite quickly, while there aren't really enough sound effects if you turn the music off.

Overall, I found the game amusing and entertaining. It's easy to complete so can't really be classed as good value for the serious player. Younger players and Garfield fans will love it, though.

## BOMBUZAL

Imageworks

E19.95

Reviewed by  
Ron Stewart



When a program comes to me for review I usually give it a quick look over and then go back to my current favorites. This instance of custom did not occur when Bombuzal turned up on my doorstep, because the first level I was hooked into solving the one-handed and twenty puzzles that the game presents. Each puzzle consists of a series of tiles laid out in differing patterns. On the tiles are bombs. You can talk with Mowing up the Bombs, without getting yourself blown up. Easy? In concept, yes! In practice, No!

There are three sizes of bombs, plus a bomb that continuously changes its size as you play. Each size of Bombuzal has a different blast area and if there are any other bombs within the blast area there will be triggered in a chain reaction. You can quite easily stand next to the smallest bombs when it goes off. Stand next to any of the others and you get yourself blown

up. Part of the puzzle is that the larger Bombs must be set off by the smaller Bombs. Another variation on the bombs theme is the use of bombs with satellite mines. These will be triggered when you set off a bomb with a similar dial.

Also included in this most bewitching of puzzles are the different kinds of tiles. Metal tiles will be destroyed by the Bombs and setting off a string of bombs can leave you stranded. Discover tiles allow you to walk over them once, then they disappear. Slanted tiles allow you to move Bombs around the dial. Riveted tiles will remain after an explosion and so they are a slippery surface on which you cannot stop. There are the basic features, but the developer did not stop there. Other features have been added to the tiles. These include tripmin devices and water tiles which change the game by adding or destroying

tiles and features. On some levels you will come across two-dials, Bubble and Igniter, that you can use to your advantage to destroy delicate Bombs. Bombs of Igniter and Destroy though. They are not to get you to you have to avoid them, blow them up or isolate them on a tile.

You can see then that with all these possible combinations, the puzzles can get very diverse and complex. Because many of the puzzles take up an area greater than the screen, you can press the space bar and call up a map of the current level to help plan your strategy. The higher the level the more complex they become. You do not, however, have to go through all the levels every time you start the game. Every eight levels you can guess a password that allows you to start from where you left off. If you loose all your lives you can also continue the game again from the current puzzle. Finally, just so that you don't get too bored with the game you can play in 2D or 3D viewpoints. The 3D viewpoint makes the game play a little more difficult, but this is more than compensated for by the superb graphics. In fact, throughout this game the graphics are excellent.

If you enjoy a good puzzle and like a little fun at the same time then Bombuzal is very highly recommended.

## SPEEDBALL

Imageworks

E24.95

Reviewed by  
Damon Howarth



**'this one is  
a gem'**

Images of James Cain were flashing through my mind as I unpackaged this game. The illustration on the box was almost a ringer for any football player ever seen and the concept is derived from the same source.

The idea of the game is to choose one of the three pre-designed teams and compete in either a league or cup tournament against either another player or the computer. Plenty of documentation is included to help the novice choose his team and in this phase a little role playing can help the choice. There are no rules as to handling and there is even the chance to trade officials and opposing features in order to obtain an unfair advantage. When playing the computer this becomes very necessary since it plays a fast and mean game. The object of the game is to play a better

of five or six headball, rules that make American football look soft, and as the top rated the playing area obtains various bonus squares. These squares range from a monetary unit used to bribe and corrupt between games or introduce bonuses that vary between freezing the opposition to reversing their joystick control temporarily or even allowing you to automatically possess the ball.

There is an option to play two-handed and that presents a very absorbing and well balanced two player game. I believe that there are those who have set up their own leagues with this game, that could

prove to be somewhat challenging and absorbing. The game even has a save option, although it is impressive you do not believe it's realistic that such. Where most Disk/Speedball disk, all are Speedball data will be destroyed. This is not true as I found in my home after much playing where I saved a game to the Speedball disk only to discover that the process totally reformatted the disk leaving only a saved game position and no game to play it in. Imageworks will restore the disk for a charge of £1 but why on earth should you have to pay for a replacement when you only followed the instructions?

The game is a fitting football creation, that is the same people who created Lemax, and some screens of that but can be seen in the screens and naming of team computers. The whole package is colourful and responsive to the joystick, even in two player mode with a great deal on screen, indeed in the beginning stages the computer also seems a little too fast for the novice. Do not let this deter you though, as a little practice enables some very close games to be held with the machine. In the realm of two player games really good playable ones are hard to find but this one is a gem.

This fast pace, tactics, skill and all the joystick juggling anyone could desire and it will worth buying.

**BAAL****Psychosis****£24.95***Reviewed by  
Damon Howarth*

This new game from Psychosis appears to have learnt quite a lot from previous games such as *Barbarian*. It is a platform and ladder style combat game, controlled by the joystick and suitable for one player. The hero is an archaeologist who has discovered that an evil demon has designs on world ruling and therefore needs to go and stop him, before he can all be undered to Baal's will. The story comes in a booklet which also gives strong warnings about stress and how to stop them spreading and also includes an in health warning "the game is tough".

The action takes place in three levels as you attempt to locate all the lost items of the artifact necessary to destroy the demon once and for all. The rather complicated screen informs the player of the grid reference and number of points found so far. It is also necessary to find a secret box for the keys you carry in order to



make it more powerful and then deal with tougher enemies more effectively. Furthermore it is important to find rocket fuel and the rocket back packs to enable further exploration. The locations of the lost items and the formidable enemies, make progress dangerous and difficult and the accompanying sound effects add a great deal of depth to the engaging action.

The artwork of the backdrops and the sprites used special attention as they are extremely atmospheric and contain, notably, deep, and coloured features. The monster sprites look horrific and their animation is surprisingly smooth. The sequence upon the death of a monster, in which its evil spirit rises in the brights in wild dance, and leaves the feeling of being in some hellish domain imprinted on the mind.

The game offers an addictive and exciting experience into tactical platform and lad-

*'extremely  
atmospheric ...  
superbly drawn'*

der action and provides a forum for some exciting graphics and quite unique action. The soundtrack which is also available on the backdrop screen is enjoyable and pleasant to the ear. I was most impressed with its save game facility for those lullish times when mapping was dangerous and the lives left were dropping rapidly. As a small tip to carry players the numbers do come back if the screen is left, so it is worth repeat trips to easy monsters to locate the score and obtain bonus lives. Oh yes the major aim is to destroy all the generators with the keys, although the instructions do not actually say so.

The game comes with two disks with a detailed instruction manual and it appears to work with most versions of ST. I did, though, discover that it did not want to run on an upgraded ram 2560Kb. That is a 1 meg drive 120 with an additional half meg Ram implanted by the dealer, so beware if you run by totally computer.

Real action will up to expectations and it will worth trying.

**GET DEXTER****Mastertronic****£19.99***Reviewed by  
Ron Stewart*

One of the first laws in reviewing is to play the game until you have a good working knowledge and can write fairly about the product. But there comes a time in the life of every reviewer when he has to admit defeat like a gentleman and say that a game has beaten him. I have found my nemesis in a game called Get Dexter. I have played this game for hours and have got absolutely nowhere. How this could be a combination of things. It could be that I'm a bit thick and I just cannot get the hang of the game. It could be that the instructions for the game are worse than water. Or it could be that the game is just unplayable.

