

Page 6

Atari Users Magazine

Issue 26

£1

March/April

INCLUDING STAGE FOR ST USERS

SOLID MODELLING

3-D Designs on your 8-Bit

for ST users

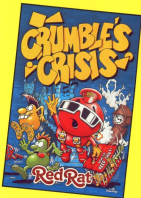
Type-to
DEGAS FADER **DEGAS ELITE**
HARD DISKS **FAST BASIC**
 and MORE!

**EPSON LABEL
PRINTING UTILITY**
Learn to type with
FLEXIBLE FINGERS!
DISK SECTOR EDITOR

REVIEWS

TRIVIAL PURSUIT -- RICK HANSON -- WAR HAWK
LASER HAWK -- THREE INFOCOMS

THERE'S A RAT IN ATARI...



...AND WITH TWO GREAT NEW GAMES FOR 1987!

ROBOT KNIGHTS

Mad genius Evil Otto, escapes from Futarworld into the past. Your Robot Knights follow him and must find his laboratory and destroy the monster he has constructed before time runs out. You'll have to fight off the guardian zombies who will attack you with fistballs as you progress through all the dungeons and chambers of the Castle Klang. For one or two gamers with simultaneous two player action with or against each other!

Disk 9.95 Tape £7.95

CRUMBLE'S CRISIS

Dozens of alien Fuzzies have escaped from the inter-galactic zoo. You have to search all five levels of the multiverse to find and snare the Fuzzies in your containment traps. There are many perils and dangers ahead... Brilliant graphics and sound.

Disk 29.95 Tape £7.95

IN YOUR FAVOURITE SOFTWARE SHOP
DISC VERSIONS FROM JANUARY 1987, TAPE

VERSIONS FROM JANUARY 1988 or direct from
RED RAT SOFTWARE (Dept. PCWA), 11-15 Finsbury St, Manchester M4 3DU

Red Rat



"The magazine for the dedicated Atari user"

Editor & Publisher
Les Stephens

Correspondence
PAGE 6 Magazine
P.O. Box 24,
Stafford
ST16 1DR
ENGLAND

Editorial & Advertising
0783 292628

Printed by
Stafford Reprographics Ltd.
0783 3113

Typeset by
Hewitt Typographers,
Stafford
0783 37780

Copy date for the next issue is
12th March. Publication date is
1st May 1987.

PAGE 6 is published bi-monthly
on the 1st of each alternative
month.

PAGE 6 is a users' magazine which
takes entirely on readers' opinions in
submitting articles and programs.

The aim is to explore ATARI
computing through the exchange of
information and knowledge. We will
endeavour to pay for articles and
programs where appropriate and we
hope that readers will enjoy seeing
their work published. In turn we
hope that other readers will learn
from the articles and programs
submitted and increase their
enjoyment of ATARI computing.

All original articles, programs and
other material in PAGE 6 is
copyright © of the author as credited.
All uncredited material is copyright
PAGE 6. Unless containing the
in-line "All Rights Reserved" my
material in PAGE 6 may be

re-produced by User Groups and
other non-profit making
organisations without permission
where in PAGE 6 being credited as
the original publisher. Permission to
use material elsewhere should be
obtained from PAGE 6 or the author.

Editors of newsletters reproducing
material are requested to send a copy
of the relevant issue to the Editorial
address of PAGE 6.

While we make whatever steps we can
to ensure the accuracy of articles and
programs and the contents of
advertisements PAGE 6 cannot be
held responsible for any errors or
claims made by subscribers.

Page 6

Atari Users Magazine



Issue 26

March/April 1987

LISTINGS

SOLID MODELLING by Philip Robinson	13
SOURCE WRITER by T.J.P. Pears-Jackson	26
FLEXIBLE FINGERS! by Peter Gibbs	32
NUTS by John Gysar	54
DESIGNER LABELS by Gordon Sinclair	64
YOUR OWN CURSOR by Chris Savage	74

FEATURES

TALES OF IMAGINATION by John Stacey	85
DISK SECTOR EDITOR by Steve Padler	22
FIRST STEPS - GRAPHICS by Mark Hutchinson	68

STAGE

NEWS	31
TYPESETTER ELITE	32
HARD DISKS by Matthew Jones	34
DEGAS ELITE	36
REVIEWS ... REVIEWS ... REVIEWS	38
FADER by Paul Lay	42
LET'S MAKE ...	44
MAKING THE BEST OF BASIC by David H'Froom	45
FAST BASIC	46

REVIEWS

GRAPHIC SHOP by Alan Goldbro	19
TRIVIAL PURSUIT by John S Davison	24
DVC 65 by Sean Taylor	50
D GRAPH by John S Davison	58
SHORT REVIEWS by Tim Short	60
SPEEDSCRIPT by Eddie Cooney	70

Editorial	4	Listing Conventions	63
News	6	Contact	71
Letters	8	Update	73

RESOURCE FILE	67	BACK ISSUES	72
---------------	----	-------------	----

Subscription rates - annual (3 issues)		Disk Subscriptions (Magazine and disk)	
U.K.	£ 7.00	U.K.	£10.00
Europe	£11.00	Europe	£17.00
Elsewhere - Surface	£15.00	Elsewhere	Please enquire.
Elsewhere - Air	£18.00		

Single copies and back issues at one-third
of the annual rates.

Please make cheques payable to PAGE 6.

ATARI™ is a registered trade mark of
ATARI CORP. All references should be as
noted.

The Poll...

It has been interesting glancing at your comments on the Readers Poll asks about what you would like to see in the magazine, even though I have not had a chance to look at them fully. What comes out clearly is how subjective many people are, with the expected comments of 'less ST coverage' or 'more ST coverage' and 'less game listings' or 'more game listings'. A number of readers were the whole way and asked us to drop all ST or 8 bit coverage depending on their own systems. What we were really looking for were suggestions for specific articles and programs and there were indeed plenty of those, but the 'more/less' comments proved how very difficult it is to be objective. Everyone is coloured to some extent by their own likes and dislikes, even if they are producing work for others, and it brought home just what a difficult job it is to review software and get together a balance of articles in a magazine to suit all tastes. I have in past issues included several programs that did not particularly interest me personally, although judging from the votes in the readers poll, getting a wide cross-section of articles and programs is the right thing to do and I hope that we have been objective in the past and can remain so in the future.

One comment made by several readers was that we should drop all the long program listings because 'nobody bothers to type them in' but I can assure you that they did. Aside from the fact that we are the only magazine in this country willing to print really long listings, many readers find them interesting and even a challenge. Often I have tried to help someone who is stuck with a listing and when I can't suggest any more ways round a problem, I may suggest that the reader buys a copy of the appropriate issue disk with the program ready to run. Most readers decline this, not because of the cost, but because they want to get it right themselves. Typing a long listing correctly and getting it to run as intended is a challenge in itself, almost as challenging as writing your own programs, and for many people it is satisfaction enough. Additionally, typing in and debugging program listings in the best way to learn how to program yourself, that's how I learned and so did many others. So, the long program listings will continue as long as you need them in!

Next issue I will bring you a run-down of the comments in the survey, and the results of the Readers Poll, so that anyone wishing to write an article for us might be inspired with ideas. In the meantime I will leave you with one comment on the survey form which really had me puzzled. 'No 8-bit news and less ST's!' Now that would be really nice!

COMPUTE-A-WIN - MKII

- By Popular Demand - now also on DISK -
- now includes 'Where for Common' -

1 COMPLETE PROGRAMS FOR THE PRICE OF 1
 Prog. A - FLAT RACING
 Prog. B - HUNT RACING

Each program covers all tracks in England & Scotland
 Each self-contained program allows choice of
 1. QUICK selection - using any daily newspaper (no racing knowledge required)

2 SPECIALIST selection - using information given in a popular 'Racing' paper e.g. past form, weight carried, race of track, trainer/jockey ratings, speed ratings, draw position etc.

CASSETTE - £5.95 400,000,000
 DISK - £9.95 1 5L, 100K 10K Required

LOWRAC SOFTWARE
 1, MOORE AVENUE - BUNNY-ON-CA TERRADON NEEB VIC

QUALITY 8 BIT PROGRAMS!!!

AGAMEMNON SOFTWARE - 100% QUALITY 8 BIT PROGRAMS

AGAMEMNON'S 8 BIT PROGRAMS ARE AVAILABLE IN 8 BIT FORM ON 5.25" DISK OR ON TAPE. ALL OUR PROGRAMS ARE WRITTEN BY THE AUTHOR OF THE GAME OF THE MONTH, THE 8 BIT PROGRAM, THE 8 BIT PROGRAM OF THE MONTH OF THE YEAR AND THE 8 BIT PROGRAM OF THE YEAR.

AGAMEMNON'S 8 BIT PROGRAMS ARE WRITTEN BY THE AUTHOR OF THE GAME OF THE MONTH, THE 8 BIT PROGRAM, THE 8 BIT PROGRAM OF THE MONTH OF THE YEAR AND THE 8 BIT PROGRAM OF THE YEAR.

AGAMEMNON'S 8 BIT PROGRAMS ARE WRITTEN BY THE AUTHOR OF THE GAME OF THE MONTH, THE 8 BIT PROGRAM, THE 8 BIT PROGRAM OF THE MONTH OF THE YEAR AND THE 8 BIT PROGRAM OF THE YEAR.

AGAMEMNON'S 8 BIT PROGRAMS ARE WRITTEN BY THE AUTHOR OF THE GAME OF THE MONTH, THE 8 BIT PROGRAM, THE 8 BIT PROGRAM OF THE MONTH OF THE YEAR AND THE 8 BIT PROGRAM OF THE YEAR.

AGAMEMNON'S 8 BIT PROGRAMS ARE WRITTEN BY THE AUTHOR OF THE GAME OF THE MONTH, THE 8 BIT PROGRAM, THE 8 BIT PROGRAM OF THE MONTH OF THE YEAR AND THE 8 BIT PROGRAM OF THE YEAR.

AGAMEMNON'S 8 BIT PROGRAMS ARE WRITTEN BY THE AUTHOR OF THE GAME OF THE MONTH, THE 8 BIT PROGRAM, THE 8 BIT PROGRAM OF THE MONTH OF THE YEAR AND THE 8 BIT PROGRAM OF THE YEAR.

AGAMEMNON'S 8 BIT PROGRAMS ARE WRITTEN BY THE AUTHOR OF THE GAME OF THE MONTH, THE 8 BIT PROGRAM, THE 8 BIT PROGRAM OF THE MONTH OF THE YEAR AND THE 8 BIT PROGRAM OF THE YEAR.

AGAMEMNON'S 8 BIT PROGRAMS ARE WRITTEN BY THE AUTHOR OF THE GAME OF THE MONTH, THE 8 BIT PROGRAM, THE 8 BIT PROGRAM OF THE MONTH OF THE YEAR AND THE 8 BIT PROGRAM OF THE YEAR.

AGAMEMNON'S 8 BIT PROGRAMS ARE WRITTEN BY THE AUTHOR OF THE GAME OF THE MONTH, THE 8 BIT PROGRAM, THE 8 BIT PROGRAM OF THE MONTH OF THE YEAR AND THE 8 BIT PROGRAM OF THE YEAR.

AGAMEMNON 

POOLSWINNER

THE ULTIMATE POOLS PREDICTION PROGRAM

- 1. **MAINTENANCE** - Maintenance is a professional book prediction and a comprehensive pool game prediction program that will help you to win your pool game.
- 2. **PREDICTION** - The best prediction program available for the pool game.
- 3. **DISCOUNT** - Discount on the maintenance program.
- 4. **DISCOUNT** - Discount on the maintenance program.
- 5. **DISCOUNT** - Discount on the maintenance program.
- 6. **DISCOUNT** - Discount on the maintenance program.
- 7. **DISCOUNT** - Discount on the maintenance program.
- 8. **DISCOUNT** - Discount on the maintenance program.
- 9. **DISCOUNT** - Discount on the maintenance program.
- 10. **DISCOUNT** - Discount on the maintenance program.



PRICE £10.00 (all inclusive)
 POOLSWINNER WILL HELP YOU TO WIN YOUR POOL GAME.

COURSEWINNER

THE ULTIMATE COURSE PREDICTION PROGRAM
 This is the best and most comprehensive course prediction program available for the pool game.

PRICE £10.00 (all inclusive)
 COURSEWINNER WILL HELP YOU TO WIN YOUR POOL GAME.

AGAMEMNON SOFTWARE
 100% QUALITY 8 BIT PROGRAMS



ADBROKE
COMPUTING
INTERNATIONAL

for
ATARI

DIRECT AMERICAN IMPORTS FROM OUR U.S.A. BRANCH
PLUS
BULLETIN BOARD WITH PUBLIC DOMAIN DOWNLOAD SOFTWARE

WHILE STOCKS LAST!

When you purchase a 520 ST from us
FREE accommodation for 2 for up to 17 nights

in a selection from 60  hotels

All you have to do is pay for your meals
and **ENJOY YOURSELVES!**

All dedicated
magazines in stock

- Page 5
- Atari User
- Atari
- Analog

HARDWARE

- Full XT range
- 120 SE's
- 520 ST's
- Epson printers
- Interfaced - Modems

Full supporting peripherals
Full service support etc

SOFTWARE

If it's available,
we have it!!!

- Arcade
- Adventures
- Educational
- Utilities

All latest titles

Ring us fast &
check our prices

Out of office hours,
check our bulletin board
for latest imports direct
from our USA branch



33, ORMSKIRK ROAD
PRESTON
LANCASHIRE
PR1 2QP
TEL: (0772) 21474

MAIL ORDER (0772) 27236 - 10:00am - 6:00pm
BULLETIN BOARD .. (0772) 27236 - 6:00pm - 9:00am

VISA & ACCESS WELCOME

BECOME A MILLIONAIRE!

Microprose Software, the company known for some of the very best simulations on the Atari, opened offices in the U.K. towards the end of last year and are now actively looking for top class Atari software writers with the promise of making them 'millionaires almost overnight'.

Stewart Bell, managing director of Microprose in the U.K. was quite outspoken towards the end of last year about other software houses who he claimed treated end users as if they had 'IQ's less than computers' and he wanted higher standards for the Atari, based on Microprose's own unqualified excellence in developing simulation software. Now, Simon Bernard, software development manager has started the hunt for Atari programmers who can come up to the company's high standards, not only in developing simulations but also arcade style games.

Any programmers with ability can expect full co-operation and support from Microprose who claim to spend in excess of \$1 million in the States developing its simulation blockbusters. If you fancy your chances give Simon Bernard a ring on 0666 94306 or drop Microprose a line at Microprose Software Ltd., 2, Market Place, Tetbury, Gloucestershire, GL8 5DA.

Apart from the chance of getting even more quality software, Microprose writing up in the UK must be good news for all Atari owners with increased availability of their existing titles, including P-15 Strike Eagle, Kennedy Approach and Crusade in Europe among the eight Atari 8-bit titles currently available on both disk and cassette.

INFOCOM GOES TO HOLLYWOOD

Next in Infocom's famous series of adventures is Hollywood Blues a 'wacky tribute to 'B' movies'.

You have entered the entire estate of your Hollywood mogul uncle Freddy but with one stipulation - you can only claim your booty if you find 100 'pragmatic hidden' throughout the sprawling mansion, and you must find them all in one night! Infocom say that the game is loaded with puzzles that recall the paralytic problems of Zork and contains one of their nastier puzzles yet. On Atari XL, SE at £24.95 and ST at £29.95.

News

ANOTHER ADVENTURE NEWSLETTER

Sandra Sharkey is the Editor of a nice little Adventure's newsletter called Adventure Probe. It doesn't feature much directly about the Atari but that is probably because none of you actually subscribe and write to her! What it does have, which could be of interest to anyone having problems with an adventure is a whole series of maps and solutions to over 130 adventures (1, many of which appear on the Atari).

Plenty of hints, gossip, help and adventure trivia in the newsletter which, unusually, is available on a subscription from as short as 1 month to 12 months. Send a s.a.s. to Adventure Probe, 76, Marston Road, Highfield, Wigan, WN1 6AT for more details.

MORE BUDGET TITLES

Look out for more goodies but cheaper than Mastertronic. Scheduled for release at the beginning of the year were Gladius, Mastertronic, Back To Backy, Dispatch Rider and Xool.

Keep 'em coming, especially if they are good!

WHO'S BRIAN CLOUGH?

Surely you must know? He's some sort of wizard computer programmer from Nottingham, isn't he? He must be because he has a new game out from CDS Software called BRIAN CLOUGH'S FOOTBALL FORTUNES.

Claimed to be different from other computer games, because it is in fact a 'board game' (I've confused!), it is said to combine the speed of computers with the social aspects of best selling board games and was written with plenty of

advice from Brian Clough himself. I bet those programmers went through hell! Between two and five players take on the role of team managers and each must steer his team through the season in a very strong league with other teams managed by the computer or other players.

Lot's of extras with the cassette or disk, including a playing board, players cards and money! Prices are £24.95 on cassette and £17.95 on disk. Should be in the shops now.

WAR GAMES AND PRINT SHOP?

In a very welcome move, providing they can actually get everything onto the market in reasonable time, U.S. Gold have announced that they have acquired the rights to the range of SSI and Broderbund software which includes some of the most famous wargames of all time as well as long established classics such as Print Shop. Virtually the whole range of SSI products will now be marketed by U.S. Gold as (hopefully) non-atomic prices, certainly less than the £30 or more you have had to pay for imports up to now.

The Broderbund range includes a whole variety of programs and their back catalogue will appear on the budget Americana label. As well as best sellers such as Print Shop there will be a series of interactive adventures.

U.S. Gold's press release doesn't actually say that there will be Atari versions of all the titles but seeing as both companies made their names with Atari in the States, we can but hope for a real bonanza!

Don't miss this launchpad for all that's new in Atari computing

**ATARI
COMPUTER
SHOW**

10am-6pm
10am-6pm
10am-4pm

Friday, April 24
Saturday, April 25
Sunday, April 26

**Champagne Suite, Novotel,
Hammersmith, London**

On display for the first time in the UK will be new Atari products that are set to rock the macro world.

Star of the show will be Atari's IBM PC compatible, offering a radically new design at a price that will revolutionise the PC marketplace. There, too, will be the latest models in the ST range - the Mega ST workstations. Plus the remarkable Atari laser printer, the machine that has broken the price barrier in desktop publishing.

All of these - along with breakthroughs for the ever-popular 8-bit range and hundreds of new software packages - will be on display at the April Atari Computer Show.

MORE arcade games

MORE bargain offers

MORE business software

MORE graphics packages

MORE hardware add-ons

MORE utility programs
MORE adventures

**Send for
your advance
tickets now
- and SAVE
£1 a head!**

Advance ticket order

Please supply:

Adult ticket (incl. travel £1) _____ £

Under 16 ticket (incl. travel £1) _____ £

TOTAL £ _____

Cheque enclosed made payable to
Dorland Publications Ltd.

Please debit my credit card account.

Name / Title

Address at home

£1 tickets, £2 transfer ticket

FOR THE Atari Computer Show, Novotel, Champagne Suite,
88 Chiswick Road, Uxbridge, Middlesex, U.K. UB7 7JY

**ATARI
COMPUTER
SHOW**

Champagne Suite, Novotel,
Hammersmith, London

April 24-26, 1987

Name _____
Address _____

Signal

PHONE ORDERS: Mass Marketing (01-495 9171)

POSTAL ORDERS: BCU 100 THREE SIXTHS

TELEPHONE ORDERS: PANGLOSS TELECOM

Please quote credit card number and full address - (S) 0748

POWER WITH THE PRICE?

Dear Len,

I am somewhat disappointed with the price of software for the ST computers. I believe that software suppliers may well jeopardise the growth and health of the ST computers. In many cases the prices charged are simply too high. One of the main reasons for people buying the ST computers is their remarkable price but you cannot have 'Power without the Price' if the software is ridiculously costly.

If things don't change, I believe we could well witness the slow strangling of the ST computers just as we witnessed the same thing happening to the 8 bit computers. That was a terrible shame. If software suppliers were not so greedy for immediate high profit margins and more for a slower and greater penetration of the market, the Atari 8 bit computers would be where they have long deserved to be - at the very top of the mass market for quality home computers. Everyone would be happy then.

M. Jackson
London

I agree that the prices are high for ST software and would like to see them come down to more reasonable levels but the argument is quite complex. The major problem is that there are simply not enough ST's around in the U.K. to bring prices down to the level of most 8 bit software. Many 8 bit programs (not necessarily share) sell in tens of thousands but one major ST publisher who spent over a year developing a game has set a target of 2000 units at minimum. The product sells at £45 so you might think that £90,000 is a bit of money but the company will see less than half of that, maybe £25,000 or more. If they have four or five programmers and all the usual overheads there is not much

profit left for future development, and sometime it might take 18 months to reach the 2000 target. This is just one example, although maybe not typical. Other smaller, part time, companies could produce software more cheaply but they are often the ones who fail to advertise and distribute effectively and so end up with even less to live on. Len I said the situation is complex and will not change until there are a lot more ST's around.

DON'T MAKE US BLUSH!

Dear PAGE 5,

Congratulations. I think it has to be said once again, PAGE 5 really is the best magazine I have ever seen. I started my subscription about a year ago and I am still very happy with it. Since there are no magazines for Atari published in Switzerland I appreciate the PAGE 5 magazine very much. I've changed to a disk subscription and although it is great to receive the programs on disk at the same time as the magazine, I would like to remark on something. The title screen with the plane is very well done but the

sound is a bit disturbing, at least to my ears. Maybe you could have a look at it? Apart from the noise, the disk is a great pleasure each time. Together with the magazine it gives me the only chance to take part in the world of Atari. Thank you, and don't stop!

Marco D'Alessandro
Zurich, Switzerland

Thanks for the kind remarks. See elsewhere in this issue for a contest to find a new code program for the disk. Let's hope the winning title is a bit quieter!

PAGE 6 NOT UP TO SCRATCH!

Dear Sir,

I am a 100% Atari enthusiast. I purchased my 800 at the premium price plus all supporting hardware. Over the last four years I have slowly gained an insight into the system mostly through the American magazines and publications. The English publications just do not match

Write to READERS
WHITE, P.O. BOX 54,
STAFFORD, ST16 1UH

the technical standard and seem to be more concerned with boosting sales of software. For instance DOS PLUS from Amiga is a superb program and worth the price of the magazine.

Now the reason for this letter is the subtle promoting of the ST from all the UK media and the total lack of either the ST or the 800 series in the shops where we originally purchased them, also the price of software and add-ons to achieve a satisfactory system. In answer to your poll, I will not buy the ST and would like to see a magazine devoted to writing programs, not buying them, and to fully explore the potential we already have 'cheaply'.

V. Wood
Barnham-on-Creech

It is rather odd isn't it that PAGE 6 has published some of the very best programs for the Atari to have been seen in this country and many which are better than a lot in the American magazines, but then I would, wouldn't I? And I seem to recall one or two articles on programming, don't you? I will report on the flood of letters concerning Mr. Wood in the next issue.

FOOTBALL FANATIC

Dear PAGE 6,

I wonder if you could help me. I own a TURNTAL and single sided disk drive and I would like to put together a system that will enable me to make a record of the games my favourite football team have taken part in. This would involve all types of games and should include such facts as competition, venue, winners, opponents, score and scorers.

What type of database software will I need? Will it be possible to output the results from the database into a graph program like E-Graph? I would also like to know if I

will need any further hardware, given that the database should have possibly 5,000 matches over all competitions. So what would I need? Many thanks! Two double sided disks? Hard disk? I would consider any of these if it is needed.

Peter Pennington
Dress, Glasgow

They certainly rate their football seriously, don't they. A hard disk just to record your own results? Seriously though, you might just need a hard disk if you want 5000 records especially if they contain a lot of fields. Almost any database will do what you want and most can export files to be used

for graphing but you should avoid those databases which are fully memory resident as they will not hold that amount of information. Best get something like dBase II, or a clone, which is usually flexible although you will need to store data in programs as I use M & D Base (sadly no longer available) and purchased it because it was flexible enough to combine databases together over several disk. This means that you can start out with a single sided drive and several disks, with perhaps five years results on each, and then upgrade to a double sided drive and, with some fancy programming, use two separate disks as one combined database, with a total of 10 years results on each

NOT IMPRESSED WITH THE XMM801

Dear Les,

After reading the review of the XMM801 printer in issue 25 I felt I just had to write. I purchased one of these printers a while ago and at the time I was assured that it was totally Epson compatible. I got it home and quickly booted up Prime Shop using the Epson driver and expected to see a welcome message printed. Instead the printer just started printing a load of rubbish and feeding a lot of paper. We went through all of the printer drivers and they all produced the same result. Many other programs that work with Epson printers did not work. The XMM801 is NOT fully Epson compatible.

In addition, and with respect to Rob Anthony, the printer does not support NLQ, just because a printer supports double strike does not mean it is NLQ. NLQ is made up of the printed first printing part of the character in outline and then returning to overlay the dots to complete the character.

I returned the printer and got a refund and have since

deleted. Later, at your database (and your finance!) press you can go onto a hard disk and combine everything into one and very little effort.

It is difficult to give precise advice without discussing the exact requirements (don't ask, I don't have time!) but anyone thinking about a very large database should check the options carefully. If it is necessary to visit the database site to just one disk, it will not do what you want. Think ahead, single hard disks will really come down in price. What would you do if you had spent a year typing in data only to discover that you can't transfer, and combine, it all into one database?

heard that the XMM801 has been withdrawn from sale. Maybe it was not as good as made out and was just overpriced?

Andrew Baxter
London

One company's NLQ is another's double strike and the same goes for Epson compatibility. Although dozens of manufacturers claim Epson compatibility when they often mean it that they use the same control characters as Epson to achieve similar results. Many manufacturers avoid the graphics side and this is where the "Epson compatible" often fall down. Caution with any printer is the answer although I still think that the XMM801 was good value. Don't anyone else of another printer for £175 that does not need an interface for the Atari, especially one that is totally Epson compatible?

I understand that the XMM801 has indeed been withdrawn but I don't remember that I saw a notice that it was being Atari had discovered another code of NLQ's that the same to get rid of?

THAT OLD FOUND SIGN AGAIN

Dear Les,

In the First Steps column of Issue 25 you printed a tip from Mr J.E. Robinson about printing the £ sign using Alt+num5 and the 1057 printer. The problem with using the five CONTROL-O codes as printed is that the sign is automatically followed by a space. It is, however, possible to print a number straight after the sign and it is quite simple. All you need to do is to type a zero before the 28 after the last CTRL-O and follow it immediately (no spaces) with the value. Thus to get £50 you type:

CTRL-O 27 CTRL-O 25
CTRL-O 08 CTRL-O 27
CTRL-O 0048

Don't forget that the CTRL-O is the letter O and the others are numbers.

There is still one problem though. When using the £ sign in this way, Alt+num5 fails to insert it as a character. If you are justifying or using the full 80 column width this leads to some odd effects. Justifying with less than 80 characters gives a longer line and if the line is already 80 characters long, the last character spills over to the following line. Locally reducing the line length solves the problem but it is tedious. Do any readers know of a way round this problem?

Chris Read
Milton Keynes

HACKER PROBLEM SOLVED

Dear Les,

In reply to Paul Cole's letter in issue 25 concerning Hacker, I believe that when the game is completed the headlines are sent to a printer, as well as the disk version.

I have not yet completed Hacker but gained the above information by using a screen editor to look at the disk. It is quite possible that when Paul completed the game the program was sending information to a printer and crashed because there wasn't one.

John Pallen
Birmingham

Several other readers wrote with the same comment as it may well be the answer. If so, what an incredibly bad piece of professional programming we to say for a non-vintage printer! Perhaps all these "big company" programmers are making so much money that they have too much with the end user and assume that everyone has a printer. After all they are only a couple of hundred pounds aren't they?!

THANKS COMPUMART

Dear Les,

I must write to express my thanks to one of your regular advertisers, Compumart. I purchased a disk drive from them from them in January 1986 and just before the Xmas holidays, almost a year later, the drive failed. I took it to my local computer shop for preliminary examination to be told it was not worth repairing. That was the morning of 23rd December so I thought it was goodbye to computing and well into the New Year, however I phoned Compumart to tell them and check the procedure under the, nearly elapsed, guarantee.

They were very helpful and said if I was prepared to send a cheque for £5 for courier delivery and return the old unit they would send me a new one to arrive next day before they closed down for Christmas. The new unit arrived at 11.00 a.m. on the following day before they could possibly have received my cheque, let alone the old unit!

I thought I would let you know as it was through PAGET to that I knew about this firm and maybe you could give them a mention they certainly deserve.

William Hadley
Wandsworth, Wandle

Alight or give me! Every other magazine has printed a letter saying how good Compumart are so we might as well join in! Seriously though, that is what you call good service. If the Post Office were half as efficient Compumart probably wouldn't even have had to charge you for the delivery!



GRAPHIC SHOP

ANTIC Publications

\$19.95

After months of struggling with Print Shop's Graphic Editor, I viewed the prospect of an easier way to produce high quality icons with some relief. When I read of such a program in *Antic*, to convert Micro Illustrator and Micro Painter files into Print Shop format, I just had to obtain it with all possible haste and immediately ordered it from Software Express International of Birmingham.

From taking apart the packaging and booting up the disk it takes only seconds to give a screen display similar to Print Shop. This is not surprising as the whole program is based on Print Shop's user friendly operation.

FOUR OPTIONS

Menu driven, the program has four options,

- Load Micro Illustrator
- Load Micro Painter/Compasovoye
- View Directory
- Format Graphics Disk

To load either Illustrator or Painter files, type in the file name and press return to display the picture on the screen. Toggle from Convert Whole Screen to Convert Part Screen via the space bar.

WHOLE SCREEN

If you wish to convert the whole screen, the picture is compressed into a 600 byte Print Shop icon. This takes approximately 1 minute or less depending upon the depth of detail in the picture. Once compressed, your icon is displayed in all four corners of the screen, each one in a different shading pattern. Pressing the space bar rotates these icons showing the detail in either black, white or pattern fill. You may at this time return to the position screen or main menu. Select the pattern of your choice and type in your filename. Graphic Shop checks to see whether there are any duplicates before writing to disk. If there is an existing filename you get the option to re-enter a new filename or replace the existing file.

The detail of the compressed pictures can be somewhat lost in the compressing and only pictures with a small amount of detail are worth while compressing. I had to touch up the 'new icons' using Print Shop's Graphic Editor almost every time, however it still is easier than using Graphic Shop alone.

