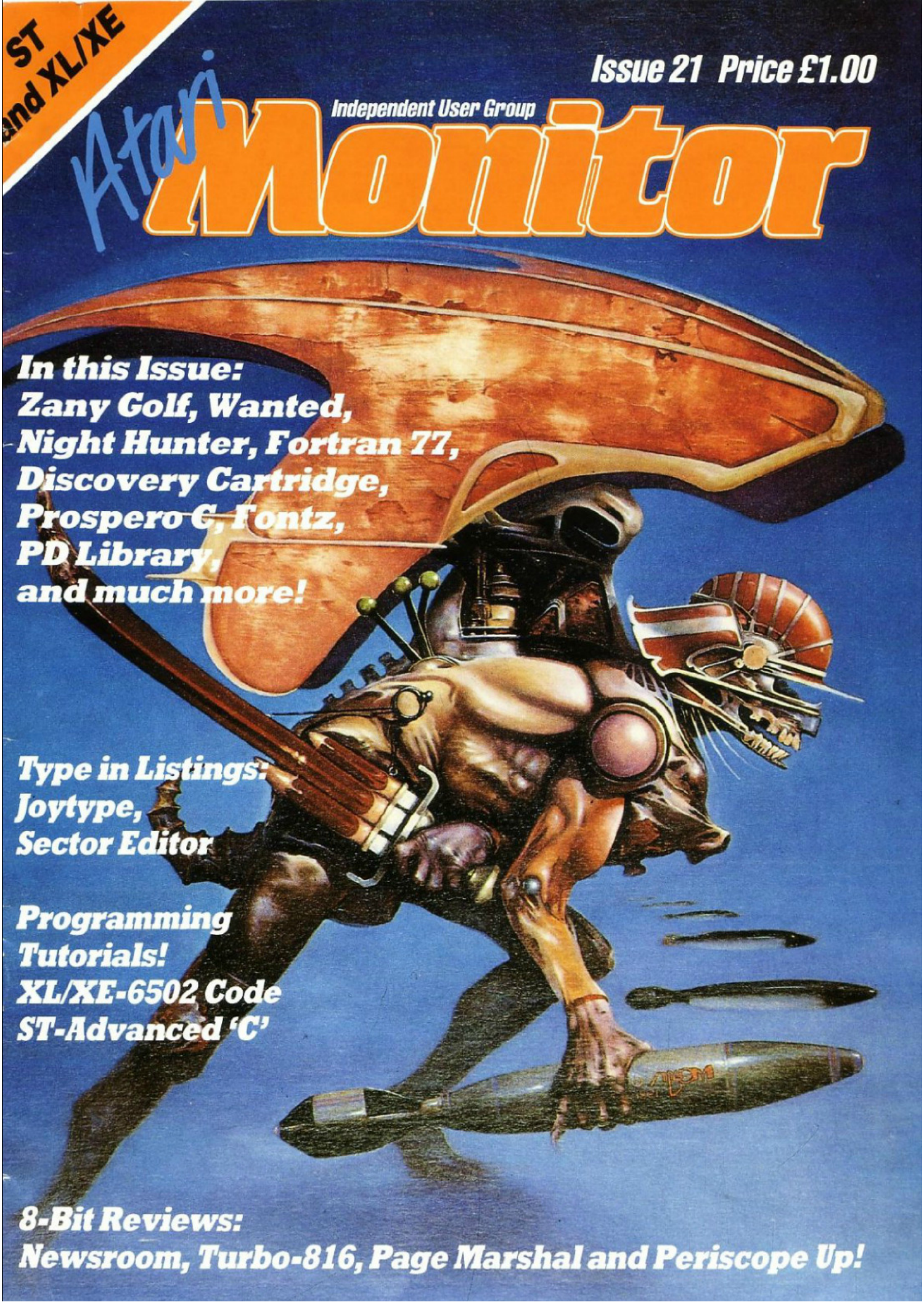
ST
and XL/XE

Issue 21 Price £1.00

Independent User Group

Atari Monitor



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ANDES ATTACK

LLAMASOFT
announce the release, on 23rd January 1989, of
***ANDES ATTACK,* JEFF MINTER'S** new game
for the **ATARI ST.**

★ ***ANDES ATTACK*** is the re-creation of a 1982 LLAMASOFT product, which was based on a classic arcade game and originally programmed for the VIC 20.

★ The new ***ANDES ATTACK*** takes full advantage of the **ST's** capabilities to update the concept and to further improve the game's proven appeal - the elements of speed, strategy and control are beautifully combined. The game's graphics are detailed and amusing but the main aim of the programming has been on **playability, the basis of sustained player interest.**

★ Control of the defending space craft and its weapons by mouse and keyboard is ingenious and effective - it needs to be good to give the user a fighting chance! For newcomers to such hectic action a 'Training Mode' is included in the game facilities.

★ ***ANDES ATTACK*** will appeal to computer games players, old and new, and to arcade game enthusiasts.

★ **The package includes an entry form for a high score competition with a substantial prize, the final stage to be in a public venue, possibly at the next ATARI Show.**

★ **Recommended Retail Price - £9.95**

ANDES ATTACK — DEFEND OR DIE!

SUPPLIES FROM LEADING DISTRIBUTORS OR DIRECT FROM LLAMASOFT
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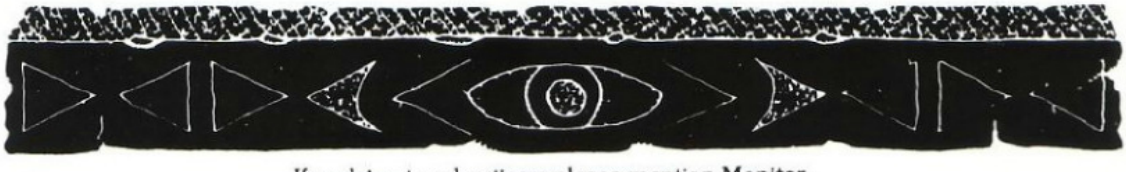

THE U.K.
ATARI
COMPUTER OWNERS CLUB
INDEPENDENT USER GROUP

Address Change

Please take note that the address for all correspondence to the club and Monitor magazine has changed. It is now P.O. Box 213, Southend-on-Sea, SS1 2QF. If you have recently used the old address, do not worry, as all mail is being redirected to us.

Show News

There is a new show for you to visit this year! It's the Essex Computer Games Show, to be held on Friday 21st April, Saturday 22nd April and Sunday 23rd April at the Festival Hall, Basildon, Essex. Opening times are from 9 am to 9 pm on the Friday and Saturday, and from 9 am to 6 pm on the Sunday. The club has taken a stand at the show, (stand number 66) so come along and say hello, you'll be most welcome. We shall also have available the ST library disks for sale, so if there is something you meant to get why not get it the show!

The Atari User Show which usually takes place at Alexandra Palace in April has been put back till later in the year. It will be at the same venue but the dates will be 23rd to 25th of June, tickets will be £5 for adults and £3 for children under 16, and this year's Xmas show will be nearer to Christmas, vis December 1st to the 3rd also at Alexandra Palace.

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Cover: Balistix from Psygnosis, artwork by Melvyn Grant.
Club Address: P.O. Box 213, Southend-on-Sea, Essex SS1 2QF.

ADVERTISEMENTS

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ST PROGRAMMING

By Keith Mayhew Part Seven

Continuing with resource trees, we look this time at editable text fields. This is followed by a short discussion on using a resource construction set for generating resource trees and loading them for use with your programs.

Note that the names of objects and structures referred to in the rest of this article were defined in Part 6 of this series, in issue 20.

Text Objects

The object types 'OT_TEXT' and 'OT_BOXTEXT' are simple text objects, the latter being the same as the former but providing a box as a background behind the text. Both objects use their 'ob_spec' field as a pointer to a 'TEDINFO' structure rather than directly to a text string, as is the case with the 'OT_STRING' object which we have already looked at.

The 'te_ptext' field of 'TEDINFO' is used to point to the string to be displayed, its length, including the null (0) terminating character, is held in 'te_txtlen'. The font used to draw the text with is determined by the value in 'te_font': 'O_TXT_LARGE' (3) is the default system font; 'O_TXT_SMALL' (5) is the miniature font used for labelling icons.

Unlike ordinary strings, text objects can be left, centre or right justified. This is determined by the value in the 'te_just' field, which can be one of the following: 'O_TXT_LEFT' (0), 'O_TXT_RIGHT' (1) or 'O_TXT_CENTRE' (2). Justification of text strings takes place relative to their box size as defined in their width and height fields. One particular situation where this is useful is in providing a centred title string to a dialogue. This is easily achieved by setting centre justification and making the box of the text object span the entire width of the dialogue. No matter what the length of the text string, it will always be drawn in the centre of its box and, hence, the dialogue. Note that justification is re-calculated for the string every time it is drawn, so if the string is changed then redrawing it will automatically re-justify it relative to its box.

The information governing the colour of the text, whether it is drawn in replace or transparent mode and the parameters for the drawing of the box, such as border width and fill pattern, is held in 'te_thickness' and 'te_color'. The former is the same as the high word of the 'ob_spec' field for types 'OT_BOX', 'OT_IBOX' and 'OT_BOXCHAR' which we looked at last time, except that the character code is ignored. The latter, 'te_color', is the same as the low word of the 'ob_spec' field for the above types.

When an object of type 'OT_TEXT' is drawn, all parameters relating to the box are ignored. Only the text colour, and the replace/transparent flag are used: no background to the text is drawn - so if transparent mode is selected then any existing background will show through the text. For 'OT_BOXTEXT', the box is drawn first, with the specified fill pattern and border width, and the text is drawn on top of that. Again, if transparent mode is selected, then the fill pattern of the box will show through the text.

Editable Text Objects

Closely related to 'OT_TEXT' and 'OT_BOXTEXT' are 'OT_FTEXT' and 'OT_FBOXTEXT', the 'F' standing for 'formatted'. These objects are drawn in exactly the same way as the text objects described above except they can be edited by the user when the program is in a 'form_do' call. The flag 'OF_EDITABLE' must be set in the object's 'ob_flags' field for 'form_do' to actually permit editing - this is a useful feature as editing of different editable objects can be selectively switched on or off at will by a program.

An editable object consists of three textual parts: a template string, a validation string and the editable text string. The 'te_ptmplt' field is a pointer to the template string; 'te_tmplen' holds the length of the template string, including the null terminating character; 'te_pvalid' is the pointer to the validation string (there is no corresponding length field for this); 'te_ptext' points to the editable string and 'te_txtlen' holds its length.

When an editable text object is drawn, the above three text strings are merged together and displayed as one. The template string forms the basis of an editable object: it determines which parts of the final string will be editable and those which will not. The string looks exactly like the final string except that all the characters which are editable have to be set to the underscore character. For example, if we wanted an editable text field for entry of a person's name and age we could set the template string to:

'Name: _ _ _ _ _ _ Age: _ _'

Note that this has fixed the maximum name length to six and the maximum age to 99. The length of this string is twenty characters, so allowing for the null character, 21 should be put into the 'te_tmplen' field.

The initial text to be displayed in place of the underscores when the object is drawn is determined by the string pointed to by the 'te_ptext' field. For instance, the string 'GEORGE56' will, when merged with the template, produce the following:

'Name: GEORGE Age: 56'

The initial text string does not have to fill the editable portions of the template string fully. For example, 'MARY 9' or 'JOHN' are suitable strings, as is an empty one i.e. just a null character. No matter what the length of the initial string actually is, the maximum possible length, including the null, must be stored in 'te_txtlen', i.e. nine in this example. Furthermore, there must be enough storage allocated for the string to allow for this maximum case, as we will see later.

The validation string, pointed at by 'te_pvalid', consists of one character for every editable character in the template string, i.e. it is the same length as the maximum allowed for the 'te_ptext' string. Each of these characters in the validation string represents a set of possible characters for their respective positions in the template. Table 1 lists the validation characters and the set of characters they represent.

9 - Allow only digits 0 to 9.
a - Allow only upper and lower case letters plus spaces.
A - Allow only upper case letters plus spaces.
n - Same as 'a' but also allows digits 0 to 9.
N - Same as 'A' but also allows digits 0 to 9.
F - Allow all valid GEMDOS filename characters, plus '?', '*' and ':'.
p - Allow all valid GEMDOS pathname characters, plus '?', '*', '\', '.', and ':'.
P - Allow all valid GEMDOS pathname characters, plus '\', '.', and ':'.
X - Allow any character.
Note: valid GEMDOS filename and pathname characters are upper case letters and digits.

Table 1. Validation characters and their meaning.

For our example, let us say we would like to restrict the characters in the name field to upper and lower case letters

Be part of the action

at the ATARI COMPUTER SHOW

Alexandra Palace, Wood Green,
London N22
Friday to Sunday,
June 23 to 25, 1989
Fri & Sat: 10am – 6pm,
Sun: 10am – 4pm

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

MIDI

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

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

CAD

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

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

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

BUSINESS

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

As well as products for the 8-bit and ST, you'll be able to try out applications for the powerful Atari PC compatible series.

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

DTP

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

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

GAMES

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

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

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

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

DON'T MISS IT

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

And if you send in the coupon now, you'll save £1 off the price of a single ticket!

SPECIAL OFFER

For the first time we are now offering a family ticket for just £11, allowing entry for two adults and two children. So you can save up to £6 off the usual entry price!

How To Get There

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

If you're travelling by road, the show is only 15 minutes away from Junction 25 on the M25. Car parking is free.

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including spaces and the age field to only digits. This implies that the validation string will be 'aaaaaa99'. If we wished to allow only upper case letters and spaces in the name field then 'AAAAAA99' would be necessary.

Editing Text Objects

After an editable text object has been displayed, causing the three constituent strings to be merged together, the object can be edited by the user whenever a 'form_do' call is active. Recall that 'form_do' accepts as its second parameter the index of the first editable object on which the cursor should be placed; this can be any editable object within a dialogue, or zero if there are no editable objects.

Movement between editable objects is achieved with the up and down arrow keys. The left and right arrows move the cursor within a field and the delete and backspace keys are also active. If the escape key is pressed at any time then all the characters in the currently active field are deleted. Insertion of new characters is limited by the validation characters.

On return from a 'form_do' any editing which has taken place will have modified the appropriate 'te_ptext' strings. Note that if any of these strings was shorter than its maximum then the underscore characters, displayed to fill up the remaining positions, are NOT returned.

Caveats and Bugs with Editable Objects

If, initially, you wish to display an empty edit field, as is the most common, then a 'te_ptext' string consisting of just a null character is sufficient. There is, however, another way of achieving a blank field, that is by placing the symbol '@' in the first character position. Regardless of further characters in the field, the whole field is displayed as blank. Unfortunately, this facility is provided on user input, so that if an '@' is typed at the start of a field validated by 'X' then the rest of the field just disappears. It will not, however, delete the rest of the characters unless you move the cursor back to the left. If more characters are typed after an '@' then they will be entered but not displayed! It seems best to avoid the '@' character if at all possible!

There is a very nasty bug in the validation routine for editable objects in many 'old' ROM machines. This causes the whole machine to crash if you type an underscore character in a field which is being validated by anything OTHER than 'F' or 'X'. To test to see if your machine has this bug, display the standard GEM file selector dialogue and type an underscore on the pathname field at the top.

Note that the value in 'te_txtlen' never varies, even if a field is completely empty after an edit, and that it should not be altered by your program either.

One useful but, to my knowledge, undocumented feature of editable objects is the fact that if a character is typed which is not valid for the current character but is in the template string, forward of that point, then the cursor is moved to the start of the field following that template character; the gap being filled with spaces. This is used for filename entry where the '.' in the template string (between the main name and the extension field) will cause the cursor to move to the extension field if a '.' is typed anywhere in the name field. Another example is date entry where a template string of 'Date: _ _/_ _/_ _' and a validation string of '999999' will cause the cursor to move to the next field if a '/' is typed.

Producing and Using Resource Files

As has been said several times in this series, the easiest and least error prone way of producing resource trees is by using a resource construction set, such as the highly recommended K-Resource from Kuma.

Production of a typical dialogue consists of selecting a 'form' or 'panel' to hold the tree; opening this and placing a box object as the root followed by the placement of objects within the root box. You will find that all resource editors let you name trees, i.e. the form or panel, and the objects within them. Note that you do not have to name all objects, only those you wish to reference directly from within your program. Objects can also be sorted by resource editors thus producing a pleasing effect when the tree is drawn. There is another advantage to sorting objects: if you have several objects all within a common parent, and they are sorted, then you only need to name the first of the objects in order to reference any of them. This is because the name of an object represents an index number, and thus adding one to it references the next object, adding two to it references the one after, and so on. As all the objects are sorted they are guaranteed to have consecutive index numbers.

A resource editor will let you have many trees all within the same resource file and copy or move objects between them. The maximum limit imposed on all the data in a resource file is 64K, however, some editors restrict you to 32K. Once written to disk the resource file is given the extension '.RSC' and a header file is also written containing all the names and index values of the objects in the resource file. For the C language, these names are declared with '# define', for other languages it may consist of constant declarations (Pascal and Modula II) or DATA statements (BASIC and Assemblers). Check before you buy a resource editor that it will generate the right type of header files for your language(s) - all of them support C. The header file is included in your program in the normal way, i.e. '# include' for C.

To load a resource file into memory a program calls 'rsrc_load' with a pointer to a filename string. It is best to avoid specifying a drive name in the string so that the resource file can be loaded from any drive and directory. 'rsrc_load' will return zero if an error occurs, such as file not found. The last thing a program must do before calling 'appl_exit' is call 'rsrc_free' (with no parameters) to free the memory allocated to the resource trees.

Note that you cannot load two resource files simultaneously - if you have a situation where you have, say, different resource trees for different resolutions, then create several resource files and decide which one to load as your program starts up.

You will find that resource trees can be made reasonably resolution independent by using an editor's character 'snap' facility. This ensures that all objects are aligned, or snapped, to character boundaries. The advantage is that resource files specify objects in terms of character sizes and 'rsrc_load' converts the objects to pixel co-ordinates, multiplying the character co-ordinates by the appropriate value for the current resolution.

Once loaded, the address of a particular object tree can be located with a call to 'rsrc_gaddr', for example: 'rsrc_gaddr(0, TREENAME, &tree_p);' will return the address of the tree named 'TREENAME' into the 'OBJECT' pointer 'tree_p'.

The zero parameter at the start of 'rsrc_gaddr' indicates that the name refers to a tree. Other values are allowed for this parameter to get the address of, say, a specific 'OBJECT' structure. Do not, however, use this function for getting the address of an object: the reason why it will not work is that the index produced by a resource editor is not the same as the one this function expects! If you want the address of a particular object, say 'MYBUTTON' in 'TREENAME', then use 'rsrc_gaddr' with 'TREENAME' as shown above, then use '&tree_p[MYBUTTON]' to get its address. To get the address of a sub-structure of an object, such as 'TEDINFO' then do the following to obtain its address:
'(TEDINFO *)&tree_p[MYTEXT].
ob_spec'.

A related function to 'rsrc_gaddr' is 'rsrc_saddr' which allows you to set the address of particular trees and objects within the resource loaded in memory. This seems to me to be a completely useless function, as does 'rsrc_obfix' which performs the conversion from character to pixel co-ordinates 'rsrc_load' does automatically!!! If anyone knows of a genuine use for these last two functions, please let me know...

Next Time

Having seen the theory behind editable objects, next time we will look at an example program. We will also see how menu bars are created and used.

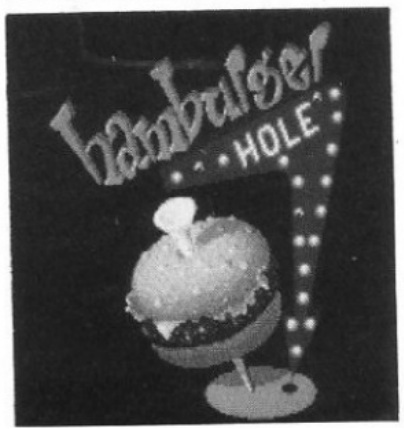
Zany Golf

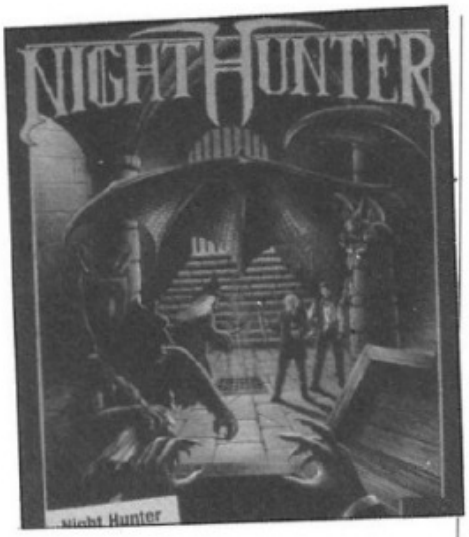
From Electronic Arts
Price £24.95
Review by Colin Thoms

Zany Golf is based on what we in the UK would call miniature or crazy golf, you know those weird little golf courses usually to be found on the seafront at most seaside holiday resorts. But this computer version is more out-of-this-world than you usually find in said seaside towns! The course consists of nine flambouyant, and tricky, holes with names such as Hamburger, Magic Carpet, Energy, Pinball, Fans and Windmill! I particularly enjoyed trying to 'pump up' the hamburger which was covering the hole at the same time as trying to line up my next shot. And I also love the sauce bottle which you use to bounce your ball off to get it round the course, every time you hit it a great big dollop of tomato sauce shoots out, great!! Each 'hole' has a 'par' and you are only allowed so many shots for each. If you don't 'get down' in the allowance that's the end of your game. Some screens seem hard at first, for example, you only get 2 shots at the 'Walls' hole where you must negotiate three walls, a wicked slope at right angles to the action and it must seem an impossible task! But if on the previous hole you were lucky (or clever) enough to pass your ball over the 'small' red flags you would have gained extra shots which you can carry forward to the next hole!

Each 'hole' is introduced by a stunning artistic impression of the hole, followed by a preview screen of the complete course for that hole. Sometimes hints are given as well. You use the mouse to play and a click will take you onto the start of the course. By moving the mouse to the edge of the screen another part of the course will scroll into view. Putting the ball only requires you to place the cursor over the ball, press the left button and hold it down, pull back from the ball and a white dotted line will appear, the length of the line is an indication of how hard you intend to strike, then release the button and the ball will fly off in the desired direction! I must say that the movement of the ball is the most realistic I've ever seen, I'd like to see the code that makes it move that way, it must be a real humdinger bit of programming! The quality of the graphics is outstanding as well, typical american zany graphics in fact!

The packaging sports the claim that Zany Golf is the 'Number one in the USA'. Frankly I'm not surprised. Nice one!





Night Hunter

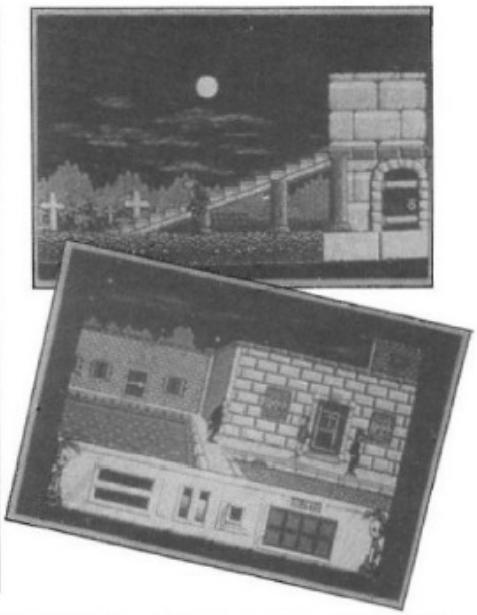
From UBIsoft
Price £19.99
Review by Stuart Rennie

If you, like myself, enjoy a good horror story, well let me tell you that UBIsoft have brought the gruesome vampire tale to the computer screen, in the form of a fantastic game called Night Hunter.

In the game, you play the famous vampire Count Dracula who needs to steal several holy medallions (it doesn't actually say how many medallions you have to find). On finding all the medallions he will create chaos on Earth and become its master. But one man, Professor Van Helsing, stands in your way (thats not counting the army of vampire-fighters, or the witchs, who fly along on their broom sticks and cast spells which drain your energy).

