ATARI ST USER

The top-selling Atari ST magazine

Volume 3
Number 4
June 1988
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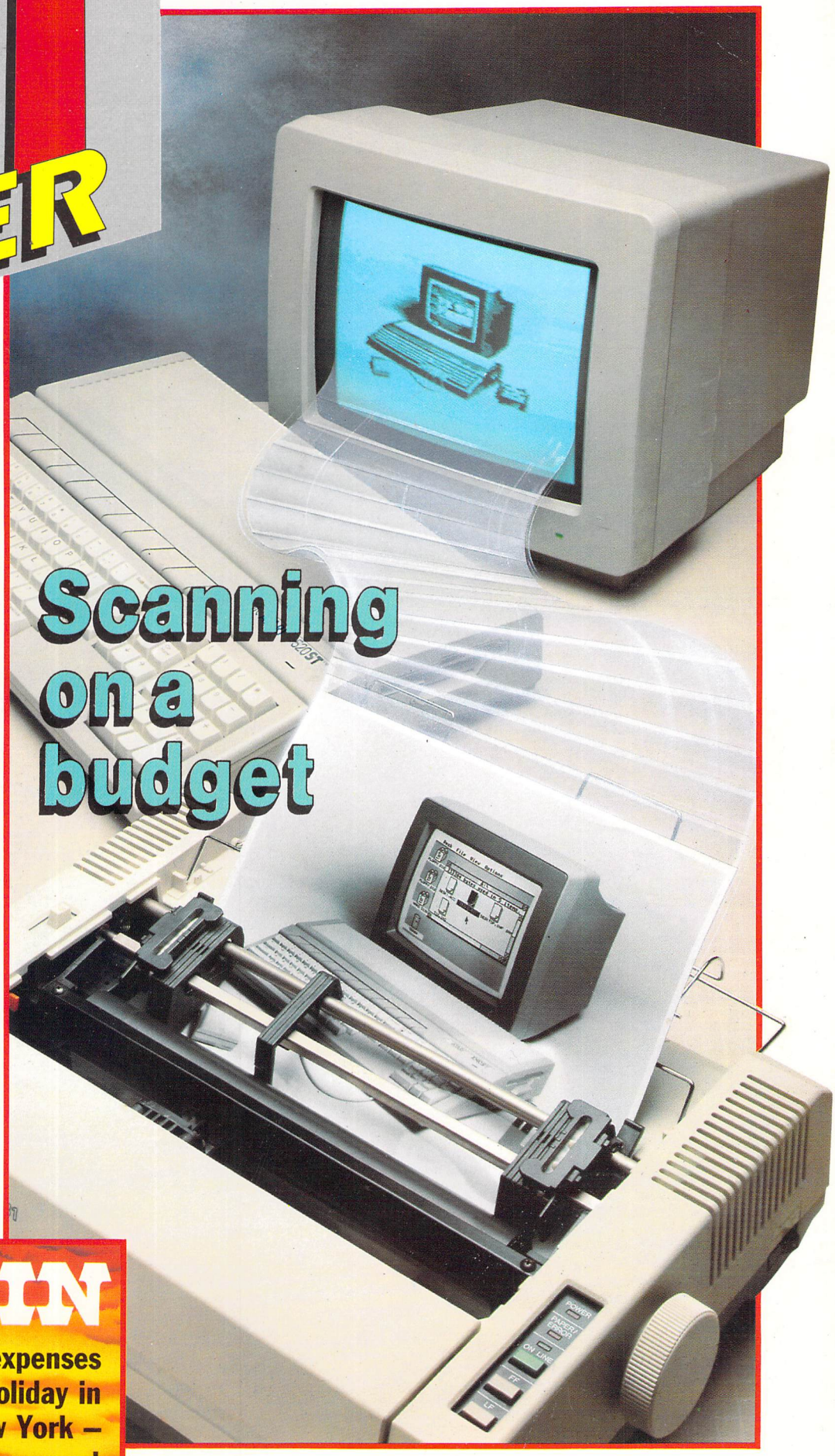

Scanning on a budget

BUSINESS
GFA Draft Plus and Campus CAD tested
Atari DTP in action

ADVENTURES
Full review of ST Adventure Creator, plus hints and tips

LANGUAGES
Modula-2 vs Pascal
Power Basic evaluated

GAMES
Return to Genesis, Predator, Football Manager, Slap Fight, Seconds Out, Dizzy Wizard, Dark Castle, Get Dexter 2, Ikari Warriors, Scrabble, Beyond Zork, Carrier Command, International Soccer and more!

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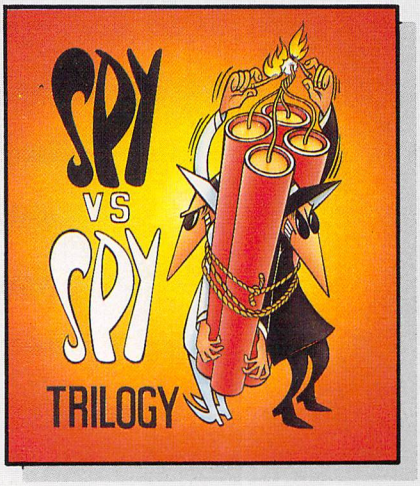

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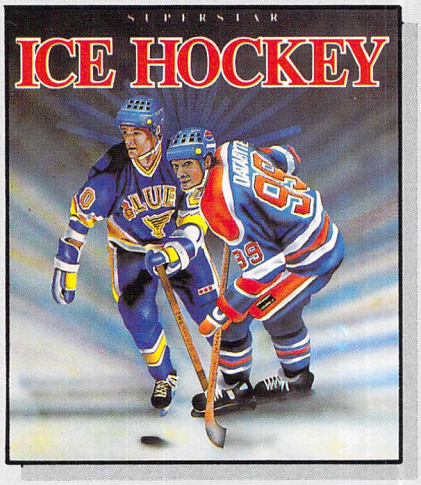

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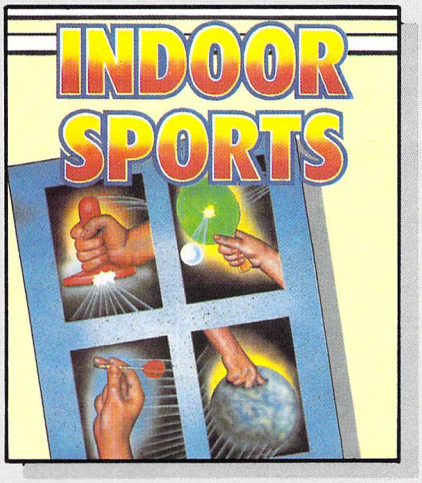

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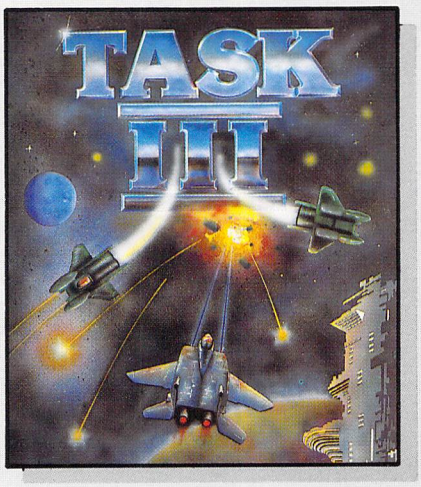

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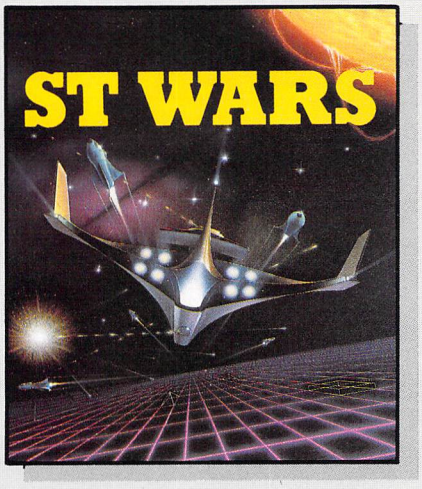

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News

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DTP

Atari's DTP package has an attractive price tag. What is it like in practice?

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Our expert reports on the Frankfurt music festival and reviews Music Construction Set plus EZ-Score.

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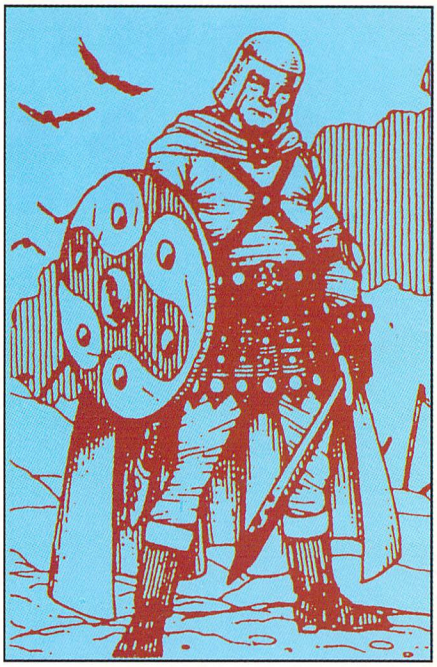

Brillig lends a helping hand to struggling adventurers, and reviews the ST Graphic Adventure Creator.

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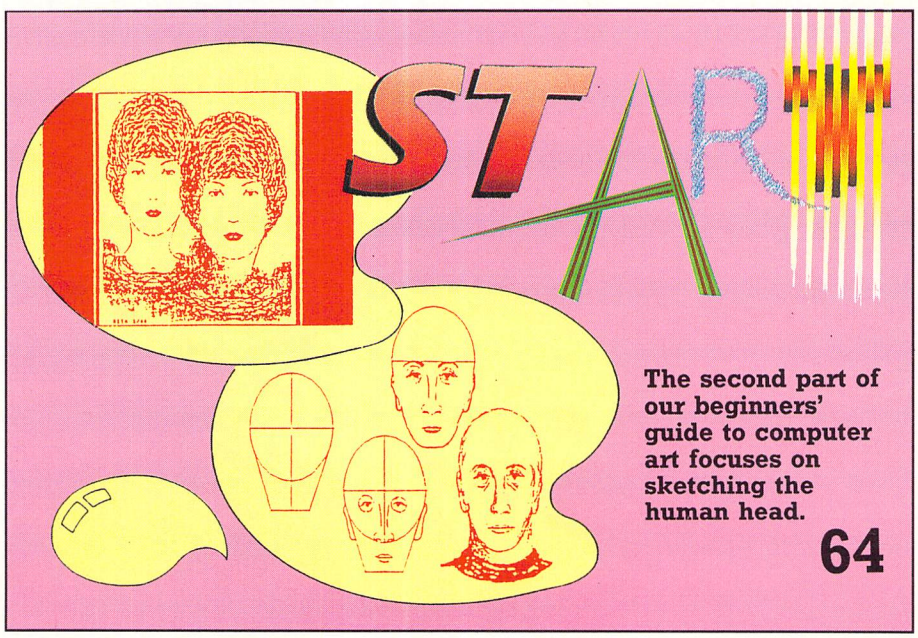

The second part of our beginners' guide to computer art focuses on sketching the human head.

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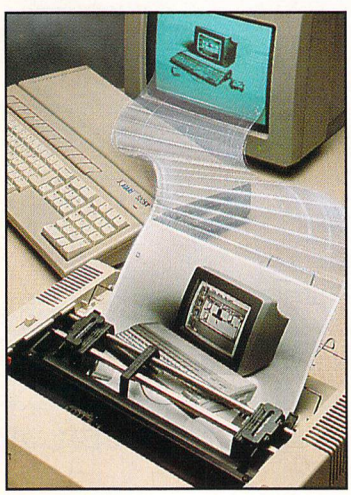

This budget scanner is in a class of its own. Has quality in its design been sacrificed for price? We find out.

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Carrier Command

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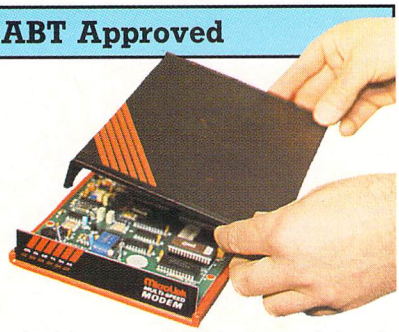

The inside story behind a modem's fight for the coveted accolade.

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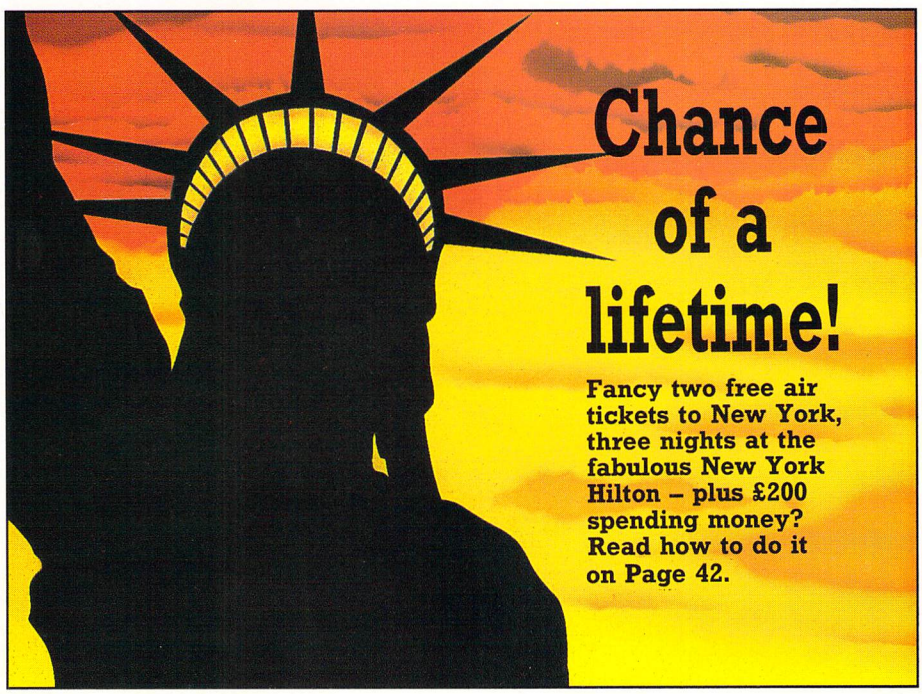

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US sales slow big ST drive

ATARI intends to hit the million mark in worldwide ST sales this year. But there will have to be a dramatic upswing in US acceptance of the machines if the magic figure is to be achieved.

After suffering a shortfall in ST manufacture last year – UK dealers alone could have sold another 20,000 – the company is determined not to let supplies lag again.

Industry observers say one million STs will be built in 1988, 600,000 of them destined for Britain, France and Germany where the machines have been warmly received, and the rest mainly aimed at America, where sales have been disappointing.

Analysts there say Atari's share of the market has slipped from four to two per cent, though the company blames this on product shortfall and "external financial matters". The latter refers to the $8.2 million lost by Federated, the American chain of stores bought by Atari last year.

"Last year with the Yen being up and the dollar sliding against other currencies, it was better business to sell to Europe than within the US", said an Atari source.

Regardless of whether or not the ST suddenly takes off in the States, Atari can be confident of another boom year in the UK. In fact industry analysts regard the company's projected 100,000 sales figure for this country as being on the low side.

They point to the fact that the ST is becoming increasingly accepted as a business machine and is also making significant inroads into the education sector.

"Counting actual sales and orders for STs that were not available, Atari was near to the 100,000 figure last year", said one. "If current indications are correct then UK demand for the ST in 1988 should well exceed the 100,000 mark – and perhaps even reach 150,000.

"The last thing Atari needs is to create another shortfall here while STs are gathering dust on American shelves".

Dram chips lawsuit

ATARI has filed a lawsuit in the American courts alleging a breach of contract by California based Micron Technology. Atari claims it had an agreement with the company to buy three million dram micro chips from them for $3.75 each.

Since the breakdown of the deal the price has increased by 150 per cent, which has forced Atari to increase the price of its popular ST computers by £100. The dramatic rise in the basic cost of semiconductors is a direct result of Micron Technology's complaints to the American government about Japanese dumping of low-cost chips.

"It's a crazy situation", said Atari's president, Sam Tramiel. "First Micron pleads with the government to impose sanctions on the Japanese, then it raises its own prices to several times the cost of manufacturing the circuits.

"Micron Technology is destroying the competitiveness of the microcomputer business", he said.

New Basic games language is launched

A NEW Basic language for the ST which is set to revolutionise games creation has been unveiled by a leading French software house.

Known as Stos, it comes from Jawx International of Paris, a company with a world-wide reputation for its entertainment titles.

The breakthrough was announced to an audience of the UK's leading computer journalists at the official launch of Mandarin Software, the exclusive games label, in London recently.

Officials of Jawx had flown over from France for the occasion to sign a joint venture agreement with Mandarin – with Stos being the first of a number of products the deal will produce.

Stos has more than 320 commands and has been designed to make the writing of games as easy as possible. Up to 16 different sprites can be animated and three-voice music can be added.

Other commands enable the games writer to create a scrolling background, flip, zoom or reduce the screen, define up to 16 windows, and generate pull-down menus. A line assembler is built into the Basic.

Stos comes with several demonstration games, a macro assembler, sprite editor, character set editor, music editor, various utilities and a complete Dos system. Contained on four discs, the package will cost £29.95.

"Stos is really going to set the ST market alight", says Chris Payne of Mandarin. "We're pricing the package aggressively to ensure that it becomes the leading Basic for the ST".

Frederique Pinelet and Jacques Fleurance, (left and centre) directors of Jawx, discuss discuss Stos with Peter Holme, business development manager of Mandarin, inscrutably dressed for the launch at a leading Chinese restaurant.

Homes management

NEW software house Gate Seven Computers makes its debut with Easyreg, a management package for administrators of registered homes. It provides for automated record generating and correspondence, medication tabulation, and incident handling procedures. Price £400.

EXPERT ADVICE ON LINE

MICROLINK, the UK's most innovative computer communications system, has joined forces with the University College of Swansea in a unique instant electronic information service for businesses.

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'No deal', IBM tells Atari

MOVES by Atari to buy part of transputer manufacturer Inmos have been turned down by parent company Thorn EMI. One reason given for the rejection is that Thorn prefers to have a British partner.

Atari president Sam Tramiel said: "We got as far as talking about price last December when Thorn told us that they would only sell to a British concern".

A spokesman for Inmos commented: "The company is in a much better position financially following rationalisation.

"We are now able to pick and choose who we want as our partners. We have no intention of rushing into any agreements".

Asked about plans to sell to British companies only, the Inmos spokesman declined to comment.

'Survivalist' BBS comes under fire

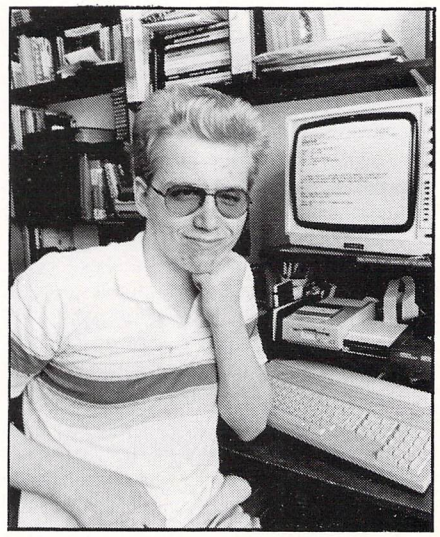
ATARI ST and comms buff Darren Ingram has been attracting less than favourable attention in the press of late. Sysop Darren, who runs the Corrupt Computing BBS from his parents' home, has come under fire because of the nature of some of the information available on the board.

The bone of contention is material aimed at "survivalists" – a band of souls who spend their leisure time devising ways to endure and prosper in a post-holocaust Britain.

Accessible under the Defence of the Realm label, this includes hints on self defence, first aid and bomb making – though not necessarily in that order. Also available are an introductory guide to shoplifting, a recipe for tear gas and a top ten of ways to kill a policeman.

Arguing that the same material is readily available elsewhere, 18-year-old Darren offers no apologies for the service he manages. He says he edits contributions carefully, and he does request users to let him know if illegal, immoral or unethical messages appear on the board.

Ethics aside, both British Telecom and the Department of Trade and Industry are concerned at the lack of monitoring of bulletin boards.



Darren Ingram

Scope of Protext extended

PRODUCER of the popular Protext word processing package, Arnor, has released two new programs for the ST.

Protext Filer allows the user to keep addresses and other datafiles in good order. Arnor (0733 239011) says the database is extremely flexible, supporting alphabetical and numerical sorting, fixed or variable length fields, multiple key and tabulated columns sorting, as well as a sort facility for foreign languages.

The program is menu driven and fully compatible with Protext. Price £24.95. A complementary package – Protext Office – contains all of the features of the filer program plus an invoice generator which allows the user to produce statements and credit and delivery notes.

Once the address and product details have been entered the program will calculate all totals and VAT automatically.

Other features include any number of different discount rates, one-off invoices and automatic invoice numbering, and different VAT codes.

Price £34.95.

Some like it hot

THE prospect of another blazing English summer, with the population throwing its clothes off with gay abandon, is possibly what's prompted Anco to release Strip Poker 2 for the ST.

Anco (0322 92513) claims the game is a much-improved version of the earlier Strip Poker, with so many enhancements that "we don't know where to start describing them". With full colour, excellent graphics and a choice of "opponents", Strip Poker 2 is available now.

Price £14.95

CHEAPER TICK

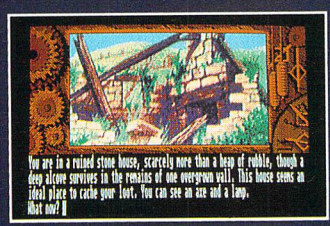
CLAIMED be the least expensive clock card available for the ST, Forget-me-Clock has been released by Frontier Software (0423 67140).

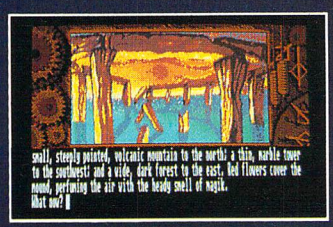
It fits under the keyboard and keeps the internal clock running by means of three re-chargeable batteries. Price £22.95.

Time and magik

The trilogy

Interactive fiction from Level 9





Screen shots from Atari ST version

Three of Level 9's most acclaimed adventures – Lords of Time, Red Moon and The Price of Magik – come together in one package. Each has been enhanced and enlarged with more text than ever before – 60,000 mind-expanding words creating magik and mystery round every corner. There's a powerful new parser, and most disc versions include stunning digitised pictures that help to dramatically heighten the atmosphere.

What the press have said:

LORDS OF TIME: ***"Destined to become a classic"*** *– Computing with the Amstrad.*

RED MOON: ***Best Graphical Adventure or Best Adventure of the Year*** *– Zzap 64, Crash, Amtix, C&VG, CCI, and Amstrad Computer User.*

THE PRICE OF MAGIK: ***"Another superb adventure . . . their best yet"*** *– Commodore User. Also a Crash Smash.*

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NEWS

New line in colours

A PAINT program which is claimed to put the Atari ST on a par – graphically – with more powerful and expensive machines is now available from Electric Distribution (0954 61258).

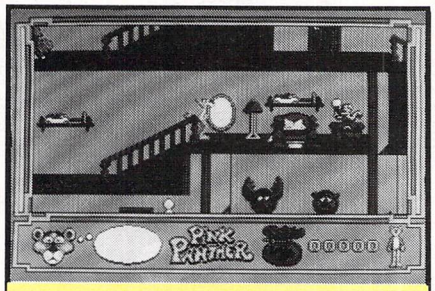
Spectrum 512, from American software house Antic, provides a range of 512 colours, all of which can be displayed on-screen at any one time.

The program will automatically graduate colours and the palette can be customised.

Mouse switch

A DEVICE for switching between a mouse and joystick on the ST has been released by Switchsoft. The Switchbox unit allows the user to switch between devices without the need for plugging and unplugging each time a change is made.

Available mail order only, the unit costs £17.95 from Switchsoft, Hawthorn Farmhouse, Stowe-by-Chartley, Staffordshire ST18 OLG.



Triple helping

SPORTING spoofs, comic crime and Greek legends feature on the latest releases for the ST from Magic Bytes/ Gremlin (0742 753423).

Alternative World Games provides an opportunity to excel at unusual sports such as boot throwing, pillow fighting and pole climbing in 18 scenic locations.

Pink Panther stars the well-loved feline whose role this time is that of a light-fingered butler who wants to do more than just polish the silverware.

Hercules – Slayer of the Damned is a mammoth, if not Herculean, mission to accomplish the hero's 12 legendary tasks. Price of each game is £19.99.

Get weaving

WEAVING designs can be created on an ST with the aid of a new mouse-driven program from The Computer Room (0743 231172).

Used with a colour monitor in low resolution, Weaver's Web enables a pattern to be drawn either within the constraint of twill or in blocks which represent the warp. The resulting pattern can be viewed alternatively as lines representing warp and weft.

Tools for viewing the pattern repeat in three sizes provide an overall impression of the finished item in mono and in colour, with a shadow effect to give added realism. Price £24.95.

ZARCHALIKE

THE first solid 3D shoot-'em-up game to be produced for the Archimedes – Zarch – is to be released shortly for the Atari ST on Telecom's Rainbird label. Additions to the ST version include several new aliens and extra effects, and the name is to be changed to Virus.

Virus, like Zarch, features a flowing patchwork quilt type landscape and a mouse-controlled hovership.

Gallup Software Chart

This month	Last month	Title (Software House)	Price	Month reviewed in Atari ST User	Comments	Marks from 10
1	▲8	DUNGEON MASTER *Mirrorsoft*	24.99	May	The real stars are the traps. Many are fiendishly clever.	9
2	•	CARRIER COMMAND *Rainbird*	24.95	June	Star game in this issue.	10
3	•	IKARI WARRIORS *Elite*	14.95	June	Another new one set in war-torn Vietnam.	8
4	▼3	GUNSHIP *Microprose*	24.95	May	There is only one word for the ST version of Gunship: Awesome.	9
5	▼2	XENON *Melbourne House*	19.99	May	An absolute must for anyone looking for the ultimate fast action shoot-'em-up.	10
6	▼5	TEST DRIVE *Electronic Arts*	24.95	May	Graphically attractive, exciting to play and feels very realistic.	8
7	▼1	BLACK LAMP *Rainbird*	19.99	April	Fast, fun and a very addictive arcade adventure.	9
8	▲11	PREDATOR *Activision*	19.95	June	Read how our reviewer managed against both the alien and the jungle.	8
9	•	JOE BLADE *Players*	9.95		Now available on the Atari ST.	*
10	•	OIDS *Mirrorsoft*	19.95	May	Grows on you the more you play this update of the old Lunar Lander.	8

3½

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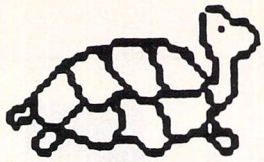

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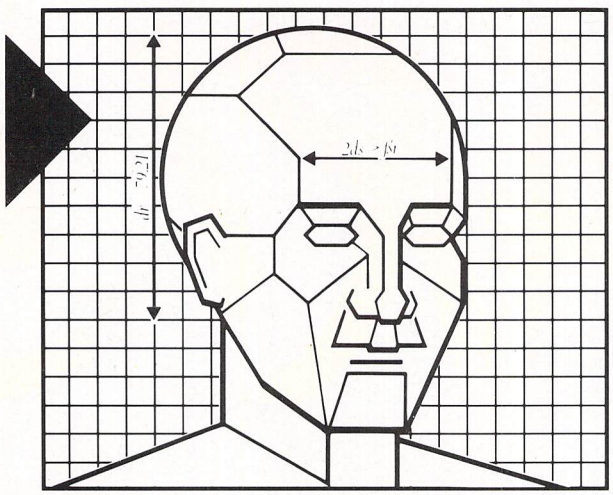

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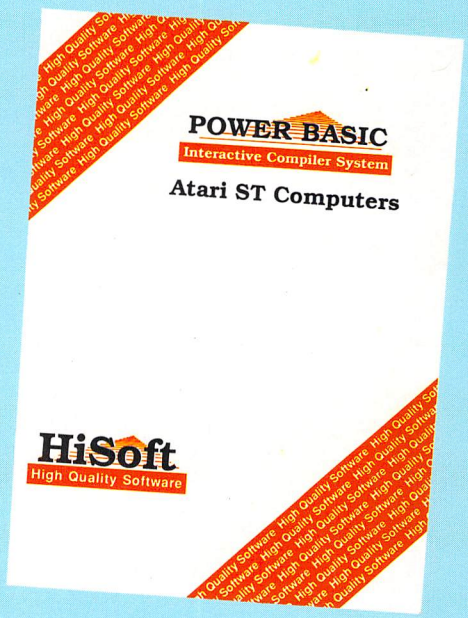
Power without the price

Julie Boswell reviews Power Basic, and is impressed with its speed and flexibility



WHEN Roland Waddilove previewed HiSoft's Basic compiler last year in the September 1987 issue of *Atari ST User* he was impressed with its flexibility, ease of use and amazing speed.

Since then, the final version has been released, and in addition to this, recently a cut down budget-priced version has also been made available. Although it's £39.95, I do consider this cheap for a Basic compiler, the full implementation costing £79.95.

Power Basic runs on any combination of ST, disc drive and monitor. The source code editor in the preview version we looked at only worked in high or medium resolution. This restriction has been removed and the editor, I'm happy to report, now runs in low resolution too.

It is a fairly standard Gem-based text editor and anyone who has used one before will immediately feel at home with it. It is keyboard/mouse controlled; many of the functions accessed from the keyboard are also available from pull down menus using the mouse.

The menu bar at the top has options to load and save text, and insert or delete a file. You can search for strings, replace them, and find the next or previous occurrence. You can go directly to the top or bottom of the file – which is held entirely in memory – and go to a specific line.

Under the Options menu is Preferences. Here you can alter the text buffer size, which defaults to 10k, set the editor to automatically make backups of files, set the tab positions, auto indent, and define the numeric keypad for cursor or numeric operation.

I can't see the point of this last option – you've already got cursor keys, so why would you want to duplicate them on the numeric keypad?

The Program menu enables you to compile, or compile then run the program in memory. The figure below shows the wide range of options available. To make things easy, there are two buttons at the bottom right of the box labelled Max Speed and Max Safety.

When developing a program it's a good idea to click on the Max Safety button – this resets all the other options, turning on error and overflow checking, and so on. When the program is completely bug free, you can compile it with the Max Speed button, turning off all checks and consequently speeding up the program.

You can compile the program to memory and run the code from within the editor. Power Basic contains an impressively fast compiler, typically under five seconds for a 10k program.

This makes the system just as easy to use for developing a program as an interpreter. Using the compile and run option, you can test your program from the editor with just a five second or so delay, then break out back into the editor and edit the source code which remains intact.

You can also compile to disc producing a .TOS, .TTP or .PRG file – the compiler automatically works out which extension is required by examining the program and seeing if it uses Gem at all.

The runtime system – which is surprisingly small – is also included making a stand-alone program which can be run from the desktop. You are also free to distribute this, with no restrictions at all.

Power Basic is designed to be compatible with ST Basic – the old and most common version. As ST Basic is a bit of a dead loss at times, you might wonder why anyone would want to emulate it.

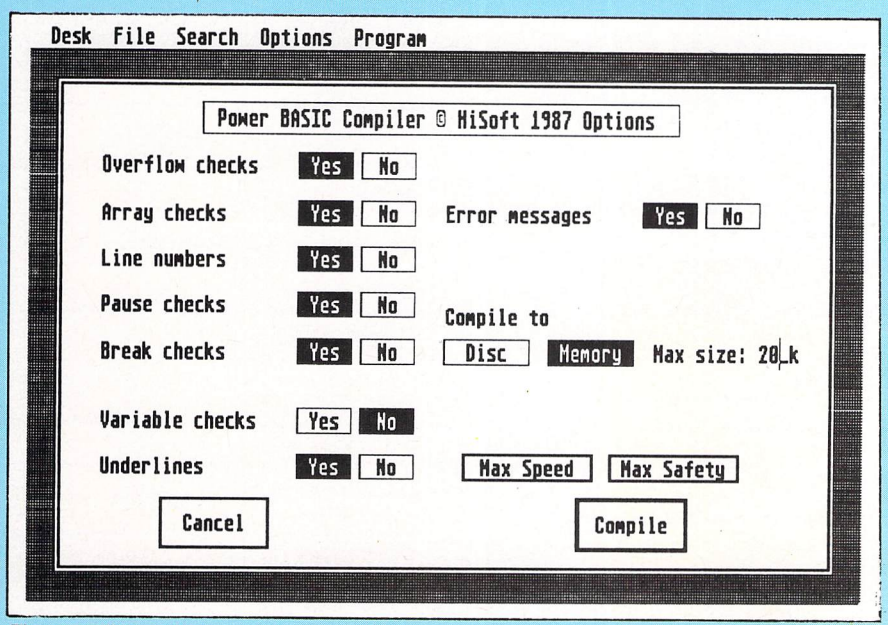
The advantage is that you can load ST Basic listings straight into the Power Basic editor and compile them with the minimum of modification. The difference in execution time is phenomenal, and what's more, Power Basic fixes the bugs in the ST Basic interpreter too.

Furthermore, many extensions have been included to substantially boost its power. It's also modelled after Microsoft QuickBasic, popular on the IBM PC and clones.

Variables can be 16 or 32 bit integer, single or double precision floating point, or string of any length. Constants can also be defined at the start of a program to aid readability.

Line numbers can be used, though

Turn to Page 16 ▶



The compiler options

◀ From Page 15

they are optional. On the odd occasion that a GOTO or GOSUB is required it is just as easy, and a lot more meaningful, to place a label in the program. Multiple statement lines are accepted, and to complement this, lines of code may be split over two or more screen lines by ending them with an underscore.

This would be useful when editing in low resolution, because although the editor works fine in this mode, it will only show the first 30 characters of a line, and you have to scroll the screen sideways to see the rest of a longer line.

Subroutines – which HiSoft calls sub-programs – can be named. I'm not talking about labelling here, though this is possible too. It is more akin to the procedure of Pascal or function in C. Once it has been defined it can be called by name within the main body of the program.

Parameters can be passed to these sub-programs and they can be passed by reference (the actual variable itself), or by value (the value the variable represents). Variables used within sub-programs can be local (only available in the sub-program), or global (available anywhere in the program).

There are two variations of local variables: Static and local. The static type is created by default and these are totally separate from those outside the sub-program, and what's more, they also keep their value between sub-program calls.

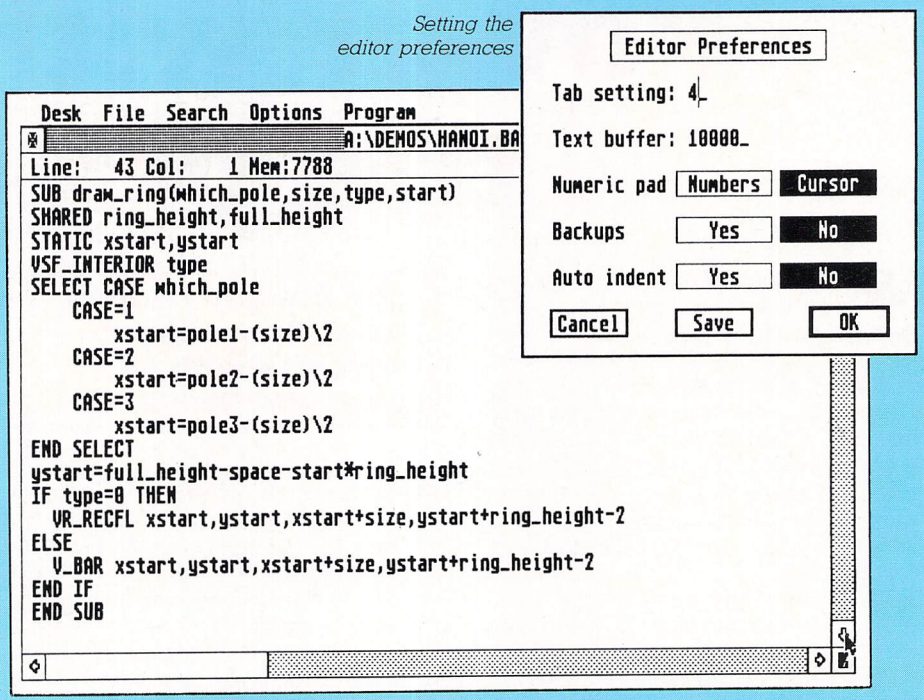
This would make recursive programming difficult, if not impossible, so an extra variable type is available – local – which is created each time the sub-program is called. The old value of the variable, if it existed before, is restored on exit.

Multi-line functions have been implemented, and this is a welcome feature as they are so much more useful than the now dated single line versions so common in older Basics.

Along with the SELECT/CASE, REPEAT/END REPEAT, DO/LOOP and WHILE/WEND statements, this is good news for structured programmers. It is possible to write libraries of useful sub-programs, storing them on disc. They can be merged into your programs as and when needed.

