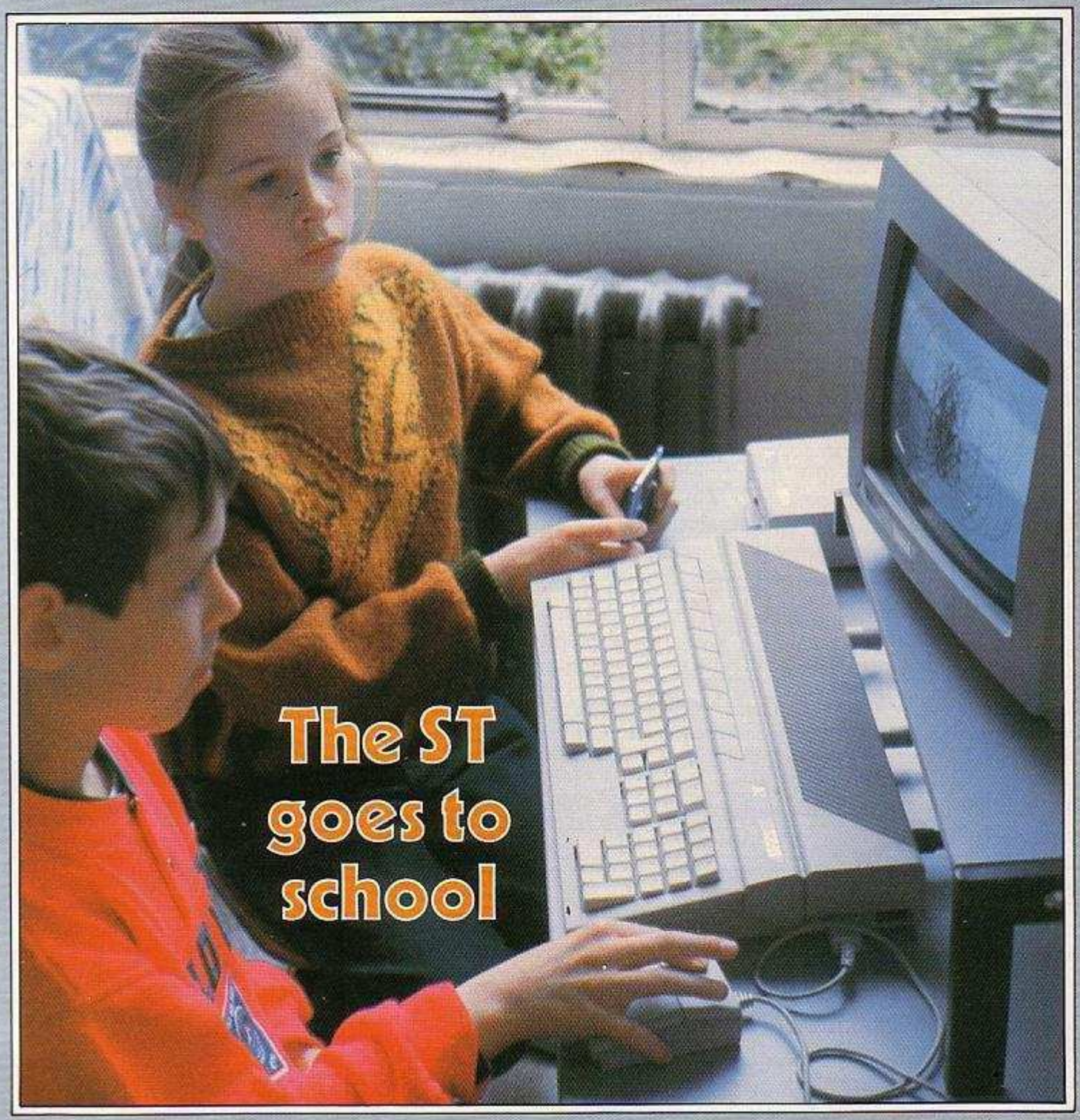
Vol. 1 No. 9 November 1986

Atari ST User



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Reported: Leonard Tramiel answers your questions

Reviewed: Deep Space, Arena, Back-Pack, Fast ST Basic

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Figures, figures –and statistics

FIGURES seem to feature high in the minds of Atari's UK management at this time of the year. Perhaps this has something to do with the sudden departure of Max Bambridge and Rob Harding – we'll never know. But with Atari going public with 4.5 million shares at $12 a throw, the income from the share sale will go a long way towards paying off Warners, plus a few major creditors. And still leave something to add to the £20 million Atari has left in the kitty worldwide.

What Jack Tramiel and family have done with Atari in the past 18 months is little short of amazing. They've taken the name and the 1984 series of machines – one video games machine and two computers that reputedly cost twice as much to manufacture as they sold for – and brought out a whole new range of 68000 machines. On top of that, they've redesigned the 2600 game machine, the 400/800 series (now seen as the 65XE and 130XE) and made money on all their systems.

Since launching the 520ST last July and the 1040ST in March of this year, Atari has shipped 150,000 ST units worldwide. As a rough guide, 60,000 of them went to the US, 25,000 went to West Germany and the other 65,000 were sold to the rest of the world – which includes Britain.

That figure isn't too disappointing – despite Atari UK's initial target figures of 50,000 a month for Britain alone – especially when compared with Commodore's Amiga sales of less than 100,000 worldwide.

But remember we're talking about worldwide sales of the ST here. The widespread distribution of STs makes it a tough market for software publishers. It's hard to even identify good distribution, much less promote products efficiently. But it's just good enough to take the ST seriously as a viable format, particularly given Atari's vague future product plans.

Remember that everybody was writing off Tramiel's Commodore in 1982 and 1983 when it was selling most of its computers in Europe. It's a safe bet that Tramiel will use Europe to build up his overseas sales so that Atari will be strong enough to take on the US mass merchandisers in earnest.

★ ★ ★

ATARI hasn't been sitting still in the new-product area. Last month the company introduced a two and four megabyte version of its ST computers at the PCW Show in London, upsetting a fair number of its US enthusiasts as it did so. Maybe Tramiel unveiled the new machines in London as an indicator of the prestige he places in European sales. From what we hear from the US, these machines are still under development at Atari's research labs.

The company has great plans for the ST. Coming up at Comdex in the States will be several new ST-based packages, which is probably when we'll get our first peek at the higher-memory machines in their full glory.

Real show-stoppers will of course be the so called TT units – ST stood for Sixteen/Thirty two bits, now TT stands for full Thirty two/Thirty two bits. According to the latest leaks and rumours from the States, the TT module will come in the form of a two inch high box with built-in 3.5in disc drive, an integral psu, a bracket for a half-height hard disc, detached keyboard and single in-line memory modules, a la Apple Macintosh.

As yet it's unclear whether the company will have an additional ST with on-board blitter chip, or whether the new ST series will include the chip as standard.

Atari is also working on a Unix box, packaged in the same case as above, that will turn the ST 68000 processor into a dedicated graphics unit and unload the logic into its own 68020 (or even 68030) processor. Pricing? That's anyone's guess, but I'll wager that the Unix box will set you back around the £800 mark, to which must be added £1,200 for a 2Mb ST plus the cost of a sensible monochrome display unit. When that system becomes available (early 1987 maybe?), Atari will turn into a pretty competitive workstation manufacturer.

★ ★ ★

DON'T take any of the above as a guarantee of what's upcoming in the real Atari world. While most of these machines have been seen in prototype form, either by the show-going public or by US software houses, you never know what can happen with Jack Tramiel at the helm. By the way, don't expect Sig Hartmann to be pushing the new ST/TT machines – inside word from Atari is that he's calling major companies and urging them to buy existing ST packages on corporate accounts, rather than promoting the new machines.

Steve Gold reporting

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It's much faster with a blitter

Q A

THE tremendous interest in the new blitter for the ST has been reflected in my mailbag this month. A lot of you want to know exactly what the Line-A routines that the blitter's supposed to speed up actually do.

Well when the Atari software engineers were designing the ST they realised that before they could start work on Gem itself they would have to develop a set of very basic but powerful routines to do such simple things as plot a point, draw a line or fill a shape.

These routines were named the Line-A routines after the machine code instruction that calls them.

Every screen operation on the ST uses them. When Gem opens a window or 1st Word scrolls the screen the Line-A routines are being used. So with a blitter installed you will find a marked increase in speed of nearly all screen operations in software that uses these routines.

For only £69 the blitter represents a significant step forward in the ST's specification and shows that Atari isn't going to sit back without developing the ST further.

★ ★ ★

Another common question from readers concerns the advent of the ST 2080 and 4160 – should they trade in their old models or is there an upgrade?

By the time you read this Advanced Systems and Techniques (AST) will have memory boards available that increase the memory of your 520 to 2Mb and your 1040 to 4Mb. These will have to be fitted by AST and should cost no more than the difference between the price of your current machine and the new models.

The only significant omission from an upgraded machine will be the lack of a blitter socket. This simply means that instead of buying the plug-in version of the blitter you will buy the solder-in one. In fact AST should be able to fit a blitter chip at the same time as the upgrade.

★ ★ ★

Jon Bradbury from Sheffield asks three questions that have become ST "standards". Here are the definitive answers after which, as editors say, correspondence on this subject is closed.

Firstly Jon asks if it is possible to connect both monochrome and colour monitors to the ST at once? The problem is not simple. If you wish to have both monitors turned on, and thereby switch among all three screen modes at leisure, the answer is no.

When the ST is turned on it looks to see if a monochrome monitor is connected. If it is, it ignores the colour monitor and will only operate in high resolution mode.

You could have both monitors connected at once via a Y-socket connector and then turn on the one you wish to use at the time. This might work, but I find that it is probably simpler just to plug in the monitor you require and leave the other unconnected.

Next on Jon's list is a question relating to the Alt+Help method of producing screen dumps. For the best results the pixels/line setting on the Install Printer desk accessory should be set to 960 dots.

Finally he asks if it is possible to connect a modulator to the ST models without one so you can use a TV. Although Atari will not offer this service I know of at least one company working on a solution. The cost is likely to be about £70 to £90. I'll keep you informed of progress.

★ ★ ★

Jeff Cuckson from Northern Ireland asks if you can run IBM software on an ST. There are in fact two ways.

Firstly it is possible to buy a 5.25in disc drive from AST which allows you to read and write IBM format discs. This means you can load data into an ST program created on your IBM.

The other solution is to wait for the IBM emulator box which Atari is now developing. This will allow most IBM programs to run happily on an ST. Atari has yet to set a release date or price for the emulator, but my guess is that it will be released next spring for between £250 and £500.

Send your Atari ST queries to: ANDREW BENNETT, Atari ST User, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

ST Five-liners

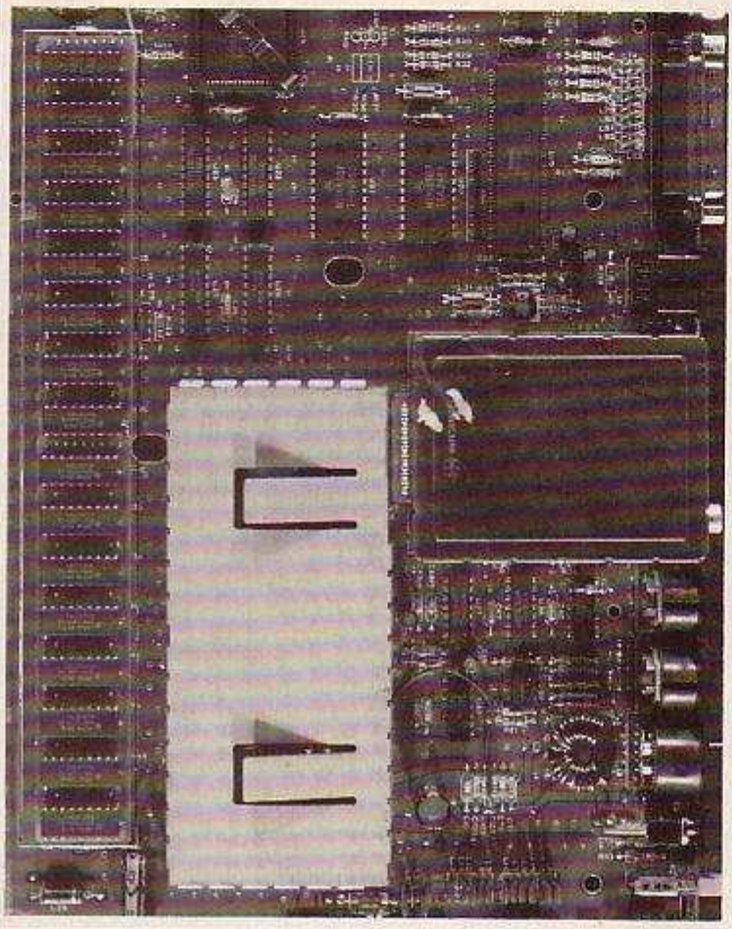
My apologies to Cameron Rattray whose name was omitted from his excellent Line Pattern ST five-liner in the September issue of Atari ST User.

While on the subject, keep sending in your five-liners, problems and hints. They make fascinating reading.

Don't forget that as well as writing to me at the usual address I can be contacted through Prestel box number 614568383 and at box 72:MAG001 on Telecom Gold or MicroLink.