The game features 30 different levels of 20 screens each. To pass from one level to the next, you must collect eight objects; three parchments and five keys, and find a magical door (blue or red) which leads to the next level. To help you through the levels you can transform into a werewolf or a bat. A blue pillar on your instrument panel shows your transformation time. Each time Dracula is transformed into a bat or werewolf this pillar will decrease. Once it has disappeared Dracula will become a vampire again (if you have taken the shape of a bat be careful not to transform back into a vampire whilst you are over water). An orange pillar shows your energy level. Each time you are hit by an enemy you will loose some energy. Dracula will die when there is no energy left. You can gain energy by grabbing an enemy (be it an archer, a strong-arm man or an axe wielding maniac) and sucking his blood. When you have finished sucking all of his blood he turns into a skeleton and as you let go it falls to the floor with a wonderful bone rattling sound. This method of killing your enemies cannot be used to kill witches or Professor Van Helsing, also if you find it difficult to get close enough to the archers, fear not, one solution is to turn into the werewolf and just claw them to death, or, and I find this a lot easier, simply turn into a bat and when you're next to an archer transform back into Dracula and quickly grab him and suck his blood.

Night Hunter has amazingly crisp graphics, good playability and sound effects which really do the ST justice. But it does have one thing which could have been better, that is that the screen pages from screen to screen (meaning, it doesn't scroll). Apart from that though, I found it one of the best computer games I've seen for a while (and believe me, I've seen quite a few).

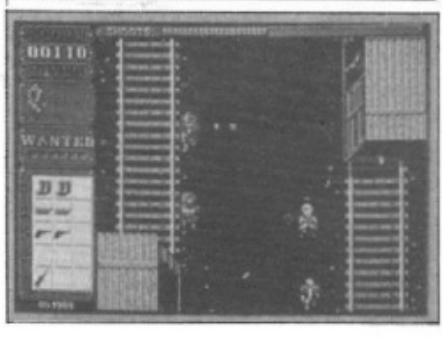


Wanted

From Infogrames
Price £19.95
Review by Bill Dyer

Infogrames have brought the Wild West to the ST! The game is set in Arkansas in 1880, you play the role of a bounty hunter set on apprehending or killing four notorious bandits. Each bandit is worth $5,000, $10,000, $15,000 and $20,000 in ascending order of nastiness. Each bandit also has a gang of assorted hired-killers and desperadoes which he sends against you. As you advance up the town's main street, or the railyard, or the canyon, etc. the bad guys come pouring out of hiding with guns blazing, you must dodge and weave whilst firing back as best you can. To help you, you are able to collect a number of special items which are hidden in barrels, just shoot the barrel and the item appears, pass over it to collect it. You can collect pistols to increase your firing power, rifles for long distance shooting, cowboy boots to speed your movement, dynamite to wipe out whole screens of baddies, a sheriff's star makes the whole task easier, ammunition to stock up your bullet-belt, temporary shields to protect your hide and hearts which give you added lives. You'll also find some loot from time to time. Avoid the skulls however, they will drain you of 5 of your hard earnt items.

Wanted is a fast and furious game to play, in fact that is the only way to survive! Hesitate and you're dead! The graphics are top class and the game play exceptional. I think it's one of the best 'shoot 'em ups' I've come across for a while! Wanted should be on everybody's 'wanted' list!



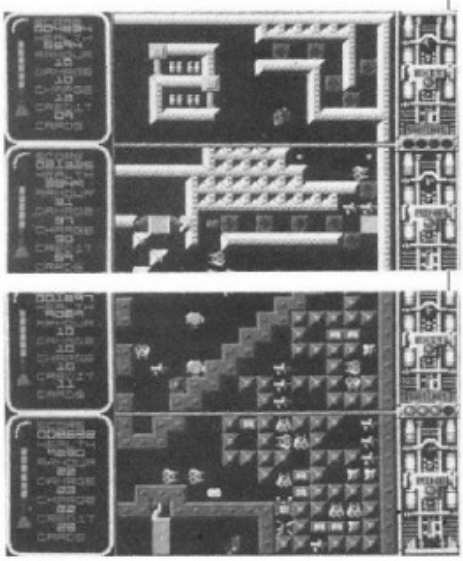
Captain Fizz Meets The Blaster-Trons

From Psyclapse
Price £14.95
Review by Dave Johnson

This game is pretty unique in the annals of ST games, it's a two player game! Well? That's not unique I here you cry! But in this game although one person can play the only way to win is if two of you simultaneously zap the nasty Blaster-Trons! This means that the anti-social tendencies of most computer owners to sit alone in their bedroom late at night zapping away just doesn't work here, you just have to invite a 'friend' round (presuming you have any left)! The only thing I can't figure is whether player one is Captain Fizz or player two? Well maybe player one is Captain and player two is Fizz? Only Dr. Johan Ellisson (founder of the Queen's Cloned Highlanders, the revered organisation to which Captain and Fizz belong) will know (maybe).

The screen is split into two halves (one for each player) and gives a birds eye view of the mazes through which you must both pass. You move your QCH by joystick, firing at the Blaster-Trons as you go. There are 22 levels to get through to reach the central computer, which you have to destroy. By destroying the alien generators on each level, collecting keys and things you will be able to descend to lower levels. During the fighting audio signals are given to indicate achievements, enabling you to enter lifts, cross barriers and solve puzzles.

I found it to be an addictive game and I spent many happy playing hours on it. Why don't you do the same?



Prospero Fortran 77

From Prospero
Price £129.95
Review by Nicholas Lusty

Prospero have recently released new versions of their Fortran and Pascal compilers. In the past Prospero has concentrated on producing only compilers, assuming that the user would already have access to an editor. The compilers were reliable and conformed to official language standards. However the support for GEM was very poorly documented, consisting of thirty pages of sub-program definitions but no details of what they did. This made any GEM programming virtually impossible, even with the aid of a GEM textbook. The programs created by the compiler required a resident 'Library' to be loaded into memory, usually from the AUTO folder. This made the program files smaller, and speeded up linking, but was unpopular with many users.

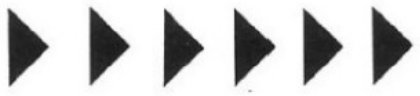
The new version, now entitled 'Prospero Fortran for GEM', bears little resemblance to the original spartan package. Gone is the IBM-style loose leaf type-written manual. It is replaced by a boxed set of three shiny 250 page comb-bound typeset books. The first of these are the main Fortran manual which contains details of the contents, installation and operation of the package, and a definition of the language supported. It is, as before, primarily a reference manual, and certainly not intended as a Fortran tutor. The other two manuals provide detailed documentation of the GEM VDI and AES subroutines. The explanation of the methods of using GEM, and the examples used are clearer than any I have seen before. In addition, several complete example programs are included on the disk and I was soon successfully modifying them and enjoying the process of GEM programming without crashing the system. Previously I had found GEM programming inevitably ended in a line of 'bombs' across the screen.

But the biggest improvement to the package is in the software. Where the old package consisted of a compiler, GST's linker and a set of libraries, the new package is a completely integrated system. The core of the system is the Workbench. This is a fully featured GEM based program editor with all the usual trimmings, and Wordstar compatibility. However in addition to the usual editing functions, the dropdown menus also contain entries to compile, link, run, cross-reference and debug the programs, in a similar style to HiSoft's Devpac editor. The workbench then loads the necessary overlays and performs the function required, returning to the editor at the end. In addition, if the compiler finds an error in the program, the user can return to the workbench with the cursor automatically pointing at the error. However the editor only remembers one error per compilation.

Users of Prospero Fortran may notice a few special features of the compiler retained from the previous version. Fortran does not usually demand that simple variables are declared; it assumes that all variables beginning with the letters I to N are integers, and that all others are real. Of course, if double precision, complex or array variables are required then they must be declared explicitly. However Prospero Fortran allows the user to specify that ALL variables should be declared. If the user

takes advantage of this option, it increases the amount of typing required, but allows the compiler to highlight any spurious variable created by a typing error. The compiler can also be instructed to add additional code to check that array subscripts and assignments are within legal range.

A major addition to the new system is the symbolic debugger, PROBE. Probe is a source line debugger that enables the user to follow the original Fortran program lines as they execute. It is possible to view the variables as they change, modify them, jump around the program, set the program to run until a line is reached, a variable altered to a particular value (or simply modified to



any value), or any combination of these. All the variables and source lines are described as in the original program, not by obscure addresses. The user need not know anything about machine code. The debugger is also able to tell the user how many times each line has been executed. This enables the user to find unused lines and perhaps to think carefully about improving the efficiency of the most frequently executed lines.

Conclusion

The new package is a comprehensive Fortran development system. The integrated design of the package reduces the amount of effort required to develop a program and considerably speeds up development time; the new compiler running much faster, still producing the same reliable code; the debugger enabling the user to find errors quickly. If I have any complaint about this package, it is that it would have been nice if the editor could remember ALL the errors in the source program. (I have seen this done on another editor written by Keith Mayhew). Perhaps Prospero could consider this in a later upgrade!

Discovery Cartridge

Review by David Eaton

About 18 months ago, Happy Computers announced they were to produce a back up system for the Atari ST computer. Unfortunately things did not go very well, and after delay after delay the final product reached the UK in November 1988.

Happy Computers first made a name for themselves on the Atari 8 bit computers. They built a custom designed pc board, that fitted inside the 1050 and 810 disk drives. It gave these drives, undoubtedly, the best back up system at that time. It offered true double density, high speed read and write, plus the back up of most, if not all protected software around at that time.

The ST Discovery Cartridge is a completely different back up system altogether. Firstly, as its name suggests, it is a cartridge. A nice four inch square, ST grey cartridge and it can be left in the cartridge port at all times, if you so wish. Any software that is backed up via the Discovery cartridge, does not require the cartridge to run it.

Inside the Cartridge is HART. This is the custom disk analyser chip. Unlike the 8 bit Happy, it does not fit inside the disk drive, so there is no need to open your computer or disk drive. You can be ready to use the cartridge within seconds. First make sure everything is turned off, plug in the cartridge, you then plug a lead from the cartridge to the floppy disk plug on the back of your ST and you are ready to begin.

For £175 the Discovery Cartridge does seem to offer ultimate disk back up. Because it is a cartridge you only need to buy one, and not one for each drive. It supports two drives, and there is the option to add another two. It does not give super fast read and write because of the way the ST disk drives work, but it does slightly increase speed by only needing 1 revolution of a disk to format and write, where as the ST disk controller needs 1 revolution to format, and a further revolution to write.

Disk back up couldn't be easier. Just load up the software, and select disk to disk copy, follow the prompts and you should have an exact duplicate. To speed things up, there is a file called DBKUPCF.S, this is the backup control file, which 'tells' the back up program how to read the source disk. The file contains many ways to read the source disk, not protected, double sided etc. There is also full documentation on how to edit this file so you can tell the back up program how to read the source disk. Happy are planning a library of such files, so that if there is a disk you cannot back up, the way to do it should be in the library.

The cartridge will also back up Amiga and Macintosh software, plus for £250 you can buy the option 1 cartridge, which contains real time clock, extra drive sockets, and the facility to add Macintosh ROMs. The ROMs are not included.

There is also the facility to copy the whole of a disk to a file, this file could then be archived and transferred over a modem. This could save lots of time if there are lots of small files to transfer, as all the small files would be made into one big one, although blank areas of the disk would also be contained in the file. The only disadvantage is you need a Happy Cartridge the other end, to copy back from file to disk.

The manual that comes with the cartridge is very informative and easy to follow, but it comes on the disk, and unless you have a printer it can be a pain. The software for backing up disks is the usual Happy style software, it is not fancy, it just does what it is supposed to. There is also a cartridge tester program included.

Whether this will encourage piracy is another thing. Happy think that everyone should be able to make a back up of all the software that they purchase, but they make a point of saying that piracy is illegal, the following is an extract from the manual.

"Software authors work very hard to produce the marvellous programs that make your computer so much fun and so useful. Generally speaking, they are not doing this for the fun of it. They do it to make money. They have to eat, make rent or mortgage payments, and purchase cars, VCRs, and clothes (no order of importance is implied). They need to be compensated for their work, like any other person. Copy protection is placed on disks as an attempt to ensure that authors receive fair compensation for their work. Our disk backup system was created to allow users to make backups. It is not our intention to deprive authors of income. With a powerful backup system such as ours, the copy protection on the disk will at least serve as a reminder that authors should be compensated.

"There really is a need for backups. Disks can and do fail, for a whole variety of reasons. Almost anyone who has used computers and floppy disks for some period of time can attest to this. The safest thing to do is make backups, and put the original away for safe keeping. It's best if you also make a backup to stash away just like the original. Check the laws of your own locality before copying any computer program."

For £175 you do seem to get the best software backup program available. At the moment there is no software it will not backup. There will no doubt be clones, but I doubt if they will be anywhere near as good as the Happy.

For large information pack, including technical notes of the Happy Cartridge, send a large SAE to: Stocksoft, Dept Happy, 15 Woodbrooke Road, Birmingham B30 1UE.

THE HAPPY DISCOVERY CARTRIDGE

THE BACK UP SYSTEM THAT WILL BACK UP ALL ATARI ST DISK SOFTWARE

OPTION 0
Will back up any Atari ST disk, regardless of format or protection, also most Amiga software - £175.

OPTION 1
As option 0, but with added features of,real time clock, 3rd & 4th drive, slot for MAC ROMS (not supplied) allowing you to run MAC software - £250.

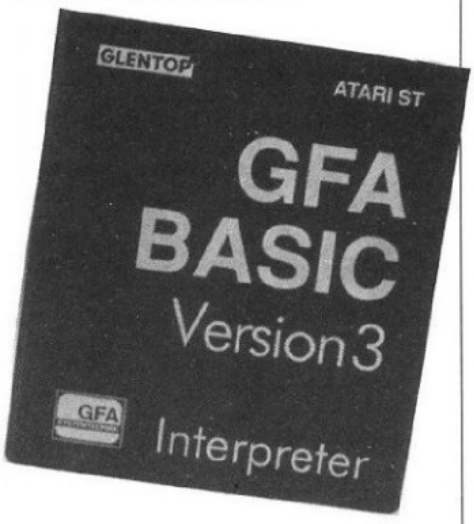
HAPPY COMPUTERS of Calafornia USA, who have a big name in producing enhancements for Atari 8 bits, have now released their ST range. For full information pack, send large SAE to UK agents:

STOCKSOFT,
15 WOODBROOKE ROAD,
BIRMINGHAM. B30 1UE.

WARNING: It is an offence to sell or distribute pirated software. Therefore misuse of the Happy Discovery Cartridge could lead to your prosecution.

GFA Basic V3

From Glentop
Price £65.00
Reviewed by Keith Mayhew



GFA Basic version 3 is a fast and flexible Basic interpreter. It is supplied on a single disk containing the interpreter and several sample programs, plus there are a host of examples from the manual already typed in, ready to run, each demonstrating a particular feature of the Basic. Also provided is a run-time only version of the interpreter so that programs can be run directly, without having to load them into the editor.

The manual consists of nearly 500 pages supplied in a good quality ring binder. It is a comprehensive manual split into chapters, each covering one aspect of the language, such as numerical operators, control-flow, input-output, etc. Although the descriptions of each command are quite good, a beginner may find they have to rely more on the examples provided to learn the language as there is no tutorial, except for a very quick introduction.

The editor part of the interpreter is fast, automatically formats your program and will not let you leave a line until it is syntactically correct. This latter feature ensures that you will not get silly syntax error messages half way through running a program as all of them will have been removed.

I personally felt it was a shame that the editor was not implemented in a GEM window environment. It takes a full screen in text mode and uses the two top lines to provide a crude form of menu which you either click on with the mouse or can operate through the function keys. Part of the menu area also doubles for some input and status information. A clock is also available, continuously on display.

As GEM is not used, you cannot move up and down the text with the mouse (other than clicking on the up and down menu entries) and there is no feedback as to whether you are near the top or bottom of the file. Apart from this the editor is quite usable, having search and replace facilities as well as block movement.

This version of Basic has a very comprehensive number of operators and built-in routines: there are often different ways of achieving the same results - the choice is almost bewildering!

The built-in variable types include bits, bytes, double bytes, quad bytes, floating point and strings. Arrays can have as many dimensions as you like as long as it has less than approximately 65000 elements overall. There are a large number of numeric operators, including increment and decrement functions, as in the C language. For floating point, all the standard trigonometric functions, and their inverses, are included. In particular, it is worth noting that they have implemented two special, alternative, versions of SIN and COS which use an internal look-up table to speed up their operation considerably. These were provided for graphical work and can be used down to an accuracy of one sixteenth of a degree.

As well as boolean operators such as 'and', 'or' and 'exclusive or' there are a large number of operators to work on individual bits, including the usual boolean operators and operators to set or clear individual bits.

The number of control structures, such as 'IF THEN ELSE', 'WHILE' and 'REPEAT', are too numerous to mention - but there seems to be every type of control structure you're ever likely to want! Provision is also made for user-defined functions and procedures. Local variables, parameters and 'var' parameters (as in Pascal and Modula II) are also allowed. The latter feature is something most Basics omit and yet is a very useful device - it allows variables to be 'passed by reference' (as opposed to being copied) and hence gives a clean way of updating variables not local to a procedure. Error recovery is also well supported, and the 'EVERY' and 'AFTER' commands allow procedures to be called either at regular time intervals or once after a pre-determined time, respectively.

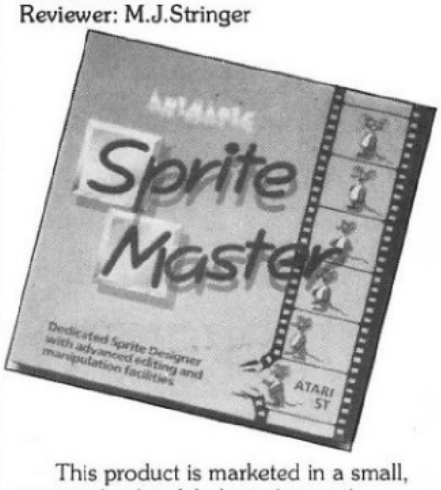
There are many other built-in routines including two good sorting routines (quick sort and shell sort), array copying, memory block copying and string handling operators and many input and output functions.

There are also implementations of most of GEM's VDI commands as specialised, ready to use functions. Menus can be built and used easily, and there are also a small set of facilities for dealing with windows which, although rather limited, are sufficient for many programs. For greater flexibility, access is provided to all the system calls from the A-line graphics routines, BIOS, GEMDOS, GEM AES and GEM VDI.

Overall this is quite an impressive package with a well written reference-style manual with plenty of examples for each command. The language seems to have included ideas from many others. This is a good thing if you are keen on having such a large variety of facilities but on the other hand it may make learning the language a little harder, especially if you are a beginner. Nevertheless, there are certainly easy ways of achieving many effects, which otherwise would require a great deal of effort. It seems to me that this Basic is trying to supply something for everyone. Fortunately, this means that it is likely to have the most of the features you are looking for in a Basic!

Sprite Master

Authors: Messrs SMITH and KNOPP
Distribution: Soft Bits
Cost: £24.95
Reviewer: M.J.Stringer



This product is marketed in a small, neat and colourful plastic box and contains a single program disk plus a small, but very well written manual. Habitually, I tried to load the program into my mono system, first problem - it only works with colour! I sincerely hope that this feature is very quickly implemented. It is possible to have sprites in monochrome, you know! This is a great shame, I am writing a little program which is crying out for animation! There is no disk protection, the password/manual protection is used.

A sprite is the little character that can be made to wander across the screen, in front of and behind the scenery. The most frequent use of sprites is in the games market, although there are many other uses! Sprite Master allows you to design a sprite from 16 x 16, up to a massive 144 x 84, pixels in size and in sixteen colours.

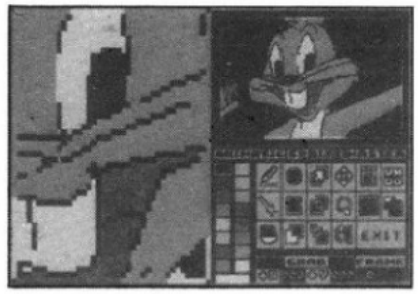
From the title screen one can select through little boxes - LOAD SCREEN FILE, LOAD/SAVE SPRITE, UTILITIES, GRAB, DRAW, VIEW SPRITE, QUIT and INFO. These are quite self-explanitory, so down to action. Pressing DRAW allows us to access the main editing screen. This is divided into three sections. One has a number of editing tools on display, the next in the top right hand corner is the sprite and on the left, a magnified image of the sprite to ease the design. The tools consist of: DRAW, LINE, BOX, CIRCLE, FILL, CLEAR, COPY, OVERLAY, FLIP, SCROLL, ROTATE, PALETTE, RESIZE, EXCHANGE COLOUR, OUTLINE, UNDO, EXIT, SPRITE FRAME SELECTOR and the GRAB X,Y CO-ORDINATOR.

The manual gives a very clear description of all of these functions. In addition, the technical features are also well covered. On the disk are a number files that have been configured for some of the more popular Basics which demonstrate the programming techniques and commands so that you can incorporate sprites into your own programs.

In use I found the LOAD SCREEN feature very useful. The program will accept most of the popular, well established, ART programs - DEGAS, NEOCHROME, ART DIRECTOR and so on. I also believe that with STOS it is possible to 'lift' sprites from other programs! Now that introduces lots of other very interesting possibilities with this program!! With a screen loaded, by using the GRAB feature, any suitable portion can be 'lifted' into the EDITING arena and a number of animation frames can be created. This feature can produce some very interesting effects. Incidentaly, the manual provides some interesting discussion on the subject of ANIMATION.

For 'straight' sprite creation, the first image is held as a transparency so that subsequent images can be accurately drawn - just as professional artists do in the Cinema Industry!

The program and all the features worked extremely well, due to the care given to the writing of the manual. It even includes a bibliographical list at the back as a source of further reading for the interested owner!



Apart from the inability to create sprites in monochrome, I found the program to be designed well, carefully written programming examples demonstrate the necessary import into one's own. The provision of a number of useful supplementary programs results in an excellent, modestly priced, powerful product.

Fontz!

From Neocept
Price £24.95
Reviewed by Keith Mayhew

The ST machines have always had the flexibility to handle multiple fonts of different typefaces, sizes and styles. Unfortunately, the part of the GEM system which actually loads the fonts into memory, called GDOS, was never placed into the operating system ROMs. GDOS was eventually released in the form of a small 'patch' program (placed in an AUTO folder), but it was such a long time after the ST was launched that most software, by that time, either did not support multiple fonts or had invented their own methods for loading fonts.

Since GDOS became widely available, many programs now support it and allow multiple GEM fonts to be loaded and selected at will, for example, desk top publishing packages and word processors. The only problem now is that the font files themselves are hard to find! The main reason for this is that designing a font from scratch is not an easy task. The problem is made worse because a font has to be produced in a variety of sizes and then the whole lot has to be re-worked for different devices, such as laser printers, dot matrix printers and the different screen resolutions.

One answer to the shortage of fonts is to design them yourself, and this is where FONTZ! comes in. FONTZ! is an easy to use font editor, supplied with GDOS version 1.1 and a collection of fonts of the 'camelot' style typeface.

Once a font is loaded into FONTZ! it is displayed in a small window at the top of the screen. Below this is a large edit window where any character from the font may be displayed and edited on a grid, the actual size of which can be increased so as to enlarge the character you are working on.

There are numerous facilities available from the drop down menus to perform operations on an individual character or the whole font. For example, characters can be inverted, flipped, shifted, rotated by 90 degrees or have columns added or removed. This latter feature allows you to define proportional fonts, i.e. each character does not have to have a fixed width so that an 'i' can take up less room than a 'w'.

For drawing new characters, facilities are provided to draw boxes, circles and arcs by simply specifying two or three points with the mouse. A buffer is provided where characters, or parts of them, may be copied to and then pasted on to other characters, either overwriting them or merging with them.