Get Dexter is a graphic adventure type game. Each scene is drawn in colourful isometric projection. You have control of Dexter. You have to find the chamber of



*'I have got  
absolutely  
nowhere'*

Dexter which apparently is a central control computer. To gain access to the computer you will first have to get an eight figure code. Each figure in the code is known to scientists located somewhere within the complex and the scientists have to be questioned using objects you can pick up in your travels. To help in your task is a podosphere that gets by the name of Kool. Don't bother reaching for the dictionary it's not there! I can tell you that it looks like a head perched on top of a foot. Where do they get them from? You can

know as much as I do about the game for that in the first of the instructions.

In essence you have to control Dexter around a series of three-dimensional rooms. Dexter can jump, pick-up or drop objects, although he can only carry one object at a time. Most of the items in a room can be moved, pushed or pulled.

Dexter, when I assume is some sort of robot has an energy level. The energy level will decrease when he comes into contact with the many wild and wonderful creatures that inhabit the rooms. Each room appears to be a puzzle in itself. For instance, you want to get to that interesting object that is surrounded by broken glass? Then move some tables over the glass jump up on the tables and retrieve the object. There are many other things to work out as well. How do you open the sliding doors? What is the function of the coloured matrix? How do you use the lift that gets you to the door that is suspended in space?

All in all, there is probably a lot going on fighting to get out, it's just that you will have to persevere and fight to get it. A decent set of instructions would have helped enormously, but then, making people find out for themselves was probably the programmer's intention. Is it if you want to show that you are clever than I am?

**VIRUS**  
**Firebird**  
**£19.95**

*Reviewed by*  
**John Davison jnr**

You can be the pilot of the latest generation of Hoverplane, and have been given orders to defend your country against the oncoming waves of attacking enemy spacecraft. The attacking alien force is intent on polluting the landscape by spraying it with a horrific, red virus.

Virus, which was initially seen as the game 'Cack' on the Acorn Archimedes, has been long omitted in other computer formats, so it is considered to be an innovative piece of software. The action is set above a three dimensional landscape which smoothly scrolls by in whatever direction you pilot your Hoverplane.

Control of the Hoverplane is with either the keyboard or a combination of mouse and keyboard. The craft must be tilted in such a way that the thruster on its underside can push it in the required direction. This is very difficult to master, and it made even more so by the fact that you



have to compensate for inertia and gravity.

As you move around the colourful patchwork landscape you will come across many trees, lakes and other such things. You will also encounter a number of different alien space craft which must be destroyed. To aid you in your navigation of the land you are assisted by a radar display situated in the top left hand corner of the screen which, for me, did not really help. This was because I couldn't easily distinguish the coloured 'blips' indicating alien spacecraft from the green and blue background of the solid screen.

Graphically the game is very impressive. The patchwork ground scrolls by extremely smoothly and, if you move a great distance above the ground, the stars scroll by at different speeds giving an excellent three dimensional image. The space craft

many ways of animating various views of some of the craft. In this, many nice little touches make the graphics just that bit better - for example there is a fixed light source and all shadows and highlights on objects in the game change in relation to it. In terms of sound the game is not terribly good. The occasional blip and buzz seems to be the sum total of the sound effects, which is a pity as - considering the high quality of everything else, it does let the side down considerably.

In conclusion I would say that as a test of programming Virus is superb, however I found it absolutely impossible to play and could not get along with the controls at all. It looks like being a real challenge. Visually the game is spectacular and a lot of work has obviously gone into it, but I cannot help feeling that all this is wasted because of the sheer difficulty of control.

**WHIRLIGIG**  
**Firebird**  
**£19.95**

*Reviewed by*  
**John Davison jnr**

Whirligig is a neat network of nine galaxies or 'signapores' which are linked together by catapults. The Whirligig itself consists of over four billion signapores, most of which contain a number of star-gates which take you deeper into the Whirligig. Of the four billion, or so stars, there are five 'perfect' signapores, or 'perfectoids' which contain one of the five 'perfect solids'. These solids are the key to your ultimate success in the game.

Each of the solids has a field of 'attractor' field around it and if you manoeuvre into this field you can collect the solid and take it through the catapults. If you manage to find and capture all five of the solids, their combined power will create a catapult which takes you back to the golden age - WHIRLIGIG! Throughout the signapores you will come across hundreds of different



**'a masterpiece ...  
 visually spectacular...  
 extremely playable'**

varieties of enemy spacecraft and also a variety of objects which will replenish your supplies of missiles, fuel, or shield - protective burning devices which destroy the nearest threat.

The screen is a multidirectional scrolling affair with your large ship situated in the centre. If required, a control panel showing supply level indicators and a vector map can be scrolled up from the bottom of the screen.

Control is via the mouse and is very simple to learn. Moving the mouse forwards causes the ship to move in the direc-

tion makes control much easier and is itself convenient.

Graphically, the game is stunning. The objects and sprites on screen are all very large, colourful and attractively solid looking. This 'solid' look is achieved by something known as 'Lightsource 3D', which shades all of the objects with reference to a fixed lightsource. The result is really magnificent and gives the game a look of excellent quality.

The sound is also very good. The continuous music, which can be switched off, is of excellent quality, being a memorable 'jolly' little tune which fits the game very well. The sound effects which are activated if the time is turned off, consist mainly of subtle little explosions and gas stars. Although they are not that impressive they are adequate for the game.

In my opinion Whirligig is a masterpiece. It is visually spectacular, extremely playable, easy to control, and has a definite goal for you to strive for. I rate it as one of the few truly addictive games I have played recently, and can quite honestly say it is one of Firebird's best releases to date.

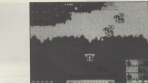
**FLYING SHARK****Firebird****£24.95**

*Reviewed by  
John Davison jnr*

*Flying Shark* is a conversion of the arcade coin-up by Taito. Basically it is a vertical scrolling shoot 'em up, very similar in style to the game '1942', which has been seen in the arcades and on various other home computer formats.

The scenario is fairly typical for this type of game. You, the great combat ace, must fly a lone mission behind enemy lines against overwhelming odds. Your aim is to win the battle and to ultimately save mankind. Is not exactly the most original story for a game, is it?

The game is for one player only and you control your biplane using the joystick for movement and machine gun fire, and the space bar to activate the 'smart' bombs. The view of the proceedings, as in most games of this type, is from above with you looking down on the battle front. You will fight against the enemy gas, fighter planes and tanks over a variety of back-



drops including jungle areas, bridges, rivers, and the sea.

Various rewards are given for destroying certain 'waves' of enemy aircraft. For example, 10000 points are awarded for the destruction of a squadron of gold planes, extra fire power is given for destroying a red squadron, and extra lives for a silver squadron. Extra 'smart' bombs can be collected by flying above a 'B' symbol.

In play, *Flying Shark* is fairly addictive and easy to get to grips with. The controls react well which makes the maneuverability of your plane quite considerable. As mentioned above, getting the space bar fire a 'smart' bomb which drops just in front of you and wraps into four spiralling fireballs which destroy anything in their

path. This weapon must be used sparingly as you only have a limited supply, but they are very useful to get you out of a tight spot.

The graphics are of a high quality, being both bright and colourful and manage to catch the general feeling of the arcade original. The scrolling is smooth, although I did notice the very slightest judder at times. Animation of the various planes, tanks, and boats is also very good, being both fast and smooth. The background tune which plays throughout the game is catchy and of considerable quality.

Overall *Flying Shark* is an excellent arcade conversion and if you are a fan of this type of game and want to play at home I can highly recommend it.

**FOOTBALL  
MANAGER 2****Addictive Games****£19.95**

*Reviewed by  
John S Davison*



Do you want to try your hand at managing your favourite football team? Well now you can, as Kevin Toms' classic football management simulation has made it onto the ST at last.

As team manager you're responsible for producing a winning team and ensuring your club keeps a healthy bank balance. If you're good you could see your team rising to the top of the First Division, winning cups and championships on the way.