MEGAMAX C: Best for the ATARI ST

Reviewed in ATARI User, September 1986 by Peter Knowles and Roger Wier. "You get a complete development system — everything necessary to produce commercial quality software is provided ... Clearly, Megamax C compiles faster and produces much smaller files. These are great advantages, and may well prove to be the overriding consideration to many prospective buyers — together with its friendly front-end shell and complete manuals"



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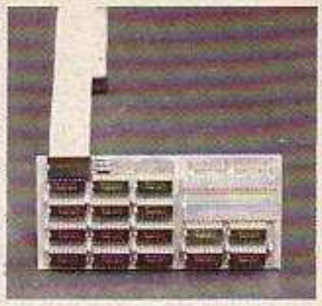

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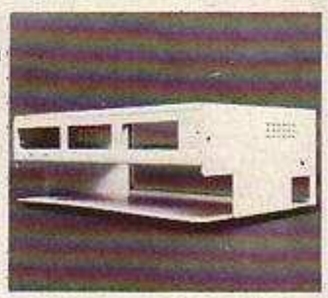

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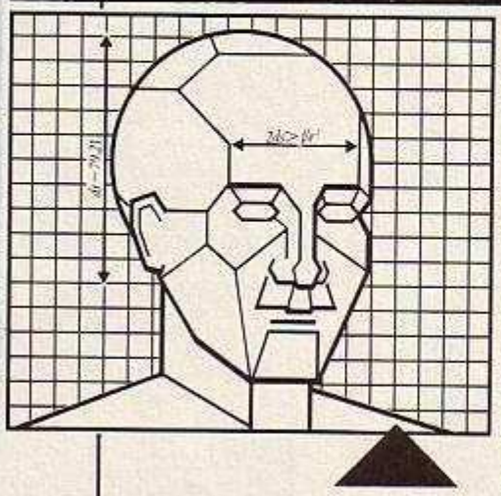

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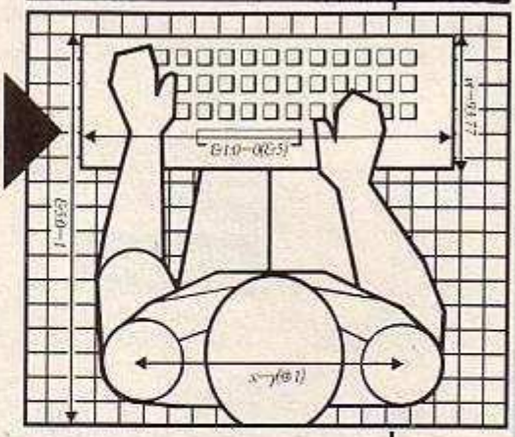

"I felt most comfortable with the completeness and speed of Lattice C."

Atari ST User July 1986.

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Action starts in the Al-Nair system, the least dangerous of five hostile star systems. Entry to each of the other progressively more perilous systems is gained by flying through the appropriate stargate – if you can find it.

The idea is to roam through space, earning credits by blasting enemy craft and taking prisoners.

The full-screen view is from the cockpit of your fighter which is controlled by a combination of mouse and joystick or keyboard. The easiest way is to use the joystick for steering and firing and the mouse for everything else.

The cockpit is lavish enough to make Captain Kirk bite his phaser in envy. Among the technological paraphernalia at the top of the screen are a clock, energy readout, alert indicator and a small status display for system messages.

An array of controls is laid out along the bottom of the screen. In the middle is the console which has two moving parts – a speed lever for velocity and a control column for direction.

To the left is the ship's multi-purpose computer, which, when switched on, causes a green display screen to appear. Information is shown on this when any of the six options have been selected – long range map, auto scoop, navigation computer, drones, communications and battle damage report.

The communications facility gives a more detailed version of any status messages. The drone option lets you order fuel, repairs and quark bombs from travelling drones provided you have enough credits.

Scoop shows the position of the ship's auto scoop – for capturing aliens – in relation to nearby objects. The damage report is self-explanatory.

The long range map is a split-screen display, showing the view from above and behind your fighter. Various coloured dots indicate the position and identity of alien ships, drones, planets, stargates, and so on. A small cross on each of the split displays can be moved to set the course.

The navigation computer displays the distance to a set destination and a picture best described as a series of nested squares which must be kept lined up to stay on course.

Over to the right is a function pod. This lets you move the viewing window without disturbing the course, look aft, change weaponry, set shields and fire retro rockets.

Finally, over to the far right is the short range scanner which slides up and can display the relative positions of any objects up to five magnitudes away.

There are a number of competent sound effects – engines, weapons, alarm signals and so on. What impressed me most about Deep Space were the spectacular solid 3D graphics, which are both colourful and fast.

Watching a chunky alien ship coming straight at you or flying around a planet and its moon really takes some beating for visual excitement.

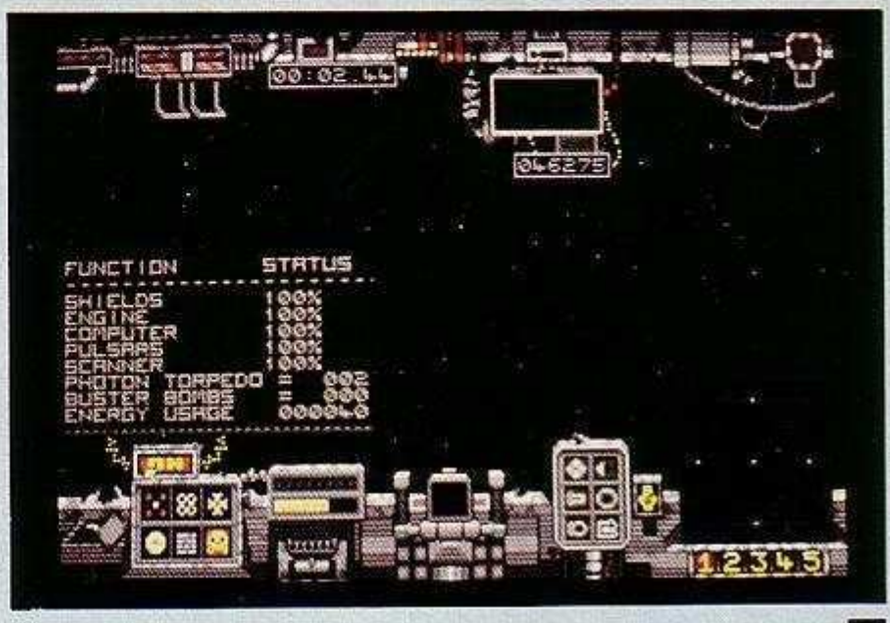
While the game is certainly graphically stunning, it is also quite difficult to play mostly because of the implementation of the long range map. Trying to distinguish one particular dot of a particular colour from among the many swirling around on the small map screen makes course setting and navigation a bit of a nightmare.

And unlike most flight simulators, the joystick control has been implemented upside down. When you push forward on the stick the ship goes up instead of down – that takes some getting used to.

If you can master the navigational elements, Deep Space will provide thrills and challenge for a good while to come. And those graphics really are out of this world.

Sound	8
Graphics	10
Playability	7
Value for money	8
Overall	8

Reviewed by Bob Chappell



Animation excels in the Arena

Program: Arena
Price: £24.99
Supplier: Psygnosis, Port of Liverpool Building, Pier Head, Liverpool, L3 1BY. Tel: 051-647 8120

Reviewed by Bob Chappell

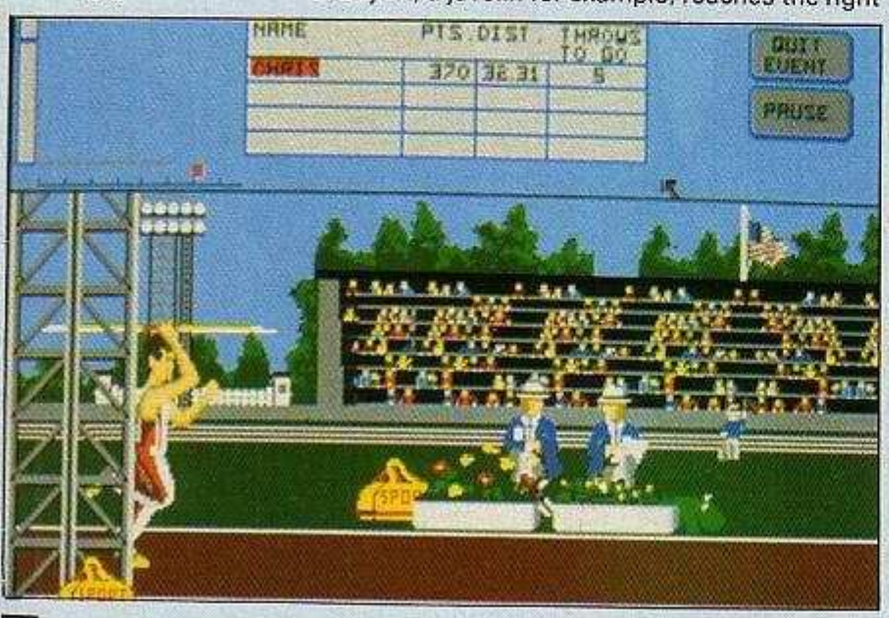
THE usual drawback with athletics simulation programs is that the animation of the athletes often bears little resemblance to the real thing.

Not so with Arena – the graphics and animation are astounding, the most realistic you're likely to see this side of the Olympic Games. The detail and accuracy of the movements has to be seen to be believed. And the participants are no miniature representations either – these athletes are large size.

Arena features six different track and field events which may be played in any order – 100 metres, long jump, high jump, pole vault, shot put and javelin. Up to four players can take part – there are no computer controlled contestants.

The competition takes place against the background of a well-filled stadium. Flags ripple in the breeze and an occasional tracksuit-clad figure can be seen warming up in the distance. One or more smartly dressed officials adorn the middle ground while the athlete stands ready in the foreground.

All events move from left to right over several screens – there is no scrolling. When the athlete or object, a javelin for example, reaches the right hand side of the screen the picture is instantly replaced by another showing entry from the left. While horizontal scrolling would have been more effective, this method works well enough.



Control of the athlete is accomplished by keyboard pounding – what a shame there's no joystick option. The keyboard is likely to take a lot of hammering and if there's too much frenzied play, replacing the ST keyboard is going to be a lot more expensive than buying another joystick.

Any one key from each of two different groups at either end of the keyboard must be hit alternately and quickly to build up the athlete's speed. Hitting the spacebar at a crucial moment causes a further action, such as releasing the javelin.

In every event, points are scored for performance and only one player is ever on the track at a time. The player signals his readiness to start by clicking the mouse button.

In the 100 metres, the clock begins when the starter fires his pistol. Break too early and he fires again to signal a false start.

In the high jump and pole vault, the bar can be raised or lowered to any height within reason. Any foul ups during the approach cause the red flag to be waved.

One unusual feature of this simulation is the use of speech bubbles. If the athlete is kept hanging around at the starting line, he will pass a comment. At the end of each attempt, the athlete and an odd-looking adjudicator who pops up both swap sarcastic remarks. Though these comments are fun at first, they eventually become wearisome. I'd have preferred an option to suppress them.

There are one or two small bugs. A ghost image of the pointer occasionally remains at the point where you last left it and there are spelling mistakes in the bubbles (for example "appathy" and "conceed"). The vaulter's pole seems to have shrunk in the wash, too!

There are few sound effects but you'll hardly notice that. What will make you sit up is the excellence of the animation. Arena is good fun, especially if there are a few people playing.

Sound	***7***
Graphics	***10***
Playability	***8***
Value for money	***7***
Overall	***8***

THE BASIC INTERPRETER FOR THE ATARI ST.

A new and very fast BASIC interpreter ROM cartridge for the Atari ST computers. This 128K program has been written specifically for the Atari ST 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 ST and to find out about GEM and 68000 assembly etc.

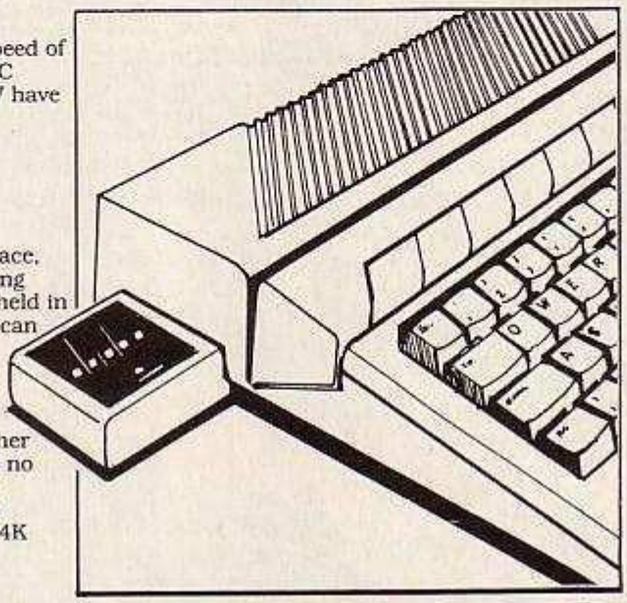
ST CARTRIDGE.