Operations on the whole font include: adding or deleting rows, scaling by a percentage, scaling to a specific 'point' size, scaling to a different device and changing the font name or 'ID' number.

FONTZ! also allows the loading of non-GEM font files. It can load files from the old version of DEGAS, Paintworks, N-Vision or HippoWord and converts them into standard GEM files. More exciting is the ability to load AMIGA or Macintosh fonts, if you can obtain them, and have them converted for use with GEM. Apparently, many of these fonts are available on bulletin boards or through public domain outlets for those machines.

Altogether, FONTZ! is a useful and flexible program to have if you are interested in designing GEM fonts or for simply converting AMIGA or Macintosh fonts. The manual is quite well written and describes many of the technical terms associated with fonts. For the more advanced users, there is even a description of the contents of a general GEM font file. Lastly, the manual has many hints and tips on fonts which are hard to find elsewhere.

Prospero C

From Prospero Software
Price £129.95
Reviewed by Keith Mayhew

Prospero Software seem to be the first, and only, supplier of a full ANSII standard specification C compiler for the ST.

For those interested, the ANSII standard ties up many of the loop-holes in the previous definition of C and adds many features to the pre-processor and the language. The main additions include: the ability to make strings out of macro arguments; joining tokens together; the 'void' type for indicating no return value from a function; proper constants and enumerations; passing of structures by value to and from functions; initialisation of 'auto' arrays and structures; and, most significant of all, the new syntax for function declarations.

This last feature of the ANSII standard permits type checking of all arguments in function calls, and hence removes one of the biggest problems C had, namely that you could pass, say, an integer to a function which was expecting a pointer - with disasterous consequences - furthermore there was no way you could find this type of problem without studying the listing very carefully, as the compiler could not report the error!

I should point out that the ANSII standard for C still appears to be in the draft stage, but the full standard, when published, is not expected to contain any major changes, possibly none at all. A fact which backs up this claim is that Kernighan and Ritchie, the authors of the definitive book for the 'old' C, 'The C Programming Language' from Prentice-Hall, have produced a new ANSII edition of the book which has been on sale for quite some time. If you want a definition of the ANSII standard for C, and want to know the changes from the old C, then I can recommend you buy this new edition of the book.

The Prospero C package is supplied on three disks containing the compiler, the 'workbench', the linker and several other utilities, as well as some fairly good example C programs. There are four manuals, all written to a high standard, ring bound, and boxed in a sturdy protective container. Altogether, this amounts to approximately one thousand pages of documentation.

Three of the manuals are dedicated to describing the C library, the GEM VDI library and the GEM AES library, respectively; all the library functions are well documented and there are a large number of examples showing their typical usage. The manual for the C library indicates which functions are part of the ANSII standard and which are specific to the ST; this is useful if you are porting programs to other compilers.

Note that the ST's GEMDOS, BIOS and XBIOS calls are not documented in any of the manuals, although they are mentioned. It is, however, possible to call these routines from Prospero C as the library calls, and the appropriate header file, have been supplied. Some of the most commom of these operating system calls have been implemented, and documented, as part of the C library, although under different names.

The last manual of the four describes the overall product and provides descriptions of the programs, utilities and other files on the disks. There is a section detailing the particular implementation details of the Prospero C compiler and another giving a full description and definition of the ANSII C language. Eight appendices include, among other things, the compiler's error messages, run-time error messages, the use of Prospero's FORTRAN and Pascal languages with C and a small glossary of some technical terms.

The operation of the whole Prospero C package can be controlled from a single GEM based program called the workbench. The workbench has an integral editor for the preperation and alteration of C programs, or any other text files. The editor is easy to use, allows several files to be loaded at any one time and provides block copy, move and delete functions between windows. There are search and replace operations, as well as a 'goto line number' facility. The function keys can be programmed with any characters including the control-key commands of the editor, thus allowing you to build your own, composite, commands. Also provided is an option for insert or overwrite mode, auto indenting, and an adjustable tab width. My only real complaint about the editor is that it does not support 'real' tabs - that is they are all converted to spaces. This expands source files unnecessarily and makes deleting a slightly longer process due to all the spaces to be removed.

Operation of the compiler and linker from the workbench is very simple and you have a choice of compiling the file you are editing or one from disk. If the former is chosen, the compilation process is speeded up because the file is read direct from memory. The progress of the compiler and linker is displayed in a dialogue box, which also reports any errors found. A particularly good feature is the ability to pause on errors or abort compilation or linking at any time. If compilation is aborted when compiling a source program from memory the cursor is automatically placed on the line where

the last error occurred.

The compiler itself comprises two-passes and operates at a reasonable speed. Options can be specified from the workbench, such as the logging of all errors to a file, the insertion of run-time checks for array bounds and null-pointers, and a facility for enabling strict checking of the source for conformance with the ANSII standard. These options are a great help for finding potential faults in C programs.

The linker is GST compatible and can link any number of object modules together with the libraries. For simple, single module, programs linking is a very simple task. For multiple modules it is required that you build a special linker control file. This is a slight irritation but is compensated for by the flexibility it provides in control over the linking operation, such as specification of stack size, etc.

Once compiled and linked, programs can also be run from within the workbench. Options allow you to run with or without GEM and with or without a command tail. In particular, note that you can provide a command tail to a GEM application, not just a TOS one. A librarian program has also been supplied so that you can build your own libraries of commonly used functions and extract or merge modules from different libraries.

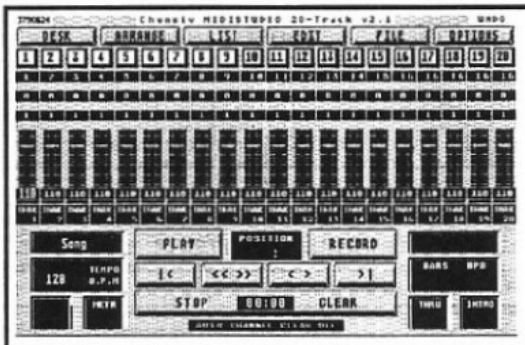
Prospero's symbolic debugger, called Probe, is provided for the tracing and examination of C programs at the source level, i.e. you can refer to any symbols in the program without having to know their actual machine addresses and lines in the original program can also be displayed. Probe lets you examine any variables or data structures and change their values; variables can be 'watched' while the program executes, printing their values if they satisfy certain conditions and stopping execution, if required; the nesting of current function calls can also be displayed. One particularly useful feature of Probe is its profile facility which counts how many times each function has been called during an execution. This allows efficiency minded people to optimise the functions which are being called most frequently and thus significantly reduce overall execution time.

In conclusion, Prospero C is a good quality package with above average documentation. With full support for the ANSII standard and facilities for run-time error checking, as well as the Probe debugger, it provides an excellent environment for the professional development of C software. The only obvious utilities missing are a 'make' program and a resource editor for GEM resource files. Both of these are available from other companies however.

For those of you who wish to start using C for the first time, I suggest you consider Prospero C very carefully: it provides a very easy to use environment whilst offering you the safety of the ANSII standard, e.g. type checking on function calls. If, on the other hand, you already own a C compiler and wish to use the ANSII additions you will still be able to compile old C programs as the ANSII standard is mainly a list of extensions.

LADBROKE COMPUTING INTERNATIONAL

This company has given years of full support to Atari users from their retail premises at 33 Ormskirk Road Preston. Now from their Mail Order premises they can offer this " second to none " service to users countrywide. All Software/Hardware is ex-stock and fully tested prior to purchase to ensure that customers receive total satisfaction, returned goods are now a thing of the past. All hardware is supported by our on site engineers so that quick turn around on all repairs is guaranteed. There are no hidden extras, all prices include VAT and delivery (next day delivery +£3), are correct at time of going to press and are subject to change without prior notice.



Midistudio £99.99

Midistudio is a 20 track Midi Music Studio. This Midi software package is a realistically priced introduction to Midi music processing and includes the following features.
20 tracks each assignable one of 16 midi channels, each track can be transposed up or down 2 octaves, the main screen features full tape deck controls with individual volume sliders for each track, note editing facilities including editing of pitch, octave, duration and velocity, plus full midi controller editing(pitch bend, mod wheel, etc.). Full control over phrases is offered through Quantizing, transposing, and phrase arrangement software pages. The arrangement facilities allow moving and copying phrases on any of the 20 tracks. The package is easy to use and is a strong competitor with Pro 24.

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

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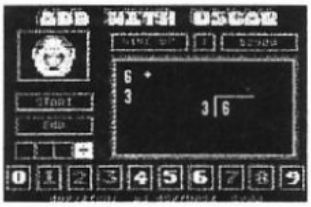
The Image Scanner is a peripheral for the ST which can provide high quality graphics digitising for a tenth of the cost of other digitisers. This simple unit plugs into the cartridge port of the ST and accepts scanned information via optical cables which fix easily to the head of any printer. Scanned images can be saved in raw data, Degas and Neochrome formats. The Software supports scanning resolutions of 75,150,216,300,360 and 1000 dots per inch horizontally. An example disk is available which contains a slide show of images scanned with this product. The cost of this disk is £3.99, £2.00 of which is redeemable on purchase of a scanner.

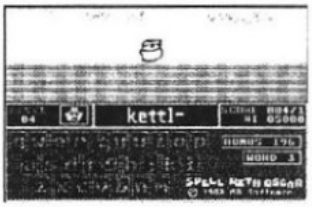
IMAGE SCANNER ONLY £89.99

EDUCATIONAL SOFTWARE

Add With Oscar £12.99

Add with Oscar is a fully mouse controlled educational game with full colour screens and sound for teaching addition, subtraction, multiplication and division to children. This program has selectable difficulty levels and a Hi-Score table.





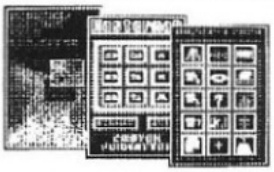
Spell With Oscar £12.99

Spell with Oscar is a game which teaches spelling, keyboard skills and motor coordination. Pictures of objects move smoothly accross the screen and the pupil should spell the name of the object while Oscar checks for mistakes. Spell also incorporates selectable dificulty levels and a Hi-score table.
Extra data disks £5.99

TRILOGY £12.99

Quick List Plus is a utility that compiles a directory of your disks. Sort on disk or name, reads any drive, including hard drive. Printer output for hard copy of databases.

Mastermat is a formatter that optimises disk space, allows non standard sector and track formats/ fast read format.



Picstrip is a utility that captures all or part of a picture file for use in Basic programs, supports GFA, FAST, HISOFT and ST Basics and is Degas, Neochrome and AB Animator compatible.

AB Animator £14.95

AB Animator is a utility for creating and animating sprites. It supports GFA, HISOFT and FAST basics and is compatible with degas and neochrome picture files.Use the full icon control to animate up to 20 big frames of 56 pixels wide by 33 pixels high.

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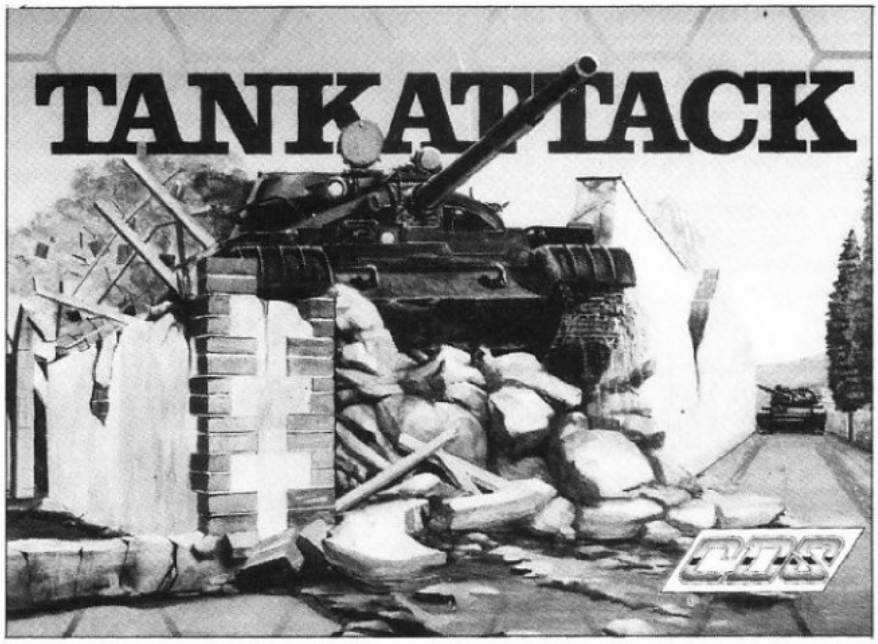
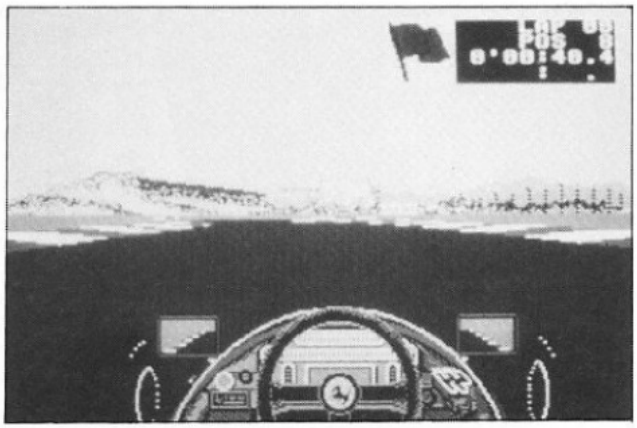
ST NEWS

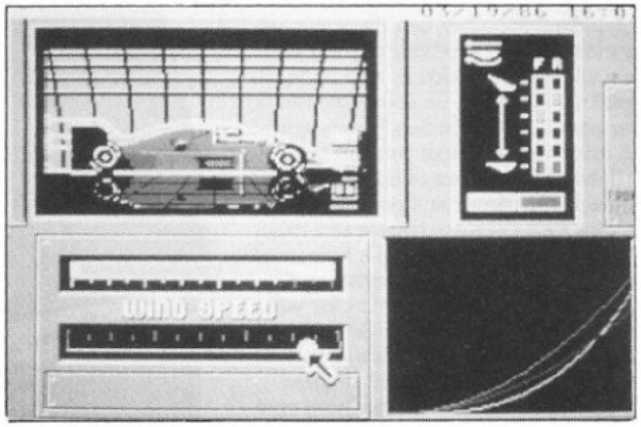
Tankattack

The scenario: each player takes the role of the General commanding a Tank Corps of one or more armoured divisions. Each division comprises eight tanks and four armoured cars. The objective is to either capture enemy headquarters or annihilate all enemy forces. The outcome of each game is affected by weather, morale, skill, judgement, planning, foresight, careful management of rebuild and repair facilities and luck!

Tankattack combines a computer game with a board based strategy game and is for 2 to 4 players. It includes a 41cm square game board, 48 tank and armoured car playing pieces and a manual. To be released by CDS in January at £19.99







Ferrari Formula 1

This game is a detailed driving simul which brings together the realism of driving a Ferrari F1/86 with the strategy required in managing a team. It offers high speed action on authentic recreations of all 16 tracks from the 1986 racing season including Monaco, Detroit, Monza and Brands Hatch, modelled down to the background scenery, weather conditions and length of track. The opposition consists of the world's top drivers, Alain Prost, Nigel Mansell, Ayrton Senna, each with their own unique driving styles.

The player can check his car's vital statistics before tacking to the track. Mauro, the computerised crewchief will offer his advice. The comprehensive workshop allows the engine to be changed and the suspension, aerodynamics and gear ratios to be adjusted for different circuits. A fully animated wind tunnel will check your dynamics and chart your car's performance. The dyno room will test the fuel mixture, engine, ROM turbo boost and electrics. The car can be tested further at the Ferrari test track in Fiorano or taken for some practice laps.

Once on the track, the player is presented with a first person perspective of the F1/86 dash board showing oil pressure, water temperature and fuel gauges, turbo boost control, moving gearstick and steering wheel, and twin scrolling rear view mirrors.

Over the course of a season, the player must face the full 16 track schedule to accumulate enough points to become Formula 1 champion.

Electronic Arts have scheduled it for release on the ST in March at £24.95.

Coming our Way?

The following products were exhibited at the Comdex Fair in Las Vegas in November, I wonder how many will make it to the UK? Nite Light Systems of Billerica, Massachusets demonstrated the Lantech RS232 Local Area Network. One 1040ST is a host computer and can support up to seven nodes of computers or serial printers. Touch screens or bar code readers can also be supported. Nice & Software of Kitchener, Ontario, Canada had an 1040ST system that handled inventory control and register using bar codes, sales clerk tracking and a full compliment of retail needs. Castech Software Systems (P.O. Box 147, Grandview, MO 64030, USA) has COBOL for any ST or Mega with at least 1 Meg. The price of $199.95 includes an editor and a command line

interpreter shell that uses UNIX style commands. The shell can be bought separately for $19.95 and will work on any ST.

JRI (P.O. Box 5277, Pittsburg, CA 94565, USA) has GENIlock which allows drawings and animation programs in low and medium resolution modes to be mixed with an external video source such as a VCR, or camera. While it is designed for NTSC signals (not European standard) and requires a Mega 2 it has some features that surpass genlocks for the Amiga. GENIlock doesn't have unstable jumping characteristics. It allows the fading out and fading in of graphics or picture. On other systems this is done by animation shading. JRI plan to have a cartridge version available by mid 1989.

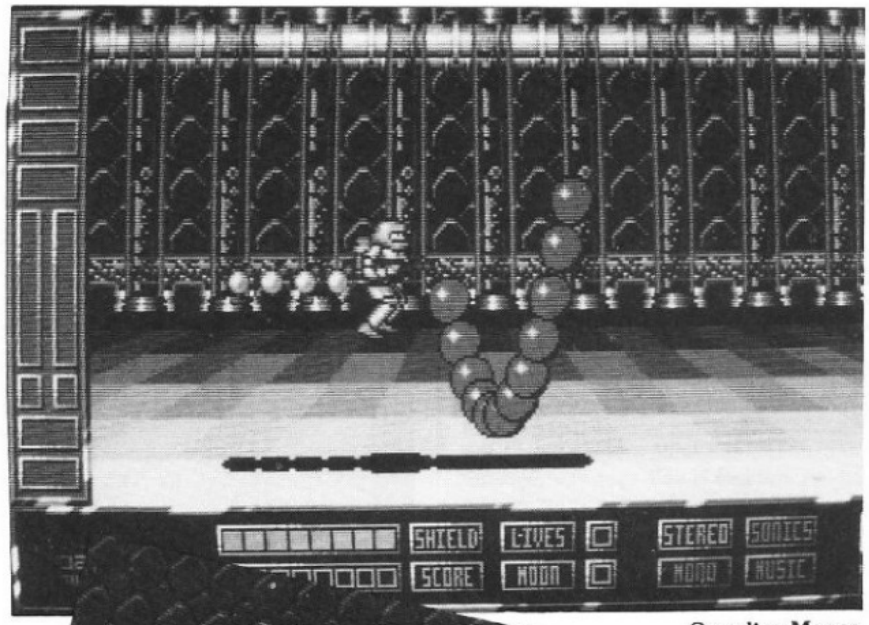
Nerik Computer Graphics (Sydney, Australia) had a system to transfer graphics from the ST to 35mm film with a suggested retail price of $650.

Coming from Microdeal

New release from Microdeal is Guardian Moons. Eight of the most ruthless tear-aways have been singled out from the vast ranks of Earth's most evil inhabitants, and they intend to invade Gargamadua and eliminate all the 'dogooders'. However, you think you are the most sadistic, psychotic terrorist of them all and you decide to take on the merciless mission all on your own! But in your path lie the Guardian Moons which you must destroy before you can open up the way for the rest of the outlaw fleet to invade Gargamadua. Price £19.95

Due for a February release at £19.95 is JUG. You take the part of a humanoid composed of Titanium fleximetal and other organic materials, built in the year 3642AD and nicknamed JUG because of your barrell chested profile which can transform into many different shapes. Your task is simple; within the living core of the planet Spiraeus is a deadly virus causing it's brain to malfunction and all the inner sanctums to die as the life force is diminished. This planet is divided into four zones, each of which has four sectors. Trap doors in the floor and holes in the roof will enable you to move up or down a level. You must find and destroy the deadly 'tumour' in the deepest level with all haste!

Other products coming from Microdeal in the near future include a deluxe disk wallet to take 20 5.25 inch disks and one to take 32 3.5 inch disks, both at £19.95. March is the projected launch date for the Talespin Adventure Creator at £29.95, there is already one game written using this utility on the market, it is called The Grail. No dates have been given for the release of Fright Night (the Computer game) or Fright Night (the Adventure), Karate Kid II (the Adventure) and a Hard Drive Turbo utility on the Michtron label.



Guardian Moons

Guardian Moons

Jug

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Discs for Abacus (each) £7.50

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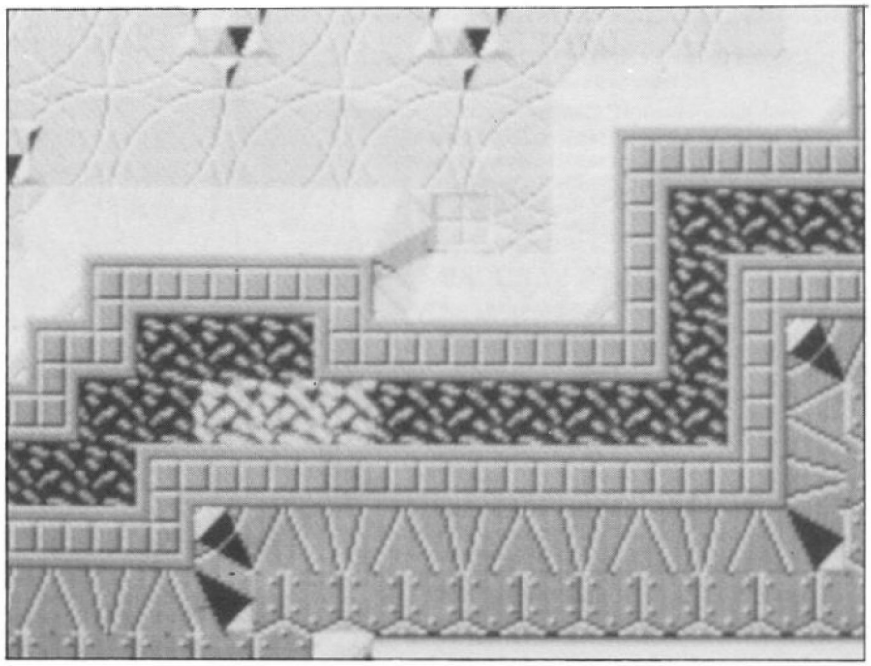
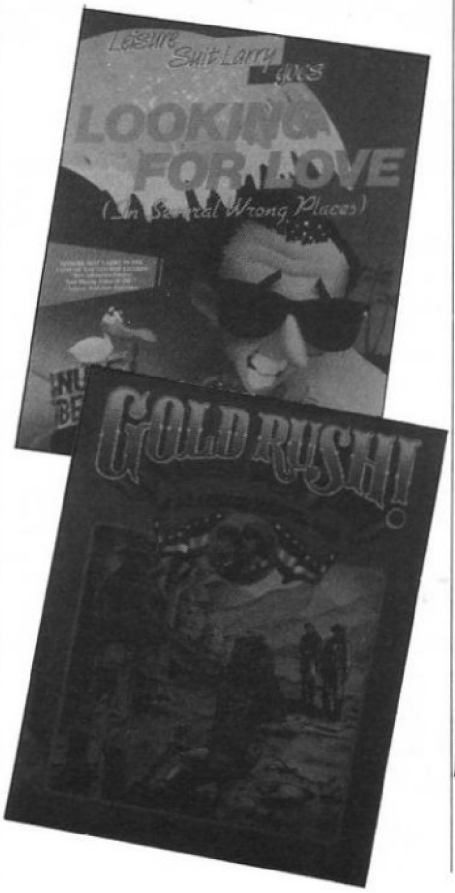
Other Releases

Activision are developing an ST version of 'Who Framed Roger Rabbit', possible price £24.99. Level 9 say they will be releasing Spook on the ST at £19.95 at the end of February. New Sierra products coming our way include; King's Quest IV: The Perils of Rosella in which the heroine travels to a far distant town on a search for the one item which will save her father from certain death; Space Quest III: The Pirates of Pestulon in which you get a third chance to become Roger Wilco, and penetrate the planet Pestulon and then batter the pirates flatter than the Jumbo Cheese

Platter at the Monolith Burger Fly-Thru on Saturn; Police Quest II: The Vengeance! in which the local jailer has been murdered and your girlfriend has been kidnapped; Leisure Suit Larry II: subtitled 'Looking for Love (in several wrong places)' in which Larry wins a dream date on the 'Dating Connection' and a dream cruise on the 'Lover's Boat';

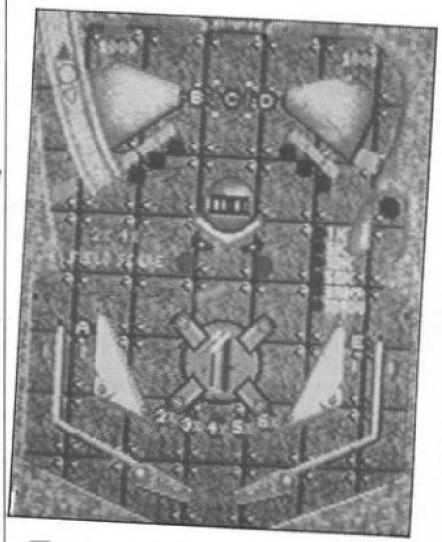


Gold Rush which is 3 complete adventures in one package. Real Ghostbusters from Activision should be out sometime in March and is based on the cartoon series on TV, price £19.99. Also in the pipeline from Activision is Infocom's Battletech role-playing game and Millenium 2.2.