SMALL SCREEN

Converting only a portion of the screen takes much less time to do and gives a better image icon. Using your joystick, move the FLASHING frame over the selected part of the picture and press the joystick button to start the process. The frame is a set

reviewed by Alan Goldsbro

size approximately one twentieth of the screen and cannot be moved. Again you get the option to preview the icon and return to the previous picture or menu before saving.

VIEW DIRECTORY

Whilst all this reading and writing to the disk is in operation, it is worth remembering that you need a separate disk for the icons. The program is directory smart so it knows whether it's a DOS disk or Print Shop disk. Graphic Shop will read either type of disk and list it to the screen.



FORMAT GRAPHICS DISK

Graphic Shop has the ability to format your disks acceptable to Print Shop.

CONCLUSIONS

In general I liked Graphic Shop, it's ease of use, no frills, no nonsense approach is commendable. I did come across one or two problems, one being the program locked up everything when it tried to convert a whole screen with only a small amount of detail on it. This wasn't just a one-off as it happened on more than one occasion. Sometimes it wouldn't load in picture files properly, it came up with garbage on the screen. Worst of all though it gave two different file names to the same picture. I've still got an unlabelled icon lost somewhere on my files and once or twice it saved an icon but on attempting to load it through Print Shop, the message 'Device Error' was displayed. So far only 7% of my files/icons were fully supported by Graphic Shop. Whether I bought a flaky copy remains to be seen but an attempt to discuss this with a representative of ANTIC (the publishers of the disk) at the recent Atari Show only resulted in the cold shoulder, so maybe they are all the same.

Priced in this country at £19.95 (a £ for £ conversion) I feel that Graphic Shop may not be a good buy unless you use Print Shop regularly and have access to or compress your own picture files. On the other hand if, like me, you are hooked on Print Shop then I'm sure it will fit into your collection with ease. If it were marketed in £3.95 then I am sure it would have a wider appeal.

SOFTWARE EXPRESS

514-516 Alum Rock Road, Alum Rock, Birmingham Tel.: 021-328 3585

PROGRAMMERS

88 RE ATARI 17.00
Required reading for serious programmers. Supplies of this book cannot be guaranteed, so buy while you still can!

DISKS!!, DISKS!!, DISKS!!

Verbatim or Xerox unbranded disks.
5.25" for 810/1050 drives
10 disks (25/100) 7.50
3.5" for ST's.
10 disks (25/100) 25.00
50 Labels (tractor-fed) 3.99

FREE Atariwriter Plus with every printer purchased.

400/800 OWNERS
A FEW ONLY ! ! ! !
Atari Basic-Programmers Pack

BASIC Cartridge
BASIC Self-Teaching Guide
BASIC Reference Manual

£14.95

GRAPHIC ADVENTURE GAMES

The classic Scott Adams graphic adventures are now available at a special low price - but only from Software Express. When available previously they sold well at £17.95 - at £9.95 they're a bargain!

Pirate Adventure (Yo Ho Ho)
Mission Impossible (His Boss)
Voodoo Castle (Enchanting)
The Count (Toothy Frights)
Strange Odyssey (Sci-Fi)
Disk only each £9.95

NEW MACHINES

As an Atari Business Centre we will be stocking all of the new range of computers
>> watch this space! <<

400 and 500XL Owners!

ROM Cartridges
Rally Speedway 7.95
Boulders & Bombs 9.95
Star Raiders 7.95
Joust 7.95
Millipede 7.95
Tennis 7.95
Track & Fieldline (cont.) 9.95
Final Legacy 9.95
Microsoft Basic II 29.95
Atari Logo 19.95
1900, 500XL and 130XE tool!!

Dealer and Overseas Enquiries Welcome

514-516 Alum Rock Road,
Alum Rock, Birmingham



HOTLINE
021-328 3585

SOLID MODELLING

by Philip Robinson

Many home computer packages exist that enable the user to draw 3-D images on the screen, however these are usually only simple 'wire-frame' drawings and do not provide much realism. Solid Modelling will enable the user to draw solid 3-D images with correct shading according to a given light source and also provide a variety of surface textures. The images are drawn by combining basic shapes (or portions of them) into the shape required. The technique of combining basic shapes makes the construction of complex objects extremely easy and quick without the need for the user to have any programming ability. The program also provides for the saving of the drawings on disk.

DRAWING WITH SOLID MODELLING

The main screen is used for drawing and is in Graphics 8 Mode to provide the highest possible resolution (320 x 140). Very few on-screen prompts are given while a drawing is being developed. This is done so that the drawing can be as large as possible and it also enables an experienced user to develop the drawing very quickly.

BASIC SHAPES

The shapes available in SOLID MODELLING are drawn in the accompanying style. By using only parts of the basic shapes (clipping) quite complex drawings can be made. The following steps are required to make a basic shape (or part of it).

1. Press the key that denotes the required shape (e.g. 'S' for Sphere). A small single pixel cursor will appear which can be moved around the screen by the joystick.
2. Select the necessary number of points to define the required shape by pressing the joystick five times (after the cursor is in the required position on the screen). A short beep will indicate the point has been selected. The Sphere, Cylinder and Inside-View Toroid requires two points to define them, while the Top-View and Edge-View Toroids require three. Refer to the 'Shapes Chart' for details. The cursor will disappear when all the required points have been selected.

SOLID MODELLING ON DISK

Disk subscribers will find a slightly modified version of Solid Modelling on their home disk. This issue contains three screens as the program is installing which give superb examples of what can be achieved. The disk also contains four example drawings.

Issue 26 disk is also available separately if required at £3.95.

3) This step is optional and allows the shape to be 'clipped' so that only a portion of it is drawn. It is important to understand that clipping is relative to the centre of the shape (always the second selected point). A shape can be clipped in up to four directions, right of centre, left of centre, above centre or below centre. When a shape is clipped only the part of the shape from the centre to 'clip-line' will be drawn. The clip-line for right and left of centre is a vertical line drawn through the 'clip-point' (see below), while the clip-line for above and below of centre is a horizontal line drawn through clip-point. For each direction of clipping define a clip-point as follows:

a) Press the appropriate 'arrow' key in the direction required, e.g. Right Arrow for clipping right of centre. The cursor will then appear.

b) Move the cursor (joystick) to the required screen position and then select (five buttons) the clip-point. A short beep will indicate the clip-point has been selected. N.B. The clip-point will not be displayed.

4) When the shape has been defined and optionally clipped the 'D' key must be pressed to actually draw the shape.

SPECIAL CURSOR POSITIONING

The 'X' and 'Y' keys provide a cursor control function which is extremely useful for positioning basic shapes relative to each other. They can be used during selection of the points to define a shape. When either of these keys is pressed the cursor will move halfway between its current position and the last selected point. If the 'X' key is pressed the displacement of the cursor occurs on the X axis, and similarly on the Y axis if the 'Y' key is used. For example, if you required to draw a sphere between two vertical cylinders horizontally, the spheres touching each cylinder this could be done as follows:

Select the first point required to define the sphere by positioning the cursor on the edge of the first cylinder. Move the cursor onto edge of the second cylinder and then press the 'X' key. The cursor will now be at the centre of the required sphere. Select this point with three presses 'D' to draw the sphere. Many other situations can be found for these two keys.

GENERAL CONTROL KEYS

The functions of the drawing program are selected by the pressing of the appropriate keys (e.g. 'S' to draw a sphere). These keys will immediately take effect. A short beep signals the pressing of a control key. If any error occurs during program operation a longer low beep will sound. Sometimes screen prompts will occur and these must be responded to before any other functions can be started. The control keys that determine the lighting and shading textures must be set prior to pressing 'D' to draw the shape.

SHAPE CONTROL KEYS

One of the following keys must be selected before a shape can be drawn.

- T - Top-View Torusid
- S - Sphere
- C - Cylinder (Vertical Axis)
- Q - Cylinder (Horizontal Axis)
- E - Edge-View Torusid (Vertical Axis)
- M - Edge-View Torusid (Horizontal Axis)
- I - Inside-View Torusid (Vertical Axis)
- H - Inside-View Torusid (Horizontal Axis)

OTHER CONTROL KEYS

Lighting

- 1 - One light source.
- 2 - Two light sources i.e. shadows not so harsh.
- 3 - 3-D effect removed by direct light from front, however strength of light source (shade) may be specified. The shade value can be from 0 (white) to 64 (black).

Textures

- N - Normal half-tone
- R - Random

Writing on the Drawing / Fast Cursor

- M - Enables text to be written to the drawing. The cursor appears and should be moved (joystick) to the required position and then selected (fire button). A prompt for up to 20 characters of text will then appear and the text will be written to the screen. It will be noted that the cursor moves a character at a time and is therefore much faster. This key can therefore be used as a fast cursor option provided the fire button is not pressed prior to the next required control key.

Saving and loading

- A - Alters the current filename to be used for filing and retrieving drawings. A prompt for the new file name will appear and this will then be used for any file or retrieval request. Remember to put the drive identifier and colon ":" in front of the file name you require.
- F - File the drawing on the screen onto disk using the current filename (see 'A' above).
- G - Get the drawing from disk onto the screen using the current filename (see 'A' above).

Erasing

- Q - Quit the current drawing, i.e. erase the screen. A prompt will appear to check that you are sure if you only require to erase part of the drawing this can be done by drawing over the unwanted part with a "black" shape.

LISTINGS OVERLEAF



SHAPES CHART

T - Top-view Torusid



S - Sphere



I - Inside-view Torusid



E - Edge-view Torusid



C - Cylinder



H - Inside-view Torusid



M - Edge-view Torusid



Q - Cylinder



Note: When the above two shapes are drawn, either vertically or horizontally, the above relationships must hold. If an error occurred would either an example draw (E/F key) or make

Notes:

- i) 1, 2, 3 indicates the order in which the points must be selected.
- ii) When several choices are available for point 1 or 2 only one of the choices should be selected.

Use your
Atari to
talk to the world!



MicroLink

in association with TELECOM GOLD

Join MicroLink - and use your Atari to send and receive electronic mail, letters, telemessages, go teleshopping, book libraries and rail tickets, read the latest radio news, learn your own weather forecast every day... www.microlink.com is the Link to chat to real time to other users with similar interests or needs! And it's all as easy as making a phone call! All you need is access MicroLink with your Atari to a modem, appropriate software and a telephone.

How much does it cost?
 • Monthly charge of £11 a month. • Connect charges of 1.1p a minute (between 9am and 6pm weekdays) and all Saturday and Sunday, at 1.1p a minute during office hours. • Cost of local phone call (London area) at average 3.7p a minute.
 • There are local charges. Most MicroLink facilities are free providing sending messages to other people on the system. Letters are:
 • Telex: 5 Spine 100 characters/20, 1.1p per 100 (Europe), 1p per 100 (N. America), £1.25 per 500 (rest of the world), £2.75 per 800 (Japan et al). Plus a one-time take registration fee of £10.
 • Telemessages: £1.45 for up to 300 words. An illustrated greetings card this includes, 10p/line, £1.10 card at extra 15p. Individual messages to British first post the following day. Overseas mail 30p (Germany, Denmark), 30p (USA, Canada, Australia, Singapore, Hong Kong, Brazil) for first 3,000 characters. For additional 1,000 characters, 10p and 10p.

To join MicroLink simply fill in and return the form below. Within days you will receive your personal user file number and password, access to our state-of-the-art Centre & Guide to MicroLink, and the phone number of the Helpdesk where you can get additional assistance should you require it.

Your personal passport to the wide world of communications

Application Form

Name:

Postcode:

Company:

Address:

Postcode: District:

A. Please Deline Instructions (Enter full postal address of UK firm from which to receive bills)

We authorize you until further notice in writing to charge to my/our account with you on or immediately after 15th day of each month unspecified amounts which may be defined therein at the instance of Database Publications Ltd. - MicroLink by Direct Debit. Bills are issued 10 days before date is processed.

Name of Account to be debited:

Account Number: Sort Code:

Commencement of Service
 Please indicate month of commencement
 Allow 7 days for validation of number.

Date of first payment to be on 15th of month following commencement. Please complete billing authorization form A, B or C.

* Telecom Gold is a trademark of British Telecommunications plc.

I/we hereby apply to join MicroLink
 I/XX I authorize my cheque for £5 payable to Database Publications as registration fee to MicroLink.

I/XX I also wish to use Telex. I authorize you to charge an additional £10 on my initial bill for activation.

- I understand that I am over 18 years of age
- I confirm that I accept the terms and conditions for the time being in force copies of which are available on request

I intend to use the following computer model:

Signature:
 Date:

B. Please debit my/our Account/Name/ID No. No.
 *Name/Account Agrees
 *Name/Account only.

We authorize you until further notice in writing to charge to my/our account with you on or immediately after 15th day of each month unspecified amounts which may be defined therein at the instance of Database Publications Ltd. - MicroLink. Bills are issued 10 days before charge is applied to your account.

Signature: Date:

C. Please involve the company authority.
 I/XX If you select this option, which is ONLY AVAILABLE to government establishments and Public Limited Companies, we will require an OFFICIAL ORDER to accept unspecified amounts.

Send to: **MicroLink,
 Database Publications,
 Europe House,
 66 Chester Road,
 Hazel Grove,
 Stockport SK7 5NY.**

FOR OFFICE USE ONLY

Mailbox assigned:

Start date:

Password:

Tales of Imagination

LEATHER GODDESSES OF PHOBOS TRINITY MOONMIST

All from INFOCOM on diskette
Prices around £25 on 8-bit and £30 on ST

Infocom continue to produce an unrelenting flow of superb text adventures, or as they call them 'Interactive Fiction'. After the rickshaw Spellbreaker and the entertaining Ballyhoo in the first half of 1988, they released Trinity (ST only) in September, The Leather Goddesses of Phobos in October, and Moonmist in November. All of the games have the unmistakable stamp of Infocom quality, even down to the packaging (the Leather Goddesses actually includes a 3-D Comic with 3-D glasses and a Scratch 'n' Sniff sheet).

WHAT IS AN INFOCOM?

Just in case anyone out there hasn't had a chance to try an Infocom adventure, let me try briefly to explain some of their features. As I said, the quality starts with the packaging, this always includes a few novelties which may or may not contain clues to the adventure. It also contains a comprehensive instruction manual, which not only provides an introduction to the adventure and a description of the types of sentences which the program can understand, but also some tips for novices on how to enjoy and solve adventures, and a sample message and map of part of an adventure, so that, even if you have never played anything like this before, you can very quickly get a good understanding of what it is all about. Even experienced adventurers can benefit from reading the sample message, as it nearly always contains some ideas which are relevant to the adventure!

The quality continues into the playing. Since it is primarily a game, and games are supposed to be fun, Infocom take care to ensure that all their games have a liberal sprinkling of humour. It is very rare that you won't get a few laughs out of every session. The other aspect of the fun in an Infocom game is that you can type in virtually anything which is relevant to the game and follow the syntactical rules described in the manual, and you will get a sensible answer. The vocabulary is always extensive and the ability to understand different ways of saying things is excellent. One of the best aspects of Infocom is that they are fairly enthusiastic in thinking of all the things that you might try and do and supplying responses to them - often in a humorous or misleading way!

As you play an Infocom Interactive Novel the story unfolds around you, confronting you with puzzles at every turn. Any frustration you experience will normally be due to

John Sweeney looks at Infocom's latest while our regular columnist Garry Francis takes a break

your own limitations rather than the program's! Infocom are usually remarkably fair as well in that the problems you will meet will normally have logical solutions and they do try to provide clues to most of them somewhere in the game.

So, if you have been frustrated in the past with other adventures where you know exactly what you wanted to try but you couldn't guess the right words to tell the program what you wanted to do, try an Infocom - if IT doesn't understand you then you are trying the wrong thing.

So to the individual games.

MOONMIST

Moonmist is an introductory level Mystery, written by Stu Galley and Jim Lawrence who wrote Witness and Sentinel. This is Infocom's third introductory story "written for everyone from age 9 up". I believe it is their best attempt yet at producing an adventure which a young child can play and enjoy easily. As usual with their introductory games they provide a map of most of the locations - in this case the rooms of an old Cornish Castle. Movement is made very easy since the program will accept commands such as 'GO TO DRAWING ROOM', and a lot of redundant commands are eliminated, e.g. if you are outside a secret door and you have found the lever that a simple directional command such as 'E' will work - the program will automatically pull the lever and open the door for you.

The game starts with you outside Treozilian Castle. Once you have solved the first problem (or even if you haven't - it is introductory level after all) the banker will ask you for your name and title. Your response to this will determine your sex for the rest of the game - the various characters will address you appropriately by name and title. Your friend Tamara will then welcome you to the castle and introduce you to the other guests. She is the fiancée of the Lord of the Castle and is rather worried by the attempts on her life that have taken place recently, especially since the Lord's previous fiancée, Isadora, is missing, believed dead! The legendary Ghost of the White Lady has been seen around the castle lately, and ever since you discover that there is a treasure hidden somewhere in the castle as well.

So there is plenty for you to do! Apart from exploring the parts of the castle not shown on the map and searching for the secret passages hinted at in the brochures, you must follow a trail of clues to find the treasure, amongst whoever has been threatening Tamara, and discover who or what the Ghost is. There are seven other people in the castle, not to

mention the butler and the maid, and is Deirdre really dead - her body was never discovered?

The game gives plenty of help along the way and none of it is particularly hard, so experienced adventurers should find a fairly easy but nonetheless very enjoyable. However, once you have finished you are actually a quarter of the way through the game! There are actually three different scenarios - each one involving a different treasure, villain and ghost! You determine which variation you are playing by telling the butler what your favourite colour is at the beginning of the game. Although the variations follow fairly similar patterns, there are enough twists to keep you busy for many more hours. All in all an excellent introduction to the art of adventuring.

THE LEATHER GODDESSES OF PHOBOS

The Leather Goddesses is intended for a rather different audience! It is a Standard Level Fantasy written by Steve Mesulsky who wrote Planescape, Secret of the Hacktician's Guide to the Galaxy (with Douglas Adams) and A Mind Forever Voyaging (ST only). With a pedigree like that you can be sure you are in for a treat. The narrative is very much in the style of the pulp magazines of the thirties, and very reminiscent of Edgar Rice Burroughs' 'Wisdom of Mars'. The game has three modes: Tame, Suggestive, and Lewd! You have to tell it your age if you want to play in Lewd mode!

The game starts in Joe's Bar in Upper Sandusky, Ohio, in 1918. Assuming that you manage to get to the outer rim, you will visit the Jungles of Venus, the Deserts of Mars, the wild teachers of Outer Space, and the arching towers and curving domes of the notorious Pleasure Palace of the Leather Goddesses of Phobos (be 36 sure to ask the attendant about diets in order to learn the origin of the name). Oh yes, you get to visit Cleveland too!

Also determining your sex by visiting the appropriate toilet you are captured as an experimental subject deemed to an impossibly painful death to help the Leather Goddesses in their efforts to realize immortality. Naturally you escape. You also rescue another prisoner who has a plan to build a Super Duper Anti-Leather Goddess Attack machine, if only you can provide a common household blender, six feet of rubber hose, a pair of cotton balls, an 82 degree angle, a headlight from any 1933 Ford, a white mouse, a photo of Douglas Fairbanks or Jean Harlow, and a copy of the Cleveland Plover Book! Simple, eh?

So off you go on an interplanetary scavenger hunt. The situations, problems and puzzles are all up to Infocom's usual standards. The humour is even better than usual, as you would expect if you have played any of Mesulsky's other games. And you can have even more fun by comparing the text and responses in the three different modes!

One excellent feature of the game is the maze. When Infocom put a maze in a game they always make it just a little bit different in some way. This one is no exception. It appears at first attempt to be completely insoluble. At second attempt you will probably decide that it really is insoluble, despite the fact that the package actually contains a complete map of it! The fact that you keep being attacked by boogies and vamps doesn't help, but the main problem is the Martian

alligators that keep ensnaring you! There is of course a solution and you will eventually discover the fabulous treasure stored in the Royal Chamber of the Secret Catacombs - won't you?

The game's finale is truly amazing. Be sure to play it both with and without all eight items - it is completely different! I can thoroughly recommend this to all adventurers everywhere. This is yet another of those marvelous adventures which have been known to finally persuade Atari owners that they really do need a disk drive!

TRINITY

Last, but not least, is Trinity. The bad news, for those of you who have only got eight bits, is that this is an Interactive Fiction Plus. It will not run on an 800XL or 128XL. You will need an ST. The good news, for those of you with nine bits or more, is that it is even better than Infocom's usual standard in richness of vocabulary, responses, text, etc. It is a Standard Level Fantasy written by Brian Moriarty of Wishbringer fame.

It looks like a standard Infocom Interactive Novel in most respects, but they do make slightly more use of the screen's capabilities, for example certain of your actions will cause quotations to appear in a small window in the middle of the screen, and the name of the location you have entered is highlighted to an unusual but better than the masses of text found in all Infocom games.

Trinity was the code name for the first atomic experiments. The game starts at the beginning of World War III. Assuming that you succeed in escaping from the holocaust you will find yourself in a strange land full of strange artifacts and numerous mysterious mushrooms. Once you have discovered the secret of the mushrooms and the giant sandal which dominates the landscape you will be able to visit six other times and places at which atomic explosions took place, including, finally, the McDonald Ranch where the very first Atomic Explosion took place.

The problems are as ingenious as ever. I especially enjoyed working out how to survive after stepping through a mushroom door and finding myself either falling from a height of 1400 feet towards Nagasaki, or in orbit around the Earth with no protection!

IN CONCLUSION

None of the Infocom games are perfect, there is always some sentence that you think they should understand, or some problem that you think has a slightly dubious solution (although in hindsight you can't really see why you didn't think of trying it yourself), but I have yet to find any other adventures which give so much pleasure, both in the experience of playing them and in the satisfaction gained from solving the problems. Infocom now have three Introductory Level, nine Standard Level, six Advanced Level, and four Expert Level Interactive Novels - a total of 22 games. Five of them are Mysteries, nine are Fantasies, five are Science Fictions, and three are Tales of Adventure. I have no hesitation in recommending any of them to anyone interested in an entertaining challenge. I look forward eagerly to their next Interactive Novel, Hollywood Hints, in early 1987.

THE O.S. CONTROLLER CARD

The O.S. Controller Card is a state-of-the-art hardware board which allows you to make the most of your IBM Computer. One is the standard Model 515. The other is optional. The architecture itself is designed to be extremely old-fashioned and it provides you with a complete IBM System ready to go when you want a new system. It allows you to address the software in your programing language with the same old IBM System. It allows you to address the hardware in your programing language with the same old IBM System. It allows you to address the hardware in your programing language with the same old IBM System. It allows you to address the hardware in your programing language with the same old IBM System.

UTILITY DISK #1

This is the first of many utility disks and offers a host of utilities to get you started in the world of O.S. programming.

1) THE SWITCHBOARD NUMBER - If the back of a floppy disk is not automatically identified, you can use this utility to identify the disk. It will allow you to identify the disk and program with confidence. It will allow you to identify the disk and program with confidence. It will allow you to identify the disk and program with confidence.

2) THE NUMBER - It will allow you to identify the disk and program with confidence. It will allow you to identify the disk and program with confidence. It will allow you to identify the disk and program with confidence.

3) O.S. BASIC - It will allow you to identify the disk and program with confidence. It will allow you to identify the disk and program with confidence. It will allow you to identify the disk and program with confidence.

4) O.S. ANALYZER - It will allow you to identify the disk and program with confidence. It will allow you to identify the disk and program with confidence. It will allow you to identify the disk and program with confidence.

5) O.S. ANALYZER - It will allow you to identify the disk and program with confidence. It will allow you to identify the disk and program with confidence. It will allow you to identify the disk and program with confidence.

CONTINUED SUPPORT

IBM (Standard) IBM (Optional) IBM (Optional)
IBM (Standard) IBM (Optional) IBM (Optional)
IBM (Standard) IBM (Optional) IBM (Optional)
IBM (Standard) IBM (Optional) IBM (Optional)

INSTALLATION

Installing the O.S. Controller Card requires the installation of 1 IC socket and the wiring of 1 wire. Alternatively, you can use the O.S. Controller Card with the O.S. Controller Card.

O.S. SWITCH PACK

The O.S. Switch Pack is an optional extra that will allow you to use the O.S. Controller Card with the O.S. Controller Card. It will allow you to use the O.S. Controller Card with the O.S. Controller Card. It will allow you to use the O.S. Controller Card with the O.S. Controller Card.

MAIL ORDER ONLY

PRICE LIST

O.S. CONTROLLER CARD FOR THE IBM 515 COMPUTER
O.S. CONTROLLER CARD FOR THE IBM 5155 COMPUTER
OPTIONAL O.S. SWITCH PACK

£99.00
£75.00
£9.95

£9.95

RETURN P&P & INSURANCE IF INSTALLED THROUGH COMPUTER HOUSE

CHEQUES/POSTAL ORDERS SHOULD BE MADE PAYABLE TO:
COMPUTER HOUSE (Partnership)
TEL: 01-291-0270
ADDRESS: 14 Bantley Court, Lavender Road, Fulham, LONDON SW6 4LL

40 More Great Flight Simulator Adventures Compute! Publications

A Book Review by John S. Davison

Yes, folks, he's done it again! Charles Gulick, the legendary Flight Simulator 2 (FS2) explorer pilot, has written a sequel to 40 Great Flight Simulator Adventures (as reviewed in Issue 21).

40 More follows the same format as its predecessor, in that it's written as if the author is sitting next to you in the cockpit, talking you through each scenario as you fly it. Each adventure is laid out in the same way too, starting with a screen shot taken from the scenario, followed by FS2 editor values you have to key in to set up each flight, and finally the instructions text. Again, as in the original, the text has graphic symbols against it showing at a glance where you have to take over control, or perform a specific action, or look outside for something special.

40 More starts with a foreword written by Bruce Artwick, the author of FS2 (again, reviewed in Issue 21). This gives some fascinating background information about the simulator and its development. For instance, did you know it began life in 1979 on an Apple computer as a graphics demonstrator? Or that there have been 21 versions in total, which between them have sold over ONE MILLION copies!

Charles Gulick then takes over with a section on how to use the book, tips on flying the scenarios and general instructions on how to save editor values to disk so you can reload them at any time without the hassle of keying them all in again. Then, it's off into the first adventure.

Let me say now that many of these adventures require more advanced flying skills to complete successfully than those in the first book. A number of them are really advanced flying lessons rather than straight exploratory flights or setting out fictional storylines, although there are plenty of these too. For instance, there's a whole series of scenarios concerned with accurate, realistic take-off, airfield circuit patterns, and landing procedures using Spanaway airfield, one lesson. These use the procedures and controls you'd use in a real light aircraft - the aim is accuracy and realism, so get you flying the simulator as you would the real thing. This is no game, it's deadily serious stuff for the true FS2 aficionado. I found I had to practice for several hours before I could fly touch and go circuits of Spanaway in the Gulick approved manner.

For flight 101 following this, the next scenario has you flying from China to San Diego in California, where a wing develops. Two elevators and flaps become unusable, so you have to make the whole flight using only engine power to climb and descend. You have a very strange companion on this flight, who tells you what to do and when, but he vanishes when you're safely on the ground in San Diego! The landing in this scenario is unbelievably stressful - do I really do this for fun and relaxation?

Another series of scenarios makes use of the World War I magazine area, but...you're flying in your modern Piper Cherokee Archer rather than the usual WWI biplane. One of these scenarios has you flying through the open ended hangar



that's a feature of one of these airfields. Another has you exploring strange 'mirror images' of the WWI area which seem to be scattered about that part of the FS2 world, flying over them, if you're not careful! the mountains from outside, to raise the lower war zone.

One of my favourite scenarios involves flying from Bremerton National in Washington state, along a waterway to the Hood Canal, then following this all the way to Admiralty Inlet on Puget Sound, before landing at Seacomb's Covey airfield.

As in the original book, some scenarios are short, like the engine failure on take off from Fullbrook Airport in California. Others are very long, like the attempted flight to the North Pole. This one is quite boring, in fact, as there's not much for you to do or see. It's really an experiment to probe the limits of the FS2 world.

Then there are the pure FS2 phenomena exploration flights, like investigating the nature of clouds and looking at strange FS2 scenery bugs. Also, those that push FS2 to the limits of its simulation abilities, like inverted flight, and the fun scenarios, like landing and taking off from Manhattan Bridge in New York!

All scenarios but one use the standard scenery disk supplied with the FS2 program. The odd one uses one of the new scenery disks, covering the Dallas area. I will have to manage to get my hands on these extra disks yet. Subtango has begun advertising them in *Aviac Magazine*, so I assume their release is near final investment.

This book has over 80 pages more than the original, plus repeats of the FS2 navigation charts in the back. It's cheaper than the original at just £9.95. If you're an FS2 enthusiast, you must have at least one of these books. If you're a fanatic like me, you shouldn't be without either. They'll multiply your enjoyment of FS2 many times over, and give you many, many hours of additional pleasure.

Postscript: I recently discovered a way to get even more enjoyment out of FS2 and Charles Gulick's books. This is by using real maps. On a recent trip to Foley's famous bookshop in London, I discovered a series of scenic maps of different areas of the USA, published by Rand McNally. I've also seen them in Huffers bookshop in Cambridge. These cost under £2 each, and show most of the scenery features appearing in FS2. When Charles Gulick tells you you're flying over Lake Washington, just passing Sand Point, you can actually see from the map that it's for real! These maps aren't as good as proper aviation maps, but they're much cheaper and easier to obtain.

Steve Pedler concludes his article on disks with a sector editor you can use as is or as the basis of your own super utility

As I said in the last issue, I have written a simple sector editor and here it is! One of the best ways to put all that information from issue 24 into perspective is to experiment with some of your own disk. This sector editor will allow you to perform direct sector access. Instructions for use are supplied below.

I suggest you experiment with a test disk you don't mind losing and you know how it works. To be safe, the program will not perform any disk write without double checking with you first. Some suggestions for use include examining and changing directory sectors, the VTOC, file link data and so on. Just refer back to issue 28 for guidance.

Feel free to improve the program and add more features such as file tracing and deleted file recovery. Why not send your improved version to Page 4?

Instructions for use.

Type the program in and check it with TYPED, then save a copy before running it. The program contains two machine language subroutines and mistakes in them may cause the computer to lock up.

On running the editor, you will first be asked for a sector number. This should be in the range 1 - 128 for a single density disk, and 1 - 1040 for an enhanced density disk. If you enter a sector number greater than the maximum limit the program will give you an error message. However, if you enter zero (remember that sector zero doesn't exist) you will be sent to the disk utilities menu. More about this later.