Power Basic has several pre-compiled libraries stored on disc, all merged into a single file. These enable you to access many of the functions that would normally have you hunting round for your C or Pascal compiler.

Setting the editor preferences



The editor in action

The libraries are: Bios, XBios, GemDos, GemVDI and GemAES. A LIBRARY command at the start of your program includes the runtime system and enables you to use the couple of hundred sub-programs and functions.

The manual is excellent. Each command is explained well and followed up with a brief snippet of program showing its use. On the disc are 12 long program listings which show the majority of commands in use.

There's a beginner's section for novice programmers, and this leads you through the development of the old Towers of Hanoi problem. I thought it was a bit too advanced for the absolute novice and many newcomers may well need some additional help getting started.

The more experienced programmer is catered for by a very brief section on advanced Gem techniques. This is far too brief to be of much help, but to be fair, to do the subject justice would require a whole manual on its own.

Power Basic must rate as the best all round version of Basic for the price – there's nothing to touch it. Although GFA Basic and Fast Basic are in the same price bracket, they aren't compiled like Power Basic, so there's a significant difference in performance.

It's fast, and provides the sort of access to Gem that was previously only available to C or Pascal programmers. Although it's a compiler, the compile time is so short, and as everything is carried out in memory, it's just as easy to use as an interpreter.

If you've got the old version of ST Basic you'll be amazed by the speed, flexibility and range of functions offered by Power Basic, which is also just about as compatible as you can get.

If however, you've got the new version of ST Basic and are frustrated by the fact that the majority of existing Basic programs won't run, this will solve your problems, and it's a big improvement in performance too.

WHAT'S ON THE DISC

PBASIC.PRG	Power Basic compiler
PBASIC.LIB	Power Basic library functions
CHECKST.PRG	Tells you the Dos and rom version, amount of ram and so on of your micro. Used for reporting bugs to HiSoft
CTOBAS.TTP	Converts C header files produced by resource editors to Power Basic format
HANOIDEM.PRG	Demonstration of the famous Towers of Hanoi
README.TXT	The latest changes to Power Basic
DEMOS	A folder containing 12 example Power Basic listings

FACT FILE

Product: HiSoft Basic
Price: £39.95
Supplier: HiSoft, The Old School, Greenfield, Bedford MK45 5DE.
Tel: 0525 718181

POINTS FOR:
Extremely fast, very flexible, good access to Gem environment and very easy to use.

AGAINST:
Manual aimed at the average programmer – absolute novices and the more experienced are given little help.

***Competitors reviews in* Atari ST User:**
True Basic – April 1987. GFA Basic – June 1987. LDW Basic – June 1987.

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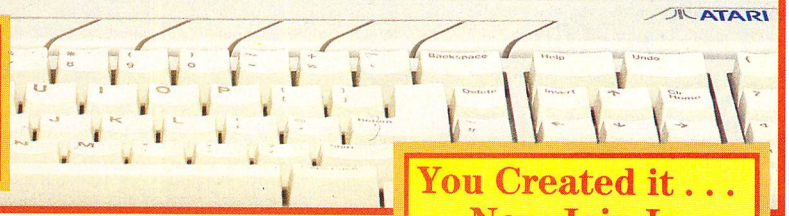

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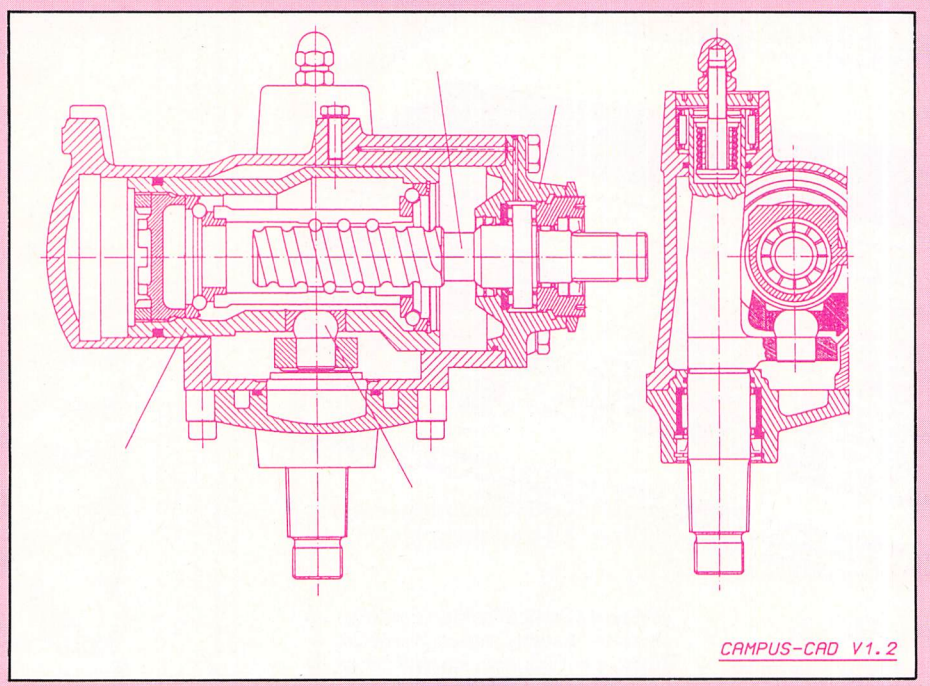
Simple, but powerful

Ron Massey assesses the flexibility and power of Campus CAD



Designing machine components

FEW small computer systems of any kind can equal the sheer processing power of the Atari ST. Computer users, current and potential, are becoming increasingly aware of the convenience and cost effectiveness of this outstanding micro for all types of serious applications.

Computer graphics are used in almost every form of visual presentation, whether for initial planning or a completed project. This review covers one area of endeavour in particular – an application of visual information.

Many of the graphics systems available for the ST are intended as universal art programs and few are intended for use in specialised disciplines. Each has its own distinctive strengths and limitations.

Disregarding superficial external program differences, drawing or graphics programs generally fall into one of two basic catagories – bit-mapped or object orientated, according to the way they manipulate and store picture information.

General art and painting programs usually produce bit-mapped pictures and the output obtained from this type of program is a screen dump representing the pixel construction of the image.

Bit-mapped pictures are manipulated on screen by accessing specified blocks of memory in particular ways – zooming

Menu bar options available when using Campus CAD

Files: In addition to the usual load and save options, also provides facilities for merging, in effect, layering, drawings. Merging provides a means of drawing in a structured and organised manner by allowing you to treat individual layers as separate drawings. Each can incorporate various line types and be modified to requirements.

Global: Accesses commands which affect all subsequent drawing functions. Although Campus CAD redraws a screen phenomenally quickly, because elements of the image are recalculated each time a screen refresh is required, this type of program can consume a significant amount of time while updating an image.

Redrawing time can be reduced considerably by switching off parts of a drawing not immediately required for the progress of the drawing, such as image text, dimensioning, symbols and/or hatching.

Line: Defines the line type and thickness. The options include either solid or one of five types of broken line which may also be drawn in any one of eight pen widths. Optionally, lines may be displayed in either single pixel widths or in their relative pen widths.

Text: Provides five preset character sizes with a range of 1.88mm to 7.00mm and an additional option for inputting specified character heights. Characters may be underscored and printed in either a normal or italic font.

Text may be input at any angle, and the cursor positioned from either the right, left or centre of the line and may be input as single or multiple lines.

Hatching: Provides six predefined patterns, the line spacing of which can be specified, or a further option for user defined patterns.

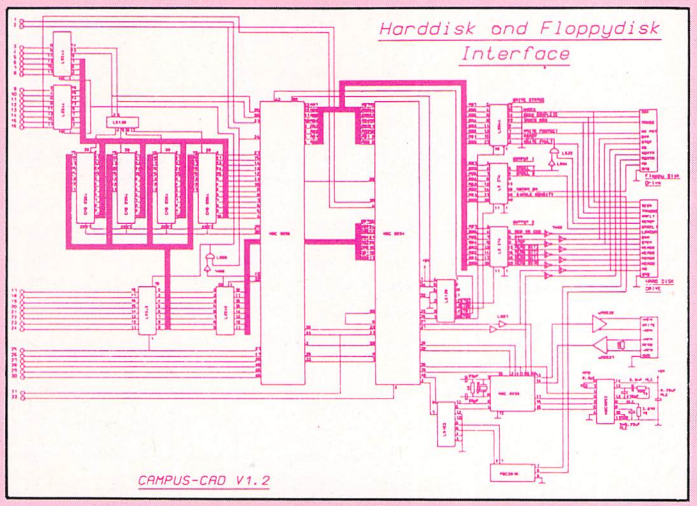
Dimension: Used in conjunction with the dimensioning icon panel, is a powerful Campus CAD feature. Dimensioning of a drawing may be made automatically or manually between successive points, or by default, the length of a line.

If the first method is selected, you may select the angle of the dimensions. If the last, dimensions are inserted parallel to a specified line.

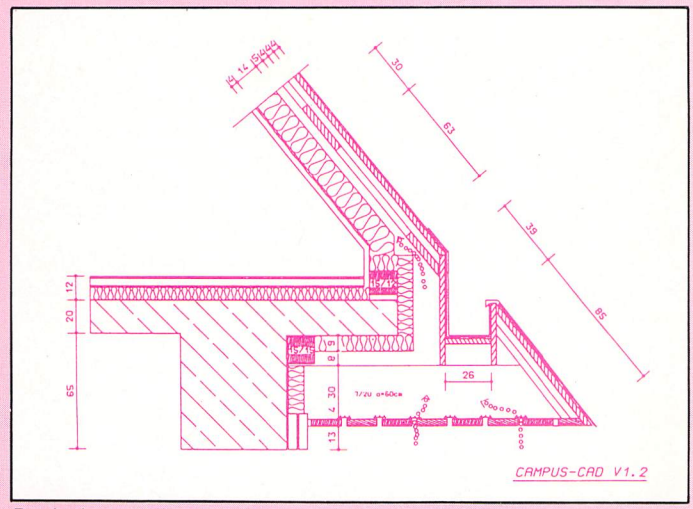
X,Y coordinates: Defaulting to normal, may be displayed as polar coordinates in either floating point or exponentional notation, and in a range of up to four decimal places, Or they may be switched off altogether.

Measurements may be indicated in metric units from millimetres to metres, or in Imperial units in tenths or whole inches.

Most of the control of Campus CAD's drawing functions is made with icons displayed in four panels to the left of the drawing area. Three of the icons from the selector panel at the top of the icon window are highlighted, indicating that their associated panels are currently active in the three insets



Creating a circuit diagram



Producing precise technical drawings

in on a bit-mapped picture, as just one typical example, fails to produce greater detail, it only increases the size of a selected group of individual pixels.

Because bit-mapped pictures can occupy considerable space on disc, several different types of subroutine are available which can compress the picture data, and when they are subsequently reloaded, decode the pictures into a coherent screen image.

In common with bit-mapped pictures, an object orientated image is viewed as a pattern of pixels, but elements of the picture are manipulated as individual shapes, by type, specified dimension and relative position. Drawings produced by this category of program are saved as parameter files and are usually relatively compact.

Both types of programs have legitimate CAD applications. The former is applied in the field of graphic arts, while the latter, being inheritantly more flexible, is used for almost every type of technical two and three dimensional drawing program.

A new release from Eidersoft, Digital Workshop's Campus CAD is a sophisticated two dimensional drawing system of the latter type in which the basic drawing elements are lines, arcs and circles. The real strength of this professional-grade system lies in the manner and number of ways these simple geometric shapes can be manipulated.

On booting up the software you have the options of starting a new drawing or loading an existing one. Subsequent selection is made using Campus CAD's menu bar.

Selecting the prompt box for a new drawing, you can input the file and folder

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beneath. If any of the four remaining icons in the selector window are clicked you are offered the choice of displacing one of the three current panels with a different set of drawing options.

Defaulting to Page control, Drawing and Editing panels, the upper group of function icons provides facilities for magnification of a defined portion of the screen, switching between two selected magnified portions of the page, a frame grabber for moving the magnified image, and resetting the screen display to full page.

While working on a drawing, Campus CAD will often leave construction marks scattered about the drawing area. Selecting the icon containing the page symbol overprinted with an asterisk, or pressing the Clr/Home key forces the program to redraw the screen, deleting extraneous marks.

An Undo option affecting all of the drawing sequences in the current drawing option is provided, and may be selected either from an icon or by pressing the Undo key.

Justifiably referred to in the manual as clever features, two unique drawing aids have been provided. The first is used for setting the coordinate point of origin, and may also be used for obtaining measurements.

The second, the Snap option is used for accurately connecting the free end of the current rubberbanded line to a point such as a line, circle or arc, provided the screen cursor is within a preselected distance from the end of one of the lines. Grid dimensions of a minimum of 0.86mm can be set.

Draw panel: Offers 19 drawing options including rubberbanded two-point lines, polygons, rectangles, triangles, perpendicular and parallel line generators, circles, four types of arc generators, a generator for producing perpendicular and tangentials relative to circles and drawing concentric circles.

Delete and edit: Allows you to remove or modify elements in the current drawing.

Movement functions: Mirror or rotate, move or copy the contents of a defined block, lines, circles text or symbols.

Dimensioning: Controls the type and style of dimension lines used in a drawing and caters for inside or outside dimensions of circles and shapes with straight sides.

Symbols: Opens a five-bar menu from which you can manipulate symbol files or alter their parameters.

Object information: Provides detailed data regarding selected portions of a drawing for circles, arcs, intersection points, text, angles and general drawing information. Typical data provided by selecting a particular line is its length, x,y start and end points and angle.

◀ *From Page 21*

names, select an appropriate drawing scale – defaulting to 1:1 – and choose one of six paper sizes ranging from A5 to A0. Defaulting to landscape – horizontal – format, you may also select portrait – vertical – layout as an alternative.

Program control is normally achieved using the mouse, but many of the drawing commands may also be entered from the keyboard.

This facility enables you to dimension individual elements and set angles with greater accuracy.

Once into the program, command entry may be made from one of 11 screen areas, or from the keyboard in the command line above the drawing area. The menu bar accesses from the left, ST related options such as the normal desk accessories for setting the printer and RS232.

Overall, I liked Campus CAD very much. On the surface it is deceptively simple, but in common with all good programs, the complexity of the mathematical processes involved is totally transparent to the user.

The software provides all of the powerful features you could reasonably expect from a package costing a great deal more.

Minimum hardware requirements for running Campus CAD are a 1Mb ST, mouse, high resolution monochrome monitor, 1Mb of disc storage and a printer or plotter. Professional users should consider adding a hard disc to their system.

Curiously, the copy of the program provided for review was a demonstration version.

The portions of the program dealing with the creation of symbols, saving and plotting the output had been disabled, so I was unable to test them.

There is little room for doubt that future profitability in diverse fields of hard and soft engineering is closely tied to structured CAD techniques.

Applications for professional quality CAD packages such as Campus CAD, include architects, civil engineers, consulting engineers, electronics and printed circuit board designers, shop fitters and designers, surveyors, mechanical engineers – the catalogue is virtually endless.

Future Campus CAD developments will undoubtedly take advantage of its modular implementation. Future developments will extend the already impressive range of applications. Planned for release in the near future are add-ons such as symbol libraries, parts list generators and a programming language which is closely related to Basic.

Other potential specialisations include modules enabling direct output to photo-etching machines for printed circuit board manufacture, and output to CNC interfaces for computer-controlled milling machines and lathes.

FACT FILE

Product: Campus CAD
Price: £395
Supplier: Eidersoft Software, Unit 4, Stannets, Laindon North Trade Centre, Basildon, Essex.
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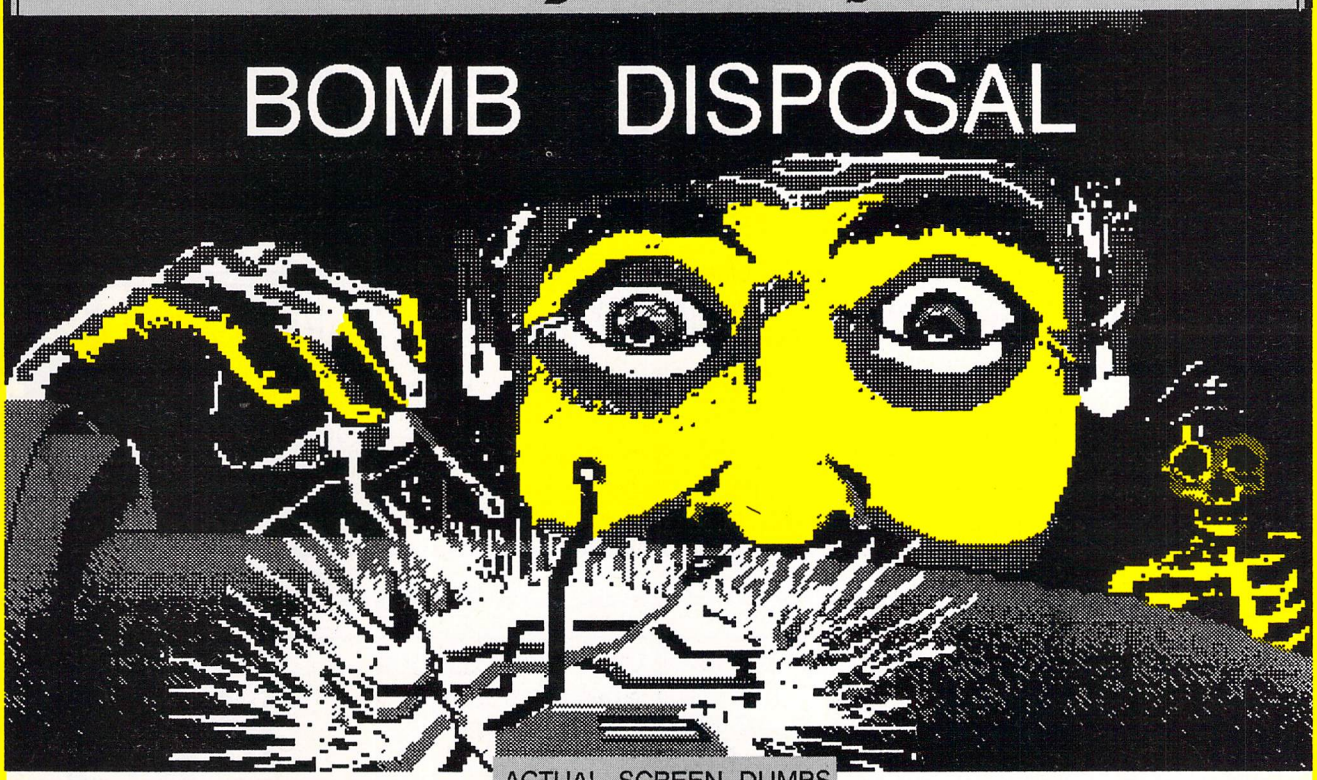

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THE TYPE FOR THIS ADVERTISMENT WAS PREPARED ON AN ATARI 104C ST USING PUBLISHING PARTNER AND OUTPUT ON A LINOTRONIC TYPESETTER.

Glentop's GFA Draft, has built itself a very firm reputation as a quality drafting program. Dick Thompson can find few faults in its successor, GFA Draft Plus

Drawing on experience

ON its introduction in 1986 GFA Draft was one of the first programs to herald the elevation of the ST from the games room to the office. With its large memory, high processing power, and most of all its exceptional paper-white high resolution monochrome monitor, the ST was an obvious choice for CAD, and thankfully GFA was not slow to take advantage of this.

Two years of use has not been without its minor irritations, but when the eagerly-awaited Plus version arrived it was with some enthusiasm that I investigated it to see if the faults had been remedied.

The first thing to notice was that Draft Plus, although not using Gdos, sits nicely with it and does not overwrite it. This will be a relief to the much-overworked reset button on my ST.

Early versions of GFA Draft had problems running on a Mega, but I tried the Plus version on both the Mega 2 and a 520ST and no machine related problems were encountered.

GFA Draft Plus occupies 207k against the original's 155k, leaving a little less for the drawing, but this is of no great significance, particularly with the 1040 and the Mega ST machines.

More sensible use seems to be made of available memory, for example the same drawing – Figure II – shows 75 per cent spare memory on a Mega 2 against 25 per cent spare on the same machine with the old version.

Menu rearrangement

One of the greater irritations of the original version was the dual menu bar and the constant alternating between menu one and two. Thankfully this has been remedied.

The plain fact is that with a program offering such a wide range of facilities, there is bound to be some difficulty in getting everything on the menu. However, a total rearrangement, combined with new style comprehensive facility-related dialogue boxes, has provided a logical and sensible operating method which is soon learned.

Even with a considerable exposure to the old menu system, it was not long before I was quickly finding all the facilities required. It would have helped a little, however, if GFA had followed the normal convention of placing the File heading on the left next to Desk. Instead it appears on the far right of the menu bar.

A considerable speed improvement is claimed over the original version of GFA draft in re-drawing the screen. In fact the manual describes this has the most useful new feature.

Well, all I can say is I haven't noticed it. In fact numerous tests with existing drawings using Draft and Draft Plus show little, if any, difference.

Incidentally, Draft Plus can be used to load drawings created by Draft, but don't try it the other way around.

Possibly the speed improvement applies only for drawings created in the first place with Draft Plus against the same drawing created with Draft. Speed of screen updating never was much of a problem anyway, particularly when compared with systems using 8 bit technology.

The drawing shown in Figure II will re-draw after seven seconds. What could be more of a problem is the time taken to delete or move sections of a drawing.

The area inside the border of Figure II takes some four minutes to delete and re-draw, and once again no speed increase using Draft Plus was noticeable. Thankfully this sort of operation is not needed too frequently.

More facilities

Additional zoom factors have been introduced, although the x3 factor has been removed from the normal dialogue box mode of selection and is picked supposedly by clicking the bottom right window sizing box.

In fact this rarely seemed to work, but I discovered the same effect could be achieved more reliably by dragging the box a short distance up and left into the drawing area. Using this method it is possible to toggle between the selected zoom factor and the x3 factor.

At x3 the whole of an A3 drawing conveniently fits the screen and a screen

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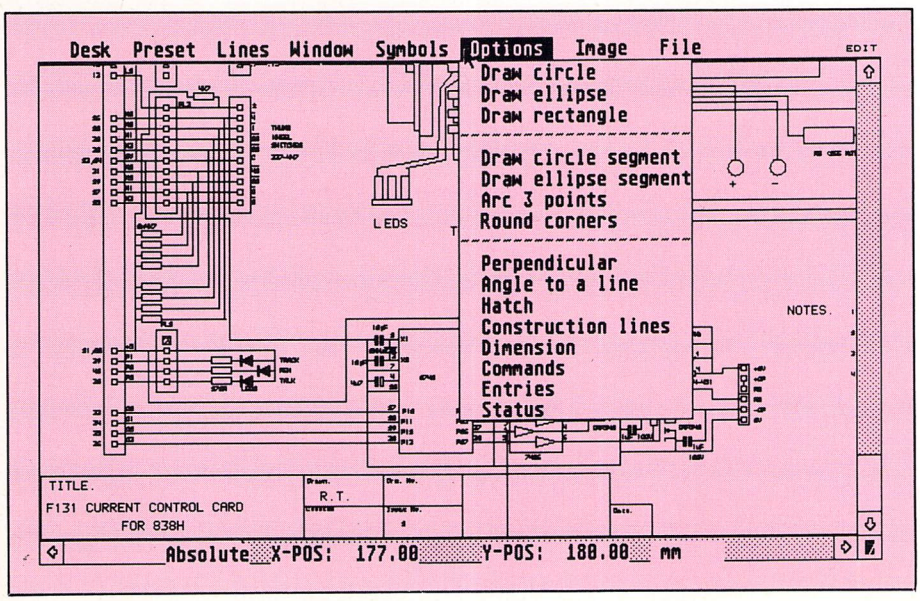

Figure I: The menu facilities have been laid out on a single bar

◀ *From Page 25*

dump can be used to give a reasonable draft output fairly quickly.

When it comes to basic drawing of lines GFA Draft could never have been described as short of features, having such facilities as line types, line thicknesses, locking, trimming, three point arcing, freehand, rectangles, circles, ellipses, rounding of corners, hatching, dimensions and levels.

To this already impressive list the Plus version adds parallel lines, tangent, lengthen and shorten, equal sided polygons, together with a locking feature that really works.

Deleting lines is a joy. Just move the cursor to somewhere near the offending line and press Delete. Alternatively Backspace will delete lines starting from the last line to be drawn, and just in case you get carried away Undo will re-draw the last deletion. (It ought to be compulsory).

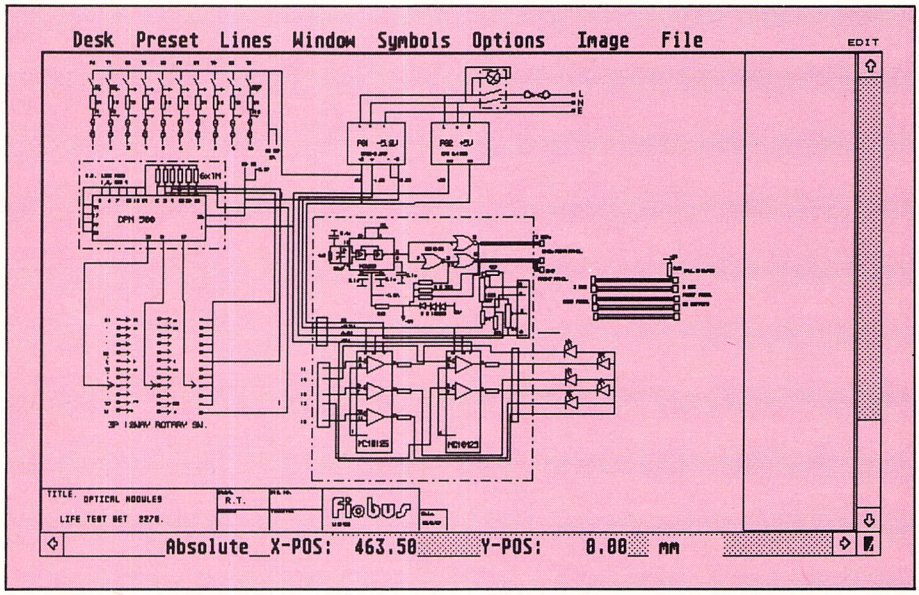

Figure II: The drawing speed is fast, but deleting everything inside the border takes four minutes

Windows

The Window facility is a powerful and much used feature of GFA Draft. Just draw a rectangular window around any part of your drawing and the contents of the window may be moved, copied, deleted, rotated, slewed, mirrored, enlarged or stretched.

Draft Plus retains all these facilities without further additions. I would have liked the opportunity to retain the window after a copy operation has not been included.

This would have enormously speeded up the common situation when an element, drawn once and windowed, needs to be replicated at numerous positions throughout the drawing.

Windowed items may be stored on disc as symbols and recalled when required. When recalled or rotated the symbols tend to lose their reference to the edges of the window which is where the cross wires of the cursor pick up the symbol.

In practice this sometimes makes attaching to the lines of the drawing difficult when working with a grid. Draft Plus overcomes this by allowing a lock point to be defined within a symbol, and with aid from the line locking function can be made to lock on to the end of a destination line.

A severe problem with the original Draft was that symbols could not be nested within symbols. Happily this has been rectified in Draft Plus, and attempts to nest to the third and fourth level proved satisfactory.

Comprehensive symbol libraries for architectural, electrical and flow diagram work are supplied as part of the package. One of the most welcome of Draft Plus's additional features is the way it saves extra information with each drawing.

Saving information

In addition to the normal coordinate information, preset parameters such as scale, units, level colours, locking radius, and plotting values, are also saved. To preserve compatibility with GFA Draft files and to save some disc space the additional information is stored in a separate INF file.

For example, drawing files ASSEMBLY.000, ASSEMBLY.001, and ASSEMBLY.002, would share the same ASSEMBLY.INF information file. This still leads to a lot of extra files cluttering up the directory however, and saving images to disc is surprisingly slow.

A drawing consisting of one line in the middle of a blank page took nearly 40 seconds to save – and that is using a hard disc. This compares with about 15 seconds for GFA Draft. Storing of symbols is nearly as slow.

However, the INF files really do save time, and particularly appreciated (though not mentioned in the handbook) is the fact that any assignments of symbols made to function keys are also saved.

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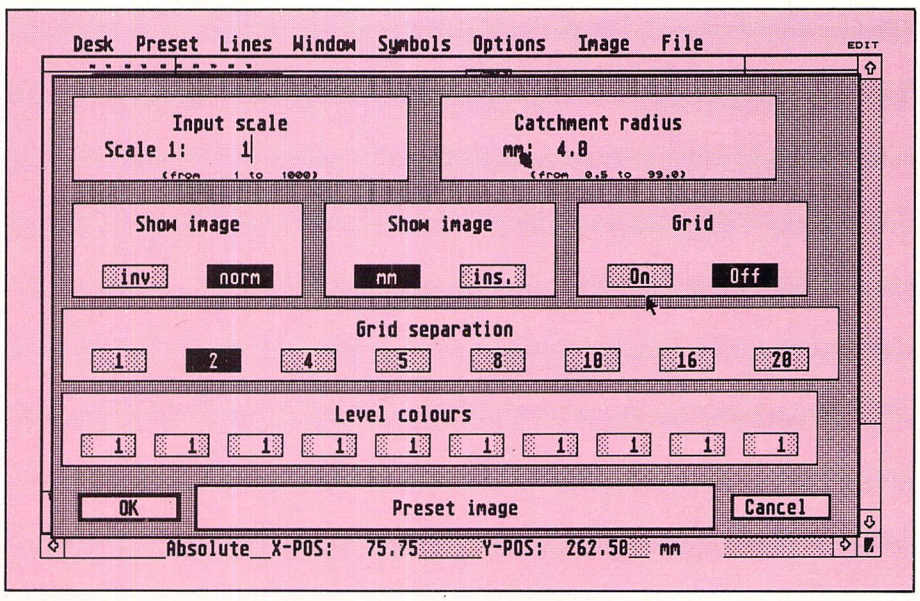

Figure III: Comprehensive dialogue boxes related to particular facilities are used

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◀ *From Page 26*

This means the long process of loading symbols into function keys does not have to be repeated every time a new drawing is loaded.

The long list of device drivers for printing and plotting has been further extended and improved, and now covers an enormous range of dot matrix and pen plotting devices.

It was disappointing however, to find that although the HP Laserjet is included, the Atari laser is not. GFA claims it has had problems with a lack of proper documentation and support from Atari, and having seen the level of documentation provided with the SLM804 I am quite prepared to believe it.

How can Atari be taken seriously as a supplier of business systems with such a state of affairs? A big minus for the Plus here as far as I am concerned.

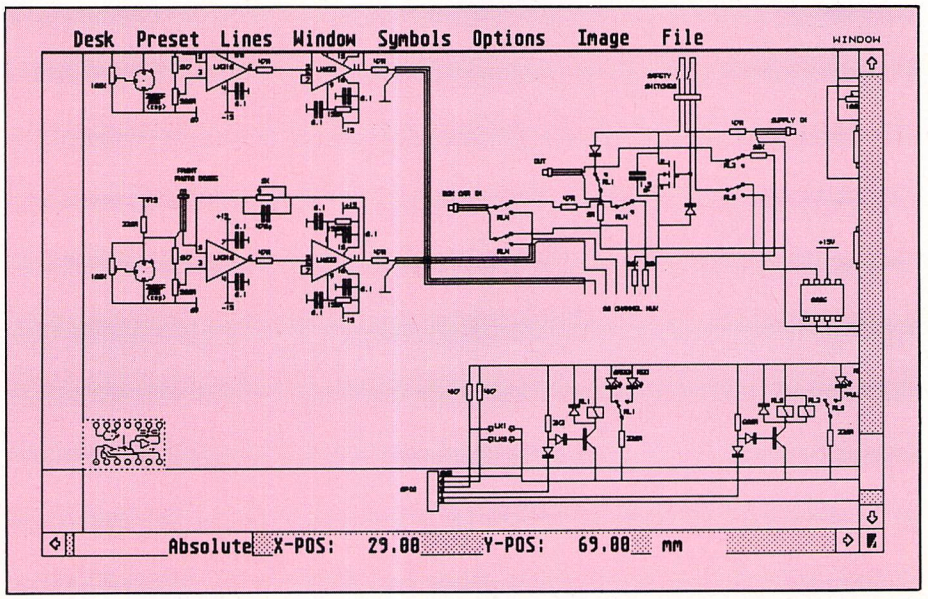

Figure IV: Symbols may be loaded from symbol libraries

Printing and plotting

I tried the plotting facility using a HP7475 pen plotter with RS232, and the printing facility with an Epson-compatible 9 pin matrix printer driven from the Centronics interface.

No difficulties were encountered in either case, but it is important to select the XON/XOFF handshake mode using the Set RS232 config desk accessory.

GFA Draft Plus allows the plotting or printing of a section of a drawing, not just the whole thing. This is done by opening a window in the usual way before starting the printing/plotting function. The scale can be set to between x10 and x.01 of the original, and drawing sizes up to A0 can be accommodated.

Yet another new and important addition is the ability to control the pen's speed to allow for different quality requirements and ink flow capabilities.

Perhaps the major new capability of Draft Plus is the Commands feature. In Command mode lines may be drawn simply by entering commands. The available ones are fairly simple and few in number, consisting of move/plot absolute/relative/polar. Variables may be inserted into commands, and iteration of commands is possible.

This facility is useful for generating shapes which are better represented by their coordinates, the border of a drawing, for instance. More important, however, it represents an interface to other programs.

As an example, a Basic program could convert tables of statistics into commands for graphical representation such as pie charts or histograms.

Interfacing in the other direction is not so well catered for. There is no provision as such to export drawings into desktop publishing or word processing packages, so a little improvisation is called for.

The snapshot accessory, which converts a screen into Degas format, steadfastly refused to work telling me there was insufficient memory available, even with a Mega 2. However, the public domain screen grabber, which saves the screen to disc when you press Alternate+Help, did the trick.

This is not ideal, since the output resolution is limited to that of the screen, and it would be nice to have an output in an object oriented format such as an IMG file.

A separate List program enables elements of the drawing – lines, symbols, circles and so on – to be listed together with the relevant data. This information can be printed directly or filed on disc, and as such can provide an interface to other programs.

Text facilities

The text facility offers two different type styles, one a bolder version of the other. The Plus version offers a third style which must be created with the symbol facility. How many users will be prepared to do this I don't know, but it would have been nice to have access to the Gdos fonts.

Text can be entered in seven different sizes and at different angles, and may be mirrored. If required it can also be manipulated using windows.

At first sight, the handbook appeared quite impressive, being the original GFA Draft ring binder with a PLUS sticker on it, and comprising 234 pages. A closer inspection revealed a somewhat over brief style resulting in a large proportion of the pages being more than half blank.

Some features are not well described, and considerable experimentation is required in order to use them. For instance, the whole of page 208 is allocated to instruction regarding the Formlist program, and merely directs the reader to a (non-existing) READ.ME file on the disc.

In general however, the handbook is arranged well, and does contain a section with a worked tutorial as well as a comprehensive index.

GFA Draft Plus is undisputedly a fine program for the professional engineer or the serious amateur who wishes to improve his productivity and quality of drawings. Whether buying for the first time or updating from Draft to Draft Plus, it is certainly worth every penny.

FACT FILE

Product: GFA Draft Plus
Price: £139.95 (Upgrade – £40)
Supplier: Glentop, Standfast House, Bath Place, High Street Barnet, Herts EN5 5XE.
Tel: 01-441 4130

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Creating the right image

If you're looking for a scanner and your budget is limited, IMG Scan could be ideal. Roland Waddilove investigates further

SCANNERS, hardware add-ons which transfer images on paper to the micro's screen, are quite expensive items, and can easily run to £1,000 or more. So it was with some enthusiasm that I tackled Ladbroke's budget-priced IMG Scan. Can it match the competition for quality, yet beat them hands down on price?

Scanners are used for taking images off paper on to the micro's screen. Once there, they can be incorporated into your own drawings via art programs and into newsletters via DTP packages.

IMG Scan makes use of the printer. The picture to scan is inserted in place of the printer paper, and a hardware add-on attached to the printer and the ST transfers the image to the ST's screen. The print head runs back and forth across the paper, but doesn't actually print anything – it is probably just printing blank spaces.

The hardware consists of a single cartridge which plugs into the ST's cartridge port on the side of the micro. Two thin cables about one metre long come out of one edge and these are taped together at the end.

These are two optic fibres and the idea is that you attach them to the print head of your printer so that the ends are just a fraction of an inch above the printer paper. How you do this is up to you, and the method of fitting will be different for each printer.

I tried three or four different ways involving cotton, tape and elastic bands. The tape worked out the best, though I did find that it tended to slip down slightly in use.

As you can imagine, this sort of set-up is a bit of a bodge job and not too precise. After attaching it to the printer you may find it requires repositioning after attempting to scan an image.

The positioning is critical and it will take much trial and error to get the best results. I was getting rather hot and frustrated at one stage, when the cable kept slipping, or got caught on the paper edges, producing blurred images and so on.