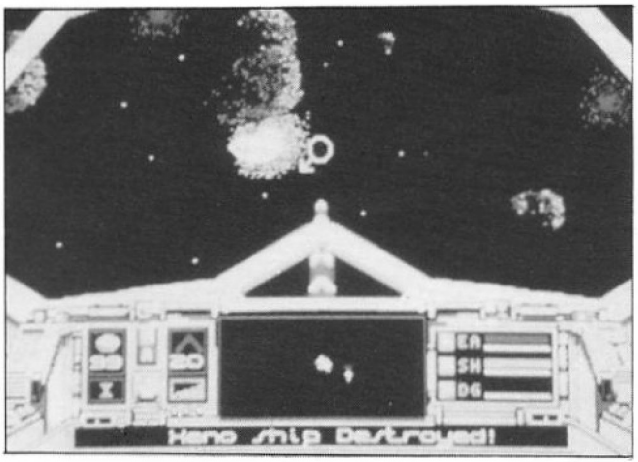
Fusion

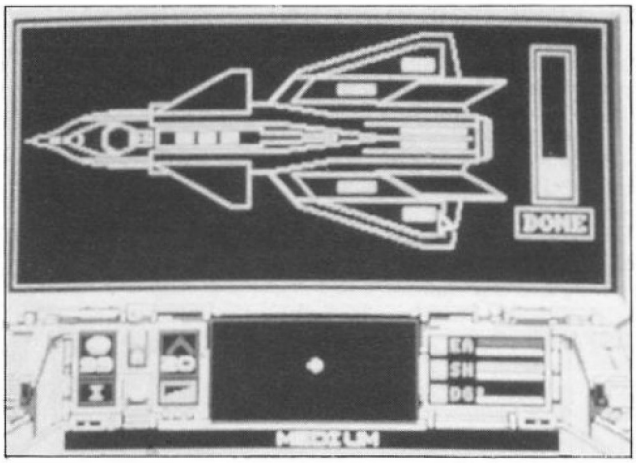
The objective of Fusion is to collect 9 pieces of a bomb scattered over 13 alien levels and return them to the first level. You control an Assault Crawler in which you move around touching switches that allow you access to other levels and grids. Icons found on various levels will give you increased fire power, a re-energised ship's structure, shields, etc. Five types of enemy try to hinder your progress. Fusion features a detailed info panel with an encoded base ten alien numeric scoring system, ship's structural indicator, a shields' energy level bar and active switches and bomb display units. You can play normal or expert level. Fusion is an Electronic Arts release at £24.95.



Timescanner

Electric Dreams have secured the





rights to Timescanner, the Sega arcade action pinball game. The game consists of 4 levels; Volcano, Saquarra, Ruins and Final. Levels are divided into two screens and the machine scrolls between the upper and the lower parts of that level. Each level is only accessible via a time tunnel on the previous level. Entry to the tunnel depends largely on your pinball skills. Special features include; realistic nudge and tilt, upto 3 balls on screen at once, upto 6 flippers, double length double height screens, special final bonus screen with a new 'breakout' type game. Timescanner is due for release in April at £19.99.

Skyfox II

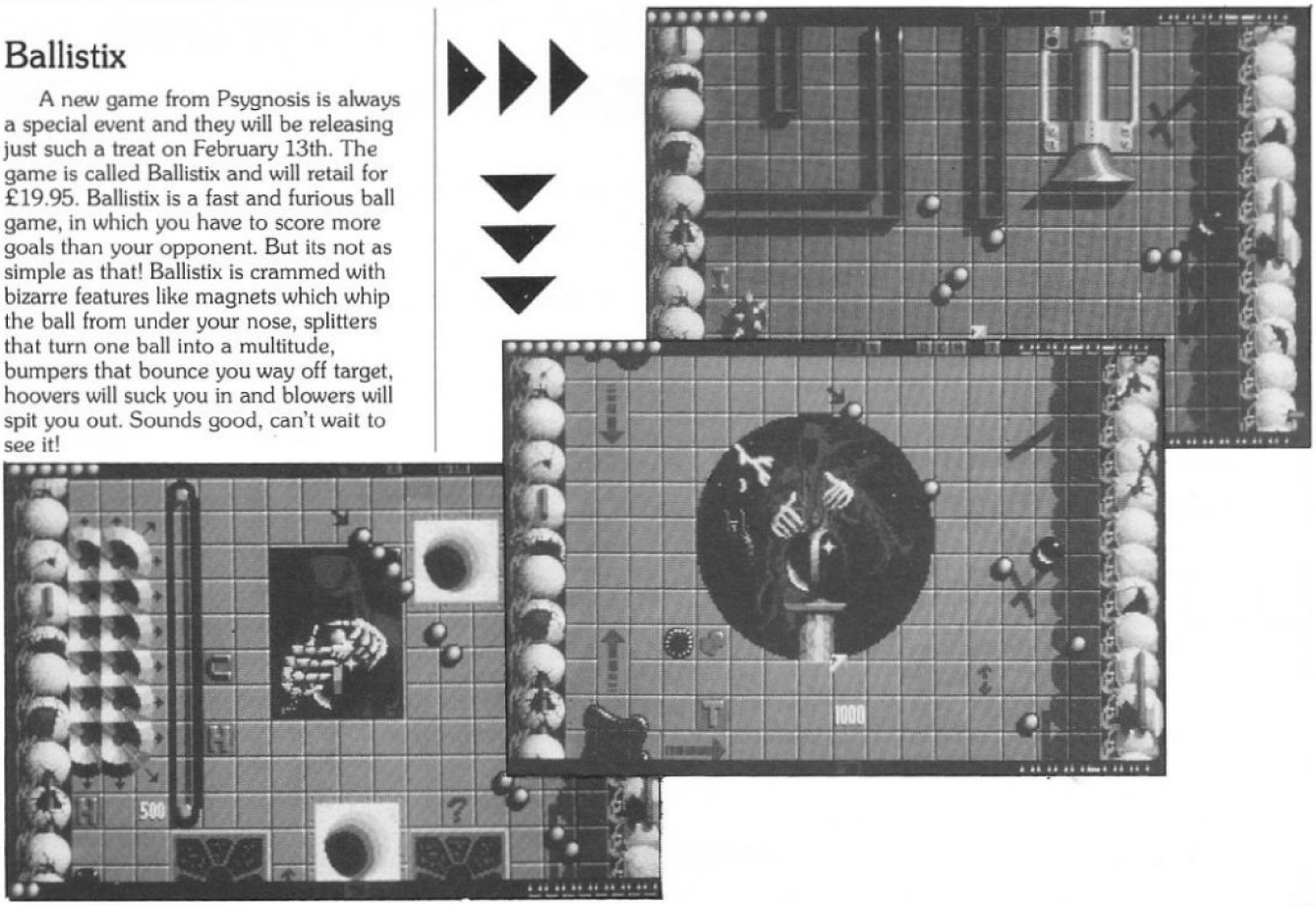
Electronic Arts are to release Skyfox II in March priced at £24.95. It boasts a new plot, enhanced graphics, better sounds, faster action and a more realistic sensation of flying than its predecessor. In Skyfox II the Earth battle against the Xenomorphs continues in the dark, deep space of the Cygnus constellation. Players take on the role of Federation Warpwarriors with the task of defending the interests of the Federation.

Skyfox II is a single player game with varying levels of difficulty and 10 possible battle situations. The Skyfox II aircraft features advanced weaponry, neutron disruptors for destroying enemy fighters and asteroid fields, photon pulse bombs for destroying Xenomorph starbases and anti-matter mines effective in damaging enemy ships. Skyfox II also has shields and deceptor devices.

Playing area encompasses an entire constellation and there are over 50 starbases at the player's disposal. The player gets the opportunity to travel faster than light through 'wormholes' which are by-products of black holes. Warpwarriors who successfully complete a mission can move on to other missions, whilst failed missions have to be retaken.

Ballistix

A new game from Psygnosis is always a special event and they will be releasing just such a treat on February 13th. The game is called Ballistix and will retail for £19.95. Ballistix is a fast and furious ball game, in which you have to score more goals than your opponent. But its not as simple as that! Ballistix is crammed with bizarre features like magnets which whip the ball from under your nose, splitters that turn one ball into a multitude, bumpers that bounce you way off target, hoovers will suck you in and blowers will spit you out. Sounds good, can't wait to see it!



ST Titles from Atlantis

Atlantis, better known for their budget 8 bit cassette games, are to release some budget titles for the ST range. Pothole Pete is a platform game set 2 miles down in an abandoned mine works, price £7.95. At £9.95 we have Alpine Games and ST Olympiad. Alpine Games covers five disciplines; Speed Skating, Bobsled, Ski Jump, Biathlon and Downhill. The sports in ST Olympiad are Weight Lifting, Running, Long Jump, Target Shooting, Discus and Swimming. Shutdown is another platform type game in which you must shut down the main computer before catastrophe strikes, price to be £14.95.

Myth

Set in ancient Greece you play a young God and you are about to be tested to see if you come up to the mark as a diety. You must find the famous helmet of invisibility. During the course of your quest you'll meet the 9 headed Hydra, Charon - ferrymen across the Styx, and many other 'myths'.

The unusual thing about Myth is that it is exclusively available only to members of the 'Official Secrets' club. Membership is £19.95 for a year and includes 6 issues of their magazine called 'Confidential', membership to 'Special Reserve' which has some pretty special prices for software, a copy of Level 9's Gnome Ranger (or a surprise alternative) and a club helpline! For more info write to: Official Secrets, P.O. Box 847, Harlow, CM21 9PH.

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This mini-adventure comes courtesy of Magnetic Scrolls and is available only to the members of Official Secrets. You see, being a God isn't at all easy and merely upon a whim, Zeus has decided that it's about time you proved your worth. Playing the part of Poseidon, Lord of the Sea, you find yourself stripped of all power and set the task of stealing Hades' magical helmet from his palace. Success will mean instant return to Mount Olympus, while failure is too horrible to contemplate.

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NIGHT RAIDER	19.99	13.49
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STAR TREK	19.95	11.47
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STARGLIDER 2	24.95	13.97
STORMTROOPER	19.99	12.49
STOS GAMES CREATOR	29.95	17.47
SUPER HANG ON	19.99	12.49
SUPERMAN	24.95	14.97
TECHNOCOP	19.99	13.49
TEENAGE QUEEN	19.95	8.49
TESTDRIVE	24.95	16.47
PRESIDENT IS MISSING	24.95	14.47
THUNDER BLADE	19.99	13.49
TIME & MAGIK	19.95	11.47
TIMES OF LORE	24.95	16.47
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DRAGONUS	12.95	10.49
DRUID	14.95	1.99
GUILD OF THIEVES	19.95	11.47
INGRID'S BACK	14.95	8.97
JEWELS OF DARKNESS	14.95	6.45
JINXTER	19.95	11.47
KNIGHT ORC	14.95	6.45
LANCELOT	14.95	8.97
PAWN	19.95	11.47
RAMPAGE	12.95	10.49
SARGON 3 CHESS	19.95	11.47
SILICON DREAMS	14.95	6.45
TIME & MAGIK	14.95	8.97
TRIVIAL PURSUIT	19.95	8.45
ULTIMA IV	19.95	13.47

ATARI 800 TAPE	RRP	SRP
CHIMERA	1.99	1.60
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DRAGONUS	9.95	7.99
DRUID	9.95	1.99
INGRID'S BACK	14.95	8.97
JEWELS OF DARKNESS	14.95	6.45
KNIGHT ORC	14.95	6.45
LANCELOT	14.95	8.97
RAMPAGE	9.95	7.99
SILICON DREAMS	14.95	6.45
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Myth, by Magnetic Scrolls. It's a mini-adventure, exclusive to members of Official Secrets and written by the authors of Jinxter, Guild of Thieves and Fish! Look out for reviews. Myth features amazing graphics and an ingenious plot set against a backdrop of Greek mythology. And it won't be available to anyone else.
Gnome Ranger (or Surprise Alternative). The award winning 3-part game by the masters of text and graphic adventures, Level 9.
Adventure Helpline. Phone or write in with your problems. We'll help you solve any game supplied by us.
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ST LIBRARY

Librarian: Mike Stringer

Introduction

Allow me to tell you how the ST Library is going to be structured. Listed here are the disks currently available. I am expecting about thirty disks from North America, plus another dozen or so from some members over here. Still, we will be starting with a fair foundation upon which to build a very useful and valuable service to you, our readers.

The disks that I will be sending out are DS/DD but will be formatted for single sided use. Where the program requires 1 Meg formatting, these disks will be clearly marked and no additional fee will be requested. In other words, the fee will be the same, irrespective of the size of the program(s).

In some instances the files may be compressed. The necessary Archiving program will always be included on the disk, including the necessary info to allow you to convert them back to normal. In this way I will be able to put up to the equivalent of 500K of files on one, half-meg, disk.

In addition to the files, I will also include, if space permits, an up to date list of the library. The reason behind this is to keep you up to date at all times, you will not have to wait the three months, or so, for Monitor to arrive.

Because I have had very little response from you on how you want the Library to be structured, I have arranged it in the manner that seems the most logical and workable for me to provide a quick response to your requests.

Each disk will be filed under a heading according to the subject which the program/files relate. For example: LP1 is a Language disk, the subject is Pascal and it is the first in this particular section. Or, MMS1 is a MIDI disk containing files for Music Studio, again number 1.

There will also be a Support section which is intended to be used with programs/files for use with existing Commercial Software. For example, templates for VIP, Fonts for word processors or Printer Configurations and so on.

MIDI support files will be contained within the MIDI section because of the nature of the subject. I have given one example, but others already include Casio CZ Voices, 36 banks of voices for the Yamaha DX7 with the DXDROID, etc.

As other sections become available they will be introduced. Wherever possible, programs and files will be segregated to maintain integrity. If there is a demand for a mixture, I will try to oblige, this will be the exception, not the rule.

What to do

The club has laid out a great deal of money to get the Library off the ground and in order to recoup these costs and to obtain new material, it is necessary to make a small charge. There are two services currently available. The first, you provide the disk with your request and the fee is £3.50. The second, we provide the disk (DS/DD) when the fee is £5.50. This includes all necessary return postage and packing.

Any member who submits material will have his disk returned, the contents having been copied into the Library, to be replaced by something very useful (or a request of your own) as a form of thanks. Please remember that if you do submit any material, it must qualify for the description of Public Domain, or something similar, i.e. no ripped off Commercial Software will be tolerated.

If at any time you wish to obtain the latest complete library list, just send a disk and £1.00, or just send £2.50 and we will supply a disk with the list recorded onto it.

The ST Library is for subscribers only.

Librarians Report

Greetings to all our readers! For this edition I have managed to assemble some very good quality disks to the Library due to the very kind submissions by members and the commercial outlets - many thanks to all those concerned! Due to a number of requests, I am introducing a new section for RADIO AMATEURS and the Short Wave Listener. To start things off I have managed to get some programs of outstanding quality from a satellite orbit predictor to a Packet Radio program pack which even contains all the necessary features to set up your own BBS!

There are also some very good commercial demo progs - one from Microdeal demonstrating their MASTER CAD and another from zzSOFT demoing EASY TEXT. Two Bits have sent in two brilliant demo sound/pics showing off the ST REPLAY 4 sampler. They are both exceptional but, in my books, the SNOWMAN is stunning!

The latest in popular languages is STOS and you will also find a demo disk that shows off a few of its amazing features. From Electronic Arts is a demo disk of POWERDROME! There are THREE outstanding demos from The Lost Boys all are well worth looking at. One even has some cheat codes for quite a number of games.

Young member, Richard Gale has sent a couple of disks written with GFA and contain documentation, listing and source!

Finally, I have taken some photographs of some of the programs to show you what you can expect! Note, I have not done any of the 'naughty' ones - the children might be reading it behind your back! See you soon...

Here are the latest additions.

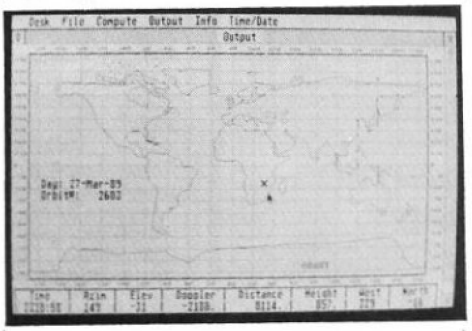
AMRADIO 1

For the Amateur/SWL, the PD standard for PACKET RADIO, PACK E TERM V4.5. Just run this program with a TNC and enjoy this fascinating branch of communications. There is also a fabulous little prog included which gets round the 40 folder limit, now you can install over 900.
1 Meg, mono prefered.

CHANGES .PET 5220
CONFIG .MB 4333
DESKTOP .INF 478
ERRORS .TXT 1498
FOLDER .DOC 688
FOLDR050.PRG 1024
FWD .MB 295
HELP .MB 10599
INFO .MB 273
MAIL .DAT 256
MBPET .DOC 153283
MEDIT .TTP 9931
MEDRES .PRG 384
MON .MB 30
PACKET .PRG 101529
PK232 .SET 531
PRTLOG .TTP 22170
README .TXT 1796
SET1200 .PRG 1366
STARTGEM.INF 15
STARTGEM.PRG 1280
TEMPLATE.DOC 812
TEMPLATE.PRN 1378
TNC1 .SET 369
TNC2 .SET 410
UKREAD .ME 883
USER .DAT 512
WARNING . 780
WARNING .TWO 73
WP .DOC 2840

AMRADIO 2

Another superb piece of PD software for the Radio Amateur, SWL or any other interested reader - a SATELLITE predictor! This program has already been configured for many satellites, including NOAA9, 10 and 11, Oscar 10 - 13 and Meteosat 2 and 3. If you need it to be configured for any others, let me know and I will do it for you. Predicts the Orbit number, Azimuth, Elevation, Distance, Sub-Satellite position and doppler!!!! The SOURCE listing is also included - MODULA II - but is part English and part Dutch!
1/2 Meg, mono.



ORBIT .PRG 106850
ORBIT .ASC 9725
NOAA11 .SAT 198
ORBIT .PIC 32034
ORBIT .RSC 8578
MET2?17 .SAT 199
MET3?2 .SAT 198
NOAA10 .SAT 200
NOAA11 .SAT 199
NOAA9 .SAT 199
ORBIT .PIC 32066
ORBIT .RSC 8578
OSCAR10 .SAT 206
OSCAR11 .SAT 197
OSCAR11 .SAT 201
OSCAR12 .SAT 200
OSCAR13 .SAT 198
STATION .ORB 96
DEF .ARC 8139
MOD .ARC 55651
RSC SHP .ARC 3885

AMRADIO 3

For those with PC DITTO, or similar emulator - PC PAKRATT for the clone. This is another (IBM this time) PACKET RADIO program. Very good!!
1 Meg.

AUTOCONN. 204
AUTOTEMP.BAT 128
CONFIG .SYS 13
LCOM .EXE 23580
PCPAKR87.CFG 8819
PCPAKRAT.CFG 8819
PCPAKRAT.DEF 14365
PCPAKRAT.H1 13926
PCPAKRAT.H2 5792
PCPAKRAT.H3 9857
PCPAKRAT.H4 11442
PCPAKRAT.H5 9878
PCPAKRAT.H6 9838
PCPAKRAT.H7 5983
PCPAKRAT.H8 4950
PCPAKRAT.H9 1623
PCPAKRAT.PAR 14365
PCPAKRAT.US1 575
PCPAKRAT.US2 574
PP .BAT 214
PPEXT .000 106752
PPEXT .COM 24204
RADIOGRM. 1818
README .PP 42
UTILMOD .CHN 47200

AMRADIO 4

Via a suitable interface, such as the TU1000 RTTY kit from Maplin Electronics, you can enjoy and explore the branch of telecommunications that uses Radio Teleprinting. Both transmitting and receiving is covered using split screens.
1/2 Meg.

YARP . 216
YARP .ASC 11633
YARP .DOC 11631
YARP .PRG 23856

ART 27

Some naughty pics to enjoy now that Spring is in the air; 'Snakes I', XXX-rated. (Proof of over 18 required).
1 Meg, colour.

ART 28

Another nice collection of girlie pics - 'Snakes II', XXX-rated. (Proof of over 18 required).
1 Meg, colour.

ART 29

A fine collection of odds and ends - including another fab animation prog from the DENISE group - DISCO dancer. There are also some very good 'show off' progs! Includes: Chess, Bogballs, Timelink and Profess.
1 Meg, colour.

ARC .DOC 6682
ARC .TTP 35712
BOGBALLS.D8A 5154
BOGBALLS.PRG 1572
CHESS .PRG 39282
DISCO .IMG 142975
GEMAGIC .TOS 34223
IMAGIC 1.TOS 19974
READ .ME 2253
MNDLRSC .RSC 3072
MNDLZOOM.DOC 1809
MNDLZOOM.PRG 18560
NICK1 .PIC 32112
FIVEYEAR.WKS 256
PROFESS .PRG 33096
PROFESS .RSC 14842
README .DOC 2156
SSDEMO .PRG 15360
TIMELINK.PRG 12302
TIMELINK.RSC 1876

ART 30

GOGS by Spurious. XXX-rated. (Proof of over 18 required).
1/2 Meg, colour.

AMIXT 2

I thought a mixture of ART related programs would be of interest. These are good examples of COLOUR, PICTURES, GRAPHIC capabilities and SOUND.
1 Meg.

DESKTOP .INF 520
GRUSEL S.TCO 520
HC SHOCK.PRG 126589
INTMUSIC.MUG 126589
INTRO .MUG 126589
MUSIC .AJH 126589
SCC DEMO.SCC 126589
T DESIGN. 126589
GRUSEL .GRA 64000
GRUSEL .MUS 13492
GRUSEL .PRG 37393
BOINK .PRG 11493
CORES .PRG 2944
MUSAX . 2944

ST LIBRARY

POPCORN .PRG 15104
SPLAT .PRG 1685
AIR ONAG.TTP 4770
HACK .DAT 25498
HACK .TOS 286
LISTEN .PRG 19609
MICHELLE.TTP 2292
MONTY .PRG 6771
POPCORN .TTP 17024
READ ME .1ST 1727
MUG .DAT 7184
MUG .PRG 2798
MUSIC1 .DAT 6863
MUSIC1 .PRG 2312
MUSIC2 .DAT 2957
MUSIC2 .PRG 2312
DEMO .PRG 136
DEMO .SCC 42512
3 COL BK.TFT 400
ALL COL .TFT 400
BACKLASH.TTX 12376
BLAUGRAU.TFT 400
COL BALK.TFT 400
DAMPF .X32 5120
FARB TAB.TFT 400
GRAUBALK.TFT 400
HOMMAGE .X32 3072
SCB .TIN 336
TD DEMO .PRG 120987
TD DEMO1.TIN 336
TD DEMO2.PI1 32066
TM DEMO .TTX 12376
TM DEMO2.TTX 12376
TM DEMO6.PRG 39697
TM DEMO7.PRG 30457
T DESIGN.RSC 16880

ADEMO 13

From the LOST BOYS - a great demo.
1/2 Meg, very colourful!