SPEED
With an average PCW benchmark speed of 1.8 seconds, this is the fastest BASIC available (faster than any other PCW have tested) and compares with 14 for a normal BBC. See table for other comparisons.

EDITOR
Full GEM based scrolling editor is included. Supports search and replace, cut, copy, paste and very fast scrolling speeds. Multiple programs may be held in memory at once, and each program can have its own editing window and associated icon.

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. Strings may be up to 64K long, arrays may be over 64K.

ASSEMBLER
Similar in concept to BBC BASIC, this allows mixing of assembly language and BASIC together. The assembler can assemble at over 50,000 lines per minute making it one of the fastest available. Macro and conditional assembly facilities combined with one of the best editors around make this a superior alternative to many dedicated assemblers.



STRUCTURED
Fast BASIC supports REPEAT..UNTIL, WHILE.. WEND and multi line IF.. THEN..ELSE constructs. Also named procedures and functions and memory indirection ensure that FAST BASIC supports many of the best features of languages like PASCAL or C, but without the drawbacks.

GEM
Direct and full access is given to the ST graphics such as circle, arc, pie, area filling etc. In addition there are a range of keywords for contolling the menus, icons and windows. It is possible to write programs that present the user with a perfectly standard GEM type interface.

COMPARISONS

MACHINE	TIME
IBM AT	6.8
IBM PC	16.8
BBC B	14.8
AMSTRAD	14.7
SINCLAIR QL	15.6
COMMODORE 128	40.1
SPECTRUM	54.8
FAST BASIC	**1.8**

Review

"...it positively flies."
"Students of structured programming will be well pleased.."
"Perhaps the most staggering advantage of Fast BASIC over the official lingo concerns using the various facilities offered by GEM."
"...it's a vast improvement on Atari BASIC."

Popular Computing Weekly

Review

"The Fast BASIC package provides a complete system for the home programmer; the language is beautifully structured."
"The cartridge spans 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."
"Bear in mind the fact that the cheapest assembler for the ST costs £39.95, this can only leave you to conclude that Fast BASIC really is phenomenal value for money."

ST User magazine

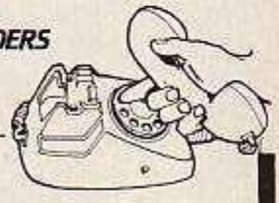
FAST BASIC INCLUDES:
•ROM Cartridge - it uses no RAM, does not have to be loaded from RAM and offers instant start-up.
•Example disc containing a range of example programs from simple loops to complete GEM examples.
•Comprehensive spiral bound manual.
Compatible with all 520 and 1040ST computers

Dealer enquiries welcomed.

Price £89.90 inc. VAT and postage.
Available from all good Atari dealers or directly from Computer Concepts.

Computer Concepts

EXPRESS ORDERS



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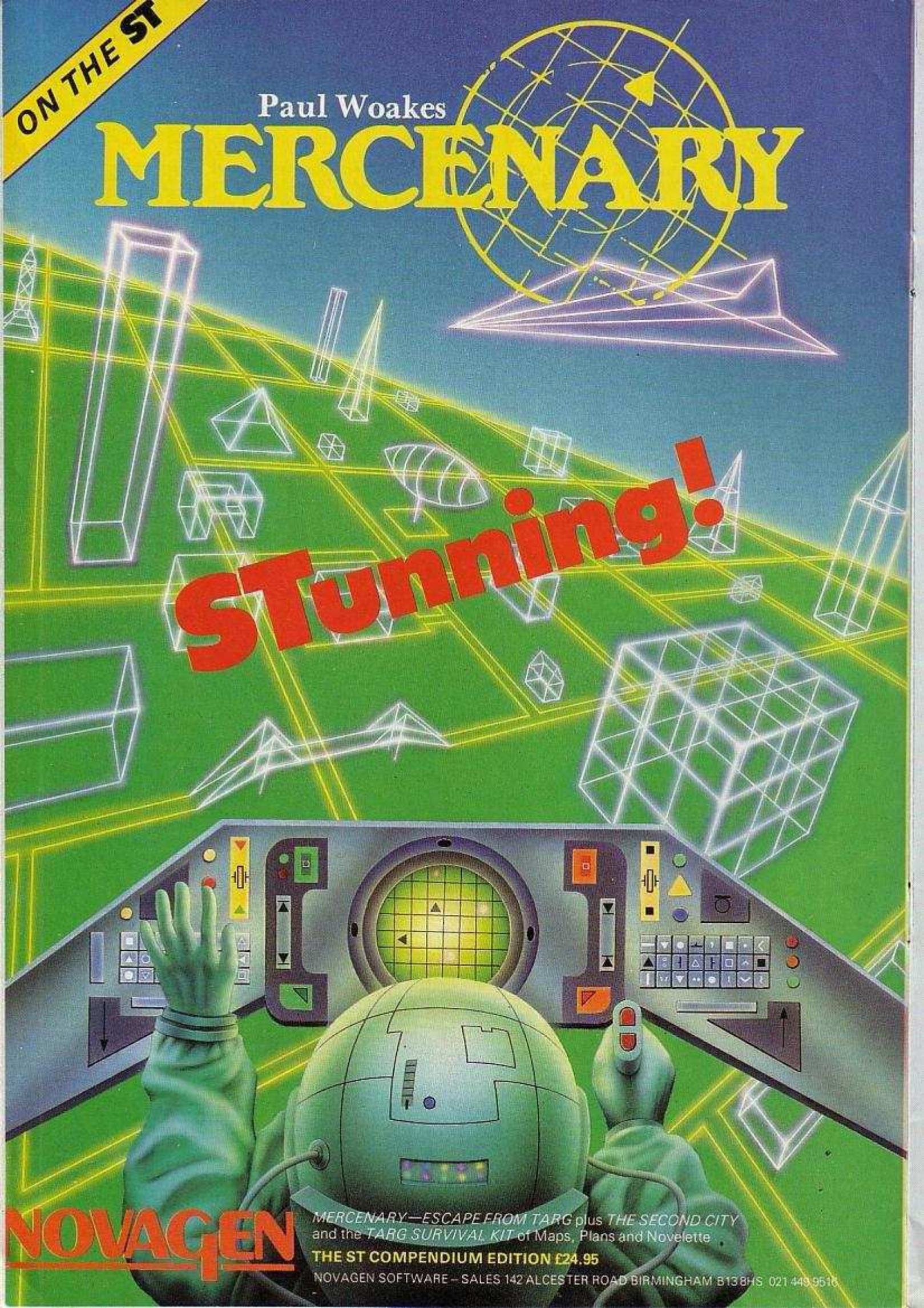
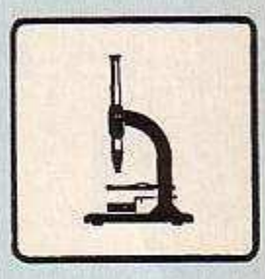
Gaddesden Place, Hemel Hempstead, Herts, HP2 6EX, England. Telephone (0442) 63937


ON THE ST
Paul Woakes
MERCENARY
STunning!
NOVAGEN
MERCENARY—ESCAPE FROM TARG plus THE SECOND CITY
and the TARG SURVIVAL KIT of Maps, Plans and Novelette
THE ST COMPENDIUM EDITION £24.95
NOVAGEN SOFTWARE – SALES 142 ALCESTER ROAD BIRMINGHAM B13 8HS 021 449 9516

Product: Back-Pack
Price: £89.90
Supplier: Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts HP2 6EX. Tel: 0442 63933

More on your desktop



ONE of the most useful features of the Atari ST's desktop is its ability to access accessory programs – from simple clocks to complete spreadsheets – from the desk menu.

There are two main constraints on their use. Firstly, only six can be on the desk menu at once. Secondly, memory can become in short supply if you use some of the more hungry accessories, especially in 520STs and STMs.

Back-Pack is a new desk accessory from Computer Concepts, which sets out to solve both of these problems while supplying the user with nine accessories. Back-Pack is supplied on a cartridge which simply plugs into the rom port on the side of the ST.

A small program which initialises the cartridge must be placed on your boot disc. Thereafter choosing the Back-Pack option from the desk menu brings up a list of the nine accessories. Click on one of these and you're in that program.

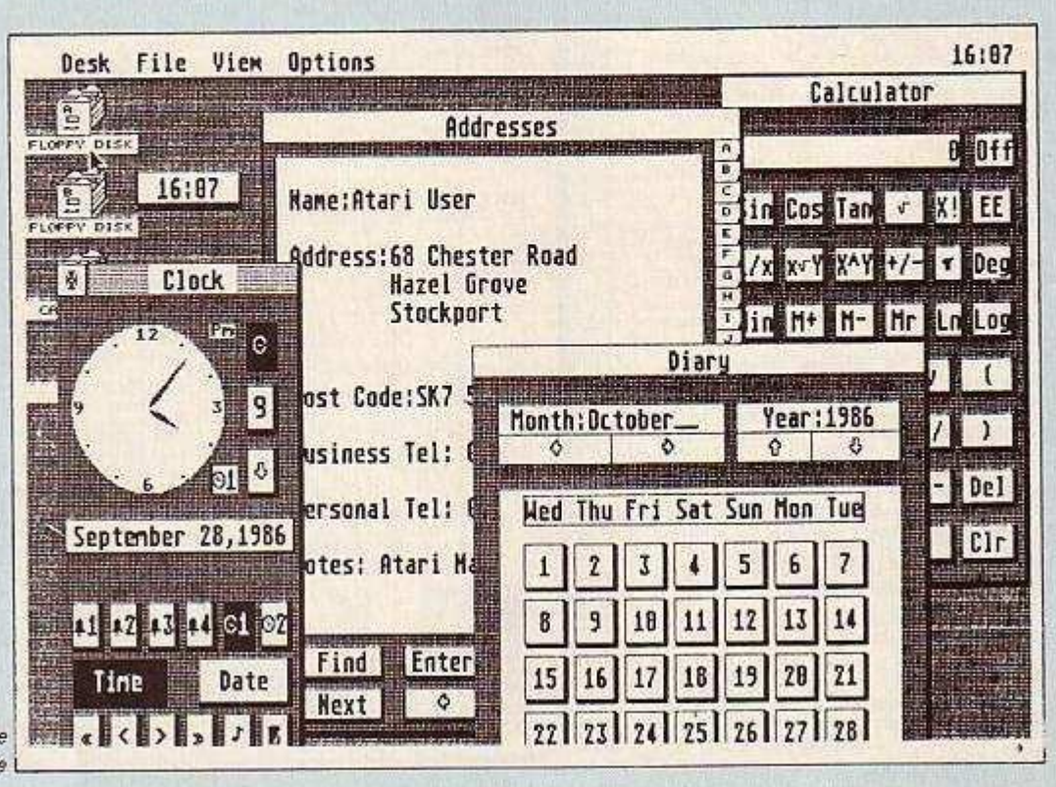
The **Calculator** can operate in two modes. The scientific mode gives a full range of features from sin, cos and tan to factorial and reciprocal. In programmer mode, the calculator offers logical operations and bit shifting as well as the facility to look up the Gem code of the next key pressed.

The **Large Clock** offers time, date, dual time and up to four alarms with digital or analog display. The times and alarms are set by simply clicking on arrows which change the hours and minutes. When an alarm goes off, a bell sounds and a relevant dialog is displayed. A press of the Escape key and the alarm turns off.

Another, simpler clock is also available. The **Mini Clock** appears as a small window which you can move to any position on the screen.

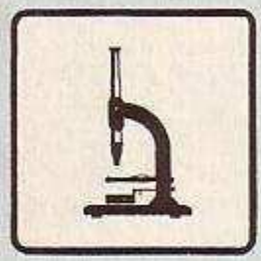
When you select the **Diary,** the current month is displayed in calendar format. You then select the day that you wish to examine and click on it. The diary window will now show your chosen day. The times for the day are shown as half hourly intervals. You can type in the various appointments for that day and then save them to disc for later reference. Twelve small icons at the side of the display represent various categories that a particular day might include such as important letters, a birthday or a journey.

The **Notepad** can store up to 31 pages of text, which you can easily flip through and edit using a combination of mouse and keyboard. It can be stored on your boot disc, so that it is there



Back-Pack: The desktop in use

Reviewed by Andrew Bennett



when you next use your ST.

The **Typewriter** allows you to send Escape and other special codes direct to the printer, or assign them to the 10 function keys. You can also position the printer's head using a slider that you control with the mouse. Using the typewriter can bypass the short comings of some of the word processors that are available for the ST.

Choosing the **Printer Buffer** option allows you to set up a buffer of any size, up to the full amount of free memory. It works by intercepting text sent to the printer and storing it in the block of memory you set aside. Instead of long delays while you wait for the printer to print text, it is simply moved into the block and you can resume working almost straight away. Back-Pack then sends the text to the printer while you work on something else.

The **Address Book** window consists of a list of the letters of the alphabet down one side, just like an address book. Clicking on one of these causes the window to display the first entry beginning with that letter. A display consists of information such as name, address, telephone number and a small area for notes. You use the find option to search the address book for the entries. You can then view the records that contain that information or print them out using the report option.