The editor will then read the sector and display it on the screen. If you entered a directory sector (364 - 368) the sector will be printed in eight rows, each row corresponding to one directory entry. The first five bytes of each entry will appear in decimal form, the rest in ASCII form so you can read the filename. If the sector was not a directory sector, it will be shown as 16 rows of eight bytes in decimal form. Machine language programmers may like to convert this so that the bytes appear in hexadecimal. Across the top of the 16 by 8 matrix are the numbers 0 - 7, and down the left side the numbers 0 - 15 in steps of eight. This is so that you can calculate the position of any byte in the sector by adding the appropriate row number to the column number.

Under the sector display you will see the prompt 'Command?'. At this point you may press one of four Control-key combinations (there is no need to press Return). These are:

CTRL-R - read another sector. It will send you back to the beginning of the program so that you can view a different sector.

CTRL-W - write this sector to disk. Usually used when you have changed something in the screen. The program will first ask if you are sure you want to do this before writing to the disk. Respond with a 'Y' to confirm, any other key will simply redisplay the same sector.

DISK SECTOR EDITOR



CTRL-F - display the link data. For any sector other than a directory, VTOC or boot sector (some of which have link data) this command will extract the sector link data from the last three bytes of the sector and display it on the screen. This saves you having to do it manually.

CTRL-C - change the sector. You will be asked for the number of the byte you wish to change, which can be determined by adding the numbers for the row and column the byte is in. The current value of that byte will then be shown, and you will be asked for a new value. The sector will then be redisplayed complete with new value, but note that the change is only in memory. Nothing will be written to the disk until you specifically instruct it. You may make as many changes as you like to a sector and there is just one disk write, which will make all the changes on the disk at the same time.

In order that you can see the effect of the changes you make without going to DOS, I have included a set of the basic disk utilities (read directory, lock and unlock file, and remove or delete file). To access these utilities, enter zero when you are asked for a sector number to read. A short menu will be shown, and you should press one of the number keys 1 - 6 (without Return) corresponding to your choice. Pressing it will return you to the main program. All of these utilities will only work with drive 1 as presently written, but this would be easy to change. When asked for a file name, just type the name plus extension (if any). Do not add D: or C:, the program will do this automatically.

I hope you find this program useful. It is a very simple editor, and there is ample scope for extension and improvement. With a little work this could form the basis of a very useful disk utility.

THE GAME THAT SHOOK THE WORLD

reviewed by John S Davison

I'm not usually a fan of computerised board games, as I prefer playing them as originally intended - on a board, and with real people rather than a computer, but Domark's computerised version of the hugely popular Trivial Pursuit could change all that, as it's not just a straight copy of the original. It actually uses the computer's features to enhance the game.

If you don't know what the game's about, you must have been on the far side of the moon for the last few years! It's the biggest thing to hit the board game scene since Monopoly, and enjoys worldwide popularity. I won't attempt a detailed explanation of it here - let's just say if you can correctly answer a few trivial general knowledge questions, you'll probably enjoy Trivial Pursuit, and could even do well at it.

The program comes in high quality packaging, exactly matching the style of the board game. Two disks are provided, a program disk and a questions disk, the latter containing some 3,000 questions in six categories. An illustrated leaflet explains the principles of Trivial Pursuit as well as how to operate the program. This version corresponds to the original 'Genus' edition, but with different questions. Domark are said to be working on other versions, including the Young Player, Baby Boomer, and Genus II editions. The program runs on any 8-bit Atari with 48K or more, and there's a cassette version available if you insist.

MEET THE QUESTION MASTER

Two to six players (or teams of players) can take part. Obviously, you can't play against the computer as it already knows all the answers! The best job after boosting up is to be in the players' names. From here on, the computer addresses each player by name when asking questions. You can also set various game parameters, like time limit for answering questions, sound effects on or off, and whether TP is male or female.

Who the heck is TP, did you say? Well, he's the cute little chap who acts as the question master. No, wait... I granted too when I saw this feature, as cartoons in computer games tends to turn to irritation very quickly. But in this case I actually like having TP there, and miss him when he's not. (No, JSD is NOT going soft in his old age!).

You also have to choose the starting point in the set of questions, otherwise you'd get the same questions asked every time you played - OR if you want to cheat, I guess. The program has the facility to skip through the disk sectors until you get to the required place. It's worth keeping a note of which sector you get to in each game, so you can return there next time you play. The program tells you which sector it's loading each time it reads in more questions.

The game is played on two main screens - the 'board screen' and the 'question screen'. As you'd expect, the board



Trivial Pursuit - Domark
Disk £19.95 Cassette £14.95

screen shows the playing board, plus the tokens and coloured 'wedges' (won by correctly answering certain questions) for each of the players. Instead of throwing dice, TP randomly throws a dart into the board, which has meanwhile magically divided itself into segments numbered 1 to 6. The program then highlights all of the possible moves the player can make from his current position. After the player has chosen one using the joystick, TP treats off the board screen and onto the question screen to ask a question from the corresponding category.

The question screen depicts a sitting room, complete with furnishings. Some of these are already used in the game - for instance, there's a grandfather clock which shows you how long you've been playing. The fingers actually move, and it chimes every 15 minutes.

NEW TYPES OF QUESTIONS

Occasionally, TP walks across to a hi-fi set and turns it on to play music to you, and then asks you a question about it. As the music plays, a row of LEDs flickers and flashes on the front of the hi-fi, a row absent. TP also sings about in time to the music. A roller screen is attached to the ceiling of the room. Sometimes TP scrolls it, times the lights (another neat touch), and projects a picture into it, about which you get a question, of course. You get neither the musical nor picture questions in the original game, and these are the two major enhancements Domark have put into this version.

Certain other features of the room are entertaining too, such as the alarm clock and mantelpiece. Each time you go to the question screen there's a different set of objects displayed in different places on them. Spotting what the differences are is almost a game in itself.

CANDLE TIMER

The questions appear in a text window at the top of the screen, with TP emitting strange building noises as each is written out. Surprisingly again, I didn't find this irritating, but you CAN switch off the sound effects if you don't like them. The question stays on the screen until the time limit expires, marked by a candle on a shelf burning down to

RICK HANSON

FOR THE ATARI XL/XE WITH DISC DRIVE.

IT'S BRILLIANT. BUY IT.

£14.95

ADVENTUROUS PEOPLE LOVE ROBICO

3 Fairland Close, Llantrisant, Mid Glamorgan, CF7 8QH Tel (0443) 827354

writing. You have to see your answer out loud before that happens. TP then puts the correct answer on the screen, and your opponents decide whether your answer was true enough, just like in the original game. The program is told of their decision via a simple YES/NO screen using the joystick. While TP is waiting for your answer, he paces back and forth across the screen, pacing and tapping his foot impatiently now and then.

TP's headgear is a source of amusement, too. He wears a different hat for each category of questions, and if you get too many questions wrong, he eventually takes to wearing a dunce's cap for your team! He also makes mild comments about your performance. Once more, Denmark seem to have hit just the right level with this, as it has a very low irritation factor.

The program keeps statistics on right and wrong answers in each category for each player, so you (and your opponents) can see which are your best (or worst) subjects — get one more nice touch.

UNIVERSAL APPEAL

This game has given enormous enjoyment to everyone I've played it with, from quite young children (who like it because of TP) to senior citizens (so, that doesn't include me!). It's one of the few computer games I've come across with universal appeal, and so much makes ideal family entertainment. It's great! Well done, Denmark! And thanks for bringing out an 8-bit Atari version so promptly.

Trivial Pursuit is available from Software Express in Birmingham, who kindly provided a copy for review, as from your usual dealer.

SUPER 3D PLOTTER II

By B. Coonan © 1985

•• BEYOND BELIEF! ••

If you have any interest in 3D computer graphics and cheap design, get ready to watch your wallet bulge! Because Super 3D Plotter II is a complete 3D image design and animation package for your home computer. It's easy to use and very flexible. Features include: automatic 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation. Super 3D Plotter II is a complete 3D image design and animation package. It's easy to use and very flexible. Features include: automatic 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

•• 3D/2D display, hidden line drawings, fast hidden surface and transparent surface algorithms, 2 to 16 camera eye points. The only real-time computer for experienced designers to use. Features 10000 polygons a second, 10000 lines. True 3D effect. True 3D camera. True 3D animation. 3D/2D display. 3D/2D animation.

Elfin Magic

23 Brook Place, E. Way, NY 11700

100% MONEY BACK GUARANTEE
NO RISK TO YOU



SOFTWARE BY ELFIN MAGIC

Available in U.K. from
DORON SOFTWARE LTD.
81, FLEETWOOD AVENUE,
WESTCLIFF-ON-SEA,
ESSEX S20 9BE

Price £29.95

Postage £1 extra outside UK

Payment in sterling.

SOURCE Writer

Take the hard work out of
disassembly by writing direct
to disk

The normal run of the mill disassemblers available will produce a listing in printer or screen. This is normally very fine and informative but sometimes we need to customise an existing object code program and to do this the whole disassembly has to be typed in by hand, modified and reassembled. SOURCE WRITER makes this task redundant as you can disassemble your choice of object code and obtain a disassembled source file on-disk ready to modify and assemble as you please.

SOURCE WRITER will disassemble a disk file or a collection of disk sectors, a cassette file or an area of memory. Try 0680 to 0620 from memory, for example, and you'll get a disassembly by line no., address, instruction, and optional data such as files and ASCII representation of the code to assist in determining text. An example output is - 11 A6500 PLA '68 ' followed by ASCII representation.

The address noted in the label field is essential for tracing branches [JMP and JSR instructions. These can be deleted and replaced by your own labels or left as they are, as you wish. The source files can now be customised and assembled as required.

SYNASSEMBLER OR ASSEMBLER EDITOR

The files generated by SOURCE WRITER are Synassembler compatible but this can easily be made Assembler Editor compatible by making the following changes:

- Replace ".OBJ" in line 430 with "*" = E.
- Replace ".HEX" in line 480 with ".BTEFF".
- Replace "*" in line 490 with "?".

USING THE PROGRAM

After installing, SOURCE WRITER will display the options available:

- 1 Object code from disk
- 2 Object code from cassette
- 3 Object code from memory
- 4 Object code from disk by sector

Option 1 will read a DOS object code file into PB for disassembly. Option 2 will read a cassette based object code file into PB. Option 3 will transfer a specified area of memory (ROM or RAM) into PB. The start and end addresses are required in hexadecimal. Option 4 will read a sequence of sectors into PB in two ways. The first prompt is for starting sector, the second prompt asks if you are anticipating a six byte header. With a DOS disk in drive 1 SOURCE WRITER will disassemble the first 3 bytes sectors, however, if you are not expecting a six byte header SOURCE WRITER will now ask for the origin the disassembly is to start at (hexadecimal of course) and the final prompt will then ask for the final sector to be read.

After one of the five options has been completed the next prompt is "Disassembly with Hex Y/N" a "Y" will cause a note of the object code to be made in the remark field in the list of a disassembly. The next prompt will ask "Disassembly with Ascii Y/N" a "Y" will cause a note of the Ascii characters represented by the object code to be made in the remark field. This option is extremely useful when trying to determine areas of text within a disassembly.

The final prompt of all is to ask for the name you wish the generated source files to be called. "D1:" is assumed as the type in the file name with no extension. A large file will be broken down into a collection of small manageable files. Each file will be long in file sectors in length. The first file will be "D1:TEST.1" followed by "D1:TEST.2" etc. At ten file intervals you will be asked to insert a blank formatted disk and so on, every ten files. This prevents nasty disk full errors and gives you some work space on each disk.

Unfortunately SOURCE WRITER is a little slow at this stage, so drop out the cluster and sector and help with the formatting. Do not be discouraged however as you are saving yourself hours of keyboard work and making a friend of the no pair!

When SOURCE WRITER has finished you will be given the option of saving another disassembly.

Your limitations? I'm afraid 104 of object code on a 48k RAM machine. Still that's an awful lot of files.

by T.J.P. Peart-Jackson

PROGRAM BREAKDOWN

00-04	start display
05-100	sets up and initialises settings and arrays
200-280	displays options
280-970	in the disassembler and source file writer
980-1100	will read a DOS file into PB for disassembly
1100-1200	will read a cassette file into PB
1270-1470	will transfer a specified area of memory into PB
1440-1620	will load specified sectors into PB
1620-1720	sequentially transfers the source files and prevents disk overflow
1750-2000	is data for the disassembler
2010	is cassette loader data
2020-2030	is the DOS file loader data.

We've Taken Off.... OUR PRICES HAVEN'T

Don't you know... YOU can now get off with the
fantastic Atari 520STM PACK for a Down-to-Earth
\$1999.95!

Now, whenever you return your computer
to us, we'll give you \$200.00 off your
next purchase!

**ATARI 520STM
PACK**

- Atari 520STM
- Atari 10MEG Drive
- WITH 20-10" 35 Disk - FREE!
- 100000 of ROM - Mouse
- Disk Software - or Manufacturer's
Pack Straight into YOUR TV MONITOR

The Price
E445.00

Save **\$135**

DISK PRICES
SLASHED!
SAVE UP TO
25%*

5% Blank Disks

10000	E7.95	E10.95
25000	E8.95	E11.95
50000	E9.95	E12.95

8% Blank Packaged Diskettes

10000	E15.00
25000	E16.00
50000	E17.00

E97.99

E127.99

E127.99

E127.99

3% Advantage

10000	E1.00
25000	E1.50
50000	E2.00

MasterCard

Atari Credit Card
Atari World (1-800-555-5272)
6000 230000

Atari World is the only Atari store in
the world. We have the largest selection
of Atari products and accessories.
All prices are 1987 prices.
*Excludes software and hardware.

Compare the Game of Computers!
Power and Compatibility in
Computing. 8008, 8080, 8085, 8088
and 8088.

01 0000 0000 0000 0000 0000 0000 0000	02 0000 0000 0000 0000 0000 0000 0000	03 0000 0000 0000 0000 0000 0000 0000	04 0000 0000 0000 0000 0000 0000 0000
05 0000 0000 0000 0000 0000 0000 0000	06 0000 0000 0000 0000 0000 0000 0000	07 0000 0000 0000 0000 0000 0000 0000	08 0000 0000 0000 0000 0000 0000 0000
09 0000 0000 0000 0000 0000 0000 0000	10 0000 0000 0000 0000 0000 0000 0000	11 0000 0000 0000 0000 0000 0000 0000	12 0000 0000 0000 0000 0000 0000 0000
13 0000 0000 0000 0000 0000 0000 0000	14 0000 0000 0000 0000 0000 0000 0000	15 0000 0000 0000 0000 0000 0000 0000	16 0000 0000 0000 0000 0000 0000 0000
17 0000 0000 0000 0000 0000 0000 0000	18 0000 0000 0000 0000 0000 0000 0000	19 0000 0000 0000 0000 0000 0000 0000	20 0000 0000 0000 0000 0000 0000 0000
21 0000 0000 0000 0000 0000 0000 0000	22 0000 0000 0000 0000 0000 0000 0000	23 0000 0000 0000 0000 0000 0000 0000	24 0000 0000 0000 0000 0000 0000 0000
25 0000 0000 0000 0000 0000 0000 0000	26 0000 0000 0000 0000 0000 0000 0000	27 0000 0000 0000 0000 0000 0000 0000	28 0000 0000 0000 0000 0000 0000 0000
29 0000 0000 0000 0000 0000 0000 0000	30 0000 0000 0000 0000 0000 0000 0000	31 0000 0000 0000 0000 0000 0000 0000	32 0000 0000 0000 0000 0000 0000 0000
33 0000 0000 0000 0000 0000 0000 0000	34 0000 0000 0000 0000 0000 0000 0000	35 0000 0000 0000 0000 0000 0000 0000	36 0000 0000 0000 0000 0000 0000 0000
37 0000 0000 0000 0000 0000 0000 0000	38 0000 0000 0000 0000 0000 0000 0000	39 0000 0000 0000 0000 0000 0000 0000	40 0000 0000 0000 0000 0000 0000 0000
41 0000 0000 0000 0000 0000 0000 0000	42 0000 0000 0000 0000 0000 0000 0000	43 0000 0000 0000 0000 0000 0000 0000	44 0000 0000 0000 0000 0000 0000 0000
45 0000 0000 0000 0000 0000 0000 0000	46 0000 0000 0000 0000 0000 0000 0000	47 0000 0000 0000 0000 0000 0000 0000	48 0000 0000 0000 0000 0000 0000 0000
49 0000 0000 0000 0000 0000 0000 0000	50 0000 0000 0000 0000 0000 0000 0000	51 0000 0000 0000 0000 0000 0000 0000	52 0000 0000 0000 0000 0000 0000 0000
53 0000 0000 0000 0000 0000 0000 0000	54 0000 0000 0000 0000 0000 0000 0000	55 0000 0000 0000 0000 0000 0000 0000	56 0000 0000 0000 0000 0000 0000 0000
57 0000 0000 0000 0000 0000 0000 0000	58 0000 0000 0000 0000 0000 0000 0000	59 0000 0000 0000 0000 0000 0000 0000	60 0000 0000 0000 0000 0000 0000 0000
61 0000 0000 0000 0000 0000 0000 0000	62 0000 0000 0000 0000 0000 0000 0000	63 0000 0000 0000 0000 0000 0000 0000	64 0000 0000 0000 0000 0000 0000 0000
65 0000 0000 0000 0000 0000 0000 0000	66 0000 0000 0000 0000 0000 0000 0000	67 0000 0000 0000 0000 0000 0000 0000	68 0000 0000 0000 0000 0000 0000 0000
69 0000 0000 0000 0000 0000 0000 0000	70 0000 0000 0000 0000 0000 0000 0000	71 0000 0000 0000 0000 0000 0000 0000	72 0000 0000 0000 0000 0000 0000 0000
73 0000 0000 0000 0000 0000 0000 0000	74 0000 0000 0000 0000 0000 0000 0000	75 0000 0000 0000 0000 0000 0000 0000	76 0000 0000 0000 0000 0000 0000 0000
77 0000 0000 0000 0000 0000 0000 0000	78 0000 0000 0000 0000 0000 0000 0000	79 0000 0000 0000 0000 0000 0000 0000	80 0000 0000 0000 0000 0000 0000 0000
81 0000 0000 0000 0000 0000 0000 0000	82 0000 0000 0000 0000 0000 0000 0000	83 0000 0000 0000 0000 0000 0000 0000	84 0000 0000 0000 0000 0000 0000 0000
85 0000 0000 0000 0000 0000 0000 0000	86 0000 0000 0000 0000 0000 0000 0000	87 0000 0000 0000 0000 0000 0000 0000	88 0000 0000 0000 0000 0000 0000 0000
89 0000 0000 0000 0000 0000 0000 0000	90 0000 0000 0000 0000 0000 0000 0000	91 0000 0000 0000 0000 0000 0000 0000	92 0000 0000 0000 0000 0000 0000 0000
93 0000 0000 0000 0000 0000 0000 0000	94 0000 0000 0000 0000 0000 0000 0000	95 0000 0000 0000 0000 0000 0000 0000	96 0000 0000 0000 0000 0000 0000 0000
97 0000 0000 0000 0000 0000 0000 0000	98 0000 0000 0000 0000 0000 0000 0000	99 0000 0000 0000 0000 0000 0000 0000	00 0000 0000 0000 0000 0000 0000 0000

STAGE

The PAGE 6 ST section

**HARD DISK
WORTH YOUR WHILE?**



DEGAS Elite - Reviewed inside

Type-In Software

Reviews

TYPESETTER ELITE
FAST BASIC
Colourspace
Karate Kid II



DEGAS FADER

SUPERTEC ATARI USER OFFERS

SUPERTEC software for the ATARI ST

Title	Type	Inc VAT	Title	Type	Inc VAT
Deadline	Entertainment	£22.95	Habeview	Database	£74.95
The Pawn	Entertainment	£24.95	Kdata	Database	£69.95
Red Alert	Entertainment	£24.95	TOT-IM	Database	£29.95
Winter Games	Entertainment	£24.95	H & D Base	Database	£29.95
Go!	Entertainment	£29.95	o!man	Database	£149.00
Bridge	Entertainment	£29.95	Haltades	Database	£49.95
Time Bandit	Entertainment	£29.95	Print Master Gallery 1	Print Utility	£29.95
Sundog	Entertainment	£29.95	Print Master	Print Utility	£29.95
Major Motion	Entertainment	£19.95	Music Studio	Music	£29.95
Deep Space	Entertainment	£34.95	Paintworks	Graphics	£24.95
Star Glider	Entertainment	£34.95	Degas	Graphics	£29.95
St Karate	Entertainment	£19.95	Degas Elite	Graphics	£29.95
Temple of Apehal			Easy Draw	Graphics	£149.95
Triogy	Entertainment	£24.95	ColourSpace	Graphics	£19.95
Enchanter	Entertainment	£29.95	Cashlink Accounts	Accounts	£295.00
Cut Throat	Entertainment	£29.95	Habitwriter	Word Processor	£59.00
Bally Hoo	Entertainment	£29.95	K!Word	Word Processor	£49.95
Essex	Entertainment	£44.95	Softn	Word Processor	£113.95
Brimstone	Entertainment	£44.95	Hippopot	Font Editor	£29.95
A Mind Forger			Habanmerge	Mail Merge	£29.95
Mysting	Entertainment	£44.95	Kevka	Assembler	£49.95
Mind Shadow	Entertainment	£49.95	Kspread	Spreadsheet	£49.95
Borrowed Time	Entertainment	£49.95	PC Intercom	Comms	£129.95
World Games	Entertainment	£24.95	K Graph	Bus. Graphics	£29.95
Strike Force Harrier	Entertainment	£24.95	K Comm	Comms	£49.95
Flight Simulator II	Entertainment	£49.95	V.P. Life	Spreadsheet	£29.95
Q-Ball	Entertainment	£19.95	Comsmath	Desk Accessory	£29.95
Mercenary	Entertainment	£24.95			

CUMANA DOUBLE DENSITY DRIVES FOR ST
 Call 054 2647000
 Under Package

£138.26 - VAT

Call 054 2647000
 Under Package

£233.91 - VAT

ST GAMES SOFTWARE

801 TROPICUDA -
 CRIP CRACK - ARMA -
 SUNDOG - THE PAWN -
 WINTER - BUNT SPACE
 - FLIGHT SIMULATORS
PLUS MANY MORE!

DISCS

5 1/4"

Price of 20
 (Order Per Set)
£7.50

3 1/2"

Price of 20
 (Order Per Set)
£2.50

1 1/4"

Price of 20
 (Order Per Set)
£1.75

MODEMS
 by Amstrad Technology

1200 baud
 order for **£125**

2400 baud
 order for **£195**

PERSONAL SHOPPERS WELCOME
 NOW TO
 0544 2647000

LARGE RANGE OF ST SOFTWARE

including:
 KUMA - HABA - ADRI
 SOFTWARE PUNCH
 BATTERIES INCLUDED
 PHILON - CASHLINK
 Call for details and prices

1 MILLION BATTERIES
 2000 P.P. PLUS
 (ON POLYMER)
 3000 BATTERIES

SUPERTEC LTD
 CORNWALL'S HOUSE
 HOWARD CHASE

BASILDON, ESSER, SS14 2BB Tel: 0226 2647000

**£20 STM + 1040 STX
 CALL FOR PRICES**

**AMSTRAD PC1512
 BUS AND 8512
 AVAILABLE**

**CALL FOR DETAILS
 SOFTWARE FOR
 AMSTRADS!**

POST YOUR ORDER TO:
 SUPERTEC LTD, CORNWALL'S HOUSE, HOWARD CHASE, BASILDON, ESSEX, SS14 2BB
 Tel: 0226 2647000



Name: _____

Address: _____

Postcode: _____

Signature: _____

PLEASE ALLOW 28 DAYS FOR DELIVERY

Microdeal have followed a clock card which they claim leaves all the others behind. The **Micro-Time Clock Card** was developed in the States but Microdeal were so impressed by it that they negotiated a deal to produce it in England and the card is now available at just £34.95. What makes the card special is that it fits inside the machine with no soldering and with the minimum of disassembly. It comes with NCRad batteries that recharge each time the computer is switched on and can be adjusted depending on how often you use your machine. Software is provided for setting up but from there on all you need is the Control Panel on your host disk.

Also from **Microdeal** is **Shuttle II**, a game come simulation, putting you in charge of an advanced shuttle able to take off from a runway. Lots of things to consider such as wind speed and cloud cover before getting into orbit. Once there, having ditched the boosters on the way, you have to do a bit of ETA to review a faulty communications satellite before getting back to earth. In the 1990's you'll be able to get a seat on the Shuttle for real, but not for £24.95!

Edisoft, mentioned a couple of times ago as bringing out several arcade style games at PCW, are rapidly expanding their horizons with some top quality professional applications and add-ons. Top of the line is Publishing Partner, a complete page layout system from the States which caused quite a stir when shown at Comdex last year. **Minimum** is a complete course program as a skill accessory and features Xmodem and Kermit protocols among others. Loads of functions including the ability to cut and paste to word processors. **Professional Sports Designer** sounds just what budding game designers might need allowing sprites to be designed and tested before being saved to be used in other programs. On the hardware side is the first Graphics Tablet for the ST, **Pro-Draw** which works with all programs that use the mouse and a **28Mbit hard disk** that is claimed to be faster and cheaper than Atari's own. Keep an eye on Edisoft.

Mastertronic have two titles coming for the ST at a 'budget' price of £9.95 (will how much do most programs cost?). Both are games and are titled **Rampage** and **Ninja Mission**.

Infocom's latest for the ST only (i.e. not 8-bit Atari) is **Pentab A Computer Novel** with the promise of a new experience of computer literature. This is not an adventure in the conventional sense and will allow a great deal of interaction between the player and the program. The start of new concepts or clever use of advertising (what? Either way, it sounds interesting).

Remember from a while ago, **Atari** are that they will introduce later this year a full **Desktop Publishing** system including laser printer for around £2000 and hard disks at a fraction of their present cost by using 'reiser' 28Mbit drives and remapping them to get 15 or 30Mbit without problems. Will these come before or after the CD-ROMs?

At the CES Show in Las Vegas in January Atari actually showed a prototype of their laser printer which uses the DMA port of the ST and therefore the ST's CPU to save on the cost of an on-board processor. This makes it usable only with the ST but also makes it cheap. Also on show were 7Mega ST's with detachable keyboards and radically redesigned internals with room for enhancements such as add-in cards and new circuit boards. Atari say they will be 100% compatible with existing models.

PROGRAMMERS GUIDE TO GEM

published by SYBEX
£19.95

reviewed by Matthew Jones.

GEM is not a system that you can learn overnight. Indeed if you are new to programming a graphics oriented system, then you will find that there are a large number of new concepts which you have to grasp in order to fully understand, and then get the best out of, GEM. The first books published which gave information about GEM programming were very much repeats of the Digital Research 'GEM Programmers Guide', giving a function by function description of the facilities of GEM. They told you, for instance, that to set the font alignment to baseline mode, then you use `width-and-yank a call`. What they did not do was tell you why you would want to set the alignment at all. This is where the SYBEX 'Programmers guide to GEM' comes in.

This book, aimed at both IBM and Atari owners (see later), gives you a good grounding in such use of library functions, explaining what they do, why you would want to do them, and it usually gives a few examples of 'C' source code to experiment with. Very good use is made of illustrations to support the text (in the given alignment case, an example of each effect is shown).

The book has six chapters, covering: Introduction to GEM; the Application Environment Services (AES), including an overview and then complete function descriptions; The Visual Device Interface (VDI), including a short primer on graphics and then the VDI functions; GEM SAMPLE PROGRAM: HELLO, a complete GEM application, with listing and full explanations; GEM DEMO (DEMO.D), a more complex example (see below); ADVANCED GEM TOPICS, including design, libraries, debugging, the bindings, and a tool survey. The six appendices include a good glossary, AES and VDI quick references, Resource construction set tutorial, the listing of DEMO, and Metafile functions.

While I think that the general descriptions of the AES and VDI functions of this book make it the best yet, what really makes it a must for the new programmer is the two sample programs. When I first started GEM programming, all I had to learn from was a single relatively un-commented listing (oh!); This book provides two complete programs (header files as well) as examples, and thoroughly explains why each command is being done. This instead of telling you that at the start of your program you should have these three lines, it actually explains why you should have them, and what they are doing. By providing this sort of information you will become a much more proficient programmer because you will understand what you are doing. The second example used is DR's DR INDEXE program, and includes listings of all of the standard GEM header files.

While this book is very good, it does have its omissions. I cannot find any reference to the various or equivalent functions, or indeed many other 'lower level' functions. The reason for this (according to the preface), is that they wanted to give a 'conceptual framework' tutorial, not a reference manual. But although you will still need a separate 'function by function' manual, the book's advantages outweigh this (I think slight) disadvantage.

In general, this book is well worth the (rather large) selling price, and I recommend it for anyone's library.

TYPESETTER ELITE

XLENT Software (UK)

Desktop Publishing everyone can afford?

The king is dead, long live the king! That's one way of looking at Typesetter Elite, the upgrade from Typesetter ST. Get fonts, menus and colour versions, print preview, undo command, quad density output to Epson RX FX printers are just some of the new improvements embedded into Typesetter Elite. One of the major improvements to me is the documentation, I can now actually understand what the programmers are trying to say which is probably due to an outsider being hired to write the manual.

Typesetter Elite is a program that allows you to compose pages of text and graphics on the ST and then print them out on a range of different printers. The amount of detail in this program is instantaneous and if I had to review every single command then this review would take up half of the magazine, if you've ever used any Xlent Software programs before then you'll know that the manual will need to be read over and over again to fully understand the program and Typesetter Elite is no different, below is a preview of the main part.

There are seven drop down menus from the main menu bar, each menu has from four to ten commands, each command usually has a number of options and many commands and options can alter the output of other commands! Not only do you have to contend with the menus but also the function buttons change with some of the commands chosen. Under the Menu "FILE" you can load a page (BK), screen (SCR), font, NLQ font, font, border, and 80 column text page. Page, screen, font and borders can also be saved to disk. The drive can be changed from "A" through to "F". View the directory, save the loading mode from Replace to Overlay and Quit finally finish off this first menu!

An example of how involved the program can be is the use of "screens and pages". When you view a screen you see approximately forty percent of the page, in other words you're looking through a window which can be moved around to suit your requirements. Fonts can be loaded from the program disk or from Megafont ST or D604K compatible files. With the load mode on Replace this will everwrite the current image on the screen page and by using Overlay you can create interesting effects by laying screens/pages on top of each other WHICH is an extremely handy way to build up your designs. The 80 column text page is a separate part to Typesetter Elite and this will be discussed further on.