POWER .TLB 247961
LOADER .PRG 32649

ADEMO 15

The second from the LOST BOYS group. Great Heavy Metal sample and good graphics.
1/2 Meg, colour.

AUTO . 32649
MAIDEN .PI1 32066
TRAN .SPL 328111
TR .PRG 14988

ADEMO 16

From the Lost Boys, a great demo showing off their prowess at sample/graphics.
1/2 Meg, colour.

AUTO . 23856
MEGA .PI1 32066
SHOOTOUT.SPL 282221
MEGABANG.PRG 53027

COMDEMO 8

A PD demo from MICRODEAL of their MASTER CAD. Some great pics and tutorial, etc. C B4 U B!!
1 Meg, mono.

0APRESEN.PC3 24673
0PANTALL.PC3 7346
1PLANMEN.PC3 8899
2PLANOS .PC3 6469
3PLANWIN.PC3 10401
5LINEDRA.PC3 5568
7RECTDRA.PC3 6815
9REGUDRA.PC3 7641
ARCTEMP .CRN 3072
SHOWPIC2.PRG 14360
Z10AFRON.PC3 11164
Z10APER1.PC3 10408
Z10APER2.PC3 8761
Z10PUNV3.PC3 7105
Z10QPER3.PC3 10747
Z10RPUN4.PC3 6827
Z10SPER4.PC3 14020
Z10TPUN5.PC3 4840
Z10UPER5.PC3 6967
Z11SELEC.PC3 11754
Z12SELDR.PC3 9785
Z13MOVEM.PC3 11870
Z14MOINI.PC3 9224
Z15MOFIN.PC3 8629
Z16MOVED.PC3 8849
Z17SELEM.PC3 11189
Z18SELDR.PC3 8933
Z19ROTCE.PC3 8798
Z19ROTWI.PC3 9364
Z20ROTED.PC3 8300
Z21SELOB.PC3 9962
Z23COPY1.PC3 8625
Z23COPY2.PC3 8845
Z23COPY3.PC3 9753
Z26PARAH.PC3 11277
Z28BUILD.PC3 10860
Z30ESCAL.PC3 15642
Z31PROPE.PC3 12384
Z32MAQUI.PC3 19136
Z33CIVIC.PC3 9604
Z34EXPOS.PC3 20119
Z35KIOSK.PC3 12312

COMDEMO 9

From zzSOFT is a demo of their DTP program EASY TEXT. This disk can be configured for either 1 Meg or 1/2 Meg systems. It is well documented and contains a tutorial as well. Some of the essential files have been witheld in this PD version.
Mono only.

COMDEMO 10

From Electronic Arts, a demo of the spacecraft flight simulator - POWERDROME.
1/2 Meg, colour.

POWER.PRG 74847
P7.PCC 7668
P1.PCC 20470
P3.PCC 19272
F0.FNT 800
F1.FNT 1280
BC.BLK 84458
L.SMP 35786
DM.LAP 11932
C1.TRK 10814

COMDEMO 11

This is the STOS demo showing off its possibilities!!
1/2 Meg, colour, auto.

BULLET.BAS 50440
STOSDEMO.BAS 82620
ORBITDEM.BAS 15946
8X16.CR2 3852
8X8.CR0 2304
8X8.CR1 2064
BASIC.BIN 78592
COMPACT.EXA 1648
EDITOR.ENV 968
FLOAT.BIN 15976
MOUSE.SPR 2560
MUSIC.BIN 2236
RUN.BIN 2141
SPRITES.BIN 16111
WINDOWS.BIN 12674
START.BAS 160
START.PRG 2141

GAMES 12

Great little game created as a demo of SPRITE MASTER.
1/2 Meg, colour.

ASTTUNN .PRG 54882
DESKTOP .INF 478

LCOMP 1

This is an excellent 'C' compiler - no pretence to be LASER. It includes lots of documentation and a very good RAM accessory.
1/2 Meg.

ETERNAL .TXT
GEM .A 18491
GEM .C 17797
GEM .H 1695
LIB .A 14818
LIB .C 11828
PRG .S 699
STDIO .H 266
TTP .S 80
PCOMMAND.PRG 38400
PCOMMAND.TXT 20122
CAT .C 398
GREP .C 1124
HD .C 1245
SS .C 20726
STARTUP .DOC 8567
STARTUP .INF 591
STARTUP .PRG 11902

LGFA 3

Some very good utilities written in GFA BASIC with SOURCE, List and documentation.
1/2 Meg.

DIR EXAM.DOC 805
DIR EXAM.LST 3492
DIR EXAM.PRG 14465
ENCODE .BAS 1886
ENCODE .LST 1786
ENCODE .PRG 10548
SECURITY.BAS 2232
SECURITY.DOC 467
SECURITY.LST 2230
SECURITY.PRG 12091
SELECTOR.BAS 3408
SELECTOR.DOC 562
SELECTOR.LST 3347
SELECTOR.PRG 13039
LAUGH .SPL 16250
MESSAGE .TXT 29
REPLAY .EXE 2757
SURPRISE.BAS 982
SURPRISE.DOC 326
SURPRISE.LST 948
SURPRISE.PRG 7271

LGFA 4

From the same author as the above, member Richard Gale has sent us this demo, with SOURCE, announcing the great little products from B-BYTES.
1/2 Meg, colour.

BBYTES .PRG 2304
BBYTES .TXT 4502
READ ME .DOC 993
STOS . 993
8X16 .CR2 4096
8X8 .CR0 2304
8X8 .CR1 2304
BASIC .BIN 78848
BBYTES .BAS 99316
COMPACT .EXA 1792
EDITOR .ENV 1024
FLOAT .BIN 16128
MOUSE .SPR 2560
MUSIC .BIN 2304
PIC .PI1 32066
PIC .PI3 32256
RUN .BIN 2304
SPRITES .BIN 16384
WINDOWS .BIN 12800

MIXT 4

An interesting collection of utilities, demonstrations and graphic programs.
1/2 Meg.

ARC .TTP 41344
ARCSH191.PRG 16707
CALCACC . 16707
CONVERT .BSC 2560
CONVERT2.PRG 1611
INSTRUX .TXT 4956
LEARNBS . 4956
MANDLE . 4956
NEWGENER.TBR 4956
PACKER24.PRG 13962
P PANIC . 13962
PROCALC .ACC 22624
PROCALC .DOC 615
BASIC .DOC 641
LEARN5 .BA 1121
LEARN5 .BAS 1471
MANDLE .DOC 7487
MANDLE .PRG 17567
BLADERUN.DT0 40033
BLADERUN.DT1 59121
BLADERUN.DT2 4484
DIALOGS .NEO 32128
GAMESCRN.NEO 32128
STARSND .PRG 3072
STARTREK.NEO 32128
STARTREK.PRG 396
STARTREK.SPL 279424
TITLE .NEO 32128
DATA . 32066
DATA1 . 32066
DATA2 . 32066
DATA3 . 32066
P PANIC .BAS 15518
P PANIC .BSC 19070
P PANIC .DOC 933
P PANIC .PRG 61174
SCREENS . 500
SOUNDS . 216

SOUND 14

From TWO BIT, a great sound sample/pics using ST REPLAY 4 of that classic TV prog - THUNDERBIRDS!!
1/2 Meg, colour.

MAIN .DAT 272000
THUNDER .SPL 112246
RUN .PRG 12272

SOUND 15

Another sample/pic demo from Two Bit - from that very popular Christmas TV prog "The Snowman". As before, this was done with REPLAY 4 and is BRILLIANT!!!
1 Meg, colour, auto.

SNOWBIT1.NEO 17104
SNOWLOOP.SPL 169696
SNOWMAIN.DAT 600000
RUN .PRG 12998

Requests should be sent to Mike Stringer, The U.K. Atari Computer Owners Club, P.O. Box 213, Southend-on-Sea, SS1 2QF. Make cheques/postal orders payable to 'UK Atari Computer Owners Club'.

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AWANDERING

A regular adventure column by P.B.

Get Lost!

Welcome to the second in this series of adventure articles. I'd like to just remind you that this series of articles is intended to help YOU, the wanderer, as you explore, stroll or visit all of your favourite adventure locations. Of course, the biggest problem you might find is that you will get stuck on some conundrum that you just can't seem to find your way out of. Well, I'd like to help, but unfortunately I just don't have the time to play every adventure right through to the end. So, let me ask you again, if you have finished an adventure and you're feeling particularly proud, then please either write in with a clearly detailed hint sheet, or list of tips. All hints or tips acknowledged either in your own name or in your adventuring pseudonym, O.K.!

Now then, what I'd like to write about in this issue is the topographical subject of mapping. There's no doubt that for most adventures a map is essential, as otherwise you'll find yourself going around in circles. I won't deny that I prefer the type of adventure where mapping out is quite straightforward. That is, if you restart a game and follow the same path that you took before you will find the same objects, every time. I like this because most adventures have enough problems in them anyway without random redistribution of the goodies adding to the frustration level! This feature also helps when the game is subdivided into different levels, as with Lords of Time, from Level 9. What it means is that you can finish a level, and then even if you have already saved your present position, you can go back and test out different routes and theories to see if they are an improvement over the one that you took previously. It can be most satisfying to solve a thorny little problem and then go through the whole sequence again at high speed!

Figure 1 shows a simple way of mapping a North, East, South, West layout. As you can see, each location is represented by a four sided square, and each link is shown as a direction arrow. The link between 1 and 2 is a 2 way link, that is, you can move either way. The link between 2 and 3 is a one way link, that is, you can only move from 2 to 3, so make sure you've properly explored rooms 1 and 2 before moving S!

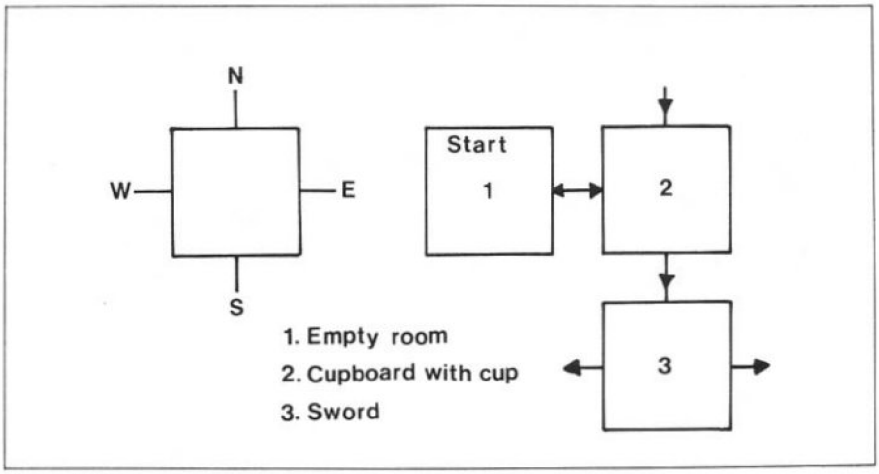

Figure 1. Mapping rooms.

Separate from the mapped locations is the list of room numbers and contents. This list can also be useful for mapping actions to be taken en-route.

Figure 2 shows an example of an eight compass point mapping system, again this requires directly linked connections. As you can see this location has paths moving from all compass points except S and W. Also included is a squiggly line located in a circle in the centre of the octagon. This shows that it is possible to move up and down from this location, possibly to a new level.

These types of mapping are perfectly O.K. especially , if like me , you find your adventure world begins to take shape as a landscape in your imagination. The problems begin when you get to the obligatory maze (ANOTHER maze! yawn, how boring). Still, most of the time they lead to somewhere worth getting to, so take a tight grip on your mouse, sharpen your biro, get your paper, scissors and glue stick ready (you ALWAYS end up going off the edge of the paper!) and off you go. Ah, hang on. Before you set off fill every available pocket, rucksack, bag, carrycot, earhole, wheelbarrow and container lorry with every artifact, no matter how disgusting, that you can find. Then, when you get to a new location, drop something on the floor. Make a note of where you dropped it, and then move on. By moving backwards and forwards you can check that there are no 'matter transporters' to save the face of a poor plot writer, and gradually expand your map, missing none of the paths you'd like to follow, as one of them will lead out. There is a difficulty here, though. For instance, Lord Peedelybop the Cool strides mightily along the forest path, huge thigh muscles rippling, lazily swinging a 50 kilo battle axe. With confidence he marches into the sand dunes, stopping by a low tufted hillock to confidently drop the macerated body of a warg as a marker. The dialogue goes as follows.

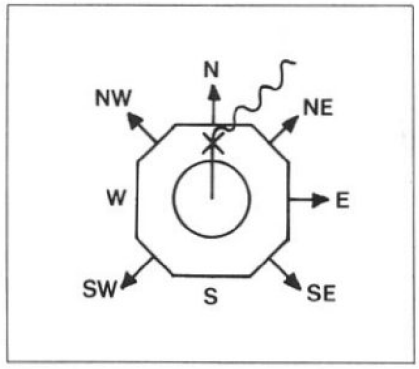

Figure 2. Eight point compass.

DROP WARG

YOU ARE BESIDE A LOW TUFTED HILLOCK IN THE SAND DUNES. THE BODY OF A WARG IS HERE. THE SEA BREEZE DRIFTS SAND OVER IT.

LOOK

YOU ARE BESIDE A LOW TUFTED HILLOCK IN THE SAND DUNES.

DIG

THERE IS THE BODY OF A WARG BURIED HERE.

If you ever get into one of these mazes, don't panic! The clue lies in the location descriptions. For example:

YOU ARE ON A LOW TUFTED HILLOCK.

YOU ARE BESIDE A LOW TUFTED SAND HILLOCK.

YOU ARE ON A LOW TUFTED HILLOCK WITH THE BREEZE IN YOUR FACE.

Note these are all different locations. Just make a note of them. And if your maze doesn't have any clues at all go out and buy a better game!

There are other tips which it's worth remembering. First is that in most locations you can follow one wall only, which is quite good in dark dungeons. Also, once you've saved a position, have an extra look around for anything you might have missed.

For some adventures, though, the type of mapping I've described is unsuitable. These are the ones where moving from room to room is not always logical, connection wise. Figure 3 shows how to cope with this. As long as the connections remain constant you're alright. As you can see this would be a nightmare to map in any other way. In each room description there is the room title, a brief description of what you might find in there, and a list of compass points, usually in the order that you tried them, and where they lead to.

Compasses are also VERY useful, so if you should find one, keep it nice and safe.

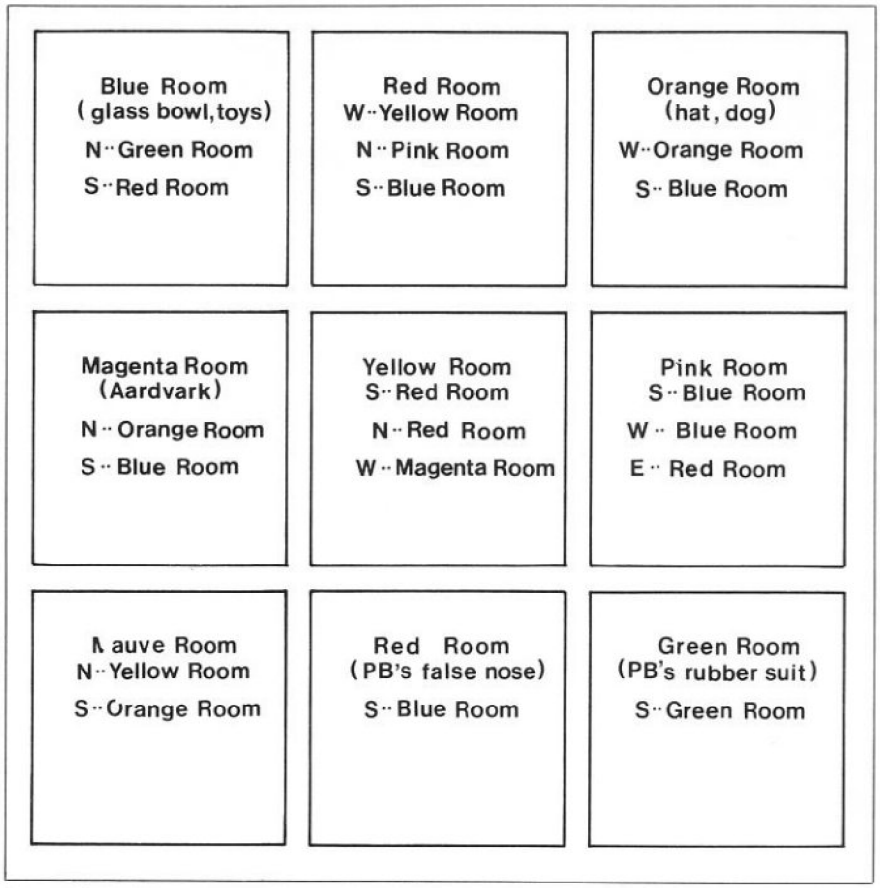

Figure 3. A different way of mapping.

Into the Dungeon

Right, enough of map making. Just lately I've been getting stuck into what is probably THE graphic adventure around at the moment. Yes, it's Dungeon Master, and poor P.B. has baggy eyes from playing it. A few hints for those of you just starting out coming up. First, ignore any signs on boxes which say COLOUR MONITOR REQUIRED. To me a colour monitor is a colour monitor, and not a television. But apparently, some software producers are labouring under the misconception that a colour telly is a colour monitor.

Anyway, the solid 3D graphics, colourful huge moving sprites, enormous size of levels and general almost cinema like pictorial quality of the game are so impressive that I can't help but wonder what the future will hold for the ST. It can only be good!

After playing for a while you may find that your mouse becomes very jerky and irregular in movement. Do not despair! What has happened is that a layer of natural oils from the skin of your hand has rubbed off onto the mouse mat, and from there to the control rollers, which pick up the movement from the neoprene ball. The way to clean the mouse, and restore the smooth rolling qualities is as follows.

Go to your local chemist and smile nicely at the pharmacist. Ask him if you may have 50 millilitres of ISOPROPYL ALCHOHOL. This is very pure alchohol, as used in medicines. If you are under eighteen it's probably best if you get someone older to ask. In general it costs about 50 to 70p for this small quantity, but it is also useful for tape recorder heads etc.

Turn your mouse over and gently unclip the ball retaining plate and drop out the ball. Moisten a cotton bud in the alchohol (you DID get your cotton buds at the same time as the Isopropyl, didn't you?) and examine the three chrome rollers. On each of them you will see what appears to be a dark layer of rough metal. This is the crunge you have to remove. Rub gently with the cotton bud, changing the bud as the head becomes dirty. When the rollers are nice and shiny allow the mouse to air for a few minutes. Pop the ball back in, gently replace the plate and voila! A smooth running mouse!

Back to the tips: find the compass before the matrix. Make sure no-one is carrying too much as Time is of the Essence, and also in there, don't despair; you may not be able to cross the pit but something you're carrying can at the right time!

Get into leather and carry the right potions. Don't just ignore the mirror of Dann, let things reflect in it but prepare a few UMFULIR's first! And while you sleep, why not save that torch?

Well, that's all for now, bye, P.B.

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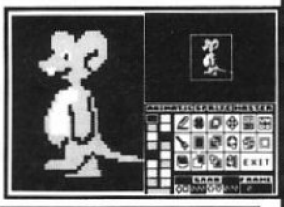

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Software Librarian - Roy Smith

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5. BONUS. Every program submitted per quarter (between issues of the magazine) will be eligible to be judged 'STAR PROGRAM' for that quarter. This carries a prize of £10 which will be paid to the author. The programs will be judged by the Editorial Team and their decision is final. The Editorial Team are not eligible for the prize.
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Game

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by Phil D'Angelo.
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Utilities

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AMODEM

From James Bastable.
The Ark BBS communications disk. Contains AMODEM4B and AMODEM7B as well as details on split baud rates on the 850 (who said it couldn't be done!).
Runs in 48K min. Disk only.
Requires 1 side of a disk.

★★★★★★★★★★★★★★★★

CUTE LABELS

Use this utility to make cute little labels for disks, records, etc. Other programs on here allow you to flip and mirror Printshop icons to print on the labels and also to create new icons. Two other utilities allow you to convert Printshop Screen Magic pictures from Printshop format to Atari DOS format. The other side of the disk contains 56 fonts for use with the icon builder and also Koalapad, joystick and mouse handlers.
Runs in 48K min. Disk only.
Requires 2 sides of a disk.

EXPRESS

The excellent Express telecoms package for use with Atari 1030 and XM301 modems when used with the 850. Also on this disk are versions for use with MPP modems and the SX212 modem.
Runs in 48K min. Disk only.
Requires 2 sides of a disk.

JOYTYPE

by John Pilge - USA
Use a joystick to type in program listings. Ideal for the disabled.
Runs in 48K min. Disk only.
Requires 1 side of disk.
XL/XE only.

PRINTSHOP DIRECTORY SORTER

by Linda Tinkler - Wirral
This program will print out on screen and/or Epson compatible printer an alphabetical list of up to 128 icons on a Printshop DATA disk. It will not work on the icons on the original Printshop disk.
Runs in 48K min. Disk only.
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XL/XE only. Turbo Basic program.

MICRO MAP

by Gary Hoetker - USA
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CHR STRINGS & ATASCII CODES

by Norman Williamson - Sutton
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DETOKENISER TURBO

Turbo Basic version of Ron Levy's Detokeniser program.
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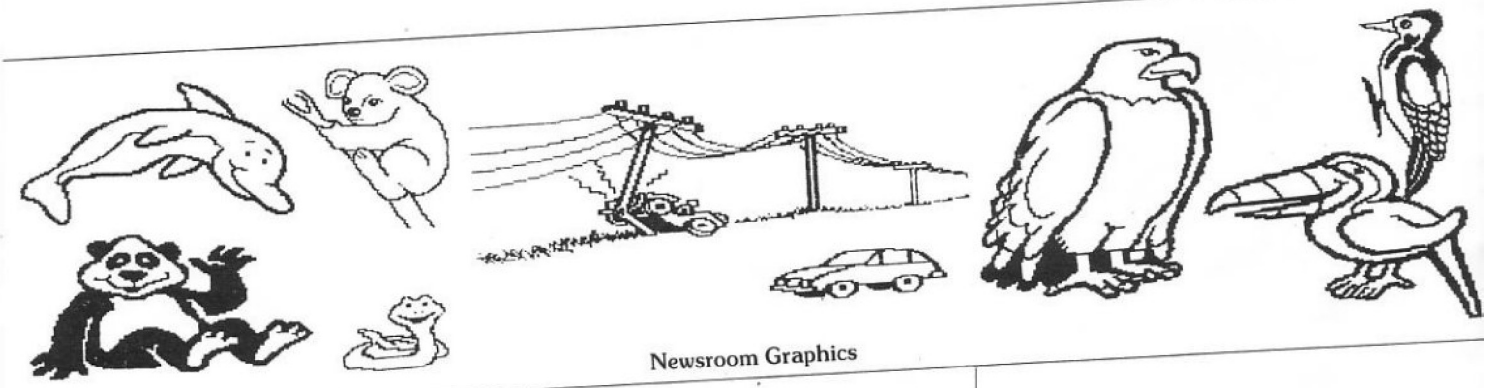
Requires Turbo Basic.



Newsroom Graphics

Newsroom

Review by R. Lussier

Newsroom is an easy-to-use page design application that puts the power of the press into your hands. You can quickly and easily create personalised newsletters, flyers and other short publications. This software is all you need for writing articles, adding pictures and designing the overall page layout.