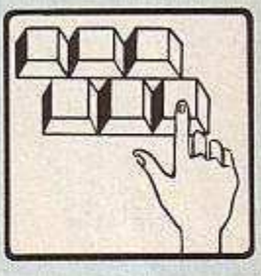
The **Ram Disc** allows you to set aside a part of memory as a super fast disc drive. It can be any one of eight sizes ranging from 128k to 3072k if you have a 4160ST. You have the choice of which drive the ram disc will be and which files to load automatically when the ST is booted.

Parameters such as ram disc size and information such as the diary and address book contents are saved to disc so that they don't have to be altered everytime that you turn on your ST. The documentation cannot be faulted. The 20 page manual supplied with Back-Pack is excellent and provides everything you would wish to know about the cartridge.

My only criticisms of Back-Pack are that it doesn't have a built-in battery for the clock, which must be reset every time the ST is reset and that the cartridge port is not duplicated which means that a clock card cannot be plugged in at the same time as Back-Pack.

Is Back-Pack good value for money? Well there are some ram discs on the market which alone cost £29.95 and printer buffers which cost £19.95. At £49.95 Back-Pack includes both and offers seven other very useful accessories. Overall it's an excellent product which promises to give its money's worth.

Dump a screen on to disc



Keith Watterson shows you how

HAVE you ever wished to dump a screen on to disc? This would allow you to save and edit screens from other people's programs. Here's a program to do just that. You can now capture to disc any screen and then use an editing utility to alter all or part of it to your satisfaction.

One of the nice features of the operating system of the Atari ST is the ability to dump the screen to a printer. For those of you who may not have seen this facility, pressing the Alt and Help keys simultaneously will cause the computer to temporarily stop its current program and print a replica of the screen on an attached dot matrix printer.

It would be very useful to have the same facility to save screens to disc. In fact this utility replaces the in-built routines to dump to printer with ones that dump the screen to a disc file compatible with Degas. For those of you not interested in the actual process involved, Listing I is a Basic program that creates the appropriate machine code program on disc when run. Simply type it in – save it before running to be sure – then place a formatted disc with some room on it in drive A and run the program. A few seconds later you will have a file called DUMPIT.PRG on your disc.

Simply run DUMPIT.PRG like any other application, by double clicking on its icon. When you have been returned to the desktop run the application you wish to get your picture from. Then press Alt+Help when you want the picture dumped. If you want another picture later press Alt+Help again and another picture will be dumped. They will be titled DUMPA, DUMPB, DUMPC and so on.

As written, Listing II is the source 68000 assembly language code for the routine. It will always dump your picture out to drive B. If you prefer Drive A simply change the B: in the last line to A:. In the basic listing, however, the picture will always be sent to drive A. If you change the 41 in line 1190 to 42 it will always save to disc B.

The file written is in Degas format. For those of you who do not have this excellent graphics program, a basic utility to convert Degas pictures to Neochrome was printed in the May 1986 issue of *Atari ST User*.

The original routine to dump to a printer runs in the "vertical blank" period of the operating system. If you're pressing Alt+Help it jumps to a routine to send a bit-image of the screen to a dot matrix printer. Meanwhile, the application that was running will be "frozen" until it is finished or until Alt+Help is pressed again. It will then restart from where it left off. The application that is running should therefore continue undisturbed.

The first problem to be overcome was that of where to put the routine. On an ST most programs are relocatable. That is, they can be put into any memory location when loaded. The operating system decides exactly where depending on memory configuration, other programs already in memory – such as desktop accessories – and reserved memory, for such things as ram discs and printer buffers.

Therefore no site in memory can be considered as completely safe. However, the graphics screen bit-mapped memory resides at the top of ram and leaves a few pages just above it untouched which seem to be relatively safe. They are, for 8 bit users, the ST equivalent of page 6. Listing I moves the routine up above the screen. As set up it's correct on a 520ST or STM. If you have a 1Mb machine you should make the changes mentioned at the start of Listing I.

Basically the program is divided into two parts. When run the first part puts the second part (which is the heart of the utility) into its proper location above screen memory. It also moves the filename to be used to a location above this, hooks the routine up to the vertical blank and returns you to the desktop. It first puts the processor into supervisor mode as we are going to mess about with addresses illegal in user mode. It saves the stack pointer in a register →

```
1 REM ****************************************
2 REM * SAVE SCREEN TO DISC IN DEGAS FORMAT *
3 REM *          BY KEITH WATTERSON          *
4 REM *                                      *
5 REM * 1MB OWNERS PLEASE CHANGE:            *
6 REM * LINE 80: 22352 TO 22400              *
7 REM * LINES 1020,1040,1110,                *
8 REM *       1140,1180,1190: 07 TO 0F       *
9 REM ****************************************
10    OPEN"R",1,"A:DUMPIT.PRG",1
20    FIELD#1,1 AS CODE$
30    CHECKSUM=0:FOR I=1 TO 333
40    READ DATA$:V=VAL("&H"+DATA$):CHECKSUM=CHECKSUM+V
50    PUT$=CHR$(V)
60    LSET CODE$=PUT$:PUT 1,I
70    NEXT I
80    IF CHECKSUM<>22352 THEN PRINT "ERROR IN DATA PLEASE CHECK":GOTO 100
90    PRINT "DATA OK"
100   CLOSE 1
110   END
1000  DATA 60,1A,00,00,01,2C,00,00,00,00,00,00,00,00,00,00
1010  DATA 00,00,00,00,00,00,00,00,00,00,00,00,42,A7,3F,3C
1020  DATA 00,20,4E,41,5C,8F,2C,00,20,7C,00,07,FD,00,45,D0
1030  DATA 43,FA,00,3E,20,3C,00,00,00,C9,10,D9,51,C8,FF,FC
1040  DATA 41,F9,00,00,01,1E,22,7C,00,07,FE,00,30,3C,00,14
1050  DATA 12,D8,51,C8,FF,FC,20,79,00,00,04,56,D0,FC,00,1C
1060  DATA 20,8A,2F,06,3F,3C,00,20,4E,41,5C,8F,42,67,4E,41
1070  DATA 4A,79,00,00,04,EE,6B,00,00,C0,33,FC,FF,FF,00,00
1080  DATA 04,EE,48,E7,FF,FE,12,39,00,FF,82,60,02,41,00,03
1090  DATA 42,80,10,39,00,FF,82,01,48,40,10,39,00,FF,82,03
1100  DATA E1,40,20,40,04,80,00,00,00,22,22,48,2C,49,32,01
1110  DATA 06,01,00,31,13,C1,00,07,FE,0A,20,0C,04,80,00,00
1120  DATA 00,20,22,40,41,F9,00,FF,82,40,34,3C,00,0F,32,18
1130  DATA 36,01,E0,49,02,43,00,07,12,C3,36,01,02,43,00,77
1140  DATA 12,C3,51,CA,FF,EA,42,67,20,7C,00,07,FE,00,2F,08
1150  DATA 3F,3C,00,3C,4E,41,50,8F,4A,40,6B,00,00,38,30,00
1160  DATA 2F,0E,2F,3C,00,00,7D,22,3F,04,3F,3C,00,40,4E,41
1170  DATA DF,FC,00,00,00,0C,3F,04,3F,3C,00,3E,4E,41,DF,FC
1180  DATA 00,00,00,04,10,39,00,07,FE,06,06,00,00,01,13,C0
1190  DATA 00,07,FE,06,4C,DF,7F,FF,4E,75,41,3A,44,55,4D,50
1200  DATA 41,2E,50,49,58,00,00,00,00,00,00,26,00
```

Listing I

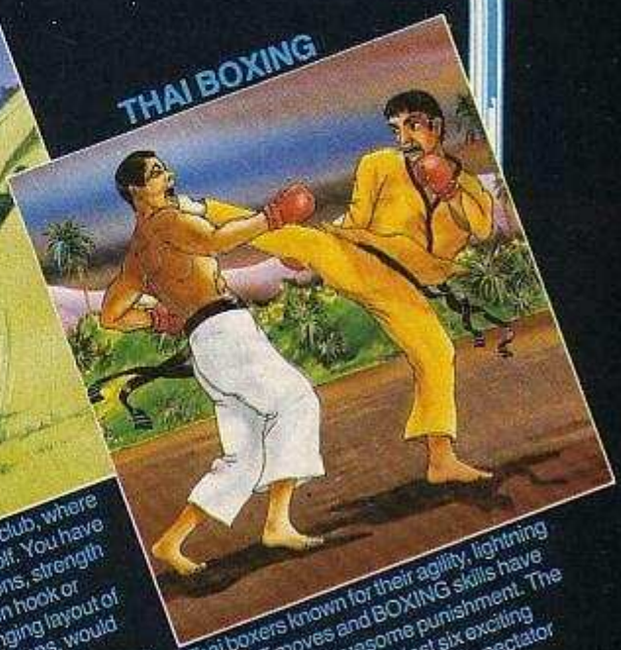
ATARI ST

STRIP POKER

Settle in for a sizzling evening of Strip Poker. Our new R-rated program with graphics so realistic that we can't illustrate what you see when you win. Strip Poker comes with Suzi and Melissa, two gorgeous opponents, each with their own style of play. The more chips you win, the more they take off! Additional data disks available providing the user with a variety of new women (and men!) to play against. Mouse operated. £19.95

ST GOLF

Welcome to the fairway country club, where you can play or practice your golf. You have complete control of club sections, strength of swing, top of back spin even hook or slice. The course is a challenging layout of trees, rough sand and water traps, would you like to change it? Use the course creator/edit to design and build an unlimited number of courses. Mouse control. £19.95



THAI BOXING

Thai boxers known for their agility, lightning KARATE moves and BOXING skills have one aim, inflict gruesome punishment. The game played in 3D against six exciting backgrounds brings this great spectator sport to life. £19.95

SPACE PILOT

Roam the skies of alien land repelling the attack of their Star Ships. Eight spectacular scrolling backgrounds. £19.95

BRIDGE

A comprehensive contract bridge playing and tutor package. The package consists of two individual programmes BRIDGE 4.0 and COMPUBRIDGE. The former will help a beginner to improve his bridge and provide many intriguing hours of enjoyment. COMPUBRIDGE based on tutorials and quizzes teaches you how to play bridge and improve it. £19.95

TRIVIA ST

A game for two to four players. Over 1500 questions and six subjects and facility to make up your own, it provides hours of enjoyment. English and French versions available. £12.95

PEGGAMON

A new approach to the popular and ancient board game of Backgammon, it has 3D highly defined graphic display. One or two player option. £12.95

WILLY THE KID

An exciting adventure with cartoon graphics and the mood of the computer to match. £12.95

FLIP FLOP

Ancient board game of Reversi but with smiling and sad faces instead of pieces. One or two player option. £12.95

ANCO

ANCO SOFTWARE, 4 WEST GATE HOUSE, SPITAL STREET, DARTFORD, KENT DA1 2EH. Telephone: 0322 92513/92518
Mail Order: Payment by Cheque, P.O., Via or Access. 24 Hour Credit Card Service: 0322 522631. Telex: 892758 ANCO G.

to be safe. Then a loop follows which moves the dump routine to just above screen memory.

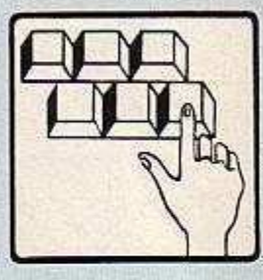
It then finds the address of the queue of Vertical Blank Routines waiting to be done between each display of the screen (50 times/second), which is stored in location $456. This address is then replaced with that of the routine. Finally the processor is put back into user mode, the pointer to the old stack is restored and a call to return to the desktop with trap#1 is made.

The routine itself is now being called every 1/50th of a second in every vertical blank. It starts by looking for the Alt+Help combination. If not present then it exits immediately from the vertical blank and the application running will not be affected. However, if it does detect Alt+Help it then continues and begins by telling the system the screen dump is finished so that it will not continually repeat dumping screens one after another. To be on the safe side again, the processor registers are saved on the stack just in case they are used by the application.

The screen resolution is read from $ff8260 and stored in d1 (it is ANDed with 3 to tidy it up). The screen location is stored in a4, in case the application is not using the normal $78000 for its display, then the screen resolution is put in the last figure of the filename. The resolution is then stored 34 bytes before the screen. The colour registers are tidied up – to correct for the difference between the Gem and the operating system's registers – and stored in the 32 bytes (one word per colour) below screen memory.

The filename is now read and a file created in this name, the memory from 34 bytes before the screen and the screen itself is then dumped to that file and the file closed. Thus a file compatible with Degas pictures in the correct mode is created. The seventh letter in the filename is incremented so the next dump will be saved in a different file, the registers are restored from the stack and the routine exited. Voila! You should now have a Degas screen dump on disc and the original program should still be running untouched.