The second menu is the graphics menu. Selections here include the basic commands generally found in most graphics programs - Draw, Line, K-line, Rectangle, Ellipse, Fill and Lines. Other options include Drag (move), or Copy and there can be in either Replace or Overlay mode. The move and copy functions are a little peculiar, the maximum size of the screen you can move at any one time is about eleven percent in mono and about twenty-five percent in law res colour. Many of the commands in the graphics menu can be altered by the commands from the following menu, the Graphics options. These include Font size in nine thicknesses from one pixel wide to about seven millimetres wide, a fill index for interior

patterns with surprisingly only five choices and four colours (colour option only), a fill style for rectangles and ellipses such as Hollow, Solid and Pattern plus number of the mode selectors i.e. Replace, Transparent, and XOR. This last one is an experimental mode and allows text graphics in a systematic way. Finally in this section, Grid screen and Finto screen operate as you'd expect.

Menu four controls the graphic text. Graphic fonts are designed on an 8 x 16 matrix and some loaded they can be stored to see different heights and ten separate widths. Fonts can be Replaced or Overlapped and inverse can be toggled to suit. All-in-all, over 200 variations can be achieved with just one font. In the colour version of Typesetter Elite, the variations can be 800 by using the four colours available

reviewed by Alan Goldbro

Graphic fonts are not the only fonts available to the user. In menu five there are twenty-three system fonts.

These are loaded in at least up and selected into the system font selection menu. Further options are Thickness (bold), Intensity (light), Italic, Underline, Outline, Replace, Overlay and Alternate. Italicize, Hollow, Good, and Control characters are just some of the range of styles. The graphic and system fonts can be toggled by using F4 and F5 respectively with the last font loaded chosen as the default. Margins can also be set by using function keys.

The positionable menu is the scrolling window. Up, Down, Left and Right with its between positions for all directions. There is also a handy HOME position for the top left hand corner. The final menu is Font Power. Four printer drivers are included on the disk, Epson 960/compatible, Epson 930/compatible, Prescriter NEC 1631 and General 16K. Your drawing layout can be positioned on the paper either at the margin or the actual position it takes on the screen. If you have a printer capable of quad density (Epson 930/compatible) i.e. the FX FX range, then double offset strike can be selected for holiday printers. Those who are prepared to wait for approximately four minutes per printed page, can choose the number of copies from 1 to 99.

The Executive Print function has an output size selection which should open to most people. Chosen from Full Page, Screen, Five Forms, 5mm x 125mm Index card, 105mm x 150mm Index card, 90mm x 105mm Ruled card and 24mm x 90mm label. With all the card label options, the using font can be moved around the screen to select your particular portion of the printer. The Five Forms option allows you to print out any portion of the screen. The only option missing in the Five-Form 5.5 inch disk label although this can be achieved by using the five form option. Having selected your size of printer there is an option to preview the page as it will appear on paper. Included in Font Power is an error option which has Full Page, Screen and font selections although using the Full Page option initiates you to



the Desk Top, so be warned! Bringing up the rear is Icon Block which allows you to pre-select the position of the Icon when it's loaded from file.

Well we've finally at the end of Typewriter Elite but not at the end of this review, for included on the disk is an 80 column row editor designed especially for Typewriter pages. You may be written using the editor or Pre-Processor as Note call it or alternately load in your text from the Word files and save it as a Typewriter 80 Page. (TSE80) This page can be loaded into Typewriter Elite using the 'Load 80 Page' command. The TSE80 is compatible with Thunders (spelling checker) from Batteries Included. Commands within TSE80 are fairly simple and sparse.

Typewriter Elite is a huge improvement from the original Typewriter ST. It's priced at £24.95 from Klett Software (UK) or from most advertisers in Page 6. It's not copy protected (well done again, Klett), comes with a 28 page manual which is surprisingly easy to read although it has the usual hallmarks of good humour and spelling mistakes associated with Klett!

On a personal note, while I thoroughly enjoyed using Typewriter Elite it gets much easier the more you use it! I don't like the forty percent windowing technique. Slides here would have made this a much more enjoyable package. The lack of Zoom facilities, the annoying 'Moby' (the gars left on the screen every time you click on something from one of the Drop down menus if you're in the drawing mode, the all important 5/4 inch disk label function (what size of disks do Xlnt use?) and the small size of the printed page (8 1/2" x 9") were frustrating. To be fair to Klett Software, Typewriter Elite is not meant to be a full featured page layout program but by using your own pictures, Icons or Rubber Stamp (Klett Software) you can create a page layout with a host of attributes that should please the majority of ST users, see enclosed!

MAKE YOUR ST RUN

FASTER

- **FASTER** is a new **DISK MAGAZINE** from Canada
- Fully **IBM** based - mono or colour
- Each issue has articles/ tutorials/ reviews to view or print
- Programs with **Source code** and documentation
- **Desk top accessories** with documentation

Subscription from
PAGE 6, P.O. BOX 54, STAFFORD,
ST16 1BB

ONLY £6.95 fully inclusive

ACCESS/VISA WELCOME -
TELEPHONE 0192 512600

— from your local dealer shortly —
— featuring all the latest software news —

HARD DISKS and in particular Atari's SH204, 20 Megabyte hard disk

by Matthew Jones

WHAT IS A HARD DISK?

A hard disk is the optimum development of the floppy disk. A floppy disk, like the 5 1/4 inch disks used on the Atari ST, is a thin disk of plastic, covered with a thin film of a magnetic material similar to that used to make audio and video tapes. The amount of data that can be reliably stored on such a disk is limited by several factors, but mainly the speed of rotation. In the case of floppy disks, the spin speed is about 300 rpm and the head is in contact with the disk, which gives a reliable storage volume of about 1 megabyte (as on the Atari double sided drives). Some of the storage limitations of the floppy are caused because they are removable, i.e. if you want to do word-processing, you normally put in the 1st/Word disk, if you want to communicate, you put in the 1st/ST.com disk (wordprocessors 'plug plug'). The problem with this is that dust and similar particles can get on the disk surface making direct data storage unreliable but the floppy is normally able to survive because the head simply pushes the dust out of the way.

The hard disk however spins at a much higher speed (typically 5,000 rpm) and due to this speed increase the read/write head can 'fly' over the surface. The disk has to be rigid (former hard) as any variation in the position of the disk in relation to the head could cause damage to both. This permits a much greater data density on the same sized disk. To ensure reliability, a hard disk is enclosed in a vacuum, as a speck of dust would not be pushed out like the way of the head, but would plough up the disk surface (a hard crash) and make it unusable. Hard disks with 10, 20, 40 and 120 megabytes from both 5 1/4 and 3 1/2 inch sizes are currently available.

WHAT USE IS A HARD DISK?

Considering it gives you twenty megabytes or more of storage, instantly available, need I answer that? Not only more storage, but greater access speed too. According to the manual, the SH204 transfers data at 5 megabits per second. It's a big and impressive figure, but let me put it in perspective. A friend of mine realised that I could do a two page compile and link in the time it took his computer to just load the first pass of the compiler from his floppies (and the ST's floppies aren't slow!). A slight exaggeration perhaps, but an indication of the apparent speed.

To the user who has a large amount of data to store (e.g. in a big database), the serious software developer (e.g. when the object code gets too big for one floppy), or a multimedia board operator (for large message bases), a hard disk is invaluable in order to save time.

HOW IS A HARD DISK USED?

Very easily. If you can use the floppy based system, you will find a hard disk easier. The SH204 comes packed in a

disk foam padded box, complete with the main cable, DMA data-cable (8" long), manual and boot disk. In essence, it is simply a matter of connecting the cables, copying the boot disk, and following the manual instructions. Once connected up, the first thing you have to do is format the drive. I found the mine was pre-formatted, but I recommend that you do it yourself anyway.

HOW DO YOU GET THE BEST FROM A HARD DISK?

There is one complication with hard disks, and the complication is called 'partitions'. A problem arises because twenty megabytes (20Mb) is a lot of storage space. On a 10Mb or 12Mb floppy disk, there is a finite (but reasonable) limit to the number of files that can be stored but with 20Mb you can have far too many files to be practically managed. It is for this reason that folders (subdirectories) were invented, and they should be used on hard disks, but a more fundamental solution is to split the 20Mb up into two, three, or four 'logical' disk drives, called partitions. One physical drive (device) you can have several logical drives. These logical drives are named C:, D:, E:, and F: (if you have all four). That may seem straightforward to you, and if that is the case then all well and good, but if you cannot quite grasp the concept, read it again, it is important.

The reason it matters is that when you format a hard disk, you format the PHYSICAL device and not a logical drive, thus if you decide that you no longer want the files on drive D:, you cannot format it as this would lose files on C: too. Atari's hard disk utility program (HDK - a GEM based program) allows you to 'pseudo-format' the logical drives with a 'user' drive option. This clears the root directory, wiping the drive clean, but leaving the other logical drives alone.

Partitioning the hard disk will delete any files on the disk too, but you can edit the partition scheme as you would like it, or choose one of the predefined ones. Typical schemes are 10-5-5, 15-5, 10-10, 5-5-5-5, and you can choose your own (I use 8-8-8-4). If it is your first use of a hard disk, I would recommend 10-5-5 (i.e. C: is 10Mb, D: is 10Mb, E: is 5Mb) to start, but a common method is to set aside a drive for each application you are going to use, and a spare one for general use. (My 8-8-8-4 is general, utilities, development-1, development-2).

The final option of HDK (the others were Format, Partition and Zero), is Markfile. This is used only when you are having problems reading from the hard disk. Just like a floppy, a hard disk can have 'flaky' or unreliable sectors. The hard disk keeps a record of these sectors so that they will not be used to store data, and markfile is a way of adding any new flaky sectors to the list. However, if any sector added to the list is to use by a file, then that file will be lost, so you should back up the logical drive before using markfile.

Having divided up your partition scheme, using the partition is just the same as using a floppy disk, though thoughtful use of folders is essential.

HOW RELIABLE IS A HARD DISK?

A hard disk is just as reliable as a floppy disk, if not more so. With good treatment it should give many years of

working life. The main problem of with hard disks is that you have a lot of files usually accessible for deletion or corruption, should you mistype a command or should a program go wild and out of control (and it will happen!). For this reason you should keep regular backups of all your important files (see below). You should also be wary of new and untried programs. Whenever I buy a new program, I always try it out first with the hard disk turned off. That way, if it does go wrong, it cannot corrupt the hard disk. The most likely "dangerous" programs are those with copy protection. Occasionally software is programmed to erase disk if it thinks you have a pirated copy. In the case of a hard disk, it has plenty to play with.

ARE THERE ANY SPECIAL PRECAUTIONS OR MEASURES TO TAKE?

As I have mentioned above, a hard disk spins very fast, and the head flies just above the disk surface. Due to this, even the slightest knock while it is running can scuff or cause the head and disk to collide, thus destroying the disk. A hard disk should not be moved while it is turned on. When it is turned off, it is slightly more robust, and is suitable for gentle moving around the room. To make it as safe as possible, ready for transport to another building, you must "park" the head. This is done with a (supplied) program called SHIP which moves the head to a safe landing zone on the disk, so that if it does get jolted no damage will be done.

The only other things to do are make regular backups, and look after your hard disk as you should other electronic equipment.

SHOULD I WAIT FOR THE BETTER VERSION?

If you hear of a better or cheaper version, you have to weigh up the factors. At present, the SHIM is reliable, fast and available. I have heard that a new version is coming out which has two DMA connectors so that they can be daisy-chained like the floppy disks (the ST supports seven DMA devices). While that is obviously a nice facility, to wait a few months (maybe stretching into several months) for it to appear is, in my opinion, folly. Buy now and you have a few months of hard disk use, and when you buy your second DMA device, buy the 'Y' adaptor that they will have to sell for them of us with only one connector.

HOW DO I BACK UP A HARD DISK?

All through this review, I have stressed the importance of making backups, but I have not mentioned how it can be done. Backing up a hard disk is a problem because if you have twenty megabytes of files, then you are going to need twenty DMA disks, or 80 DMA drives. Also you have the trouble of copying the directory, getting "disk full" messages,

and copying the rest onto another disk. Backing the files to the hard disk is just as bad.

There are two answers, tape spindlers, and backup programs. Tape spindlers are DMA devices into which you put a magnetic tape capable of holding at least 20MB of data. With appropriate instructions, the hard disk will start sending a complete copy of itself to the tape spindler, and after five minutes, the backup is done. Undoubtedly the fastest and best method, but it is not yet available on the Atari. Several companies are promising tape spindlers (they can be used for "live" data storage too - but slow) but none have yet been launched. I think the number of hard disks sold must increase first. They are also expensive, often as much as the hard disk itself!

Backup programs help by organising the copying in or from floppies for you. In principle, you simply have to feed in floppy disks, while the program creates as much as possible onto each and then requests the next. An intelligent backup program uses a "flag" set by TOS whenever a file is altered. When the backup program copies the file onto the floppy, it clears the flag. If you then change the file, TOS sets the flag and when you turn on a backup, the program need only copy those with the flag set. Next issue I'll bring you a review of Microsoft's BACKUP program for more detail on what backup programs can do.

DO HARD DISKS DETERIORATE?

You've heard the rumour too, huh? That, when the hard disk is new it goes like the choppers, but after a few months it takes so long to create a new file that it seems like a floppy? Well the "rumour" is true, it can happen, but not just to Atari hard disks, it can happen to all hard disks (HBM's too). The reason is that when a hard disk is new, there is plenty of room, and nothing occupying it. Each new file is given fresh, consecutive, space on the disk which means it can be found and loaded easily. But, as time goes on, you start to delete files, and the next time you create a file, TOS fits it in the gap of the deleted one, and the next one goes half in the gap, and half into the so-far-unused section. And as this happens more and more, the whole disk becomes more and more fragmented. After months of this, you have to forgive TOS for not being able to find everything instantly, because the subdirectories become fragmented too. As an aside, some Disk Operating Systems, e.g. Acorn's DFS (sic) on the BBC, overcome this problem by not using the gaps caused by deletion. It just continuously allocates from the so-far-unused section. This means that while there may be 50k free on the disk, you cannot access it until you have done a "squeeze" to move all the files into the gaps. Such a method may seem the answer, but practice shows it is "problematic".

There is no neat solution, but if you find that the response time is very slow, there is a way of fixing it. All you have to do is delete everything. This clears the disk so that it can start consecutively again. To clear it quickly use the non-position option of HDX. If you actually wanted the files you had on the disk, then either make a full backup, clear, then restore, or copy all the files over to another partition (with enough free room to take the files) and then copy them back after clearing. I have only one worry when I do this sort of thing, and that is that a file may become corrupted in the copy process and I then lose it, but it hasn't happened yet.

The Atari SHIM Hard Disk Drive costs £399 plus P&F and is available from all Atari dealers.

NEXT ISSUE --

Microdeal's Hard Disk BACK UP utility. Taking the worry away?

DEGAS Elite

Not long after the ST computer was first launched (was it really almost one and a half years ago?) a marvellous multi-mode drawing program was released by the very well known and highly reputable Barcoles Included (distributed by Autodesk in the U.K.). This program was Degas. It was certainly better than most other 8-bit drawing programs that anyone had seen, but we all know that the ST was capable of much, much more. A few other such programs have since seen light of day, but do a little more than Degas did, but none have had all the features that we'd expect from a professional drawing and painting program on a 68000 based micro-computer. It has taken over a year to arrive, but Degas Elite has now become available and it's got almost every feature that you'd imagine and even one or two that you probably wouldn't.

For those readers who haven't seen the original Degas, then I'd suggest that you look at PAGE 6 Issue 26, where a full review was published. Naturally, Degas Elite has every single one of the features that Degas has (except for the high-resolution mode inverting bug, of course!) and many more besides.

The first noticeable difference is that the Degas Elite disk has to be formatted. This loads in the GEM GDCOS-VDI routine which allows more versatility over type face styles (e.g. outline, italic, half-size etc. - just like the fonts in First Word and DB Master) - you can then create an initial load up instruction file which tells the Degas Elite program which fonts you want to load (you can have up to 30 fonts resident at one time), and from which drive etc. Talking of fonts, the original font editor is still there, and there's also a font converter program that enables you to convert all your existing Degas fonts into the GDCOS-VDI format, thereby creating new variants of your old favourites. After you've formatted the disk, you will have to select and view the actual program and it's then that you'll immediately notice the most obvious differences - the familiar boxes of the original Degas control screen are still there, but they're laid out a little differently, and in addition you also have a whole host of path draw modes which enable you to select most of the new goodies that have been added.

Take a deep breath and here goes. You can have up to 8 screens (on a one-meg ST, less on a 520 of course!) active at any time, and you can swap pictures or parts of pictures between any of these screens. You can load low or medium resolution colour pictures into high resolution screens (with very acceptable results) and vice versa, and you can save your pictures to disk in a compressed format, usually around one-half to one-third of the usual size. You can automatically draw outlines around any area in any colour, and add shadows to shapes or text. You can load in Amiga files (whatever name you call) or 8-bit Atari Koala pad screens. You can load in images without their colour files or colour files without their images.

Extensive 'fill' design routines are incorporated,



Can it turn Dave Keel from pavement artist to Picasso?

enabling you to create your own fills in either colour or monochrome, even allowing you to 'watch' a suitably sized area of any screen and use that as a repeated fill. Animation has been incorporated (a feature that was sadly lacking in the original Degas), with many animation features enabling you to produce an end of amazing effects (although a bit of imagination and some considerable experimentation after careful study of the manual is essential). Thirteen printer driver routines are included on the master disk, so yours should be in there somewhere, and the very excellent and extensive manual gives you all the information that you'd need to write your own if it isn't included provided that you know a bit of machine code.

Just about all the graphics routines available can be obtained by either clicking on the appropriate selection box or by pressing the relevant keyboard key - another new idea. The very useful zoom mode is still there but now you can vary quickly zoom in from 5 to 12 times size, and scroll around while in any zoom mode.

The most impressive, versatile and (to my mind) useful feature, however, is the 'block' mode. Remember in Degas how you could select any of the available 'brushes' and use them to draw lines, boxes, circles, ellipses and freehand draw etc.? Well, imagine that you can select any sized area of any picture, define it as a 'block' and then use it just like any other brush. Draw a circle with a camera (for example) or a line with the Mona Lisa's nose! And once you've defined an area of screen as a 'block' then the fun really starts, because you can stretch it, shrink it, rotate it to any angle (in degrees) that you like, horizontally or vertically 'lean' it, or even distort it to any almost shape, and the blocks can be anything from 4 to 25 sides! The distort mode not only allows you to produce some wild and wonderful effects, but you can also use the distort to create true perspective - for example, you could produce a 3D cube with your design pressed on all four visible sides, 'distorted' to the correct perspective to fit perfectly! For machine code 'hacks', the 'block' can also be saved to disk as an 'icon' file and used in your own programs.

I'm sure you'll have gathered by now that I'm impressed with Degas Elite. To balance the situation a little I



Every feature you'd imagine*

most report that my copy crashed several times after around one and a half hours use - although knowing the idiosyncrasies of the ST, and the non-legitimate means I've made to mine, it could be the fault of my machine but somehow I don't think so. It may be that some of the pointers get messed up after prolonged use and a bit of saving to disk. You wouldn't spend a long time on a monochrome article creation and not save it to disk at least every 15 minutes would you?

Other than that single doubt I can wholeheartedly recommend the program to anyone who takes their drawing seriously enough to spend around £70 on a program. Allowing for the ST's graphical limitations, the program is as near a "professional" tool as it is possible to produce on an all-around machine. I know everyone is talking about (and probably waiting for) Microsoft's 'Art Director', but remember that as far as I'm aware that only works in low-resolution mode, which makes it pretty unsuitable for any serious graphical work destined for a monochrome printer. That said, if you don't own a high resolution monochrome monitor, and aren't particular about medium resolution, then perhaps it would be an idea to wait for the cheaper 'Art Director' to see if it lives up to expectations and promises. However, if you're looking for a state-of-the-art 16 bit ST drawing program that works equally well in any of the ST's three graphics modes and takes a lot of the hard work out of any of the graphical ideas that you want to try, then you're dead set.

By the way, if you are an existing 'original Degas' owner, and you are wondering if you can 'trade-in' your disk for an upgrade to Degas Elite, don't bother trying. I've asked Autodesk and it's not their policy. Seems a bit unfair to me, after all, the original Degas disk is totally redundant if you buy Degas Elite.

Next issue we take a look at Art Director. First glance shows it to be every bit as good as Degas Elite, but is it any better? Plus a feature by feature comparison for you to judge for yourself.



WE SPECIALISE IN

ATARI



£30 STRM ONLY £336!!

1040STF MONO	£790
1040STF COLOUR	£990
500STX + SP540D	£440
500STX + SP 314 D/D	£440
1300X + JC 12 8in	£180
1300X + 10M 8in	£230
MP 160-PRINTER	£230

FULL RANGE OF SOFTWARE AVAILABLE

16 Bit Software

Leader Board	£20.00
Scrapler	£50.00
Papichess	£20.00
World Games	£20.00

8 Bit Software

Team Player 2 (16 users)	
Special Computer	19.99
Screening Wings (2)	29.99
Star Rebel (2)	£12.00

PYR MID

Video & Software
 (Inside Caprey Business Computers)
 5 The Bridge, Westlands
 Middlesex, HA3 5AB
 01-861 2897

ALL PRICES INCLUDE VAT



MARTIAL ARTS, SPORT, PINBALL OR POOL?

take your pick, it's all here

KARATE KID II Microdeal \$34.95

Reviewed by John Davison
Jnr

Microdeal's latest offering for the ST is a fine beat 'em up game with a few extras, including digitized graphics and sound effects.

The game is based on the film of the same name, and although I have not seen the film, I would imagine the plot is the same. The town where Miyagi, the old man, was born has been taken over by a bunch of pretty mean looking bad guys, and you, playing the part of Daniel, must fight your way past several different opponents and eventually get to the final encounter. Why you want to do this I am not entirely sure, as the instructions don't really tell you.

The first thing which you notice when the game has loaded is the excellent picture of Miyagi and Daniel, on the title screen. This picture, I would imagine, is digitized as I seem to recall seeing the same picture on a film poster somewhere.

The first two scenes have you fighting against two of the 'tough guys', first Toshiro and then Taro. These two fighters are experts in the martial art of karate, and on your first few goes with the game they will give you quite a beating! To wipe out a fighter you must hit him a certain number of times, gradually making his energy level decrease until eventually he falls over and can't get up again. The first two fights take place indoors, and the graphics here are extremely good. You are in a room, which has a tiled floor, there is an opening at the back of the room through which some beautiful scenery can be seen. This scene can be one of the following - Pagoda, Lake, Mountain, Sea port or Villa and Mountain. On the wall next to this opening there is always a delicate minimal illustration of some sort, for example a Dragon, an Elephant, a



Tiger, a Lioness, or a Fish, these illustrations have a lot of detail in them and add considerably to the general atmosphere of the game.

If you manage to defeat the first two fighters, you must go onto the 'concentration test'. Here you are magically transformed into a digitized picture of Miyagi, and you must catch a fly with just a pair of chopsticks! Believe me, it is very difficult, but possible. If you succeed you receive a bonus, but even if you fail you will still go onto the next stage. You must again take on the two fighters, Toshiro and Taro, but this time, in Miyagi's raised garden. Again the graphics are first class, and consist of raised buildings on either side of a small grassy area. On the right hand side of the screen there is a small pool in which you can see reflections of the buildings. Toshiro and Taro fight slightly more ferociously on this stage, but the level of difficulty is not significantly harder. So once you become a reasonable fighter it shouldn't be too difficult to finish these two guys about a hit, and get on to the next 'concentration test'. This test has you leaning chopping sheets of ice! To do this you must build up Daniel's concentration by 'waggling' the joystick, making a small drum in the top right hand corner beat faster and

faster. Then when you push the buttons, Daniel will hit out a blood curdling scream and smash the ice. The situation is made up of a series of digitized (yet again) pictures. The whole thing is over in a flash, and the next thing you know you are moving onto the next scene - 'The Final Encounter' where you must fight Chozen, who is a rather nasty piece of work. He is quite a violent little chap and it will take you a while to work out a way of beating him. The fight takes place at the estate of King Shobashi (bless you!), where the scene is really shabby and spooky.

You fight as before until you have reduced his strength. Then, according to the manual, just as Daniel did, you must learn the secret of the drum, or die! Whichever I play it is always the latter!

When controlling your fighter, you have a choice of sixteen moves. These moves include the usual jumps, kicks, punches, etc, which you find in most karate games. Each move is accompanied with a very realistic scream or cry, which I would imagine is - yes, you guessed it - digitized.

The side screen and high score table have the music from the film playing in the background - 'The Glory of Love'. It is quite a good one and it doesn't sound too bad considering the ST's mediocre sound chip. However if you are lucky enough to own a MIDI synthesiser, you can play the music through that. The program is set up for use with a CASIO CZ201 or compatible, but it should work with other synths.

My only niggle with Karate Kid II is that after playing it many times, and each time reaching the final encounter, it annoyed me immensely when I kept getting nubbled whilst trying to discover the 'secret of the drum'. On the whole this is an excellent beat 'em up game and in my opinion is far superior to Parson's 'ST Karate' (reviewed Jan/Feb).

What is the secret of the drum?
Answers on a postcard please!

THE PINBALL FACTORY Microdeal Colour only £24.95

Reviewed by Mark
Hutchinson

I have always had a great urge to treat myself to a pinball table but have never gotten around to it. I have however tried several pinball simulators on the 8-bit ATARI, including the Pinball Construction Set (PCS) by Electronic Arts, so you can imagine that I was really looking forward to trying out 'The Pinball Factory' from Microdeal.

The program comes in the usual nicely illustrated box with a 64 page booklet. The instructions are plain and concise and the program is so easy to use that you will only read the instructions a couple of times. The disk contains only the Pinball program which includes a sample table but why this was not held in a separate file eludes me. I would guess that the writer was about the original file might have been overwritten or corrupted by the user. If so, good thinking! I saved the demo in a file to give me something to work with but take note - if you are using a file and the disk is write protected, the program will not trap the error! This means that the disk will spin and that is all. You may think your program has been saved but it has not.

On loading the program, the screen is set to low resolution automatically (nicer than getting an error message and having to reboot) and an intro screen is shown for a few seconds before coming to the main menu. Here you can edit, play, load or save a game, create a file or take a directory from any of three drives. This is done in a way I find preferable to the normal GEM directory windows.

Choosing to edit the game will bring you to another menu where you can edit the board or logo, alter the rules or save the game. The edit logo option gives you everything, having been used by ESRAM, that you have come to expect as standard from a graphics package. Balls board is just as good, giving you the usual 16 colours, brushes, fills etc. It even includes a magnify mode for better detail and the ability to cycle fills backwards and forwards.

The parts of the pinball table can be removed all at once or separately. To remove a single item you must set the camera lens, choose a part similar to the one to be removed, move the icon directly onto the part on the board and push the mouse button. If you do not place the icon exactly over the part then you could be left with garbage on the screen. Or you can use the 'F' box to REMOVE such items. The items can be chosen by arrow keys that will cycle through the parts on the board. I much prefer the way Bill Hodge used PMM (options) to move the icons on and off the PCS board, but I can live with this.



The board itself in a basic shape and, unlike PCS, cannot be altered directly, however, using brush and paint you can redesign the board. The colours are of two kinds, one that is invisible to the ball (for all those pretty pictures you want on the table) and those that the ball will see and interact with. The latter are used to point in lanes and bumpers.

The game itself plays very well too, when you come to design your own, you must remember to play it in fully. You can change such things as gravity, bounce etc. With PCS there were certain areas where the ball would stick and these would have to be redesigned. The author of 'The Pinball Factory' has thoughtfully included a 'fill' option and this could be beneficial with such areas (contrastly, with 'fill', these areas could then become a 'Yarnum' of your board).

The program includes all the usual board features, including ball traps to give multiple ball play. Normally when multiple balls are in play a program runs slow and can become unresponsive, however I found no difference between single and multiple ball play with this program. Better programming techniques or just the power of the 68000?

I am pleased that I was able to try this program out. It does not take long to become conversant with all the options available, but it does take time and careful preparation of the board to yield good results - but that is true of

most construction programs.

One option missing from this version is some sort of stored alone package. This was included with PCS and meant that pinball games could be played in the public domain with the resulting free advertisements for the original construction program. The only problem is that this type of package tends not to have a dedicated algorithm (it must test for all options even when not on the board) and thus will run somewhat slower but this should not be much of a problem with the 68000. It might be worth contacting Microdeal to see if they intend to produce such a package in the near future, otherwise people might be tempted to copy the program itself in order to show their friends games they have designed.

My personal gripe is that I would prefer a higher resolution and a bigger table, plus the ability to have a sound effect option. Taking everything into consideration (and the fact that I have completed this review) I would still recommend this as a good buy for all pinball addicts. Besides which, you get an entry form for a design competition to win three prizes of £1000 each!

ARENA Pygnosis £29.95

Reviewed by John Davison
JR

If you shelled out nearly thirty pounds for a game then you would expect something excellent in return, right? Well I'm afraid Pygnosis thought that people think like this when they score one of their latest games, ARENA. It is, basically, a 'Track 'n' Field' type game with improved graphics which look superb if you set a colour screen that of the game, but you might conclude that graphics are not everything if you seriously watch the game in action.

The graphics are very flashy, and the game takes up a lot of memory (2 single sided disks), but so what? It is one of the most unplayable games around! For a start, you have to pound away at the keyboard to move your robot!!! In this game used a joystick it would be a breeze waggler, but in this case, you are constantly afraid of

beating several hundred pounds worth of keyboard to death!

The events in this game are - 100m Dash, Long Jump, High Jump, Shot Put, Javelin and Pole Vault. To complete a full game (which is a painful experience, especially for your keyboard!) you must complete each event, however, it is possible to have a go at just one or two events. Incidentally, in the Pole Vault, the pole appears to have shrunk in the wind somehow, and your athlete is probably longer than the pole. Stranger still the end of the pole does not even go into the ground!

The packaging, which by the way is the one of the best parts of the game, has all sorts of obscure statistics on it. Claims such as - "screen image scale 1 pixel = 1 inch" are unbelievable as your character is very large and is quite impressive graphically. But "Average screen speed of character = 64 pixels/second" is a little bit of a weird claim, this means that your character moves the equivalent of five feet every second! This would be fine if the animation was smooth, but it isn't. The animation is some of the poorest I have yet seen in an ST game. One reviewer, however, has said that the game had animation "the most realistic you've likely to see this side of the Olympic Games." The reviewer in question and myself seem to have a small difference of opinion here!