You start with £500,000, sometimes more with sponsorship. This is used to pay players' wages, to cover club overhead, and to build up your squad by buying and selling players on the transfer market. You also get income from gate receipts, the more successful your team is, the more cash you get. Your bank balance is main-

colated each week of the season (based on three transactions - if it's negative you're bankrupt).

Before each match it's your job to pick the best team from your squad. This involves studying your players' attributes (position played, skill level, fitness level) and those of the opposition, matching your players' strengths against theirs and deciding the formation to play them in. It's also important to rest your players occasionally, so their fitness level doesn't drop low enough for them to be judged unfit to play.

Once a match begins you have no direct control over play, although you can call in substitutes and change your playing formation at half time. You see the game as a series of animated action sequences, rather like edited highlights on TV. You watch from the stand or the players' desk

around the pitch, passing, hitting, tackling, and shooting at goal. The outcome of each interaction between players is decided on the basis of relative skills plus a random element (representing luck). A sequence continues until the ball goes out of play, the goalie saves a shot, or a goal is scored. Following a goal you're shown an action replay from a vantage point behind the net.

Graphics are nothing special, particularly the little screen and pitch backgrounds, which are distinctly mediocre. There's no scrolling, the program switches between three separate screens depicting different parts of the pitch to keep up with the action.

The player option list uses colour-coded quite well orientated, particularly the goalies who jig around in the goalmouth just like real goalies do.

Sound is the worst I've ever heard on the ST, consisting of just two different biting notes representing crowd noise, and a click heard on the ball is kicked. Shame on you, Mr. Toms - if ever a game cried out for compiled sound it's this one!

I'm no football fan, but I certainly enjoyed this game despite its failings. As with all good simulations it soon found myself totally absorbed by it, and the desire to play just one more match was very strong. If it does this to me, then football enthusiasts should love it.



## PUFFY'S SAGA

Ubisoft

£19.99

**Reviewed by  
Damon Howarth**

The presentation of this piece of Gallic software is colourful and cute, as is the underlying theme. A little ball (Puffy) has lost his girlfriend (Puffin) in a dangerous maze-like world full of power pills and mysterious treasures and monsters. Magic may be obtained therein to help the little ball on its way and the whole is joystick controlled.

There are no obvious instructions in the box except for a colour translation of the various monsters and goodies which include the dangers and the warning of the other rats and innovative programming inside the game. The gameplay is, when stripped of its gloss, basically a frustrating Gauntlet maze-god presents little more than original Gauntlet in challenge, but the gloss is what makes the game so appealing.

On start up the player has the choice of the male or female blob, which have dif-



fering abilities, that is the male is slow with a high hit and damage capacity while the female is swift but less violent. Whichever character is chosen a little "balls" emanates from the computer in sampled Intonagals. This same noise adds helpful sound effects such as "yaa-yaaa" whenever the food is eaten to "DooM" as damage is suffered by the heroine; and even other helpful ones such as "You will die" as energy is depleting. Fearless mice emanate from the monsters and the occasional hiss-like giggle also reprobation through the maze as problems are overcome. This makes the game highly enjoyable at first glance and for the mental homophones period it seems extremely entertaining, but it pales after long term playing. The whole experience is not dissimilar to the early talking Marvin which

at first went novel and subsequently somewhat wearing as they told you that the cat was in excess of economic speed or whatever.

The action seems to expect that the player is aware of the Gauntlet style game and does depend on disappearing walls and borders of early ghosts to weaken the characters. It is unfortunate that this only caters for single players as the combination of Puffy and Puffin could have made a good co-operative game. Should the player wish to change role and game then it takes care of the magic points that are collectible on route. The various magic functions do add something to playability and offer a challenge to the imagination and deductive powers to discover what use any one piece of equipment or spell is.

The game is technically good running on two disks in the boxed format and is compatible with all versions of ST that I tried it on. The colours are vivid and the gameplay normally more than adequate, although joystick ergonomics become slower in busy scenes.

On the whole I felt that this was a gimmicky game that is likely to sell well to impulse buyers or those who are happy to play only until the next new game comes along. I was not convinced that it had any lasting appeal.

## PURPLE SATURN DAY

Exxos

£24.99

**Reviewed by  
John R. Barnsley**

This game was originally to have been called Art Attack, but it was apparently decided that this title may have led to confusion among the retailers, believing it to be a computer-generated art utility — which it certainly isn't!

The game is a little strange at first and takes quite some time to come to terms with. The basic scenario is that once a year, on the planet Saturn, a gigantic Anson Bonolis occurs which turns the surrounding skin a shade of purple — hence the apt title. To celebrate this phenomenon, an annual mini-olympic of four challenging 'sporting' events is held on the Purple Day between the best athletes of the various races that inhabit neighbouring planets. Only GME of these 'races' is human, the others comprising metal and



essential creatures, all with varying strengths and weaknesses, that will influence your choice of opponent for each individual event. The gameplay is hectic and the accompanying graphics are superb! This software may seem daunting at first but persevere and you won't regret it! One of the events, Ring Pursuit, involves a race around the rings of Saturn, avoiding various white quills and efficiently nudging your opponent into their path — your task being to pass on the correct side of the rotating satellites as you race around. Another event is Thrust Slider which is a type of energy-burst based with in the confines of an auto-terminated bearing ring which is itself surrounded with a series of alternating monochromes to dodge and avoid around.

Time jumps has you attempting to colle-

ct yourself the furthest distance/time into the future, while Brain Blower places you within an exploded brain with your objective being to fight and deactivate your particular cerebral hemisphere before your opponent activates last!

On the final screen, the overall winner of the tournament gets to suit of 'leader' (well it is French!) with a beautiful female life form. The resultant offspring from this encounter appears on screen which you can then save to disk!

Purple Saturn Day may be loosely classified on a cross between Accidental/Intentional Strategy but that would defy the truly magnificent mixture of colour and intrigue, together with onsets and effective gameplay, that this package certainly is. EXXOS is the new name of EMI Informatics, the French software house which provided us with games such as Spidertronic and Maledem Bumper. As a point of interest, the name EXXOS has Greek roots — 'XOS' meaning OX which is the opposite of 'LOS' signifying the internet and failure! The choice of label title reflects the ultimate aim of the software producer which is total universal communication as seen in the first release on the EXXOS label — Captain Blood. A little late tells me that the follow-up to Purple Saturn Saturn Day is unfortunately titled Temple Of The Flying Soccer!

**MENACE**

**Psygnosis/  
Psyclipse  
£19.99**

*Reviewed by  
John Davison jar*

*Menace is the latest release from Psygnosis, who are noted for their titles of extreme quality. Menace is no exception, as it is a truly stunning game.*

Basically it is a fantastically scrolling shoot 'em up, similar in style to the arcade game "Tempest". You must pilot a small fighter craft through the defenses of the planet Draconis. On the planet you must navigate your way through various sectors to destroy the most feared robots in the galaxy. These robots apparently ranged and plundered space for many years and have been called from their home galaxy to the uncharted isolated planet of Draconis. You have been sent to average the deaths of those killed in the past by totally annihilating the planet.

Along your journey through the passages of Draconis you encounter many different



alien lifeforms who are sent to attack you. If you manage to destroy a score of these aliens you can be promoted with an honor, which, if shot at a number of times, opens through a selection of different weapons and features. These items, which can be picked up by flying the ship over the icon, include lasers, cannons, shields, 'outlines' and a 'speed up' feature which enables you craft to manoeuvre with greater ease and speed.

To complete a level of the game, the enormous creature or spacecraft found at the end of the level must be destroyed by shooting it a great number of times. What attempting to do this you are often frustrated with enemy fire.