I would advise allowing an hour or so to set up the system for best results. The problem is that you can't tell whether the position is right until you attempt to scan an image – and scanning takes quite some time. This system isn't designed for speed or ease of use.

Having set up the hardware, the rest is easy – just boot up the software. Figure I shows the main screen display with a single menu item. The box in the top left corner is used for selecting the area of the image to scan. It can be picked up and dragged left and right with the mouse, and its size is selected with the vertical bar to the right marked Enlarge at the top and Reduce at the bottom.

The image will always fill the screen, so these two controls can be used to pick out an item from the page and magnify it. However, as the image is magnified, it shows up the system's weaknesses. The greater the magnification, the poorer the image. So for best results use a very large picture with no magnification.

ReScan starts scanning a new picture, Scan continues scanning from wherever it was up to when it was stopped during ReScan, View allows you to examine the scanned image and ReCalc allows you to tinker with the finished image.

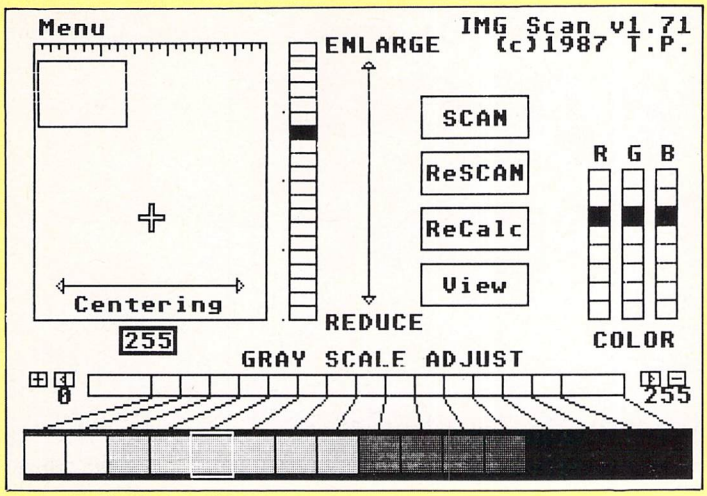


Figure I: The main editing screen

Figure II: One of the images supplied on the disc

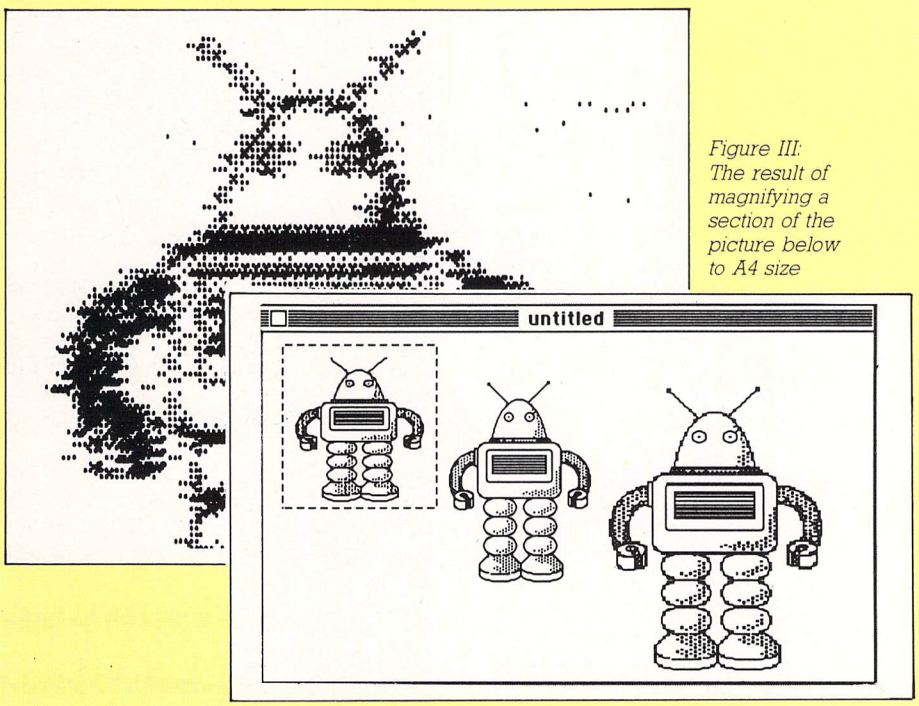
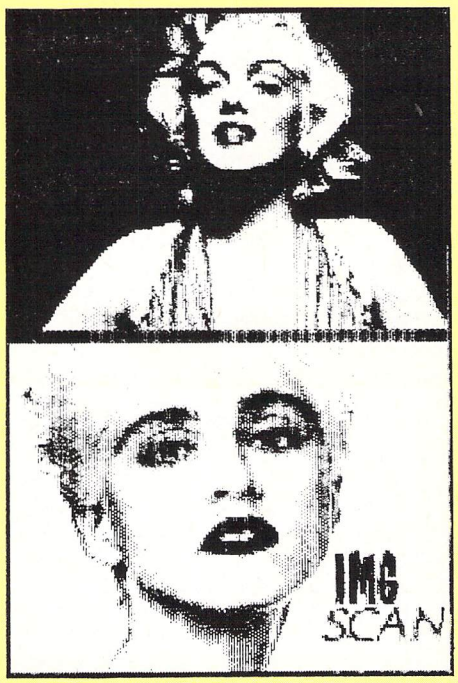


Figure III: The result of magnifying a section of the picture below to A4 size



Two more samples from the disc

The Grey Scale Adjust at the bottom of the screen is used in conjunction with the ReCalc option. You can pull the grey scale left and right, and alter the RGB value of each colour – defaulting to shades of grey – then use ReCalc to re-display the image using these new settings. Basically, it alters the contrast.

The menu options allow you to save the scanned image as a Degas or Neo-Chrome file, and you can also save the raw data as it comes into the ST. These files take up a fair chunk of disc space, so it's nice to see a disc formatter included in the menu.

It would be soul-destroying to spend an hour scanning an image, only to find you can't save it because you've run out of disc space and haven't got a freshly-formatted one.

There's also an option to alter the printer settings – paper feed, time delay before the head flies back after scanning a line, and so on.

Figure II shows the best result you are likely to obtain from IMG Scan, and is supplied on the disc. I couldn't quite achieve this standard, though at times I was close. But just when I managed to get everything set up right, the cable would slip or catch and throw the image out of focus.

Figure III shows what happens when you try to magnify an image to the limits of the system – you end up with a very fuzzy picture which isn't a great deal of use. This would require a great deal of editing with an art package such as Degas Elite to get it up to scratch.

It is often said that you only get what you pay for, and in the case of IMG Scan this is probably true on the whole. The appearance of both the hardware and software both shout "Budget quality" and the results achieved in my tests certainly weren't anything to write home about.

If you need top quality output you might best look elsewhere, but be warned: It can cost more for the scanner and software than you paid for your ST in the first place. IMG Scan costs just a fraction of what other scanners cost.

If your budget is limited, and you don't mind the Heath Robinson set-up, IMG Scan is definitely worth considering. The results are acceptable – if you're prepared to fiddle with the optic fibre attachment, and experiment with various settings – and it won't break the bank.

FACT FILE

Product: IMG Scan
Price: £99.99
Supplier: Ladbroke Computing, 33 Ormskirk Road, Preston, Lancs PR1 2QP.
Tel: 0772 203166

POINTS FOR:
Cheap – nothing else available at the price.

AGAINST:
Fiddly to set up; quality variable.

The cheap and cheerful option

Mike Gerrard reveals his experiences with the Atari DTP system and finds it's got a bit of catching up to do

A FEW months ago Atari launched two packages which included all the hardware and software you would need for a complete desktop publishing system. The cheaper version at £1,999 was based round the Mega 2 ST, while the pricier one – £2,699 – offered you a Mega 4 and a 20Mb hard disc drive.

Both systems came with mono monitor, the Atari SLM804 laser printer, training, 90 day on-site maintenance and copies of the chosen software – 1st Word and Fleet Street Publisher.

When I suggested to David Hewson, editor of The Wordsmith magazine, that I should review the package he really threw down the gauntlet. "Fine," he said, "but what you ought to do to test it properly is produce two finished pages using the laser printer and I'll incorporate them into the magazine".

This article explores what faces the writer who's suddenly turned into a publisher – that's after he's gulped and wished he'd kept his big mouth shut – and some practical matters to consider if you're thinking of entering the world of Atari DTP yourself.

David Hewson knows the pitfalls involved in trying to produce your own magazine. Since January 1986 he's been publishing and editing The Wordsmith, one of the first and certainly one of the best magazines produced by DTP means – in his case based on the Apple Macintosh and Apple laser printer, which are considerably more costly than the Atari systems.

When you embark on desktop publishing you have a whole new language to learn, and unfortunately there isn't a Linguaphone course to help you. There are several books however, such as The Desktop Publishing Companion by Graham Jones (Sigma Press).

And Mirrorsoft's Fleet Street Publisher sensibly includes a section that deals with words such as kerning, leading, tracking and gutters.

I was vaguely familiar with some of these terms, and it didn't take too long to discover what they all meant and why you need to understand them. But what did surprise me was the sheer number of decisions you have to make when laying out a page.

Having estimated the size of your headline to start with, and decided on the type face, what's it actually going to say? You've only got a few words to introduce the article.

And where is it going to be? That may seem obvious, but how much space is there above and below? And is it in upper case, lower case or lower case with upper case initials?

Some magazines also have an introductory few words which also include the author's name, so you have to decide where that's going to go, what the text will be, the size of it, and in some cases whether it's white on black, black on white or black on grey – in which case just how grey is the grey?

Decisions, decisions

Fleet Street Publisher works in percentages, so is it only 20 per cent grey background, or 70 per cent, or somewhere in between? And if it's in a box, how thick are the lines around it – one centimetre, two, three?

Then you must look at the page itself. What gap is there at top and bottom, in the areas known as headers and footers just as in word processing? Is it half an inch, three-quarters?

What measurement are you going to use anyway – millimetres, inches, points? FSP has a choice of eight units of measurement, and two basic rules are: Be consistent, and be right.

Then think about what's in the header and footer. Is the page number printed at the top and bottom and is it on every page? Is the name of the magazine and the cover date included? If so, where? What size? What type face?

There's also the whole question of illustrations. Where do they go, how much prominence should they have, what size captions?

Then to the body of the article itself. Ignoring the whole vexed question of having to fit the article into the space available, hopefully by just a little judicious trimming, how many columns are on the standard page – two, three, four?

Where does the first line start in relation to the headline? What is the exact gap between the columns? Does the first paragraph start with a dropped capital and is the first word in upper case, as in *Atari ST User*, and if so then how far does the capital drop?

Or are the first few words in upper case, as happens in many magazines? And what difference does it make to the look of the page anyway?

When you have established a maga-

A beginner's guide to DTP jargon

Gutter width: *The size of the gap between columns on the page.*

Kerning: *Moving individual characters closer together to improve the look of a word. Each letter of the alphabet generally gets equal space on the page, but a letter such as o is wider than a letter like l, so two consecutive wide letters look crowded and two narrow ones can look like they've lost contact with the rest of the word.*

A word such as balloon might need some individual attention on the page, and good DTP software like Fleet Street Publisher allows you to do this.

Leading: *This is the gap between the base lines of the rows of text on the page. Not the gap between lines of text. The leading will therefore always be bigger than the size of the typeface being used.*

A leading of 12 points with a 12-point typeface would mean there was no gap between the lines. A leading of zero would mean each line printed in the same place.

Orphan: *A single word on its own at the top of a page or column, normally the last word of a paragraph that spills over. To be avoided.*

Tracking: *Moving individual characters slightly further apart, to improve the look of a word.*

Widow: *A line of type isolated at the top or bottom of a page or column. Widows are therefore also to be avoided, merry or not.*

zine's look and style, you won't have to make all these decisions every month. You still have to make them at least once, though, and while they might initially seem trivial, they do all work together to influence the way a page looks to the reader – and make that reader decide whether to read the article or not.

As David Hewson explained: "I don't think readers notice these little things in isolation, but they do tend to have a cumulative effect. They will notice if things are hard to read, and their eyes will go to the pages that are easiest to read.

Presentation counts

"So although the content of a page might be very good, if it's not presented in a readable manner your reader will gloss over it. You therefore risk losing readers because they think they're not getting value for money when they buy the magazine, and the problem is poor layout, not poor content".

I also asked David Hewson what he thought about the results obtained from the Atari package. "I think the quality of the pages produced is very good. Not as good as the Apple Laserwriter, but then you wouldn't expect it to be.

"The edges of the letters were, I felt, a bit rough and ragged, particularly if you look at the large 30 point type. Also the italics are simply slanted versions of a Roman font, which isn't true italics. They should be properly designed as a separate font.

"I thought the layout itself was fine, although I would have changed one or two little things. I did notice, that like most typists, you put two spaces after a full stop, which isn't the best way to do things when you're laying out a page".

I also discovered for myself just how easy it is to miss typographical errors, and I'm now more tolerant if I see a mistake in a magazine. The pages were printed out on the Atari laser printer at Mirrorsoft's offices, and John Norledge there helped me get the best results.

Even so, after we'd printed out the final version of the first page, and both of us had read it and declared it perfect, we still managed to miss seeing, of all things, a reference to Mirrorsoft as Mirrosoft, and the page had to be printed again.

Finally I asked David Hewson if he might consider the Atari system for his own operation, if he were setting it up now. "I wouldn't choose the system for myself, but partly that's because I've been working on better systems for so long it would be a backward step.

"I felt that the software is probably at the level PageMaker on the Mac was at when it first came out about two years ago, so there's a bit of catching up to do.

"I also think it depends very much on the type of magazine you're trying to do. I wouldn't choose it as it stands at the moment for anything aimed at the general market, or any kind of commercial operation.

"If funds were tight then maybe look round for a second-hand Mac-based system. But if you were doing a newsletter to subscribers, an internal office magazine, a parish newsletter, that type of thing, then it would be great.

"If you don't have to earn a living from it, then I'd say it's a good cheap and cheerful option".

Part of the two pages produced on the Atari DTP system for The Wordsmith

Genuine Desktop Publishing for under £2000? That's what Atari are claiming for a bundled packag
that includes a laser printer, monitor and 2048k micro, with software, training and maintenance throw
in for good measure. MIKE GERRARD has forsaken his PCW to take a look.

Atari's desktop breakthrough?

THE COST OF A quality Desktop Publishing system of the type used to produce The Wordsmith will have been beyond the pockets of many people, in the main because of the high price of a good laser printer. In December 1987, however, Atari launched a budget-price laser printe
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duction to Desktop Publishing and the terminology used. It then goes on to give you a step-by-step guided tour to some of FSP's basic features, working towards the production of a single page from sample files provided on the disc.

There are several pre-set standard page sizes available, but like almost everything else in Fleet Street Publisher the options can be altered to suit yourself. The page sizes you can use are A4 and A5 vertical, A4 horizontal, tabloid and US letter size (11" x 8.5").

Within the page you can make any logical setting for your top, bottom, left and right margins, for the number and width of your columns, and for the gap between them (gutter width). As far as possible, the program will automatically make any other necessary adjustments should you alter one of the settings.

You can work in millimetres, centimetres, inches, points or pica points, with optional rulers at the edges of the screen. These work on the cross-hair principal to show you exactly where your cursor is currently located. A magnification option enables you to inspect the page at any size on the screen, from a 100% magnification for the detail down to a 'Fit Window' option that displays a full page - though more than one page can be displayed if worked on at the same time. I was working with a medium resolution your monitor, rather than the high-res to monitor that is recommended and added in the Atari packages, but even it found that all but the very smallest was comfortably visible on screen. the left-hand side of the screen even icons, plus the trash can into you can drag any unwanted pictures or text. A Clip-board its as a temporary storage area for ce of text at a time, allowing it moved or copied, while an w icon stores any text which fit or flow into the space to it. You can then drag the back onto the page with the ter either increasing the space or reducing the size of the text there.

> "Much as I like my PCW, the ST makes it look like something you'd enter for the micro equivalent of the old crocks' race..."

Above this are the five main working icons. Box Rule is simplest - this allows you to put boxes or lines on the screen, at any thickness or tone setting that you like. The Text and Picture Block options are similar, enabling you to reserve a space on the page, ready to receive text or graphics from one of several sources. Text can be imported from any word processor as an Ascii file, including a PC disc if you attach a 5.25" drive as the second drive on your ST (which uses 3.5" discs). Small amounts of text can be typed directly onto the page, while for longer pieces you can do as I am doing now and set aside a text sheet for simple word processing, including a word-count at the top of the screen to let you know how you're getting on. You can prepare your text in one of the larger point sizes for ease of reading, and for easy insertion of any special text effects, then reduce it to a smaller scale when pasted into the page.

Graphics can be from the selection of clip-art provided, from a Haba digitiser, or imported from the three most popular ST art programs: Art Director, Degas and Neochrome. A separate program on the graphics disc will convert from any of those formats to the FSP format, and this worked perfectly with the Degas and Neochrome images that I tried, though of course colour images are not always successfully changed to monochrome.

The final two icons are Picture and Text Edit. Picture Edit allows you to move, crop, copy, rotate or scale your picture, though one problem I found when trying to paste a picture onto the page was not knowing in advance how large or small the clip-art image was going to be, although with imported images you can set the conversion program to scale them to one of several set sizes, which helps. The best way round this is to set aside a page made up of a single Picture Block, then paste the graphic into there for approximate scaling before resaving it and loading it into your magazine page. You can crop an image by picking up any side of it and moving it inwards till it obliterates the details you want to exclude, or till it lines up with your column guide on the page. Alternatively you can keep the whole image but rescale it vertically, horizontally or both by picking up a side or a corner with the cursor and putting it down again in the right place. Rescaling was the only part of the program that involved anything like a lengthy wait while the image was altered, but after using a machine like the PCW it seems a miracle to

Fleet Street Fonts:

Dutch: abcdefg ABCDEFG 1234567
Swiss: abcdefg ABCDEFG 1234567
Medieval: abcdefg ABCDEFG 1234567
West End: abcde ABCDE 12345
Sans Serif: abcde ABCDE 12345
College: abcdefg ABCDEFG 1234567
Bold College - and Bold Swiss
Bold West End in 10-point
Ditto in 12-point
In 14-point
16-point 18-point
And 30-point

The available fonts have several preset point sizes ranging from 10 through to 60, which are available at the click of a mouse. It takes a few seconds longer to enter a point size of your own choosing, from 4 through to 216 in half point increments.

The italicised 6-point sans serif font could be useful for captions...and opticians charts

The Clip Art provided is good in quality, but regular users will want to be sure that more is on the way -- or be accomplished in one of the supported graphics packages.

to do anything like this at all!

In Text Edit there are various text effects available - italics, outline, upside-down or mirrored text, with ink and background colour available at any setting from 0 to 100%. There are only six fonts yet available, with all having plain or 'Bold' options: Swiss, Dutch, Sans Serif, Medieval, West End and College. Mirrorsoft say that they are looking into the possibility of producing other font options, although definitely on the way are further clip-art samples and a disc offering various business-form templates. Any of the fonts listed can be used in point sizes ranging from 4-point through to a massive 216-point, and if you can find a use for the latter then let us know.

Text can very easily be altered from one effect, size or font to another by simply highlighting the area of text to be altered then selecting the new option. If any of the new text does not fit then it will be stored as Overflow text. This not only allows you to rescale your original text to accommodate a little more, but you can also paste the Overflow text straight into the next column on the page (though not onto a different page.) Once two or more columns have been linked like this by accepting Overflow text then they can be manipulated together as the text is still regarded as being in one piece. Space can be created for inserting a sub-heading, and then the 'Tidy Linked Text' option will rearrange everything perfectly in the linked columns.

Justification options are for full, left, right or centred text. Hyphenation is fully covered, and the program has its own internal hyphenation logic, although you can over-ride this with your own decisions if you wish. You can set the word must contain before it can be or after a hyphenation. To test the program's hyphenation ability, I will let it deal with this article as it thinks fit, which is slightly unfair in view of the fact that you can alter anything yourself if it doesn't look good.

You can specify the space between lines of text (leading) as a percentage both above and below the base line, while the space between characters (kerning/tracking) can be adjusted by adding or subtracting a specified amount of space between two selected characters. Page Aid commands are useful, allowing you to show or hide any or all guidelines, therefore enabling you to inspect the page as it will print out (or should print out!), or simply to see the way either a piece of text or graphics looks on the page without being distracted by other items.

Using Fleet Street Publisher was so enjoyable that I often found an entire evening had gone by while I was 'playing' with it, and I can see why people are getting more and more interested in Desktop Publishing. Fleet Street Publisher seems to me to allow you control over everything that appears on the page, though what I cannot say is how the Atari package compares in features and price with similar Macintosh set-ups. Editor David Hewson promised that he would find a little space elsewhere in the magazine in order to make a comparison and, as he put it, 'to sneer at the Atari.' The package seems to me, though, to lack very little that a Desktop Publisher needs. Perhaps some dealers might even throw in a desk for good measure, you never know.

CONFIGURATIONS AND PRICE DETAILS:

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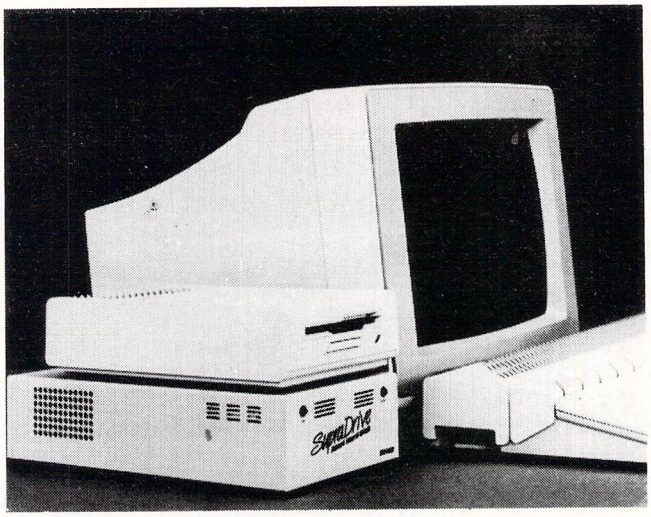

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MUSIC ON THE ST

By IAN WAUGH

Constructive utility

Feeling musical? Here's a package that enables you to experiment with the ST's sound chip

YOU don't need mountains of equipment in order to make music on your ST, and it's nice to see programs which let you dabble with the internal sound chip. Such a creature is the Music Construction Set (MCS), written by Rich Plom, who wrote Deluxe Piano which is floating around the public domain.

With the MCS you can write up to three lines of music on the grand stave – treble and bass clef. The three parts may overwrite each other, but they are shown in different colours to minimise confusion.

You can enter music with the mouse by clicking notes onto the stave or by clicking on a keyboard underneath the stave. You can use a Midi keyboard, too, but each time you want a different duration you must escape Midi input, select the duration, reselect Midi mode then play the note. Also, if your piece has a key signature, all natural notes appear preceded by a natural sign. Irksome.

Entering music with the mouse however, is quite straightforward and a note box displays the name of each note after it has been fixed. It would have been more helpful if it showed the names as you slide the note across the staves, especially when you reach the leger lines.

The program doesn't automatically insert bar lines or check bar lengths during note entry – both ideal operations for computerisation. You must make sure all the notes line up correctly otherwise the piece won't play properly, although there are verify timing and clean up score commands to help with these problems. Ties, triplets and quintuplets must be lined up by hand too.

You can enter repeat bars but not first and second time bars. You can't change key signatures during a piece and although you can theoretically change time signatures, some don't work as you would expect.

You can perform block cut, paste and move options, transpose notes, alter durations and replace instruments. Each music line can change instruments at any time which is very useful.

An easy-to-use instrument definer gives you control over an 8-stage envelope. You can switch in noise or tone and select vibrato depth.

You can print out your score on an Epson-compatible printer, but as only the grand stave is used the result may appear a little confusing.

There's an automatic save facility – although it doesn't backup old files – and you can save your score as a program file to run independently of the MCS. Instrument files can be saved separately too.

The MCS can also function as a very simple Midi sequencer, and although it only supports three music lines, each one can be sent to a different Midi channel. It's no substitute for a dedicated Midi sequencer however.

The manual is generally helpful, although a few diagrams would not go amiss. It suggests that all you have to do to produce good music is to point the mouse and click. Well, it's not quite as simple as that, and a little musical knowledge helps enormously.

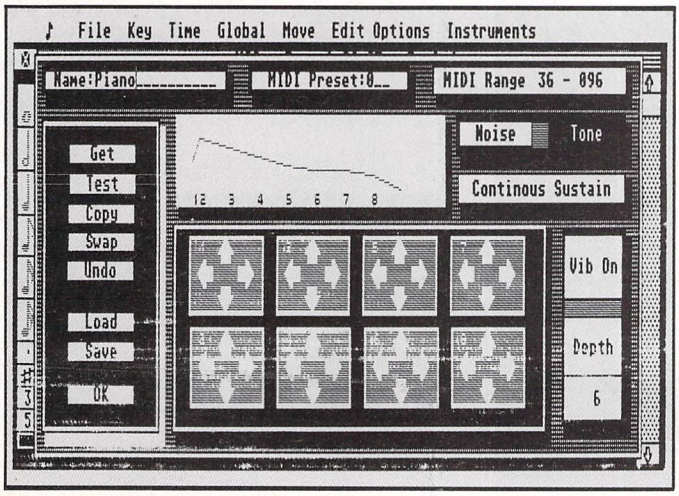
The Music Construction Set lacks sophistication in many areas, but if you want to write music for the ST's sound chip and can accept its limitations, you'll find it relatively simple to use. Excellent results are possible too, as the demonstration pieces prove.

FACT FILE

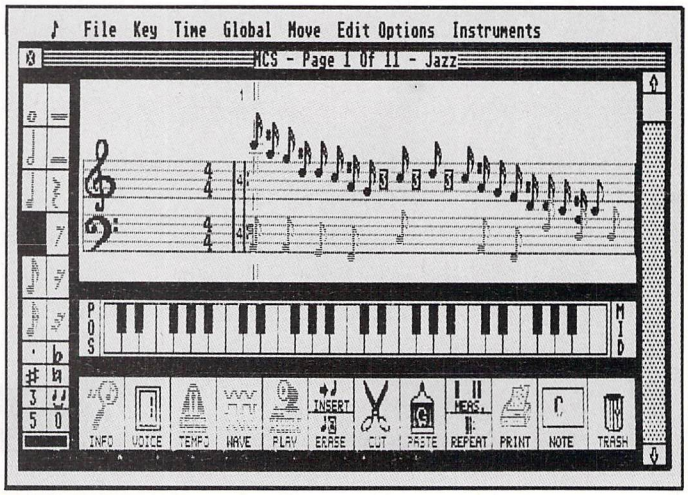
Program: Music Construction Set
Price: £24.95
Supplier: Electronic Arts, 11-49 Station Road, Langley, Nr. Slough, Berkshire, SL3 8YN.
Tel: 0753 46465

POINTS FOR:
Attractive price; uses the ST's sound chip.

AGAINST:
Awkward inputting from Midi keyboard.



Editing an instrument's waveform



The main editing screen

MUSIC ON THE ST

By IAN WAUGH

A report on the recent Frankfurt music festival and what it had to offer

Software bonanza

THE Frankfurt Music Fair is big! Massive! Enormous! It was also proof that the Atari ST is the most important music computer. It outnumbered all others there by about 10 to 1. All kinds of musical instruments were on display, everything from African hand-made drums to the latest synthesisers and samplers. It was amazing to see so many hi-tech companies using a computer to put their latest piece of technology through its paces.

All the major international software houses were demonstrating programs old and new. It was fascinating, too, to see so much software not generally available in the UK.

Most of it originated from Germany, where Atari claims to have sold some 128,000 STs. That compares with around 120,000 machines in the UK. There was a lot of American ST software there, too, but most of this, fortunately, has UK distribution.

There's obviously not room to mention everything, but I'll wizz around a few stands and pick out some of the new products. We'll take a closer look at some of them when they filter through to the UK market.

A quiet moment on the C-Lab stand

Goodies galore

Steinberg are one of the most popular software houses so I'll begin there. Its famous Pro-24 (£285) sequencer program – which it claims has sold more than 1,200 copies – has been updated to version three. Among other enhancements, it now supports the Midi file standard and Steinberg is obviously hoping it will sell another 1,200 more.

New from C-Lab is the Notator (£485) which I mentioned last month. It's a scorewriter program and comes complete with C-Lab's 64-track sequencer, the Creator (reviewed in *Atari ST User*, November 1987), which has been updated to version 1.3.

New also, is a voice editor for Roland's MT-32 which should sell for around £100. Incidentally, nearly all the companies demonstrating sequencing software were using an MT-32. They must be impressed with it.

Passport Designs, which made its name with Commodore 64 software, has now turned to the Atari ST and further enhanced MasterTracks Pro which has been updated to version 2.

It was even more excited about MasterTracks Jr, however. It works like a 64-track tape recorder (imagine it!) with a song editor grid display and uses the standard Midi file format. All this for only £99.

Dr. T was showing off the KCS level II sequencer with MPE and PVG – read last month's column for details and interpret-

An Atari ST working with Yamaha's top-flight Electone multi-keyboards

ation. A multiple programming environment (MPE) gives you the ability to run more than one program on the ST at the same time, and let them work interactively. It's one of the most advanced Midi music concepts to make its way into software. Powerful stuff indeed.

Dr. T's scorewriter program, Copyist (£199), has made it to version II and they are very proud of the fact that it can handle triplets. It supports the standard Midi file format so you can print out scores created on other sequencers.

It can also convert Steinberg's Pro-24 Midi files before version three which, as mentioned above, now supports the Midi file standard.

Dr. T also has a comprehensive range of voice editor programs, and making its debut was an editor for the Kawai 5 which should sell for £99.

If you own an Akai S900, Emax, Prophet 2000 or Casio SX1 sampler then check out Sample Maker (£199). It's a harmonic and tone generation program which can add harmonics and swap samples between samplers.

If you're after budget software, Dr. T is re-introducing the Midi Recording Studio version V1.1 (£49.95). It has eight tracks and will now play back through the ST's internal sound chip.

Hybrid Arts was proud of ADAP Two (£2899) a stereo, 16 bit linear, 44.1kHz, workstation which saves samples direct to hard disc.

EZ-Score Plus was there, but as it's reviewed in this issue I'll only say that it, too, has been updated and improved in the printout department. It's still, as far as I am aware, far and away the cheapest score writing program on the market.

I'm looking forward to MidiScore, a 60 stave scorewriter which should be available in the UK in a few months at an anticipated price of £229.

If you have access to a laser printer then watch out for MidiScore Plus (£279) which will be configured for just such a machine.

Hybrid Arts' SyncTrack and SMPTE-Track (reviewed in the January issue of *Atari ST User*) have undergone an update and now include graphic editing and a facility to import tracks from one song to another.

It can turn a chain into a linear track – a process called flattening – and show the tempo in film click values, very useful for the film composer.

If you don't need sync-to-tape or SMPTE then take a look at EditTrack (£179.95), a brand new program similar to SyncTrack and SMPTETrack, but without the hardware.

The budget-priced sequencer, EZ-Track (£59.95), has been updated, too, and incorporates improved quantisation, better cut and paste facilities and a delayable tracks feature.

While not having the interactive aspect of Dr. T's KCS Level II MPE, HybriSwitch (£24.95) lets you hold up to 10 programs in memory at once and flip between them instantly. No more powering up and down to edit a voice while using a sequencer.

Also new is MidiPlexer (£289), designed to alleviate Midi traffic jams. It effectively gives you 64 discrete Midi channels as opposed to the standard 16.

Sharing the Hybrid Arts stand was UK company Soundbits which specialises in voice editors for popular synths and expanders.

New from the company was an editor for Roland's D-50 and D550 (£99.95). An editor for the ubiquitous MT-32 is due soon along with LibMast (£29.95), a desk accessory which will allow bank uploads and downloads from the Soundbits editors.

Sonus was showing the new SST Super Sequencer (£99) – as mentioned last month – but was concentrating most of its effort on demonstrating SuperScore (£220), a fully integrated desktop music publishing system. It has been available in America for a while, but we have yet to see a copy in the UK.

It has 32 polyphonic staves and a built-in 32 track sequencer. Text can be placed anywhere on the page and lyrics can be auto aligned. It can convert files from Sonus' other sequencing programs as well as those from Hybrid Arts and Steinberg.

Even as you read this however, it is undergoing an update, so by the time it does reach us it should be even better than the version at Frankfurt. I've been promised the first updated copy and we'll bring you a full review soon.

This is just a small fraction of the available software and hardware on show. Next month I'll reveal some more that are due out soon.

Dr. T's Copyist and KCS

FACT FILE

Steinberg and J.L. Cooper are distributed by Evenlode Soundworks, The Studio, Church Street, Stonesfield, Oxford.
Tel: 099 389 228.

C-Lab is distributed by Sound Technology PLC, 6 Letchworth Business Centre, Avenue One, Letchworth, Hertfordshire, SG6 2 HR.
Tel: 0462 480000.

Dr. T and Passport Designs are distributed by MCMXCIX, 9 Hatton Street, London, NW8.
Tel: 01 258 3454.

Hybrid Arts and Soundbits are distributed by Syndromic Music, 24-26 Avenue Mews, London, N10 3NP.
Tel: 01 883 1335.

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MUSIC ON THE ST

By IAN WAUGH

The EZ way to score ...

Scoring programs can be a boon to music writers. EZ-Score Plus is one such package and at a budget price

EZ-SCORE from Hybrid Arts is one of the newest music scoring programs to appear on the market. It also happens to be the cheapest, falling well within the range of budget price music programs.

It will run in high or medium resolution and supports one, two or three staves. If you are used to writing for eight or more instruments (using multi-timbral synths) you may find this restrictive.

You can however, allocate two Midi channels to each stave – one to the notes with the stems pointing up and another to the notes with the stems pointing down – so you can work with up to six parts.

Music can be channelled through the Atari monitor's speakers, through the Midi sockets or through both, but the ST's sound chip can only play back three parts.

Editing facilities

Drop down menus handle the editing functions and flip-up menus give access to notes, rests, ornaments, dynamic markings, articulation, bar lines and music symbols. There are safety options for both menus so they don't drop down or flip up if the mouse inadvertently wanders into their area.

You enter notes, rests and all the other musical bits and pieces by picking them up from the bottom menus and clicking them into place. To remove them you select Delete mode. This turns the mouse pointer into a bow and arrow which you click on unwanted symbols.

Edit mode lets you rubber band an area, and notes in it can be beamed, tied, have their stems flipped and made into tuplets, triplets, quintuplets, septuplets and so on.

You can edit with the mouse, the computer keyboard or a combination of both. You can also enter notes from a Midi keyboard – the Pitch and Mod Wheels control the cursor and you can define other controls to alter note duration and select rests. The usefulness of this option depends on the features your Midi keyboard has.

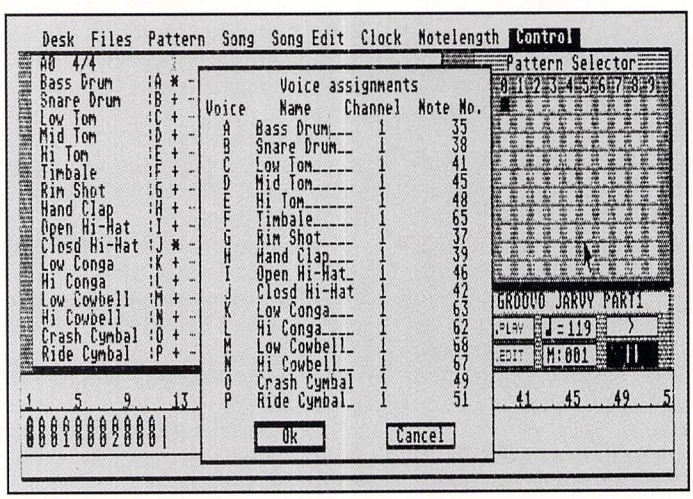
There is no provision for mapping patch changes to the program which I think would have been useful.

However, it offers yet another method of input and you'll soon find a combination of methods of operating which suits your own needs.

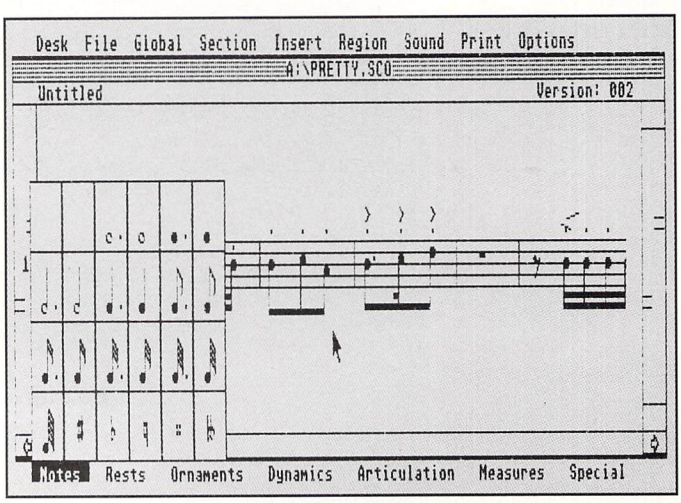
You can copy, cut and paste sections of the score, but sections must be defined as whole bars – I kept wanting to drag a window around a section.