The utility should work with the vast majority of programs. However, if the main program disables the keyboard, or if the vertical blanks are used in some way it may not work or even occasionally crash the machine, forcing you to reboot. So be warned!



```
*********************************************************
* Programme to save a screen to disc by Keith Watterson *
* to use run the prog and when you want a screen copy   *
* press ALT and HELP keys together                      *
*********************************************************


super   equ     32
create  equ     $3c
write   equ     $40
close   equ     $3e
pflag   equ     $4ce

        clr.l   -(sp)                   setup super-mode
        move.w  #super,-(sp)
        trap    #1
        addq.l  #6,a7
        move.l  d0,d6                   save old stack in d6

        move.l  #$7Fd00,a0              put prog
        lea     (a0),a2                 above screen
        lea     start(pc),a1
        move.l  #fin-start-1,d0         size in counter(d0)

reloc:  move.b  (a1)+,(a0)+             move program
        dbra    d0,reloc

        lea     filename,a0             get addr of filename
        move.l  #$7FE00,a1              put it above screen
        move.w  #28,d0                  bytes to move
f_loop: move.b  (a0)+,(a1)+
        dbra    d0,f_loop

        movea.l $456,a0                 program hooks up to
        adda    #28,a0                  the vblank-queue
        move.l  a2,(a0)                 point it to my prog

        move.l  d6,-(sp)                go back to user mode
        move    #super,-(sp)            with old stack pointer
        trap    #1
        addq.l  #6,sp

        clr     -(sp)
        trap    #1                      back to desktop

** End of Main prog -- rest that follows is relocated above video RAM **

start:
        tst.w   pflag                   ALT/Help pressed??
        bmi     exit2                   NO then exit VBI

        move.w  #-1,pflag               tell system scr/dump done
        movem.l d0-d7/a0-a6,-(sp)       save reggies used

        move.b  $ff8260,d1              get Screen Resolution
        andi.w  #3,d1

        clr.l   d0
        move.b  $ff8201,d0
        swap    d0
        move.b  $ff8203,d0
        lsl.w   #8,d0
        movea.l d0,a4                   a4 = screen loc

        subi.l  #34,d0
        movea.l d0,a1
        movea.l a1,a6                   a6 = screen -34
        move.w  d1,(a1)                 put resolution in header
        addi.b  #$31,d1                 ascii it
        move.b  d1,$7FE0A               put resolution in filename

move_colours:
        move.l  a4,d0
        subi.l  #32,d0
        movea.l d0,a1
        lea     $ff8240,a0
        move.w  #$f,d2
col_loop:       move.w  (a0)+,d1                get colours and tidy
        move.w  d1,d3                   them up
        lsr.w   #8,d3
        andi.w  #$7,d3
        move.b  d3,(a1)+
        move.w  d1,d3
        andi.w  #$77,d3
        move.b  d3,(a1)+
        dbf     d2,col_loop

* save picture

        clr.w   -(sp)
        move.l  #$7FE00,a0              addr of filename
        move.l  a0,-(sp)
        move    #create,-(sp)
        trap    #1
        addq.l  #8,sp
        tst.w   d0
        bmi     exit                    exit if error
        move    d0,d4                   d4 = file_handle

        move.l  a6,-(sp)        buffer
        move.l  #32034,-(sp)            length
        move.w  d4,-(sp)                file_handle
        move.w  #write,-(sp)
        trap    #1
        add.l   #12,sp

        move.w  d4,-(sp)
        move.w  #close,-(sp)
        trap    #1
        add.l   #4,sp

        move.b  $7FE06,d0               inc.filename letter
        addi.b  #1,d0
        move.b  d0,$7FE06

exit:   movem.l (sp)+,d0-d7/a0-a6       restore reggies

exit2:  rts

fin     equ     *

filename:       dc.b    B:\DUMP\A.PIX ,0,0
```

Listing II

Fast Basic lives up to its name

Program: Fast ST Basic
Price: £89.99
Supplier: Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts HP2 6EX.

André Willey reviews Computer Concepts' Fast ST and Basic acclaims it as a winner

IF you ask any new ST owner what their main complaint about the machine is, the chances are that they will say it is the Basic Atari provided. Not that the specification on paper is all that bad, but for a machine of this power most people were expecting something a little better. Add the fact that it is riddled with bugs and perhaps the complaint is justified.

Atari has made various promises about an improved version of its Basic, but I suspect that the ground has been cut from under it by the release of Computer Concepts' incredible Fast ST Basic.

Rather than attempting to follow Atari's strategy and model its Basic on the long-in-the-tooth Microsoft implementation, Computer Concepts has opted to base its new language on the latest structured Basics and has supplemented this with complete access to the Gem functions previously only available via PEEKs and POKEs.

The first thing you notice when opening the box is that Fast Basic comes in cartridge form instead of on disc. This has many advantages, not the least of which are that it loads instantly, is more reliable and leaves much more available memory for your programs.

The cartridge appears as a special icon on the desktop – you can call up Fast Basic in the same way as you would a file from a disc.

Once Fast Basic is loaded you are confronted with the main display. This differs from Atari Basic in that there are only two main windows, for the editor and the output.

All your programs are composed via the editor, which features full mouse or cursor key control plus cut, copy, paste, search, replace and a whole host of other text manipulation and deletion commands.

The editor still falls into the same trap as Atari Basic – that of having long lines hidden under the right hand scroll bar. Perhaps it would have been better to have opted for a word processor type window where long lines wrap at the edge of the window rather than at the 80 column mark.

Text and graphics will normally be displayed in the output window, although you can specify a working area anywhere on the screen – even outside of the window or over the menu bar.

There is, in fact, one other window you can use – invoked only if you call it from a pull-down menu – which allows you to enter direct commands. This method is quite a change from standard Basic where even program lines are entered in immediate mode, but you can quickly adapt to it. It is certainly a lot faster and more efficient to work with than the constant window opening and closing you will be used to if you've tried to do anything serious with Atari Basic.

Since the cartridge format leaves so much free memory, Fast Basic makes the most of it by allowing you to have up to 10 programs resident at one time. These each have their own redefinable icon on the desktop and may be called at will.

The default allocation is 32k per segment, but you may increase or decrease that to suit each program in turn. You can thus allocate a large workspace to a small program that needs a lot of data, and still not be wasteful with a large program that uses very little external data.

All this information, including the icon, is stored with the program when you save it to disc.

Any segment may call another, and you can copy between segments with ease via the clipboard icon. The only limitation is that the segments cannot multitask – that is, only one segment can be running at a time.

Moving on to the language itself, the most obvious thing is that the majority of Fast Basic programs do not have line numbers.

If you think about it, line numbers were introduced in the days before decent on-screen editors were available. Once you have full cut and paste editing they become a hindrance rather than an asset. You can use them but they will act more like labels than the sequenced line numbers you are used to.

Your programs can be extremely well structured. There are procedures with full parameter passing and local variables, WHILE ... WEND loops, SWITCH ... CASE ... ENDSWITCH structures, IF ... THEN ... ELSE ... ENDIF constructs and many others. Indeed, the whole language syntax is based around the very popular BBC Basic used in many schools around the country.

Variables may be of a wide variety of types – 8, 16 or 32 bit integer, single precision decimal, double precision decimal, string, or arrays of any of the basic types.

You may also use indirect addressing instead

of variables – removing the need for such commands as PEEK and POKE. Simply enclose an address or formula in curly brackets and it becomes a pointer to a memory location, which may be given or returned in any of the standard numeric formats.

Operators are equally well provided for, with all the normal maths functions covered, plus bit shifting, bit logic, Boolean logic, integer division and MOD calculation.

Full double precision equivalents of functions such as LOG, SIN, COS, SQR and so on are provided, making double precision a much more useful mathematical tool.

However, any computer language is much more than this, and it's hard to know where to begin when describing the features in detail. The manual devotes over 320 of its 400-odd pages to the various commands, and I couldn't hope to cover them all here.

Needless to say, just about every command you could ever ask for is supplied, plus a good many others besides. There are commands for cursor movement, for drawing boxes, circles, ellipses, arcs and polygons and for fill and line patterns.

Others handle text font type, size, colour and direction setting as well as blit functions which will transfer any portion of memory or screen data to anywhere else, even altering the format of the data.

Timing functions such as date (US and UK format), time (12 or 24 hour clocks), real-time counters (in 200th of a second intervals) are offered, as are commands for disc directory, active drive count and folder creation.

Other commands cover file handling – random or serial byte or record access – including size and free disc space checking, string handling functions such MID$, LEFT$, RIGHT$, FORMAT$ (a more powerful version of the old PRINT USING command), mouse control and detection operations ... the list goes on and on.

Of particular interest are some of the psuedo-variables used. These act like variables to your program, but control much wider aspects of the machine.

They include PHYSBASE and LOGBASE which allow you to read or change the address used to generate the screen display and SYSDATE – the current system date. SCREENWIDTH and SCREENHEIGHT tell you the current screen coordinate range, and hence the current resolution.

There is also a set of commands to control the Gem functions. With a little practice and knowledge of the workings of the Gem interface, you can create and manipulate pull-down menus and dialog boxes from Basic which will return their results directly to your program, to be dealt with accordingly.

Many examples of these functions are on the disc provided with the package. This is probably just as well, because the manual doesn't really go into much detail in these areas.

The manual's biggest failing is probably the lack of explanation of object trees, without which many of the Gem commands are almost useless. It tells us: "While the subject is not complicated, a thorough treatment of object trees is beyond the scope of this manual."

BM No.	Atari 8 bit Normal	Atari 8 bit OSS	CBM 64	Spectrum	BBC 128k	ST Basic	Fast ST Basic
1	2.02	1.06	1.4	4.5	0.5	0.91	**0.145**
2	6.56	2.02	10.5	8.1	2.3	3.08	**0.58**
3	18.88	7.52	19.2	20.1	5.7	5.98	**1.305**
4	22.14	7.84	20.0	19.5	5.8	7.6	**1.46**
5	25.74	8.6	21.0	22.9	6.4	8.81	**1.51**
6	39.74	15.52	32.2	52.6	10.3	14.9	**2.585**
7	60.38	23.8	51.6	71.0	16.2	21.75	**4.13**
8	421.1	55.14	116.0	240.0	28.2	11.44	**2.735**
Avg	74.57	15.18	34.0	54.8	9.4	9.31	**1.806**

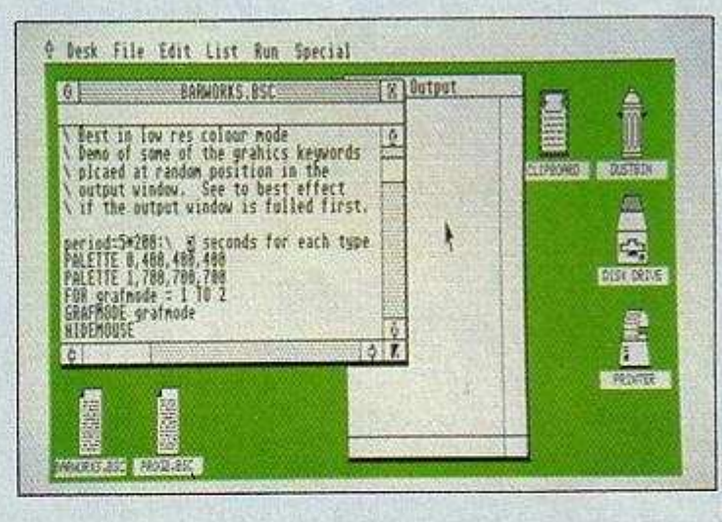
Figure I: Benchmark timings of various Basic languages (in seconds)

However, a good look through the Neo file converter program on the demo disc will certainly help, since it is entirely controlled by a re-defined menu bar and the mouse, complete with file selector boxes.

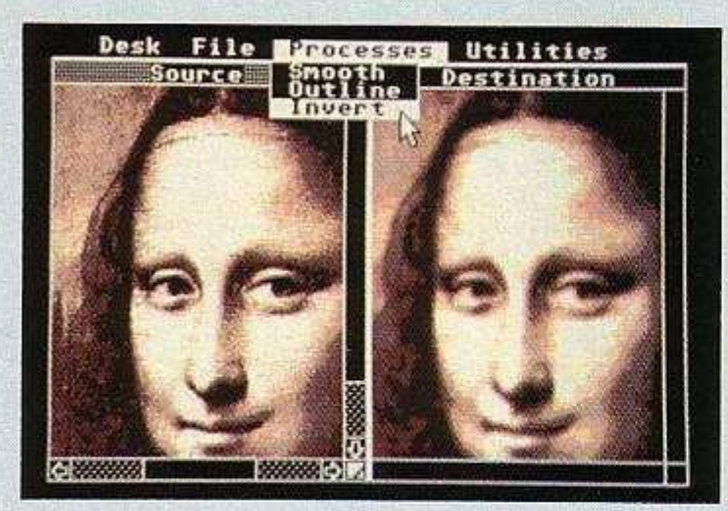
While graphics were more than amply taken care of, I was a little disappointed with the sound control – the DOSOUND command is a joke when compared to the rest of the language.

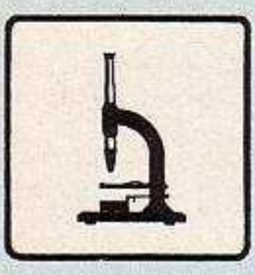
It requires only one parameter – the address of a block of memory containing sound data which will be played as a background task.

The manual gives no documentation at all as to what each register does and there are no direct commands for ADSR setting of the quality of the sound, though there is a BEEP and single note play command.