As you would expect from Psygnosis the graphics in Menace are absolutely superb. They are very colourful and would put in an accolade. The end of level sequences with the large enemy creature are especially impressive. The animation of your craft and the alien creature is extremely smooth, as is the scrolling, which although very slow is at a very high standard.

Music and sounds within the game are also very good. The continuous music throughout the game (which can be switched off if required) is pleasing to the ear and very catchy. Sound effects are few and far between because of the presence of the music, however there is a certain amount of digitised speech which informs you in a very suitable calm voice of remaining danger and of the weapon which you have just picked up.

Overall, Menace is a superb game which is impressively presented. The graphics are beautifully drawn and the sound is extremely good. Menace also excels in terms of playability. It is a highly addictive game with enough reality for you to keep wanting to come back for more. It is definitely the best game to come from Psygnosis since Barbarian.

**MINDFIGHTER**

**Abstract Concepts/  
Activision  
£24.99**

*Reviewed by  
John Sweeney*

Mindfighter follows the adventures of an eleven-year-old boy whose amazing psychic powers have resulted in his mind being trapped in a nightmare vision of the future - but in the ruins of Indianapolis after a nuclear war has devastated the world. You must first survive long enough to gather sufficient information about what has happened to enable you to change the future, then find a way to return to the present so that you can use the information.

The game is a text adventure with pictures which come nicely packaged with a poster and a 136-page novel of the same title. It plays well enough and appears to have great potential: the moody pictures and detailed text set the scene of a post-



holocaust future very well. As you wander the ruined streets of Indianapolis various grisly events occur - 'Slowly, with a blood chill, the guard began to see the man's hand slip' - and you start to encounter various problems - how to survive nuclear wastes and attacks from enemy guards, how to get through the electric fence or get past the guards to the ship. Unfortunately things don't go well from there. The 'coloured pages' are very attractive and the vocabulary is rather limited, but sentences get the standard, boring response 'THAT WASN'T POSSIBLE'. Mindfighter understands very few of the words it uses in its descriptions, but you must try all of them since occasionally there is one you have to use. For example after trying CLAMMING RUBBER in eight different places and being told RUBBER

COULDN'T EXAMINE THAT you might be forgiven for believing that it was not valid - 'wrong' - you can CLAMMING RUBBER in one location (but only once) to discover something!

Many problems occur when you solve a problem and try to tell the game what you want to do - on one point I had to try eight different ways of typing in the solution before I found one that I understood. Then there is the book. If you read it first then it gives rather too much away. But if you DON'T read it you will not be able to solve some of the puzzles (for example, to pass the three you need one of Robin's psychic powers, but there is no way you can guess what it is without reading the book. Even then your chance of working out exactly how to break the power is virtually nil, isn't it? 'SHOCK' by LORDEEN, KING, HAZARD, PUPPETS, RICHIE (like I did each letter card don't drink any water).

The game was from memory so response times are very good. But it was written for a number of machines and hasn't lost a major part of the problems: the conversion to the ST was done by people outside the author's control and was not to his liking. Furthermore the writing was completely inadequate and they say 'planning to shoot the book later'. Abstract Concepts are hoping to rectify this with their next adventure - Parasitic Knights.



# FROM A PILOT'S NOTEBOOK

*- AS SOON AS I PRESSED THE MOUSE BUTTON I KNEW I HAD TROUBLE - a pair of HAZSLERS appeared promptly and slammed in to me. One life gone and little to show.*

*To show who was in charge I accelerated towards the descending LADERS and wove several of them off - then came the cry for help - a LLAMA had been nabbed by one. Of course it was far off, on the edge of the SCANNER - I accelerated towards it, ducking and weaving and heavily destroying an HAZDOR on the way. When I got there I carefully clear the lands, caught the llama and put it down on the surface, protecting myself with a slab of SHIELD.*

*No relief - I had run into a bunch of coded mine, and an NEP\* was right ahead. I punched CONTROL for the SMART BOMR but no love, second ship gone.*

*My survival into the next wave was in doubt - time to Sharpen Up! As my third ship reared in, a MUTANT and a couple of HOPERDONES appeared - this time the SMART did its stuff. I had a second to breathe, study the Scanner and decide where the most urgent threat was.*

**ANDES ATTACK -  
DEFEND OR DIE!**

*Then, two more cries for help, nearer this time and close together. Flying now by instinct I managed to rescue both llamas at once. Wonderful - until the MOTHER SHIP snapped me. They fell to their deaths, from a great height. Six more to do and we'd lose the planet and plunge into a fight in Deep Space.*

*No time to worry - two SPORCS appeared right ahead - a second Smart saw them off. The next few seconds were pretty productive - suddenly the Scanner began to clear but what was this - something coming at me FAST! Turned out to be a RUSSTEAM BLYTTER and it didn't like me. I engaged it with my third on one well-aimed blast, and so into the next wave ate of my llama's heart.*

\* Have a 'Griffey Day' - Mine Seeder  
\*\* Nasty Poisoning Blob

**ANDES ATTACK and GRIDRUNNER, soon!  
for the ATARI ST £9.95  
from your retailer or direct from LLAMASOFT**





THE  
GOLDEN AGE

REVIEW

# TIME ON HEROES

John Sweeney explores two new F

**W**ith the tremendous success of *Dungeons and Dragons* last year, there has been an upsurge in arcade-style versions of fantasy role-playing systems. BothSSI and Origin have produced many successful FRP games over the years, notably the *Melander's Cross* series and the *Phantasia* series from SSI and the *Ultima* series from Origin, so it is not surprising to find these, both putting out new FRP-style games, but with simple joystick controls and lots of arcade-style fights to try and entice more gamers into accepting the delights of FRP.

The games have a number of similarities: you need to explore your surroundings... but don't need to map very much of it; you have to fight your way around - arcade style; there are items to find and use; if you press the space bar you get access to a menu for extra commands such as casting spells and using items - in *Heroes* it is a text menu across the middle of the screen, in *Times* it is icons along the bottom of the screen and to win you must fulfil a quest. In *Heroes* the quest is to kill a Dragon and retrieve the treasure it is guarding. *Times* is more subtle, you will be given quests along the way and don't discover your true objective until well into the game.

So how do they differ? The first obvious difference is the viewpoint. In *Heroes* you get a customary view of the combat or terrain you are in and a side view of your current hero. In *Times* you get a *Guardian*-style overhead view of your character's field.

The second obvious difference is in the fighting. In *Times* you just face the right way and press the button - a few blows kills just about anything. In *Heroes* you get rather more options. *Heroes* has two modes of fighting - *Bunged Combat* and *Clean Combat*. Once you get within a quarter of a screen width of your enemy you are automatically placed in *Clean Combat* mode which, provided you keep the button pressed, allows you to thrust, block, cast or lunge, dodge or back away; releasing the button allows you to run! If you are further away you are in *Bunged Combat* mode and if the character you are currently using has a ranged weapon - bow and arrow, spear, magic staff, etc. - then you can use the joystick to attack with it, aiming high, low or centre.

You start *Times* of *Law* by choosing whether you want to be a Knight, a Yellie or a Barbarian and may use that one character for the whole game. To begin with you have a sword and can only block monsters from close up - later you may find a couple of better weapons - your best weapon is automatically thrown if you press the button while you are outside *Clean Combat* range.

In *Heroes* you have eight characters from the *Dungeons and Dragons* books in your party, each with different abilities and

weapons, but, apart from using the space bar to call up a menu and get one of the other characters to cast a spell, only the current leader can actually fight. The graphics are superb as your chosen leader leaps or glides across the screen, weapons swinging and cloak flying, and with so much choice in the character and associated weaponry this aspect of the game is truly excellent.