You can't, however, copy from one stave to another to enter a repeating bass line – you must copy it with the other staves blank.

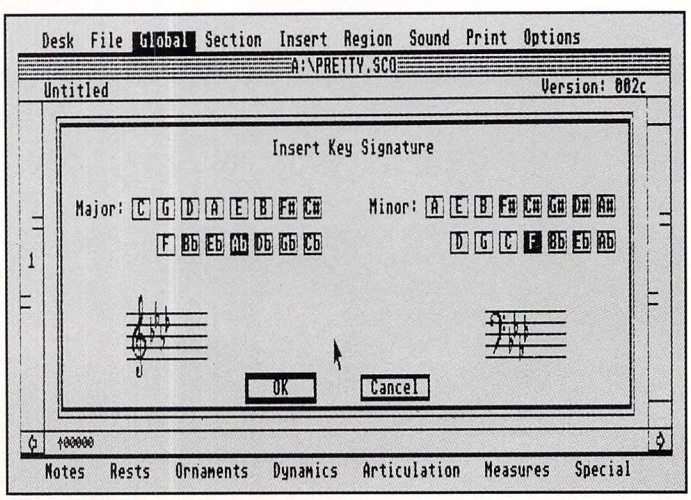
You move through the score by clicking on window scroll arrows and you can use the locate feature to move to any bar or rehearsal mark. All bar numbers must be entered from the keyboard however, which takes the edge off mouse operation. The controls have equivalent



Assigning the voices



Editing the music



Inserting the key signature

keyboard commands so if you're using the keyboard this won't seem like a problem.

An odd omission is the lack of an automatic bar insertion option. Also, the notes don't automatically line up vertically down the staves. This is essential if the piece is to sound right on playback so you must be careful to line everything up.

There are Expansion and Compression routines to help space out your score evenly, but they will put a single note in the middle of the bar instead of near the bar line. However, there are micro spacing routines which allow you to insert or delete gaps between symbols. and a little editing can soon produce a perfect score.

One option the manual suggests is to insert the bar lines first followed by the notes, but you may prefer to get the spacing right as you enter the score. None of the note beams slant which is a shame although this detracts only slightly from the presentation.

Defining chords

Having scored your masterpiece, you can proceed to enter chord and guitar symbols, but first you must define them as none come preset with the program. You can create up to 20 of each type and form others as and when they're needed. Chords can be as complex as you like. What about this:

A#m(no 3rd)b7#9addb13/D#?

Dunno what it sounds like, though.

Frivolity aside, you can print the piano part and lead line separately from a single piano/vocal score, something which EZ-Score is well suited to, and it is ideal for Busker book music.

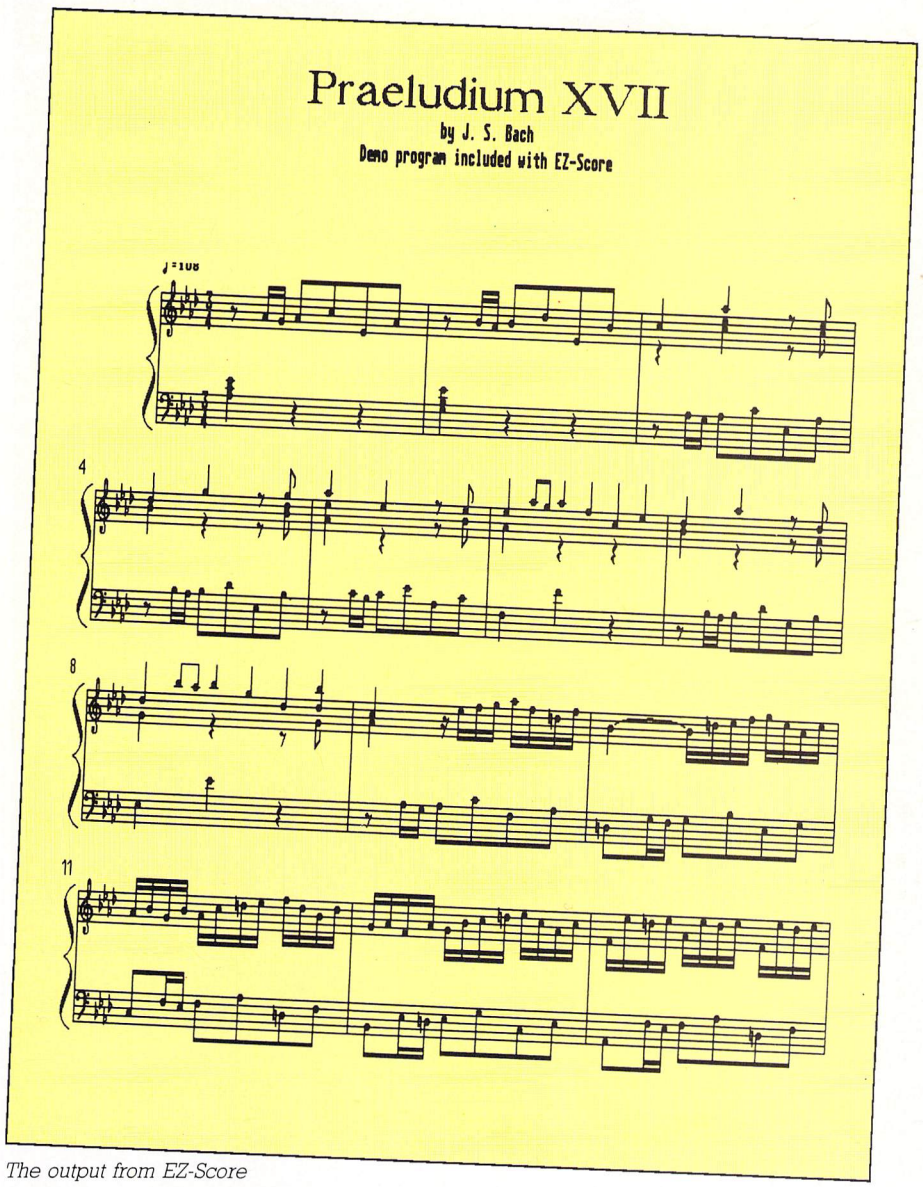
In lyrics mode the program automatically moves on to the next note after you enter a word. This solves positioning problems but it means you can't use it to enter performance instructions such as allegretto or moderato. Expansion and compression squeezes your lyrics too.

Any Gdos font can be used for printing the lyrics and one is supplied on the disc. Other fonts are used for the symbols and you could create your own if you have a Gem font Editor.

You can incorporate title and copyright lines, rehearsal marks, page and measure numbers in the music and, as you can see, the result is absolutely excellent.

Auto-Score

One of the best and most powerful features of EZ-Score Plus is its Auto-Score facility. This will transform a file created with one of Hybrid Arts' sequencer programs such as EZ-Track (reviewed in the June 1987 issue of *Atari ST User*) or MidiTrack (reviewed in January 1988) into traditional notation. It can create a completely new score or you can load a sequence into part of an existing score.



The output from EZ-Score

When recording a piece you should bear in mind the conversion process to EZ-Score as there are such things as quantising, timing and overlapping notes to consider.

The manual is excellent and takes you through a guided tour of the system. The pages are thick and in a ring bound folder – there's quality – well printed and scattered with diagrams.

Finally, EZ-Score is the first program to be compatible with the new HybriSwitch program. This should be available soon, and will let you store up to 10 programs in memory at once so you can flip from sequencer to voice editor to scorewriter at the twitch of a mouse. Nice! More when it appears.

In spite of a few "I wishes" – lining up notes, justification of notes and bars, more auto features and so on – EZ-Score Plus works well, it's easy to use and it produces excellent results.

Hybrid Arts is developing a larger, more sophisticated program called Midi-Score and there is an upgrade path from EZ-Score to Midi-Score. Meanwhile, if you want notation facilities, EZ-Score Plus does the job for a budget price and is well worth the readies.

FACT FILE

Product: Hybrid Arts' EZ-Score Plus
Price: £84.95
Supplier: Syndromic Music, 24-26 Avenue Mews, London N10 3NP.
Tel: 01-444 9126.

POINTS FOR:
Cheap; easy to use; drop down menu system.

AGAINST:
Only three staves; no note justification.

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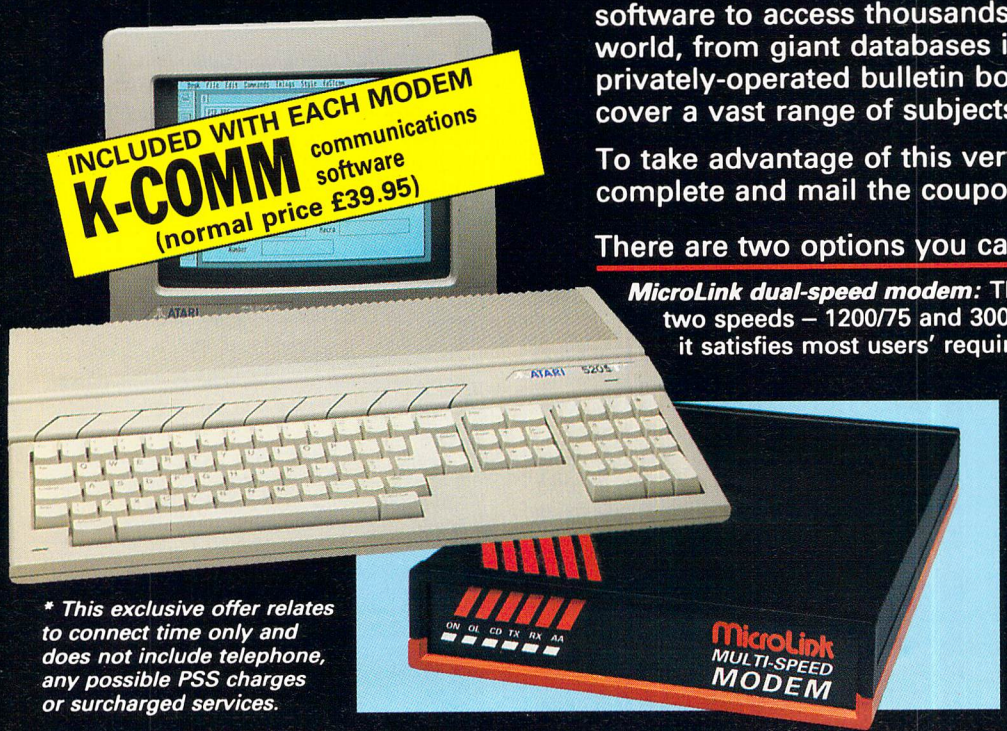

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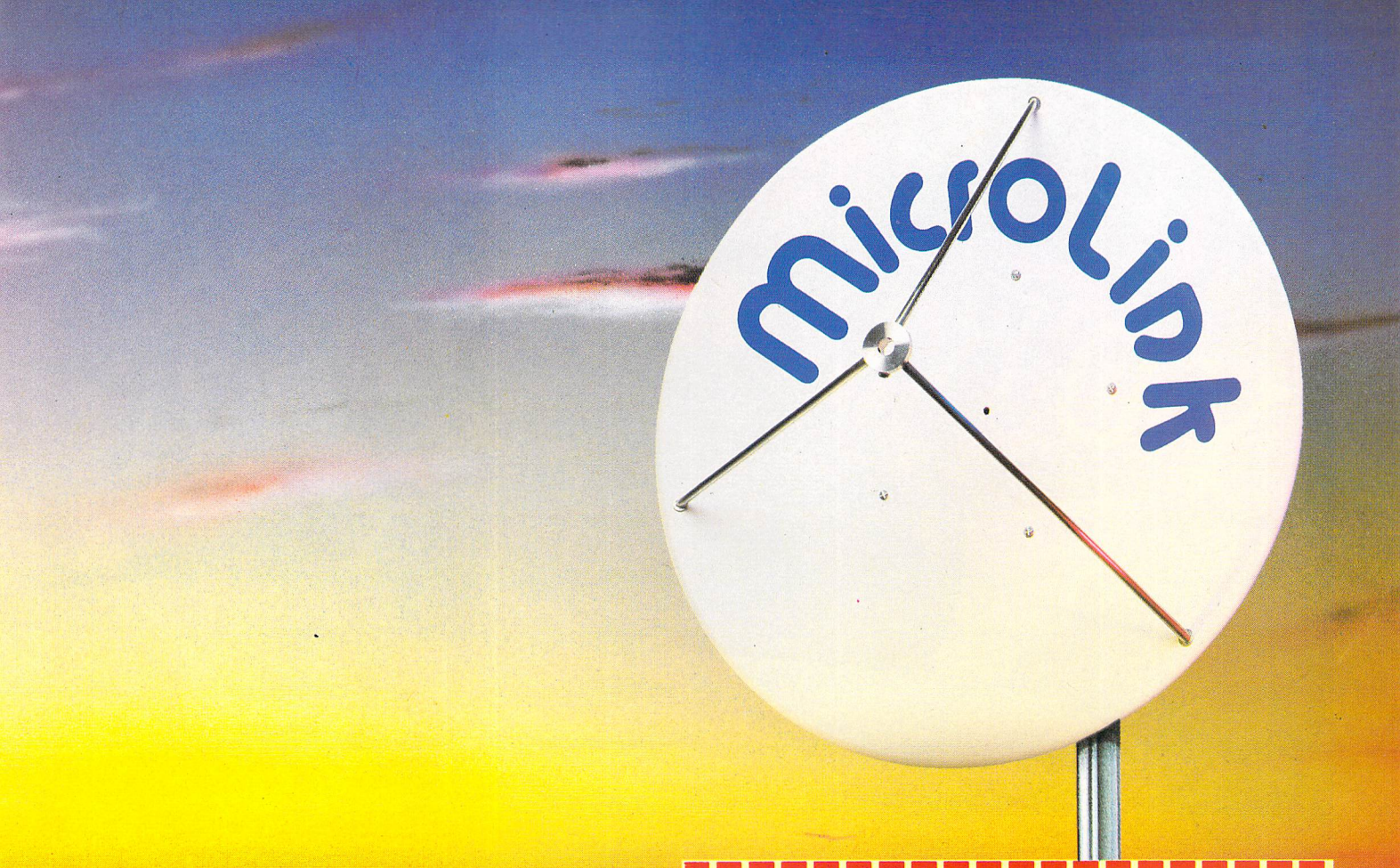

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1. *What is Idlewild International Airport now called?*
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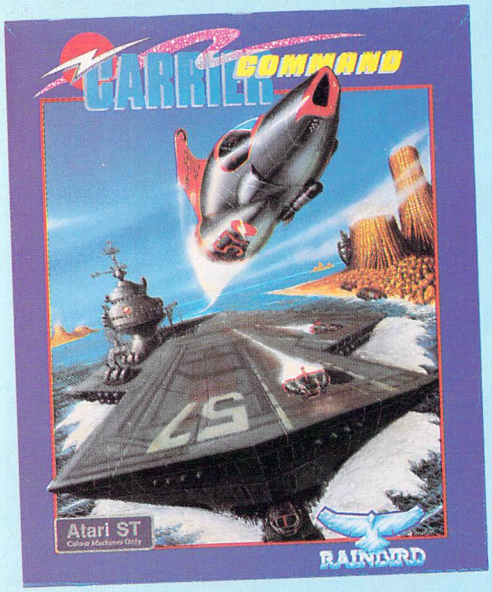


Sea spectacular

Program: Carrier Command
Price: £24.95
Supplier: Rainbird, Wellington House, Upper St. Martins' Lane, London WC2H 9DL.
Tel: 01-631 5168

CARRIER Command by Rainbird is difficult to describe, and if I said it was a wargame you would probably get the wrong idea. The best description I can give is that it's a strategy game with arcade action sequences, and combines the best features of several different game types.

The accompanying 64 page manual outlines the scenario. The movement of two tectonic plates – large, separate areas of the earth's crust – has caused a great deal of volcanic activity in the southern oceans. This in turn has led to the creation of a vast number of small islands.

The violent volcanic activity has brought to the surface very rare and much needed minerals, rare metals and fossil fuels. And as the world is facing an energy crisis, these islands are extremely valuable.

Two large, technically advanced, aircraft carriers are constructed, and their mission is to colonise the islands, setting up bases, factories, refineries and so on.

The ships are fully automated – run entirely by computers, save for the commander, and here lies the problem. An enemy foreign power gained access to the computer operating system of one craft and implanted a virus, killing the commander at the same time. Once it reached the islands the virus took over and the ship started setting up heavily defended enemy bases.

Your task, as the commander of the other carrier, is to set up your own bases, factories and supply networks. Having established a base from which to attack, you can then take on the enemy carrier in battle.

On booting up you have the option of starting a new game, immediately entering battle or loading a previously saved position. I found starting a new game a bit slow and tedious – you have just arrived at the archipelago and your initial task is to take over all the unoccupied islands.

On these you can set up your factories, supply bases, stores, defence installations and so on. Having built up a safe base, you can proceed to engage the enemy on its islands and bases.

The battle option throws you straight in at this point in the game, and I found this much the better option. All your bases have been set up for you, you are fully armed, anchored just off an enemy island, and standing by ready to launch your attack.

There is a bewildering array of controls and functions and it's quite easy to get lost at first. Be prepared to familiarise yourself with them.

The display is taken up by a large

Chance to be hero!

Product: Ikari Warriors
Price: £19.95
Supplier: Elite, Eastern Avenue, Lichfield, Staffordshire WS13 6RX.
Tel: 0543 414188

SOMEWHERE in central America the US Forces HQ has been overrun by revolutionaries and General Bonn taken prisoner. An all out assault would attract adverse publicity, so you have volunteered for a rescue mission. The chances of returning alive are small – I should know, I've just spent the past week playing the game.

If you pause for a moment after loading, you will be treated to a guided tour of the first stage of your mission. Employing a smooth, vertically scrolling action, you are shown the terrain, location of the major gun emplacements, and bridges.

After selecting the one or two player option you are launched into the game. Your bid to free the general may have begun as a secret, but an unfortunate, though spectacular, crash landing in the jungle soon alerts the enemy to your presence.

Travelling "light" you carry the bare minimum of weaponry – one machine gun with 100 rounds of ammunition and 50 grenades. Control is via the joystick, while pressing the spacebar toggles between the two modes of machine gun operation – either you fire North all the time, or in the direction you are running.

Holding down the fire button throws a grenade. These beauties are capable of destroying bunkers, gun emplacements and enemy tanks. When attacking large targets such as these, you are advised to use hit and run tactics. The ammunition they contain will explode, destroying everything in the vicinity.

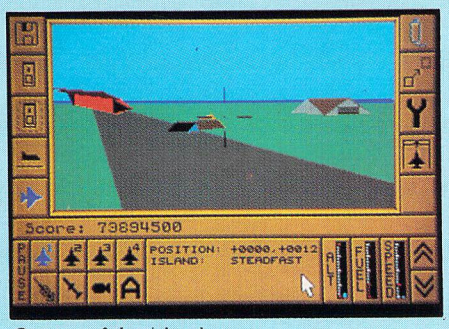
My initial assaults on the big guns tended to be messy – I was losing a warrior at every attempt. Fortunately, it wasn't long before I noticed they were only firing in three directions. By standing in the safe zone between the trajectories, I could pick them off at my leisure.

Blasting the guns not only provides

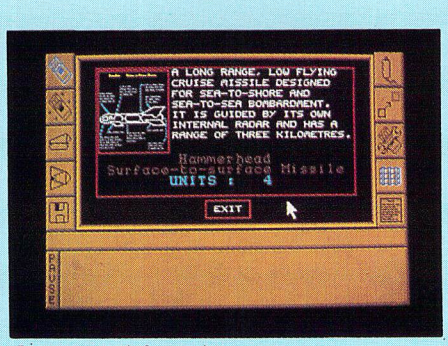
bonus points, but also unearths special tokens in the smouldering rubble. Each is embossed with an icon that hints at its effect – the gun and the grenade replenish your ammunition, the letter F arms you with a flame thrower.

The enemy troops come in several varieties. Standard infantry are dressed in blue and provide no real threat unless present in large numbers. Next come the officers, dressed in red. They appear much less frequently, and drop a token when shot.

The third type are the bazooka men.



On one of the islands



A weapons information screen

window in the centre of the screen surrounded by icons – which change according to the controls selected.

The action is shown in the window using a solid 3D drawing technique, similar in many ways to Flight Simulator II, although I thought it was updated slightly more frequently, giving a smoother appearance when moving.

A map of the area can be called up, and a destination selected. This can be programmed into the ship's automatic pilot, and off it will go under its own steam.

It will always take the shortest route, so it's often necessary to pilot it yourself round a nearby island as the water is shallow and there's a risk of running aground.

This won't do any harm – the engines automatically select full reverse power and pull you back out of danger – but it does confuse the autopilot.

Having reached an island, the four aircraft and four amphibious tanks carried on board can be sent out to investigate. They can be armed, fuelled and loaded with a variety of devices. I found the best technique was to stand offshore and use the ship's powerful laser cannon to soften up the enemy before sending in the valuable tanks and planes. A zoom lens on the laser enables you to spot buildings from half a mile away – and blast them to bits too.

The planes can dispatch any airborne defences and the tanks can be sent to wipe out any remaining ground installations. Once this is done an automatic control centre builder can be dropped on the island. This will then set to work building up a base – you can select the type from defence, resource or factory.

Each plane and tank can either be set on autopilot by selecting a map reference to go to, or it can be driven or flown manually, just like a flight simulator. You'll need to use both techniques – manual for combat, autopilot for trundling back and forth to the carrier.

The only disappointment in the game is the sound. Although there's a superb sound track to accompany the title page, the effects in the game are few and far between. It's difficult to get across the full scale of this complex game in such a short review. The 3D graphics are amazing, and the action brilliantly executed. Combine this with the complex strategy element, and you've got a real winner.

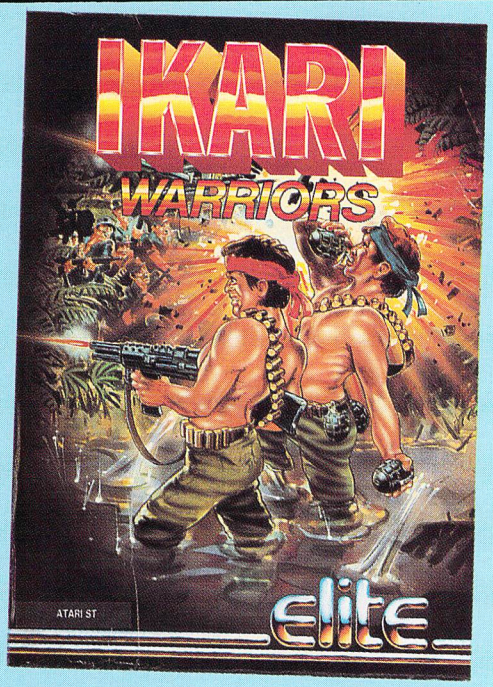
Ann Lightfoot

Sound	*6*
Graphics	*10*
Playability	*10*
Value for money	*10*
Overall	*10*

SECOND sight

Forget the strategy game option, which is deadly boring and jump straight into the battle. The 3D graphics in simulator mode are excellent, and I loved watching the planes come up from below deck on the lift, take off and fly into the distance. Then you can take over control, dive bomb and straff the enemy on the island – brilliant!

Roland Waddilove



Normally present in groups of two or three, their weapons have a similar range to the infantry's, but the shells explode as they land, providing extra devastation.

As an expert in the art of survival, your training enables you to take advantage of every opportunity. You can assume the role of tank commander and climb aboard an abandoned tank. Access to the vehicle is achieved by standing on it and holding down the fire button.

Driving it is great fun – you are impervious to machine gun fire, and can rumble over platoons of men without batting an eyelid.

Unfortunately you are still vulnerable to grenades, shells from enemy tanks, and mines. Should you suffer a direct hit, the tank will begin to bleep and flash. You are advised to get out as soon as this happens otherwise it will explode with you inside.

Landmines are used strategically throughout the game. Normally invisible, they will appear as you approach; get closer still and they will begin to bleep. They are impossible to detonate with a bullet or grenade and are often used to force you to abandon your tank and continue on foot.

The terrain you negotiate includes jungle, open plains and swamps. Although the flooded areas are linked by wooden bridges, you are free to wade waist deep through the water. The only disadvantage is that you travel a little slower.

If you're the type of guy (or gal) who thrives on danger, surmounts insurmountable odds, and eats three Shredded Wheat for breakfast, this is for you. Ikari Warriors has just ousted Star Wars from the top slot of my personal Adrenalin Pumpers Top 10.

Jon Revis

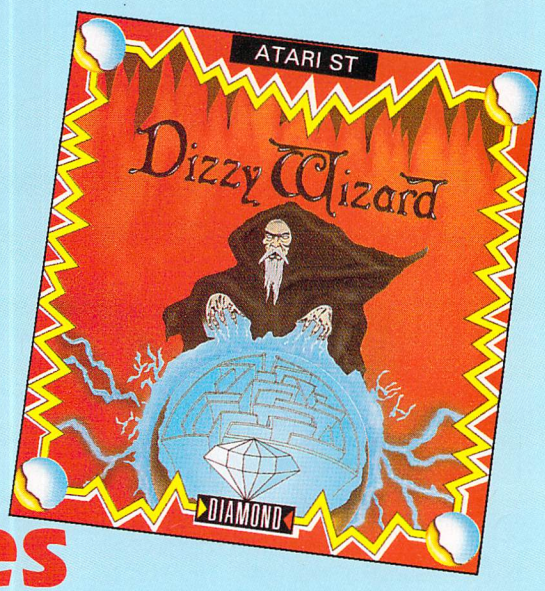
Sound	*8*
Graphics	*9*
Playability	*9*
Value for money	*9*
Overall	*9*

SECOND sight

Ikari Warriors is a great game in which you take on the role of a Rambo type character. Armed to the teeth, you storm through the jungle dispatching countless enemy soldiers, taking over their tanks and destroying their gun emplacements. It's fun, addictive and strongly recommended.

Andy Richards

Don't lose your marbles



Product: Dizzy Wizard
Price: £19.95
Supplier: Robtek, Unit 4, Isleworth Business Complex, St John's Road, Isleworth, Middlesex.
Tel: 01-847 4457

YOU need a steady hand and a cool head to manoeuvre your way through Dizzy Wizard, the latest Tomy Software game on the Diamond label. It's soon apparent why the game requires a one Mb machine; the graphics are stunning, and the size of the game intimidating.

If you think this is just another Marble Madness clone, think again. There are some resemblances – your task is to steer a spinning top down a series of ramps, avoiding various nasties and fighting a time limit. However, it's more complex than that, if only because once you have reached the bottom you have to make your way back up to the top.

The 3D perspective backgrounds show giant constructions looking like Escher's famous optical illusions. The backgrounds scroll smoothly as you steer the spinning top along the ramps.

Up to three players can compete simultaneously, controlling different tops with separate controls. It's important not to fall behind. If you do, you'll lose points each time the leader passes off the screen ahead of you.

Bonuses can be picked up by running into dice, and question marks can also score you a bonus, but they can also lose you time or transport you to an unexpected part of the maze. If you're lucky, a mystery bonus will show you a map which will help you negotiate the maze.

To complete each level you have to find a ball of fire, pick it up, return to the start of the maze and light a torch. You can then leap a chasm to the next level. You must score 10,000 points per level – if you lose too many penalty points, you have to serve a period in the factory to earn them back.

This screen includes some brilliant animation of flowing water, rotating discs, rolling causeways and slippery slopes, which you must negotiate over and over again until your score is up to scratch.

It's not as easy as it looks, though with practice it becomes less challenging and a bit repetitive. The only other drawback is the infuriating protection system, consisting of an on-screen request to enter a symbol from a badly printed grid of numbers on a card.

Dizzy Wizard is impressive with some cute gimmicks, nice sampled jazz music and challenging gameplay. Check it out if your ST is big enough.

Chris Jenkins

Sound	***7***
Graphics	***9***
Playability	***8***
Value for money	***7***
Overall	***8***

SECOND sight

I found this very similar to Marble Madness, and if you've got that, you probably won't want this as well. It's a good game with good graphics and sound, but is spoilt by the fact that it won't run on a 520ST, which severely limits its appeal.

Andy Richards

Castle capers

Program: Dark Castle
Price: £24.95
Supplier: Mirrorsoft, Athene House, 66-73 Shoe Lane, London EC4P 4AB.
Tel: 01-377 4645

ALTHOUGH at heart Dark Castle is only another platforms and ladders variant, some of the ingredients in this three disc game help raise it above the mundane.

The introductory sequence is impressive – the title screen depicts a gloomy castle atop a hill while lightning flashes and thunder rolls. The options screen which follows shows yet another attractively drawn castle, beside which is the high score table displayed on a parchment scroll.

Below this are two rows of buttons, each representing an option. Before you select one of the three difficulty levels, call up the Help option. This provides a title screen followed by four illustrated screens of instructions, hints and scoring information.

It also has a surprise in store. A funny little gremlin toddles back and forth waving his long arms and making rude noises. He will be joined by another gremlin, and another, until there's a small mob of these creatures marching about making a din.

A demonstration option lets you watch the hero, an animated youth, do battle. It's worth watching to see some of the actions and timing required. There are a number to control – run left and right, climb up and down, execute a standing, running or downward jump, aim your throwing arm in a number of directions, hurl rocks, duck, pick up objects and fight.

The 14 screens are mainly of the platforms, ropes and ladders variety, all set in a castle interior. Among the hazards are rats, guards, bats, dragons, whip and rock-wielding henchmen, blazing eyes, mutants and gargoyles. Leaping on to

Return of Dexter

Program: Get Dexter 2
Price: £19.95
Supplier: Infogrames, Mitre House, Abbey Road, Enfield, Middlesex EN1 2RQ
Tel: 01-364 0123

DEXTER needs to get to Andines and he knows the only way is through the Swappis' secret passage. They are a suspicious bunch, so in order to use it Dexter has to gain their trust.

To do this they have set him three tests, the nature of which are to be read on boards in each of the three Swappi homes. The first is a sort of question of life, the universe and everything: What are our origins?

Off Dexter goes, pursued by his ever-faithful – Xunk, a one-legged hopping mouth. He may not win any prizes at Crufts, but he is indispensable, and a real character too. If a collection of animated pixels on a monitor screen can be called cute, then I confess, I found Xunk cute.

Apart from performing certain tasks, Xunk can offer clues too. Watching him can be very rewarding, revealing the whereabouts of regenerative power points, for instance. Xunk also chases Xunkettes, should he meet any. This may be irrelevant as far as completing the game is concerned, but still amusing.

Clues on the notice boards indicate that four statuettes should be in place on their respective columns in the temple. Dexter will find that only one is in place. He must hunt around the countryside, houses, depots and stores to find the other three and return them.

With all four statuettes replaced the altar slides apart and The Great Swappi Himself appears. Dexter must persuade the Great One to give him the Big Book about the origins of the Swappis, and then work out what to do with it. Dexter's trust rating then shoots up from 10 to 40 per cent, and he is a third of the way to Andines.

The second task involves working out the ingredients for a potion to cure sick Swappis. Dexter has to find the ingredients, make up the potion and work out what to do with it.

The third task has him tracking down an insane Ouak – a Swappi's pet dog – calming it down and enticing it back to its owners.

These tasks are tricky enough in themselves, but Dexter also has constant irritations and menaces to deal with along the way.

Pink bilbos, big teeth, rhinopigs, hydra and blue quistiti feature among the array of obscure creatures ranged against him.

All these sap Dexter's energy level, but the means of avoidance or retaliation are scattered about him. For instance, a sandwich can be picked up and thrown to distract some animals. Dynamite and smoke bombs have more obvious effects. If energy levels dwindle, most buildings have at least one power point at which he can fully recharge himself.

The graphics are bright, cheerful and well drawn and the animation is faultless. Sound effects are well utilised and with restraint. The introductory music is good.

Movement can controlled by mouse, joystick or keyboard. As Dexter's other actions have to be controlled from the keyboard, the movement commands must really come from joystick or mouse. You can use the keyboard exclusively at a pinch, but with around 10 commands available it will help if you're ambidextrous.

The last part of Dexter's quest has him in Andines negotiating robots and traps and striving to find his way to the final resting place of a great traveller. He came to die on the Swappi planet countless years ago and, having found him, Dexter must awaken him.

If successful, the spirit of the ancient traveller takes up residence in Dexter's body, endowing it with incredible powers – in readiness for Get Dexter 3 perhaps? I hope so.

All through Get Dexter I had the feeling that the French programmers had really taken a pride in their work. Attention to detail was apparent and a real sense of humour and charm ran throughout the game.

It is a delightful graphic arcade adventure. Obviously the puzzles aren't as cryptic as those in a pure adventure game, but are pitched at just the right level so most players will be able to enjoy it.

Niels Reynolds

Sound	8
Graphics	9
Playability	9
Value for money	8
Overall	8

SECOND sight

This is a superb follow-up to Get Dexter. It's packed full of puzzles and is great fun to play. I thought he graphics could have been better, and they seem to be a straight copy from the Amstrad CPC version of the game. Still, it's well worth playing, and I don't think you'll be disappointed.

Andy Richards

swinging ropes requires a sharp sense of timing and your aim will have to be good to keep the nasties at bay. My favourite is the hooded henchman who is contentedly whipping three chained prisoners until you turn up.

He'll turn his whip on you and the only way to render him unconscious while you get the keys he is guarding is to bash him with a weapon. Digitised sound effects enhance the fun. Bats and rats squeak while the hero lets out many a grunt and shout of despair or elation.

Animation of the hero and some of the opponents is quite good with some added touches – the hero staggers around when dazed, for example, and old whiplash Willie is quite a giggle to watch.

While the game may only be ringing a few changes on an old theme, it does so with a degree of panache that makes Dark Castle worth playing.

Bob Chappell

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

SECOND sight

I wasn't too keen on this arcade offering. It's an old fashioned ladders and levels, and fairly primitive too compared to others of this type now on the market. The graphics and animation didn't impress me at all; neither did the sound. I suggest you try it before you buy.

Andy Richards

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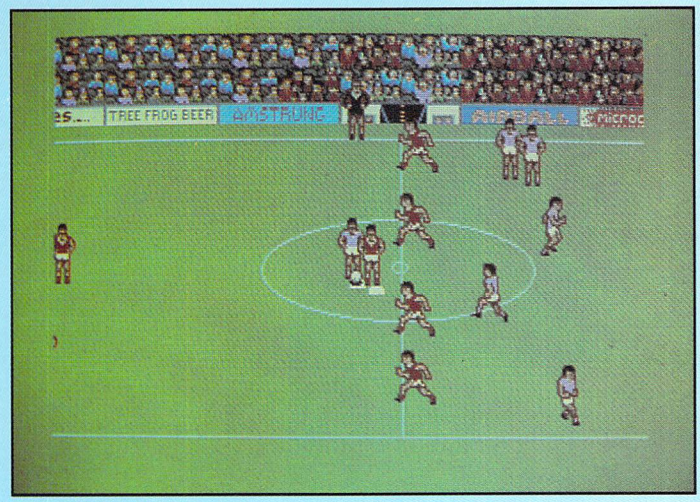
Two shots at goal

Product: Football Manager
Price: £19.95
Supplier: Addictive, Unit 1, Baird Road, Enfield, Middlesex EN1 1SJ.
Tel: 01-804 8100

Product: International Soccer
Price: £19.95
Supplier: Microdeal, 41 Truro Road, St Austell, Cornwall PL25 5JE.
Tel: 0726 68020



International Soccer

THE successful computerisation of football has been a long standing challenge for generations of programmers. Here two games tackle this problem from very different angles.

Football Manager is a game of strategy in which you attempt to take your team from the bottom of the Fourth Division, to the top of the First.

International Soccer attempts the rather more difficult task of simulating the game itself.

Managing a team is probably one of the most precarious jobs in the world. One minute the club committee is convinced you can walk on water, the next it

Football Manager game highlights

is stabbing you in the back. Addictive's Football Manager allows you to sample the thrills and spills without having to give up your day job.

Once the program has loaded you are required to make the only easy decision of the game – which team to manage. The 12 players that make up the squad are chosen at random by the computer. Each has individual skill and energy ratings. The former are fixed, but energy can be replenished by resting the player.

As well as the 19 league matches, you are also eligible for entry into the FA Cup. The forthcoming fixture, along with values for energy, morale, defence, midfield and attack are displayed for both teams.

After selecting the team, you sit back and watch edited highlights of the game. Miniature footballers run around goalmouths and fire shots at nimble goalkeepers. After this you will receive an update on who's on the transfer market. The player's name, position and value are displayed, and if he's suitable, make a bid.

As you gain promotion you will find everything is more expensive – wages, ground costs and transfer fees. If a player you want is too expensive you can always take out a bank loan, but you will have to repay it with interest.