Following the BBC Basic tradition once again, Computer Concepts has also included a full 68000 assembler. Basic variables and procedure calls can both be used with assembler and a number of psuedo-ops are available. These include space reservation, include files and full control of output format and listing type. While not quite a macro assembler, it fulfils its function very well indeed. Once again the manual is lacking at this point and if you want to use this





feature you'll certainly have to buy yourself a book on 68000 machine code.

However, features aside, the best is still to come. Fast ST Basic was called that for a reason – the execution speed is something that has to be seen to be believed. For example, a FOR...NEXT loop from 1 to 1000 will execute in just over a tenth of a second.

Atari's ST Basic takes almost one full second to do the same job, and the 8 bit machine takes more than two seconds. In comparison, a Spectrum takes four and a half seconds.

Figure I gives a complete rundown of the performances of different machines and Basics against that of Fast Basic, and as you will see it beats everything else by a factor of five.

For interest, I have also included the benchmark times for the 8 bit Atari running OSS's Basic XE, which, as you can see, improves its performance considerably.

In conclusion, if you own an ST – even if you are mainly a C or machine code programmer – you should have a copy of Fast ST Basic. Even the advanced users will appreciate the usefulness of being able to drop into a straightforward fast and reliable language for working out quick routines and manipulating data.

In fact, I don't know of a Basic on any other machine which is so feature packed and yet still so easy to use. There didn't appear to be any bugs to speak of, but the language is so vast and complex that only time will tell.

It did crash once while opening a window with the mouse, but that could have been due to my not having the cartridge inserted properly.

Computer Concepts has a real winner here – but wouldn't it have been so much better if Atari had provided us with something similar in the first place?

American $cene

EDWARD SHARK reports

WHICH is best, Atari or Commodore? That's the prime topic on many American bulletin boards at the moment, with both 8 and 16 bit machines under the spotlight.

Firstly I should declare my interest: I'm a games programmer with long time experience on the Commodore 64 and more recently the Atari 8 bit and ST, and frankly the Commodore 64 is not a superior machine to the Atari 800, as most salesmen would have you believe.

I used to try to persuade people considering a computer to buy a Commodore 64 instead of an Atari 800 because I believed the Commodore was a superior machine, but since that time I have become very familiar with the 8 bit Ataris and have found that for many applications they are far better than the C64.

If you need proof just go to the software department at your nearest computer shop and compare the products available for both machines. 80 to 90 per cent of the time the Atari version will be much better then the Commodore.

Even if the latter has room for improvement, the C64 version could not be as good as the Atari version due to the C64's in-built limitations.

On the 16 bit side Atari also has the edge. After nearly a year of sales for the ST and slightly less time for the Amiga, we are seeing the ST leading the field despite the fact that,

at first glance, the Amiga is a better machine.

While the Amiga is a wonderful machine, and, in certain departments, superior to the ST (Shush, you heretics at the back!), it cannot match the ST in terms of sheer value for money.

This one factor dominates the comparison and means that while the ST has sold and sold in the US, the Amiga has never quite shifted from the esoteric hobbyist and vertical computer markets.

Don't take my word for it, take the recently issued report from Consumer Reports, the US equivalent of Which?, the Consumers Association magazine. Consumer Reports has tested the Commodore Amiga and the Atari 520ST and found both machines to be "easy to use and graphically dazzling".

But which machine is best? Consumer Reports gives a slight edge

to the ST for home and business users. The magazine notes that when compared to the Amiga, the ST is cheaper, has a colour display that is more-suited for text work and comes bundled with a better set of software packages.

On the other hand, Consumer Reports claims that the Amiga's more impressive technical attributes (extra colours, better animation, additional sound channels and higher speed) may make the computer more attractive to hobbyists. This isn't a view that I share, but only time will tell.

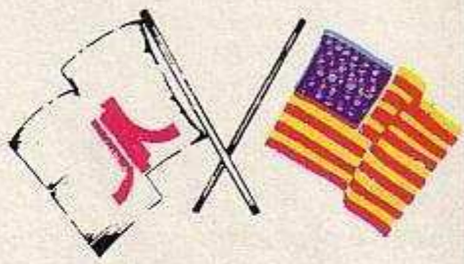
Now that we're all convinced that the ST is the best, let's have a look what's in store for us all in the upper echelons of the ST range. Most people's eyes are firmly focused on November of this year, when Atari is rumoured to be launching the long-awaited TT range of 68000 machines.

The TT is based around the 68020 cpu which will perform tasks that the 68000 processor will, but very much faster. Contrary to what many people think, the TT will be a co-processor unit which will fit into the 1040 machines.

In providing a dual-processor environment for the ST, Atari has in many ways countered several advantages that the Amiga held. Coupled with the $100 blitter upgrade, which will run ST graphic applications up to five times faster than a non-blittered ST, the TT co-processor unit will put the ST into the Amiga league - but at a much more sensible price.

This brings us to another interesting point. What about all those people who bought 520ST machines? Sad to say, the word is that they're getting left behind. The 520ST, as well as being the first ST to hit the streets, is being viewed simply as a base machine for the ST series. As such it was a non-expandable unit (or not as easily expanded as later models in the range).

It is possible to expand the 520ST's memory with third party



memory upgrades, but this leaves very little room inside the case for any further extras that Atari has up its corporate sleeves.

Therefore I'd advise those 520ST owners who wish to expand their machines with extra memory and the blitter to consider upgrading to at least the 1040ST as soon as possible, before the second-hand value of the 520 drops too much.

And with that happy thought for all you Atari 520ST owners, I shall leave you for this month.

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AMONG the many prominent Atari figures visiting the recent PCW show was Leonard Tramiel, vice president in charge of software development. Andrew Bennet took the opportunity to get authoritative answers to the questions our readers have been asking.

A Tramiel software...

Q *One of the most exciting developments for the ST range has been the advent of the blitter. How exactly does it work?*

A The blitter works by automatically speeding up the ST's Line-A routines by a factor of between three and five times. This means that all programs that use these routines, either directly or indirectly, will have faster graphics. A program can also check to see if there is a blitter installed in the ST and use it to move memory around much faster than is otherwise possible.

Q *On the Amiga, the blitter can only move graphics memory. Is there any such limit on the Atari blitter?*

A No. There is no special graphics memory in the ST, therefore the blitter can operate on all memory whether it is being used for graphics or not. Theoretically it can move up to 16mb of memory at any one time. The ST's upper limit of 4Mb of ram is the restriction.

Q *How will the blitter be packaged?*

A It will come in two forms. There's a version that will simply plug into the newer 1040 and the 2080 and 4160. It also comes ready to be soldered on to the back of one of the chips inside the older 1040s and the 520. A new set of roms will be included in the price of around £70. Either way, fitting will have to be carried out by dealers.

Q *There are rumours of a graphics chip in the works. What can you tell us about that?*

A The graphics chip will offer extra graphics modes which will have a greatly increased colour range and offer higher resolutions. Like the blitter chip, it will be offered as a dealer-fittable upgrade.

Q *How accurate is the talk of 1024 by 1024 resolution?*

A To talk of 1024 by 1024 is unrealistic. Any new graphics chip will offer resolutions in roughly the same x and y proportions as at present. The chip will supply new graphics modes on top of those already available. Programs will simply be able to check if the new chip is there and then use the new modes where applicable.

Q *What can you say about Amy – the rumoured music/synthesiser chip for the ST?*

A Amy is a sound synthesiser chip which has capabilities as yet unseen on one chip. It was the first end user project started by the old Atari (pre-Tramiel) after the 800XL. Atari set out to develop a custom chip of great complexity but had limited resources and poor development tools. The achitecture was brilliant but the early versions of the chips simply didn't work. When we took over Atari we saw Amy as an excellent potential product. We have sold the design to a company that I cannot name just yet and they are hoping to have the final working chips ready soon.

Q *What form will the 32 bit workstation take?*

A It will be a co-processor unit which will simply attach to the ST. Its greater processing speeds will allow existing programs to operate much faster.

Q *The 20Mb hard disc unit for the ST is now available. Originally it was supposed to be a 10Mb unit for around £500 – what happened?*

→

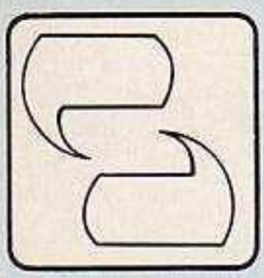
A It simply wasn't possible to build a unit for that end user price.

Q *At one time, Atari was rumoured to be buying faulty 20Mb units and writing software to allow them to be used as 10Mb drives. What happened to that idea?*

A It simply didn't prove practical. We believe that £850 is a reasonable price to pay for a 20Mb drive.

Q *What is the current state of the CD-ROM player for the ST?*

A We still intend to sell a CD-ROM unit for the ST which will include an encyclopedia in the future when the end-user price is low enough, about $500.



Q *Atari appears to be selling STs across the entire globe. Is any one area doing better than the others?*

A I haven't got the exact figures, but probably our best sales are in Germany.

Q *To clear up a point of much argument, what does ST actually stand for?*

A It doesn't and never has stood for Sam Tramiel. It stands for Sixteen/Thirty two. It derives its name from the 68000 which is a 16/32 bit processor.

Q *Is the new black and white monitor on the swivel stand, the SM125, the new standard?*

A Yes. The SM124 will no longer be made.

Q *Do you intend to drop the 520ST, as Apple did with the 128k Macintosh?*

A We have no intention to do so. We believe that 512k of memory is a good amount for a base machine.

Q *Do you intend to include a modulator inside the 1040ST?*

A We are constantly listening to the market place. If enough people want a modulator then we will strongly consider it. ■

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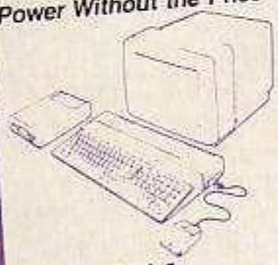

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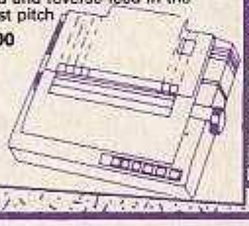

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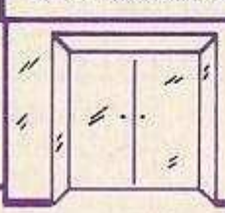

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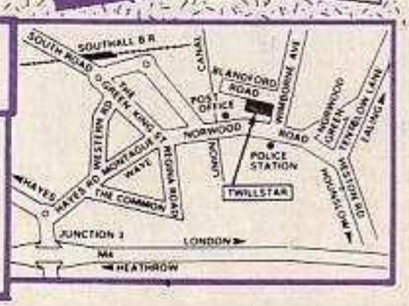
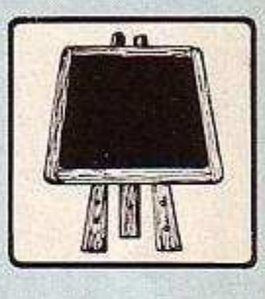


Smiles all round for school's ST



Alan Coode describes how the ST is well suited to primary education

THE Atari 520ST is an ideal computer for use with young children in primary school. Its power and open architecture have already made an impression in university departments but the ease of use and the friendliness of its programs make it a natural choice for schools.

The iconic environment is easy to understand and operate and even the most inexperienced child can load programs, copy discs and generally manage the computer environment with virtually no help. The confidence they display reflects their new opinion of themselves as competent operators – they run the computer not the other way around. The computer becomes a tool to think and work with. Even playing with the colours on the control panel teaches them about the primary and complementary colour combinations. The mouse is vital for young children. Its physical movement across the table helps them interact with the computer both physically and conceptually.

One school where Atari STs are in regular classroom use is Southmead Primary School in Wimbledon. Here the children are already familiar with computers and each classroom has a micro of its own as part of the basic equipment. The school is in a project set up by the Inner London Education Authority to explore the effect of computers on children's learning.

The children are familiar with the normal educational computers such as the BBC Micro with its non-standard operating system and the RML 480Z which uses CP/M. The latter is a good operating system but it has serious drawbacks for children as the commands are not easy to explain. Pressing B to boot the machine is easy enough but if anything goes wrong the error messages resemble Ancient Greek. The children are continually asking what to do next or what went wrong. The better programs are menu driven. These give the children the feeling they are in control of the computer but still the teacher is found leaning over the computer pressing a key to solve a problem that the children could not be expected to understand.

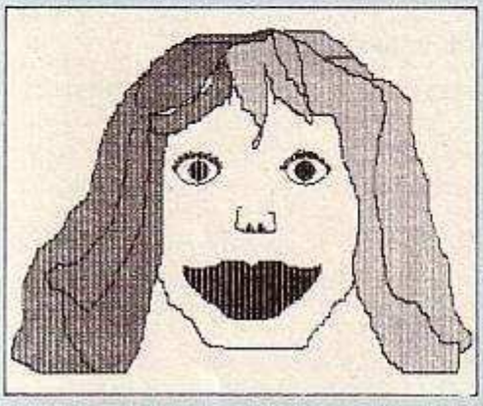
The delivery of an Atari 520ST changed the children's attitudes towards computers overnight. The first response was a physical one. The teacher would still lean over the group of children working on the computer, but now arms gently rose to prevent him intervening. The children had expectations and these included the possibility that they would be able to solve the problems without the teacher's help.