Another complaint - when your athlete, or something you have thrown moves off the right hand side of the screen, there is no scrolling! I couldn't believe this. What actually happens is that your character disappears off the edge of one screen only to reappear on the left hand side of a new screen! I know the ST has no hardware scrolling capabilities, but it is possible through software. Just look at either Winter or World Games from Epyx.

Upon completing an event, a fan, strange looking official comes along and starts making insulting remarks about your athletic skills! These comments appear in speech bubbles and are quite a novel idea. At first they are quite amusing, but soon this after a while, and unfortunately there is no facility to turn the damn things off! I also noticed that there were a few spelling mistakes.

Sound is practically non-existent, and what little there is, is not nearly new-inspiring. The odd feeble sounding crack of the starter gun, and the pounding of your athletes' runners on the ground are the only sounds which I really noticed. As with a lot of

British ST games there are not enough sound effects.

The game can be played by up to four players, each using in its turn to batter the keyboard to an even earlier grave. A four player game could be fun, but the game doesn't have a high playability rating, so the attraction wears off after the first two events.

This could have been an excellent game if it used a joystick, the animation was smoother, there were scrolling backgrounds, better sound effects, and perhaps even a bit of music. All I can say is, use your thirty pounds and wait. Merb Progress will bring out something better!

COLOURSPACE written by Jeff Minter Llamasoft £19.95

Reviewed by John Davison
Jdr

Those of you who have been to the Atari User shows will undoubtedly have seen this amazing piece of software in action as the Llamasoft stand being used by its author, Jeff Minter, to create fantastic graphical effects in time to beat rock music.

It is billed as a "light synthesiser" and this is probably the best name for it as it does not really fit into any standard category of software. It is not really a game, even though it is "played", and I guess if you had to categorise it, you would call it a "creative tool".

The manual, which is excellent, explains how to get started in a very different way to normal programs - "Fire up the screen, reduce the amount of ambient photons in your vicinity (turn off the light), grasp the mouse firmly and nuzzle it about a bit." It then goes on to tell you about the really "cool" effects that you will be able to create!

The program has a staggering number of different commands available, over one hundred!! However, daunting as this may sound, it is a very easy program to use. To start with, I put some very loud music on the stereo, and pushed it on the ST keyboard. The disk drive started to whir and two golden coloured shapes appeared at the bottom of the screen. Then, strange, I wonder what they could be? I pressed one of the keys on the numeric keypad which change the

colour palette and the two golden shapes turned into two large, bold bands (you may have seen the adverb on the back of the magazine!), which to be quite honest, are pretty amazing if the room is in total darkness. I then nuzzled the mouse about a bit, as instructed, and held down the left mouse button. The resulting effect was stunning! The fine lines of the ST's low resolution mode had beautiful colours flowing through them. I consulted the "Colourspace command summary" sheet and decided that the pattern on the screen would look pretty good in a different symmetry mode, so I pushed 'N' on the keyboard, which is "Spatial Symmetry". The result was nothing short of brilliant. The graphics were reflected in four ways, and when I moved the mouse with the left button pressed, the graphics moved around the centre of the screen in a "spiral" pattern. (hence the name!) It is a fantastic effect which is well suited to slow pieces of music (such as "Brothers in Arms" by Dire Straits). I continued to fiddle with the program, and before I knew it I had spent several hours with the thing!

Well, enough of my praise, I'd better tell you a bit more about the program itself. The program uses the ST's 500x300 mode, and is controlled "by the mouse and keyboard. It is possible to load in NIBChrome files as either backgrounds or backgrounds for your light show. There are six different forms of symmetry including X, Y, X-Y, Quad, Spiral and Augmented, or you can select to have no symmetry at all. What do these symmetry modes do? Well, you control a basic light form shape, and when a symmetry mode is activated the light form is reflected to other parts of the screen. This then moves in the same way as the lightform you are controlling, making the patterns on the screen look symmetrical. You can also have starfields, either coming outwards from the centre of the screen or moving left to right and up and down. You can also implement a gravity routine which pulls the graphical objects downwards.

It is possible to record shows which have been created specially for particular pieces of music, these can be played back at a later date without having to touch the controls. You can also define your own "presets" which include things such as colour palettes, lightform shapes and which symmetry mode is enabled etc.

This program is spectacular! I haven't met anyone yet who doesn't like it! It is an ideal performance test,

and it will go down well at parties, or at disco's (it would look fantastic using a processor only as a disco). The author, Jeff Miner has already displayed it in various different ways, even at the London Planetarium! Whatever your use for this program, it will bring you hours of enjoyment. But watch out, *Outspace II* is coming, all you *ST* owners are going to be in for an even bigger treat!

WORLD GAMES

Epyx Software U.S. Gold
\$24.95

Reviewed by John Davison
JR

Not another sports simulation from Epyx? Yes, we now have World Games which is the fourth and most recent in the Epyx 'Games' series, and is the second to be made available on the Atari ST.

There are eight events altogether, each requiring a strong and steady joystick and quick reactions. To become a World Games champion, you must wrestle with a fine hunched pond Japanese Sumo wrestler, test a cable in hostile Scotland, fly over a row of barrels on ice in Germany, those yourself off a cliff in Acapulco, Mexico, hurtle down a snow covered mountain through a slalom course in Chamrousse, France, lift an enormous lamp of iron above your head in the Soviet Union and roll a log in the middle of a lake in Canada. Good mixture eh? Each event is a completely different concept, so I'll take you through them one by one.

The Sumo wrestling leads with an excellent external view playing in the background. You sit the yourself in a Sumo wrestling ring, with lanterns hanging from the ceiling and a pretty man looking human blubber ball standing a few feet away from you! The graphics in this event are extremely good. They are very clean, and the wrestler has an almost cartoon quality about them. The colours are very realistic, as is the animation. You have twelve moves to choose from, including an *Uchiari* (what the heck is an *Uchiari*?).

The cable towing is also quite impressive, if a little difficult. What the event is leading the race which plays along in the background sounds very much like bagpipes, but more like Newfoundlandian pipes than Scottish.

However the effect is still good. Basically, all you have to do is to throw a telegraph pole further than anyone else (all you have to do!!) If that sounds difficult, I can assure you that it isn't!

The barrel jumping involves high speed skating on a frozen lake, and jumping over a row of barrels. The event is highly playable, and the graphics and sound are very good. There are many nice touches in this event, such as if you fall and fall through the ice, your face turns blue!

The cliff diving has you leaping off the 'La Quebrada' cliff in Acapulco, Mexico. As a courageous diver, you must launch yourself from a craggy ledge towards the crashing sea below. The graphics are very good, although the scolding as you plummet towards the shallow waters is a little flickery.

Ball riding, the most dangerous event in rock, has you riding a violent, angry bull backwards, with only a puny bit of rope to hang on to! The graphics and animation are (again) very, very good, and the playability is high. The controls, however, are a little difficult to master, but once you get used to them you'll be riding the mighty 'barthquake' within a few pps!

The slalom skiing is a straightforward 'get through the gates as fast as you can' type game which you used to get on the Atari WCS machines years ago. What makes the World Games version different are the marvellous graphics and ultra smooth scrolling. In fact it has some of the smoothest I have ever seen on an ST.

The weight lifting takes you to the Soviet Union, home of the best Olympic lifters in the world. You have to complete two different kinds of lift. The 'snatch' and the 'clean and jerk' both require careful timing and skill. The graphics go again (I'm getting fed up of saying this) are great. The animation is first class, as are the sound effects, as your lifter breathes deeply before lifting the weight. These sounds add greatly to the realism of the event.

Finally the Log Rolling, in Canada. This is a very amusing event which plays *Money Pylons*. 'I'm a Lumberjack' as it is leading. You and your opponent must balance on a large log floating in the middle of a lake. Your aim is to roll the log with your feet in such a way that your opponent is thrown off balance and off the log. He, of course, is trying to do the same to you. However, there is a slight problem when playing against the computer. It would appear that he is an expert log

roller, and to start with he will always beat you. Also, are there really slalom racers on a Canadian lake??

When loading an event you can choose whether or not to have the 'Turbozap' feature activated. This feature tells you all about the event before it loads. It is a nice touch, but I found myself turning it off after a few goes, as it 'gets in the way'.

World Games is done in the standard Epyx sports simulation format, allowing up to eight people to play, representing any of eighteen countries, and, as with the other 'Games' you can choose whether to compete or practice in an event. The graphics, eight through from the title screen to the backgrounds on each event, are excellent, and the animation, in all the events, is superb, with music and sound effects of equal quality. This is yet another classic game from Epyx, and I can confidently recommend it to anyone.

ELECTRONIC POOL

Microdeal
£19.95

Reviewed by Les Ellingham

It's hard to write a long review on a game that is so simple and straightforward to play as this one but don't make the mistake of thinking that simple means 'no good'. One of the joys of this game is that you can boot it up and play without any complicated manual reading. Occasionally it's nice to be able to play a game without needing a degree in understanding!

Electronic Pool is just that - an overhead view of a pool table with cue and object balls. Place a cursor on the object ball, on the power bar at the top of the screen and cue away. With just a little practice you will be potting those balls. You may play solo or with another player with up to 4 games in a session. Points are scored for each ball potted with the scores of each potting routine as the game is played so that the current shot is not always the best to go for. As a solo game there is a high score table to judge your improvement.

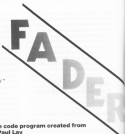
The animation is smooth, the sound effects and graphics are good and the game is easy to play. A nice one for the end of the day when you want a nice relaxing game that will relax your tension without taxing your brain too much!

MAKE YOUR DEGAS SLIDE SHOWS EVEN BETTER

```

10  REM *****
20  REM 0
30  REM 0      Degas Fading Slide Show
40  REM 0      By Paul Lay
50  REM 0
60  REM *****
70  REM *****
80  REM *****
90  REM *****
100 REM *****
110 REM *****
120 REM *****
130 REM *****
140 REM *****
150 REM *****
160 REM *****
170 REM *****
180 REM *****
190 REM *****
200 REM *****
210 REM *****
220 REM *****
230 REM *****
240 REM *****
250 REM *****
260 REM *****
270 REM *****
280 REM *****
290 REM *****
300 REM *****
310 REM *****
320 REM *****
330 REM *****
340 REM *****
350 REM *****
360 REM *****
370 REM *****
380 REM *****
390 REM *****
400 REM *****
410 REM *****
420 REM *****
430 REM *****
440 REM *****
450 REM *****
460 REM *****
470 REM *****
480 REM *****
490 REM *****
500 REM *****
510 REM *****
520 REM *****
530 REM *****
540 REM *****
550 REM *****
560 REM *****
570 REM *****
580 REM *****
590 REM *****
600 REM *****
610 REM *****
620 REM *****
630 REM *****
640 REM *****
650 REM *****
660 REM *****
670 REM *****
680 REM *****
690 REM *****
700 REM *****
710 REM *****
720 REM *****
730 REM *****
740 REM *****
750 REM *****
760 REM *****
770 REM *****
780 REM *****
790 REM *****
800 REM *****

```



A machine code program created from Basic by Paul Lay

Degas Fading Slideshow provides a continuous slideshow of all Degas format pictures on a disk fading each into view in a similar manner to several such programs available for the Atari 8-bit systems.

The program will automatically select only those pictures that correspond with the resolution in which the program is run provided that the standard INCOAS extensions are used. If there are no files on the disk that match the screen resolution the program will return to the desktop otherwise it will display all pictures in a continuous loop.

The main listing can be typed in using ST BASIC and will generate the appropriate object code which can be run in the normal way. For those who wish to delve more deeply the Assembly source code is also given. This is quite useful as it shows that quite complex operations, such as file processing, are made easy by the OSMDOS, HICO and XHDS routines.



Note: FADER will only run with 512k machines. Owners of 1 Meg machines should first run MAK512.TOS or a similar program available in the public domain from your local user group or from PAGE 6.



LET'S MAKE LOTS OF PRINTED THINGS!

Owners of 8-bit systems who also have access to a printer must surely know about *Print Shop* and its accessories (reviewed in issue 28) which must be one of the most useful applications programs for the ordinary home user. If you have not seen that program before, what it briefly enables you to do is print out just one custom stationary, greetings card, poster, banner and calendar. Shortly after the KT came out a *Print Shop* clone appeared called *Printmaster* which was basically *Print Shop* only a little more sophisticated. A neat feature was it bit *Print Shop* owners but it was recently withdrawn due to legal action from Broderbund and with Broderbund failing to release *Print Shop* in ST format it looked like KT owners would have to forgo the joys of home printing.

Then, suddenly, along came a series of budget price software (only £9.95) called *Let's Make ... Greeting Cards, Calendars and Stationery and Signs & Banners*. Three separate programs with two additional Art Library disks also at £9.95 each. You've guessed it, clones of *Printmaster*! The series is basically *Printmaster* broken down into separate disks which makes it an excellent way to get into home printing. One of the problems with the original *Print Shop* was that it was quite expensive and more people used only one or two of the modules. Now you can choose just what you want. Each disk supports a whole host of printers and is so simple to use that you really don't need any sort of manual (though you do get a brief manual with each disk).

If you have a printer, or intend getting one, these programs come highly recommended at £9.95 each and will get your printer to excellent use. Buy them now before Broderbund find out!

CALENDARS & STATIONERY

Print out three types of calendar, either a full month, a weekly day to a line calendar or a weekly open format to create your own dates. Your own choice of graphics go at the top and you choose the best style for the month and year. Short reminders notes can be entered on any day.

Reminders can be created in a variety of ways with different graphics at the top and, optionally, bottom. Fonts can be selected for the main heading, though not the address lines, and for the bottom if required.

January 1987

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

January 1987

NAME _____
 ADDRESS _____
 PHONE NO. _____
 CITY _____
 STATE _____
 ZIP _____
 TITLE _____



reviewed by Les Ellingham

ART LIBRARIES

Two additional disks are available each containing 15 new graphics elements for use with any of the main programs so you need never be stuck for inspiration!

SIGNS & BANNERS

Signs come as A4 size posters which you create to your own design using graphics in small, medium or large size. The size of graphic determines the number available on each poster. Text is overlaid in a font of your choosing with several styles available in each font. Although the layout is not free-form (you must select from pre-defined positions) a huge variety of signs can be made for almost any occasion.

Banners are long signs, printed sideways on continuous paper with all the usual choices of graphics and text. How long depends on what you want to say!

GREETINGS CARDS

Greetings cards are cleverly printed on A4 size paper so that they can be folded to quarter A4 size with a design both on the front and inside of the card. Cards are a little more complex but are really quite easy to use all of the modules. Every program in the series gives you a preview before printing and this is especially useful for the Greetings Cards. You can also step back through each step of the design procedure using the ESC key and you get just what you want. When you get a good design you can save it to disk.

The *Let's Make* series is available from Software Express in Birmingham who kindly supplied the review copies.

THE BEST OF BASIC

For the past four years I have owned an Atari computer. When I first got my Atari, I didn't know anything about computers and it wasn't until much later that I began to suspect, from reading *ANTIC*, *ANALOG* and *COMPUTE!* magazines, that I had something really special. These came the people at the computer store who specialized in Atari (yes, there really was such a thing!) and the gang at the monthly Atari computer club meetings. Now I could walk into any computer store and be ready in the knowledge that my computer was as good as anything they had to offer.

Now I own an ST. I am not the slightest bit sorry for having had to junk my 8-bit system but it would have been nice to have the best of both worlds. When I got my ST, one of the first things I did was to sit down and thumb through the BASIC manual. I was delighted to find dozens of things that I did not understand. Now I don't mean that the manual is poorly written (it is) and I don't mean that there are not enough examples (there aren't). What I do mean is that there are loads of new commands, graphics, string manipulation, file manipulation, built-in debugging tools - you name it I was amazed! So I booted up the disk, anxious to get started solving these mysteries one by one when what do you suppose I saw? Well, as first I wasn't so sure what I was looking at. All these little windows started popping up all over the screen. Some of them popped up only to be covered up by other little windows. I kind of felt sorry for the covered up ones. I mean, what did they even pop up for in the first place?

Was I discouraged? Heck no! I plunked into ST BASIC with all the fervor with which I had mangled ATARI BASIC four years earlier. This lasted for approximately five minutes. It took me that long to realize that ST BASIC is a beast! Since then, my opinion has been verified by numerous authors in the Atari magazines. Jim Lucas, writing in *ANALOG* magazine, says that, along with several other minor bugs, he discovered that when attempting to save a program larger than about 80K, using SAVE AS/REPLACE, ST BASIC will erase any previous copy with the same filename and then promptly lock up. If you do not have another copy of the program, either with a different filename or on another disk, you are just out of luck!

O.K., so ST BASIC is awful. At least the screen-editor is awful. Now what?

As I see it, we have a choice. We can sit around idle and wait for a better BASIC (or a better version of the original), or we can use the time to learn another language like C or Assembly or we can make the best of a bad situation and start using ST BASIC.

If you choose the latter option, as I have, I have some good news for you. Type in the following listing and save it to disk under the name SETUP.BAS.

```
10 poke systab+2,1
20 clear 0-fuller 0
```

Unless you are writing a program that will be run in low resolution, boot up BASIC in medium resolution. This will

This article first appeared in *POKEY PRESS*, the newsletter of the Atari Computer Club of the Palm Beaches, 13383 A.W. Jiffey Street, Palm Beach, FL 33406, U.S.A.

by David Wrenn

allow you to see more of your listing in the EDIT window. After booting BASIC, run SETUP. This will clear the EDIT window and open it to a full screen. It also causes the editor not to show the line being edited in that nearly unreadable infrared grey font. Instead, the line is not affected at all. Try poking SYSTAB+2 with any number between 0 and 31. You'll be surprised at the results you get.

Also, when programming, always use the EDIT window. There are a few things that cannot be done from the EDIT window but, for the most part the EDIT window may be used in much the same way as the full screen in ATARI BASIC. Try to forget that you are in a stupid window at all and just program away!

Atari has announced that a revised version of ST BASIC is in the works. There is no word yet on when to expect it or exactly what the improvements will be, but the word is that windows will be implemented in much the same way as they are now. Until things improve, hang in there and DO IT IN BASIC! Until then I leave you with this little program, which will produce mailing labels on any printer. I hope you find it useful.

```
10 OPEN #1:FULL SCREEN 1
20 GOTO 10,1:PRINT "LABEL MADE by"
   David B. Wrenn"
30 GOTO 10,1:PRINT "*****"
   *****
40 T 17 0 17:PRINT "FROM NAME LABEL F"
   OR LABEL",:INPUT L1
45 CLEAR 2:GETDEF B,0:FOR L2 TO L1
50 PRINT "TYPE LINE #":L2:INPUT INT(L2)
   2
60 NEXT L
70 CLEAR 2
80 GOTO 0,L1:"FROM TYPE:"T:FOR L2
   TO L1:T:PRINT L2
90 INPUT "IS THIS CORRECT Y/N":J2
100 IF J2="Y" AND J2<>"y" THEN 80
110 T 17:INPUT "FROM NAME LABEL":M
115 T 17:PRINT "ENTER 2 FOR 2 INCH LAB
   EL"
120 INPUT "ENTER 2 FOR ONE AND ONE HALF
   INCH LABEL":SIZE
125 IF SIZE > 2 OR SIZE < 1 THEN 80
130 CLEAR 2:GETDEF B,0:PRINT "POSITION
   LABEL"
135 INPUT "PUT PREFIX ON LINE AND PRES
   S RETURN":J3
140 IF SIZE=0 THEN SPACE=0 ELSE SPACE=1
145 FOR M2=0 TO M
150 FOR L2 TO L1:PRINT "*****"
   2
160 FOR SPACE=1 TO 2:SPACE=LINE:PRINT
   "*****"
170 NEXT M2
180 CLEAR 2:GETDEF B,1:INPUT "FROM CV/
   NO":J4
190 IF J4="Y" AND J4<>"y" THEN 160
200 INPUT "NAME LABEL CV/NO":J5
210 IF J5="Y" AND J5<>"y" THEN 80
220 GOTO 10
```

AN IDEAL BASIC?

I like Basic, it is a friendly language. Unlike compiled languages it is possible to experiment and see the result immediately. Basic does however have some disadvantages. There is the rather tedious pace at which it goes about its business and, on the ST, a lack of easy access to the useful functions of GEM.

When I got an ST, I expected the bundled ST Basic to run appreciably faster than the 8 bit version. Unfortunately, although there is an increase in speed over 8 bit Basic, this doesn't seem to reflect the superiority of the hardware.

I won't dwell on the facts of ST Basic, but I think it is sufficient to say that it is just not as good as it could (should?) be.

AN IDEAL BASIC?

After using ST Basic for a couple of months I had a mental list of what would make, in my opinion, an ideal Basic for the ST.

- It should make full use of the hardware and be very fast.
- It should have a better screen editor than the cumbersome ST Basic editor, I find all these windows just get in the way.
- It should give easy access to GEM functions.
- It should come on a cartridge to leave the maximum of memory free, and to make loading faster.

Computer Concepts have now released Fast Basic, which I think comes pretty close to being my ideal Basic for the ST. It comes on a cartridge which plugs into the ST's cartridge port and can be left permanently in place. Packaged with the cartridge is a comprehensive manual, a quick reference card and a set of demonstration programs and utilities on disk. All very comprehensive. Let's take a look at what you can expect.

THE SCREEN EDITOR

The screen editor makes sensible use of windows. It has two windows on screen at first-up, the input window and output window. Also available is an immediate mode window which can be opened by clicking on the appropriate menu item.

There are four font sizes available for use while programming. There is also a pretty full set of word processing facilities such as search & replace and cut & paste, all of which make editing a program a much simpler task. It is possible to load ST Basic programs into Fast Basic. Some of course won't work without almost re-writing them but some of the simpler ST Basic programs only need minor changes. Using the search & replace function greatly simplifies this operation. I have done this with several ST Basic programs and found that the programs ran about six

Allan Knopp takes a look at Computer Concepts' FAST BASIC

times as fast when converted to Fast Basic. I should stress that this wasn't intended to be a proper test of the speed of Fast Basic but it certainly gives an indication of what might be achieved.

STRUCTURE

Fast Basic seems quite close to BBC Basic in general syntax, it makes use of procedures, and a generally structured style of programming is encouraged.

Line numbers are optional, but they are really only used as labels. It is still possible to GOTO or GOTO a line number, but it is preferable to write around named subroutines or procedures. Having used 8 bit Atari Basic for some time I was surprised to find how easy it is to program in this way. It makes a program much more readable and easier to change and develop.

KEYWORDS

There are all the usual keywords that you would expect from any good version of Basic and, in addition, there are a large number of extra keywords which are specific to the ST. It is rather strange though that with approximately two hundred and fifty keywords, plus more than sixty GEM commands, there are only three sound commands. One of these is BEEP which gives a bell sound. The others are DDDOUND and SDDREG which both seem difficult to understand and there is not sufficient information in the manual about them (not any examples on the demo disk). I am sure that some good sound can be produced, but compared with the comprehensive range of other keywords it seems that sound has been more than a little neglected.

GRAPHICS

Fast Basic is packed with graphics functions. All the normal graphics commands - LINE, CIRCLE, FILL, etc. are supported. Additionally there are a multitude of commands which, as far as I can tell, cover every possible requirement. For example blocks of screen memory can be manipulated using the GRAB, PUT and BLIT commands. Page flipping is neatly implemented using the PHYSBASE and LOGBASE pseudo variables. GEM is also comprehensively supported.

Every GEM function that you are ever likely to require is available. Most of the GEM commands are simple to use. For example deep-draw menus and alert boxes are very easy to implement. It is possible to produce very professional looking GEM based programs with a minimum of programming.

MCS**MIKES COMPUTER STORE**

Code	Product Name	RSP Inc. VAT	MCS Inc. VAT
5205TFM1	Atari 5205TFM Computer	£399.95	£399.95
5205TFM2	5205TFM1 - 5M125 8W Mon.	£409.95	£462.95
5205TFM3	5205TFM1 - Philips 8533 Col. Mon.	£714.90	£822.95
10405TF1	Atari 10405TF Computer	£399.95	£394.95
10405TF2	10405TF1 - 5M125 Hi-Res. 8W Monitor	£399.95	£446.95
10405TF3	10405TF1 - Philips 8533 Colour Monitor	£914.90	£838.41
SF354	Atari 500K Disk Drive	£149.50	£134.95
SF314	Atari 1 Meg Disk Drive	£290.10	£269.95
SF324	Atari 20 Meg Hard Disk	£399.95	£347.95
5M125	Atari High Res. Monitor 8W	£149.50	£134.95
CLM1M50	Comarna 1 Meg Disk Drive	£199.00	£143.10
CLM1TW1N	Comarna Twin 1 Meg Disk Drive	£369.00	£242.10
PH523M5N	Philips 5233 Med. Res. Mon.	£314.95	£263.46
PH521M5N	Philips 5201 Low Res. Mon.	£243.95	£219.95
LX88PR1N	Epson LX-88 120 cps Printer	£318.25	£264.63
LX88+TR	Epson LX-88 + Tractor Feed	£339.25	£289.95
EP525HEET	Epson LX-88 Sheet Feeder	£53.25	£56.93
LQ800	Epson LQ-800 24 pin Printer	£594.25	£589.95
LQ800TR	Epson LQ-800 Tractor Feed	£48.00	£41.40
BRD1129	Brother 1129 NLO Printer	£263.00	£237.70
WS4000	Mitsuba WS4000 Modem	£172.44	£164.95

SAVE £20 -

Buy
FAST ST BASIC
with any Atari ST
pack for
ONLY £69

Secure our 'Next Day'
delivery + Insurance £10

SHOP OPEN
Monday-Saturday
9.30am-5.30pm

All prices are correct at time of
going to press. We reserve the
right to change prices and
specifications without notice.

**SHOP**

292 London Road Westcliff-on-Sea,
Essex S66 7AL Tel: 0752 523594

MAIL ORDER

P.O. Box 37, Westcliff-on-Sea, Essex S66 8LQ
Tel: 0752 523579

ASSEMBLER

Fast Basic comes with a built-in assembler which can be accessed from within a Basic program. Basic and assembly language can be used together in the same program and the code for both languages appears in the same file.

PROGRAM SEGMENTS

It is possible to have up to ten programs in memory at the same time. Fast Basic divides the memory into segments, putting one program into each segment. Each program can be edited and run independently from the other programs in memory. It is possible for a program to call and run a program in another segment using the **PERFORM** command. The **END** statement will cause a program to return to the original program.

THE MANUAL

Packaged with Fast Basic is a comprehensive manual. It is laid out with one keyword per page with an explanation of the purpose and syntax of the keyword, together with a short example of how it is used and a list of associated keywords.

DEMO DISK

The disk which comes packaged with Fast Basic contains a number of example programs. These provide an

excellent reference for any problems which may arise when programming. Also on the disk are several utility programs. One of these enables a Fast Basic program to be turned into a disk assembly. Another of these utilities turns a Fast Basic program into a .PRG file which, when opened, runs Fast Basic and executes the program. It appears as though the program is running on a stand-alone basis, but the Fast Basic cartridge must be plugged into the computer for the program to run. Computer Concepts have now, however, released a utility which will convert Fast Basic programs into completely stand-alone files.

A third utility on the disk enables synthesized speech to be produced. This is an excellent utility, the speech produced is of quite a high quality and is fairly easy to program.

SUMMING UP

Fast Basic is an excellent product. It has many more commands and facilities than I could possibly describe here. It is similar enough to other Basics to make switching from other dialects of Basic to Fast Basic quite easy. It also has many commands which are entirely specific to the ST. It combines the ease of programming and interactivity of Basic with the ability to program GEM applications. It also lives up to its name - it is very fast.

If you have an ST and want to program in Basic then you really must buy it. In an ideal world it would have been the Basic which was bundled with the ST by Atari. Fast Basic is a product that is every bit as good as the hardware it was written for.

FAST

FAST BASIC

Acad RT cartridge

Active and very fast BASIC interpreter ROM cartridge for the Acad RT computers. This 128K program has been written specifically for the Acad RT computers and so makes full use of (and gives the programmer full access to) all the special features of this machine.

Based around BBC BASIC, but considerably extended, FAST BASIC is a modern structured programming language. It is the ideal environment for those who want to experiment with the RT and to find out about GEM and ROMROM assembly etc.

SPEED

With an average PCW benchmark speed of 1.8 seconds, this is the fastest BASIC available faster than any other PCW basic (which must be faster than BASIC running on the new Compaq 80386 super main). See table for other comparisons.

EDITOR

A full GEM based scrolling editor is included. Supports search and replace, cut, copy, paste and very fast scrolling records. Multiple programs may be held in memory at once, and each program can have its own editing window and associated files. A special immediate window allows commands to be used immediately without forming part of the BASIC program.

PROGRAM SIZE

There is no limit to program size, other than available memory, and there is no speed degradation for running large programs as there is on many other interpreters. Storage may be up to 918 long, arrays may be over 65K.



ASSEMBLER

Similar in concept to BBC BASIC, FAST allows editing of assembly language and BASIC together. The assembler can assemble at over 50,000 lines per minute making it the fastest available. There are several local assembly facilities combined with one of the best editors around makes this a superior alternative to many other word assemblers.

VARIABLES

FAST BASIC supports a full range of variables, 8, 16 and 32 bit integers for speed, single and double precision floating point. Arrays up to 64K and arrays of any size. The floating point uses double-precision.

Price £29.90 (inc. VAT and postage).

Available from all good store dealers or directly from Compaq Ltd. Catalogue.

FAST BASIC INCLUDES:

- ROM Cartridge - It uses no RAM, leaving the maximum available for BASIC programs. It does not have to be loaded from disc and so offers instant start-up and can be permanently available.
- Example disc containing a range of example programs from simple loops to complete GEM examples.
- Manual. Comprehensive 400 page spiral bound manual detailing all commands.
- Quick reference card



COMPARISONS

BASIC	PCW BENCHMARK	TIME
IBM PC		16-8
BBC B		14-8
MAC BASIC		7-1
ST BASIC		9-2
FAST BASIC		1-8

(Seconds)

BASIC

▀ Disk File Edit List Run Social

STRUCTURED

Programs are normally written without line numbers. This, in addition to normal procedures and functions, means that FAST BASIC programs are easier to write and simpler to understand than any other programming language. It also supports REPEAT UNTIL, WHILE, REPEAT and reads line 37, THEN ELSE constructs, and in addition a powerful SORTED CASE (STRUCTURE) statement illustrates the use of multiple IF THEN statements. FAST BASIC supports many of the best features of languages like PROCAL or C, but without the drawbacks.