In both games spells may be cast at any time. In *Heroes*, Goldmoon and Ralthe both have magic. Goldmoon has a choice of nine Clerical spells ranging from *Cure Light Wounds* (which also can cast with her Blue Crystal Staff. *Wounds* costs one point of energy) to *Defeat Dragon Breath* (which also can cast with her Blue Crystal Staff). The staff starts with around 160 points of energy and is recharged whenever you create magic use or incanting spells of the party (she doesn't need to be the leader). Ralthe has a choice of eight spells such as *Charm*, *Magic Missile* and *Defeat Invisible* using his own interchangeable staff of *Magnus* - well seems actually, *Final Strike* always kills the party, not a bit of use. Apparently it was intended on some sort of joke, I didn't find it very funny!

In *Times*, you have to find scrolls in order to cast spells and since you are not very good at reading arcane script you have to deduce their effects by observation - so I won't spoil your fun by telling you what they do!

**S**urprisingly, *Heroes* of the *Lance* would appear to be a far superior game, having very impressive graphics and a much wider range of fighting and spells. However, if you actually play the games for more than half an hour, you soon find that the difference is indeed superficial. *Heroes* seems to me to be a superb new games-system (albeit with a few rough edges) looking for a game! *Times* on the other hand is a complete game with lots of subplots to hold your interest.

The fighting in both games soon starts to pall. In *Times*, I found it a little simplistic - but then it is an arcade game. In *Heroes*, once you have learned a few basic techniques, like how far away from an enemy you have to be to hit it with your sword, and which monsters you should Sleep, Web or Charm at once, there is not much that can stand up to your party - even the *Minotaur* (second most valuable in points level) just stands there and lets you back it to pieces without any danger to your party! Once you have discovered an effective way to deal with a particular monster it always works - the only challenge comes when they attack in groups, but then you just take a bit of damage and heal up afterwards.

As for finding and using items in *Heroes*, it just isn't worth the bother. Treasure are practically worthless - the best I found was only worth 50 points. All our *Iron* *Minotaur* and you get 575. New weapons can't be used! *Sting* and *Strength Potions* had little discernible effect. And you can't search the invisible place for invisible items because *Ralthe* doesn't have enough energy.

*Heroes* is also disappointingly short. After exploring the

**HEROES OF THE LANCE**  
SSI/U.S. Gold  
ST only - £24.95

# ONLY FOR PROES

Two new Fantasy Role Playing games



multiple dungeons of a Phantasm, the multi-level dungeons of DungeonsMaster, or the multiple, multi-level dungeons of an Ultima, I was most surprised to meet the Dragon on the second level in Heroes of the Lance! Admittedly, there is at least one other route down there, but I still thought it rather a small dungeon for the price. I had just mastered the game-system and was looking forward to playing the game when it came to an end! The game is rather unbalanced and your characters much too powerful - you can actually complete the whole game using only two of your characters, without picking up any items, in less than fifteen minutes! The only hard bit is working out the one and only exact way of killing the Dragon - a slight bug at this point allows you to get past her head and stand unscathed between her head and body while she breathes flames into empty space - if you get there, be sure to turn around as her body is invulnerable!

There are lots of little things wrong, some of them probably intentional in order to provide a simple arcade game, but they are nonetheless annoying. You can't tell whether or not you have succeeded in sending spells such as Prayer (not what effect it has!), or how much power you have left in your staff, or whether abilities have any use, or how many arrows you have left, or which scroll is weak and so on.

Heroes of the Lance is fun to play and has great graphics, but is definitely an introductory game - and as such I believe rather overpriced, just in case you are after a high score, here are the points I really don't understand on 'arcade' game where it is almost impossible to work out where the points come from: Base 82; Trail 524; Spiritual 126; Light 14; Spider 314; Book 174; Wealth 479; Light 178; Men 26; Hatching 608; Knights 2080; Shield or Gem 18; Coins 35; Silver Choices or Bar 30; Gold Choices 40; Hunting Skills use (Direct Invisible just inside the first doorway); Gold Bar or Longsword 50; Diamonds 10000; You also get 20000 points for each survivor - 100000; TP: once you have copied the diskette, erase FORMAT.TOS from the one you are going to play with and you will have space to SAVE without changing disks. Don't bother, if you have a double-sided drive, format a diskette to two sides, with ten sectors per track and copy all the files from the S and C diskettes (except FORMAT.TOS) to it. You can then play the whole game with 50-disk changes!

Let's go back to Times of Lore. Although the fighting and spells are limited, this is a much better moulded game. You wake from a good night's rest and go down into the bar for your breakfast beer. Here you encounter a Pkiss who asks you if you would seek out a gang of orcs in the Dark Forest who have stolen the Powerlifting Stones. Being a hero you naturally agree and head off to the North. The land you are in is rather attractive, but fortunately the game comes complete with a map showing the major roads, rivers, forests, mountains and buildings. You will need to make notes as you find your way through the forests, locate ruins deep in the

forest, search for the buildings NOT shown on the map and explore a couple of small dungeons, but detailed map-making skills are not required.

Unlike Heroes, where they apply the simple philosophy of 'if it moves kill it', in Times you can and must converse with the locals. This is done using the joystick to select keywords from a list maintained by the computer, based on what you have heard during previous conversations. As you complete quests and converse with the inhabitants you will be given new quests and hear strange rumours, most of which are well worth following up. (Just in case you get as frustrated as I did, ONE of the rumours is NOT true!) You need information and magical artifacts from various subjects in order to complete the game - around a dozen levels in all - and you will also have to solve a few little puzzles, enough to keep you busy for some time.

It has been actually very 200-300 hours of playing time. This is a game overstatement. That is the sort of time it takes to play Ultima IV. Times of Lore is much shorter. I don't think I took more than about 20 or 30 hours. Some of the time is actually wasted by the regular time on the trees - it can take up to 18 seconds just to select PALSH from the menu! Why do programmers insist on building delays into their software? It can also take some time to get around, especially on the earlier versions. I had problems with the RETURN TO TIMES OF LORE option and with unwanted re-boots so I entered a sub to SAVE, so I got a new copy from Microprose and found that they had speeded up the character movement by around 80 or 90%. Once you find the Magic Books the game then gets up to a reasonable speed. If you want to know which version you have, check the dates of the files on the disk - my new copy has 1989 dates.

It still has a few bugs (e.g. the dungeons may be deserted, and the LOAD GAME option doesn't appear to reset the randomness so that an eight fails you end up with a completely blank screen) but not enough to spoil the game. I also get a little frustrated with the controls - it is far too easy to accidentally hold the buttons down a fraction too long as you have a menu and then find that you have hit one of the books unintentionally! This means that no-one will talk to you in your own TOWN ANY more position because that requires you to talk to the landlord. If this happens you can either go to another town, or wait till midnight when, I am told, "the spiny bugs are out!"

Heroes of the Lance, with its connections to TSR's phenomenally successful DungeonsMaster and its excellent graphics will undoubtedly do well, but if you can't afford both I would choose Times of Lore as a more complete introduction to computer Fantasy Role Playing.

**TIMES OF LORE**  
**Origin/Microprose**  
**ST only - £24.95**

# HEADCOACH

**Do you need all the glitz and glamour currently surrounding the ST? Damon Howarth finds a thinking game where strategy is more important than looks**

Supercool has been and gone, the San Francisco 49ers are the new world champions having just beaten the Cincinnati Bengals and the Schiefelbusch franchise dropped out in the wild card game, just a minute the Schiefelbusch who?

This is not the world of Gridiron any earlier this year but a computer management and play simulation produced by a small software house run by the ST but well known in BBC circles. Qualsoft produced the first version of Head Coach for the BBC some years ago and only on the realisation of the owners that it fit was taking off did they change the conversion. They started on soccer management games and then proceeded to use that expertise on a statistically correct American management system.