I found Football Manager totally absorbing. Playing on the lowest of seven skill levels, I managed to gain promotion from the Fourth Division and won the FA Cup in the same year. A bid for the First Division championship could take several days.

If you fancy yourself as Brian Clough or Terry Venables, get yourself a copy of Addictive's Football Manager – it's better than the real thing!

International Soccer sets out to provide a football game as entertaining and skilful as the real thing and I am pleased to report that it comes close to achieving these goals. It's a game for one or two players. When choosing the computer as an opponent you are asked to select its skill level from nine available.

In practice I found little difference between them, and the ST beat me no matter which I chose. The best way to gain experience is to select the two player option and play alone.

You may specify the playing formation you want your team to adopt – out of four on offer. And as in real life, the weather can influence the game, so International Soccer can be played in either wet or dry conditions. Attempt a quick change of direction in the wet and you'll soon land on your posterior.

You control one player at a time, indicated by a white square beneath his feet. To switch control to another player, release the joystick and toggle through the footballers using the fire button. The rest of your team runs in a reasonably intelligent manner.

The kicking routine is particularly good. By holding down the fire button for increasing lengths of time, you can choose between a low drive, a chip and a long pass.

The only disappointing aspect of the game is the sound. A choice of four excellent background tunes is provided, but no sound effects. I would have much preferred kicks, crunching tackles and the roar of the crowd.

Whether you want to experience managerial stress, or fight it out on the pitch, these two programs constitute la crème de la crème on the ST.

Steve Brook

Football Manager

Sound	***5***
Graphics	***7***
Playability	***10***
Value for money	***10***
Overall	***9***

International Soccer

Sound	***4***
Graphics	***8***
Playability	***8***
Value for money	***8***
Overall	***8***

SECOND sight

These games are an absolute must for all football fans, and they are different enough to make it worth while getting both. You can have a go at managing in Addictive's offering, or get your knees dirty in Microdeal's simulation. I did find the ST a bit tough to beat – I'm sure it cheats.

Andy Richards

Adventurous indeed

Program: Beyond Zork
Price: £29.95
Supplier: Infocom, c/o Activision, 23 Pond Street, Hampstead, London NW3 2PN.
Tel: 01-431 1101

THIS latest adventure from the master Infocom, written by Brian Moriarty of Wishbringer and Trinity fame, has a number of features never seen in its products before.

First, there's a coloured title screen – nothing sensational, but a welcome addition. Then there's the layout – location descriptions and, when requested, inventory and status information appear in a titled frame in the top half of the screen while commands and responses are displayed in the lower half.

Just to the right of the framed text is a portion of a map. This is a superb innovation. While it doesn't do away with the need to draw your own, it is very handy being able to see the linkages between all locations in the immediate vicinity of your current position.

All the function keys control pre-set, commands. Text, frame and maps are coloured and there are several new commands.

But if there's one word that describes how good the new system is, it has to be flexibility. You can play around with these features, and set them up to your own taste by using special commands.

Define lets you change the settings of the function keys while Colour allows you a choice of colour schemes. Priority lets you decide what will appear in the frame at the top of the screen and you can revert to Infocom's traditional style of presentation using the Mode command.

You can view and change the various displays and priorities at any time using the Settings command. The map can be switched off and on and a zoom facility is available.

New to Infocom adventures are the assignment of attributes such as strength, intelligence, endurance and so on, which can be developed as you play, plus the introduction of combat.

You can play with a pre-defined character or generate a new one and assign attributes to your own requirements. These appear in bar chart form on-screen, and can be called up by the Status command.

Using Undo you can take back the last command (but not in combat, or if you're dead), and the game will continue as if you had never made that move – just the job if you've just opened a chest which exploded destroying all your possessions.

Beyond Zork is a swords and sorcery type of adventure concerned with your hunt for the fabled Coconut of Quendor during a time when evil stalks the earth. You'll encounter a host of bizarre monsters during your quest, and this means plenty of combat.

Combat in adventures is not something I have ever enjoyed – it interrupts the flow too much – so I did not welcome this particular development. However, I must say that Infocom has implemented it very stylishly.

The usual powerful parser, massive vocabulary, richness of prose and wit is still much in evidence and I liked the

It's a knockout

Program: Seconds Out
Price: £19.95
Supplier: Tynesoft, Unit 3, Addison Industrial Estate, Blaydon, Tyne & Wear, NE21 4TE.
Tel: 091-414 4611

THIS boxing game is novel in that your perspective is from behind the character you control. He's actually a wire frame model, and you see your opponent through him. The only solid parts are his head, gloves and the top of his shorts.

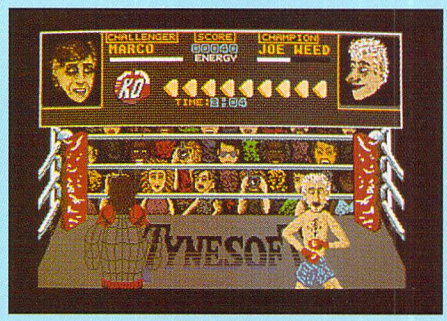
Such games usually have so many possible actions it takes a long time before control becomes instinctive. Not so with Seconds Out, partly because the action is only two dimensional.

Control is by joystick, and you move left and right across the canvas in front of a backdrop of eager punters. The graphics are good and the expressions on the faces of some boxers is quite hilarious.

You control challenger Marco and must take on five champions to win your way through to fame and fortune. First up is feeble Joe Weed, a very slow old man. Even on my very first attempt I managed to knock him out.

Next is Bonecrusher Jones who takes rather more putting down, followed by Mike "Hammerhead" Hagman. Hammerhead tends to put the nut on you – there's no ref in the game – and seems impervious to normal punches.

At the top of the screen is a status



gauge which shows both boxers' energy. A KO meter tells you when you have weakened your opponent sufficiently to try a right hook. If neither knocks the other out the computer makes a points decision.

At the end of each round you control the trainer. The faster you can make him rub Marco's shoulders and give him water and smelling salts the more energy you can restore.

As you progress through the champions, they acquire greater strength and resilience. A practice mode would have helped, but what miffed me more was the fact that when you get beaten you must start again with Joe Weed. It would be nice if you could pick your opponent.

There is no title music. The only sounds are the crowd cheering and a crack when a punch connects. The game has quite a humorous element and a few sampled groans and oofs would have gone down a treat.

In spite of a few quibbles Seconds Out is fun, although perhaps not quite a knock out as it could have been. Do take a look at it though, even if only for the shifty eyes of Bonecrusher Jones.

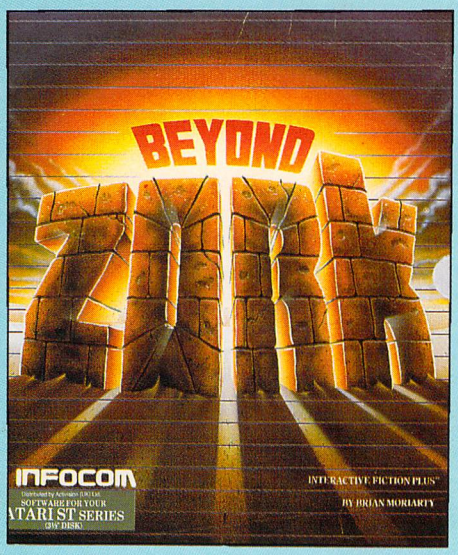
Ian Waugh

Sound	*4*
Graphics	*9*
Playability	*7*
Value for money	*6*
Overall	*7*

SECOND sight

Boxing simulations are quite rare beasts, so Seconds Out does have a fair bit of novelty value. Unfortunately, it couldn't hold my attention for long. If you like combat games and are looking for something a little different it is worth investigating.

Andy Richards



references to the original Zork trilogy. For instance, you'll meet an old salt early on and if you're a seasoned Zork adventurer, you'll greet him with "Hello, sailor!". Do so and he'll remember you from old times.

The Frobozz Magic Company and our old arch-enemies, the grues, also feature in Beyond Zork. Such nostalgic references make the playing additionally pleasurable for old Zork-timers like myself, but you don't need to have experienced the originals to enjoy this one.

The game environment is huge and while key locations are in fixed positions, locations linking them are randomly positioned each time you play. On the positive side, that adds to the unpredictability of the game, but on the negative side it makes map-making and object collecting a bit tough.

It's possible to trek a long way without coming to a halt, mainly because there doesn't seem to be many puzzles. But this is a big game and there may be a lot more testing brain-teasers further on. What will stop you in your tracks though, is the number and variety of monsters which must be overcome.

An accompanying booklet describes the assorted beasties and other lore and legends of Quendor, while a large colour map shows the main topography. A manual and reference card complete the expectedly well-presented documentation.

Beyond Zork is a superb game, breaking new ground for Infocom. The on-screen map and versatility of text display is a joy, and the challenge of character development adds a fresh dimension.

Infocom has done an excellent job at implementing combat and it will be welcomed by many players.

I am delighted to report that all these extras have not been at the expense of Infocom's famed prose, depth and atmosphere. Beyond Zork has to be a mandatory purchase. The price is not low, but the quality is tops.

Bob Chappell

Presentation	***10***
Atmosphere	***9***
Puzzlement	***8***
Value for money	***9***
Overall	***9***

SECOND sight

You can guarantee that any Infocom adventure will be a smash hit, even before it's released. This one represents a slight departure from the standard format, but is nevertheless, welcome. I enjoyed the change of style. Recommended for all true adventure addicts.

Andy Richards

Slap but no tickle

Program: Slap Fight
Price: £19.95
Supplier: Imagine, 6 Central Street, Manchester M2 5NS.
Tel: 061-832 6632

THERE have been several excellent vertically scrolling shoot-'em-ups for the ST already, but even so, Imagine still felt it worthwhile converting this coin-op to the ST to add to the number.

Slap Fight is basically the same as the others – you simply move around the screen, waiting for the next alien to scroll into sight from the top, and then blast it to pieces. Great fun.

The game adds a couple of novel twists – some of the aliens leave stars behind when they exploded.

If you collect them you gain extra features such as double speed, shields, sideways firing and so on. These come in handy in later stages when the going gets really tough.

The graphics are well-detailed, but somewhat uninspiring, and similar to other games of the genre. The instructions don't provide much information as to what the different objects are supposed to represent – you are simply told you are flying over the planet Orac, and must destroy the evil swarms coming towards you.

Crucial to a game of this nature is the quality of the scrolling graphics, and I can't fault Slap Fight here. What is less acceptable though, is the slow speed, which ruins the atmosphere.

On later stages this gives you more time to zap the aliens before they disappear, but it also means that in the early stages you can be twiddling your thumbs for longish periods just waiting for the next candidate to zap.

There should be a facility to go straight through once you have reached a set point. This would be very easy to organise by using a password entry scheme to the various sections. You have a choice of either a tune or sound effects during the game. The tune is OK, but nothing special, and the sound effects pretty ordinary.

Slap Fight is nothing new. It takes an old game concept, adds a few nice touches, but ruins it with poor sound, and needless, lengthy repeats. What could and should have been the vertical scroller to beat all vertical scrollers, sadly misses its mark.

David Lester

Sound	***3***
Graphics	***7***
Playability	***4***
Value for money	***5***
Overall	***5***

SECOND sight

This must be the year of the vertically scrolling game. Every other release seems to feature it, and it's getting a bit tiresome. I must admit though, it's quite well executed. The graphics are good, and the sound is OK. The only disappointment is that we've all seen the same format countless times before.

Andy Richards

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Product: Computer Scrabble De Luxe
Price: £19.95
Supplier: Virgin Games, 2-4 Vernon Yard, Portobello Road, London W11 2DX.
Tel: 01-727 8070

Exciting conversion

SCRABBLE, the computer game, has been around for many years – I've played it on three different machines. Thankfully Virgin is not a company to rest on its laurels, so the latest version makes full use of the increased processing power and memory capacity of the ST to make it the best to date.

The transition from board to screen is very rarely successful – the final product is usually little more than a gimmick. However, Scrabble is one which actually benefits from the conversion.

Scrabble Deluxe contains a dictionary of more than 23,000 words, held in ram and used for the program's own selections and to verify those entered by a player. The computer will challenge any word not found in the dictionary, but will concede to your better judgement if you maintain that the word is valid.

The board fills most of the screen and is beautifully created in pastel hues. To the right is a bank of miniature tile racks, with a large scale representation of the current player's rack at the bottom of the screen. Across the top of the screen are the pull-down menus through which the game features are accessed.

To begin a game you must first click on the File menu, which offers a choice of New game, Resume game, or Save game. Selecting New game prompts the computer to request the names of up to four players – computer opponents must be assigned a skill rating in the range one to eight; humans have to rely on their grey matter.

Skill levels one to four are limited to a subsection of the dictionary, whereas five to eight can use all two, three, and four letter words – some of which are very obscure.

A mouse controlled pointer is used to indicate the starting square for your word; the correct orientation is shown by clicking on either the Down or Across box. Assuming the computer doesn't challenge your word, the points for your turn are totalled and added to your score. Control then passes to the next player.

The Options menu is used to access the game options available in the board game, plus a few more that aren't. If you are staring at the rack of letters, desperately trying to visualise a feasible word, the Juggle option can be used to shuffle the letters around and maybe spark an idea.

Pass and Change tiles are identical to their board game counterparts. Hint is a new one – if you are willing to admit that you can't take on the computer without cheating, you can request this. Your ST will look in its dictionary and throw you the first word that fits and it will even show you where to put it.

Force provides a second way of cheating. By clicking this option you force the computer to play the word it is currently thinking of. If it hasn't thought of one, it will pass or change tiles.

The Display menu lets you determine how much information is to be shown on the screen. If just you and the ST are playing you may want to have your tiles on permanent display, thus giving you chance to think while it is making its own move.

When two or more human competitors are playing it is advisable to have the View racks option switched off as it is not unknown for a preceding player to block your next move rather than lay a higher scoring word. The on-screen clock is probably the most useful of the new features. No longer do you have to sit patiently while an opponent decides how best to lay his Qs and Zs. As soon as the clock reaches a pre-determined time limit the move is forfeit and the next person takes their turn.

Scrabble is the perfect game for those evenings when your starfighter has blown a turbo, or the dragon has eaten the princess. Just sit back, relax, and wrap your brain around a more intellectual challenge.

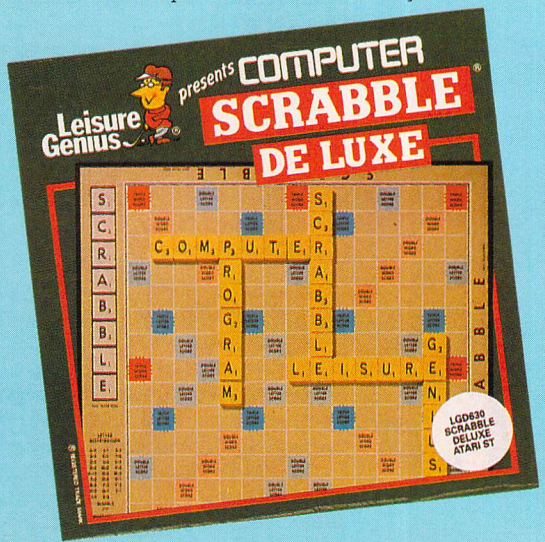
Jon Revis

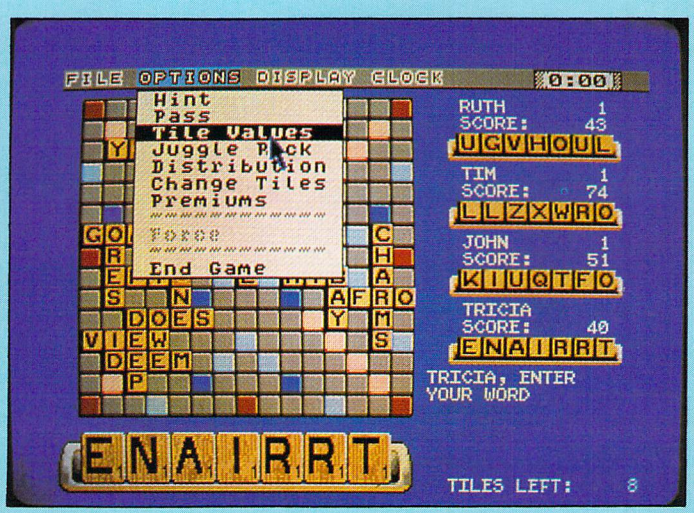
Sound	***1***
Graphics	***8***
Playability	***10***
Value for money	***8***
Overall	***8***

SECOND sight

I'm a great fan of the original, so I welcomed this computerised version. However, it still doesn't prevent those cries of "What, you can't have that – it's not a proper word!". It plays a mean game, and on several occasions I ran for my dictionary to check whether the ST was cheating. It wasn't.

Andy Richards





Achieving the impossible

Program: Return to Genesis
Price: £24.95
Supplier: Firebird, 64-76 New Oxford Street, London WC1A 1PS.
Tel: 01-240 8838

WHETHER or not you actually liked Microdeal's Goldrunner, there can be few who would dispute that in it Steve Bak created the fastest and smoothest vertically scrolling shoot-'em-up on the ST.

After going on to produce Jupiter Probe and Karate Kid 2, with Pete Lyons providing the graphics, the dynamic duo has taken time out to stretch the ST's capabilities yet again with Return to Genesis for Firebird.

Up until now it was said that the ST wasn't very good at horizontal scrolling because there wasn't the hardware support. But that man Bak has again come up with the goods and done what many would have said was impossible – Ultra fast, smooth horizontal scrolling.

The game's accompanying booklet reveals the scenario. The story starts in the middle of the Bacterial Revolution in the year 4600. Twelve top scientists were asked to volunteer for the Genesis Project.

This entailed cloning each one 50 times and setting them up on newly-constructed worlds in the Zephr region. The scientists soon made the breakthrough that saved mankind, and the discoveries continued for another 1600 years.

In the year 6204 came the Zephr invasion by the Mechanaughts. The defences were overwhelmed, the scientists were enslaved and forced to bolster the Mechanaughts' cause. This is where you come in. Piloting an assault ship, you search the the various worlds, picking up scientists and avoiding, or destroying, the defending Mechanaught ships.

The screen is split with the top half taken up by a control panel showing your score and lives remaining. The bottom half is where the action takes place, with the view being from above.

The foreground scrolls horizontally in either direction incredibly quickly and smoothly, and gaps in it reveal a detailed background underneath. The effect is stunning.

The first world is a pretty bleak place, consisting of grey metallic pipes, blocks, panels and generators. It gets much brighter further on with glowing cherry red worlds, and one which is quite memorable as it is so revolting.

At the bottom of the screen is a thin strip making up a scanner showing the foreground scenery and the obstructions on it, and the positions of the scientists and Mechanaughts. The aliens appear off screen and rapidly head towards you. By the time you've noticed them on the scanner they are likely to be on screen and firing.

The scenery is not flat, so you have to fly round certain objects. Fly into something at full speed and you don't explode, but rebound and fly backwards at a terrific rate – usually into the alien that was chasing you.

I particularly liked the tunnels. Some of the scenery is hollow, enabling you to fly inside it. On one of the levels it is necessary to fly through one of two parallel long coils, and if you get an alien behind you it's panic stations. Halfway down is your one chance to shake the pursuer, because there's a gap leading into the other coil.

In your defence you have the ubiquitous laser. This isn't much help if you're surrounded by aliens taking pot shots, but help isn't far away. Each scientist has his or her own field of interest, and may have a completed project that can be incorporated into your ship.

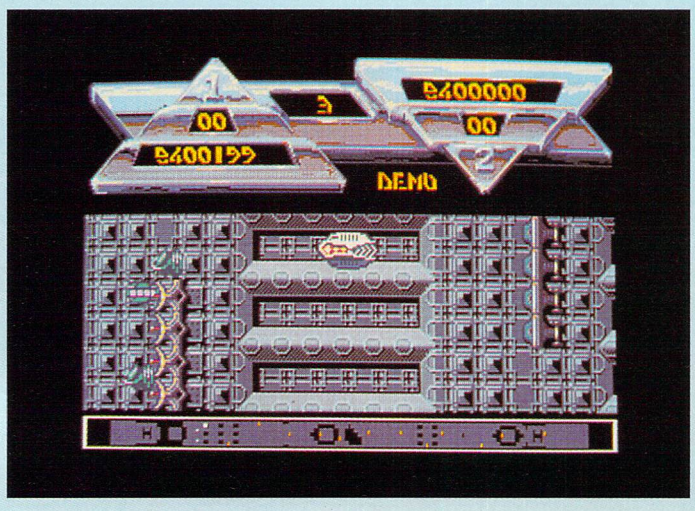
The instructions list each scientist and his speciality, and details the type of bolt-on extra you can hope to receive. Alas, on the first world it appears that only one scientist, Elderet, has a finished project you can use.

Jab the Help key and the faces of the scientists you've picked up appear. Select one, and if a completed project is available it will be used: Elderet's adds triple laser fire. The next objective is to pick up someone who will fit your ship with a shield.

While your adventures on the Zephyr worlds take place a typically energetic musical soundtrack hammers along, interspersed with zapping noises and explosions, and the odd sampled phrase.

Technically, Return to Genesis is stunning, but it is very difficult. For those who can think and react fast enough it represents one of the finest arcade blasts yet to grace an ST.

Mark Luckham



Sound	***9***
Graphics	***8***
Playability	***8***
Value for money	***7***
Overall	***8***

SECOND sight

Just as Goldrunner is the ultimate vertically scrolling shoot-'em-up, setting the standard which no one has yet matched, Return to Genesis is set to become the standard for horizontally scrolling games. It is technically brilliant, though some found it too difficult to play. It's frustrating, but fun.

Andy Richards

Starquake

Screenshots from Atari ST version

The best-selling Starquake, created by Steve Crow and Bubble Bus, is at long last available for the Atari ST and Amstrad PC – and it's been well worth the wait!

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Look at the ratings Starquake has received:

Crash: *Smash (96%)*
Zzap 64: *Sizzler (93%)*
Amtix: *Accolade (91%)*
C&VG: *Game of the Month*
Commodore User: *Screen Star*
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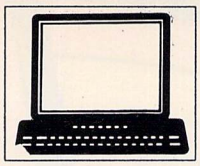

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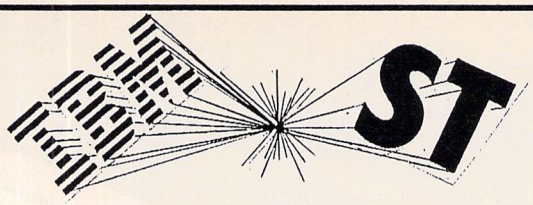

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Program: Predator
Price: £19.99
Supplier: Activision, 23 Pond Street, Hampstead, London NW3 2PN.
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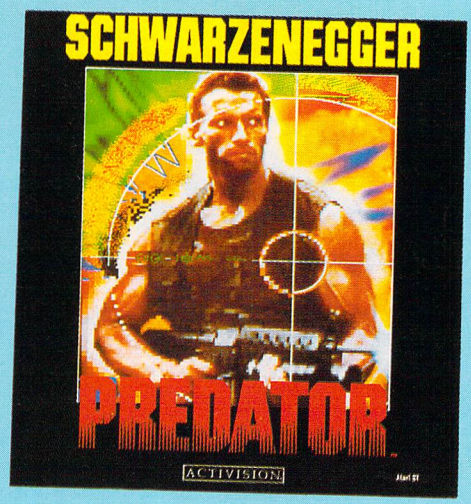

THE peace of the jungle is disturbed by the drone of an approaching helicopter. Hovering above the ground it disgorges six commandos who disappear into the bush. Bringing up the rear you follow them in as the chopper lifts away.

You soon find the wreckage of the senators' missing helicopter which you have been sent to find – but no sign of the eminent politicians themselves. Enemy guerillas have also found the wreckage, and some of your comrades too.

A sniper hiding in the crashed chopper is quickly despatched with a short blast of your sub machine gun, but you then come under attack by swooping vultures. They inflict serious damage to your energy levels and must be shot if you are to survive.

The ordeal of vultures over, you come across the remains of their last meal – one of your former team mates, lying in a pool of blood. Ammunition is now low, but you are gratified to find your comrade's gun still has a full magazine.

Suddenly the screen turns blue, a sinister hum pervades the air and you get the feeling you're being watched. An alien creature has fallen to Earth and has picked you out as its next victim. Tracking you through the jungle, it will kill you with two laser bolts if you hang around long enough to be caught in its sights.

Continuing with your mission you come under constant attack from enemy guerillas, rushing-straight at you, popping out of concealed foxholes, firing from sandbagged gun emplacements, or from the cover of buildings.

You have the option of hurling grenades as well as shooting, but keep an eye on ammo levels. If your ammunition is depleted you are able to defend hand-to-hand, but unless you can get a strike in straight away you're done for.

You start part two of this escapade with whatever ammunition you had left over from part one. The game continues with more attacks to deal with and weapons to collect as you run out of ammo in nail biting situations.

The graphics in Predator don't stretch the ST. Walking behind tree stumps or weapons can give the impression that they are floating in mid air. Solid sandbagged walls can be walked through and the overall quality of the background illustration lacks the atmosphere which the game demands.

Predator has a lot going for it. Reflexes must be sharp, the feeling of tension builds as you progress through the jungle and the action is fast and furious.

Niels Reynolds

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

SECOND sight

This is very similar to Ikari Warriors. The difference is that here the scenery scrolls sideways, whereas Ikari scolls vertically. It's basically a Rambo type game in which you cut, hack and blast your way though the jungle. It's good, but I think I prefer Ikari.

Andy Richards

Stylish conversion

Product: Captain Blood
Price: £19.95
Supplier: Infogrames, Mitre House, Abbey Road, Enfield, Middlesex EN1 2RQ.
Tel: 01-364 0123

TWO months back, in the April 1988 issue of *Atari ST User* we reviewed the spectacular French epic Captain Blood.

The English conversion has just arrived and there are quite a few (minor, but important) changes and enhancements to the game which make it even better.

The first change you'll notice is the title screen, which is quite different, and I prefer it. When the game starts a terrifying creature reminiscent of the one in the film Alien slides down the ramp on the right of the screen. You've just given birth!

Unlike the original, not all planets have defence systems, which makes flying to the rendezvous point with the alien much simpler, even boring.

Down on the first planet – you always start in orbit above an inhabited world – the alien is different, and is quite keen to be teleported aboard your ship. Communicating with him is much easier as the icons used by the upcom module are in English.

Selecting your destination from the galactic chart is now achieved by dragging a horizontal and vertical line so that they intersect at your intended target.

The amazing graphic display on entering hyperspace is now accompanied by the throbbing sound of your ship's engines. While on the subject of sound, I should also mention that the French digitised speech is now in English.

The documentation is also in English, and I discovered several new features which had previously gone unnoticed, partly because of my poor knowledge of French.

What I had previously considered to be a bug – Blood's violently shaking hand – is actually a feature: He is degenerating and must replenish his vital fluids by disintegrating his clones in the Ark's fridgitorium.

Captain Blood was a brilliant game in its original French form. The English conversion has been significantly improved, and is now even better.

Roland Waddilove

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

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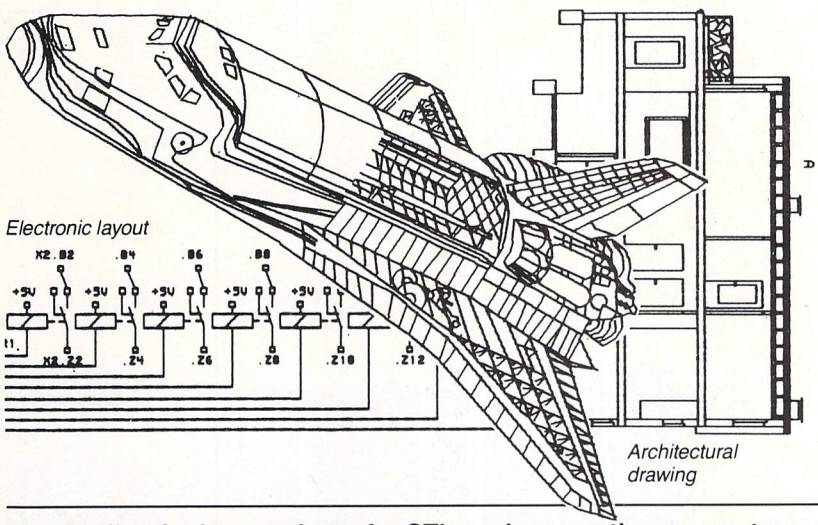

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How a modem gets its seal of approval

It used to be a combination of the labours of Hercules and Waiting for Godot. Today it still takes plenty of puff and patience, but at least things are getting better. What are we talking about? Bringing a new modem to market. Here TONY LEAH describes what is involved in putting a modem on to your local micro dealer's shelf.

GETTING a modem through the British Approvals Board for Telecommunications used to be a tortuous process. It could – and in many cases did – take anything up to 12 months to obtain the right to put BABT's green sticker on a comms device. Since September last year, however, things have changed for the better.

To solve the problem of ever-lengthening queues of applications at the Board's Walton on Thames headquarters a pilot scheme has started which transfers some of the work to three independent laboratories accredited by BABT.

The new MicroLink modem could have gone to any of them for testing, but it was decided – for reasons of convenience as much as anything – to send it to Kingston Telecommunications Laboratories at Hull.

The procedures announced last year to speed up the BABT approval process enable KTL to arrange approval testing directly with the manufacturer. In addition KTL can discuss a new device with the manufacturer while it is under development, eliminating much time-wasting in technological blind alleys.

When the manufacturer is ready, he submits detailed technical information about the product to the laboratory. This includes the full technical description, circuit diagrams, parts lists and user guides.

"We go through that documentation thoroughly and work out what tests are required and to what standards", said KTL's laboratory manager Stephen Denison. "Only then can we write our test and assessment schedule".

Having written the test schedule, KTL sends the manufacturer its quotation for the work that has to be carried out and, if accepted, makes arrangements for the job to begin. "We're usually able to start within a fortnight of receipt of the order", said Denison. Normally the manufacturer is asked to supply at least two samples of his device along with associated spare components – "just in case".

Another time-saver under the new system is that once the project begins KTL sends off a duplicate set of all information supplied by the manufacturer, plus a copy of the test and assessment schedule, to BABT.

Testing is mainly a mixture of two things – safety and network compatibility. The first is to ensure that the device protects the user from voltages likely to arrive on the network and the network is protected from the device. The second involves measurement of impedence, dialling characteristics, signal power levels and so forth.

"The manufacturer can witness the tests – in fact we encourage him because it is beneficial to both parties", said Denison. "For instance, he can save a lot of time by helping configure equipment for testing, particularly where transmission speeds are concerned. We're quite happy to have his representatives looking over our shoulders, and in keeping with our policy of complete confidentiality we have six separate testing rooms so visiting engineers can't see another firm's equipment".

During testing KTL keeps a close liaison with BABT, whose engineers visit the laboratory at least once a fortnight to check on the progress of all the equipment undergoing examination. If a device hits a failure the lab wastes no time informing the manufacturer and mutually agreeing a formula for modification, and re-testing if necessary. This can be an important factor due to the knock-on effect of component failure. For instance, if a device fails an impedence test the problem could affect signal power levels.

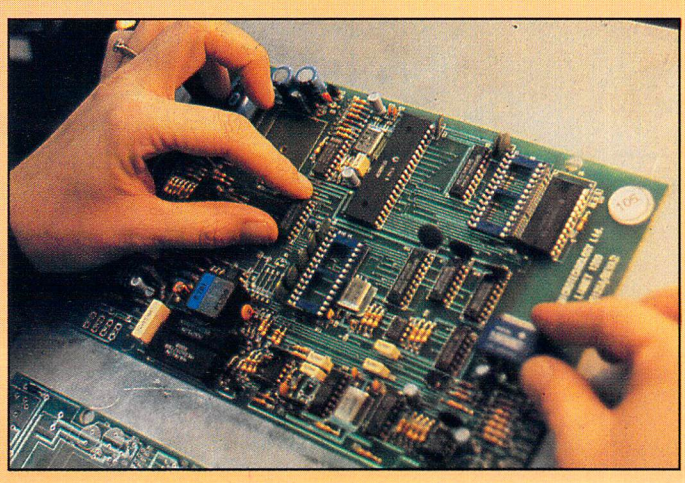
A major task is to check that the manual supplied with the modem contains ALL the statements necessary to meet BABT and Oftel standards. Failure to "get the words right" is as common a reason for rejection as bad wiring according to Stephen Denison.

Another key area the lab looks at is labelling of the device, but that concerns only the "back and underneath" of the equipment – all those little labels that start off with "warning" or "caution" – but not the business end the user sees when operating the device.

Odd though it may seem to comms users like myself, the lab doesn't concern itself with whether, for example, the modem connect button actually connects the modem if you push it. Or whether the line hold light works or is merely decorative.

"It has been decided by the powers that be that the user and market forces control the quality of data transfer", explained Stephen Denison. "We don't check if the modem transfers data to other equipment correctly – it isn't our job. Correct interfacing with the telephone network is what we're paid to ensure".

When the test and assessment schedule is completed, KTL makes out a full report describing everything that has happened since the device came through



its front door. This is no light task. The average report is more than half an inch thick, weighing nearly as much as the modem itself.

The report includes a full analysis of all the test results – and even colour pictures of the modem's insides for BABT records to make sure it continues to be made the same way as the original version.

Depending on the type of modem, the test alone can cost up to £2,500, But the manufacturer at least knows that the toughest part of the approvals process should now be over.

Contrary to popular opinion, BABT is not a quasi autonomous bureaucracy armed with a big stick to bash innocent modem manufacturers. Assistant director Barry Cartman was at pains to point out: "We're no quango – we're a private limited company set up to operate on a commercial basis and given responsibility by the government to ascertain whether communications devices meet the standards of the 1984 Telecommunications Act.

"The main concern is to decide if the device is safe for the user and the network and, particularly in the case of slower modems, this also means safe for connection to the mains – all of which is in everyone's interests.

"Dialling and answering capabilities and functions are checked out to ensure they won't interfere with other network users.

"Assuming that one of the three independent laboratories has handled the test and assessment procedures, BABT comes into the picture in three ways.

"First we have to exercise our professional judgement and decide if the test data is satisfactory – the lab does not have this authority – so that the approvals process can go forward. Then we have to check out the manufacturing facilities for the device and, finally, we have an ongoing responsibility to ensure that approved standards are maintained".

To do all this, BABT – set up in January 1983 – maintains a permanent staff of 20 professional engineers plus an equal number of support staff at its headquarters in suburban Walton on Thames.

Perhaps surprisingly, the engineers at BABT don't usually see the modems they are dealing with. Documentation from the manufacturer and the test lab is what's important.

"But let me make it clear that this is far from being a mere paper-shuffling exercise", Barry Cartman insisted. "When the test data report and product information is allocated to an engineer he goes through it with a toothcomb from start to finish and back again.

"In addition to checking that the test data is fine, we also inspect the production facilities to see that they are capable of producing a modem to the required standards".

At the end of the day if the factory arrangements are satisfactory and BABT feels it has an approvable modem on its hands it issues a recommendation to Oftel and the manufacturer is free to market the device. The legal approval document is issued by Oftel, usually within weeks.

However, BABT's interest doesn't stop there. The manufacturer will have paid between £1,000 to £1,800 to BABT in addition to the hefty sum he has also paid the testing laboratory. And he has to continue paying an ongoing annual licence fee – 20 per cent of the original BABT charge for approval – for as long as he wants to go on selling the product. This annual fee covers any modifications and changes to the device and a once-yearly check on the factory. Inspections of overseas manufacturing facilities naturally incur an extra charge.

The purpose of this ongoing interest by BABT is to make sure that manufacturers continue to supply products that are made to the original approved standards. As a further check BABT also procures random samples from various sources to check against the original. Remember those colour photos?

The coveted seal of approval

In the extreme BABT can terminate approval of a device if the manufacturer ceases to meet the requirements laid down. "We can call back all the units he's made and force him to issue a public warning notice", said Cartman. "We've never had to do it yet, but the authority exists".

The picture is of a shortening approvals time-span. Although the majority of devices being processed today have been carried over from last year, there is nothing like the overload of pre-September.

"The theory is that now, under the new system, it's possible for modems to go through the approvals process in six to eight weeks", said Barry Cartman. "However that hasn't happened yet and our current record is nine weeks' from start to finish".

Making the MicroLink multi-speed modem: The task involves more than 200 components requiring 600 soldered joints – every one of them inspected at least once. The device is built around the new K222 V21/22 chip from the US which is much more reliable and easier to interface than the old 7910 V21/V23 chip. Only after two full-function tests – interposed by a 24-hour soak test to burn in the components – is the MicroLink modem ready for the customer.

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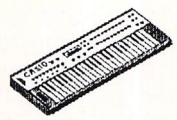

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Good, but limited view

Under the microscope comes the Ruby-View viewdata comms pack. David Atherton gets on line and gives it a thorough workout

RUBY-VIEW is a viewdata only communications software package for the ST from veteran communications software house Y2 Computing. It was originally written for the Commodore Amiga, and Y2 has now produced a version for the Atari.