Newsroom requires an Atari XL/XE with at least 64K memory, an Atari 1050 disk drive (or a compatible drive that reads enhanced disks) and a graphics-capable dot-matrix printer. Most likely you will need a printer interface such as the ICD P:R: Connection or the Atari 850. The only direct connect printer supported is the Atari XMM801. However, the 64 printer drivers that are included in the Newsroom should cover almost any of the standard printers.

Newsroom also requires Atari Basic. Do not use the OPTION button. The disks are in enhanced density (DOS 2.5) and the data file disks must be formatted by the Newsroom. The manual is a clear and well written 98 page book with screen shots and many illustrations. The book provides you with step-by-step instructions in preparing a sample of a 1 page newsletter. The Newsroom program comes with 600 varied clip art illustrations. There are 3 more disks available giving you an additional 2000 general, business and sports/recreational clip art illustrations.

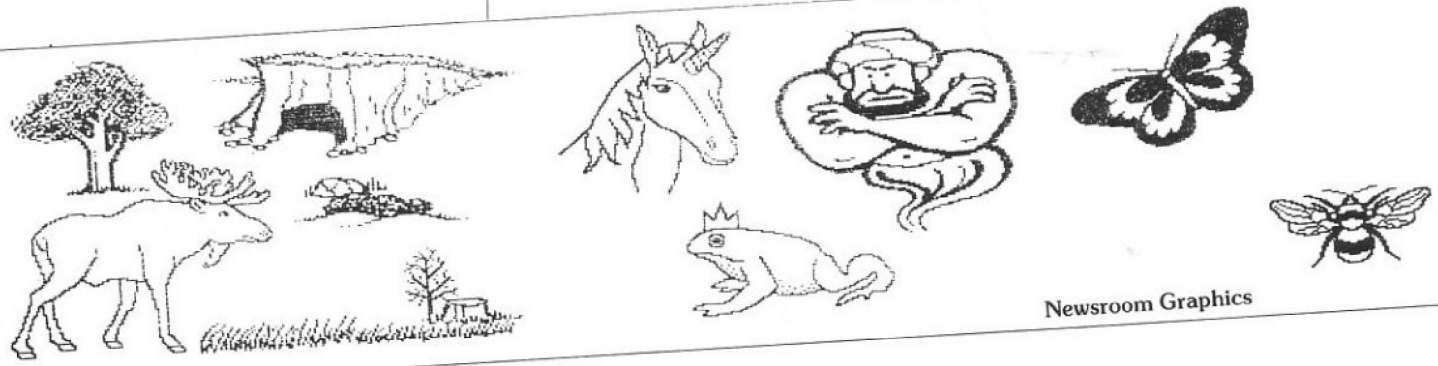
The Newsroom printings are designed one page at a time. The page is made of individual panels that can each contain pictures and/or text. Standard 8 1/2 X 11 inch paper can hold 8 panels or 6 panels with a double-panel banner across the top of the page. The longer (14 inch) legal paper adds 2 extra panels to the bottom of the page. Each panel and banner is stored on disk as a separate data file. An additional page layout file controls panel positioning. All the files for a given page should be kept on the same data disk.

The Newsroom main menu has 5 different departments; Photo Lab, Copy Desk, Banners, Layout and Press. The usual way to create a page is to create pictures in the Photo Lab, then add text for each panel in Copy Desk. The banner is of course composed in the Banners section. The overall page format is done in Layout and then print your work of art in the Press. The program uses commands that are selected by using either a joystick or the cursor keys to pick from the menu of icons. There is an Undo command called 'OOPS' that can be called from the Photo Lab, Banners or the Copy Desk to cancel your last entry. Artwork can be included in your work of art as 'photos' created in the Photo Lab by combining the clip art, text and graphics enhancements. You can use up to 30 clip art illustrations in a single photo, but only Newsroom Clip Arts can be used. There is also now available a program called 'The Converter' which allows you to transfer other sources of graphics such as Print Shop icons or MicroPainter pictures to be used with the Newsroom.

The Graphics Toolbox provides shapes, fill patterns, lines, circles and rectangles. Freehand drawing and erasing are supported along with 10 pre-defined pen shapes and 10 fill patterns. The Zoom magnifies small areas of the panel on a pixel by pixel scale for fine tuning. After the artwork is done you are ready to take the photo. A set of cursors appear which you can position to define the area of the picture to be included in the photo. The photo is then saved to disk to be used at the Copy Desk.

Text is added at the Copy Desk, one panel at a time. Three large fonts are available for the headlines and 2 normal fonts for the text itself. The normal fonts are scaled down versions of the large fonts. No source is provided for creating new fonts.

The panel can contain a photo, text or both. One large and one normal font can be used in a panel, but not mixed on a single line. First the photo is positioned within the panel. As the text is added, it flows across and down from the upper left, automatically wrapping around the photo. You can reposition the photo any time and the text will adapt to the new



Newsroom Graphics

set-up. When editing text, you can delete, copy or move a text block, delete characters or delete all. Panels can be saved to disk and recalled for later editing if required.

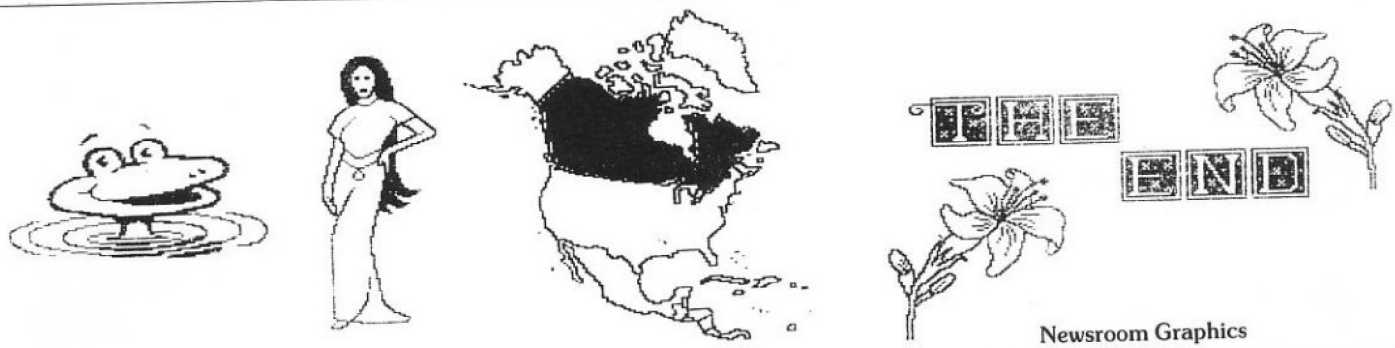
Banners are put together similarly to a single panel. Art can be added from clip art and/or the graphics toolbox. Once the banner is done, it can be saved and used over and over again. After the panels are finished, the final page is set in the Layout department. You then specify either the standard or legal size page, format with or without a banner, select the panels and their positions on the newsletter or other publication. This is then saved to a disk as a separate page layout file. Finally the printing is done in the Press department. The first time you must select the printer driver required. When this is done, select the Print Page option to get a print-out of your masterpiece. This can take 7 or 8 minutes for a typical page and only one page can be printed at a time. You can also print individual banners, panels or photos if required.

This is a very good program and very user friendly and a joy to use. The Clip Art pictures are also very well done. This is an A-1 class program for the 8-bit and worth every bit of the price. There are now quite a few new programs being released for the Atari 8-bit in the U.S.A. and Canada. I hope to do some reviews on these in the future.

If you would like more information on this program or on the Converter program, please feel free to write to the following companies for their brochures and prices. We must try and keep programs of this quality on the market and we can only do this if we support the programmers and the retailers. The addresses are as follows:

For the Newsroom.
Springboard Software Inc., 7808 Creekridge Circle, Minneapolis, MN 55435, U.S.A.

For the Converter.
No Frills Software, 800 East 23rd Street, Kearney, NE 68847, U.S.A.

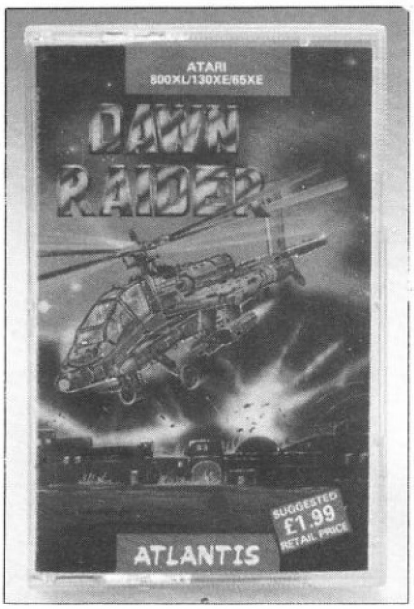


Newsroom Graphics

Dawn Raider & Periscope Up

From Atlantis Software
Cassettes, £1.99 each
Reviewed by Brian Smith

Unless my senses are deceiving me, Atlantis are at present the most prolific producers of new games for the 8-bit Ataris and for their efforts in this direction they should be praised. Unfortunately, when these two games were loaded I was overcome by a distinct feeling of 'deja-vu'. If I were party to the Atlantis planning meetings I think I would suggest that they try to come up with a new game that was innovative and addictive, so enjoyable and so good that it might lead on to sequels in the Boulderdash, Ultima and Mercenary moulds as a basis for ensuring future sales and success. Perhaps this is asking too much of a software house producing budget priced games but I am sure the strategy would pay off in the long term rather than releasing games that are derivative of many earlier games. I remember reading reviews of the first Mercenary game a couple of years ago, one particular review stated that the fastest time recorded at that point for completing the escape was 27 hours - this set a challenge which I imagine sent many games players to their software supplier to buy the game, and when the game was actually played created a ready market for a sequel.



You may feel that I am digressing from the actual point of reviewing these two games, you may have a point, but my comments are made in the hope that we might get more of what the users want from the games producers in the 8-bit Atari range and software houses would do well to remember that future sales are based on their earlier releases. Admittedly at under two pounds each these games cannot really be poor value, in fact Dawn Raider gave me hours of entertainment, unfortunately not in playing the game but trying to decide where I had played it before. These two games are so similar to earlier releases I wonder exactly where they will find their markets, presumably old hands will already have very similar games in their collections, and I don't imagine that their are too many new Atari 8-bit users.

Dawn Raider

Loading time 6 minutes
Joystick only

Immediately I started playing this game I was convinced that I had played it before but on checking the credits I found that it was programmed by one G. Storey copyright 1988 so surely I couldn't have played it previously. Having said that this game is very, very similar to

Airstrike 2 released by English Software in 1983, the game concept is virtually the same although the graphics are rather more sophisticated, essentially, however, the game is the same. You have to navigate your craft through continuously horizontally scrolling caverns avoiding rockets, gunfire, etc., collecting fuel and ammunition on your way to reach your objective which is to destroy the nuclear armed fleet of rockets which are about to destroy the world's major cities.

If you have Airstrike 2 in your collection (I know not whether there was an Airstrike 1) you might probably give this game a miss. However, it is still infuriatingly addictive and good value at £1.99

Periscope Up

Loading time 9 minutes
Joystick only

Again you find yourself wandering through caverns, this time underwater and the scrolling is dependant upon your movements. The game does have a variation on the theme as you start off in a submarine and rather than remain in the one vehicle you then send your remote controlled scout craft to collect keys to open doors to sealed chambers and collect fuel and the numbers that you need for the combination lock for the final solution; however it remains a fairly simple and straightforward game.

It is quite addictive if only to get to the end, but after that probably will not hold a great deal of lasting appeal. Once you have completed the game you will probably only return to it very occaisionally, if at all.

I commend Atlantis for their support of the Atari 8-bit but wonder whether

they may perhaps be lacking in positive direction and would like to see a rather more consistent and devoted attitude towards quality. Of their recent releases I found Pro-Golf very enjoyable, Cops and Robbers rather suspect in content and having played the game a number of times subsequent to writing the review (last issue) find the PMG collision set-up decidedly hostile and irritating.

Atlantis seem to be attempting to please all of the people all of the time, which they will never succeed in doing by aiming their games at the middle of the road, which is perhaps the most hazardous place to be. I certainly feel that establishing a reputation for producing good, innovative games should be their priority as this would generate future dividends, and moreover they must comprehensively examine games that they release to ensure that they are bug-free before they hit the market place. I haven't yet come across any bugs in these two games but I did in earlier releases such as Spooky Castle and Daylight Robbery.

After seeing the crowds at Alexandra Palace last November I feel that there is a vast ready market for good, new games for the 8-bit Atari and I hope that Atlantis will get into the thick of this market as quickly as they possibly can, but quality and new ideas are the order of the day rather than thinly disguised reworkings of old games, their enthusiasm for getting games into the market place should be tempered with a desire to acheive a quality that will allow potential buyers to go out and buy new releases without worrying about whether the game will be of poor quality, a reworking of someone else's earlier release or laden with bugs that make it unenjoyable. These comments are obviously not aimed solely at Atlantis as other software houses have released bug laden games or games that were pretty hostile towards the player and I hope that Atlantis go on to release many more games for the 8 bit Atari, I also hope that any readers who write games will contact Atlantis in the hope that Atlantis will consider publishing them. There are a lot of people out there who write games of a high standard that often find their way into the public domain that I am sure Atlantis would like to hear from with a view to publishing in the commercial sector.

Turbo-816

DataQue Software have announced a powerful new upgrade which has been designed by Ron Shue and Chuck Steinman. This upgrade will be available in two forms. There will be a replacement CPU board for the original 400/800 computer system and a plug in module for the XL/XE series. In either case there is usually no need for any modifications to the existing hardware. The only exception is with XL/XE systems which have their CPU soldered in place, which will require the removal of the existing CPU and the addition of a standard 40 pin IC socket. Also included is a new Turbo-OS.

Turbo-816 will not only increase the potential speed of the computer, but also break the 64K memory barrier of the existing systems. Not with the awkward paged memory, but with a fully linear decoded address space of up to 16 megabytes. Benchmarks have already put Turbo-816 into a performance range above many 'PCs'! Special memory boards will be available to take advantage of the new extended addressing range.

Whilst adding all this power and expanded addressing it is claimed compatibility with most currently available software has been maintained. Just think what an even faster version of Star Raiders would be like!!!

Turbo-OS is a replacement operating system which utilises the Turbo-816 16 bit processor to its fullest potential. Increased speed is the most obvious benefit, but hidden in its code is an advanced new floating point library that will speed up even the old Atari Basic to new levels of performance. On most systems it will be just a matter of replacing the existing ROMs with the Turbo-OS.

Further developments already planned include; a real-time multi-tasking operating system kernal, a new assembler/editor debugger package, a new Basic, a 'C' development package, Turbo-GOS which is a graphics based operating system, and a developers kit for new applications.

For more information contact:

DataQue Software, Dept. T-816, P.O. Box 134, Ontario, OH 44862.

The Page Marshal System

From Valar Software
For 800XL/65XE/130XE
with Disk Drive
Also required:
850 Interface (or equivalent)
Epson compatible Dot Matrix Printer
Joystick

Page Marshal consists of a suite of programs which together form a very useful, user friendly, 'text with graphics' page processing system. Character

graphics are used throughout, resulting in ease of use, instant redraw and guaranteed 'clean' images. The system was originally developed as an in-house structured programming chart drafting tool, but there are many other schematic type tasks which the system can easily tackle; for example, it is an ideal system for producing electronic circuits, business forms, statistics charts, graphs, hierarchial (tree) structure charts, musical scores, advertisements, news-sheets or indeed any type of document that can be built up from a range of differently shaped character elements. A different character set (font) can be used on every line, allowing documents of incredible complexity to be created. A fast, co-resident printer driver is provided; eliminating the need for inefficient disk swapping.

The screen display exactly mimics the hard copy. In other words; what you see is what you get! A comprehensive range of custom font files is provided to enable the user to create any of the types of document already described, as well as opening up specialist applications such as printed circuit board design. The program stores an entire 80 column by 80 row 'page' (640 pixels by 640 pixels) in RAM; and provides a fully mobile 40 column by 20 row screen 'window' onto this page. A co-resident 'library' (48 columns by 80 rows) is an integral part of the file of every page, and enables the user to capitalise on previously designed and stored 'macros' (a macro consists of any designated block of characters up to 32 characters wide by 16 characters tall).

The only limitation on the number of macro's that can be stored is the limit of physical space in the library. Page Marshal comes equipped with macro libraries for each discipline. The library area is automatically saved/loaded to/from disk along with each page. Each page's library can be customised to suit a particular font and application, and the Page Marshal utilities program allows any page's library file to be changed for any other library. The window can be panned horizontally, vertically or diagonally to any part of the library or page via the joystick. This interaction always occurs in real time, even during the simultaneous movement of macro blocks. The print-out menu allows the user to select up to 2000 copies to be run off continuously (no disk swapping necessary). There is a pause printing control which never upsets formatting.

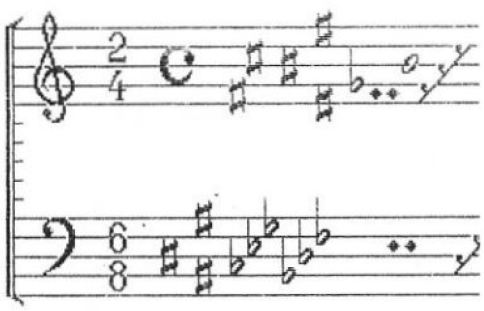
Separate menu windows are provided for loading and saving document files, and for the separate loading of fonts and text files. Any word processor, such as AtariWriter, that can produce DOS 2.5 record format files may be used to prepare text files for this system. However, Page Marshal can also be used as a text processor in its own right, it has a dedicated 'typer' mode for text processing.

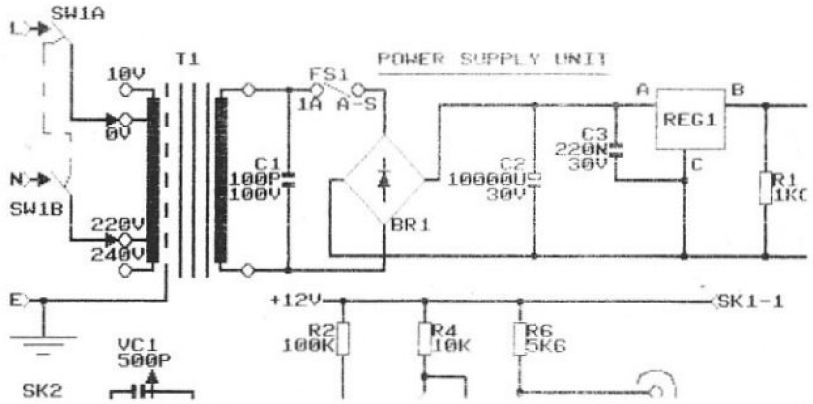
The autonumber facility (for circuit diagrams and the like) allows automatic numbering of up to 999 components of each of up to 64 component types with consecutive component numbering spread over any number of pages! It is also a simple matter to mix automatic numbering with manual numbering. Also included are facilities for printed circuit board design which comprises not only fonts for copper layer, component identity and solder resist, but also an ingenious routine called 'SP-CONVERT' which enables the designer to create an unlimited number of layers, with each additional layer capitalising on the same pad positions data!

For the technically minded, Page Marshal makes use of display list interrupts, vertical blank processing, player-missile graphics and special sound effects. Naturally, much of the programming simply had to be written in assembly language, but to allow competent programmers to fine-tune the program to their own requirements, it is possible to modify or add to the data statements of those parts of the programs which have been written in Turbo Basic.

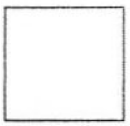
The total package contains: Page Marshal main program (issue 1.10), the utilities program (issue 1.10), fonts set 1, library set 1, user manuals, customer support and discounts on future upgrades.

Page Marshal is available from Valar Software, 115 Vale Road, Portslade, Sussex, BN4 1GE. The price is an unbelievably low £26.64 (which includes post, packing and insurance).

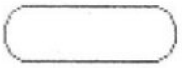




DECISION



PROCESS



TERMINATOR

$$x = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$$

$$freq = \frac{1}{2\pi\sqrt{LC}}$$

OFFLINE STORAGE

AUXILIARY OPERATION

SORT

CONNECTOR

$$\int_a^b \Delta a x^4 = \sum_a^b 5\pi H t/\epsilon$$

$$j^1 = \sqrt{-1}$$

$$j^2 = -1$$

$$j^3 = -j$$

$$j^4 = 1$$

CRACKING THE CODE

Part Seventeen by Keith Mayhew

In this part we will be looking at the facilities available for accessing the disk drive. We will start with the low-level access which treats the disk on a sector basis. After this, we will look at the file structure imposed on the sectors via the disk file handler 'D:'.

Low-level Disk Access

The only built-in routines provided for accessing the disk drive are: read a sector; write a sector; and format. Note that there are no routines built into the operating system to access files on the disk - these are provided by DOS which is loaded from a disk at power-up.

These sector-based routines are referred to as the Disk Handler. It is not, however, a CIO device handler and cannot be accessed directly from the CIO. Refer to Figure one in Part 15 of this series (issue 19) to see where the disk handler is situated in the operating system hierarchy.

The disk handler is called via a JSR to its own vector 'DSKINV' at E453 hex. The variables used by the handler, and their locations, in hex, are as follows:

0301 DUNIT Disk drive number.
0302 DCOMND Command byte.
0303 DSTATS Status byte.
0304 DBUFLO Buffer address low.
0305 DBUFHI Buffer address high.
0308 DBYTLO Number of bytes low.
0309 DBYTHI Number of bytes high.
030A DAUX1 Sector number low.
030B DAUX2 Sector number high.

The disk handler uses SIO, the Serial Input Output utility, to pass the required command on to the disk drive via the 13-pin serial interface. In fact, the above variables belong to SIO's Device Control Block (DCB) which is used when accessing any device on the serial bus, not just the disk drive.

When the disk drive receives the command its processor decodes it and uses its WD1771 floppy disk controller chip to actually perform the operation.

Sector Read Command

Reading a single sector of a disk is achieved by the following: set 'DUNIT' to the number of the disk drive you wish to access (drives are numbered from one onward); set 'DCOMND' to 52 hex, the 'get sector' command; set the buffer address, 'DBUFLO' & 'DBUFHI', to point to a 128 byte buffer; lastly, set 'DAUX1' & 'DAUX2' to the sector number you want read (sectors are numbered from 1 onward) and JSR to 'DSKINV'.

On return, the status byte, 'DSTATS', will be set to 1 if the read was successful and the sector's contents will be in your buffer. If the read failed 'DSTATS' will contain an error code between 8A and 90 hex, excepting 8D hex: refer to Part 14 of this series in issue 18 for their meanings.

Sector Write Command

To write a single sector on to a disk the variables are set up as for reading except 'DCOMND' is set to 57 hex, the 'write sector' command. After a successful call to the disk handler the buffer's contents will have been written to the specified sector and 1 will be in 'DSTATS'.

The above command writes a sector with verify, i.e. the disk drive re-reads the sector and compares it against what should have been written. There is an alternative write command, 50 hex, which writes without this verification, thus speeding up the writing process. This is obviously less safe as you are not guaranteed that the data was written correctly: it only proves that the disk was readable, i.e. the drive could find the appropriate sector.

Unfortunately, the disk handler in the original operating system does not recognise the command to write without verify. To achieve the operation you have to access SIO directly! This 'bug' may have been fixed on the XL and XE machines.

Format Disk Command

Before a new disk can be used to write information to, a 'format' has to be written on to the disk. The format for a standard single density drive consists of 40 tracks, each with 18 sectors of 128 bytes each. Special 'headers' and 'trailers' are written around each sector. These contain information for the disk controller's own use such as sector number, track number and a 'CRC' code which is used to validate data read from that sector. As you can see, there is more on a disk than just what you can put there! Fortunately all these tiresome details are hidden from us when we read and write sectors.

To write a new format on to a floppy disk the disk handler variables are set up to specify the disk drive number, a pointer to a 128 byte buffer and a command byte value of 21 hex. The handler does not return until the disk drive has completed the operation. When finished, a status value is returned. If the format was successful, a count of the number of 'bad' sectors which could not be formatted is returned in 'DBYTLO' and 'DBYTHI'. Normally this count is zero, however, if errors did occur then a list of the sector numbers which could not be formatted are returned in the buffer, in low-high format, terminated with a pair of FF hex. This allows for a maximum of 63 bad sectors, however, if a disk has that many errors it really ought to be thrown away!