Review

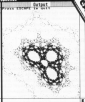
"...It positively flies."
Students of structured programming will be well pleased.
Perhaps the most staggering advantage of Fast BASIC over the official language concerns using the various facilities offered by GEM.
"...It's a real improvement on Alan BASIC."
Popular Computing Weekly

Review

"The Fast BASIC package provides a complete system for the home programmer: the language is beautifully structured."
"The cartridge opens the gap between high level and low level programming languages and combines some excellent high level structures... It seems to have the advantages of languages like C and Pascal without the restrictions."
"Now in hand for the first time the cheapest computer has the most useful BASIC. This can only leave you to conclude that Fast BASIC really is phenomenal value for money."
"If you need a good programming language for home, business, or educational use, buy FAST BASIC. If you would like to program GEM applications but do not feel confident enough to tackle C, buy FAST BASIC. If you need a simple interface with a good editor and environment, buy FAST BASIC."

ST User magazine - Oct 81

```
FRAC16.BAS
100 Fractal graphics
101 from Scientific American
102 Adapted by Phil Martin
103 Runs in any mode.
104
105
106
107
108
109
110 (Try 3.2.1 for starters)
111 Type in any three numbers
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
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
```



ST CARTRIDGE

EXAMPLE SCREEN

MONEY BACK GUARANTEE

If for any reason you are unsatisfied with FAST BASIC we offer a full, no-questions, money back guarantee.

GEM
Lovers and haters seem to give to the ST graphics such an either/or picture. Being able, in addition to a range of keyboards for controlling the screen, icons and windows, it is possible to write programs that present the user with a perfectly standard GEM type interface. An example of a complete GEM program is supplied on the example disc.

STAND ALONE (MS)

Now available, this disc enables FAST BASIC programs to run without the cartridge being present. Once a BASIC program has been written with the cartridge fitted, it can be converted, using this disc, to a stand alone (MS) application program. Simply double click on the icon and it will execute the BASIC program as if it were a normal GEM program. This enables BASIC programs to be run while the cartridge need to be used for other things. Also programs can be written in FAST BASIC and then, or afterwards, to others who do not have the cartridge. We ask no license fee or royalties. ££-vms

Review

"...just about every command you could ever ask for is supported, plus a good many others besides."
"The instruction speed has to be said to be fabulous."
"...If you own an ST - even if you own a C or another scale programmer - you should own a copy of FAST ST BASIC."
"I don't know of a BASIC on any other machine which is as feature packed and yet still easy to use."
Alan User - Apr 81

Compatible with all 520 and 1040ST computers

EXPRESS ORDERS

Access/Overload accepted.
All orders despatched within 24 hours.



Dealer enquiries welcomed.

Computer Concepts

A STEP UP?

Since the launch of the XT, the fashionable language for use on these Atari computers has been 'C'. Languages of any description for the 8-bit machines however are, to say the least, hard to come by (ACTION and BASIC XL aside), however now the 8-bit user may sample the delights of this 'trendy' language with the DVC/85 'C' compiler.

PROGRAM OVERVIEW

The language comes supplied on a single double sided diskette, with a referee and like typewritten booklet explaining the less standard functions of the system. On inspecting the booklet provided, it will become apparent that it is intended to be used as an appendix to the book 'The C Programming Language' by Kernighan and Ritchie. As might be expected the language implemented is a 'small' C, however the system does provide the facility to interface with 'ACTION' and Assembler (namely MAC/85). The program diskette contains a variety of utilities and example programs, many of which may be run directly, although others require compiling first. On loading the diskette, you are greeted with a disk directory which loads and runs as an AUTORUN file. You are prompted for a program name and entering one of the device names illustrates straight away the speed of the language. Before proceeding further the system disk should be backed up.

THE DOCUMENTATION

The documentation would appear to be the weakest point of the package. The 37 page booklet is adequate, but if you are new to C then it can be confusing. It would have been nice to have been provided with a complete function and word index, however the booklet does describe the functions it includes quite fully. The booklet may be considered as having three main sections, the first applying to the DVC compiler itself, the second to the use of the DVC system with the ACTION cartridge, and the third with the use of the MAC/85 assembler. Again the text is direct and to the point, but the subjects are covered a little too briefly. The booklet does not pretend to be a tutorial, nor would I expect one, but I would have liked to have seen a few examples at least.

USING THE SYSTEM

DVC has some annoying anomalies, for example you cannot assign a value within a declaration, e.g. the expression:

```
int val = 10
```

would have to be given as

```
int val;  
val = 10
```

not crippling but annoying when errors arise in compile time. Probably of more interest, floating-point arithmetic is supported, but strangely floating-point numbers must be considered as character strings. If you are used to manipulating floating-point numbers in assemblers using the operating system routines, then this may not seem so strange.

Sean Taylor tries C on the 8-bit with DVC/85

As an example, the expression

```
float number;  
would have to be replaced by  
char number[6];
```

This illustrates that several data type structures are not supported, however some very useful utilities are provided for program development.

The most essential is the editor. This is smart and easy to use with all commands readily available on a menu screen by pressing 'F' and allowing single key entry for loading, renumbering, disk copying etc. Further prompts are provided as required by the program editor. All programs are written using line numbers, these being more for the benefit of the program editor than the programmer. Some very useful keywords have been provided using a [CONTROL][KEY] combination, for example pressing [CONTROL.] and [G] will display 'print'. These key combinations make program entry quicker and more pleasant.

The system supports a very powerful command line editor allowing programs to be loaded and arguments to be passed to them. For example:

```
DI CC PROG LINK RUN
```

will load the compiler (CC.COM) which will then compile the program PROG.C, LINK.COM will create the relevant LINK and COM files and finally the program PROG.COM, created by LINK.COM, will be run.

All program names are normalised, that is to say that only the name need be specified, the DVC system will take care of the name extension and drive number. The system uses a custom DOS, which is compatible with DOS 2.0b and DOS 2.5, however system files cannot be run without the DVC screen DOS being present. The DVC DOS will only support single or double density disk format, the dual density mode offered by the DOS is not supported.

THE DISK FILES

The diskette comes with a large selection of utility files, games and functions. The main .COM files are provided on side A, including the system DOS. The system expects to find five forms of file name extensions. These being .C to specify a text file, .CC to specify a compiled text file, .LINK to specify a link file, .OBJ for an object file from an assembler and .COM for a file that may be readily executed.

Several useful utilities are provided, allowing the creation of AUTORUN.VXS files, reformatting of DVC-DOS, reconfiguring the disk set-up, provision of a ramdisk for the XL and the M80XL using a Memtec Ramboard. For most of the utilities and games provided the

source code is readily available, allowing the utilities to be studied, altered and re-compiled. This freedom with the source files allows the author's programs to be studied and listed and also shows how to overcome some of the language anomalies.

Some very useful and amazingly fast graphics utilities have been included. They are best illustrated by running the graphics demos provided on the disk. These provide very fast drawing, plotting and circle drawing in graphics 8, rotating up to eight times faster than the normal functions also provided.

The system provides a very comprehensive set of functions for use with GIC. These look directly at the operating system ROM and provide the versatility found when using these routines at machine code level.

HOW FAST IS DVC-C?

A series of short benchmark routines were used, to compare DVC with Basic and GIC-FORTH from SDCS. In all cases the internal clock registers of the 88001, were used to produce the times shown.

BENCHMARK	BASIC	DVC-C	FORTH
		TIME/seconds	
1	25	8	9
2	58	14	6
3	68	14	7
4	100	19	13
5	128	21	38
6	14	13	-

From these times it is apparent that 'C' provides a speed increase of upwards of 50% over basic. However, as might be expected, the short floating point routines do not show any marked improvement. For calculations involving numerous iterations then some improvement would be expected. The floating-point benchmark also illustrates how these functions have been implemented in the DVC system.

DIFFERENCES AND UNSUPPORTED FEATURES

DVC shows several features that are either different from Standard 'C' or not supported at all. These may be listed as follows:

- 1) Structures and unions are not supported.
- 2) Multi-dimensional arrays and pointer arrays are not supported.
- 3) Full floating-point arithmetic is not supported.
- 4) Variable types int, char, union only are supported.
- 5) Macro expansions in #defines and assignments within declarations are not supported.
- 6) Constant evaluation is performed at compile time.

No order of precedence is given to arithmetic operators, all expressions are evaluated from right to left.

- 7) Variables may not be declared within a statement block.
- 8) All functions return a two-byte word.
- 9) The braces, due to the lack of the graphic on the keyboard, are replaced with R and E.

These are probably the most evident differences. However for the most part they may be programmed around.

Figure 1 - BASIC Benchmark

Figure 2 - Floating Point routines in C

Figure 3 - C equivalents

CONCLUSIONS

The DVC-C system does provide very good value for money. The sheer number of utilities and example programs provided on both sides of the disk support this. Early versions of the disk contain a compressed LIFE.COM file, which will not load or run, however this may be corrected by copying the relevant (LIFE.COC, LIFE.ORG and LIFE.LNK) files to a work disk and running the file linker.

The one major criticism is the strange way in which floating point arithmetic has been implemented. It poses the question, "If you want this fix, why didn't you do it properly?". Also of relevance multi-dimensional arrays and pointer arrays are not supported. Qualities aside, the system is pleasant and easy to use. More importantly it does support the claims made by all those involved, the language provides structured, easily read source code, and even more to the point, if you understand Basic then you should pick up 'C' in no time.

Overall this package should be wholeheartedly recommended. Buy it you and you won't be disappointed.

DVC/C5 is available from Mike Computer Store, 262 London Road, Weybridge, Surrey, Middlesex TW20 2PB.

Flexible FINGERS

by Peter Gibbs

The ability to type quickly and accurately will save you hours, not only on word processing but also in typing all those long letters. A couple of commercial programs have been available in the past which have taught typing in the conventional way but Typing Test will enable you to brush up on speed and accuracy even if you can just use fingers!

The program will simply present you with a random sentence to copy (not easy mind you!) and will then check your typing for accuracy and speed. Not only will your typing improve but you will also have great fun with some really difficult words!

```

01 1 000 *****
02 0 000 0 FLEXIBLE FINGERS! 0
03 0 000 0 top 0
04 0 000 0 Peter Gibbs 0
05 0 000 *****
06 0 000 0 PAGE 0 NUMBER 0 - 000000 0
07 0 000 *****
08 0 000
09 10 000 000000,000000,000000,000000,000000
10 00 000
11 00 000 *****
12 00 000 *****
13 00 000 *****
14 00 000 *****
15 00 000 *****
16 00 000 *****
17 00 000 *****
18 00 000 *****
19 00 000 *****
20 00 000 *****
21 00 000 *****
22 00 000 *****
23 00 000 *****
24 00 000 *****
25 00 000 *****
26 00 000 *****
27 00 000 *****
28 00 000 *****
29 00 000 *****
30 00 000 *****
31 00 000 *****
32 00 000 *****
33 00 000 *****
34 00 000 *****
35 00 000 *****
36 00 000 *****
37 00 000 *****
38 00 000 *****
39 00 000 *****
40 00 000 *****
41 00 000 *****
42 00 000 *****
43 00 000 *****
44 00 000 *****
45 00 000 *****
46 00 000 *****
47 00 000 *****
48 00 000 *****
49 00 000 *****
50 00 000 *****
51 00 000 *****
52 00 000 *****
53 00 000 *****
54 00 000 *****
55 00 000 *****
56 00 000 *****
57 00 000 *****
58 00 000 *****
59 00 000 *****
60 00 000 *****
61 00 000 *****
62 00 000 *****
63 00 000 *****
64 00 000 *****
65 00 000 *****
66 00 000 *****
67 00 000 *****
68 00 000 *****
69 00 000 *****
70 00 000 *****
71 00 000 *****
72 00 000 *****
73 00 000 *****
74 00 000 *****
75 00 000 *****
76 00 000 *****
77 00 000 *****
78 00 000 *****
79 00 000 *****
80 00 000 *****
81 00 000 *****
82 00 000 *****
83 00 000 *****
84 00 000 *****
85 00 000 *****
86 00 000 *****
87 00 000 *****
88 00 000 *****
89 00 000 *****
90 00 000 *****
91 00 000 *****
92 00 000 *****
93 00 000 *****
94 00 000 *****
95 00 000 *****
96 00 000 *****
97 00 000 *****
98 00 000 *****
99 00 000 *****
100 00 000 *****

```

```

00 000 000 *****
01 000 000 *****
02 000 000 *****
03 000 000 *****
04 000 000 *****
05 000 000 *****
06 000 000 *****
07 000 000 *****
08 000 000 *****
09 000 000 *****
10 000 000 *****
11 000 000 *****
12 000 000 *****
13 000 000 *****
14 000 000 *****
15 000 000 *****
16 000 000 *****
17 000 000 *****
18 000 000 *****
19 000 000 *****
20 000 000 *****
21 000 000 *****
22 000 000 *****
23 000 000 *****
24 000 000 *****
25 000 000 *****
26 000 000 *****
27 000 000 *****
28 000 000 *****
29 000 000 *****
30 000 000 *****
31 000 000 *****
32 000 000 *****
33 000 000 *****
34 000 000 *****
35 000 000 *****
36 000 000 *****
37 000 000 *****
38 000 000 *****
39 000 000 *****
40 000 000 *****
41 000 000 *****
42 000 000 *****
43 000 000 *****
44 000 000 *****
45 000 000 *****
46 000 000 *****
47 000 000 *****
48 000 000 *****
49 000 000 *****
50 000 000 *****
51 000 000 *****
52 000 000 *****
53 000 000 *****
54 000 000 *****
55 000 000 *****
56 000 000 *****
57 000 000 *****
58 000 000 *****
59 000 000 *****
60 000 000 *****
61 000 000 *****
62 000 000 *****
63 000 000 *****
64 000 000 *****
65 000 000 *****
66 000 000 *****
67 000 000 *****
68 000 000 *****
69 000 000 *****
70 000 000 *****
71 000 000 *****
72 000 000 *****
73 000 000 *****
74 000 000 *****
75 000 000 *****
76 000 000 *****
77 000 000 *****
78 000 000 *****
79 000 000 *****
80 000 000 *****
81 000 000 *****
82 000 000 *****
83 000 000 *****
84 000 000 *****
85 000 000 *****
86 000 000 *****
87 000 000 *****
88 000 000 *****
89 000 000 *****
90 000 000 *****
91 000 000 *****
92 000 000 *****
93 000 000 *****
94 000 000 *****
95 000 000 *****
96 000 000 *****
97 000 000 *****
98 000 000 *****
99 000 000 *****
100 000 000 *****

```


NUTS

Winter is closing in fast. In order for Sam Squirrel to survive the cold season, he must collect all the nuts in the nearby gardens. Sam is a very nervous squirrel though, so nervous in fact that he is frightened of his own footprint! If, on helping him round, you tread on an area footprint! He, already helping Sam, will likely die of a heart attack!

Sounds easy, doesn't it? Well, like every good game, there's always a snag. There is something nasty in the gardens. Sam is not sure what it is but being a squirrely squirrel (with a weak heart!) he is surely going to lose a life if that nasty thing touches him. Depending on the chosen skill level, it will chase Sam about the garden and if it succeeds in catching him, he will immediately lose a life.

When a whole garden has been cleared of nuts, Sam will go to the next one. Altogether, there are five different gardens, and once Sam has completed all of them, he will go back to the first by which time more nuts will have fallen.

PLAYING THE GAME

Use a joystick in port 1 to control Sam's movement - left or right will move him horizontally and up or down will move him back and forth across the garden.

Allow approximately twenty seconds for initialisation, after which time the title screen will appear. By pushing the joystick backwards and forwards you will be able to alter the skill level (1-6). When this is as desired, press START or the fire button to start play.



by John Gymer

PROGRAM NOTES

For any budding programmers, I have included a list of the "main" variables and subroutines. Also, anyone wanting a decent source routine may find the machine code from lines 1190 to 1199 useful. To operate this function use USR199, Location of move data, Location of put data, Length of move data.

You may find this routine useful for scrolling screens too.

```

000 0 000 *****
001 0 000 *          * * * * *
002 0 000 *          * * * * *
003 0 000 *          * * * * *
004 0 000 *          * * * * *
005 0 000 *          * * * * *
006 0 000 *          * * * * *
007 0 000 *          * * * * *
008 0 000 *          * * * * *
009 0 000 *          * * * * *
010 0 000 *          * * * * *
011 0 000 *          * * * * *
012 0 000 *          * * * * *
013 0 000 *          * * * * *
014 0 000 *          * * * * *
015 0 000 *          * * * * *
016 0 000 *          * * * * *
017 0 000 *          * * * * *
018 0 000 *          * * * * *
019 0 000 *          * * * * *
020 0 000 *          * * * * *
021 0 000 *          * * * * *
022 0 000 *          * * * * *
023 0 000 *          * * * * *
024 0 000 *          * * * * *
025 0 000 *          * * * * *
026 0 000 *          * * * * *
027 0 000 *          * * * * *
028 0 000 *          * * * * *
029 0 000 *          * * * * *
030 0 000 *          * * * * *
031 0 000 *          * * * * *
032 0 000 *          * * * * *
033 0 000 *          * * * * *
034 0 000 *          * * * * *
035 0 000 *          * * * * *
036 0 000 *          * * * * *
037 0 000 *          * * * * *
038 0 000 *          * * * * *
039 0 000 *          * * * * *
040 0 000 *          * * * * *
041 0 000 *          * * * * *
042 0 000 *          * * * * *
043 0 000 *          * * * * *
044 0 000 *          * * * * *
045 0 000 *          * * * * *
046 0 000 *          * * * * *
047 0 000 *          * * * * *
048 0 000 *          * * * * *
049 0 000 *          * * * * *
050 0 000 *          * * * * *
051 0 000 *          * * * * *
052 0 000 *          * * * * *
053 0 000 *          * * * * *
054 0 000 *          * * * * *
055 0 000 *          * * * * *
056 0 000 *          * * * * *
057 0 000 *          * * * * *
058 0 000 *          * * * * *
059 0 000 *          * * * * *
060 0 000 *          * * * * *
061 0 000 *          * * * * *
062 0 000 *          * * * * *
063 0 000 *          * * * * *
064 0 000 *          * * * * *
065 0 000 *          * * * * *
066 0 000 *          * * * * *
067 0 000 *          * * * * *
068 0 000 *          * * * * *
069 0 000 *          * * * * *
070 0 000 *          * * * * *
071 0 000 *          * * * * *
072 0 000 *          * * * * *
073 0 000 *          * * * * *
074 0 000 *          * * * * *
075 0 000 *          * * * * *
076 0 000 *          * * * * *
077 0 000 *          * * * * *
078 0 000 *          * * * * *
079 0 000 *          * * * * *
080 0 000 *          * * * * *
081 0 000 *          * * * * *
082 0 000 *          * * * * *
083 0 000 *          * * * * *
084 0 000 *          * * * * *
085 0 000 *          * * * * *
086 0 000 *          * * * * *
087 0 000 *          * * * * *
088 0 000 *          * * * * *
089 0 000 *          * * * * *
090 0 000 *          * * * * *
091 0 000 *          * * * * *
092 0 000 *          * * * * *
093 0 000 *          * * * * *
094 0 000 *          * * * * *
095 0 000 *          * * * * *
096 0 000 *          * * * * *
097 0 000 *          * * * * *
098 0 000 *          * * * * *
099 0 000 *          * * * * *
100 0 000 *          * * * * *

```

MAIN VARIABLES

XC, XC1, XC2,	Horizontal positions of the "nuts thing"
YC, YC1, YC2,	Vertical positions of the "nuts thing"
HTTES	Which machine code to copy down character set
CRACT	Address of character set
HEGC	High Key
LEV	Level Counter
HEM	Low Key
MTS	Address of character set
PMASH	How many nuts needed until in PM eating up and vertical movements
CL	Character to be rendered
SC	Score
SL	Skill Level
SL, SL, SL, SL	Nuts collected
XL, XL, XL, XL	Horizontal positions of squirrel
YL, YL, YL, YL	Vertical positions of squirrel

```

00 270 IF Z=000 GO Z=000 THEN POSITION 00,0,0,0,0,0
01 270 000,000,000,000,000,000,000,000,000,000
02 280 IF Z=000 THEN POSITION 00,0,0,0,0,0
03 280 000,000,000,000,000,000,000,000,000,000
04 290 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
05 290 000,000,000,000,000,000,000,000,000,000
06 300 IF Z=000 THEN POSITION 00,0,0,0,0,0
07 300 000,000,000,000,000,000,000,000,000,000
08 310 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
09 310 000,000,000,000,000,000,000,000,000,000
10 320 IF Z=000 THEN POSITION 00,0,0,0,0,0
11 320 000,000,000,000,000,000,000,000,000,000
12 330 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
13 330 000,000,000,000,000,000,000,000,000,000
14 340 IF Z=000 THEN POSITION 00,0,0,0,0,0
15 340 000,000,000,000,000,000,000,000,000,000
16 350 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
17 350 000,000,000,000,000,000,000,000,000,000
18 360 IF Z=000 THEN POSITION 00,0,0,0,0,0
19 360 000,000,000,000,000,000,000,000,000,000
20 370 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
21 370 000,000,000,000,000,000,000,000,000,000
22 380 IF Z=000 THEN POSITION 00,0,0,0,0,0
23 380 000,000,000,000,000,000,000,000,000,000
24 390 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
25 390 000,000,000,000,000,000,000,000,000,000
26 400 IF Z=000 THEN POSITION 00,0,0,0,0,0
27 400 000,000,000,000,000,000,000,000,000,000
28 410 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
29 410 000,000,000,000,000,000,000,000,000,000
30 420 IF Z=000 THEN POSITION 00,0,0,0,0,0
31 420 000,000,000,000,000,000,000,000,000,000
32 430 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
33 430 000,000,000,000,000,000,000,000,000,000
34 440 IF Z=000 THEN POSITION 00,0,0,0,0,0
35 440 000,000,000,000,000,000,000,000,000,000
36 450 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
37 450 000,000,000,000,000,000,000,000,000,000
38 460 IF Z=000 THEN POSITION 00,0,0,0,0,0
39 460 000,000,000,000,000,000,000,000,000,000
40 470 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
41 470 000,000,000,000,000,000,000,000,000,000
42 480 IF Z=000 THEN POSITION 00,0,0,0,0,0
43 480 000,000,000,000,000,000,000,000,000,000
44 490 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
45 490 000,000,000,000,000,000,000,000,000,000
46 500 IF Z=000 THEN POSITION 00,0,0,0,0,0
47 500 000,000,000,000,000,000,000,000,000,000
48 510 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
49 510 000,000,000,000,000,000,000,000,000,000
50 520 IF Z=000 THEN POSITION 00,0,0,0,0,0
51 520 000,000,000,000,000,000,000,000,000,000
52 530 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
53 530 000,000,000,000,000,000,000,000,000,000
54 540 IF Z=000 THEN POSITION 00,0,0,0,0,0
55 540 000,000,000,000,000,000,000,000,000,000
56 550 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
57 550 000,000,000,000,000,000,000,000,000,000
58 560 IF Z=000 THEN POSITION 00,0,0,0,0,0
59 560 000,000,000,000,000,000,000,000,000,000
60 570 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
61 570 000,000,000,000,000,000,000,000,000,000
62 580 IF Z=000 THEN POSITION 00,0,0,0,0,0
63 580 000,000,000,000,000,000,000,000,000,000
64 590 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
65 590 000,000,000,000,000,000,000,000,000,000
66 600 IF Z=000 THEN POSITION 00,0,0,0,0,0
67 600 000,000,000,000,000,000,000,000,000,000
68 610 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
69 610 000,000,000,000,000,000,000,000,000,000
70 620 IF Z=000 THEN POSITION 00,0,0,0,0,0
71 620 000,000,000,000,000,000,000,000,000,000
72 630 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
73 630 000,000,000,000,000,000,000,000,000,000
74 640 IF Z=000 THEN POSITION 00,0,0,0,0,0
75 640 000,000,000,000,000,000,000,000,000,000
76 650 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
77 650 000,000,000,000,000,000,000,000,000,000
78 660 IF Z=000 THEN POSITION 00,0,0,0,0,0
79 660 000,000,000,000,000,000,000,000,000,000
80 670 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
81 670 000,000,000,000,000,000,000,000,000,000
82 680 IF Z=000 THEN POSITION 00,0,0,0,0,0
83 680 000,000,000,000,000,000,000,000,000,000
84 690 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
85 690 000,000,000,000,000,000,000,000,000,000
86 700 IF Z=000 THEN POSITION 00,0,0,0,0,0
87 700 000,000,000,000,000,000,000,000,000,000
88 710 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
89 710 000,000,000,000,000,000,000,000,000,000
90 720 IF Z=000 THEN POSITION 00,0,0,0,0,0
91 720 000,000,000,000,000,000,000,000,000,000
92 730 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
93 730 000,000,000,000,000,000,000,000,000,000
94 740 IF Z=000 THEN POSITION 00,0,0,0,0,0
95 740 000,000,000,000,000,000,000,000,000,000
96 750 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
97 750 000,000,000,000,000,000,000,000,000,000
98 760 IF Z=000 THEN POSITION 00,0,0,0,0,0
99 760 000,000,000,000,000,000,000,000,000,000
100 770 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
101 770 000,000,000,000,000,000,000,000,000,000
102 780 IF Z=000 THEN POSITION 00,0,0,0,0,0
103 780 000,000,000,000,000,000,000,000,000,000
104 790 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
105 790 000,000,000,000,000,000,000,000,000,000
106 800 IF Z=000 THEN POSITION 00,0,0,0,0,0
107 800 000,000,000,000,000,000,000,000,000,000
108 810 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
109 810 000,000,000,000,000,000,000,000,000,000
110 820 IF Z=000 THEN POSITION 00,0,0,0,0,0
111 820 000,000,000,000,000,000,000,000,000,000
112 830 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
113 830 000,000,000,000,000,000,000,000,000,000
114 840 IF Z=000 THEN POSITION 00,0,0,0,0,0
115 840 000,000,000,000,000,000,000,000,000,000
116 850 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
117 850 000,000,000,000,000,000,000,000,000,000
118 860 IF Z=000 THEN POSITION 00,0,0,0,0,0
119 860 000,000,000,000,000,000,000,000,000,000
120 870 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
121 870 000,000,000,000,000,000,000,000,000,000
122 880 IF Z=000 THEN POSITION 00,0,0,0,0,0
123 880 000,000,000,000,000,000,000,000,000,000
124 890 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
125 890 000,000,000,000,000,000,000,000,000,000
126 900 IF Z=000 THEN POSITION 00,0,0,0,0,0
127 900 000,000,000,000,000,000,000,000,000,000
128 910 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
129 910 000,000,000,000,000,000,000,000,000,000
130 920 IF Z=000 THEN POSITION 00,0,0,0,0,0
131 920 000,000,000,000,000,000,000,000,000,000
132 930 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
133 930 000,000,000,000,000,000,000,000,000,000
134 940 IF Z=000 THEN POSITION 00,0,0,0,0,0
135 940 000,000,000,000,000,000,000,000,000,000
136 950 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
137 950 000,000,000,000,000,000,000,000,000,000
138 960 IF Z=000 THEN POSITION 00,0,0,0,0,0
139 960 000,000,000,000,000,000,000,000,000,000
140 970 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
141 970 000,000,000,000,000,000,000,000,000,000
142 980 IF Z=000 THEN POSITION 00,0,0,0,0,0
143 980 000,000,000,000,000,000,000,000,000,000
144 990 IF Z=000 AND Z=000 THEN POSITION 00,0,0,0,0,0
145 990 000,000,000,000,000,000,000,000,000,000

```

SUBROUTINES

00-100	Set up main variables
100-200	Initialization of external
200-300	Initialization of "memory things"
300-400	Load a file
400-500	File open and
500-600	"filing" (making routine
600-700	AM files and - some error
700-800	file names
800-900	Some constants
900-1000	Set up options
1000-1100	Draw problems
1100-1200	Make the characters set
1200-1300	Screen clear

SPRING SALE

GREENWELL COMPUTERS

114 QUEENS ROAD,
CHADDLE-HULME, CHESHIRE SK9 5HS
TEL: (061) 485-1128 (MAIL ORDER ONLY)

SPECIAL HARDWARE OFFER

130KB WITH 1050 AND SOFTWARE £199

Hardware - 8-BIT (Home/Personal Use)

ATARI 1300X 1350 COMPUTER	£100
ATARI 1050 DISK DRIVE	£110
ATARI 1024 DOT MATRIX PRINTER	£120
ATARI 1027 LETTER QUALITY PRINTER	£120
ATARI XC10 PROGRAM RECORDER	£100
ATARI 850 INTERFACE MODULE	£100

HARDWARE 16-BIT BIT

ATARI 80070X WITH 8010 OR 8015 DRIVE	£200
ATARI 100070X WITH 8010 OR 8015 DRIVE	£240

We cannot list every item we sell here, so just phone or write!

Charges and Payments:

For hardware add £5 for delivery. For packs add £7.50 for delivery.

Cheques & P.O.'s in:

"THE GREENWELL GROUP" OR TRAVELCASH AT
THE POST OFFICE A/C 870418881

ARE YOU MISSING OUT? MONITOR MAGAZINE IS JUST WHAT YOU NEED!

Filled from cover to cover with:

- Game/ology Games
- Tantalizing Teasers
- Mind-boggling Machine Code
- Latest Listings
- Topical Tips
- Realistic Reviews
- 16-Bit and 8-Bit Coverage



Send a cheque/P.O. for £4.00, made payable to the U.K. Atari Computer Owners Club, for your first issues subscription now. Or send £1-30p (which includes PMP) for a sample copy, to see what the magazine offers.

Don't delay do it today!

THE U.K. ATARI COMPUTER OWNERS CLUB

[P3] P.O. Box 3, Rayleigh, Essex, SS6 6LR

Independent Open Group

£100 PROGRAMMING CONTEST!

Here's a chance to show how clever you are. We would like a new title screen for the PAGE 4 laser disks and rather than get someone to write it specifically we thought we would give you the chance to put forward your ideas.

You will probably need one of the PAGE 4 laser disks to get an idea of what is required (more info!) but briefly we need a good animated title which announces the issue number and date of the disk. Entries can be in Basic or machine code but must conform to the following guidelines.

1. The first few lines must contain variables or data for the issue number and month/year of issue and colour registers so that these can be easily altered. If written in machine code, these must be in the form of a table which can be altered with a sector editor.
2. The program must be able to be exited before completion by pressing any of the function keys (START/SELECT/OPTIONS).
3. The program must, on exiting as above or after finishing (with a short game) run a Basic program entitled "DAMENU".
4. On exiting by any means, all Player Missile Graphics and other registers must be reset to their default values.
5. The program must run on all 8-bit models i.e. it must not use features found only on the XL/SE and must not use illegal jumps to the OS.