The first and most important thing to note about this software is that it is viewdata-only. So it isn't suitable for scrolling services such as MicroLink/Telecom Gold, or most bulletin boards. However, Y2 is working on a program called RubyTerm which will link with this program sharing a common dialling directory.

The program works with most popular modems, including Hayes, Dacom standard (as used in modems supplied free to schools), autodialling but otherwise dumb modems, and plain manual modems.

You set up a configuration file once and for all on your backup disc and the manual clearly explains what to do. Ruby-View performs speed conversion to the ST modem port for 1200/75 baud modems, and if you are using 1200/75 with a speed buffered modem such as a Pace Linnet or MicroLink multispeed then this can be catered for in the configuration file.

Directory entry

The directory entry system allows you to specify a list of systems to call. The name and number of the service are accompanied by logon strings and passwords.

If you have an autodial modem, a single mouse click will log you on to a service. Manual modem owners are given a message to dial the number and then connect their modem. The directory is of course, saved to your program disc.

To use the program you open an online window, which takes you through the logon steps and then displays the initial viewdata page. From then on, you select pages in the normal way using the numeric keypad for most functions.

The Enter key returns a hash to make life easier. Surprisingly the hash key on the ST, which unlike most computers does not require a Shift key, cannot be used, neither can the main keypad Return. Prestel of course, also allows you to select pages by name, and for this, normal alpha keys are used.

An excellent feature is that you can move round a viewdatabase by moving the pointer – which is active at all times – to a number on screen and clicking, and this is equivalent to pressing that number.

Even more exciting, if two numbers are together – many menus offer double-digit options – the click is equivalent to both. As startup is also mouse-driven, this allows you to go through an entire viewdata session without once touching the keyboard.

Character set emulation

Viewdata character set emulations are always an important point and the Ruby-View emulation is good, with characters in the correct proportion, and all colour selected correctly. Separated graphics are ever so slightly thinner than those produced by hardware viewdata screen chips, but on the other hand the double-height characters are particularly good.

Ruby-View supports telesoftware downloading which is sent to a disc file. The format supported is one shortly to be used by Prestel for 16 bit software, but no material is available yet, and I was not able to try out this feature. The program will not download software for other micros in the standard CET format.

While on line you can save frames to disc, or print them out. Also saved frames can be printed out later – a better option in view of the time it takes.

The print options allow either full graphics dumps or text only, where graphic characters are replaced with asterisks. Output will work with any Epson-compatible printer, or in the case of the text dump, any Ascii printer.

Ruby-View allows offline mailbox preparation in a straightforward manner. A separate edit window can capture live frames, or be used to prepare them from scratch.

Y2 has particularly catered for viewdata editor, people who edit their own sections on viewdatabases, by providing a full frame editor with proper insertion and deletion, and even a pixel paint option where painting can be done with the mouse.

High-speed uploads

The terminal supports all speeds up to 9600 baud, making it ideal for high-speed uploading. The editing facilities are of course available to mailbox users, making the sending of graphics frames very easy.

The 27 page manual is, I'm sad to say, not very helpful to beginners. Experienced viewdata users should be able to work out how to use all the features after two or three readings.

There is no "Your first session" section, merely a straight list of what each menu item does, and an implicit assumption that users know what frame, mailbox, systel, mosaic and other such terms mean.

Overall, the package is a good viewdata terminal. For beginners I have reservations about the manual, but otherwise this software will do everything you want in viewdata.

At £49.95 it's not cheap, especially when compared to Fastcom which offers a scrolling terminal as well. Nevertheless, experienced viewdata users should consider this one carefully.

FACT FILE

Product: Ruby-View
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Supplier: Y2 Computing, 111 St. Albans Road, Watford, Herts WD1 1RD.
Tel: 0923 50161

POINTS FOR:
Supports most modems; good character set emulation; caters for 9600 baud rate.

AGAINST:
Viewdata only; little help for beginners.

Get ahead with your drawing

Rita Plukss shows you how easy it is to draw the human head – by following her simple beginners' guidelines

LET's take a step further on the road to acquiring the techniques artists use when creating such masterpieces as those shown in the Gallery section of *Atari ST User*.

Last month we looked at different ways of drawing the human body. Now we'll concentrate on the head. The art package I use is Degas Elite, but don't worry if you haven't got it, as the techniques work equally well with NeoChrome, Art Studio and the rest.

Before we start drawing I should stress that you should not expect too much. Don't expect to get it right the first time, or even the third, but keep trying and eventually you will produce good work.

It is very difficult for a beginner to draw acceptable faces. It takes artists a long time studying the skull and general anatomy to achieve the harmony, form and structure that you see in their finished works.

Once you feel comfortable with the standard, basic drawing technique then you can start attempting to draw heads from different angles. First get the feel of where things ought to be, and then concentrate on detail and experimentation.

Most people are unable to construct a well proportioned face because they violate the equilateral law of facial feature arrangement. Individual features may be well drawn, but if they are not in the right place the whole thing will look wrong.

When you look directly at a face an equilateral triangle outlines its two main features. Draw a line from one outer eye socket to the other outer eye socket, then to the middle of the base of the bottom lip, and then back up to the starting point. If everything is positioned correctly you will find that all three lines are of equal length.

The most common mistakes people make when drawing faces are eyes that are too close together and or the wrong size, noses that are too long or too short, mouths that are too far removed from the eyes and chins that are too big or too sharp.

By using the equilateral triangle to test your arrangement of the eyes and mouth you have less chance of placing them in the wrong position.

If these two features are right then you can either adjust the others, or at times even get away with incorrect treatment of the less important features.

The human head, like the human body, has a basic structure. In this article I will concentrate on what I find is the easiest method of drawing a face.

Apart from the egg shape and basic circle that we will be using as guides, there are many other structures including double circles, squares and so on.

If further instruction is required I would suggest you have a look in your local library for "How to draw" books or anatomy books for the artist.

As you practice drawing, think about what you are doing, especially when drawing the framework. When this is correct you will be off to a good start.

If you can find a bald person, grab him. Have a good look at how the head, neck, shoulders and back are connected and how the lines flow into each other. Just concentrate on the basic head shape, forgetting about the features.

If you are not lucky enough to find a cooperative baldy, study drawings and keep checking that your proportions are correct, or at least sympathetic to each other. In the same way that the understructure of the human body must be correct, so must the understructure of the head be right.

The egghead method

The method we shall use to draw our human head is the egghead method shown in Figure I. (I have used the female head instead of the male as it seems to be more popular. It doesn't really matter which you learn from, as the structure can be used for both.)

Using your art package draw an ellipse in the shape of an egg – use the circle mode to create the ellipse. Make the height about twice the width.

Divide the egg equally both horizontally and vertically. Mark off the horizontal line in fourths and the bottom half of the vertical line in fifths as shown in Figure I.

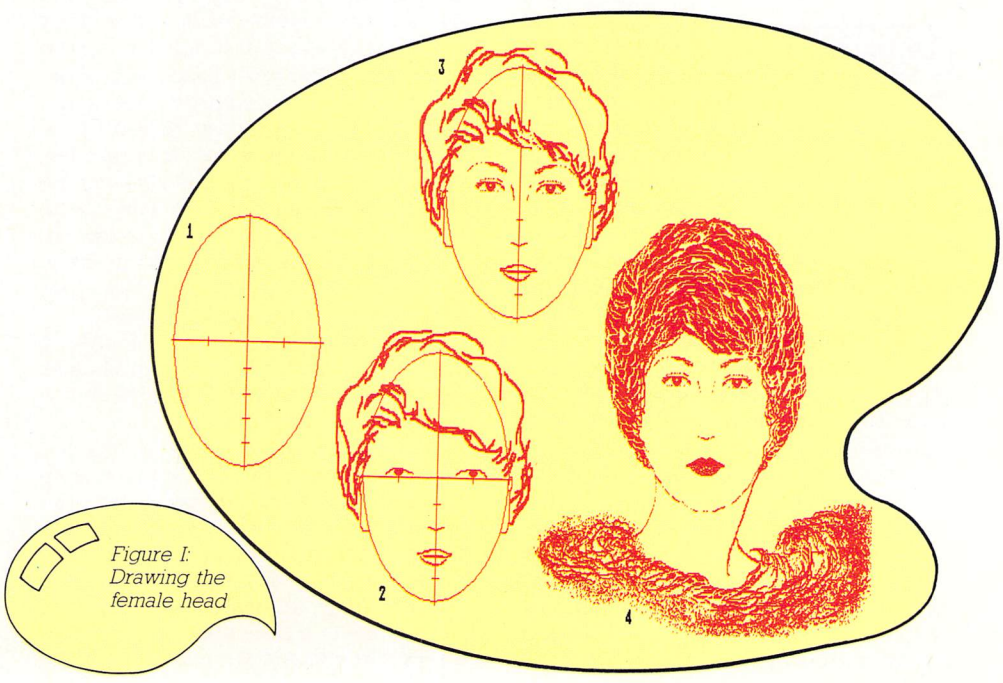

Figure I: Drawing the female head

If you want to be more precise you may divide the egg vertically into fifths, as the average head is approximately five eyes wide and you can then use this as a further guide for the size of the various features.

The eyes would then go into positions two and four. The width of the nose is the same as the eye and would go in position three. Because of simplicity I will continue using fourths.

Place the eyeballs above the two marks on the horizontal line. Mark in the nose line – nostrils – on the second mark down on the vertical line and the mouth line on the second mark up from the bottom on the vertical line. Sketch in the upper eyelid lines and the outer lip lines, which are approximately one and a half to two eyes long.

An eye for detail

The width of the average female mouth is half an eye, the distance from the top of the mouth to the nose is another half an eye. The width of the top lip is usually about one third the depth of the mouth, but this will vary.

Draw the ears. The tops start level with the eyes and finish near the nose line. The size and shapes of ears also vary.

Draw in the outline for the hair. Sketch in the crevices for the top eyelids over the eyes and the suggestion for the lower lids. The inside corners of the eyes will be on the horizontal line while the outside corners may be on it or above it.

Add a couple of eyelashes to the top eyelids, and smooth out the eyes to a more circular shape and add the pupils. It would probably be easier if you did this using the magnify mode.

Draw in the eyebrows about half an eye's distance from the eye. Add the bridge line of the nose. Colour in the hair and the lips. Clean up the nostril area – all you need is a slight V shape to suggest the shadow under the nose.

Erase your guidelines, and draw in the chin, neck and shoulder lines. Look at your drawing and adjust anything that doesn't look right, paying particular attention to the chin, neck and shoulders.

Congratulations, you have now drawn a face in just a few easy steps. Every one you draw will look slightly different so don't stop with one. Carefully draw a dozen or more until they begin to look right.

After a while you will find you no longer need to carefully mark off and measure each step of the way, but you will be able to visualise the understructure as you draw.

I find it easier when I work never to start on an individual feature and carry it to completion, but to think of the head as a whole unit.

I indicate feature placements and then go back and forth several times from one feature to another. This prevents me from losing the concept of the whole at the expense of the individual features.

Feature	Eye width
Height of eye	0.5
Gap between eyes	1
Width of nose (nostril area)	1
Length of nose	1.5
Length of mouth	1.5 to 2
Bottom of mouth to chin	1
Top of outside nostril to mid eye	1
Bottom of nose to bottom of lips	1
Bottom of eye to top of eyebrow	1
Width of lips	0.5

The ratios of the size of facial features compared to the eye

If you find it difficult to get both eyes matching try drawing just one eye and eyebrow and do a block copy. Then flip this to get an exactly reversed duplicate for the other one.

Carefully place it in position. Make a few minor changes, because both sides of the face are never identical. Don't rely on this method, but it could save you frustration in your early attempts.

When you have a drawing you are happy with and have made your final save – you should be saving your work on a regular basis, especially before any major or difficult changes – start manipulating it by stretching, flipping and distorting.

Try doing a block copy of one half of the face, flip it and paste it to the original half. Compare the subtle differences between the original face and what you have now. Then take the other half of the face and do the same thing.

Subtle differences are interesting and can be put to use in a composition involving faces. This is the technique I used in the monochrome screen Twofaces – shown below – which is based on the demonstration exercise for this article.

After studying and practising the female head you can use the same approach in drawing the male head. This reveals more of the bone structure, and thus is more angular. The eyebrows are straighter, heavier and lower placed, the lip line is thinner and wider.

The jaw is heavier and more strongly defined and the cheekbones are more stressed. The neck is also thicker. Figure III shows a typical male face. I used a circle structure for this, but only to demonstrate another method for drawing the basic head shape.

Look at the steps involved and draw it for yourself. The basic oval is approximately one and a half by one and the width of the eye is one fifth of the width of the face. Use the width of the eye as the unit of measurement for size and position of the other facial features.

● *Next month we'll move on to discuss more different drawing techniques using our STs.*

Figure II: The finished picture

Figure III: Drawing the male head

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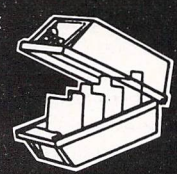

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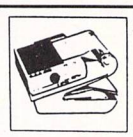

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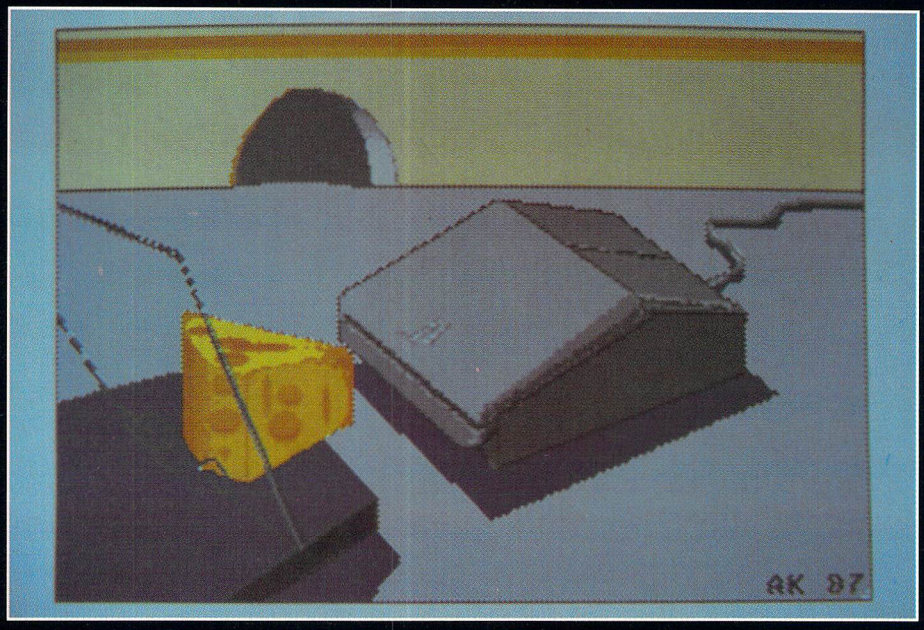
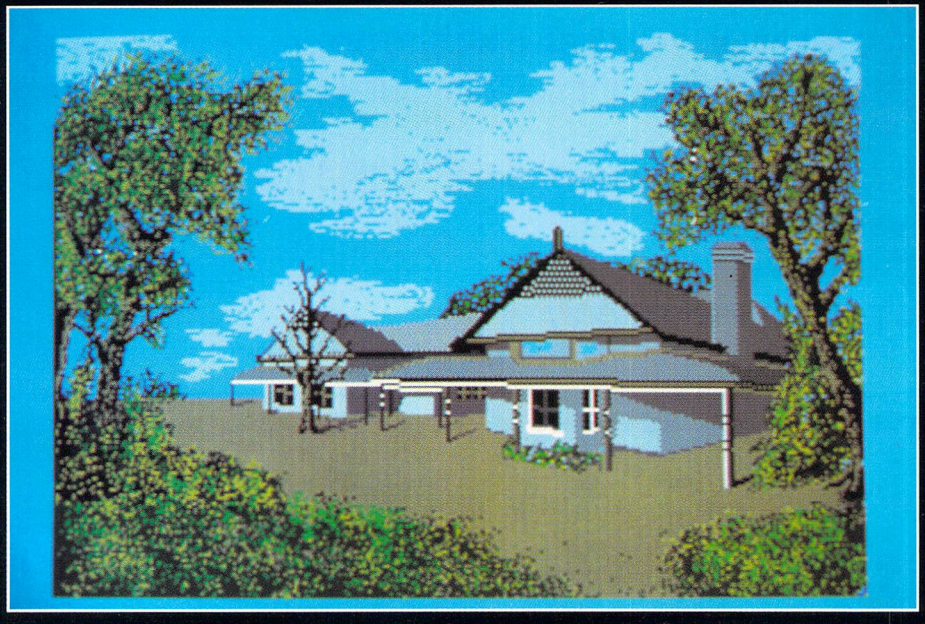
Gallery is an opportunity for anyone with the slightest artistic bent to demonstrate not only their own ability, but also the superb graphic capability of the Atari ST.

If you have a work of art you would like to see exhibited on our world wide stage, why not send it to Gallery. Remember though, anything you submit must be your own work, you must own the copyright and you must provide us with written permission to publish it.

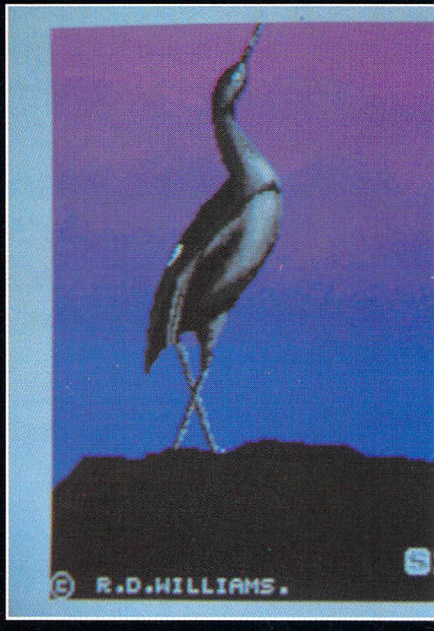


ST mouse — *Alistair Kerr*

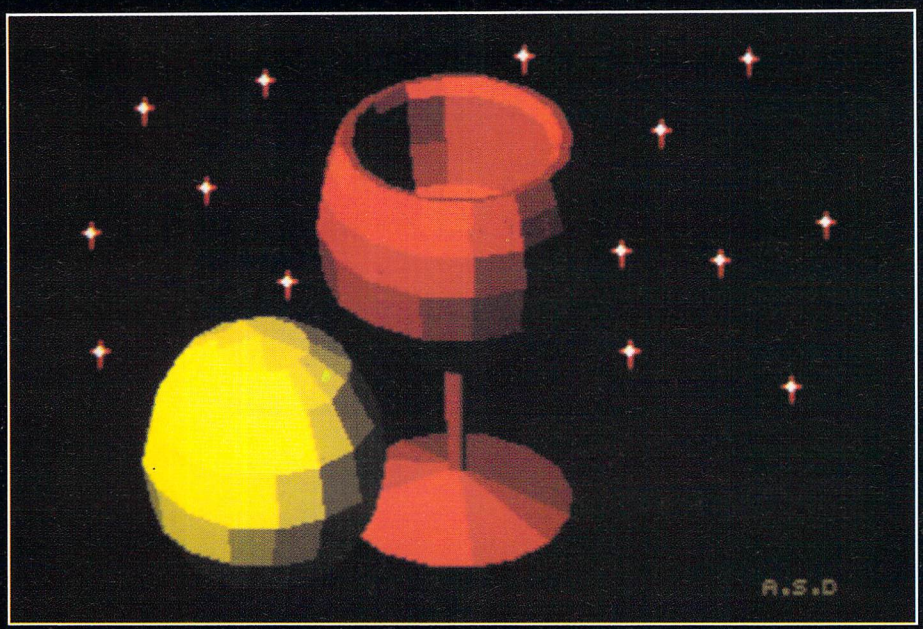
GALLERY



Australian lowlands — *Peter Honey*



Steel bird



Still life — *Alex Dewdrey*

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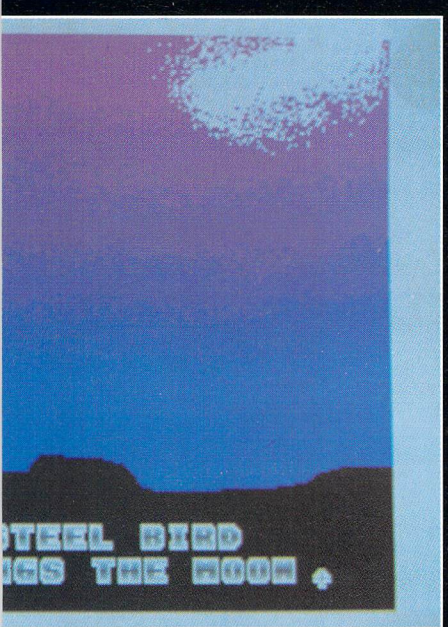

Richard Williams

Leopards basking in the sun — *John Thornton*

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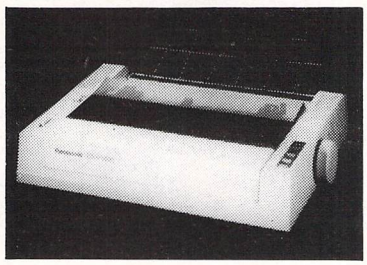

This 120cps draft/30cps NLQ little beast is a surprising winner. It continues to sell very well, no doubt helped by the fact that everybody (led by us!) discounts it so massively! But it has excellent 9-pin quality, is Epson and IBM compatible, comes with a tractor feed, is 80 columns wide and amazingly cheap! Has helped to up Panasonics' U.K. market share greatly!
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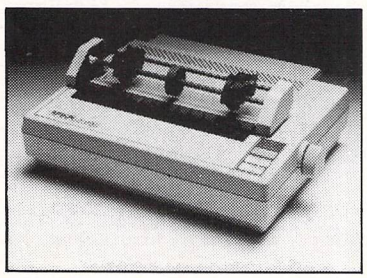

Although previous LX series printers were considered under-specified compared to the NL10 and others and tended to sell more on name than on spec, the range continues to be the best seller ever, and the LX-800 not only outsells everything in sight but offers a specification that is better than most competitors at this price. This latest offering zips along at 150cps draft and 25cps NLQ and comes with Parallel Esc-P or IBM Parallel interfaces as standard, plus a top-mounted tractor feed. Good, clear typeface, 80 column wide.
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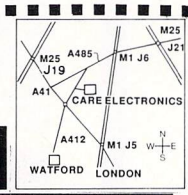

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Structured programming workout

Modula 2 and Pascal are compared and contrasted by Stephen Hill. Which of them comes out on top?

THE C programming language has rapidly established itself as the standard development system for the Atari ST. Some people love C, but others find its programs hard to read, and even worse to debug. This month I shall be comparing two possible alternatives, Prospero's Pascal, and HiSoft's FTL Modula-2.

Pascal was originally designed in the early seventies as a teaching medium, to train programmers to adopt a structured approach to programming. Over the years it has been extended considerably to enable it to cope with the sort of practical problems found in the real world.

Modula-2 uses most of the ideas inherent in Pascal, but takes them a stage further. At first glance it often appears almost identical to its older cousin, which is hardly surprising considering that the same man, Niklaus Wirth, was largely responsible for both.

The main difference between the two concerns the use of modules. Standard Pascal has no built-in facilities for splitting a large program into several separately compilable chunks, although many of the latest versions, such as Turbo Pascal, do incorporate some such capability at the expense of portability.

The use of these modules is fundamental to Modula-2, and is a standard part of the language. Modula-2 also supports a powerful form of multi-tasking, which makes this language particularly well suited to systems programming applications such as operating system design.

Pascal

I'll start with an examination of Prospero's new Gem-based Pascal compiler. It comes on two single sided discs, along with all the bundled software enclosed with their Fortran compiler I reviewed in the February 1988 issue of *Atari ST User*.

As so much of the underlying structure of this package is indistinguishable from that found in Prospero Fortran, I'll concentrate on the aspects of the system especially relevant to Pascal programmers.

The cornerstone of both Prospero languages is the Gem Workbench, which combines the functions of a Gem-based editor with those of a shell program like Metacomco's Menu+.

The Pascal version is almost identical to that used by Fortran. The only differences are an extra item on the link menu, and a new set of compiler options.

I loved this programming environment from the first, and the fact that I was able to use it straight from the box over four months later says a great deal for its user-friendly interface.

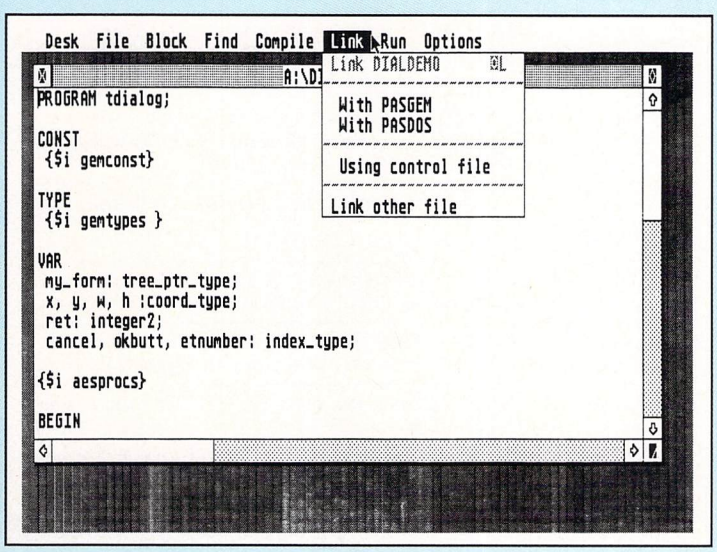
One aspect of particular importance to Pascal programmers is an automatic indentation facility. This enables you to produce beautifully laid out programs without having continually to enter long strings of spaces.

Having attempted this feat many years ago at college, I was relieved to find Prospero Pascal supported just this feature.

Prospero provides you with several optional extensions which correct a number of minor flaws in the current Pascal standard.

These include an OTHERWISE clause for the CASE statement, hexadecimal constants, and an effective form of segmentation vaguely similar to that built into Modula-2.

As with Fortran, all these facilities can be turned off using one of the many compiler options from the menu. This allows you to create programs which can then be readily transported to another machine.



Linking a Pascal file

Compatability

My own experiments with the compiler, using Pascal-7 programs written on a large mainframe, augured well for its compatibility with other systems. Not only did it compile and run my routines without any problems, but it also caught a number of logic errors due to typing mistakes.

Before you can run the programs generated, you first need to link them with the supplied library routines. Since most are exactly the same as those found in Fortran, it would be fairly easy in practice to combine programs written in these two languages.

Unlike Hisoft's Modula-2, this compiler uses the common GST linker format, which therefore makes it theoretically possible to incorporate previously compiled routines written in a variety of other programming languages.

This is a serious consideration for anyone thinking of changing from another language such as C, as it avoids the necessity of converting any of your favourite C routines into Pascal in order to use them from within your new programs.

Two libraries of procedures are included on the distribution disc. Probably the most important is the Gem library, which contains all the functions you need to utilise the amazing power of the Gem environment from Pascal programs.

There's also a special Gemdos library

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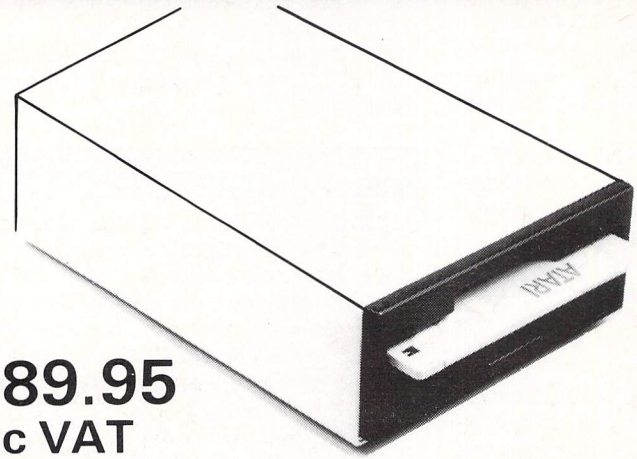

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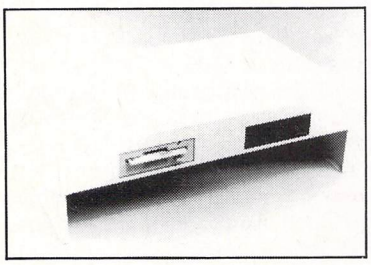

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◀ *From Page 73*

which gives you access to the ST's many operating system features. Commands exist to enable you to use any of the Gemdos, Bios or XBios routines in your programs.

Furthermore, a number of extra options are available. To my mind, the most interesting was MakeFQlist, which took a standard directory specification and produced a list of all the files found in this directory.

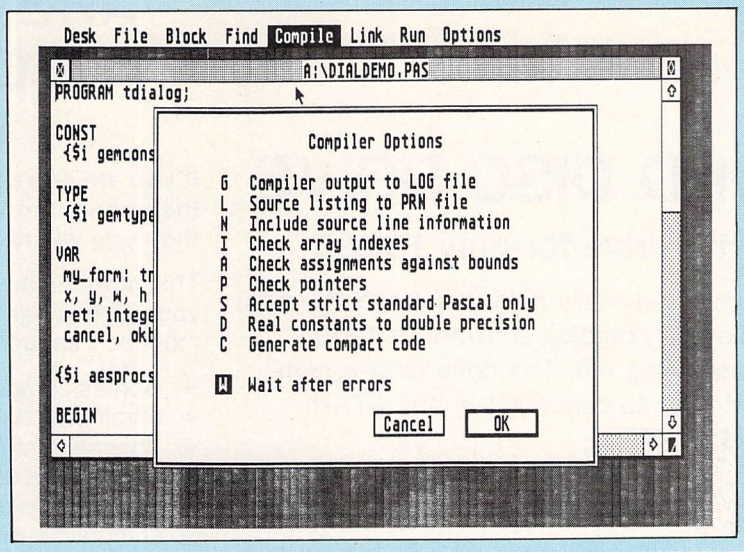
Since the directory name could include either of the wildcards ? or *, this meant you could perform some quite complicated file searches with this procedure.

I'm happy to say that Prospero has provided the excellent Probe debugging program from its Fortran with this system. This makes debugging even the largest Pascal programs relatively straightforward, and is a real bonus for ST programmers.

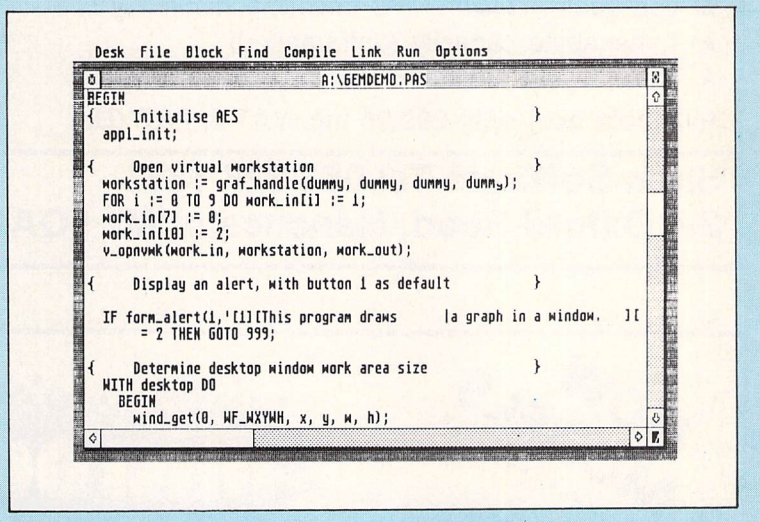
The quality of the documentation supplied with the package was consistent with the extremely high standard established by Fortran.

There were, as before, a number of minor inconsistencies between the example programs mentioned in the text and those on the discs. Even the READ.ME file appeared to be slightly inaccurrate in this respect.

For Gem programmers, Prospero has converted the separate VDI and AES manuals from Fortran. These books are the best introduction to Gem programming I've seen in any language, and can be highly recommended.



Prospero Pascal's compiler options



Editing a Pascal file

Modula-2

I'll now have a look at HiSoft's FTL Modula-2, which is packaged on three single-sided discs containing programs, utilities and compiler libraries. The first thing you need to do before installing the system on your ST is to look up the appropriate section of the user guide.

This gives detailed, step-by-step instructions, telling you precisely how to set things up on anything from a Mega-ST with a hard disc, to an unexpanded STFM. I found this information extremely helpful, and even relatively inexperienced ST users should be able to get their system up and running within about half an hour.

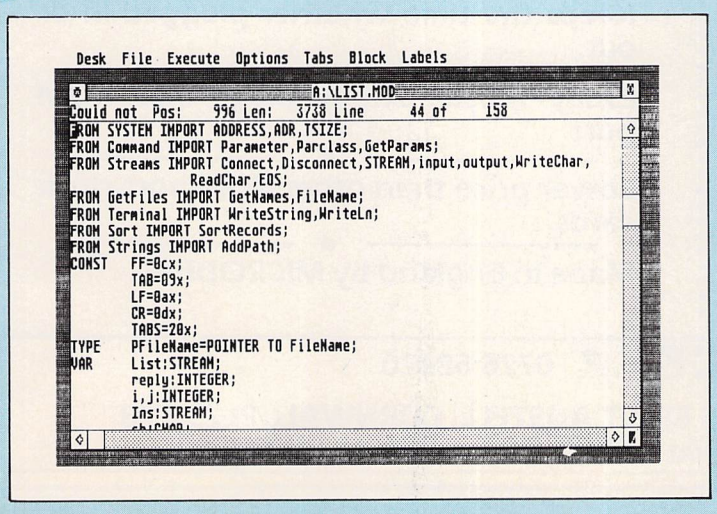
In order to make it as easy as possible to access the various parts of this package directly from the desktop, HiSoft has created a small program called ADDINF. This uses the install application feature from Gem, to enable you to edit, or link, a file with the appropriate extension, simply by double clicking on it.

The editor supplied, is itself written in Modula-2, and HiSoft will happily provide the source code to registered users for an additional charge. In many respects it's a very good advertisement for the language, being fast, efficient, and packed with features.

Alongside the more normal options such as cut and paste, HiSoft has included a number of useful extras. My favourite is the macro facility, which enables you to assign any sequence of keystrokes or mouse movements to an arbitrary string. This list is then executed faithfully any time you type in your new command from the keyboard.

Several sets of macros come ready to use on one of the discs, and you can easily modify them to customise the editor to your own needs.

My only real gripe with this editor concerned the search and replace commands, which were only available from



The Modula-2 editor

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◀ *From Page 75*

the keyboard, and not from one of the menus.

This problem was exacerbated by a mistake in the default keystroke assignments, which prevented the search/replace function, as outlined in the documentation, from working properly.

The solution was to load a copy of the default assignment file found in one of the libraries, and correct the problem by hand. After this had been done, the search/replace routine performed as expected.

Another irritating flaw concerned the block copy facility, which seemed to be unable to move any text between two currently open files.

Like Prospero, HiSoft has placed its editor at the centre of the program development cycle. Most components of the system can be called up and executed at any time directly from the one of the menus.

One major difference with Prospero's workbench was that such programs stay resident in the ST's memory after they have been used. This means that once you have loaded them you can access them again and again practically instantaneously.

Although this works fine if your ST has a lot of memory, there doesn't appear to be enough space on a standard 520 to load both compiler and linker simultaneously. You therefore have to exit to the desktop, and call the linker manually in this situation.

This is less of an inconvenience as it might at first seem because, providing the linker is on the same disc as the compiled version of your routine, double clicking on this file will immediately convert your program into executable form.

Hisoft appears to have taken great pains to accelerate the process of program development as much as possible. To that end, it has come up with a number of strategies to minimise disc access during compilation.

Test	Pascal		Modula-2	
	Time	Size	Time	Size
Intmath	0.114	19k	0.052	16k
Realmath	0.40	20k	1.47	22k
Trilog	6.33	19k	22.3	31k
Textscrn	45.88	20k	32.11	16k

Bechmark results for Pascal and Modula-2

The most important improvement in speed is that all programs are compiled directly from the source text held in the editor's memory. The main disadvantage with this approach is that in the event of something going wrong with the compiler, you can lose any changes made during the editing session.

HiSoft has, however, anticipated this problem, and allows you to use a special safe mode which automatically saves your source text before you compile your program. This is very fortunate, because a number of small bugs have yet to be eliminated from the compiler, and these can occasionally cause the ST to crash.

As a finishing touch, HiSoft has optimised the compiler itself. This has reduced the turn around time for your programs still further.

Typical timings for compiling a program approximately 200 lines long range from 10 to 25 seconds depending on the options used and whether the compiler was already resident in memory. It is a major achievement by HiSoft to have produced a compiler capable of performing this quickly.

Support for Gem is provided by a number of library modules. They use the standard names for the many Gem functions rather than the expanded monstrosities used by TDI's version of the language – reviewed in the May 1987 issue of *Atari ST User*.

Although this makes it much easier to translate Gem programs written in other languages, it also leads to incompatibilities between the HiSoft and TDI versions of Modula-2.