The game comes on two single sided disks with a manual giving full instructions and history of the initial forty-five team members. You take the part of the Head Coach of the Franklin Schiefelbusch a team taking over the franchise of one of the NFL teams and juggling into their seasons schedule. It is necessary for you to make all the decisions on: shifting line up players and tactics for each of the matches in that season. It is your responsibility to call which of the great range of Offensive and Defensive plays best complements the strengths of your team. This of course has earlier been determined in the training camp routine and the two previous matches.

Once you have completed a match three

follows a results sequence consisting of all the teams in the NFL, a table showing the standings and then which, if any, of the team were injured. Finally the computer will inform you who your three most valuable players were that week. This happens each week for the sixteen week season and then if you have qualified for the play offs your contract is cancelled for the next season and you can try to win a Superbowl. Should you fail to reach the Play Offs your performance is assessed and your contract is either renewed or terminated. There is an end of season sequence and you go to the draft for the next season. This carries on an indefinite card you can discharge. Since one game takes about thirty to forty minutes to play it can be seen that a season can last many hours and there is therefore a save option after any game has completed.

The game has a very realistic feel to it and those people who have even the slightest knowledge of the game through Channel Four will find it stimulating while those who understand the game more will enjoy the rated play calling in the system. It is not a game with state of the art graphics or sound, it relies on the solid game content within its structure. The screens are mostly textual although there is a grid view on screens with field position markers during the games. The strength of this program is in the involvement the Coach feels with the team, members become heroes and legends. There is a greater warmth when players of six and seven ap-

NFL STANDINGS - WEEK 17 (1988)		
REGULAR SEASON		
CONFERENCE	TEAM	RECORD
AFC	San Diego	10-7
	San Francisco	10-7
	Los Angeles	9-8
	Denver	9-8
	Buffalo	9-8
	Minnesota	9-8
	Atlanta	8-9
	Indianapolis	8-9
	Seattle	8-9
	Chicago	8-9
	Philadelphia	8-9
	Green Bay	8-9
	Washington	8-9
	Carolina	8-9
	San Antonio	8-9
	Arizona	8-9
NFC	Dallas	10-7
	San Francisco	10-7
	Los Angeles	9-8
	Seattle	9-8
	Green Bay	9-8
	Philadelphia	9-8
	Atlanta	9-8
	Indianapolis	9-8
	Chicago	9-8
	Minnesota	9-8
	Denver	9-8
	San Diego	9-8
	Washington	9-8
	Carolina	9-8
	Arizona	9-8

To Change a Player, Enter a Position Code, or View Statistics, Use CTRL + B

son's standing are cut for new blood and the general expectation of your top players to pull you through in crunch situations involves you more as the game progresses rather than less.

A bit of it leaves the game is only available by mail order where Qualsoft would not expect it on the market place. From my point of view the game has kept me sitting up at nights and through holidays and weekends for up to twelve hours at a stretch, with minuscule breaks for food or other necessities. The game does not pretend to utilize the machine to its full capacity, even the mouse is not supported, but I forgive it a great deal because of the sheer thrillfulness of game play.

The openness of the program allows it to be transferred to BMD disk or to a one meg disk and to be run from any drive, with subsequent games in other files. The game will work just as well in mono as in colour, either on a colour monitor or TV. If you want to use your computer in conjunction with your leisure rather than just a picture gallery, this is the type of program that might interest you. It is a game I have no hesitation in recommending to anyone with even the slightest interest in American football.

**HEADCOACH V3**  
Published by QUALSOFT,  
18, Hazlemere Road,  
Stoneway, SG2 8BX  
Price: £19.95

TEAM	W	L	T	P	PTS
San Diego	10	7	0	0	20
San Francisco	10	7	0	0	20
Los Angeles	9	8	0	0	18
Denver	9	8	0	0	18
Buffalo	9	8	0	0	18
Minnesota	9	8	0	0	18
Atlanta	8	9	0	0	16
Indianapolis	8	9	0	0	16
Seattle	8	9	0	0	16
Chicago	8	9	0	0	16
Philadelphia	8	9	0	0	16
Green Bay	8	9	0	0	16
Washington	8	9	0	0	16
Carolina	8	9	0	0	16
Arizona	8	9	0	0	16

# Prospero C - The Verdict

We thought you might be tired of us talking about Prospero C so we're letting somebody else have a say.

Fiona Stephen Hill of 'ST User' (from his review Feb 88):

*Prospero's flexibility sets a standard of user-friendliness yet to be surpassed. I am forced to reserve my stars until picking up final flesh.*

*A nice editor is all very well Stephen but can you see the compiler?*

*I encountered no trouble whatsoever compiling any of my own programs... Prospero has obviously taken a great deal of trouble to simplify the process of linking your C programs as much as possible.*

*But even reviewers write programs with bugs! How did you get on with probes?*

*Probes remains the leading debugger and so far you, for accessible enough for the total beginner to use and yet at the same time really capable of satisfying the most demanding expert.*

*Stephen seems to know our products well, I wonder how?*

*As usual, Prospero has really excited itself with the documentation.*

*But will anyone buy it?*

*Prospero has concentrated heavily on the user interface and has produced one of the few packages which I would actively recommend to the complete beginner. At the same time the promise of complete ANSI C will undoubtedly extend its attraction to more advanced programmers.*

*Matthew Jones of 'Page F' gave us some constructive criticism of which we have taken due note, he did however get a little excited by probes (from his review of Prospero C in the Feb/March 89 issue):*

*Probe the source level debugger is something I dreamed of years ago, and so far it is possible on the ST, being able to watch your code execute will at least double your productivity.*

*He also concluded in a way that many professional developers for the ST now conclude.*

*Prospero C will in future be my compiler of choice on the Atari ST. It supplies what I need in a compiler - ANSI standard, an easy to use interface and a standard source level debugger.*

*Demonstration disks are available for those who don't even trust the reviewers. The cost of Prospero C is £129.95 (including VAT).*

## Prospero Software

LANGUAGES FOR MICROCOMPUTER PROFESSIONALS

101 CATTLEFARM LONDON SW15 2NL ENGLAND TEL 01-741 8331 TELEX 81444

## ATARI ST SUPERDEALS

### 520 STFM SUPER PACK

**£349.00**

inc VAT and Next Day Delivery

Super Pack Includes:

- 520STFM 512K Keyboard with built-in 1 megabyte disk drive and TV Modulator
- £88 of games software including BUGGY BOY, TEST DRIVE, MARBLE MADNESS, WIZBALL and 17 more
- Organiser Business Software including WORDPROCESSOR, SPREADSHEET and DATABASE
- FREE JOYSTICK!
- All leads, manuals PLUS MOUSE and free mains plug!

**REMEMBER:** Many ST's do not come with BASIC, ours come with ST BASIC REV D by Microware.

### 520 STFM EXPLORER PACK

At 520STFM Superpack with only one free game and joystick or Organiser -

**£279.00 inc**

### 1040 STFM SUPER PACK

**£449.00**

At 520STFM Superpack but with 1 meg F040STFM

### 1040 STFM BUSINESS PACK

**£439.00**

Business Pack Includes:

- Atari 1040STFM Keyboard with 1 meg memory and 1 meg built-in disk drive plus TV modulator
- £88 worth of Business Software including MICROSOFT1 WRTM word processor (£150), SUPERBASE PROFESSIONAL Database (£80), VIP PROFESSIONAL Lotus 123 Spreadsheet clone (£150) and Microware Basic (£35)
- All leads, manuals and mouse.