The theme can be entirely yours but the program should be capable of being easily changed slightly for each issue, even if only the colours. Perhaps several different optional backgrounds could be supplied? Let your imagination flow!

THE PRIZES: Real cash! The entry selected by the Editor as the winner will receive £75 and a free disk subscription to PAGE 4 worth £30. Two runners up will each receive £25 and a disk subscription.

What more incentive could you want? Of course you'll really do it because you love programming that old Atari and because your program will be seen by Atari owners all over the world, won't you?

The Editors decision will be final and PAGE 4 will retain the right to use any prize winning programs on their regular laser disks until further notice. Disks will only be returned if requested and if accompanied by return postage.

DEADLINE: 2nd APRIL 1987. Get writing!

Entries should be sent to: **TITLE CONTEST, PAGE 4, PO BOX 54, STAFFORD, ST16 1DR**

B/GRAPH Ariolasoft £29.95

Reviewed by John S. Davison

Ever since I bought Atari's original 'Graph-It' program for my 16K 400 many months ago, I've been wishing someone would produce a good graphing and charting utility for the 8-bit machines. Well, my wish has been granted - thanks to Ariolasoft (again!). The B/Graph package has an added bonus, too. It includes statistical analysis functions, allowing you to test, manipulate and reduce raw data into more meaningful information before displaying it graphically in many different ways.

Packaging and presentation is of the high quality which now seems to be standard on Ariolasoft's flagship range of 8-bit software, matching that of HomePat and PaperClip (both reviewed recently in Page 8), BUT, they do persist in printing their instruction manuals sideways with the spine at the top (instead of the left hand side), and binding it in such a way that it won't stay open at the chosen page! And really, a 148 page manual SHOULD have a proper alphabetic index, although to be fair, the list of contents used here is fairly detailed.

The facilities provided by this package are comprehensive, to say the least. They're implemented via ten separate programs supplied on two single sided disks. Learning to use a package as complex as this could be a nightmare, so Ariolasoft have taken the sensible approach of writing the manual as a series of tutorials covering all of the major functions. Sample data is provided on the second disk, so you don't have to invent your own while learning some of the more exotic functions.

The package is mostly menu driven, and generally friendly and easy to use. Most screens prompt you as to what actions you can take next, although this is not always so. Some functions, notably imaging, use a full screen display, with no room for menus or prompts. I ended up writing out the required key commands as a reference used as a reminder.

GRAPHING AND CHARTING

For most people, the graphing and charting features are the ones which will get most use. B/Graph can produce a graph or chart to suit virtually any purpose, including bar plots, scatter plots, area graphs, two and three dimensional bar charts, with factors stacked or side by side, marker graphs (for roots and others), and pie charts. You can quickly switch back and forth between compatible chart types until you find one that best suits your needs.

B/Graph will handle up to three factors, that is, you can plot three different sets of data on one chart. This was a disappointment at first, as I often need to plot more sets than this. However, B/Graph lets you superimpose charts over each other, so if you needed six lines on a graph you could produce two sets of three and then overlay one on the other. The only problem is that there are only three different styles of line, so it could get a bit confusing.

Each factor can have up to 100 values - good enough for



most home use purposes. There are display limitations with bar charts, though, restricting you to a maximum of 40 values. If you have more values than this, you have to use a bar graph instead.

Positive and negative integer or decimal data values are handled, and B/Graph will automatically scale the axes for you, so you don't have to worry about plotting points that go 'off the chart'. To meet special needs you can turn off the automatic scaling function and do it manually.

Labelling your charts is easily achieved, with standard facilities for entering main and secondary title lines, X and Y axis titles, and chart identification numbers.

The charts work slightly differently in that you can key in up to 10 values and their descriptive labels. B/Graph then calculates the percentage value of the total each represents and displays them all graphically in the familiar 'pie slice' format.

CUSTOMISED CHARTS

Any chart can be customised by adding solid or dotted grid lines (horizontal and/or vertical), adding borders to the top and right hand side to match the usual X-Y axes, and set colour and intensity of background and plots to suit any requirement.

One other small disappointment concerned use of colour. Detailed colouring is achieved via - you guessed it - dithering, which means users of non-American standard TV's see only patterns rather than colours. However, the patterns do effectively separate the different chart areas, so this is no real hardship.

PRINTING AND IMAGING

One of the joys of this program is the ease with which you can obtain a printout of your charts and data. It's as simple as pressing the START key. This gives a rapid, good quality screen dump producing a picture size of about one quarter of an A4 page. Most popular printers are supported. My only criticism is that pie charts printed on my line 8010 were slightly oval, rather than circular. This happens with some printers as horizontal and vertical dot pitch is sometimes not quite the same, and B/Graph assumes it is.

The screen display is created in real time from data provided by you. Sometimes you may want to display a whole series of different charts without having to wait while B/Graph builds each one from the base data. To do this, you use B/Graph's imaging facilities to save screens to disk as 48 sector files. A utility is provided to display these in sequence as a 'slide show'.

THE BEST ATARI SOFTWARE

That's what we want you to tell us!

You will have noticed that we don't give star ratings or points to programs we review but many users like to be able to compare programs on a ratings basis. So (with your co-operation), we intend to run a regular feature showing those programs that Atari owners at large feel are the best and the worst.

What we want you to do is to go through your software collection (or at least some of it!) and rate each program from 0 (for abysmal) to 10 (for the absolute top), jot it down on a postcard and send it to us. Whenever you buy something new and have formed an opinion, send us your marks on that and we will update the charts each issue. We will publish separate charts for Adventures, Games, Applications and ST software.

There is no need to categorise programs if you don't want to, but please make sure that you make it clear whether the programs are for 8-bit or ST.

No chart system is infallible but if enough readers voice their opinions we must get a much fairer reflection of what is good and bad than if we asked one reviewer to be sole judge and arbiter.

So let's be hearing from you. This is your chance to participate! Get cracking on these cards and send them to:

THE BEST ATARI SOFTWARE, PAGE 6, P.O. BOX 34, STAFFORD, ST16 1DR

Tracing facilities also permit you to use additional custom labelling on your charts. This time, however, you have complete flexibility as to positioning, font, text size, and colour (artificial). A further use of this facility is to produce text only screens for inclusion in 'slide shows' of other charts. B-Graph provides several different fonts, including Greek, Hebrew, Russian, and Extended/1 alphabets. These may be rotated in 90 degree increments, if required, for special labelling purposes.

Yet another option provides a means of passing B-Graph charts to some of the newer word processors (like Amic magazine's Word Magic, and Ariston's PaperClip) which can integrate them with text into documents.

LIES, DAMNED LIES, AND...

Statistics packages are something of a rarity on the Atari. Even if B-Graph contained only the features described so far, it would be a good buy. The fact that it also contains a whole raft of statistical analysis functions makes it doubly so (if you can understand and make use of them, that is!). I don't claim to be a statistician, but there are items here even I can use.

All the standard functions are present including mean, median, standard deviation, variance, skewness, kurtosis, upper/lower quartiles, and maximum/minimum values for a given set of data.

Data manipulation functions include exponential

smoothing, arithmetic and geometric moving averages, predefined or customised factor calculations, e.g. divide factor 1 by factor 2, or use the factor values in any valid Atari BASIC expression supplied by you. Also, you can change the order of factors, remove factors, and load factors from another file. If you have a few missing values in a given factor, B-Graph will provide estimated values for them, if you wish.

Wishful owners rejoice! B-Graph can read Wishful EXF files, allowing you to visually illustrate your spreadsheets. Data can also be passed in the reverse direction, enabling Wishful to read B-Graph data.

Other features cover P, T and Chi-Square tests, and Normal, Poisson, and Binomial Distribution probability testing. In addition, there are facilities for regression and correlation analysis. Phew - busy stuff! Obviously, you need to know what you're doing to get the most out of some of this. The B-Graph manual isn't designed to give you more than a brief overview of what it's all about, but does recommend suitable books for further study, if you need it.

CAN YOU LIVE WITHOUT IT?

B-Graph, quite simply, is first class, quality software for the 8-bit Atari (and for the ST soon). If you need to produce graphical charts or do a little statistical analysis for home, educational, or even business use, then go out and buy B-Graph now. It's worth every penny of the asking price.

SHORT REVIEWS



WAR HAWK
Firebird
£1.99 cassette only
1 player
1 joystick

There's a budget war raging with Firebird and Massacre as battling it out between them to produce the best Atari 'duple'. Previously, Massacre led the way handsomely with top notch games like NINJA and LA SWAT but Firebird have retained with a real cracker in the form of WAR HAWK.

It's a vertical scrolling space-war game which shares many similarities with Uranium, a top-seller on various other micros. The aliens have set up their defenses on a huge asteroid belt and you must fly Warhawk into the heart of that asteroid belt, destroying bases and wiping out the marauding fleets of enemy starfighters. Watch out for space mines and missile showers which will waste your defensive energy shields. Once your shields give out the game is over.

If you survive the initial run over the asteroid belt and the subsequent base-to-base attack by the starfighters which converge on your ship like a swarm of angry bees - they have no response but, instead, try to deplete your shields by ramming into you - your fire mission is complete and you advance onto the next asteroid with your shields restored to maximum strength.

Should you manage to completely wipe out any individual base you are rewarded with a welcome bonus. An ordinary joystick isn't much help here and an auto-fire isn't a must. It's difficult to rack up a decent score without one.

WAR HAWK scores high on playability, though it tends to get impossible on the higher levels - or so I'm told. Graphics are bold and colourful, sound is well up to scratch for this type of game.



LAPIS PHILOSOPHER'S STONE
'Philosopher's Stone'
Aristonsoft
£14.95 - Disk only
1 Player
Keyboard

Twentieth Century Royals have never had it so good - sitting back with their feet up sipping a glass of Bollinger, making the odd Christmas speech now and again just to keep up appearances whilst letting the Government mess up the running of the country for them. Ah, what a life!

It wasn't quite so easy in bygone days. PHILOSOPHER'S STONE is a graphical adventure set in ancient times. King Gaster, wise ruler of Atlantis, has been possessed by his evil stepson in a bid to seize the throne. Messengers have scoured the land in vain for a cure to save the old King and now, in desperation, they have turned to you, a loyal servant who once dabbled in the mystical art of alchemy. Can you help save the King?

Maybe it's not the done thing in adventure circles but I'm going to put the cat among the pigeons by confessing that I prefer graphic adventures to text only ones. It's been said many times that you don't need graphics when there is good descriptive text as offered by Infocom and the like, but I don't agree. Perhaps I don't have a vivid enough imagination! In any case, I can't see the sense in ploughing through line after line of text just to get an image forming in your head when a picture does it for you instantly. Anyway if, like me, you prefer your adventures with artwork then PHILOSOPHER'S STONE will not disappoint you. The many and varied picture scenes are bright, clear, full of detail and remarkably similar to the type used in Activision's 'Misthadow', another first-rate adventure in my opinion.

The parser is of the verb/noun variety, which I feel most people are comfortable with despite the claims of some programs to understand full 'English' sentences. I've lost count of the

JIM SHORT BURNS THE MIDNIGHT OIL TO LOOK AT HALF A DOZEN MORE GAMES FOR YOUR ATARI

and it has that elusive quality which keeps you coming back for more. If you're a glutton for punishment you'll appreciate this one.

Not content with all this, Firebird have tossed in a few extras. The title screen is a nuisance, depicting a moving starfield fading away into the distance and giving the best impression of 3-D I've seen in a long while. However, the theme music is the real show-stopper. Composed by Rob Hubbard it is causing quite a stir in Atari circles at the moment. My own personal favourite is 'Song of the God' from BALLBLAZER, but most other Atarians reckon the WAR HAWK theme is the best yet on our computer. For once I'll bow to the majority and concede the point.

It's going to take something extra special to knock WAR HAWK off the top of the budget podium. Other software companies may have to do some retooling. How much longer can they continue to charge £8-10 a game when there are gems like this hitting the market at only £1.99? Think about it.

times I've typed sentences into these programs, only to be disappointed with the replies. I always use sophisticated tapes - you, even with Infocom adventures. Maybe that's why I've never actually completed one!

A word here about the text which is done in bold 'Old-English' style - large black letters on a light background - and is infinitely more readable than the terrible stuff used in the early Scott Adams adventures. The program also features an impressive tale screen and even a catchy 'singalong' theme tune. Plenty of extras for your money!

You begin the game in the comfort of your own home deep in the heart of the walled city. A quick message through the air reveals a couple of useful items, including a bomb which gives you a clue to the solution of all your problems - the Philosopher's Stone. Only problem is how to find it!

Outside in the streets you are presented with yet another major problem - how to get out of the city. You're in league with the King's minister, so his citizens has doubled the guard on the main gate to prevent you from leaving. An alternative method has to be found. And now your troubles really begin....

This is indeed to take over from 'Mindbender' as my favourite adventure. It offers a series of logical puzzles which require smart thinking rather than a University degree in psychology. It also gives clever, interesting replies. When you tell it to 'TAKE object' it responds with things like 'How can I do what is already done?' or 'I am sure it is safely moved away' rather than the usual boring 'OK' or 'Taken'. I like it's sense of humour too. If you 'PLAY LUTE' to the guards at the gate you are subsequently thrown in jail for disturbing the peace. That won't get you very far, mind you, but you'll get a laugh from it if nothing else!

This game is a whole lot of fun. I may only be a novice when adventures are concerned but I know a good program when I see one. Highly recommended.

ESCAPE FROM DOOMWORLD

Red Rat
\$9.95 disk
\$7.95 cassette
1 player
1 joystick

Red Rat keep churning them out (more power to their effort!) so helping to fill the gap left by English Software, who are no longer Atari's main British software producer.

ESCAPE FROM DOOMWORLD is a three-in-one action arcade game. A group of leading Earth scientists are held captive on Doomworld and they have to be rescued before their vital knowledge can be used against us.

The first stage is like a platform game minus the ladders and you move around the levels with the aid of some clever jumping techniques. Various objects have to be collected before moving onto the second stage. Here you take to the air in your spaceship and some 'Chopstick' manoeuvres are required to pick up all the scientists and drop them safely at your base. You stay with your ship for the final stage where skillful flying is needed to negotiate an assortment of columns and collect the three bombs which will destroy the alien planet and result in the completion of your mission.

DOOMWORLD starts off quite well but falls away as you progress through the three stages. The first stage is the strongest one by far and perhaps a better game could have been written based on that idea alone!

Pasable enough this one, but is it worth the asking price? Like *SOBLAIN OF THE UNDEAD* I feel it should have been a budget game. Maybe you'd like to judge for yourselves!

LASER HAWK

Red Rat
\$9.95 disk
\$7.95 cassette
1/2 players
1/2 joysticks

Forget modern software trends. Everybody knows it's hard to beat a good old-fashioned space blaster. When all else fails give the gamers what they really want - another 'zap those nasty bug-eyed critters into space dust' game.

LASER HAWK is a jacked-up version of *Scribble* - no credits though, just continuous left to right scrolling across an open-air alien landscape. You take on the role of the famed Mercenary, Jim din'Ah, who has been recruited to destroy the 5 command headquarters of the evil Pinc Inna, which just happens to spell 'Acad Corp' backwards. Naturally, these are heavily guarded by the obligatory defense systems, comprising of air cannons, robots, volcanic eruptions, missile launchers, mines, booby traps, burning missiles, laser-beams and the like. Not that a few paltry defenses will hamper a man (money makes but Jim is definitely a man's man - I hope) of your capabilities. Besides, the headquarters are color-coded BEER, COMM, AMP, AMS and SIN and come in the shape of the applicable computer symbols. If that doesn't give you the incentive to bomb the living daylight's out of them then nothing will!

I'm tempted to label this game as a poor-man's BETA LYRAE as it bears more than just a passing resemblance to the Doomworld game. Beta Lyrae is the ultimate computer *Scribble* and LASER HAWK can't really hope to compete, but it is a reasonably good alternative. What it lacks in fancy frills and refinement it makes up for in playability not to mention hardware shock! Bombing Commodore and Spectrum symbols! ... I like it, I like it!

Worth the effort this one. Make sure you check it out.

JET SET WILLY

Yestsoft
Cassette
1 player
1 joystick



I've never liked this game. I saw it when it was initially released on the Spectrum and Commodore and could never quite understand what all the fuss was about. Mind you, I was excited on stuff like *Atrocious* and *Blue Max* and *Necromancer*, so maybe that had a lot to do with it! Anyway, despite the silly little machoish graphics and the fact that you need a magnifying glass to even see anything on the TV screen, despite the game being full of bugs, meaning you could step into a trap and lose all your remaining lives without being able to do anything about it, despite having to type



in a hundred different 'cheat' codes to override the bugs in order to complete the game, it still managed to top the software charts and earn the dubious accolade of 'Game of the Year'.

So what's kidding who? Well, owners of these 'other' computers will defend JET SET WILLY come hell or high water and, indeed, they sang it's praises right up until the very moment they were carried off to the Flying Farm by the man in white coats. Half a million homes can't be wrong, can they? They'll be telling us next that the latest Status Quo single isn't exactly the same as the last one!

And here JET SET WILLY has arrived on the Amos (why not?) and, in the interests of fair-play, I am prepared to cast all prejudices aside in order to give it a fair crack of the whip. Okay, I've looked at it, played it, studied it in great detail and... it's terrible!

The Amos version is an insult to the Atari. The colours are dreadful, sound non-existent apart from the brilliant theme music from master composer Rob Hubbard and the graphics are totally inferior to all other versions when we know they should be better, and the animation is a joke. Instead of the superb smooth animation we are used to on the Amos, the characters move around in a jerky, step-stair motion which manages to look passable until you compare it with the Spectrum/Commodore versions. Come off it Tyranid! you can do better than this. Commodore and Spectrum owners will laugh their socks off when they see it and that's the last thing the Amos needs. Can you imagine what the mainstream 'anti-Amos' computer press are going to say should they get their hands on a review copy? They seldom miss a chance to put the Amos down.

Please try again Tyranid - no need your continued support - but no more conversions. Stick to original material and you get to know the machine a lot better. If you want to see how it's done, take a look at STARQUARK from Bubble Bus.

KNOCKOUT

Amos
1 player
1 joystick

I've not a great boxing fan. I rate it as one of the most boring sports on earth (next to cricket) and the only people I considered worth watching were Ali in his heyday and the brilliant Sugar Ray Leonard who had more talent in his big toe than every other boxer in history put

together. Obviously I don't expect anyone to agree with me and so now that I've spent five hours everywhere (my good friend for 1987) it's on with the job of reviewing KNOCKOUT, a boxing simulation from Amos.

It's a clashing match this one and gives you, the challenger, the chance to take on the top 8 Heavyweights in the world in order of merit and, hopefully, work your way up through the ranks to get a shot at that all-important title against the World's No.1, Smart 'Hey, don't push me' Bullseye.

It looks decent enough at first - a view from behind your boxer, looking directly across the ring, with the crowd in the background and a couple of realistic 'tag shots' of the competitors in the top corners of the screen - but all this is subsequently cancelled out by the poor graphics of the boxers themselves. Your opponent is a crudely drawn outline and your own boxer is done in unusual wire-frame graphics, making him look like a half-finished version of the famous man. There is virtually no animation at all - the boxers don't move around the ring but stand on the spot clapping it out in that heavyweight style (yawn!).

The fighters are super-imposed on top of each other but, in spite of your wire-frame body, it's still difficult to make out your opponent and totally impossible to tell who's hitting who. Tyranid isn't this game's wrong point. [ahh! Bubbles!...] what's the difference when you can't see them anyway?

Sound effects are limited to the dull thud of the punches and also the cheering crowd, which actually sounds like waves breaking on a Cornish beach. This could have been the first computer surfing game if it weren't for the graphics!

Opponents have to be locked from tape after a couple of hours on the cassette version, which makes me wonder where all the memory's gone. It's not so if large chunks of Ram are wasting away on fancy animation!

Unfortunately, there aren't many other alternatives on the market for fans of this type of game, particularly if you have a cassette-based system. Disk owners are advised to check out FIGHT NIGHT from US Gold as it's a much better prospect. Know what I mean Harry?



CRYSTAL RAIDER

Mastertronic
£2.99 cassette
1 player
1 joystick



Question - 'When is an arcade adventure not an arcade adventure?'. Answer - 'When it's Mastertronic's CRYSTAL RAIDER'.

At first glance it looks like one of those familiar arcade adventure games where you travel through rooms after rooms, collecting various objects, in order to achieve some predetermined goal. There's more to it than that first meets the eye though and the cleverly worked scenario on the cassette may give you a few hints on how to tackle this one. Question 'CRYSTAL RAIDER is not an arcade adventure. It is in fact a set of logic puzzles and should be approached that way'.

You control a small character who possesses phenomenal jumping powers and you must guide him safely through 50 different rooms collecting all the quartz crystals he can lay his hands on. Pressing the fire button causes him to rise up in the air and he will continue in an upward direction until he strikes an immovable object or you let go of the button. You have full control of his movement in the air thus giving him access to all the crystals and parts of the room which are otherwise impossible to reach.

Fire-pits are a potentially lethal hazard and the rooms are also inhabited by killer snakes and other nasties. You must plan your route carefully to avoid these dangers, bearing in mind that all the crystals have to be collected eventually in order to complete the game. You can exit a room at any time but you gain an extra life for clearing a room of it's quota of crystals, so it's worth the risk particularly when you consider that there are 50 extra lives there for the taking. This gives you a maximum possible total of 51 lives and Mastertronic were the even this may not be enough. From what I've seen 50 lives may not be enough!

CRYSTAL RAIDER doesn't have the instant appeal of either NINJA or LA SWAT but it's got the most exciting power. You'll still be playing it long after you've tired of the other two. Mastertronic have another winner on their hands here.

500 *****
501 *****
502 *****
503 *****
504 *****
505 *****
506 *****
507 *****
508 *****
509 *****
510 *****
511 *****
512 *****
513 *****
514 *****
515 *****
516 *****
517 *****
518 *****
519 *****
520 *****
521 *****
522 *****
523 *****
524 *****
525 *****
526 *****
527 *****
528 *****
529 *****
530 *****
531 *****
532 *****
533 *****
534 *****
535 *****
536 *****
537 *****
538 *****
539 *****
540 *****
541 *****
542 *****
543 *****
544 *****
545 *****
546 *****
547 *****
548 *****
549 *****
550 *****
551 *****
552 *****
553 *****
554 *****
555 *****
556 *****
557 *****
558 *****
559 *****
560 *****
561 *****
562 *****
563 *****
564 *****
565 *****
566 *****
567 *****
568 *****
569 *****
570 *****
571 *****
572 *****
573 *****
574 *****
575 *****
576 *****
577 *****
578 *****
579 *****
580 *****
581 *****
582 *****
583 *****
584 *****
585 *****
586 *****
587 *****
588 *****
589 *****
590 *****
591 *****
592 *****
593 *****
594 *****
595 *****
596 *****
597 *****
598 *****
599 *****
600 *****

THE RESOURCE FILE

The Resource File is a new service provided by PAGE 9 to help Atari owners (both 4-bit and 5-bit) find sources of information, help and supply. An entry in this feature does not necessarily imply any endorsement by PAGE 9 and readers are advised to check for themselves to ensure that the information is still current. We would not accept any liability for any mistakes in the accuracy or cost of data to be included or that any entry may be amended or deleted.

RETAILERS

A-1 ELECTRONICS

111-11111111
111-11111111
111-11111111

ALCOCK CENTER

111-11111111
111-11111111
111-11111111

AMERICA

111-11111111
111-11111111
111-11111111

ATARI ELECTRONICS LTD.

111-11111111
111-11111111
111-11111111

ATARI

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER COMPANIES LTD.

111-11111111
111-11111111
111-11111111

COMPUTER STORES

111-11111111
111-11111111
111-11111111

COMPUTERS COMPANY LTD.

111-11111111
111-11111111
111-11111111

COMPUTER CENTRE

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER WORLD LTD.

111-11111111
111-11111111
111-11111111

COMPUTER

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER

111-11111111
111-11111111
111-11111111

COMPUTER WORLD LTD.

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER WORLD LTD.

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER

111-11111111
111-11111111
111-11111111

COMPUTER WORLD LTD.

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER WORLD LTD.

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

COMPUTER WORLD

111-11111111
111-11111111
111-11111111

BBS

Do you run a Bulletin Board which serves mainly the Atari 4-bit or 5-bit? If an entry in this feature please send us details as follows: **NAME** of a plain sheet of paper headed **RESOURCE FILE - BBS**

Name: BELL'S BBS
Number: 012 345 678
Hours: 24 hours
Board Size: 200
Features: ST only (2 words max)

Any background information included will be filed for reference but not published.

USER GROUPS

Do you want others to know about your group? Send the following details **ONLY** on a plain sheet of paper headed **RESOURCE FILE - USER GROUPS**

Name: UPPER WAPPING A&C
Contact: Brian Brice
Meeting: Fridays
Address: LONDON EC2
Telephone: 004 749 3420
Members: Local only (2 words max)

That's all you get! We will not publish any other details as meeting times and places tend to change. Appoint someone responsible to handle any enquiries received.

HELPLINE

Do you have any special experience or knowledge that you would like to share with others? If you don't mind writing into a few lines to answer the phone you could offer *Atari* owners advice that problems. We suggest that you set aside certain times during which you are willing to receive calls otherwise you may well be woken up in the middle of the night! Please restrict your help to one specialist subject and note that we will only accept one or two queries for each subject. Please supply the following details on a sheet of paper headed **RESOURCE FILE - HELPLINE**.

Name: Harry Clive
Telephone: 011 202 2222
Subject: ATARI BASIC programming
Hours: Mondays 1.30 pm to 1.0 pm, only

Be warned - you may still get the odd idiot phone at 4.30 a.m. on Sunday morning but you will certainly make more friends than enemies. Please do not put your name forward unless you are patient, understanding and really do know your stuff. We will emphasize in the columns that readers should only phone at the times indicated so if you do get calls outside these times, feel free to tell them to go away!

IT'S UP TO YOU!

If you feel that your organization should have an entry in this feature, write to us. Whilst we do have details of many User Groups and Bulletin Boards we have not included those as we do not know if the details are correct.

The only criterion for an entry in this column is that the reader must think PAGE 9. That is the only measure we have that a reader is genuinely interested in supporting Atari. Please to us 020 21910 if you wish to be included.

PAGE 9 reserves the right to delete any entry from this feature for any reason. We have done not request any endorsement by PAGE 9 and PAGE 9 can accept no responsibility for the accuracy or completeness of its entry. Please tell us if you feel any error has occurred.

GETTING TO GRIPS WITH GRAPHICS

Mark Hutchinson's regular column for beginners

For this issue I thought that I would look at graphics. I have been putting this off for some time, not because it is hard to write about, but because it would take up far more space than I am allowed by the editor. I will tell you about the basic modes but I may not go into as much detail as you would like.

Graphic modes are divided into two types, text and graphics. The basic screens range from the three text modes of GRAPHICS 0, 1 and 2 and from the low resolution (chunky graphics) of GRAPHICS 3 to the high resolution screen of GRAPHICS 8. Believe it or not, all these screens are the same. They are made up of tiny dots (pixels) and are 100 pixels wide by 100 pixels high. The only difference is how the computer handles the screen. For instance, GRAPHICS 0 uses characters that are 8 by 8 pixels square. Thus 100 divided by 8 gives 40 characters per line and 100 divided by 8 gives 12 lines. You can work out mode 1 (16 by 8) and mode 2 (16 by 16).

THE TEXT MODES

GRAPHICS 0

This, though you may not think it, is a specialised screen. It is designed for the input of command lines and will display the full character set. The default colour of blue is not mandatory. It can be changed, along with the border colour, but the characters will only take a lighter or darker shade of the screen colour. You can make characters invisible by setting their colour to that of the background. The characters can be placed anywhere on the screen by using the editing characters. These characters, e.g. TAB, ARROWS, INSERT, can only be entered in mode 0. I have included a small program (Listing 1) to illustrate their uses.

GRAPHICS 1 & 2

These differ from mode 0, not only by the fact that the characters are bigger, but that they have a text window (the four lines at the bottom of the screen) which is actually mode 0. The main part is termed the text screen. The normal PRINT command will place characters in the window, but you will need to use a special device specifier to print to the screen. This is done with PRINT #0. There are four types of printable characters, normal lower and upper case and inverted lower and upper case but in these two modes upper case only appears on screen and the type of character defines the colour of the character. Listing 2 should demonstrate this clearly and show you how to change the colours of the text.

Now look closely at Listing 3. You will see that the original screen is GRAPHICS 1 with a text window but, for the next example, I needed to remove the screen by getting rid of the text window. To do this I set up a GRAPHICS 1 + 10,

but to keep the text I added 32 (making a total of 40). Using a GRAPHICS 40 command I was able to get rid of the window and keep my text. For some reason this is very seldom, if ever, used.

POKING AROUND

In text modes, the cursor can be made to disappear by a single POKE (POKE 732, 1). Other POKEs of interest are 82 and 83 which set the left and right hand margins respectively. The text screen can be extended by adding 18 to the graphic mode, eg GRAPHICS 1 + 18 or GRAPHICS 17, again shown in the listings.

Probably by now you will know that if you leave the computer for several minutes without using the keyboard the screen colours will begin to change. This is done automatically to stop an image being burnt into the phosphor on the screen. This can be a nuisance when you use joysticks only, but it can be stopped by POKE 77,0 during the running of your program.

The two text modes can be used for graphics by redefining the character set. This is done by making up your own data and storing it in a safe area of RAM then telling the computer where to look for this data each time a key is pressed. Normally location 736 holds a number which, when multiplied by 256 will point to the start of the character data. Just pick a part of RAM evenly divisible by 256 then POKE 765, RAM/256. Just to see this in action, POKE 765 with any random number and list one of the programs. The garbage you will see is because of any random bits of data stored in the location you picked.

Next issue I will have a quick look at the graphic mode 3-7, nothing spectacular, just the basics.

A USEFUL TIP

Before I go, I must pass on a good tip from Len Lawson. If you need only DOS SYS on a disk (when you wish to only boot up, not use the DUMP SYS) you can use the following without going into INTR as an option H.

```
OPEN #1, S, 0, "DOS.SYS" + CLOSE #1
```

IN CLOSING

Recently, I have been receiving several letters asking questions about Atari computing. I can only reply to those that have enclosed a SASE, otherwise the answer will appear in this column ... sometimes! So, if you are in a hurry for an answer, write to me, as always, at P.O. BOX 121, BELFAST, BT10 0TB.

I hope to be going to the next ATARI show in April, mainly manning around the exhibition stands, so perhaps I will meet you there (large hint, Sam!).