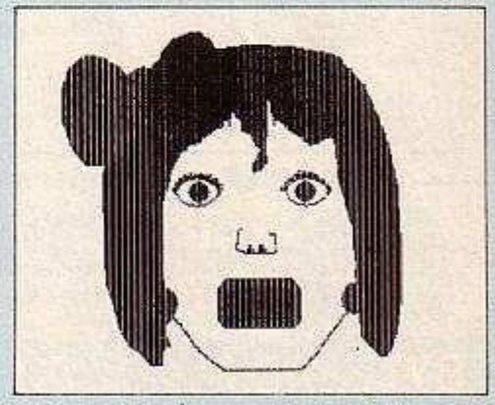
This independence was exactly what we had expected, but failed to get, with the early computers in school. With the ST, instead of asking their teachers for help, the children actively discouraged adult involvement, preferring to find solutions to the problems they encountered themselves. They soon began to use it to undertake all the normal tasks of copying files, running programs and erasing unwanted information. Using the Gem environment made it possible to involve more children, so these taks were not reserved for the computer-literate few.

The computer curriculum in primary school is already well defined. Programming in Logo, word processing and databases form the basis of the work in the classroom. Specific educational programs *do* lead to topics, and also serve to reinforce concepts, but their use is declining. More and more schools are using the computer as a tool to extend the children's ability rather than to instill facts.

Included with the ST is a fine version of Logo. The children were disappointed when they discovered the screen was only black and white

→





Self portraits by Degas: Now the children can produce exciting computer images

BYTEBACK ST

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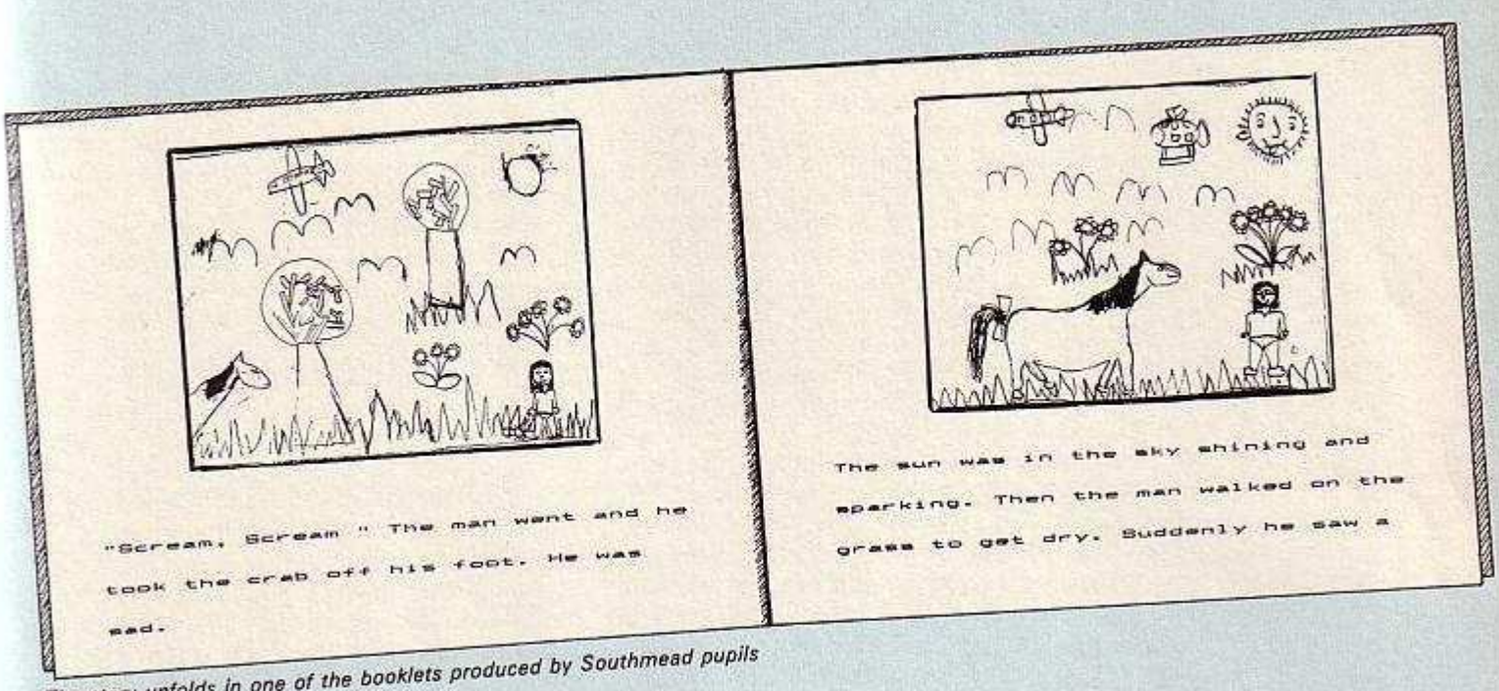


The story unfolds in one of the booklets produced by Southmead pupils

but they soon perked up when they saw how clear and sharp the images were. A lead was bought to link the ST to a Microvitec colour monitor and Logo leapt into colour. The sheer speed of the turtle as it raced around the screen amazed the children. It made the other versions of Logo on lesser machines look positively snail-like. Logo programs were translated into DR Logo and tried out on the ST. The debugging process provided many hours of problem solving which the children relished.

Along with Logo, the bundled software included two programs which made the perfect package for primary aged children – DB Master, a simple yet powerful database program and 1st Word, a word processor.

Children are natural collectors – turn out any 10 year old's pockets and you will find a variety of "useful" objects apparently not conforming to any predetermined need. Harnessing this primitive urge to collect and impose order provides many excellent opportunities for learning. However, if collecting and entering data on a computer were as simple as putting bits of string and conkers into a 10 year old's pocket little educational benefit would come from it. Likewise if sorting the data and planning a database becomes such an intellectual exercise that children don't have the motivation to carry the task through, few children will benefit from using it.

Unfortunately databases have been either too simple to be of use to children, or so conceptually difficult that they have found them daunting rather than illuminating. What was needed was a database flexible enough to allow information to be entered in a child-like way, but powerful enough to enable the children to find out worthwhile and relevant information.

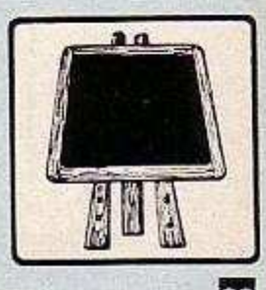
DB Master fits this bill perfectly. The children understand what they are doing as the records are designed as pages. They can even use a printout of a page to collect the raw data, filling in the boxes as they interview or collect. Searching the records for patterns is easy. The layout provides the support young children need to enable them to think in a complex and abstract way. They can see where to put the information and, more importantly, what information is required.

At school there are databases on pond life, designed and managed by the childen. The numbers of all their bikes, as marked by the police, form another child-managed database. All the books the children read are entered, and a reading record is presented to both teacher and child at the end of the year.

The children are now actively looking for what to record and what they can find out. This never happened with the database programs available on the RML or the BBC.

Writing using a computer opens a whole new horizon for children. It has been common practice in schools for a considerable time to get the children to make drafts of their work, starting with the rough draft of ideas and culminating in a finished, copied-out piece of work subsequently "published" or displayed. Although this helps the children to learn, it is labourious to copy out a draft of a piece time and again, often for the sake of one or two mistakes. What is important is the process of review and this can be done effectively using the computer without the risk of making writing an onerous task.

One program has made writing on the Atari really different from writing on any other computer. Thunder, from Batteries Included, is a spell checker which checks the words as they are entered. It works with any Gem based program and lets the children use the words they need without worrying about the spelling. This helps them improve their written expression while they



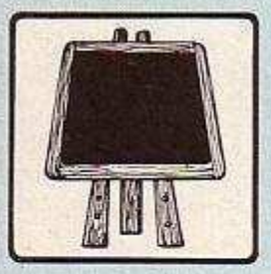
learn to spell by seeing the correctly spelt words presented as they make an error. The program is large and is able to present a range of alternative words. Selecting the correct one means the children have to recognise the correct spelling which helps them learn to spell in the most effective manner possible.

Desktop publishing is a growth area in business computing. There is no doubt that it would fulfill a real and useful purpose in any school but the drawback is price. Systems can cost as much as £5000 and this is well outside the budget of most schools.

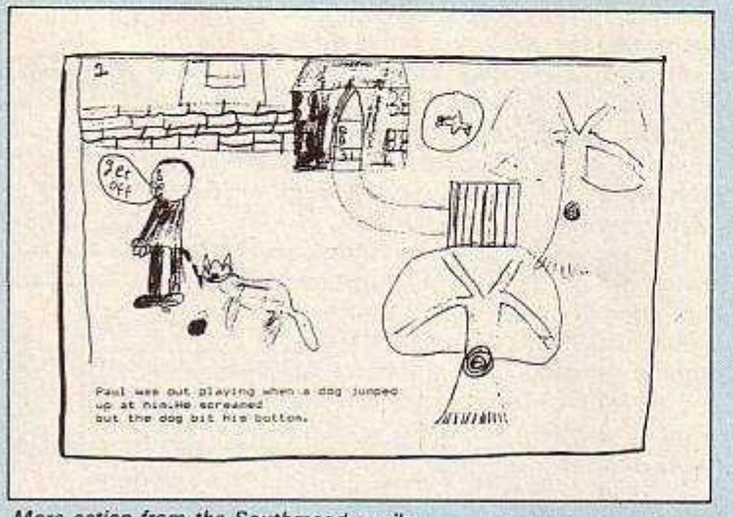
Producing newspapers and magazines provides vital information for parents and gives children a real reason for writing. The ST with the addition of a photocopier – laser printers are still too expensive – gives the children and teachers at Southmead a simple publishing system. The writing is undertaken using 1st Word printed out on a dot matrix printer and the titles added using Degas. The cut and paste process does depend on traditional scissors and glue but the finished effect is quite professional.

The children produce a weekly school newspaper full of information and local news. Notes home to the parents are designed and written by the teachers on the ST, and the head produces the governors' report and the school booklet. One group of children wrote and illustrated stories which were then printed out and the pictures coloured. They were sold in the local children's bookshop.

No doubt the future will see laser printers and more complete software in schools, but the ST with its high resolution screen offers enormous advantages over the normal school micros for publications.



It's only when you see children using programs such as Degas to produce exciting artistic designs that you realise the patience they had when they had only the cursor controlled drawing programs on the RML 480Z. The pictures they produce using Degas reflect their confidence and soon printouts become illustrations mounted on the wall or stuck into books.



More action from the Southmead pupils

Using the mirrors to reflect the patterns teaches them more about symmetry than any number of work cards. Geometric shapes and number squares are drawn and school notices have been transformed.

A new program, Make It Move, allows the children to take pictures from Degas and animate them – a poor man's Channel 4 graphics system. Items picked out can be made to zoom, fade or move across the screen. Make it Move uses icons to help the children prepare a script. The end result is remarkable and adds the dimension of movement to their drawings.

Children are interested in computers. Teachers recognise this and know that the curriculum will be radically altered in the near future by this new technology. The children starting school today will, when they leave full time education, enter a very different world – but attitudes still need to change. Too much time is spent using computers in school for trival tasks. Simple programs which don't extend or stretch the child's imagination or intellect are all too common.

The proliferation of these programs stems from two sources. When computers were introduced teachers were encouraged to think that they should program the machines themselves. This was fine up to a point and many teachers have produced fine simulation-type programs – but teaching is a full time occupation. Many of the programs written by teachers for use in their own classrooms were snapped up by publishers and distributed to an audience for which they were neither intented or suited.

Also the machines available when the Government decided to put them into schools were not as sophisticated as the ST, nor had they enough memory to allow the programmer to provide the simple interface vital if the child is to use the machine effectively. As a result programs which were easy to explain and simple to run were preferred to those which could extend and educate. These two factors mean that computers, perhaps the most exciting tool for education since the book, are being used all too frequently to reinforce impoverished educational theories.

In many ways school computing is only just beginning now the Atari ST is available. The domination of the BBC Micro and RML has led to a lot of software being developed and this represents a considerable investment for schools. Adopting a new machine often means buying new software. However, a complete BBC Micro environment has been developed for the ST. This will be attractive to schools with a lot of BBC software. The Atari ST strength is not, however, as a lookalike. It offers a complete new experience for children in school but it is also adaptable enough to incorporate the best of the previous machines. Just as it took over this year's Personal Computer World Show so it will begin to dominate educational computing and give children real computer power.

ATARI ST

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520ST PACKAGES

The 520ST-M keyboard costs only £346.96 (+VAT=£399) and includes an RF modulator and cable, allowing you to connect it to an ordinary domestic TV set. The keyboard is supplied with 512K RAM, a mouse and a free set of 3½" disks containing applications software. For a limited period from August 11th 1986, we have some special packs offering combinations of the 520ST-M keyboard with a ½ Mbyte SF354 Atari disk drive and an Atari monitor (either the Mono SM124, or Colour CM36512). These packages offer up to £200 extra discount on a system, if purchased from Silica, they also come with our free 'ST STARTER KIT'. All of the pack prices shown in the chart include VAT.