All disk handler commands return further status information in a four byte block called DVSTAT starting at 02EA hex. The most useful information here is just bit 3 of the first byte which, if set, indicates that a write or format failed due to the disk being write protected. Of interest to some might be the second byte which holds the full status byte of the disk drive's floppy controller chip: for information on this you will have to find a data sheet on the WD1771.

File-level Access

Although sector access is very flexible it is not a very convenient method of storing and retrieving general information as it requires us to break our information down into small blocks and remember on what sector numbers it was all stored.

File-level access is provided by a File Management System (FMS) which maintains a directory of all the files stored on a disk. The FMS is a part of DOS which is loaded at power-up and places an entry in the CIO's handler table for the device 'D:'. All the standard CIO commands for opening, closing, reading and writing are supported by the FMS plus several other commands.

OPEN Command

The OPEN command accepts a file name and an optional drive number. The file name is in the same format as you use from DOS and can contain 'wildcards', i.e. '*' which matches any number of characters and '?' which matches any single letter: the FMS will

Listing 1.

```
0100 ;O.S. vectors...
0110 CIOV    =       $E456   ;CIO entry point.
0120 DSKINV  =       $E453   ;Disk handler entry point.
0130 ;CIO IOCB locations...
0140 ICCOM   =       $0342   ;Command byte.
0150 ICBAL   =       $0344   ;Buffer address low.
0160 ICBAH   =       $0345   ;Buffer address high.
0170 ICBLL   =       $0348   ;Buffer length low.
0180 ICBLH   =       $0349   ;Buffer length high.
0190 ICAX1   =       $034A   ;Auxiliary 1.
0200 ICAX2   =       $034B   ;Auxiliary 2.
0210 ;CIO IOCB commands...
0220 COPEN   =       $03     ;Open device.
0230 CGETREC =       $05     ;Get record.
0240 CGETCHR =       $07     ;Get characters.
0250 CPUTREC =       $09     ;Put record.
0260 CPUTCHR =       $0B     ;Put characters.
0270 CCLOSE  =       $0C     ;Close device.
0280 ;Disk handler (SIO) DCB locations...
0290 DUNIT   =       $0301   ;Drive number.
0300 DCOMND  =       $0302   ;Disk command.
0310 DSTATS  =       $0303   ;Disk status.
0320 DBUFLO  =       $0304   ;Disk buffer address low.
0330 DBUFHI  =       $0305   ;Disk buffer address high.
0340 DAUX1   =       $030A   ;Disk sector number low.
0350 DAUX2   =       $030B   ;Disk sector number high.
0360 ;Disk handler commands...
0370 DSKGET  =       $52     ;Get sector.
0380 DSKPUTV =       $57     ;Put sector with verfiy.
0390 ;O.S. equates...
0400 LMARGN  =       $52     ;Editor left margin.
0410 ROWCRS  =       $54     ;Cursor row.
0420 COLCRS  =       $55     ;Cursor column.
0430 CRSINH  =       $02F0   ;Cursor inhibit.
0440 DSPFLG  =       $02FE   ;Display flag.
0450 RD      =       $04     ;Read from IOCB.
0460 WR      =       $08     ;Write to IOCB.
0470 EOL     =       $9B     ;End of line character.
0480 EOF     =       $88     ;End of file error.
0490 CRSUP   =       $1C     ;Editor cursor up character.
0500 CRSDN   =       $1D     ;Editor cursor down character.
0510 CRSLT   =       $1E     ;Editor cursor left character.
0520 CRSRT   =       $1F     ;Editor cursor right character.
0530 CLS     =       $7D     ;Editor clear screen character.
0540 DELLINE =       $9C     ;Editor delete line character.
0550 ;Program equates...
0560 EDIOCB  =       $00     ;IOCB index for editor 'E:'.
0570 KBDIOCB =       $10     ;IOCB index for keyboard 'K:'.
0580 ;Page zero variables...
0590         *=      $CB
0600 TEMP1   *=      *+1     ;Temporary location.
0610 TEMP2   *=      *+1     ;Temporary location.
0620 CURBYTE *=      *+1     ;Current byte being edited.
0630 SECTOR  *=      *+2     ;Sector number low/high.
0640 DRIVE   *=      *+1     ;Drive number.
0650 EDITX   *=      *+1     ;Edit position X.
0660 EDITY   *=      *+1     ;Edit position Y.
0670 EDITDIG *=      *+1     ;Edit left or right digit.
0680 EDITHEX *=      *+1     ;Edit hex or ATASCII.
0690 PROMPT  *=      *+1     ;Command prompt flag.
0700         *=      $6000
0710         PLA     ;Clean stack for entry from BASIC.
0720         LDX     #EDIOCB ;Open editor, in case closed.
0730         LDA     #EFILE&$FF
0740         STA     ICBAL,X
0750         LDA     #EFILE/256
0760         STA     ICBAH,X
0770         LDA     #RD+WR  ;Read and write.
0780         STA     ICAX1,X
0790         JSR     OPEN
0800         LDX     #KBDIOCB ;Open keyboard.
0810         LDA     #KFILE&$FF
0820         STA     ICBAL,X
0830         LDA     #KFILE/256
0840         STA     ICBAH,X
0850         LDA     #RD     ;Read only.
0860         STA     ICAX1,X
0870         JSR     OPEN
0880         LDA     #0      ;Zero left margin.
0890         STA     LMARGN
0900         JSR     CRSOFF  ;Cursor off.
0910         LDX     #EDIOCB
0920         LDA     #EOL
0930         JSR     PUTBYTE ;Blank line.
0940         LDA     #MSTITLE&$FF ;Print title string.
0950         STA     ICBAL,X
0960         LDA     #MSTITLE/256
0970         STA     ICBAH,X
0980         JSR     WRITELN
0990         LDA     #EOL    ;Blank line.
1000         JSR     PUTBYTE
1010         LDA     #MSHEAD&$FF ;Print header sting.
1020         STA     ICBAL,X
1030         LDA     #MSHEAD/256
1040         STA     ICBAH,X
1050         JSR     WRITELN
1060         LDA     #5      ;Print offset numbers...
1070         STA     ROWCRS  ;Set row.
1080         LDA     #0
1090         STA     TEMP1   ;Start offset at zero.
1100 NEXTOFF LDA     #0
1110         STA     COLCRS  ;Set column.
1120         LDA     TEMP1
1130         JSR     PUTHEX  ;Print it in hex.
1140         INC     ROWCRS  ;Next line.
1150         LDA     TEMP1   ;Get offset.
1160         CLC
1170         ADC     #8      ;Next offset.
1180         STA     TEMP1   ;Save it back.
1190         CMP     #$80
1200         BNE     NEXTOFF ;Last one?
1210         JSR     CRSON
1220         LDA     #1      ;Start at sector 1, drive 1.
1230         STA     DRIVE
1240         STA     SECTOR
1250         LDA     #0
1260         STA     SECTOR+1
1270         STA     PROMPT  ;Turn off prompt flag.
1280         JSR     NEWSECT ;Display it.
1290 ;Main loop: handle commands and editing.
1300 COMMAND LDA     PROMPT
1310         BEQ     SHOW    ;No prompt displayed.
1320         LDA     #22
1330         STA     ROWCRS
1340         LDA     #DELLINE ;Delete line character.
1350         LDX     #EDIOCB
1360         JSR     PUTBYTE ;Delete command prompt.
1370         LDA     #0
1380         STA     PROMPT  ;Clear flag.
1390 SHOW    JSR     SHOWPOS ;Show edit position.
1400         LDX     #KBDIOCB ;Get key.
1410         JSR     GETBYTE
1420         CMP     #EOL    ;Return key?
1430         BEQ     USERCMD ;Process user command.
1440         CMP     #CRSLT  ;Cursor left?
1450         BNE     COM1
1460         JMP     LEFT
1470 COM1    CMP     #CRSRT  ;Cursor right?
1480         BNE     COM2
1490         JMP     RIGHT
1500 COM2    CMP     #CRSUP  ;Cursor up?
1510         BNE     COM3
1520         JMP     UP
1530 COM3    CMP     #CRSDN  ;Cursor down?
1540         BNE     COM4
1550         JMP     DOWN
1560 COM4    TAY
1570         LDA     EDITHEX ;Editing hex?
1580         BNE     INSCHR  ;No.
1590         TYA
```

```
1600          JSR     GETHEX  ;Convert to hex digit.
1610          CMP     #$FF    ;Valid?
1620          BEQ     COMMAND ;No.
1630 ;Insert a digit.
1640 INSDIG   TAY
1650          LDA     EDITDIG
1660          BNE     INSTRT  ;Right digit.
1670          TYA
1680          ASL     A
1690          ASL     A
1700          ASL     A
1710          ASL     A
1720          STA     TEMP1
1730          LDY     CURBYTE
1740          LDA     BUFFER,Y
1750          AND     #$0F
1760          ORA     TEMP1
1770          STA     BUFFER,Y
1780          JMP     EDTBYTE
1790 INSTRT   TYA
1800          AND     #$0F
1810          STA     TEMP1
1820          LDY     CURBYTE
1830          LDA     BUFFER,Y
1840          AND     #$F0
1850          ORA     TEMP1
1860          STA     BUFFER,Y
1870          JMP     EDTBYTE
1880 ;Insert character.
1890 INSCHR   TYA
1900          LDY     CURBYTE
1910          STA     BUFFER,Y
1920          JMP     EDTBYTE
1930 ;Process user command.
1940 USERCMD LDX      #EDIOCB
1950          LDA     #$FF
1960          STA     PROMPT  ;Set prompt flag.
1970          LDA     #0      ;Show prompt.
1980          STA     COLCRS
1990          LDA     #22
2000          STA     ROWCRS
2010          LDA     #MSCMD&$FF
2020          STA     ICBAL,X
2030          LDA     #MSCMD/256
2040          STA     ICBAH,X
2050          JSR     WRITELN
2060          LDA     #MLCMD-1
2070          STA     COLCRS  ;Set cursor poition.
2080          LDA     #22
2090          STA     ROWCRS
2100          LDA     #CRSRT  ;Show cursor.
2110          JSR     PUTBYTE
2120          LDA     #INBUFF&$FF
2130          STA     ICBAL,X
2140          LDA     #INBUFF/256
2150          STA     ICBAH,X
2160          LDA     #INBLEN
2170          STA     ICBLL,X
2180          LDA     #0
2190          STA     ICBLH,X
2200          JSR     READLN  ;Get input.
2210          LDA     INBUFF
2220          CMP     #'+'    ;Next sector
2230          BEQ     CNEXT
2240          CMP     #'-'    ;Previous sector?
2250          BEQ     CPREV
2260          CMP     #'R'    ;Read sector?
2270          BEQ     CREAD
2280          CMP     #'W'    ;Write sector?
2290          BEQ     CWRITE
2300          CMP     #'D'    ;Change drive?
2310          BEQ     CDRIVE
2320          CMP     #'S'    ;Change sector?
2330          BEQ     CSECTOR
2340          CMP     #'Q'    ;Quit?
2350          BNE     USER2
2360          LDA     #2      ;Set left margin to default.
2370          STA     LMARGN
2380          LDX     #KBDIOCB ;Close keyboard IOCB.
2390          JSR     CLOSE
2400          JSR     CRSON   ;Cursor on.
2410          RTS             ;End of program...
2420 USER2    JMP     COMMAND
2430 ;Next sector command.
2440 CNEXT    INC     SECTOR  ;End if 0
2450          BNE     CNEXT2
2460          INC     SECTOR+1
2470 CNEXT2   JSR     NEWSECT
2480          JMP     COMMAND
2490 ;Previous sector command.
2500 CPREV    DEC     SECTOR
2510          LDA     SECTOR
2520          CMP     #$FF
2530          BNE     CPREV2
2540          DEC     SECTOR+1
2550 CPREV2   JSR     NEWSECT
2560          JMP     COMMAND
2570 ;Read sector command.
2580 CREAD    JSR     NEWSECT
2590          JMP     COMMAND
2600 ;Write sector command.
2610 CWRITE   JSR     WRSECT
2620          JMP     COMMAND
2630 ;Change drive command.
2640 CDRIVE   JSR     NUMBER  ;Get drive number.
2650          BEQ     CDRV2   ;Not valid...
2660          LDA     TEMP2   ;Low byte.
2670          STA     DRIVE
2680          JSR     NEWSECT
2690 CDRV2    JMP     COMMAND
2700 ;Change sector command.
2710 CSECTOR JSR      NUMBER  ;Get sector number.
2720          BEQ     CSCT2   ;Not valid...
2730          LDA     TEMP2   ;Low byte.
2740          STA     SECTOR
2750          LDA     TEMP1   ;High byte.
2760          STA     SECTOR+1
2770          JSR     NEWSECT
2780 CSCT2    JMP     COMMAND
2790 ;Get number from input buffer.
2800 NUMBER   LDY     #1      ;Next character index.
2810          LDX     #0      ;Number of digits so far.
2820          STX     TEMP1   ;Zero result.
2830          STX     TEMP2
2840 NUM1     LDA     INBUFF,Y ;Get to end of line.
2850          CMP     #EOL
2860          BEQ     NUM2
2870          INY
2880          JMP     NUM1
2890 NUM2     DEY
2900          BEQ     NUM3    ;At start of line.
2910          LDA     INBUFF,Y ;Get character.
2920          JSR     GETHEX  ;Convert hex digit.
2930          CMP     #$FF
2940          BEQ     NUM3    ;Not hex digit.
2950          PHA
2960          TXA             ;Get digit no.
2970          AND     #1
2980          BEQ     NUM4    ;Don't shift if odd.
2990          PLA
3000          ASL     A       ;Shift.
3010          ASL     A
3020          ASL     A
3030          ASL     A
3040          PHA
3050 NUM4     TXA             ;Get digit no.
3060          LSR     A       ;Divide by 2.
3070          BNE     NUM5    ;High byte of number.
3080          PLA             ;Or to low byte.
3090          ORA     TEMP2
```

```
3100          STA     TEMP2
3110          JMP     NUM6
3120 NUM5     PLA             ;Or to high byte.
3130          ORA     TEMP1
3140          STA     TEMP1
3150 NUM6     INX
3160          CPX     #4
3170          BNE     NUM2    ;Next character.
3180 NUM3     TXA             ;Return zero if no digits.
3190          RTS
3200 ;Cursor left.
3210 LEFT     LDA     EDITHEX ;Editing hex digits?
3220          BNE     LEFT1   ;No.
3230          LDA     EDITDIG ;Toggle digit.
3240          EOR     #1
3250          STA     EDITDIG
3260          BNE     LEFT3
3270          JMP     COMMAND ;End if on same hex number.
3280 LEFT3    DEC     CURBYTE
3290          DEC     EDITX
3300          BMI     LEFT4
3310          JMP     COMMAND ;End if not off left.
3320 LEFT4    INC     EDITHEX ;Move to ATASCII.
3330 LEFT2    LDA     #7      ;Move to last character.
3340          STA     EDITX
3350          LDA     CURBYTE ;Adjust index.
3360          CLC
3370          ADC     #8
3380          STA     CURBYTE
3390          JMP     COMMAND ;Back to command loop.
3400 LEFT1    DEC     CURBYTE
3410          DEC     EDITX
3420          BMI     LEFT5
3430          JMP     COMMAND ;Skip if not off left.
3440 LEFT5    DEC     EDITHEX ;Editing hex.
3450          LDA     #1      ;Right digit.
3460          STA     EDITDIG
3470          JMP     LEFT2   ;Adust index.
3480 ;Cursor right.
3490 RIGHT    LDA     EDITHEX
3500          BNE     RIGHT1  ;Edit ATASCII
3510          LDA     EDITDIG
3520          EOR     #1
3530          STA     EDITDIG
3540          BEQ     RIGHT3
3550          JMP     COMMAND ;Skip if on same number.
3560 RIGHT3   INC     CURBYTE
3570          INC     EDITX
3580          LDA     EDITX
3590          CMP     #8
3600          BEQ     RIGHT4
3610          JMP     COMMAND ;Skip if not off right.
3620 RIGHT4   INC     EDITHEX
3630 RIGHT2   LDA     #0      ;Adjust index.
3640          STA     EDITX
3650          LDA     CURBYTE
3660          SEC
3670          SBC     #8
3680          STA     CURBYTE
3690          JMP     COMMAND
3700 RIGHT1   INC     CURBYTE
3710          INC     EDITX
3720          LDA     EDITX
3730          CMP     #8
3740          BEQ     RIGHT5  ;Correct if off right.
3750          JMP     COMMAND
3760 RIGHT5   DEC     EDITHEX
3770          LDA     #0
3780          STA     EDITDIG
3790          JMP     RIGHT2
3800 ;Cursor up.
3810 UP       LDA     CURBYTE
3820          SEC
3830          SBC     #8
3840          STA     CURBYTE
3850          DEC     EDITY
3860          BMI     UP1
3870          JMP     COMMAND ;Skip if not off top.
3880 UP1      LDA     #15
3890          STA     EDITY
3900          LDA     CURBYTE
3910          CLC
3920          ADC     #$80
3930          STA     CURBYTE
3940          JMP     COMMAND
3950 ;Cursor down.
3960 DOWN     LDA     CURBYTE
3970          CLC
3980          ADC     #8
3990          STA     CURBYTE
4000          INC     EDITY
4010          LDA     EDITY
4020          CMP     #16
4030          BEQ     DOWN1
4040          JMP     COMMAND ;Skip if not off bottom.
4050 DOWN1    LDA     #0
4060          STA     EDITY
4070          LDA     CURBYTE
4080          SEC
4090          SBC     #$80
4100          STA     CURBYTE
4110          JMP     COMMAND
4120 ;New sector: read and display.
4130 NEWSECT  JSR     RDSECT
4140          JSR     CRSOFF
4150          LDA     #1      ;Print drive and sector...
4160          STA     ROWCRS
4170          LDA     #7
4180          STA     COLCRS
4190          LDA     DRIVE
4200          JSR     PUTHEX  ;Drive number.
4210          LDA     #18
4220          STA     COLCRS
4230          LDA     SECTOR+1
4240          JSR     PUTHEX  ;Sector high.
4250          LDA     SECTOR
4260          JSR     PUTHEX  ;Sector low.
4270          LDA     #$FF    ;Display special characters.
4280          STA     DSPFLG
4290          JSR     DISPLAY
4300          LDA     #0      ;Re-enable special characters.
4310          STA     DSPFLG
4320          JSR     CRSON
4330          LDA     #0      ;Set edit variables.
4340          STA     CURBYTE
4350          STA     EDITX
4360          STA     EDITY
4370          STA     EDITDIG
4380          STA     EDITHEX
4390          RTS
4400 ;Byte edited: re-display it.
4410 EDTBYTE  JSR     CRSOFF
4420          LDA     #$FF
4430          STA     DSPFLG
4440          JSR     DSPBYTE
4450          LDA     #0
4460          STA     DSPFLG
4470          JSR     CRSON
4480          JMP     RIGHT   ;Move cursor on to next character.
4490 ;Show cursor at edit position.
4500 SHOWPOS  LDA     EDITY   ;Get Y position.
4510          CLC
4520          ADC     #5
4530          STA     ROWCRS  ;Set cursor row.
4540          LDA     EDITHEX ;Editing hex or ATASCII?
4550          BNE     ATASCII
4560          LDA     EDITX   ;Get X position.
4570          STA     TEMP1   ;Times 3...
4580          CLC
4590          ADC     TEMP1
```

```
4600         ADC     TEMP1
4610         ADC     #3      ;Add offset from left.
4620         ADC     EDITDIG ;Add offset for right digit.
4630         STA     COLCRS  ;Save column.
4640         JMP     SHOW1
4650 ATASCII LDA     EDITX   ;Get X position.
4660         CLC             ;Add offset from left.
4670         ADC     #27
4680         STA     COLCRS  ;Save column
4690 SHOW1   INC     COLCRS  ;Move one right.
4700         JSR     CRSON   ;Enable cursor.
4710         LDA     #CRSLT  ;Send cursor left to editor...
4720         LDX     #EDIOCB
4730         JSR     PUTBYTE ;Cursor now displayed.
4740         RTS
4750 ;Display buffer on screen.
4760 DISPLAY LDA     #0      ;Start at byte 0.
4770         STA     CURBYTE
4780 DSPNEXT JSR     DSPBYTE ;Display it.
4790         LDA     CURBYTE ;Next byte.
4800         CLC
4810         ADC     #1
4820         STA     CURBYTE
4830         CMP     #$80
4840         BNE     DSPNEXT
4850         RTS
4860 ;Display current byte of buffer.
4870 DSPBYTE LDA     CURBYTE
4880         AND     #$F8    ;Get line number.
4890         LSR     A
4900         LSR     A
4910         LSR     A
4920         CLC
4930         ADC     #5
4940         STA     ROWCRS
4950         LDA     CURBYTE
4960         AND     #$07    ;Get column number.
4970         STA     TEMP1
4980         CLC
4990         ADC     TEMP1   ;Times three...
5000         ADC     TEMP1
5010         ADC     #3
5020         STA     COLCRS
5030         LDY     CURBYTE ;Get byte.
5040         LDA     BUFFER,Y
5050         JSR     PUTHEX  ;Show it in hex.
5060         LDA     CURBYTE ;Find column for character.
5070         AND     #$07
5080         CLC
5090         ADC     #27     ;Offset across screen.
5100         STA     COLCRS
5110         LDY     CURBYTE ;Get byte again.
5120         LDA     BUFFER,Y
5130         LDX     #EDIOCB
5140         JSR     PUTBYTE ;Print character.
5150         RTS
5160 ;Convert character to hex digit.
5170 GETHEX  CMP     #'0'
5180         BCC     NOTHEX  ;Not valid character.
5190         CMP     #':'    ;Character after 9.
5200         BCS     GETHEX2 ;Not a digit.
5210         SEC
5220         SBC     #'0'    ;Convert to number.
5230         RTS
5240 GETHEX2 CMP     #'A'    ;Upper case letter?
5250         BCC     NOTHEX
5260         CMP     #'G'
5270         BCS     GETHEX3
5280         SEC
5290         SBC     #$37    ;Convert to number.
5300         RTS
5310 GETHEX3 CMP     #'a'    ;Lower case letter?
5320         BCC     NOTHEX
5330         CMP     #'g'
5340         BCS     NOTHEX
5350         SEC
5360         SBC     #$57    ;Convert to number.
5370         RTS
5380 NOTHEX  LDA     #$FF    ;Not a valid hex character.
5390         RTS             ;Return $FF.
5400 ;Print byte in hex.
5410 PUTHEX  PHA             ;Save byte.
5420         LSR     A
5430         LSR     A
5440         LSR     A
5450         LSR     A
5460         JSR     PUTHDIG ;Print high nibble.
5470         PLA
5480         AND     #$0F
5490         JSR     PUTHDIG ;Print low nibble.
5500         RTS
5510 ;Print a single hex digit.
5520 PUTHDIG CMP     #10     ;Is digit nine or less?
5530         BCS     LETTER  ;No.
5540         CLC
5550         ADC     #'0'    ;Turn into ATASCII.
5560         LDX     #EDIOCB
5570         JSR     PUTBYTE
5580         RTS
5590 LETTER  CLC
5600         ADC     #$37    ;Turn into ATASCII.
5610         LDX     #EDIOCB
5620         JSR     PUTBYTE
5630         RTS
5640 ;Open a file.
5650 OPEN    JSR     CLOSE   ;Make sur channel is closed.
5660         LDA     #COPEN
5670         STA     ICCOM,X
5680         JSR     CIOV
5690         RTS
5700 ;Close a file.
5710 CLOSE   LDA     #CCLOSE
5720         STA     ICCOM,X
5730         JSR     CIOV
5740         RTS
5750 ;Read up to end of file.
5760 READLN  LDA     #CGETREC
5770         STA     ICCOM,X
5780         JSR     CIOV
5790         RTS
5800 ;Write up to end of line.
5810 WRITELN LDA     #CPUTREC
5820         STA     ICCOM,X
5830         LDA     #$FF    ;Maximum buffer length.
5840         STA     ICBLL,X
5850         STA     ICBLH,X
5860         JSR     CIOV
5870         RTS
5880 ;Get a single byte in accumulator.
5890 GETBYTE LDA     #CGETCHR
5900         STA     ICCOM,X
5910         LDA     #0      ;Zero buffer length.
5920         STA     ICBLL,X
5930         STA     ICBLH,X
5940         JSR     CIOV
5950         RTS
5960 ;Put a single byte from accumulator.
5970 PUTBYTE PHA
5980         LDA     #CPUTCHR
5990         STA     ICCOM,X
6000         LDA     #0      ;Zero buffer length.
6010         STA     ICBLL,X
6020         STA     ICBLH,X
6030         PLA
6040         JSR     CIOV
6050         RTS
6060 ;Turn cursor off.
6070 CRSOFF  LDA     #$FF
6080         STA     CRSINH
6090         RTS
```

```
6100 ;Turn cursor on.
6110 CRSON   LDA     #0
6120         STA     CRSINH
6130         RTS
6140 ;Read sector into buffer.
6150 RDSECT  LDA     #DSKGET ;Get sector command.
6160         JSR     SETDSK
6170         JSR     DSKINV  ;Read the sector.
6180         RTS
6190 ;Write sector from buffer.
6200 WRSECT  LDA     #DSKPUTV ;Put with verify command.
6210         JSR     SETDSK
6220         JSR     DSKINV  ;Write the sector.
6230         RTS
6240 ;Set disk handler variables.
6250 SETDSK  STA     DCOMND  ;Set command.
6260         LDA     DRIVE   ;Set drive number.
6270         STA     DUNIT
6280         LDA     #BUFFER&$FF ;Set buffer address.
6290         STA     DBUFLO
6300         LDA     #BUFFER/256
6310         STA     DBUFHI
6320         LDA     SECTOR  ;Set the sector number.
6330         STA     DAUX1
6340         LDA     SECTOR+1
6350         STA     DAUX2
6360         RTS
6370 ;Messages etc.
6380 MSTITLE .BYTE   "Drive: @1 Sector: 0001",EOL
6390 MSHEAD  .BYTE   "   +0 +1 +2 +3 +4 +5 +6 +7 01234567",EOL
6400 MSCMD   .BYTE   "Command?",EOL
6410 MLCMD   =       *-MSCMD ;Length of message.
6420 EFILE   .BYTE   "E:",EOL ;Editor file spec.
6430 KFILE   .BYTE   "K:",EOL ;Keyboard file spec.
6440 ;Buffer for user input.
6450 INBUFF  *=      *+$80
6460 INBLEN  =       *-INBUFF ;Length of buffer.
6470 ;Buffer for sector.
6480 BUFFER  *=      *+$80
```

open the first file it finds in the directory which matches the wildcards, if they are present.