In contrast to Prospero Pascal, all these routines are stored as part of the main system library, so you don't need to give special instructions to the linker before they can be accessed.

Furthermore, a special option has been built into the linker to enable you to produce desktop accessories in the correct format. An example accessory is available in one of the source libraries to get you started.

HiSoft has thoughtfully included a number of utility programs with this package. They comprise a 400/800k disc formatter, a batcher program, a reset proof ram disc and a menu creator.

Although the quality of most of these programs is no higher than their equivalents in the public domain, many people will find them extremely valuable, and it's a very nice gesture on HiSoft's part.

Another useful extra was the inclusion of a small 68000 assembler. HiSoft specifically makes no assurances as to its reliability and, as you might expect, recommends using its excellent Devpac ST for serious 68000 development work.

The HiSoft documentation is split into two volumes, one a general Modula-2 reference manual giving a basic description of the specification of the language as implemented by the compiler. This section is the same for a number of versions of this program running on various machines.

It's fairly well constructed and reasonably helpful, but unfortunately it lacks any decent form of index. There is however, a really useful appendix, which explains the numerous differences between Modula-2 and Pascal. This would be of great assistance to any experienced Pascal programmers wishing to learn this language.

The second part of the manual is specific to the ST. It is written in the light and slightly jokey style we have come to expect from HiSoft these days.

Although there is an index, it appears to have been put in as an afterthought, and isn't really much use. I'm fairly certain all the information you need is in there somewhere, but it isn't always easy to find.

Overall the documentation is much

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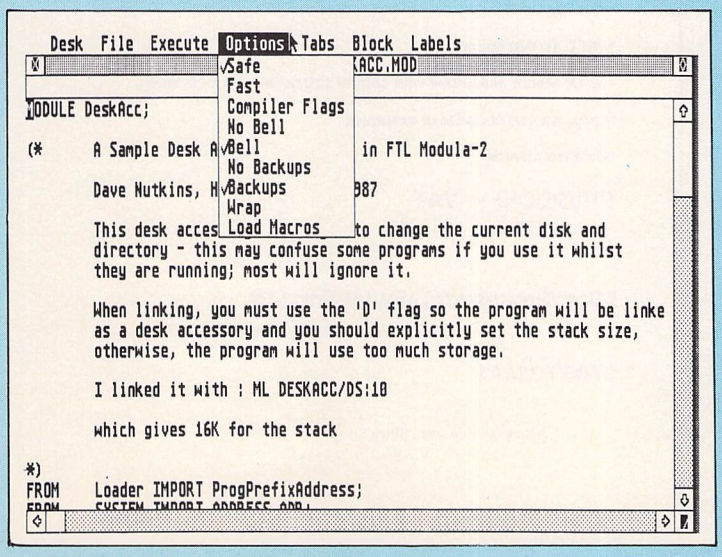

Modula-2's option menu

◀ *From Page 77*

better than average, but fails to achieve the same high standards established by Prospero, especially in the sections concerning Gem.

Conclusions

Both Prospero Pascal and FTL Modula-2 compare well with any of the currently available C compilers when considered as possible ST development systems.

HiSoft's Modula-2 does score over Prospero's compiler in terms of speed, but Prospero Pascal incorporates an excellent debugging aid in Probe, and provides much better support for routines written in other programming languages like C. Furthermore, Pascal also appears to be slightly more reliable than its younger counterpart.

It's also important to note that, as yet, only the ST versions of Modula-2 allow you to use Gem. This means you would be unable to convert Gem-based Modula-2 programs written on the ST to another machine.

Since an almost identical copy of Prospero Pascal already exists with these facilities for PC compatibles, this is hardly likely to be a problem for Pascal users.

Unfortunately neither of these packages currently supplies a resource construction set, which is a real pity, as such a utility is practically essential for any extensive Gem programming.

Another thing to consider is FTL Modula-2's current limitation of 64k of code for each separately compiled module. This is unlikely to be a problem for most users though, as the only real limit to the number of modules you can include in your programs is the ST's available memory.

The choice between these packages largely depends on your personal opinion on the relative merits of Pascal and Modula-2. Although they may on the surface look similar, they are in fact very different languages.

For me, Pascal seems considerably easier to use, but slightly less powerful than Modula-2. In many respects, it all comes down to a question of personal taste.

What I can say is that if you wish to write serious programs on the ST, but don't feel comfortable using C, either of these systems could well be the one for you.

FACT FILE

Product: FTL Modula-2
Price: £69.95
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Tel: 0525 718181

POINTS FOR:
Fast and flexible; lots of extras.

AGAINST:
One or two minor bugs in the editor.

FACT FILE

Product: Pascal
Price: £99.95
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Excellent documentation; good debugger.

AGAINST:
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C your discs with all the FAT facts

Phil Stubbington presents a very handy utility to graphically display the complete contents of your discs

MAPPER is a powerful Gem application that performs many handy disc functions. For instance, it will graphically display a disc, marking those parts that are allocated to the system, those used by you or free for use, and any unusable sections.

It also shows any files you have recently deleted – though it isn't capable of recovering them – and fragmentation.

The utility makes extensive use of the file allocation table, or FAT, stored on the disc. This very important chunk of data provides Gemdos with vital information about a file.

It is a coded table which contains one entry for every cluster – two disc sectors – a file uses. Each entry can indicate the cluster is bad – that is, there is a fault on the disc at that point – free, used, or is the last one used by a file.

The way the FAT is encoded is quite complicated and a little confusing at first sight. Numbers on the ST are normally stored high byte first, then low – it's the way the 68000 processor works.

However, Gemdos is designed to be fairly compatible with MSdos, the operating system used on the IBM PC and clones, and on the PC numbers are usually stored low byte first, then high.

This means that any numbers in the FAT and the directory, will appear to be back to front to the ST programmer. So if we have a value of $0200 in memory on the ST, it would look like $0002 on the PC – remember this fact when looking at the FAT on a disc.

Now for the really difficult bit. Entries in the FAT are (for drives A and B) 12 bits wide – three nybbles. This means we can pack two entries into 24 bits, rather than 32. The index starts at $002 because the first two entries contain format information.

This coding only applies to floppy discs, not ram discs, hard discs, networks and so on. FAT entries are a full 16 bits wide on these devices, primarily so we can have far more clusters, which is especially important on hard discs.

This is why, in case you have ever tried it, you can't place a floppy disc icon over a ram disc icon to copy the files across.

As far as Mapper is concerned, FATs are all 12 bits wide so the results will be correct for both floppy discs and ram discs, but nonsense values will be given for anything else. From the FAT we can find out what clusters a particular file uses, but we can't tell which file they refer to. This is where the directory comes into use.

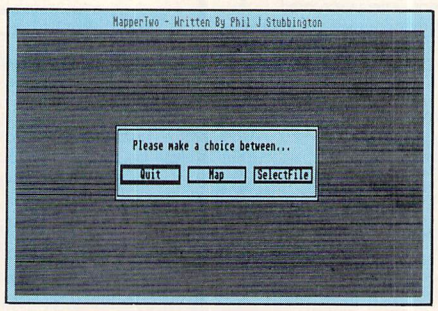
This, like the FAT, is held on the disc, and consists of a number (usually 112) of 32 byte long records, each containing the information show in Table I.

Note that the filename and extension are padded out with spaces. And another point we have to be aware of is that each folder, or sub-directory, contains its own disc directory, in exactly the same format.

This shouldn't present any problems though. All we really need to know about the directory is the filename and extension, and the starting entry in the FAT.

This is the bit where you either go off and make a cup of tea, or hopefully get your hands dirty and find out exactly how Mapper works. The Mapper application, which is listed here, is written entirely in C.

For those of you who are Pascal,



The mapper start-up screen

Entry	Description	Size
Name	Filename	8
Extension	File type – PRG, TOS, DOC	3
Attribute	Normal, read-only directory	1
Reserved	For expansion	10
Time	When file was last written to	2
Date	When file was last written to	2
FAT pointer	Index to start of FAT entry	2
File size	Length of the file	4

Table I: The structure of the file allocation table

Technical terms

Track Concentric ring on the disc, numbered 0 to 80.

Sector Portion of a track, numbered from 1 to 10.

Logical sector Same as an ordinary sector, but we don't need to specify the track, because the numbering is from 1 to 800.

Cluster The smallest amount of a disc which a file can be allocated, usually two sectors.

FAT File Allocation Table, tells us what the clusters are – free, used or bad.

Directory A series of 32-byte records containing the filename, extension and so on.

Fragmentation When a file can't be allocated adjacent clusters. So the drive head has to move to different points on the disc to find the contents of the file.

Gemdos The operating system – handles just about everything. Creating, deleting, renaming, opening and closing files, and many other things besides.

Gem The operating environment – gives you all those nice windows, menu bars and rodents.

Modula 2 or Basic addicts, I would like to point out that I could have made the program far more readable. However, doing so makes it much longer, and you would have got extremely sore fingers typing it all in.

The program was written using Megamax and Mark Williams C, although it should be possible to use any full C compiler. I have commented the program fairly heavily, so hopefully it shouldn't be too difficult to pick up what it is doing.

When the application is started, the FAT and directory are read off the disc in drive A, and the FAT is decoded. A dialog box will then appear, giving you the option to quit, map the disc, or select a file.

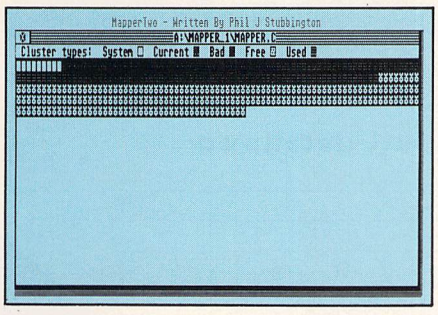
Choosing to map the disc will produce a Gem window, showing you the current file, the cluster types, and a diagram of the clusters. You can print out the diagram by pressing Alternate and Help keys.

Clicking on the close box at the top left of the window returns you to the dialog box. Selecting a file allows you to change the current file, drive and folder (directory).

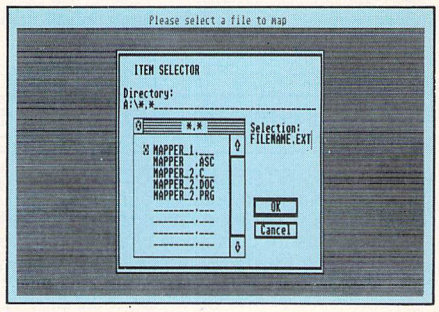
If you look at the start of the application you will see that there is a line starting #define MEGAMAX. As the comment suggests, if you aren't using Megamax then delete this line.

C is very nice to lazy programmers, as it will close any files for you on exit if you have forgotten to do so. As we don't open any files, this code is not needed, so we fool the linker into thinking the code is already included, and save ourselves about 2500 bytes in the process. Quite a useful saving.

The program uses quite a few Gem and Gemdos functions, and there are several good books which cover both these subjects, including the Megamax compiler documentation.



Map of a file



Selecting a file

```
/*     Disc  Mapper      */
/* By Phil J Stubbington */
/*   (c) Atari ST User   */

#include <stdio.h>
#include <ctype.h>
#include <gemdefs.h>
#include <obdefs.h>
#include <osbind.h>
#include <string.h>

#define TRUE -1
#define FALSE 0

typedef struct  {       /* DIR - directory entry */
 char     name[8];      /* name, padded with spaces */
 char     ext[3];       /* extension, padded with spaces */
 char     attri;        /* attribute - read only, etc. */
 char     resrv[10];    /* reserved for expansion */
 int      time;         /* time last written - packed */
 int      date;         /* date last written - packed */
 unsigned stfat;        /* index to starting entry in FAT */
 long     fsize;        /* size */
} DIR;

typedef struct  { /* BPB - the Bios Parameter Block */
  int recsiz;     /* sector size in bytes */
  int clsiz;      /* cluster size in sectors */
  int clsizb;     /* cluster size in bytes */
  int rdlen;      /* directory length in sectors */
  int fsiz;       /* FAT size in sectors */
  int fatrec;     /* sector # of the second FAT */
  int datrec;     /* sector # of the first data cluster */
  int numdcl;     /* # of data clusters on the disk */
  int bigfat;     /* if TRUE then 16-bit FAT else 12-bit */
} BPB;

#define MEGAMAX   /* only if you have Megamax C! */
#ifdef MEGAMAX
#define void
#define boolean int
#endif
#define FORWARD extern                /* for readability */

#define WI_GADGETS (CLOSER|NAME|INFO) /* window gadgets */
#define WD_NAME " MapperTwo "         /* window name */
#define BLK_READ 0                     /* for Rwabs */
#define FAT char                       /* for readability */
#define CLS int                        /* ditto */
#define FATSIZE (BiosPB->recsiz*BiosPB->fsiz)
#define CLSSIZE (sizeof(int)*BiosPB->numdcl)
#define DIRSIZE (BiosPB->recsiz*BiosPB->rdlen)
#define SYS_CLST (BiosPB->datrec/BiosPB->clsiz)
#define DIR_CLS (BiosPB->fatrec+BiosPB->fsiz)
#define AL_FLAG 0x1000  /* allocated to current file */
#define FAT_SIZED(a) ((a) & 0xfff)  /* twelve bits */
#define FLAG(a) ((a) & 0xf000)      /* the other bits */
#define LO_NYBBLE(a) ((unsigned)((a) & 0x0f))
#define HI_NYBBLE(a) ((unsigned)((a) & 0xf0))
#define FIRST_CLS 2 /* 1st real life cluster # */
#define LAST_CLS 0xff0  /* and the last */
#define CL_BAD   0xff7  /* bad cluster */
#define CL_LAST  0xfff  /* last cluster in chain */
#define CL_FREE  0x000  /* free cluster */
#define CL_NA    0xffe  /* cluster not available */
#define WORDTOI(a) ((a<<8) | (a>>8)) /* Intel->Motorola */

FORWARD char *MyRealloc();
FORWARD DIR *FindDirEntry();
BPB *BiosPB;              /* pointer to BIOS param block */
FAT *FatBuf = NULL;       /* raw file allocation table */
CLS *ClusterBuf = NULL;   /* cluster buffer */
DIR *DirectoryBuf = NULL; /* raw directory buffer */
DIR *CurrentEntry = NULL; /* guess what? */
int Drive;                /* current drive */
int WorkHand; /* VDI virtual+physical workstation handle */
int WindHand;   /* window handle */
int CharPixW,CharPixH;      /* width+height of a char */
int DeskX,DeskY,DeskW,DeskH;    /* coords of desk window */
int WindX,WindY,WindW,WindH;    /* coords of our window */
int Dummy;  /* someone who doesn't buy Atari ST User? */
int work_out[57],work_in[11] = {1,1,1,1,1,1,1,1,1,1,2};
int contrl[12],intin[128],ptsin[128];
int intout[128],ptsout[128];
```

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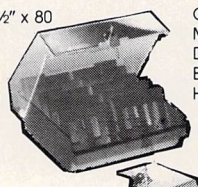

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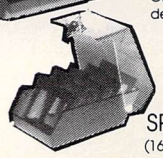

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```
int Point[4],MessageBuffer[16];
boolean Finished;
int ExitButton;

static char FileName[13]="FILENAME.EXT";
static char FileSpec[80]="A:\\*.*";
static char Path[64]="A:\\*.*";

#ifdef MEGAMAX
exit()
{
    Pterm0();
}
_exit()
{
    Pterm0();
}
#endif

/* Initialise, make sure we aren't in low rez */
/* then process options chosen by user until finished  */
void main(void) /* level 0 */
{
appl_init();
WorkHand = graf_handle(&CharPixW,&CharPixH,&Dummy,&Dummy);
wind_get(0, WF_WORKXYWH, &DeskX,&DeskY,&DeskW,&DeskH);
v_opnvwk(work_in, &WorkHand, work_out);
if(Getrez() == 0)   {
  form_alert(1,"[1][Sorry, MapperTwo|can't run in low-rez.\
|Switch resolution and|try again][ OK ]");
  Finished = TRUE;
  }
else    {
  Finished = FALSE; /* finished, I haven't even started! */
  Drive = 0;        /* start with drive A */
  InitBuffers();
  }
while(!Finished)    {
 WriteMessage("MapperTwo - Written By Phil J Stubbington");
 switch(form_alert(1,"[0][Please make a choice between....\
..| ][Quit|Map|SelectFile]"))  {
  case 1: Finished = TRUE; break;
  case 2: /* draw map of current disk */
          OpenWindow();
          ReadDiskInfo();
          DrawMap();
          WaitForCloseBox();
          CloseWindow();
          break;
  case 3: /* select a new drive and/or file */
          WriteMessage("Please select a file to map");
          SelectFile();
          break;
  }
 }
 GemAbort();
}

/* Find out what size they should be and initialise 'em  */
void InitBuffers()
{
if((BiosPB = (BPB *)Getbpb(Drive)) == NULL)
form_alert(1,"[3][Sorry, couldn't find the|Bios parameter \
block for|that device.][ Abort ]");
else
if(((FatBuf = (FAT *)MyRealloc(FatBuf,FATSIZE)) == NULL) |
((ClusterBuf=(CLS *)MyRealloc(ClusterBuf,CLSSIZE))==NULL) |
((CurrentEntry = DirectoryBuf =
(DIR *)MyRealloc(DirectoryBuf,DIRSIZE)) == NULL))
GemAbort(form_alert(1,"[3][Sorry, can't get any memory|for \
buffers.][ Abort ]"));
}

/* Read and decode the FAT */
boolean ReadDiskInfo(void)  /* level 1 */
{
int  ClsNum;            /* cluster number */
int  Index;             /* index to our original buffer */
int  Incr;              /* increment value for index */
int  RightFat = FALSE;  /* FAT value to decode */
graf_mouse(HOURGLASS,NULL);
Rwabs(BLK_READ,FatBuf,BiosPB->fsiz, BiosPB->fatrec,Drive);
if(BiosPB->bigfat)  { /* if 16-bit FAT */
Incr = FIRST_CLS;
Index = (Incr*FIRST_CLS); /* ignore 1st two entries */
}
else /* 12-bit FAT */
Incr = Index = 3; /* ignore 1st two entries */
for(ClsNum=0; ClsNum <= BiosPB->numdcl; ClsNum++) {
ClusterBuf[ClsNum]=DecodeFatEntry(&FatBuf[Index],RightFat);
  if(BiosPB->bigfat)  /* if 16-bit FAT */
  Index += Incr;      /* find next */
else    { /* 12-bit FAT */
  if(RightFat) Index += Incr; /* find next */
  RightFat = !RightFat;   /* invert flag */
  }
}
ClsNum = WORDTOI(CurrentEntry->stfat) - FIRST_CLS;
while((FAT_SIZED(ClusterBuf[ClsNum]) != CL_LAST) &&
 (FAT_SIZED(ClusterBuf[ClsNum]) != CL_FREE)) {
 ClusterBuf[ClsNum] |= AL_FLAG;  /* flag this cluster */
 ClsNum = FAT_SIZED(ClusterBuf[ClsNum]);
}
ClusterBuf[ClsNum] |= AL_FLAG;  /* flag this cluster */
graf_mouse(ARROW,NULL);
}

/* Assumes a fairly intelligent version of "realloc" */
/* is implemented - David Beckemeyer's for example   */
char *MyRealloc(Ptr,Size)   /* level 2 */
char *Ptr;
unsigned Size;
{
    if(Ptr == NULL)
        return(malloc(Size));
    else    {
#ifdef MEGAMAX /* not quite the same thing, but close */
        free(Ptr);
        return(malloc(Size));
#else
        return(realloc(Ptr,Size));
#endif
        }
}

/* Close workstation & exit current GEM application */
GemAbort()  /* level 2 */
{
    v_clsvwk(WorkHand);
    appl_exit();
    exit();
}

/* Convert packed value to logical cluster # */
int DecodeFatEntry(PtrToFat, RightFat)  /* level 2 */
char *PtrToFat; /* pointer to individual FAT entry */
int RightFat;   /* if TRUE decode the right hand entry! */
{
int Temp;
if(RightFat) /* ie. right hand entry */
  Temp=(FAT_SIZED((PtrToFat[2] << 4) +
(HI_NYBBLE(PtrToFat[1]) >> 4)));
else
  Temp=(FAT_SIZED((LO_NYBBLE(PtrToFat[1]) << 8) +
(PtrToFat[0])));
  if((Temp>=FIRST_CLS) && (Temp<=LAST_CLS))
    return(Temp-FIRST_CLS); /* was a cluster */
 else    /* otherwise it is a type - bad, free, etc. */
```

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◀ From Page 85

```
    return(Temp);
}

/* Centre a string in the "menubar" area */
void WriteMessage(p)    /* level 1 */
char *p;
{
v_clrwk(WorkHand);  /* clear the workstation */
form_dial(FMD_FINISH,0,0,0,0,DeskX,DeskY,DeskW,DeskH);
vst_color(WorkHand, RED);   /* change text colour */
v_gtext(WorkHand,(80-strlen(p))/2 * CharPixW,CharPixH,p);
}

/* Fiddle dimensions to multiple of character size */
void OpenWindow(void)   /* level 1 */
{
register char *p;        /* ptr to next ? */
int i;                   /* offset from Info to next ? */
char Title[80],Info[80]; /* window title and info lines */
int x,y,w,h;             /* fiddled window dimensions */
x = DeskX; y = DeskY; w = DeskW; h = DeskH;
WindHand = wind_create(WI_GADGETS, x, y, w, h);
strcpy(Title,FileSpec);
wind_set(WindHand, WF_NAME, Title, 0, 0);
strcpy(Info," Cluster types:  System ?  Current ?  Bad ?  F\
ree ?  Used ?");
wind_set(WindHand, WF_INFO, Info, 0, 0);
wind_open(WindHand, x, y, w, h);
wind_get(WindHand,WF_WORKXYWH,&WindX,&WindY,&WindW,&WindH);
WindW = (WindW / CharPixW) * CharPixW;
WindH = (WindH / CharPixH) * CharPixH;
wind_calc(0,WI_GADGETS,WindX,WindY,WindW,WindH,&x,&y,
&w,&h);
wind_set(WindHand, WF_CURRXYWH, x, y, w, h);
i = 0; p = Info;
/* find question marks in info line - turn into cluster */
while((p = index(p,'?')) != NULL)   {
  DrawRectangle(i,(p-Info) * CharPixW,(CharPixH * 3)-1,
CharPixW,CharPixH-2);
  i++;p++;
  }
}

/* With a pattern corresponding to cluster key */
void DrawRectangle(type,x,y,w,h)    /* level 2 */
int type;       /* rectangle type */
int x,y,w,h;    /* where you want it */
{
    Point[0]=x; Point[1]=y; Point[2]=x+w; Point[3]=y+h;
    vsf_interior(WorkHand,2); /* default */
    switch(type)    {
        case 0:  vsf_interior(WorkHand,0); break;
        case 1:  vsf_style(WorkHand,7);    break;
        case 2:  vsf_interior(WorkHand,1); break;
        case 3:  vsf_style(WorkHand,1);    break;
        default: vsf_style(WorkHand,4);    break;
        }
    v_bar(WorkHand,Point);
}


/* Draw entire cluster map in window work area */
void DrawMap()  /* level 1 */
{
register int ClsNum;
register int xpos,ypos;
FlipMouse();
DrawRectangle(0,WindX,WindY,WindW,WindH);
vsf_color(WorkHand,BLACK);
ClsNum = -SYS_CLST;
for(ypos=WindY; ypos < (WindY+WindH); ypos += CharPixH)
  for(xpos=WindX; xpos < (WindX+WindW); xpos += CharPixW)
    DrawCluster(ClsNum++,xpos,ypos,CharPixW,CharPixH);
    FlipMouse();
}

/* If we think it's hidden, show it. Else hide it! */
void FlipMouse(void)    /* level 2 */
{
static boolean Hidden = FALSE; /* current state */
    if(Hidden)
        graf_mouse(M_ON,NULL);
    else
        graf_mouse(M_OFF,NULL);
    Hidden = !Hidden;
}


/* Turn cluster type into something for DrawRectangle */
void DrawCluster(ClsNum,x,y,w,h)    /* level 2 */
int ClsNum;     /* the cluster number */
int x,y,w,h;    /* position and dimension of block */
{
int type = 0;   /* default cluster type is system */

if(ClsNum>BiosPB->numdcl)   /* if gone past last cluster */
    return;         /*  we are not interested */
if(ClsNum>=0)   {
/* values of ClsNum < 0 are used for system clusters, */
/* everything that isn't data cluster is for system use */
if(FLAG(ClusterBuf[ClsNum]))
  type = 1;
else
 switch(ClusterBuf[ClsNum])  {
    case  CL_BAD:
    case   CL_NA: type = 2; break;
    case CL_FREE: type = 3; break;
         default: type = 4; break;
 }
}
DrawRectangle(type,x,y,w,h);
}

/* Hang around until the close box is clicked */
void WaitForCloseBox(void)  /* level 1 */
{
    do  {
        evnt_mesag(MessageBuffer);
        }while(MessageBuffer[0] != WM_CLOSED);
}

/* Close and deallocate the window */
void CloseWindow(void)  /* level 1 */
{
    wind_close(WindHand);
    wind_delete(WindHand);
}

/* Find the file to map in the directory */
void SelectFile(void)   /* level 1 */
{
if(fsel_input(Path, FileName, &ExitButton) == 0)
  return; /* just cop out if they chose to cancel */
if(isupper(Path[0])) Drive = Path[0] - 'A';
MakePathName(FileSpec, Path, FileName);
InitBuffers();
CurrentEntry = FindDirEntry(FileSpec);
}

/* Concatenate Path & FileName into Destination */
void MakePathName(Destination,Path,FileName) /* level 2 */
char *Destination; /* where you want it! */
char *Path,*FileName;
{
char *p;

    strcpy(Destination, Path);
    p = rindex(Destination, '\\');
```

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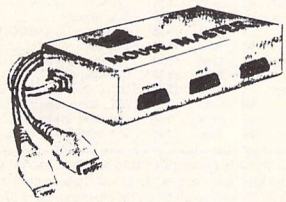

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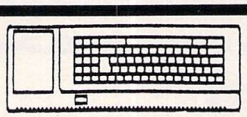

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```
    **++p = NULL;
     strcat(Destination, FileName);
}


/* Find raw directory entry for FileSpec */
DIR *FindDirEntry(FileSpec) /* level 2 */
char *FileSpec;
{
register char *p, *j;
DIR *DirectoryCur; /* current entry in directory */
char FileOne[12], FileTwo[12];
/* read the root directory */
Rwabs(BLK_READ,DirectoryBuf,BiosPB->rdlen,DIR_CLS,Drive);
DirectoryCur = DirectoryBuf;
/* work our way down the pathname until we find the file */
for(p = FileSpec; (p = index(p,'\\')) != NULL; )    {
if((j = index(++p, '\\')) == NULL) j = p + strlen(p);
StripNCopy(FileOne, p, (unsigned)(j-p));
while(DirectoryCur->name[0] != '\0')    {
  StripNCopy(FileTwo, DirectoryCur->name,11);
  if(strcmp(FileOne,FileTwo) == 0)    {
  if(DirectoryCur->attri & 0x10)  {
  Rwabs(BLK_READ,DirectoryBuf,BiosPB->rdlen,
DecodeStfat(DirectoryCur->stfat),Drive);
  DirectoryCur = DirectoryBuf;
  break;
  }
  else
   return(DirectoryCur);
  }
 DirectoryCur++;
 }
}
  return(DirectoryBuf);
}

/* Copy n chars from s to d, stripping out non-alphanums */
void StripNCopy(d,s,n)  /* level 2 */
register char *d, *s;
register int n;
{
    while(n-- >= 0) {
        if(isalnum(*s))
            *d++ = *s++;
        else    {
            *d = NULL;
            s++;
            }
        }
}

/* Turn entry from raw dir into logical cluster number */
int DecodeStfat(val)    /* level 2 */
int val;
{
int temp;
temp=((((WORDTOI(val)-FIRST_CLS) * BiosPB->clsiz)+
BiosPB->datrec));
 if(temp < BiosPB->datrec)
 return(FALSE);
else
 return(temp);
}
**N*
```


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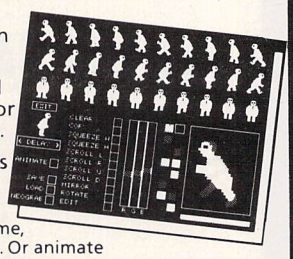

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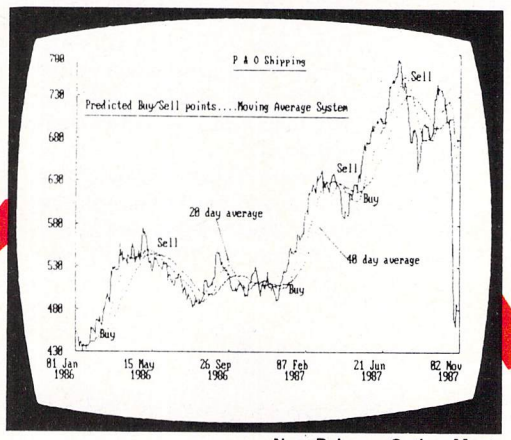

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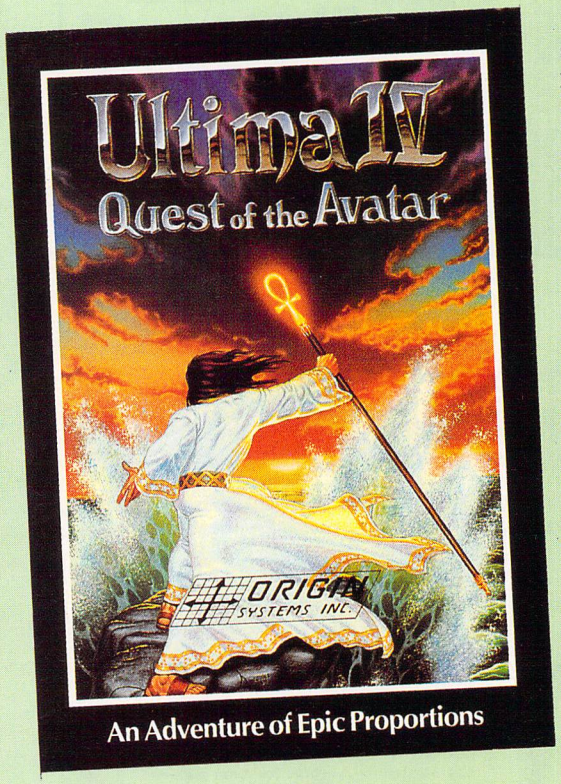
ADVENTURES

Brillig lends a hand in solving problems for fantasy fans

New adventures to keep you busy



An Adventure of Epic Proportions

AN adventurer's life is a busy, but exciting one. No sooner have you finished rescuing the kidnapped heir of the Emperor of Ezzibonn, than along come the Guardians of The Golden Gizmo to ask if you can please pop over because they want to discuss your helping them recover said Gizmo which some lightfingered villain has half-inched with the intent of using it to take over the world.

To prove my point, Microprose has brought out Ultima IV for the ST, and it shouldn't be long before Electronic Arts brings out an ST version of The Bard's Tale II. It obviously feels that an adventurer is never really content unless he's got plenty of new tasks, puzzles and dangers to face.

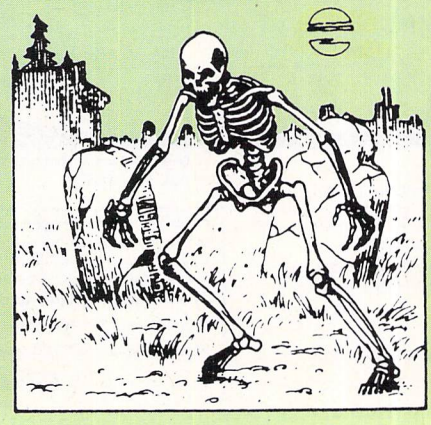
Ultima IV, subtitled Quest of the Avatar, is a massive graphics-oriented strategy adventure which offers a playing time of anything from 100 hours upwards. Your main objective is to transform yourself into a better person through courage, truth and love.

For those who have never experienced any of the Ultima series, a potted history is in order. Ultima I chronicled the first era of the dark ages of Britannia which came to an end with the overthrow of the evil wizard Mondain and his minions by an intrepid adventurer who tracked the foul Mondain to his lair and slew him.

Unfortunately, Mondain's female apprentice Minax lived on and a new and greater reign of terror soon prevailed, brought to an end by a hero in Ultima II.

Twenty years of peace and prosperity ensued before disturbing omens began to darken the tranquillity, followed by the mysterious appearance of a fiery island. Ultima III dealt with four adventurers who were called forth to destroy the sinister Exodus, and so ended the third era of the dark ages of Britannia.

With the final vanquishing of Mondain, Minax and Exodus, such evil now only abounds in isolated pockets and in the hearts of men. In Ultima IV, the perfect mortal is now sought to lead the realm into a golden age. And this is your quest – to become an Avatar.



It won't be easy. There is much magic, mystery and mayhem in Ultima IV, and you will also be confronted with the ultimate challenge – yourself. The game is one of the most handsomely documented and presented adventures ever, so watch this space for a full review.

The Bard's Tale II: The Destiny Knight, from Electronic Arts should be with us before too long. Bard's Tale I was reviewed in the April 1988 issue of *Atari ST User* and this sequel is the

mixture as before, but with enhanced features. The game is about half as big again in code terms and features an expanded world to explore, and advanced magic and combat systems.

The plot centres around the destiny wand, forged long ago by the archmage Turin, but recently stolen by lawless mercenaries. These crafty crooks have broken it into seven pieces and hidden each fragment in a different part of the realm. Your task, and that of your band of adventurers, is to recover all the fragments and make the destiny wand whole again.

Once again, in addition to hunters, warriors, paladins and rogues, the singing bard plays in the band (no pun intended) with seven new tunes at his disposal.

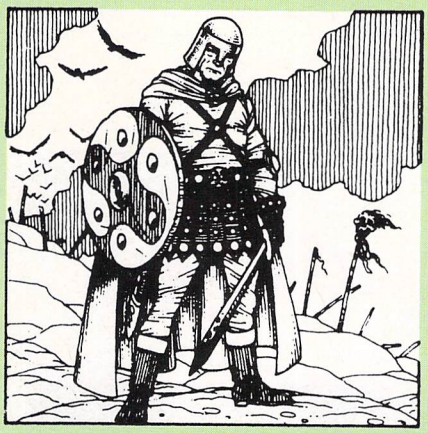
One new feature is that foes can pop up as close as 10 feet away or as far as 90, so combat and magic proficiency is even more important. You can't take on

a troll with a sword if he's 40 feet away from you, but missiles and spells might do the trick.

Bard's Tale II looks to be an engaging sequel to its challenging predecessor, and will be reviewed in these pages just as soon as it is available.

Another interesting adventure which may have been released by the time you read this is Mindfighter from a new company, Abstract Concepts.

The game is being programmed by Fergus McNeill who you may know was responsible a couple of years or so



ago for producing some enjoyable Quill-based spoof adventures, such as the popular Bored of the Rings, Robin of Sherlock and The Boggit for Commodore 64 and Spectrum owners.

Now he's teamed up with the authoress of the book Mindfighter, Anna Popkess, to produce a tale concerning Robin, a young boy with powerful psychic abilities.

One day his mind thrusts Robin forward into a post-nuclear holocaust world where he tries to assist the survivors to rebuild a community. However, the survivors are being cruelly suppressed by The System, an extreme facist regime which has seized control.

Robin decides the only way he can really help is by changing the course of history. He must return to the present and attempt to prevent the nuclear war that will shortly devastate the whole world.

The program is being developed using a system called Swan and reputedly features digitised graphics, icons and a sophisticated command parser. Included are certain characters who, although you can interact with them, live out their own lives with no predefined course – this means every game is different.

A copy of the book Mindfighter will be included with each pack. Certainly sounds worth waiting for and we'll have a detailed review for you as soon as we can.

This month's hints and tips concentrates, by popular demand, on two recent adventures, Jinxter and Plundered Hearts.

See you next month.

HINTS AND TIPS

JINXTER

Why does the gardener run away with the sack?
He must hear you coming. Try putting some oil on the runners of the boathouse door.
How do I get the oil?
Get the plastic bottle, pour the contents into a suitable container and try some cold magic.
Can't open Xam's mailbox?
Warm the plastic key with something hot.
Hole in the canoe a problem?
You could try blocking it up with the dead mouse! It works but later you'll wish you hadn't. Instead, find something that pongs, put the bung inside it then put the cheesy thing in the hole.

PLUNDERED HEARTS

Can't stop the explosive situation down below?
Tear a piece from your frock, soak it in liquid and throw it over the gate.
Escape from the ship impossible?
Climb into the cask and cut the line. Bon voyage.
Duelling pistols stuck to the wall?
Ignore them! They are not for your use.
Chandelier rope a puzzle?
Wait until later when eventually the Falcon and Lafond will be fighting below you in the ballroom.