### MONITORS

Atari 501204 Colour Monitor inc lead

£209.00

Atari 501244 Mono Monitor inc lead

£104.00

### CREDIT CARD ORDERLINE 0908 78008

Transfer either of the credit cards into the account with your chosen financial institution in order to process your credit card orders. Digicom Computer Services Ltd will receive your order in the above form. We are proud to offer services - Callers also welcome.

**DIGICOM**

Unit 26, Wharfedale, Ferry Stratford, MILTON KEYNES MK3 2AJ

All prices include VAT and Delivery

252

## ARE YOU MISSING OUT?

You've got lots of questions about your computer but don't know where to ask? We do! You've seen ones which software is best for your application? We do! How'd Microsofting up in class with new releases and to use them as a good buy but when graphics do you? We do! You would love to get to know other Atari enthusiasts, but you don't know how? We do! You want to get some of that Public Domain software you've heard about, but where to get it? We know! You'd like to know how to get the only electronic to be mailed, but where can you turn to? We'll answer help! (Send for software?)

We are the largest (and oldest) Atari Computer Owners Club in the U.K. For just £5.00 per year you get fully assistance, news, tips, manuals, game jobs, software CD's, letters up to date information, games, utilities, hardware projects, software reviews, programming tutorials, and a regular club magazine every quarter.

It's a magazine or what? One-off? Poor photographic things that are available, or what? No, it's professionally produced, just like the magazine you're reading. It's called MONITOR, presents information? Yes, it's one of many have read and see it's great! How do I join the club and get my copy of MONITOR? Easy! Just send a cheque or postal order for £5.00 to the address below requesting our free subscription. (Business memberships £8.00 instead) or £12.00/Annually.

You won't be disappointed!

The U.K. Atari Computer Owners Club  
P.O. Box 213, Southend-on-Sea, Essex, SS1 2QF

Independent User Group

## SOFTWARE EXPRESS!!! ATARI & AMIGA Specialists

Interested in the  
Atari ST or Commodore Amiga?

Then talk to us - we are one of the leading specialists in Atari & Amiga products for both home and business.

We have a wide range of products including: Computers, Printers, Hard Disks, Diskettes & Boxes, Monitors, Modems, Laser Printers, Plotters, Books & Magazines, and of course, a wide range of software for Entertainment, Music, Programming, Education, Graphics and much, much more.

For the business user we have systems for Accounting, Payroll, Desktop Publishing, C.A.D., Word Processing, etc.

Why not give us a call, or better still, visit one of our centres in  
**Birmingham** 212-213 Broad St  
Birmingham, B15 2JF  
021-643 9160  
**Plymouth** 4 Exeter St, The Mudget  
Plymouth  
0752-200270

P.S. Bring this ad with you and get a discount of up to 10% P.P.S. This advertisement was produced using an Atari ST.

## NOW AVAILABLE CLIP ART 2

for use with Fleet Street, Timesworks, Easy-draw, 1st Word Plus, in fact any ST desk top publishing or layout program



Hundreds MORE images on four disks in compressed format with full instructions on conversion to use in the most popular programs

All images are in the public domain and may be freely used - many are ported over from the MIGHTYDOG - subjects include general, animals cartoons, borders, headers, classic art, whimsy, technical symbols and much more - give your work real class!

FOUR DISK collection just £10!

CLIP ART COLLECTION 1 will available at £10

Ask for CLIP ART COLLECTION 1 or 2 available only from

PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR

Pay by cheque/credit card, Access or Visa  
Telephone orders welcome on 0-50 212020

\*These disks are also available as part of the PAGE 6 ST LIBRARY, please ask for a copy of our catalog

# Sprite Master

Create superb quality animated graphics with Sprite Master - the ultimate sprite designer for the professional and amateur programmer.

Languages Supported: GFA Basic, HighPower Basic, Fast Basic, STOS Basic, Assembler and C.

Building Functions: Draw, line, box, circle, fill, copy, rotate, mirror, reflect, stretch, flip, set palette, set size, rotate, grab, rotate, exchange colour, undo, text.

Other features:  
Sprite Size: Adjustable from 8 x 8 up to 144 x 144 pixels.

Load System: All Octicons, Pages, Pages Lists, Paintworks, Advanced Art Studio, etc.

Comprehensive Manual  
With full technical information on the use of Sprite Master for 88.



£24.95

SOFT

SOFT

BITS

SAVE £10

IF YOU PURCHASE WITHIN THE UK, PLEASE ADD £1.00 POSTAGE AND PACKAGING. IF YOU PURCHASE FROM OVERSEAS, PLEASE ADD £2.00 POSTAGE AND PACKAGING.

SOFT BITS Dept. 76

5 LAMBLY STREET, LONDON, WC2R 9BA, TEL. 01-636 2200



# SPRITE MASTER

Damon Howarth finds an easy way to design sprites and get them to run in several languages

One of the most annoying factors of the majority of languages for the 512 is that they do not provide easy programming or designing of sprites. Unlike certain other 16 bit machines the 512 is not blessed with hardware sprite creation or even a user defined graphics function, which makes life difficult for would be programmers not fluent in C or Assembly. Fortunately though many third parties have created sprite designers to fill the gap, but unfortunately many of these have been either language specific or extremely difficult to incorporate into a program. Now Animagic claims to have brought out a designer that is compatible with a wide range of languages and is capable of producing good animations as well.

For those who may not know a sprite is a figure which the computer can move about (for example the ball in Asteroid) or the animation and creation in both and sprites are the backbone of the vast majority of games, so it was with interest I tried out Sprite Master. It claims compatibility with Turbo Basic, GFA Basic, Master/Power Basic, Assembler, C and STOS. A credible achievement indeed.

The utility comes in an attractive box together with one disk and a fairly comprehensive manual. The whole runs in low resolution only, which is, in general, but enough since most games are in that mode anyway. To create a sprite is a fairly simple task, the whole package is mouse driven from the loading screen.

A row of icons give access to the various functions which allow various loading and saving functions and access to the toolbars, which is a comprehensive collection of utilities, the draw mode, a testing mode, credits and quit. These can also be accessed via the function keys for added convenience. The manual briefly explains the concept of animation, which will be readily understandable to anyone who drew running dots on the corners of schoolbooks when young. It also gives a good guide to



the use of the drawing program which is not unlike Houdini in format. Colour mapping, copying and palette creation are all accounted for, as are various cut and paste routines. Each step of the sprite is drawn on this and then inserted into the relevant space or step in the program before use. The 'copy to next frame' function is useful here since it allows for compatibility of style.

The disk contains several example files showing how to run the resultant sprite in the various basics and it is a simple matter to alter these to suit any new sprite that is made. These are somewhat useful on a device of programming difficult concepts in

various languages. There is also a picture grabber and compressor on the disk so that New and Digital format pictures may be cut and compiled into sprite format another useful aid for those who find drawing a problem. There is even an ASCII converter to make any sprite you design compatible with low level languages for microprocessors.