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		Disk Drive	£149
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£200 DISCOUNT 2 DISK DRIVES + MONITOR + PRINTER	PACK 4 (MONO)		PACK 5 (COLOUR)	
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	Pack Price	£845	**Pack Price**	£995

UPGRADE TO 1024K RAM

We are pleased to be able to offer a 1Mbyte upgrade on the standard 520ST keyboard to increase the memory from 512K to a massive 1024K. It has a full 1 year warranty and is available from Silica at an additional retail price of only £86.96 (+VAT=£100). Any of the five packs can be upgraded to 1Mbyte for only £100. The 1Mbyte ST offers a low price alternative to the 1040, but also gives you the benefit of an RF modulator (not normally fitted on the 1040).

REDUCED PRICES

Atari's ST personal computers are now firmly established both in the USA and Europe. The main attraction of the ST range is the value for money which these computers represent, giving both private and business users a powerful asset at a very modest price. There are now several ST packages available from Silica at a reduced price, further enhancing the Atari 'Value for Money' reputation. In addition, we are giving away a FREE Silica 'ST STARTER KIT' with every 520 or 1040 ST purchased at Silica Shop. These offers will only be available for a limited period and commence on 11/8/86.

POWER FOR BUSINESS

The list below shows some of the new business products which have been recently launched for the Atari ST range. It gives an indication of the ST's potential to business buyers looking to install a powerful, low-cost system:

CP/M EMULATOR
20Mbyte HARD DISK
LOTUS 123™ CLONE
dBASE III CLONE
IBM COMPATIBILITY
VT100 EMULATOR
MICROSOFT WRITE
dBASE II

Any ST computer will provide its user with a very powerful asset, utilising a vast range of applications, particularly in the business world. Many software companies have been quick to recognise it for its business potential, and have produced programs for the ST which harness this potential. In addition, there are several peripheral and hardware products becoming available to add to the ST's 'Power For Business'. Software now available includes dBMan, a dBASE III clone as well as H&D Base, a dBASE II clone. In fact, First Software have now launched Ashton Tate's original dBASE II program for the ST. In addition, PC Intercomm is a VT100 emulator which enables you to use any ST keyboard as a terminal connected to a mainframe or mini. Other programs include a powerful accounts package by Cashlink and a Lotus 1-2-3™ clone called VIP Professional. Microsoft have announced that their powerful word processor 'Microsoft Write' will soon be available for the ST. Many packages are available for very specific market applications including a powerful CAD (Computer Aided Design) program called Easy Draw from Migraph. In addition, there is an engineering tool called PC Board Designer by Abacus Software which will enable the user to design printed circuit boards. For further details of how the ST can help in your business, return the coupon below. We will be pleased to send you our latest newsletter and price list.

PRICE MATCH PROMISE

We hope you will find that the combination of our low prices, FREE delivery service, FREE Starter Kit and after sales support, will be enough to make you buy your Atari equipment from Silica Shop. If however, there is something you wish to purchase, and you find one of our competitors offering it at a lower price, please contact Owen Pascoe (Office Manager), or one of the telesales staff in our sales department. When you telephone us, please provide us with our competitors name, address and telephone number. Providing our competitor has the goods in stock, we promise to match his offer (on a 'same product - same price' basis) and still provide you with our normal free delivery. You will also be entitled to our full after sales service, including free newsletters and technical helpline support. We don't want you to go anywhere else for your Atari products. So shop at Silica, the U.K.'s undisputed No1 Atari specialist.

FREE SOFTWARE

When you buy a 520 or 1040 ST computer keyboard from Silica Shop, you will receive a large and varied software package free of charge. This package consists of twelve programs. Wherever you purchase your Atari ST computer, you should receive the first six software titles as standard. However, if you purchase your ST from Silica, you will also receive a further six extra titles, giving you a total of twelve. All ST's now have TOS/GEM already installed on ROM, so the list of free software you should receive is as follows:

1) GEM - *DR Desktop environment with WIMP (fitted in ROM)*
2) TOS - *Tramiel Operating System (fitted in ROM)*
3) 1st WORD - *Word Processor by GST using GEM*
4) BASIC - *Personal Basic by DR (with manual)*
5) LOGO - *Logo language by DR (with manual)*
6) NEOCHROME - *A powerful colour paint and graphics package (only useable with colour systems)*

If you purchase your ST from Silica, not only will you receive the standard six pieces of software as listed above, but we will also give you the following six additional programs FREE OF CHARGE:

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10) CP/M UTILITIES - *Various utilities to use with CP/M*
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ST NEWSLETTER

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1040ST-F

For the businessman and the more serious home user, there is the 1040ST-F with 1028K RAM. This can be used in a business environment as a stand-alone system, or can support a mainframe computer as a terminal. The 1040ST-F keyboard with integral 1Mb disk drive costs only £699 (+VAT=£803.85). As the 1040ST-F was manufactured solely with business use in mind, it does not come with an RF modulator for use with a domestic TV. Instead, it requires a monitor. There are three Atari monitors available, and the prices for the 1040 with these monitors are as follows:

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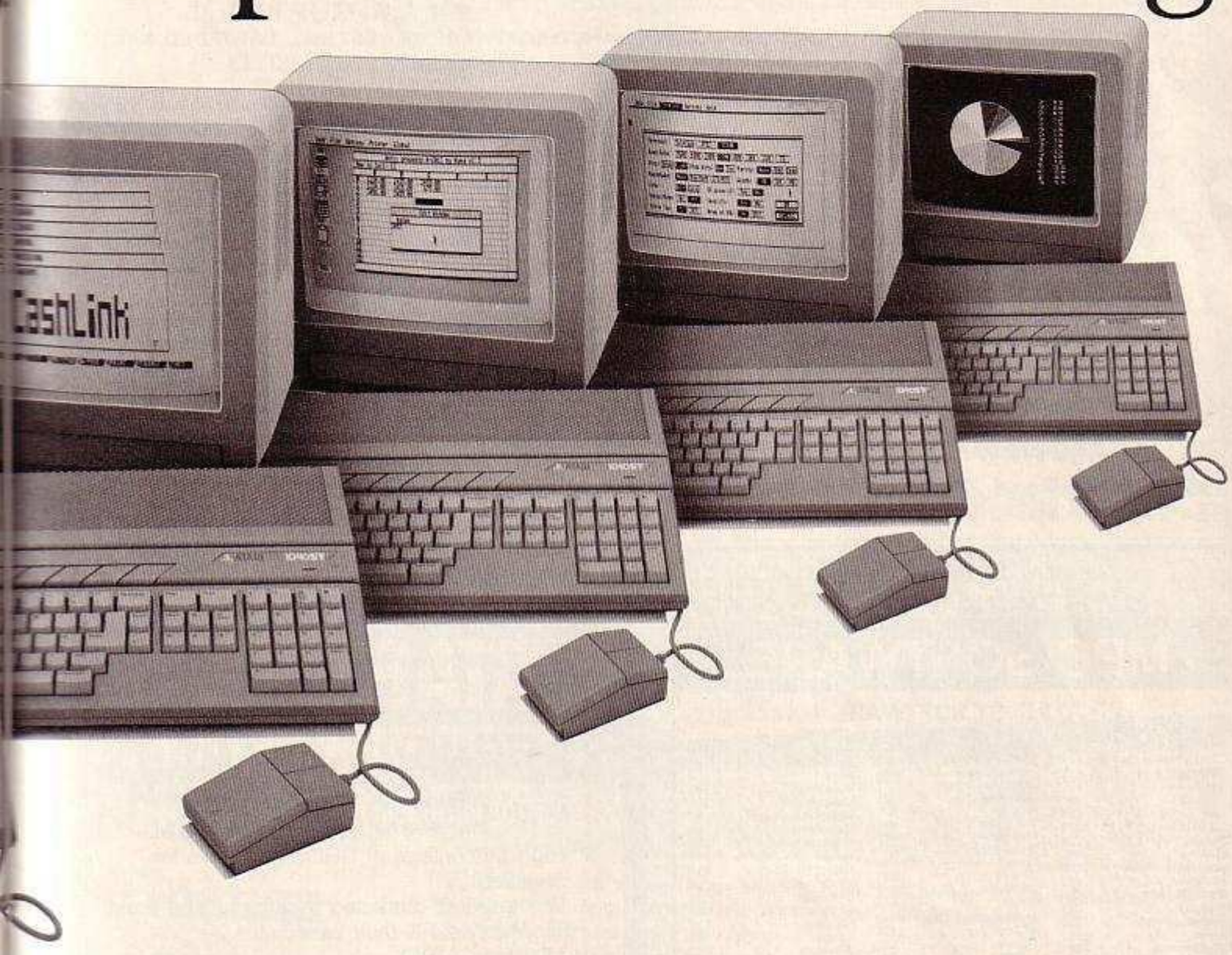
)STF lacks software, ys to prove him wrong.



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ST Five-Liners, Atari User, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

Prime number generator

from CHI-YEUNG CHOY

PRIME numbers have had a fascination for man since before the first simple abaccus was invented. This ST five-liner will ask you for the first number.

It will then display all of the prime numbers between two and that number.

Line Breakdown

10 Requests the maximum number for primes.
20 Sets up the two loops to check each number to see if it is prime.
30 Checks for the prime number.
40 Prints out the prime numbers.
50 Loops back to line 20.

```
10   INPUT "ENTER MAXIMUM LIMIT FOR PRIME NUMBER: ";P
20   FOR N=2 TO P: FOR M=2 TO INT(SQR(N))
30   IF N/M=INT(N/M) THEN GOTO 50
40   NEXT M: PRINT N,
50   NEXT N
```

Floating point fixer

from JIM TAYLOR

THE ST's Basic has several bugs and inconsistencies, some of which lie in the area of mathematics. If you have ever tried to use floating point mathematics you will have seen the problem.

Even simple operations such as addition and subtraction can produce unexpected results.

This five-liner is a demonstration of how to work around these difficulties and how to use floating point maths successfully to two significant figures, but using string variables to store the numbers.

Line Breakdown

10 Inputs a value for *V* and converts it into a string.
20 Separates the decimal from the integer part of *V*.
30 Tests for a rounding error and corrects the problem.
40 Places the decimal part into string *D$*.
50 Prints out the corrected number.

```
10    INPUT V:S$=LEFT$(STR$(V),1):V=ABS(V):L=INT(V):D=V-L+.005:L=INT(L+D)
20    L$=STR$(L):L$=RIGHT$(L$,LEN(L$)-1):D$=MID$(STR$(D),2,3)
30    IF D<.01 THEN D$=".00":GOTO 50
40    IF D<.1 THEN D=D*100:D$=".0"+MID$(STR$(D),2,1)
50    V$=S$+L$+D$ : PRINT V
```

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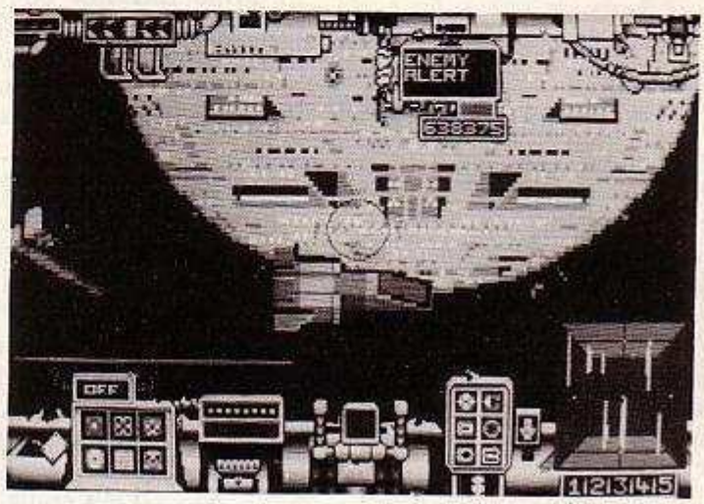
Following the unprecedented success of Brataccas, Psygnosis are pleased to announce the launch of two new products for the colour versions of the Atari ST and the 512k Amiga.



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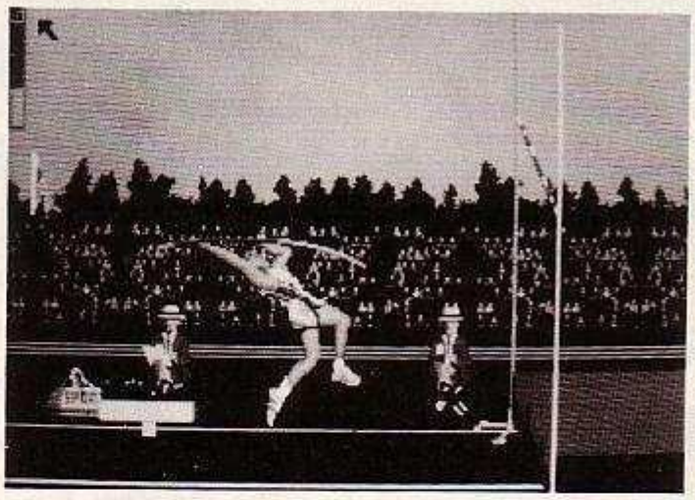

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