Play out your fantasy

Program: Rings of Zilfin
Price: £24.99
Supplier: SSI/US Gold, Units 2/3, Holford Way, Holford, Birmingham B6 7AX.
Tel: 021-356 3388

RINGS of Zilfin is yet another in the long line of fantasy role-playing games from Strategic Simulations. You either love this type of game or else it leaves you cold.

The graphics and screen presentation are about the best I've seen for a game of this type, and certainly do much to enhance the atmosphere – so often undermined by lacklustre artwork.

Zilfins, as I'm sure you know, were powerful wizards who created two rings which, when worn together, imbued the wearer with supernatural abilities.

But there's always a worm in the apple in tales of swords and sorcery, and the maggot in this case is the dastardly Lord Dragos who has snatched one of the rings and now only needs the other to attain invincibility.

To the rescue comes your good self, a hardened adventurer blessed with magical powers and all set to explore the dangerous expanses of Batiniq in search of both rings.

Your quest will take you across a wide land, attractively depicted on a three-dimensional map which you can call up whenever you wish. Your position on it is highlighted, so you can always find your bearings.

The screen is split into three sections, the main part showing the current scene with you as a diminutive, but nicely animated, figure squarely to the fore.

In many cases you will be trudging along to the right while the colourful, but somewhat monotonous, scenery scrolls slowly but smoothly to the left. There's a lot of walking to be done as this is a big land, and this part of the game – as in so many of these strategic fantasies – can become rather boring.

Your adventure starts one cold morning

To the right of the main picture is a box containing all your current options. Game control is via these which can be exercised by single key presses or by pointing with the mouse. The layout and highlighting of the options is clearly and

Turn to Page 94 ▶

◀ *From Page 93*

professionally presented. Below the central picture is another box used to show your input and the game's responses. The game is played in real time so responses can pop up even when you're doing nothing very much.

A toggle facility lets you bring up a status screen which depicts the current state of all your attributes – strength, fatigue, endurance, sword and magic skill – along with a detailed list of your possessions.

Combat with the many meanies and monsters you'll meet is simply animated and mostly involves lunging and slashing away at your opponents with whatever weapon you have to hand. Attacks can be

A welcome respite can be found in the inn

from the air as well as the ground. Lots of magic spells are at your disposal and with experience you be able to use quite powerful ones.

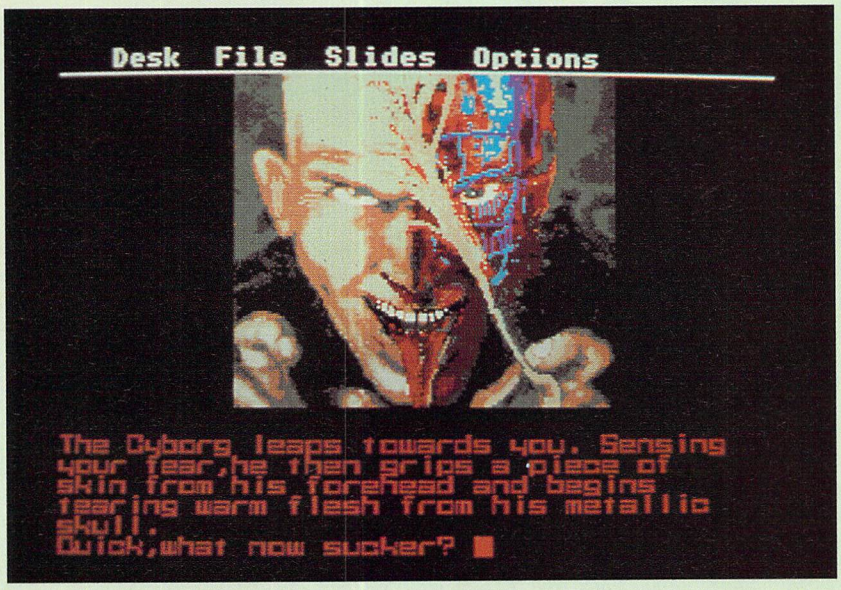
Among the many choices available from time to time are being able to talk to someone, drink – but not eat, oddly enough – sing, pray, rest, offer something to someone, get and use objects, prepare and cast spells, walk and stop. Games can be saved for future restoration.

Rings of Zilfin is graphically a generous cut above most fantasy strategy games, is attractively presented, has a fair range of commands, has some reasonable sound effects and is very easy to get to grips with. No doubt it will please all devotees of the role-playing fantasy/strategy genre.

Sound	***6***
Graphics	***8***
Playability	***8***
Value for money	***7***
Overall	***7***

DIY adventures galore

Program: ST Adventure Creator
Price: £39.95
Supplier: Incentive Software, 2 Minerva House, Calleva Park, Aldermaston, Berkshire RG7 4QW.
Tel: 07356 77288



Create your own cybernoid

WAY back in the history of home computers, a program was produced that was to set the adventure world by its ears. That program was The Quill.

Produced initially for the Sinclair Spectrum and later for the Commodore 64, The Quill was a piece of software which took much of the donkey work and technical know-how out of writing text adventures.

Apart from knowing how to use the various facilities that came with the The Quill, practically all you had to supply was the story-line. So provided you had the imagination to dream up an adventure, you no longer had to worry about acquiring the skills to turn it into a working program – The Quill did that for you.

The programs generated were free-standing and the publisher's master stroke was to allow any Quill owner free licence to do what he liked with such programs, just so long as an acknowledgement was given within the adventure.

Before very long, Quill-generated adventures were thick on the ground. To be sure, some were not terribly good and some were downright awful, but there were enough quality ones to prove the software had wrought a minor revolution and brought adventure writing within the reach of all.

And now a similar revolution in the world of ST adventures could be just around the corner, thanks to the advent of a superb new utility program from Incentive Software.

The ST Adventure Creator, or STAC for short, is a sophisticated piece of software that will enable you to produce your own home-grown text and graphic adventures.

Written by Sean Ellis, a 21-year-old graduate in Cybernetics and Computer Science from the University of Reading, it is a major development of Incentive's earlier and highly successful Graphic Adventure Creator (GAC). This program still seems to be the standard adventure utility for many 8 bit micros.

Having mapped out your basic adventure ideas on paper – and don't let's underestimate the hard work that goes into devising a good adventure – you are ready to start turning your masterpiece into a free-standing and free-licensed program.

STAC is entirely menu-driven, making it simple to use. The data-entry type facilities all allow you to insert, amend and delete entries at any time and in any order. It will automatically sort them into the appropriate order for you – the system is wonderfully flexible.

All locations, messages, objects, verbs, nouns, adverbs and separators have to be allocated a unique number from within their own specified range. For instance, rooms can be numbered from 1 to 9999 while verbs use their own range of 1 to 255.

A total room entry (program prompted)

consists of a number, connections or exits to other rooms, and a short and long description of the room.

Each object has a number, a weight and the number of the location where it is initially to be found.

The central intelligence of the adventure focuses on conditions since these determine what happens in any given situation.

STAC handles four categories of conditions – high and low priority, local and special. Most take the form of tests and are fed into the system as English-like statements. They can be as simple or as complex as you wish.

High priority conditions are executed before the player enters his next command and are controlled by the program.

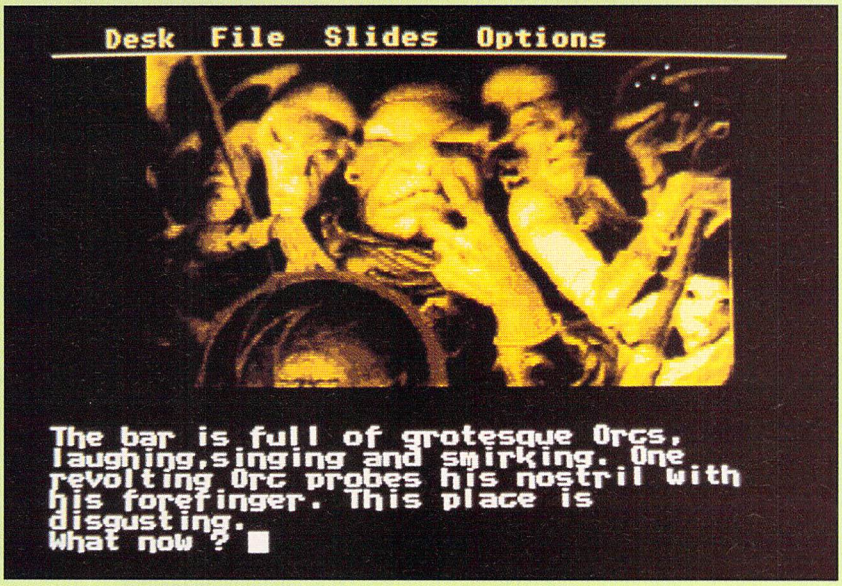
An example would be to check that if the adventurer has not taken the antidote within three moves after ingesting the contents of the blue vial, he is to be turned into a jellybean!

Low priority conditions are used for interpreting the current command and acting upon it, and are generally independent of the room the player is in.

Local conditions are specific to a room. For instance, the verb "shout" may have no effect in any room – except the one that contains delicate, vibration-sensitive icicles.

Special conditions are standard responses to cover situations such as the player trying to pick up something that is too heavy. These come supplied with the program, but you can tailor them to your own taste.

There are 512 markers and counters available. Markers are used for anything that can be in one of two states. Setting and unsetting them lets you keep track of, for instance, whether a treasure chest is open or closed, or whether a fire is lit. Counters are just that – they are used to store numbers and can be initialised, increased and decreased.



You decide the style of picture and text

Integrated within the program are a rudimentary, single-voice, music generator and far from rudimentary font and graphics editors. The font editor lets you determine how your text will appear on the screen – you can choose from a number of pre-designed sets or create your own.

The inbuilt graphics editor is there to let you construct your own 16-colour pictures to go with the adventure. All the expected functions are present including draw, line, fill, circle, ellipse, rectangle, undo, airbrush and paintbrush. And there is a good selection of brush sizes and types.

If you don't like using the built-in editor, the program will even let you import your own Degas and Neochrome pictures. Wherever possible, each is stored in a compressed format to save on memory.

Other miscellaneous features include ramsave and ramload, string handling so you can talk to characters, 40 or 80 column text mode including split screen allowing you to have pictures with 80 column text, colour switching and random number generation.

The disc menu lets you format a disc, load and save a complete set of adventure data, erase a file, check how much free space is available on the disc, generate a free-standing runnable adventure and encode and save a link file for multi-disc adventures.

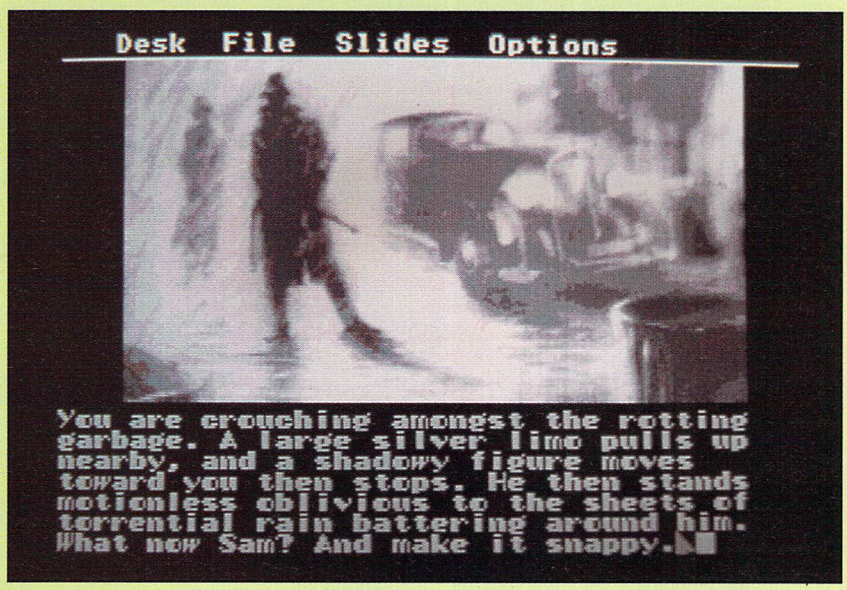
You can even save a section of data, such as verbs or pictures, for future merging back into an adventure – ideal for building libraries of material.

STAC itself takes up about 100k, leaving you with some 300k of memory to play with on a 520ST. A quickstart file comes supplied with the program which contains special conditions and a number of commonly used nouns, verbs and messages.

The 68 page instruction manual is clear and easy to follow. STAC is that rarest of products, a program that is flexible and rich in features while remaining relatively easy to get to grips with and enjoyable to use.

All you have to supply is the imagination and a bit of logical thinking – STAC takes care of the rest. It is a superb accomplishment, and in my book is unquestionably the adventure product of the year.

Will a STAC-generated adventure one day out-Infocom Infocom? Having seen some of the first fruits of this program, I wouldn't take any bets against it happening.



Moods can be cleverly imposed

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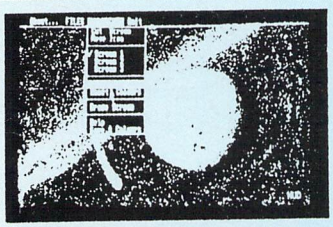

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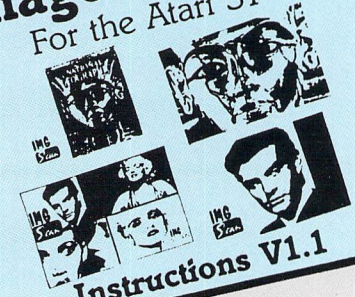

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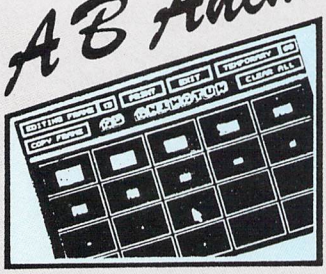

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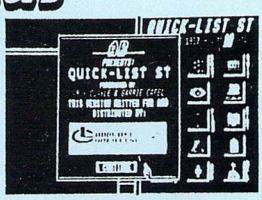

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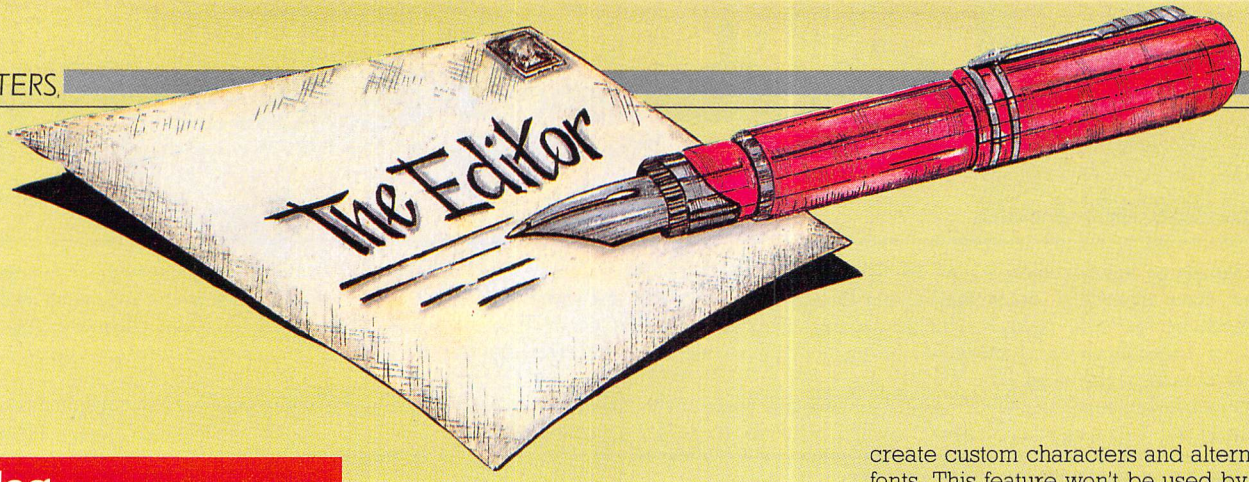

Prolog for the ST

WHEN reading Mr Maynagh's letter in the March 1988 issue of Atari St User *concerning a version of Prolog for the ST, I remembered having heard about Epsilon Software somewhere.*

In fact I found a report about its MProlog in an old issue of the German ST Computer magazine. Furthermore, a second Prolog – Salix Prolog – exists that should also be available in the UK.

I am well aware that you are not allowed to recommend a certain product or software house, but you may convey this information to him.

By chance I found the last issue of Atari ST User *on a newsstand at a station. As the magazine costs DM 9.50 when buying it over here, I am thinking of subscribing to it.*

As the postal employees don't handle print media with too much care I want to be sure to get a whole magazine, and not a bunch of single pages. So can you tell me how you dispatch it? **– Susanne Bolus, Mannheim, West Germany.**

● We certainly do recommend software and software houses in our reviews. But as we haven't seen either of these versions we can't comment on them.

The magazine is sent out in a polythene wrapper. We have many overseas subscribers and they all receive their magazine in excellent condition, so there shouldn't be any problems.

Get away from Basic

IN your March 1988 issue of Atari ST User *you referred to FProlog at £90. I would like to mention that Paul Glover's ST Club – a PD library – has a very good version for £2.70 – some £87.30 cheaper. It uses Edinburgh syntax.*

In the January issue you advised G. K. Ruffle to use Basic rather than C for serious programming, as the former is easier to learn. He mentioned that he used assembler and Forth, so he should be able to get on with C.

Why is it that you – and all other other magazines – push Basic? All the serious programmers I know use C, Pascal and assembler. How do you expect the ST to be taken seriously when all the magazines advocate Basic?

Most programmers as far as I can see, are in the non-commercial world and computer literate. They are used to things like Unix and Lattice C. The ST will not make it in the commercial world because it is not IBM compatible and unless you stop this fascination with Basic, it will not make it anywhere except in the home for games.

You will also miss out on the large academic market that uses STs, but does not read Atari ST User *because it is full of Basic and games.*

So can we have more listings and features using C and Pascal before the ST dies through the lack of the right kind of support?

The user port has great potential. Does anyone do any add ons for it? **– Chris Hills, Birmingham.**

● We try to cover all languages, and that includes Basic, C, Pascal and assembly language. A beginner's guide to C programming starts next month – and also one on Basic.

NLQ printer poser

I AM considering buying a printer for use with desktop publishing software on my STFM. My main concern is that the printer will do justice to the wide range of fonts available for most packages.

I would be satisfied with the quality of print produced by a good 9 pin printer in NLQ mode. However, is NLQ limited to those print styles which come as standard with the printer, or can all printers be driven to produce NLQ in custom designed fonts?

I am particularly interested in the Star NL-10 and the new Citizen LSP-100. Also, many printers boast the ability to download fonts. What does this mean? Does either the Star or Citizen have this facility, and is there any DTP advantage? **– Stephen Hall, Belfast.**

● The printer's built-in fonts aren't used by DTP software as they drive it in bit image mode.

The fonts available are those that are stored within the DTP software, not the printer. Also, the printer's NLQ mode won't be used – it's not available in bit image mode. The software will provide a draft and NLQ output mode.

Some printers allow you to redesign the built-in character sets so you can create custom characters and alternative fonts. This feature won't be used by DTP software. Most good DTP packages support a very wide range of printers, and although we haven't tried either the Star or Citizen, you should find them catered for.

Business v pleasure

HAVING for the first time bought your magazine, I would like to say how impressed I am with it. The presentation of all the articles, reviews and so on is excellent, as is the use of illustration, particularly screen shots included, where possible, alongside software reviews.

I primarily bought your publication to give me some idea of what to expect, since I am presently looking at buying myself an STFM. I have long grown out of the Spectrum phase of my life, and currently getting bored with the limitations of my BBC Micro – which I intend to hand down to my son.

I would like to know, if possible, to how much of an extent I will benefit from the ST, and how closely it resembles a PC, since I hope to use it as such, as well as playing some of the excellent games I know exist.

My congratulations once more on a wonderful magazine. **– Paul Watson, Wisbech, Cambridgeshire.**

● The Atari ST is a completely different micro to the IBM PC or its clones, and both are aimed at different markets.

The PC is primarily a business machine, and vast quantities of business software are available. There are also a few games too, for quiet moments of relaxation.

The ST however, is ideally suited to arcade games, and there are literally hundreds of titles currently on sale, with more coming out each week. The basic ST also has better graphics capabilities and there are some superb art programs around. Music is especially well catered for too, with an abundance of Midi packages to choose from.

In addition to this, there are quite a few business packages available – word processors, spreadsheets, DTP and so on – though nowhere near as many as for the PC.

The choice is difficult, and it depends on what you want your micro to do. The best advice we can give is to first choose the software you wish to use – spreadsheet, game, DTP and so on – then

Star Game for a Star Letter

Each month we'll select a letter of the month – and the sender will receive the program which our reviewers have rated *Atari ST User* Star game. This month, reader Julie Fudge will receive Carrier Command, which is reviewed on page 44.

Letters on every subject of interest to Atari ST users are welcome. Send them to: The Editor, Atari ST User, Europa House, Adlington Park, Adlington, Macclesfield SK10 4NP.

Beating Bubble Bobble trouble

I HAVE recently completed the arcade game Bubble Bobble on the ST. During early screens you need to collect as many potions as possible for points, and as many letters as possible for extra lives – which you will definitely need later.

On later screens – 40 upwards – look out for umbrellas as they skip screens (some of which you may find very difficult), and help you on your way. You will find that from screens 80 upwards it will become harder, and potions, bombs, clock – which freezes all creatures enabling you to bubble and pop them – and the invincibility shield will be a great help.

On the 100th screen, which automatically loads in separately, there are two small bottles, each containing lightning. To capture the monster, which is a much bigger version of Bonner, you have to collect one bottle – the other is for player two – then blow bubbles of lightning by pressing your fire button, then popping the bubbles, hitting Bonner.

The best way to do this is to face a wall at the bottom of the screen and press the fire button repeatedly.

The lightning automatically pops from Bub's back, striking big Bonner in the process. After a series of lightning bolts hits him, he is encased in a bubble.

This is where the game ends. You can't pop the large bubble now holding big Bonner. The 100th screen freezes and a new one is displayed. It says "Congratulations. You have finished Bubble Bobble and have found the true magic of life, love, ffriendship and Happinness. THE END?"

At the bottom of the screen big Bonner is whizzing from side to side. **– Julie Fudge, Newport, Gwent.**

choose the micro which can run this software. Also worth bearing in mind is the price difference between an IBM PC and an ST – the ST is a fraction of the cost of a PC.

Second drive on 1st Word

AFTER buying a Cumana 1 Meg disc drive as a second drive for my Atari STFM, I have found a few problems with using 1st Word on my new set up – the Atari 1/2 Meg as drive A and the Cumana as B:

☐ On the desktop screen why can I backup the whole disc from drive A to B, but have to copy the files separately to go from B to A?

☐ After copying the files to drive B I find I can't print a file from there when using 1st Word.

☐ When I load a file from drive B, I use:

```
B:\*.*
```

on the item selector. Is that correct? **– T. Chiu, Hull.**

● A 1 Meg drive will quite happily copy a disc in a 1/2 Meg drive, but not vice-versa. The reason is that a 1 Meg drive writes to both sides of a disc, whereas a 1/2 Meg drive only writes to one side – you can't fit a double sided disc on to a single sided one.

So you can backup A to B, but not vice-versa. You must copy the files from B to A one by one. Remember that they may not all fit on one disc, so have another ready just in case.

1st Word will only print out a file stored on the 1st Word disc itself. If you swap discs it won't be able to find the printer driver.

1st Word form feed

I HAVE encountered a most frustrating problem when using 1st Word, which concerns the printing of letters.

What happens is that when I come to output anything, the printer executes a form feed every time. If I want to get several prints of the same letter I have to wind back the paper to the head of the previous page so I don't waste a page every time.

I've had better brains than mine on the problem. We've changed Dip switches and tried to amend various instructions in the printer driver – still without success.

I have read your series on customising printer drivers in the December 1987 to February 1988 issues of Atari ST User, *but I'm afraid I had some difficulty in following some of it.*

Do you have an idiot's guide to the solution of this particularly infuriating problem? **– Bernard Melling, Blackpool.**

● The only thing we can suggest is to try altering the initialisation codes in the printer driver. You'll need to load the driver for your type of printer from the drivers folder and search through it for a line that looks similar to:

```
1B, 65  * Termination: printer reset
```

Try changing the line to:

```
Ø       * Termination: printer reset
```

and see what happens. Have any readers got any suggestions?

Printer compatibility

COULD you tell me if the 1029 printer for the 8 bit Atari will work with the 520STFM, and if so, could you tell me where I could get a lead or a wiring diagram to construct one? **– Freddie Elliott, Belfast.**

● The printer can't be adapted to be used with the ST.

Practice makes perfect

I BOUGHT a 520STFM in the middle of March, immediately after learning that Atari was upping its prices by £100. I would like to say how much enjoyment I have had from it – but I can't. At least, not honestly.

For me it has just been one problem-solving hour after another with the brief respite coming when I decided to jack the whole thing in and play Star Trek instead.

But having forked out for what still seems to be decent hardware, I am determined to work my way out of the vortex I appear to be in.

I am a novice at programming, so I would welcome your help in the following matter. I tried typing in the listing for 3D Noughts and Crosses from your May 1987 issue and as far as I can see, I have entered it perfectly. When I try to run it, however, I can't get past line 300 which

Turn to Page 99 ▶

◀ From Page 99

reports Illegal function call. *The line in question reads:*

```
300 xpos=peek(gout+2):.....
```

and similar arguments containing PEEK that appear in other listings in your magazine achieve the same frustrating result.

Furthermore, when I try to run some of my PD software written in ST Basic, I get the same response and on investigation discover that it has stopped on a similar argument.

My dealer says that the language is always being updated and that PD programs cannot always keep up with it. This would seem to be an odd explanation for two reasons:

Firstly, I seem to be using PEEK correctly according to the not very helpful manual that came with the language disc. And secondly, it would mean that none of the expensive manuals that are supposed to help would ever be up to date.

I have searched through back issues of Atari ST User *but can find no help so I would be grateful for an answer to this one.*

Finally, do you think it is too much to expect Atari to put a little more effort into helping first time buyers get as much as possible out of their machines?

In spite of the letters you print decrying ST Basic, it is still given away with little or no documentation to support it. It seems I shall have to to shell out another £12 on a manual before I can even begin to understand it, or still more on a different language.

Amstrad gives away an extremely helpful manual with its PCW range. Why can't Atari adopt a similar approach?

Congratulations on an excellent magazine – one that persuaded me to sweat for hours trying to understand the first thing about computing. Please keep up the great work. **– Paul D. Ibbott, Watford.**

● The problem is likely to lie with your version of ST Basic. It sounds as though you've got the latest version, and the programs you are trying to run were written for the old one. There are slight incompatibilities which prevent many programs from running.

There are too many differences to go into here, and we had hoped to run an article this month dealing with these problems and outlining how to solve them, but our copy of the new ST Basic arrived too late. The article will now be featured next month.

Higher levels in Backlash

HERE'S a useful tip for getting on to higher levels in Novogen's Backlash:

When the game starts you will be near a white dome that opens to allow enemy ships to emerge. There are two of these in radar range and you must locate them then place yourself behind the nearest so that both line up vertically on the screen.

Press the joystick auto-fire button and a line of fire will shoot up the screen and anything that pops up from the domes will be destroyed.

You will not be attacked from behind as no ships will enter your radar. The only danger is from heat-seeking missiles, which will give you plenty of warning – even these don't approach from behind.

The only other way you can be killed on later stages is at the hands of a ship that fires at you as soon as the dome opens. If you get too close to the first dome you will be hit.

A way round this is to reverse so that the dome furthest away is near the cross in the radar. Using this method you will be out of range of the furthest dome and able to destroy fire from the nearest before it has time to reach you. **– Tony Oldridge, Goole**

Designs on sprites

I AM looking for a good sprite designer and animator, and I know of five packages which could be what I want: AB Animator by AB Software, Make it Move, by Michtron, Advanced Art Studio, by Rainbird, Quantum Paintbox and Pro Sprite Designer by Eidersoft.

Could you tell me which of these programs is the best for generating colourful and well animated sprites? Do you know if any of these programs allow the integration of sprites into programs written in GFA Basic?

Also, do you know a way of changing the horse demonstration provided with GFA Basic so that it works in medium of low resolution? There must be a way of changing the data.

Thanks for the best ST magazine on the market. **– Jason Anderson, Portmead Swansea.**

● You'll find a review of Quantum Paint in this issue, Pro Sprite Designer in the January 1988 issue, and Advanced Art Studio in the September 1987 issue of *Atari ST User*. We haven't tried the other two packages yet.

All are excellent pieces of software, though they are each biased toward a particular aspect of graphics, design or animation. The best all round package is probably Advanced Art Studio. Even though this is primarily an art package, it has excellent sprite and animation facilities.

GFA Basic has built-in sprite and other related commands for accessing the screen, though for best results you would be better off writing your own routines in machine code.

We're not sure how to get the horse demonstration running in medium and low resolutions. Can any readers help?

Which word processor?

I BOUGHT my nine-year-old son a 520ST for Christmas. Being a complete novice to the computer world, I would be grateful for your advice on the following:

My son thoroughly enjoys playing games on the micro, but he also wants to write on it – like using a typewriter. I am aware that in order to do so he will require a word processing package.

As these can be rather expensive I want to make the right choice. Reading through your magazine I notice that 1st Word Plus appears to be popular with advertisers.

Does it contain a spell checker – my son needs help in that area? Do you feel it is suitable for my son's needs or can you recommend another package?

My second query is that I received the UK language disc with the micro. However, there's no manual to explain the information contained on the disc. Can you recommend a suitable book to do this?

I have found your magazine excellent, especially the games reviews. **– Lesley Ferguson, Stirlingshire.**

● 1st Word Plus is an excellent word processor and quite popular too. Kuma's K-Word 2 is almost identical and is around £20 cheaper at £39.95. Both include spelling checkers.

A Basic manual is available, though many readers find that it doesn't give enough examples, and it doesn't cover the new version of ST Basic either. We'll be starting a new Beginner's Basic series next month.

Centronics compatible?

I HAVE just bought an Atari 520STFM and I also have a Centronics GLP printer which I use with a BBC Micro. I am having trouble getting the printer working with the Atari. Can you tell me if I am wasting my time? **– P. Haley, Chatham, Kent.**

● Any printer which works on the BBC Micro will work perfectly on the ST – you'll need a new printer lead. You must set the Dip switches inside the printer so that it produces line feeds. If you have to type *FX6,0 on the BBC Micro before printing anything, the Dip switches need altering.

We'll point you in the right connection!

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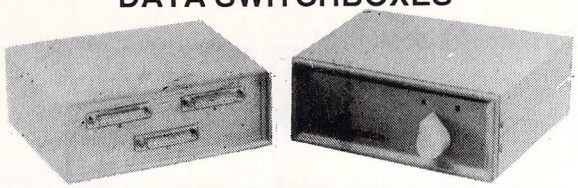

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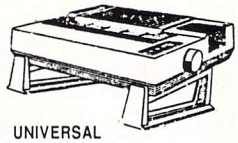

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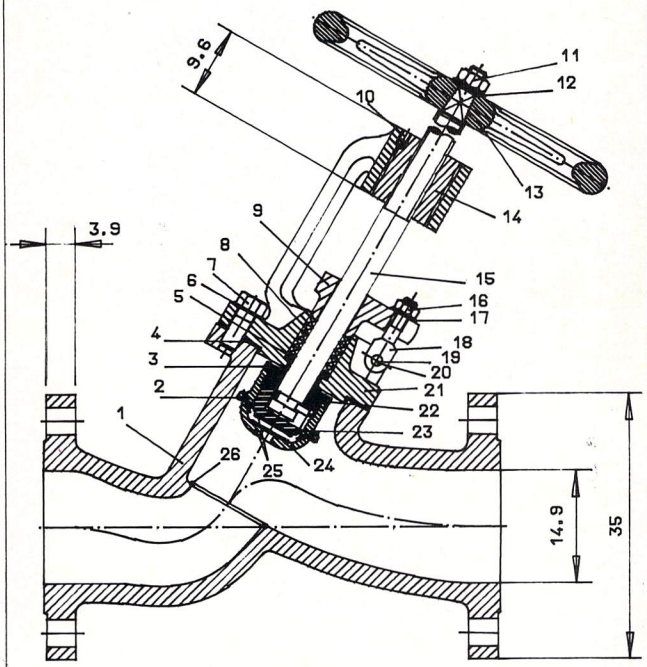

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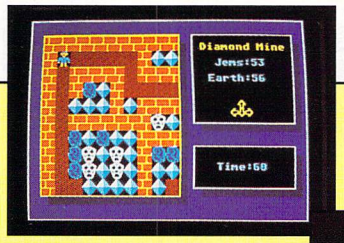

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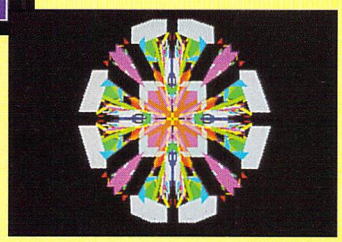

Kaleidoscope

This very useful disc is packed with programs from the pages of* Atari ST User. *It's the perfect way to learn more about this superb computer, as well as being an entertaining diversion. And all the programs come on one 340k disc – together with Computer Concepts' Fast Basic runtime interpreter, which you'll need for some of the programs.

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Molecule – Fire probes down the grid to find four carefully hidden atoms *(high res monochrome)*
First Count – A word count for First Word installed as a desk accessory. C source listing included.
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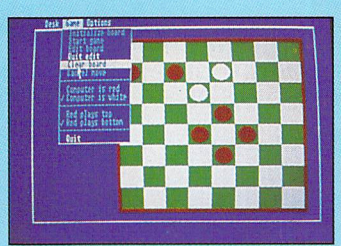

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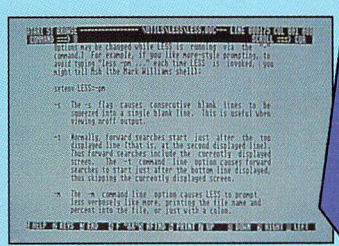

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October issue: Listings: Play Molecule, create a flight simulator, add a word counter desk accessory, keep track of your investments on the stock market. Reviews: Signum, Publishing Partner, GFA Draft, STuff, VIP, Road Runner, TNT, Eagles Nest.

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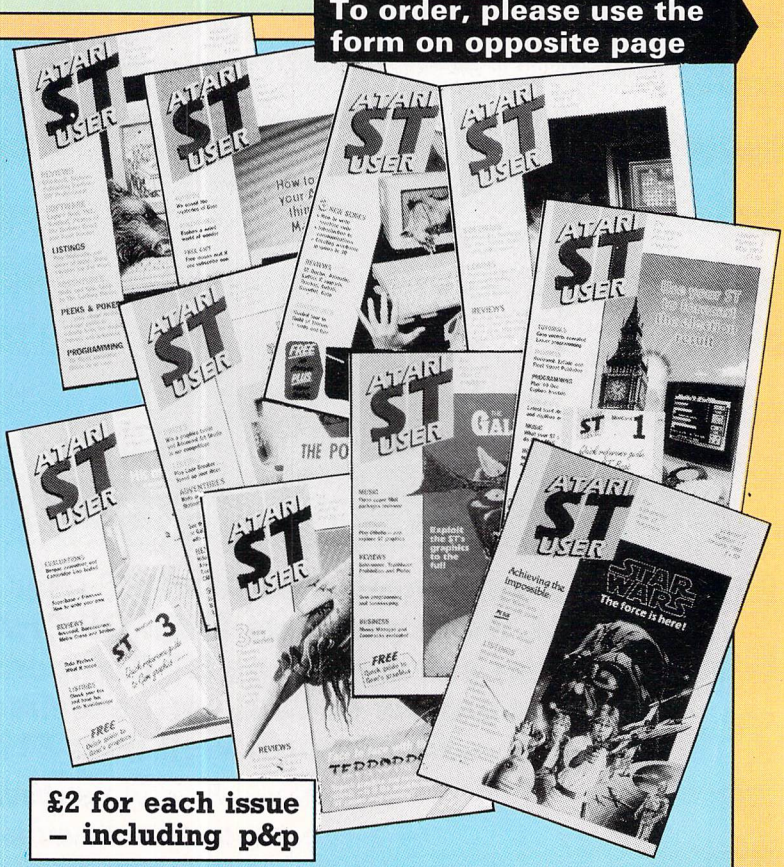

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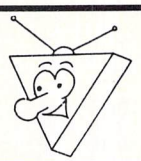

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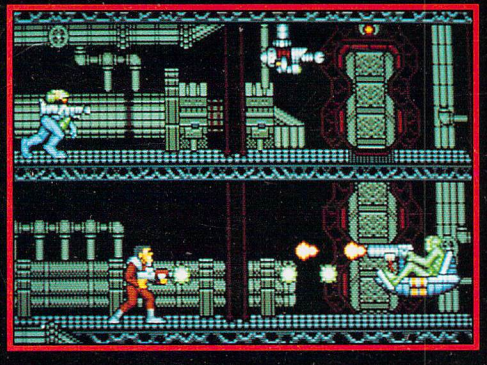

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