SUNARO

software

★ STAR CHOICE ★

★ BOULDERDASH	C/D	8.99	12.75	★
★ CONSTRUCTION KIT	C/D	8.99	12.75	★
★ LEAGUEBOARDS	C/D	8.99	12.75	★
★ TRIFFID PURSUIT	C/D	12.75	16.50	★
★ SPYRIDE 40	C/D	7.95	10.50	★

ATARI 8-BIT SOFTWARE

ADVENTURE	SPYRIDE	1.99	4.99
ADVENTURE	SPYRIDE 2	1.99	4.99
ADVENTURE	SPYRIDE 3	1.99	4.99
ADVENTURE	SPYRIDE 4	1.99	4.99
ADVENTURE	SPYRIDE 5	1.99	4.99
ADVENTURE	SPYRIDE 6	1.99	4.99
ADVENTURE	SPYRIDE 7	1.99	4.99
ADVENTURE	SPYRIDE 8	1.99	4.99
ADVENTURE	SPYRIDE 9	1.99	4.99
ADVENTURE	SPYRIDE 10	1.99	4.99
ADVENTURE	SPYRIDE 11	1.99	4.99
ADVENTURE	SPYRIDE 12	1.99	4.99
ADVENTURE	SPYRIDE 13	1.99	4.99
ADVENTURE	SPYRIDE 14	1.99	4.99
ADVENTURE	SPYRIDE 15	1.99	4.99
ADVENTURE	SPYRIDE 16	1.99	4.99
ADVENTURE	SPYRIDE 17	1.99	4.99
ADVENTURE	SPYRIDE 18	1.99	4.99
ADVENTURE	SPYRIDE 19	1.99	4.99
ADVENTURE	SPYRIDE 20	1.99	4.99
ADVENTURE	SPYRIDE 21	1.99	4.99
ADVENTURE	SPYRIDE 22	1.99	4.99
ADVENTURE	SPYRIDE 23	1.99	4.99
ADVENTURE	SPYRIDE 24	1.99	4.99
ADVENTURE	SPYRIDE 25	1.99	4.99
ADVENTURE	SPYRIDE 26	1.99	4.99
ADVENTURE	SPYRIDE 27	1.99	4.99
ADVENTURE	SPYRIDE 28	1.99	4.99
ADVENTURE	SPYRIDE 29	1.99	4.99
ADVENTURE	SPYRIDE 30	1.99	4.99
ADVENTURE	SPYRIDE 31	1.99	4.99
ADVENTURE	SPYRIDE 32	1.99	4.99
ADVENTURE	SPYRIDE 33	1.99	4.99
ADVENTURE	SPYRIDE 34	1.99	4.99
ADVENTURE	SPYRIDE 35	1.99	4.99
ADVENTURE	SPYRIDE 36	1.99	4.99
ADVENTURE	SPYRIDE 37	1.99	4.99
ADVENTURE	SPYRIDE 38	1.99	4.99
ADVENTURE	SPYRIDE 39	1.99	4.99
ADVENTURE	SPYRIDE 40	1.99	4.99

Many other titles available

ATARI ST SOFTWARE

ADVENTURE	SPYRIDE	1.99	4.99
ADVENTURE	SPYRIDE 2	1.99	4.99
ADVENTURE	SPYRIDE 3	1.99	4.99
ADVENTURE	SPYRIDE 4	1.99	4.99
ADVENTURE	SPYRIDE 5	1.99	4.99
ADVENTURE	SPYRIDE 6	1.99	4.99
ADVENTURE	SPYRIDE 7	1.99	4.99
ADVENTURE	SPYRIDE 8	1.99	4.99
ADVENTURE	SPYRIDE 9	1.99	4.99
ADVENTURE	SPYRIDE 10	1.99	4.99
ADVENTURE	SPYRIDE 11	1.99	4.99
ADVENTURE	SPYRIDE 12	1.99	4.99
ADVENTURE	SPYRIDE 13	1.99	4.99
ADVENTURE	SPYRIDE 14	1.99	4.99
ADVENTURE	SPYRIDE 15	1.99	4.99
ADVENTURE	SPYRIDE 16	1.99	4.99
ADVENTURE	SPYRIDE 17	1.99	4.99
ADVENTURE	SPYRIDE 18	1.99	4.99
ADVENTURE	SPYRIDE 19	1.99	4.99
ADVENTURE	SPYRIDE 20	1.99	4.99
ADVENTURE	SPYRIDE 21	1.99	4.99
ADVENTURE	SPYRIDE 22	1.99	4.99
ADVENTURE	SPYRIDE 23	1.99	4.99
ADVENTURE	SPYRIDE 24	1.99	4.99
ADVENTURE	SPYRIDE 25	1.99	4.99
ADVENTURE	SPYRIDE 26	1.99	4.99
ADVENTURE	SPYRIDE 27	1.99	4.99
ADVENTURE	SPYRIDE 28	1.99	4.99
ADVENTURE	SPYRIDE 29	1.99	4.99
ADVENTURE	SPYRIDE 30	1.99	4.99
ADVENTURE	SPYRIDE 31	1.99	4.99
ADVENTURE	SPYRIDE 32	1.99	4.99
ADVENTURE	SPYRIDE 33	1.99	4.99
ADVENTURE	SPYRIDE 34	1.99	4.99
ADVENTURE	SPYRIDE 35	1.99	4.99
ADVENTURE	SPYRIDE 36	1.99	4.99
ADVENTURE	SPYRIDE 37	1.99	4.99
ADVENTURE	SPYRIDE 38	1.99	4.99
ADVENTURE	SPYRIDE 39	1.99	4.99
ADVENTURE	SPYRIDE 40	1.99	4.99

Many other titles available

TELEPHONE
(0625) 25220

HARDWARE/PERIPHERALS
JOYSTICKS AVAILABLE
NEW TITLES AVAILABLE
IMMEDIATELY UPON RELEASE

Orders over £1.00 include postage. International orders add \$10.

Send cheques/POs to our number for:

SUNARO SOFTWARE (PG)
PO BOX 78, MACCLESFIELD,
CHESHIRE, SK10 3PF



Books

SPEEDSCRIPT 3.0 Compute! Books £9.95

Reviewed by Eddie Cross

If you want an easy way to use Word Processor without the complications of reading through large instructional manuals, but still expect the flexibility given by true commercial packages then Speedscript could be just what you are looking for.

The unusual aspect of Speedscript is that it comes in the form of a book with the actual program having to be typed in. At first sight this may well seem a daunting task as you discover that over half of the publication is dedicated to the machine code listing, but on the plus side there are two pre-loader programs that ensure you type everything in correctly. I am definitely not the worlds fastest typist but it only took two evenings to get the program up and running and my decision on writing the final review was that it was well worth the trouble.

The first thing that you notice is the clarity of text. Speedscript incorporates a little used Atari mode that allows more definable and readable characters, which certainly helps on the eyes after a long spell at the keyboard. All the usual features that you would expect from a Word Processor are incorporated, including Screen Editing, Erasing, Wipe-back, Search and Replace, Saving, Loading, Disk Menu, Usable Memory, Screen Colour, Screen Overwriting, Word Wrapping, Merge, Disk Commands, Printer, Screen Display, Print Formatting etc. There are even four predefined printers including GEMINI to make usage of the program more self-contained. In fact you can predetermine any key you want for your own personalised-printer codes. Most of the features are accessed with use of CTRL, SHIFT/OPTION, SELECT keys and are all well documented in the book.

The program includes a mini-disk which allows you to inspect what files you have stored without leaving the main program. This facility allows you to load, save, rename, lock, unlock, delete, update directory and format disks and then by pressing RETURN you are back to where you left off.

Amongst the other features that I liked was the fact that when you created a passage of text it was not lost automatically but stored in the "TEXT BUFFER" which could be restored at a later date if you found one that you had created by error. Therefore it was very easy to swap parts of the text around without losing any of it when shuffling up your letters or documents in this mode.

All normal formatting commands are adhered to like changing margins, page lengths, margin release, centring, indentation etc. including also an INFORMATION command, that works like IBM in BASIC. Although written in your text it does not print out, and is very handy when you want to make some note about the file.

The program is so designed that you can enter your own printer codes and save them, so that you don't have to enter them every time you go to use Speedscript. This makes the program compatible with almost every printer.

If you are a cassette based user and are a little bit fed up with all the "disk only" Word Processing software that have no fear as Speedscript works equally as well in this media, allowing you to use all your files in tape.

All in all Speedscript is a brilliant Word Processing package and is a joy to use. So if you can't afford the more expensive software on the market, then you will not go far wrong by purchasing SPEEDSCRIPT 3.0!

BACK ISSUES

PAGE 4 back issues represent an excellent way of increasing the enjoyment of your Atari with articles to enlighten you, programs to type in and reviews of software to guide you. Almost all of the contents of past issues will be as fresh and relevant today as when it appeared - because your enjoyment was, before it's too late!

ISSUE 15 - Last remaining copies to clear at half price! Only 50p each (tax, postage not) just 10p each if ordered with other back issues (UK only).

ISSUE 16 - The first coverage of the ST has not to be missed, plenty for the 8-bit. A great machine-language quiz game **SECTION 10**, a super utility, **Magpie**, to keep track of your friends and magazines plus **The Game**. The second part of our series on Display Lists, build your own **Speech Synthesizer**, a review of **IT**, includes **Adventure** reviews and plenty more.

ISSUE 18 - **GRAPHICS WORKSHOP**. A super special issue with a graphics theme. Draw some masterpieces with **GRAPHICS WORKSHOP** and explore your graphics potential with **Colour Painter**, **Paintbox**, **Colour Attributes** and **CGO** software. An in-depth review of **Printshop** and **Language Art Department**, the final part of **Display Lists** and the **Adventure** column. 11 pages devoted to the ST plus a colour feature **STARS** **ACT** and **ST GAMING**. And don't miss **BLOCKBRICKER** is one of the best games to have been published in any magazine. Don't miss of **ISSUE 21** - A packed issue with games, **TRAIN**, **CRAZY**, **Revenge** and **Worlds**, **Utilities**, **Soundcards**, **Quick** and **Disassemble** and **Missing Temperatures**. Programming hints with **Missing the Impossible**, **Force a Restart** and **THE GUIDE TO ERROR CHECKS**. Review of **Flight Simulator II**, **Hitchhiker's Guide to the Galaxy**, and our **Language Adventure**. For the ST a **DISASSEMBLY** column. **Lance C** reviewed and reviews of a whole host of software.

ISSUE 21 - Many serious users will enjoy **SMARTSHEET**, a VisiCalc like type-in spreadsheet, and our review of **Pagecopy** which generates a file usable over **Truarc** Cables and try to convert **Hidden Depths**. **The Guide to Error Checks** is concluded and there are articles on **Printshop** and **Paintbox**. **Workshop** lets you learn **Adventure**. Loads of reviews and some great new material for **Blockbraker**. ST users will find us last in program **Series** and our tool reviews on **Time**, **Final**, **Pro-Font** 7.1, **VIP** Professional and more.

ISSUE 23 - Another superb machine language game **Water** followed with our tool reviews. **Workshop** will enlighten those who like puzzles and other things include **Supersaves** and the articles **Act** and **Verily**. A huge review of **Ultima IV** leads a comprehensive review section and **Going Online Part 1** will let you know if telecommunications is for you. ST users can also cover how to get a bigger screen on their colour monitors and read reviews of **Zombicide**, **Surfs** **On-Line** adventures and **Pro-Font** amongst others. **IT**, is it worth adding a 54" drive to your ST?

ISSUE 24 - The biggest issue ever published! Great ST reviews with lots about ST disks and cartridges and loads of reviews. For 8-bit users, **DISNEY** **MADNESS** the best game we have ever published plus a super cheap track utility **AUTOCHECK**. Plus all about checking your disk drives, another game, more utilities, reviews of **RAMBIT**, **Adventure** games and lots more. Two tools to fit into one to fit all!

ISSUE 26 Another huge! A mass of 100+ pages crammed with 1 great utility including a screen draw. A **Language Adventure** game called **SHOCK**, a quiz in **STAFFORDS** **CLASIC**, a full feature on disks and more. For ST, type in **OTHELLO**, reviews of **LEADER BOARD** and **MEAN** it. **How-to** and **Tips** and several other reviews and articles.

All back issues are £2.20 each in the UK, £2.70 for Europe or surface mail elsewhere and £3.00 for Air Mail outside Europe.

Please make cheques postal orders payable to **PAGE 4**, Send your order to **PAGE 4**, P.O. BOX 14, STAFFORDS, ST16 1DB, ENGLAND.

ACCESS and VISA accepted. Telephone 0781 219928.

LOTS MORE!

Subscribers to **PAGE 4** get lots more special offers. Books, an incredible collection of Public Domain software for 8-bit and ST machines, exclusive software, stickers and more. To find out what you are missing ask for a copy of our **PAGE 4 ACCESSORY SHOP LEAFLET**.

GET THEM ON DISK

All of the most recent issues of **PAGE 4** are available on disk - including those out of print issues!

A **PAGE 4** issue disk contains all of the programs (except **ST**) from a particular issue, ready to run from a custom floppy. No more frustrating hours typing all those long programs. See just how good they are without the effort.

ISSUE 14 - Contains **COUNTERACTORS**, **SUPPLY BLASTER**, **CROSSWORD CREATOR**, **DEPTH CHANGE**, **ACCESS** **DIS**, **RAINBOW STAIRS**, **BASIC ANIMATION** and **TYPO**.

ISSUE 15 - Contains **THE WANDERER**, **KANGA**, **TRICK TUCK**, **SUTOR**, **THE BOOSTER** and **PLAYER MISSILE GRAPHICS**.

ISSUE 16 - Contains **BLACK HOLE**, **FREEMAN** **AGE**, **DISMIGHTS**, **TUNG** **THE TABLE**, **AUTOCAL GRAPH** and **CHARACTER PLOTTING** program.

ISSUE 17 - Contains **BINGUM**, **SHOOTING GALLERY**, **S-V-CAP**, **INLAY**, **CARDS**, **CASTLE**, **MOBILAC**, **SMITH'S** **LABEL**, **MARKER** and several programs on **APPLE II** model II.

ISSUE 18 - Contains **BERTIE**, **GRAND PRIX**, **IL**, **BLITZ**, **LITTER**, **STARS**, **TYPO 3** and several programs on **Display Lists**.

ISSUE 19 - Contains **SNOWBALL**, **THE CHASE**, **MAGPIL**, **SECTION 10**, **STARRING** **UTILITY** **DIS** plus programs for the **Speech Synthesizer** and several programs on **Display Lists**.

ISSUE 20 - Contains **BLOCKBRACKER**, **GRAPHICS WORKSHOP**, **COLOUR PALETTE**, **PCLOADING**, **COLOUR ATTRIBUTES**, **CGO SLIDE SHOW** plus more **Display Lists** programs and pictures for **Workshop**.

ISSUE 21 - Contains **REVENGE**, **TRAIN**, **CRAZY**, **FORELEFT**, **SCALLENTERS**, **DISNEY**, **THE IMPROBABLE**, **TRUCK**, **DISASSEMBLER** and **MEASURING TEMPERATURE**.

ISSUE 22 - Contains **SMARTSHEET**, **TRUCKY CLIMB** (two versions), **HIDDEN DEPTHS** and new versions of **BLOCKBRACKER** **TYPO** & **REED** **INDEX**.

ISSUE 23 - Contains utilities **DEEP** and **VERIFLY** Games **STAFFORDS** and **BATTER** **RED** **SCREEN** (in machine language). The word puzzle game **WORDSEARCH** as well as **CALLER** **MAKES** **ONES** and **TWO** **BONUS** program!

ISSUE 24 - Contains the complete check balancing program **AUTOCHECK** and **MUSICITY** **MADNESS**, the best game we have ever published. For another game **PLUTON** **HELP** and two superb utilities, **SPED** **CHECK** and **MENGO**. A very full disk and not to be missed.

ISSUE 25 - Contains the chess program **SHOCK** a page flipping game, **WOLFGANG** **BERRY**, and three 1000 primary utilities, **LITZ** **DIS**, **SCREEN DUMP** and **SMALL POINT**. A mass for all 1000 users.

ISSUE 26 - Contains all of the 8-bit listings from this issue ready to run.

PAGE 4 issue disks will run on any 5.25" Atari with 10k or 4k memory. Each disk is just £2.00. Compare that to the value!

Programs are FREE in U.K. Overseas please add £1 per order (the way number of disks).

Order your disks from **PAGE 4** by post from **PAGE 4**, P.O. BOX 14, STAFFORDS, ST16 1DB or by telephone using **ACCESS** or **VISA** on 0781 219928.

DUST COVERS

You've spent a lot of money on your equipment, why spend more on repairs from breakdowns caused by dust, dirt and split hinged! Dust covers from **PAGE 4** are custom made for each piece of equipment and come in custom moulded PVC with a breather or Mesh retaining air **NEEDPOSS**.

Available for ALL Atari equipment including ST. Prices from £2.95. Please phone for details or ask for our **Accessory Shop** leaflet.

PAGE 4 - Telephone 0781 219928

YOUR OWN CURSOR

Clive Savage brings you an alternative if you are cursing that cursor

Do you want to enhance your programs by providing an alternative cursor? As well as a different shape, this program can give you a flashing cursor if you wish.

The effect is achieved by using `Player 3` and the Vertical Blank Interrupt and you should have no problems in incorporating the routine into your own programs, providing they do not use similar routines. Note also that `RAMTOP` is moved down to provide a protected area, so be careful of this.

The shape of the cursor is determined by the `DATA` in lines 12004 and 12005 and follows the normal binary make-up of characters. You can alter this `DATA` to have any shape you wish.

Using the routine is simple. Just run it and use the console keys. `START` will change between the normal or special cursor, `OPTION` will change the shape of the cursor and `SELECT` will provide a flashing or steady cursor.

Have fun!

```

00 00000 000 * *****
01 00000 000 * Player 3-112 00000 *
02 00000 000 * by Clive Savage *
03 00000 000 * ----- *
04 00000 000 * PAUL & BRUCE 1982-1988 *
05 00000 000 * *****
06 00000 000 * *****
07 00000 000 * *****
08 00000 000 * *****
09 00000 000 * *****
10 00000 000 * *****
11 00000 000 * *****
12 00000 000 * *****
13 00000 000 * *****
14 00000 000 * *****
15 00000 000 * *****
16 00000 000 * *****
17 00000 000 * *****
18 00000 000 * *****
19 00000 000 * *****
20 00000 000 * *****
21 00000 000 * *****
22 00000 000 * *****
23 00000 000 * *****
24 00000 000 * *****
25 00000 000 * *****
26 00000 000 * *****
27 00000 000 * *****
28 00000 000 * *****
29 00000 000 * *****
30 00000 000 * *****
31 00000 000 * *****
32 00000 000 * *****
33 00000 000 * *****
34 00000 000 * *****
35 00000 000 * *****
36 00000 000 * *****
37 00000 000 * *****
38 00000 000 * *****
39 00000 000 * *****
40 00000 000 * *****
41 00000 000 * *****
42 00000 000 * *****
43 00000 000 * *****
44 00000 000 * *****
45 00000 000 * *****
46 00000 000 * *****
47 00000 000 * *****
48 00000 000 * *****
49 00000 000 * *****
50 00000 000 * *****
51 00000 000 * *****
52 00000 000 * *****
53 00000 000 * *****
54 00000 000 * *****
55 00000 000 * *****
56 00000 000 * *****
57 00000 000 * *****
58 00000 000 * *****
59 00000 000 * *****
60 00000 000 * *****
61 00000 000 * *****
62 00000 000 * *****
63 00000 000 * *****
64 00000 000 * *****
65 00000 000 * *****
66 00000 000 * *****
67 00000 000 * *****
68 00000 000 * *****
69 00000 000 * *****
70 00000 000 * *****
71 00000 000 * *****
72 00000 000 * *****
73 00000 000 * *****
74 00000 000 * *****
75 00000 000 * *****
76 00000 000 * *****
77 00000 000 * *****
78 00000 000 * *****
79 00000 000 * *****
80 00000 000 * *****
81 00000 000 * *****
82 00000 000 * *****
83 00000 000 * *****
84 00000 000 * *****
85 00000 000 * *****
86 00000 000 * *****
87 00000 000 * *****
88 00000 000 * *****
89 00000 000 * *****
90 00000 000 * *****
91 00000 000 * *****
92 00000 000 * *****
93 00000 000 * *****
94 00000 000 * *****
95 00000 000 * *****
96 00000 000 * *****
97 00000 000 * *****
98 00000 000 * *****
99 00000 000 * *****
100 00000 000 * *****

```

```

00 12004 0000 0,170,127,200,100,200,200,0
01 00
02 12015 0000 201,200,200,201,200,200,200
03 000
04 12016 0000 170,200,200,200,200,200,170
05 000
06 12017 0000 100,200,100,200,0,100,200,
07 000
08 12018 0000 0,133,200,133,200,133,0,13
09 00
10 12019 0000 200,133,200,100,0,177,200,1
11 00
12 12020 0000 201,200,170,0,0,200,147,100,0
13 00
14 12021 0000 140,20,200,200,1,101,200,0
15 00
16 12022 0000 100,0,143,200,0,100,200,100
17 00
18 12023 0000 200,200,200,133,200,100,0,0
19 00
20 12024 0000 0,100,0,30,0,100,0,0
21 00
22 12027 0000 *****
23 12028 0000 170,200,0,41,0,200,13,200
24 00
25 12031 0000 1,44,31,200,240,57,100,0
26 00
27 12032 0000 44,31,200,240,10,100,4,44
28 00
29 12033 0000 31,200,240,0,34,240,0,0
30 00
31 12034 0000 170,0,0,200,0,0,240,0
32 00
33 12035 0000 100,0,133,0,0,200,0,0
34 00
35 12036 0000 0,240,10,200,0,200,14,170
36 00
37 12037 0000 200,0,0,143,200,0,143
38 00
39 12038 0000 20,200,0,200,0,100,0,0
40 00
41 12039 0000 10,24,100,47,140,0,200,100
42 00
43 12040 0000 04,10,10,24,100,23,133
44 00
45 12041 0000 200,200,0,133,177,200,140,0
46 00
47 12042 0000 170,0,200,147,100,200,100,0
48 00
49 12043 0000 200,10,100,0,100,0,130,100
50 00
51 12044 0000 200,100,0,200,140,200,100,0
52 00
53 12045 0000 200,170,200,0,41,0,240,0
54 00
55 12046 0000 200,200,0,170,200,0,200,0
56 00
57 12047 0000 170,200,0,0,0,100,200,0
58 00
59 12048 0000 0,0,200,13,130,0,170,200
60 00
61 12049 0000 0,41,1,200,0,170,200,0
62 00
63 12050 0000 133,200,170,200,0,0,0,140
64 00
65 12051 0000 200,0,0,0,0,200,170,200
66 00
67 12052 0000 0,200,0,133,200,170,200,0
68 00
69 12053 0000 0,0,140,200,0,0,0,200
70 00
71 12054 0000 0,200,0,170,200,0,0,0
72 00
73 12055 0000 141,200,0,200,1,141,10,200
74 00
75 12056 0000 100,200,133,20,0,0,130,10
76 00
77 12057 0000 200,0,170,200,1,0,1,140
78 00
79 12058 0000 140,1,0,0,200,170,200,0
80 00
81 12059 0000 0,0,141,200,0,100,10,140
82 00
83 12060 0000 104,0,0,0,0,0,200,0
84 00
85 12062 0000 *****
86 12063 0000 00,0,0,0,0,0,0,0
87 12064 0000 100,0,0,0,0,0,0,0
88 12065 0000 100,0,0,0,0,0,0,0
89 12066 0000 100,0,0,0,0,0,0,0
90 12067 0000 100,0,0,0,0,0,0,0
91 12068 0000 100,0,0,0,0,0,0,0
92 12069 0000 100,0,0,0,0,0,0,0
93 12070 0000 100,0,0,0,0,0,0,0
94 12071 0000 100,0,0,0,0,0,0,0
95 12072 0000 100,0,0,0,0,0,0,0
96 12073 0000 100,0,0,0,0,0,0,0
97 12074 0000 100,0,0,0,0,0,0,0
98 12075 0000 100,0,0,0,0,0,0,0
99 12076 0000 100,0,0,0,0,0,0,0
100 12077 0000 100,0,0,0,0,0,0,0

```

TECHNOLOGY SO ADVANCED ...

SYSTEM

- 100% silicon based AT 286
- 100% silicon based VLSI
- 100% silicon based ROM
- 100% silicon based logic on 100% silicon

ARCHITECTURE

- 100% silicon based system architecture
- 100% silicon based system architecture
- 100% silicon based system architecture
- 100% silicon based system architecture
- 100% silicon based system architecture
- 100% silicon based system architecture
- 100% silicon based system architecture
- 100% silicon based system architecture

DATA PATHS

- 100% silicon based data paths
- 100% silicon based data paths
- 100% silicon based data paths
- 100% silicon based data paths
- 100% silicon based data paths
- 100% silicon based data paths
- 100% silicon based data paths
- 100% silicon based data paths

BOARD AND BOARD

- 100% silicon based board
- 100% silicon based board
- 100% silicon based board
- 100% silicon based board
- 100% silicon based board
- 100% silicon based board
- 100% silicon based board
- 100% silicon based board

STANDARD SOFTWARE

- 100% silicon based software
- 100% silicon based software
- 100% silicon based software
- 100% silicon based software
- 100% silicon based software
- 100% silicon based software
- 100% silicon based software
- 100% silicon based software

INPUT/OUTPUT

- 100% silicon based I/O
- 100% silicon based I/O
- 100% silicon based I/O
- 100% silicon based I/O
- 100% silicon based I/O
- 100% silicon based I/O
- 100% silicon based I/O
- 100% silicon based I/O

OPERATING SYSTEM

- 100% silicon based OS
- 100% silicon based OS
- 100% silicon based OS
- 100% silicon based OS
- 100% silicon based OS
- 100% silicon based OS
- 100% silicon based OS
- 100% silicon based OS

COMMUNICATIONS

- 100% silicon based comms
- 100% silicon based comms
- 100% silicon based comms
- 100% silicon based comms
- 100% silicon based comms
- 100% silicon based comms
- 100% silicon based comms
- 100% silicon based comms

KEYBOARD

- 100% silicon based keyboard
- 100% silicon based keyboard
- 100% silicon based keyboard
- 100% silicon based keyboard
- 100% silicon based keyboard
- 100% silicon based keyboard
- 100% silicon based keyboard
- 100% silicon based keyboard



... IT'S AFFORDABLE

ONLY FROM SILICA

Atari ST is the most advanced personal computer system ever. It's the only one that's 100% silicon based. That means it's faster, more reliable, and easier to use than any other computer. And it's all at a price you can afford. The Atari ST is the only computer that's truly affordable. It's the only one that's truly advanced. It's the only one that's truly yours.

FREE STARTER KIT - Only From Silica
 The Atari ST Starter Kit is a complete system for under £259. It includes the Atari ST computer, a keyboard, a mouse, and a floppy disk. It's everything you need to get started with the Atari ST. And it's all yours for free. Just send in your order form today.

DEDICATED SERVICE - Only From Silica
 At Silica, we're committed to providing you with the best service possible. Our dedicated service team is here to help you with any questions or problems you may have. We'll make sure you're satisfied with your purchase. Because we know you're worth it.

THE FULL STOCK RANGE - Only From Silica
 At Silica, we have the full range of Atari ST products. From the basic computer to the most advanced models, we have it all. And we have it all in stock. So you can get what you need, when you need it. And at a price you can afford.

AFTER SALES SUPPORT - Only From Silica
 At Silica, we provide you with the best after-sales support possible. Our technical support team is here to help you with any problems you may have. We'll make sure you're satisfied with your purchase. Because we know you're worth it.

FREE CATALOGUE - Only From Silica
 At Silica, we provide you with a free catalogue. It's full of information about all our products. It's also full of special offers and discounts. So you can get the best deal on your purchase. And it's all yours for free. Just send in your order form today.

FREE OVERNIGHT DELIVERY - From Silica
 At Silica, we provide you with free overnight delivery. So you can get your Atari ST as soon as possible. And at a price you can afford. Because we know you're worth it.

PRICE MATCH - Only From Silica
 At Silica, we provide you with a price match guarantee. So you can be sure you're getting the best price on your purchase. And at a price you can afford. Because we know you're worth it.

520ST-M

The Atari 520ST-M is a powerful personal computer. It's the only one that's 100% silicon based. That means it's faster, more reliable, and easier to use than any other computer. And it's all at a price you can afford. The Atari 520ST-M is the only computer that's truly affordable. It's the only one that's truly advanced. It's the only one that's truly yours.

£259

520ST-FM

The Atari 520ST-FM is a powerful personal computer. It's the only one that's 100% silicon based. That means it's faster, more reliable, and easier to use than any other computer. And it's all at a price you can afford. The Atari 520ST-FM is the only computer that's truly affordable. It's the only one that's truly advanced. It's the only one that's truly yours.

£399

1040ST-F

The Atari 1040ST-F is a powerful personal computer. It's the only one that's 100% silicon based. That means it's faster, more reliable, and easier to use than any other computer. And it's all at a price you can afford. The Atari 1040ST-F is the only computer that's truly affordable. It's the only one that's truly advanced. It's the only one that's truly yours.

£599

ATARI ST

To Silica Shop Ltd, Dept P01 897, 14 The Meadows, Huddersfield Road, Silica, Huddersfield, West Yorkshire, H1 1AA

PLEASE SEND ME FREE LITERATURE ON THE ATARI ST

Mr/Ms/Ms Initials Surname

Address

Postcode

Please allow 4-6 weeks for delivery. We will make no liability for postage.



LLAMASOFT

presents

COLOURSPACE 2
COMING!



The **THIRD GENERATION** of Jeff Minter's unique **LIGHT SYNTHESISERS**
- MIND/MACHINE SYNERGY -

COLOURSPACE: allows the user to create *dynamic, interactive light displays* using the Atari's 320x200 512-colour graphics. Do it to music... your ears won't believe your eyes...

COLOURSPACE: mouse control, over 100 keyboard commands, compatible with NEOchrome images (for foreground and background displays), 20 presets, 84 definable lightforms, record mode, load and save of performance data from disk.

COLOURSPACE: raw 68000 power harnessed to create a completely new artform... the first true **light synthesiser**... play light like music...

COLOURSPACE. Discover why you bought your ST.

NOW AVAILABLE at £19.95, from retailers of ATARI software or direct from
LLAMASOFT 49 Mount Pleasant Tadley Hants
Tel: 07358 4478

SEND S.A.E. FOR CATALOGUE & NEWSLETTER