The package was surprisingly friendly to use and even the actual mechanism for placing drawings into frames was mastered. It did not take long to create a simple bouncing cowboi. I tried this with the supplied demo program for GFA and GAT Basic and was pleased to see that it worked very nicely in totally compatible mode. Having tried to use sprites in three low languages before, Sprite Master saved my neck with this. The claimed compatibility with STOS though is a little of a cheat. To create the package's sprites in this it is necessary to grab ready saved sprites made by Sprite Master via the STOS sprite grabber. You can not use Sprite Master to run

on STOS but there seems little point as it does not offer any significant advantage over that package's excellent creation facilities. Indeed as Sprite Master is only about five pounds cheaper than STOS I can see it being of little value to owners of that software. For others though it is a worthwhile experience and may solve many sprite related problems. Unlike many other sprite editors, Sprite Master does not just leave you with a bunch of sprites and let you figure out how to use them in your program. The examples given in various different languages are very useful for those who can not already totally program in their chosen language. Assembler programmers may not need such help but those who program in any of the BASICs (and might find the hints a blessing)

OK the whole I would recommend Sprite Master to all but STOS users who are involved in expanding their programming abilities with their favourite languages. ■

**SPRITE MASTER**  
Published by Soft Bits  
Price £24.95

# THE RESOURCE FILE

The Resource File is a service provided by PAGE to help editors research their needs for information, help and support. Access to this feature does not necessarily imply any endorsement by PAGE. If you wish to share your views with us, please let them appear on the cover line first. Change and updates are added to the file for corrections to ensure that our information is still current. We would appreciate your e-mail or faxed information to be included in our next issue. It is assumed that our entry may be amended or deleted.

## RETAILERS

**WATTS STORES**  
13, Epsom Road  
Epsom  
Surrey  
Tel: 0181 837 4400

**WORLDWIDE COMPUTER EQUIPMENT**  
4, Avon House  
Bristol  
Tel: 0117 927 1200

**COMPS**  
20, Highgate Road  
Northfleet  
Kent  
Tel: 01474 7000

**LONDONER SUPERSTORE WORLDWIDE**  
100, Whitehall Lane  
London  
Tel: 0171 924 4400

**COMPUTER CENTRE**  
10, Harris Road  
London  
Tel: 0171 606 6662

**COMPUTER CENTRE**  
110, Epsom Road  
Epsom  
Tel: 0181 837 4400

**CLARE**  
17, Oak Road  
Barnet  
London  
Tel: 0181 499 1100

**GLASGOW COMPUTER CENTRE**  
10, Glasgow Road  
Glasgow  
Tel: 011 262 5554

**TELECOMS LTD**  
10, Cranford Road  
Weybridge  
Tel: 0181 845 9770

**WORLD**  
1, The Arcade House  
Reading  
Tel: 01162 541 100

**BRUNNEN STORES**  
142, 146, Bedford Road  
London  
Tel: 011 404 1107

**LAKESHORE COMPUTING LTD**  
10, Cranford Road  
Weybridge  
Tel: 0181 845 1107

**100% HOME SUPERSTORES LTD**  
10, The Mall  
Farnham Shopping Centre  
Farnham  
Tel: 01256 3475

**MEGACOM STORES**  
110, Newport Road  
Weybridge  
Tel: 0181 845 1107

**ONE STOP BUSINESS LTD**  
10, The Arcade House  
Reading  
Tel: 01162 541 100

**WORLDWIDE STORES**  
100, Whitehall Lane  
London  
Tel: 0171 924 4400

**WORLDWIDE STORES**  
1, The Arcade House  
Reading  
Tel: 01162 541 100

**SOFTWARE DEPOT**  
11, Broad Street  
London  
Tel: 011 404 1107

**SOFTWARE DEPOT**  
11, Broad Street  
London  
Tel: 011 404 1107

**WORLDWIDE STORES**  
100, Whitehall Lane  
London  
Tel: 0171 924 4400

**WORLDWIDE STORES**  
100, Whitehall Lane  
London  
Tel: 0171 924 4400

**ABC**  
Central Mike Corporation, Ltd, c/o  
Lindsay Road, Luton, LU1 3SR, Tel:  
0525 330000. Member and both ABC  
and IT user groups.

**A.C.E. USER GROUP**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**A. S. G. (BRISTOL)**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**BIRMINGHAM ABC USER  
GROUP**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**BIRMINGHAM AND POUND  
STEAD USER GROUP**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**BURF IS, EDINBURGH  
GROUP**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**CHRISTIAN LEARNER  
GROUP**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**EAST END ST Book Users  
Group**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**FLOPPYSHOP IT**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**THE EASTMAN CLUB**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**LEARN COMPUTER LEARN  
COMPUTER ENTERPRISES**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**LEWIS GROUP USER GROUP**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**FRANKLIN TALKERS USER  
GROUP**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**MANCHESTER COMPUTER  
USER**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**MIDWINTER USER CLUB**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**NORTHERN ISLE ST LANS**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**NOVEMBER ADAMS COMPU-  
TER ENTERPRISES (N.A.C.E.)**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**OSGARD**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**STEARLITE USER CLUB**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**ST CLUB**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**THE ATHERTON COMPUTER CLUB**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**WORLD ATHERTON PAMPALAN  
User Group (WAP)**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**WORLD ATHERTON PAMPALAN  
User Group (WAP)**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

**WORLD ATHERTON PAMPALAN  
User Group (WAP)**  
Central Mike Group, 10, Riverside  
Circle, Westborough, Cambridgeshire,  
Newmarket, SG7 7DT, Tel: 0223 41122  
or 0223 411222 after 5pm. Member and  
both ABC and IT user groups.

## BBS

Name: **THE VILLAGE**  
Number: 01 886 7572  
Hours: 24 Hours/7 days  
Board: V13, V12, V11, V10, V9  
Features: 4 file areas, 17 users, 4 file  
size

Name: **INFORMATION**  
Number: 1140 (Preston) (01524)  
Hours: 24 Hours  
Board: 500 000/200 0000  
Features: 11 file areas and program  
library

Name: **CHRISTIAN CENTRAL**  
Number: 01525 34880/4  
Hours: 24 Hours  
Board: 500 000/1 000 000  
Features: 4 file areas and 27 users

Name: **CRIBBS**  
Number: 01525 34881 (01524)  
Board: 500 000/1 000 000  
Hours: 24 Hours/7 days  
Board: V13, V12, V11, V10, V9  
Features: 4 file areas and 27 users,  
P.D. software, 3000+ software  
programs

Name: **THE ABC**  
Number: 011 201 9486  
Hours: 24 Hours/7 days  
Board: 500 000/1 000 000  
Features: 4 file areas, 10 users only,  
mail, message etc.

Name: **CRISTAL POWER BBS**  
Number: 01 886 2811  
Hours: 24 Hours  
Board: 500 000/1 000 000  
Features: 4 file areas which  
work your support!

Name: **THE COAST AT HOME**  
Number: 01 888 8886  
Hours: 24 Hours/7 days  
Board: 500 000/200 000  
Features: 21 file areas, 10 users,  
11 bulletin boards on board,  
100000

Name: **CHARRS**  
Number: 011 404 576  
Hours: 24 Hours/7 days  
Board: 500  
Features: 21 file areas, 10 users,  
1000 000/200 000

**PAGE reserves the right to delete any entry from this feature for any reason. Inclusion does not imply any endorsement by PAGE and PAGE is not responsible for the accuracy or completeness of an entry. Please tell us if you find any entry out of date.**



# PAGE 6 ACCESSORY SHOP

BOOKS, DUST COVERS and P.D. SOFTWARE  
*HUNDREDS OF ITEMS IN OUR FREE CATALOG*

BOOKS



BOOKS

Just a few of the books in stock for both XL/XE and ST

## XL/XE

PUBLIC DOMAIN



The largest selection of PD software available anywhere - prices from £2.50

**DISTRIBUTORS for  
FASTER ST DISK  
ST NEWS**

The World's best disk based  
ST magazines

## DUST COVERS



*Every imaginative  
dust cover*

## ST

PUBLIC DOMAIN



We were doing Public Domain for the ST long before the others - why buy our software from someone else when you can buy the best direct?

Phone the catalog  
**HOTLINE** today  
0785 57005

**P.O. BOX 54, STAFFORD, ST16 1DR, ENGLAND**

Telephone 0785 213928

Catalog **HOTLINE** 0785 57005