Disk files can be opened for read only or write only. If a file already exists when opened for write only then the file will first of all be set zero length, losing any previous information. If both read and write is specified then the file is not set to zero length and either reading or writing can be done, in any order, except that writing cannot extend beyond the end of the file's existing length, this is referred to as 'append' mode.

To extend an existing file the append flag, bit 0 of 'AUX1', must be set along with the write flag, bit 3, i.e. 9 in 'AUX1'. Any writing operations will add data to the end of the file without affecting what is already stored in the file.

Note that data written to a file can be lost if a close command is not issued when the file is finished with!

Access to the directory information, as displayed by DOS, is also provided for by the open command: 'AUX1' has to be set to 6, i.e. a read with bit 1 also set. The directory can then be read using normal 'get record' commands, each one returning one line of the directory containing the file name and a sector count in ATASCII text ready to be displayed. The last read before end of file will return a line showing the number of sectors available on the disk. These lines, if directly sent to the editor device, will provide a directory looking exactly the same as that obtained by DOS.

The file name used when opening the directory governs which files will be returned on subsequent read operations. 'D:*.*' will match all files and thus allows the whole directory to be displayed. However, if you only wish to display, say .BAS files, then 'D:*.BAS' is required.

DELETE Command

Files can be deleted from a disk by specifying a CIO command byte of 21 hex. The file name determines which files are deleted and can contain wilcards, e.g. 'D:*.*' will delete all files from the directory.

RENAME Command

Any name in a directory can be renamed by specifying a CIO command byte of 20 hex. The file name specification you supply consists of two names, separated by a comma. For example: 'D:FILE1.TXT,FILE2.DAT' will rename 'FILE1.TXT' to 'FILE2.DAT'; note that renaming does not affect the contents of a file in any way. Several files can be renamed at once by using wildcards in both file names, for example, 'D:*.BAS,*.TXT' will change the extension of all '.BAS' files to '.TXT'.

LOCK and UNLOCK Command

Files may be 'locked' so that attempts to write to them via the FMS will fail, i.e. write, delete and rename commands. Note that a locked file is not protected physically, so a sector of the file can be written to directly by using the disk handler.

The lock command requires a CIO command byte of 23 hex and a filename which can contain wildcards, in which case all matching files will be locked. Note that locked files are shown in the directory listing by a preceeding star. Unlocking file(s) is done by specifying a CIO command byte of 24 hex and an appropriate filename.

Listing 2.

```
10 DIM HEX$(16)
20 J=0:START=24576:TRAP 90
30 READ HEX$
40 FOR I=1 TO 15 STEP 2
50 D1=ASC(HEX$(I,I))-48:D2=ASC(HEX$(I+
1,I+1))-48
60 NUM=((D1-7*(D1>16))*16+(D2-7*(D2>16
)))
70 POKE START+J,NUM:J=J+1:NEXT I
80 GOTO 30
90 X=USR(START)
100 REM Instructions
110 REM ============
120 REM
130 REM Once started, you will see
140 REM sector 1 of drive 1. You can
150 REM edit any byte in hex or ATASCI
I.
160 REM Pressing return will prompt fo
r
170 REM a command. You can type any of
 the following:
180 REM 'W' (Write the sector back to
disk)
190 REM 'R' (Read the sector back from
 disk)
200 REM '+' (Read the next sector)
210 REM '-' (Read the previous sector)
220 REM 'D number' (Change to specifie
d drive)
230 REM 'S number' (Read the specified
 sector)
240 REM 'Q' (Quit program)
250 REM
260 REM Note that 'number' for 'D' or
'S'
270 REM commands must be given in hex.
280 REM
1000 DATA 68A200A9A79D4403
1001 DATA A9649D4503A90C9D
1002 DATA 4A0320D563A210A9
1003 DATA AA9D4403A9649D45
1004 DATA 03A9049D4A0320D5
1005 DATA 63A900B552202864
1006 DATA A200A99B201564A9
1007 DATA 639D4403A9649D45
1008 DATA 0320F363A99B2015
1009 DATA 64A97A9D4403A964
1010 DATA 9D450320F363A905
1011 DATA 8554A90085CBA900
1012 DATA 8555A5CB20B063E6
1013 DATA 54A5CB18690885CB
1014 DATA C980D0EA202E64A9
1015 DATA 0185D085CEA90085
1016 DATA CF85D520BA62A5D5
1017 DATA F00FA9168554A99C
1018 DATA A200201564A90085
1019 DATA D5200E63A2102004
1020 DATA 64C99BF861C91ED0
```

```
1021 DATA 034C0262C91FD003
1022 DATA 4C3C62C91CD0034C
1023 DATA 7E62C91DD0034C9A
1024 DATA 62A8A5D4D0379820
1025 DATA 8963C9FFF0B8A8A5
1026 DATA D3D016980A0A0A0A
1027 DATA 85CBA4CDB92D6529
1028 DATA 0F05CB992D654CF8
1029 DATA 6298290F85CBA4CD
1030 DATA B92D6529F005CB99
1031 DATA 2D654CF86298A4CD
1032 DATA 992D654CF862A200
1033 DATA A9FF85D5A9000555
1034 DATA A9168554A99E9D44
1035 DATA 03A9649D450320F3
1036 DATA 63A9088555A91685
1037 DATA 54A91F201564A9AD
1038 DATA 9D4403A9649D4503
1039 DATA A9009D4803A9009D
1040 DATA 490320EA63ADAD64
1041 DATA C92BF028C92DF030
1042 DATA C952F03CC957F03E
1043 DATA C944F040C953F04B
1044 DATA C951D00DA9028552
1045 DATA A21020E163202E64
1046 DATA 604C8660E6CED002
1047 DATA E6CF20BA624C8660
1048 DATA C6CEA5CEC9FFD002
1049 DATA C6CF20BA624C8660
1050 DATA 20BA624C8660203D
1051 DATA 644C8660208E61F0
1052 DATA 07A5CC85D020BA62
1053 DATA 4CB66020BE61F00B
1054 DATA A5CC85CEA5CB85CF
1055 DATA 20BA624C8660A001
1056 DATA A20086CB86CCB9AD
1057 DATA 64C99BF004C84CC6
1058 DATA 6188F02CB9AD6420
1059 DATA 8963C9FFF022488A
1060 DATA 2901F006680A0A0A
1061 DATA 0A488A4AD0086805
1062 DATA CCB5CC4CFB616805
1063 DATA CB85CBE9E004D0D1
1064 DATA 8A60A5D4D024A5D3
1065 DATA 490185D3D0034C86
1066 DATA 60C6CDC6D130034C
1067 DATA 8660E6D4A90785D1
1068 DATA A5CD18690885CD4C
1069 DATA 8660C6CDC6D13003
1070 DATA 4CB660C6D4A90185
1071 DATA D34C1C62A5D4D028
1072 DATA A5D3490185D3F003
1073 DATA 4C8660E6CDE6D1A5
1074 DATA D1C90BF0034CB660
1075 DATA E6D4A90085D1A5CD
1076 DATA 38E90085CD4C8660
1077 DATA E6CDE6D1A5D1C908
1078 DATA F0034C8660C6D4A9
1079 DATA 0085D34C5A62A5CD
1080 DATA 38E90085CDC6D230
1081 DATA 034CB660A90FB5D2
1082 DATA A5CD18690885CD4C
1083 DATA 8660A5CD18690885
1084 DATA CDE6D2A5D2C910F0
1085 DATA 034C8660A90085D2
1086 DATA A5CD38E98085CD4C
1087 DATA 866020346420286A
1088 DATA A9018554A9078555
1089 DATA A5D020B063A91285
1090 DATA 55A5CF20B063A5CE
1091 DATA 20B063A9FF8DFE02
1092 DATA 203F63A9008DFE02
1093 DATA 202E64A90085CD85
1094 DATA D185D285D385D460
1095 DATA 202864A9FF8DFE02
1096 DATA 20526JA9008DFE02
1097 DATA 202E644C3C62A5D2
1098 DATA 18690585544A5D4D0
1099 DATA 12A5D185CB1865CB
1100 DATA 65CB690365D38555
1101 DATA 4C3263A5D118691B
1102 DATA 8555E655202E64A9
1103 DATA 1EA2002015646OA9
1104 DATA 0085CD205263A5CD
1105 DATA 18690185CDC980D0
1106 DATA F260A5CD29FB4A4A
1107 DATA 4A18690585544A5CD
1108 DATA 290785CB1865C865
1109 DATA CB690385554A4CD89
1110 DATA 2D6520B063A5CD29
1111 DATA 0718691B8555A4CD
1112 DATA B92D65A200201564
1113 DATA 60C9309020C93AB0
1114 DATA 0438E93060C94190
1115 DATA 14C947B004380937
1116 DATA 60C9619008C96780
1117 DATA 0438E95760A9FF60
1118 DATA 4B4A4A4A4A20BF63
1119 DATA 68290F208F6360C9
1120 DATA 0AB0091869030A200
1121 DATA 20156460186937A2
1122 DATA 0020156460206163
1123 DATA A9039D4203205GE4
1124 DATA 60A90C9D420320S6
1125 DATA E460A9059D420320
1126 DATA 56E460A9099D4203
1127 DATA A9FF9D48039D4903
1128 DATA 2056E460A9079D42
1129 DATA 03A9009D48039D49
1130 DATA 032056E46048A908
1131 DATA 9D4203A9009D4803
1132 DATA 9D490368205GE460
1133 DATA A9FF8DF00260A900
1134 DATA 8DF00260A9522046
1135 DATA 642053E460A95720
1136 DATA 46642053E4608D02
1137 DATA 03A5D08D0103A92D
1138 DATA 8D0403A9658D8503
1139 DATA A5CE8D0A03A5CF8D
1140 DATA 8B0360447269766S
1141 DATA 3A203031205365G3
1142 DATA 746F723A20303030
1143 DATA 319B2020202B3020
1144 DATA 2B31202B32202B33
1145 DATA 202B34202B35202B
1146 DATA 3620283720303132
1147 DATA 3334353637984360F
1148 DATA 6D6D616E643F9845
1149 DATA 3A9B4B3A9B
```

NOTE and POINT Command

The 'note' and 'point' commands are useful when accessing files 'randomly', i.e. in a non-sequential manner. The note command can be issued at any time on a CIO IOCB which is already open for access to a disk file. It requires a CIO command byte of 25 hex and no filename.

On return, it 'notes' the position of the NEXT byte to be read or written: 'ICAX3' and 'ICAX4' specify the sector number in low-high format and 'ICAX5' contains a number between 0 and 124 specifying the position of the byte within the sector.

A 'point' command receives the same information as above in 'ICAX3', 'ICAX4' and 'ICAX5' and 'points' the FMS at the specified byte in the file. Any further reads or writes will start at the specified place, regardless of where reading or writing was previously taking place. The CIO command byte for 'point' is 26 hex and doesn't take filename; it is restricted for use only on files which have been opened for 'append', i.e. read and write.

A typical use of note and point is as follows. When a file is being written a note is made before each item is written and the sector and byte offset are held in memory. When the file is closed and re-opened in append mode any item can be directly accessed by issueing a point command on the relevant sector and byte offset for that item and a subsequent read will retrieve the item.

The information held in memory for random access to the file can be written to another file so that, when next used, the program can read in the random access information into memory and access the main file again without having to re-build all the information.

STATUS Command

The standard CIO status command, 0D hex, can be used with a filename specifier to determine if a file exists or if it is locked. If no file is found in the directory matching the specified name then an error code of AA hex is returned. If the file is locked, A7 is returned as an error code.

FORMAT Command

A disk can be formatted via FMS using the CIO command byte FE hex and a filename consisting of just a drive number, e.g. 'D1:'. This format operation is similar to that provided by the disk handler but writes some information, such as an empty directory, to the sectors on the disk so that it can be used to hold FMS files.

A Sector Editor

Listing 1 is the assembly language for a simple sector editor. It uses the read and write sector commands of the disk handler and CIO to display the information on the screen via the editor. The sector is displayed in both hex and ATASCII format and can be edited in either form. Listing 2 is a BASIC listing ready to type in and run. The instructions for use are given in the REM statements at the top of the listing.

With the sector editor you can read, edit and write any sector on a disk you like; but be careful not to use it on a disk containing valuable information, as you might lose it forever if you are not sure exactly what you are doing!!!

Next Time

Next time we will look at how files are stored on the sectors of a disk. In the meantime you might wish to find out for yourself with the sector editor.

Want to Catch Up?

A complete photocopy set of the 'Cracking the Code' series so far is available for just £2.50, so if you want to catch up on the early part of the series, send off for it today!

8-Bit Matters

By Paul Rixon

Welcome to another 8-bit Matters and another mixture of good and not-so-good news for those of you who haven't been persuaded by Atari's lack of 8-bit commitment to abandon your machines in favour of more trendy apparatus. Beginning with the not-so-good news, there is now only one quality magazine in the UK, apart from MONITOR, providing coverage of 8-bit Atari affairs. This is due to Database Publications' sale of their 'Atari User' magazine to Page 6 magazine, which has now incorporated some aspects of Atari User into its existing 8-bit sections. Database's exit from the 8 bit Atari arena is just part of their general selling off of 8 bit related titles (they are also getting shot of their Amstrad CPC related mags too!) in order to concentrate on 16 bit magazines. Personally I think that they have found less and less advertising revenue and have jumped ship before profits dropped too low. Just goes to show you should stick with the magazines which are written by enthusiasts for enthusiasts! Such as Page 6 (and Monitor) which has faithfully supported 8-bit owners for over six years and any Atari owner who is not yet a reader should make amends immediately!

More bad news arrived from various companies who either dropped or reduced their commitment to 8-bit products in response to the lack of demand from owners. Among them, Strategic Plus Software who specialize in wargames and high quality simulation software for all 'popular' micros. They also produce regular catalogues and newsletters, of considerable general interest to owners of the designated machines. Their range for the Atari included the Infocom adventures, Microprose flight simulators and also the excellent Chessmaster 2000 from Software Country. But not any more, as 8-bit Atari games have now been dropped. Also guilty of decreased support for 8-bit machines is Silica Shop who optimistically produced a glossy 'software guide' detailing various games packages, only to re-issue it in December with over a fifth of them overprinted 'discontinued'! Among the abandoned titles - Druid, an excellent Gauntlet type arcade adventure from Firebird and Action!, the powerful language system from OSS.

That's enough doom and gloom for this issue. On to more pleasant things, and Zeppelin Games have continued to maintain exceptionally high standards in their software output. Anyone who enjoyed the brilliant Zybex will not be disappointed with Draconus, an arcade adventure featuring some superb graphics and sound. The game has been released under Zeppelin's full-priced 'Cognito' label, and at £9.95 on cassette or £12.95 on disk, offers excellent value

for money. Atlantis Software continue to produce budget software as if they were going for a world record, the latest additions being Dawn Raider - a scramble clone with remarkable similarity to Airstrike - and Periscope Up, another of those 'negotiate the caverns' games which has you trying to save the world from thermo-nuclear war (yet again!). At £1.99 each, these have got to be worth checking out, and all praise should go to Atlantis for their continued Atari support.

Other recent releases which are worth looking out for include Players' Joe Blade, an addictive, budget priced arcade adventure with good graphics, at £2.99, and also a conversion of the Bally Midway arcade game Rampage from Activison. This one's priced at £9.95 on cassette, £12.95 on disk but despite its price, appears to be a fairly unspectacular game from a company who have previously produced some top class software for the Atari. One company whose budget output has been prolific is Alternative Software. Amongst a host of games for the Atari are Leapster, an ex-Red Rat title and California Run, yet another game for race addicts. For younger players, Alternative have now announced the release of a new title based on the Postman.Pat TV series. Watch out for the black and white cat!

For those who prefer something slightly more perplexing, Lancelot is now available from Mandarin Software and offers a chance to travel back in time to the age of chivalry when knights were bold, galloping across the countryside and rescuing damsels in distress. This Level 9 production consists of three inter-linked adventures and inside each box, details of your chance to win a solid silver £5000 Grail may be found. The 8-bit version is text-only and costs £14.95 on disk or cassette.

Have you visited your local Atari Games centre? Atari Corp. say they have set them up throughout the country to promote the 'stunning Atari VCS' and 'mindblowing Atari XE Games System' and are promising hundreds of software titles under one roof for 8-bit users. Promises aside, a visit to my local designated centre revealed little more than the identical shelf of budget priced games that were present before the Atari announcement! It will be interesting to see whether the move by Atari is a genuine effort to promote the 8-bit range or just another of those schemes - like their promised Christmas TV advertising campaign - that got no further than the newspages of the magazines. There are over 85 so-called 'games centres' from Aberdeen through Manchester and Cardiff to Brighton and Southampton, so why not pop down to your local one and see what's on offer? I'd be interested to hear what you find!

If you want to use your Atari for serious purposes, for word processing or record keeping for instance, you will almost certainly need a disk drive for your system. Obtaining one in recent months has not been easy since Atari withdrew their 1050 drive but the long-awaited XF551 is now available to match the XE range of computers. Unlike the 1050, it is capable of working in double sided, double density mode, meaning that you can now store a full 180K of data on each side of a 5.25" disk. As DOS 2.5 can't handle this amount of data, a new DOS XE has been developed to do the job. This has been criticized in some reports, but remember that there are alternatives to the Atari DOS - such as the long-established SpartaDOS from ICD. (Coming soon is SpartaDOS-X which will be in the form of a cartridge for the XL/XE. It will have extensive on-screen menus and an archiver facility.) The XF551 is available at £179 which is certainly not cheap and it might still be worth considering the purchase of a second-hand 1050, especially since their are various hardware modifications around, such as the US Doubler, which can give it similar specifications.

Before complaining about the lack of hardware available, spare a thought for Frontier Software of Harrogate who distribute a wide range of 8-bit products. Among them - ICD's printer connection, a superb value printer interface at £29.95, and the P:R:Connection, an alternative to Atari's 850 expansion module at £69.95. Frontier also distribute the range of OSS products, which includes Basic XE and Basic XL - two powerful languages of interest to all programmers. Full details are available from Frontier Software, P.O. Box 113, Harrogate, N.Yorks.

Finally, don't forget my invitation to contribute news items, comments, opinions and questions relating to any 8-bit subjects. I'm convinced there is still a sizeable 8-bit population out there but would welcome some proof of its existence! All correspondence passed on to me will be acknowledged accordingly. Happy computing!

STRINGS

By Mark Hutchinson
The Puppet Masters

This has really nothing to do with that excellent book by Robert Heinlein, but it is all to do with manipulating strings, something that ATARI computers, to my mind at least, do very well.

Let's start this from the very beginning. A string is a series of numbers or characters that can be regarded as a sentence rather than a numerical variable. So how long is this piece of string? It can be anything from no characters, or elements, right up to the full size of your RAM. ATARI computers do not automatically set aside memory for a string. The length must be set at the start of the program using the command DIM (DIMension). For example, DIM A$(20) means that the computer must set aside 20 bytes for the string called A. The string name can be from 1 to 120 characters in length, but must begin with a letter and end with the dollar sign ($). It cannot contain punctuation marks or special ATARI characters. It is better for program clarity if the string name has some relevance to its use.

One of the advantages of dimensioning is that the computer can move the string to any part of its memory as it needs. This means that your string is protected from overwriting. Remember how you were told that 256 bytes in PAGE 6 were safe then were warned it could be overwritten? How you were told that anything stored above RAMTOP was safe except from certain graphics calls? Well, strings are safe, so I am told.

Now we have set aside some bytes what do we do with them? The computer has to be told what to store in the string. This is very easy, just use the expression A$="123ABC" and anything inside the quotes will be stored away, in this case 123ABC - a mixed string of letters and numbers but really an alpha string (alphabetical). To store nothing just use A$=""; this is termed a null string. A$=" "is not a null string, you are storing three spaces. A$="123" is a numerical string and has certain potentials which will become apparent later on. Note that the quotes are the string delimiters and as such cannot be part of the string itself. This means that A$="""" is an illegal string.

To get round this problem, ATARI allows you to print characters directly using CHR$(). All you need to know is the decimal value for the character you want to print, in this case 34. If you are not sure what the value is then ask your friendly computer. PRINT ASC("A") will give you the equivalent number but again, unfortunately, the quote cannot be used here. I will show you more of this later, but for now let us go back to the string.

We can look at any element of the string by direct addressing. This is done by telling the computer the numerical position of the element we wish to see. For instance, if we said PRINT A$(2,2) the computer will start at position 2 in the string and print until it reaches position 2, which is really only one character. We cannot use PRINT A$(2) because this form is only used with the DIM statement. We would now see the character 2 printed on the screen. To see more we could ask it to print A$(2,5) then we would see 23AB printed out, from the second to the fifth character inclusive. To my mind direct addressing is far simpler and much quicker than using LEFT$, MID$ and RIGHT$ (the left-most, middle and right-most characters), commands that appear in Microsoft Basic and, I believe, all ST Basics.

We have told the computer what the string is, but what if someone else will input to the string? The first thing we must know is the length. This is done by using the LEN command. We have dimensioned the string to 20 elements but we used only 6. Someone else might just use the full twenty or more. If, say, 25 characters were entered into the string (dimensioned to 20) then the last five are ignored. If the length is tested and is greater than 20 we must go back and get a proper input:

```
10 DIM A$(20)
20 INPUT A$
30 IF LEN(A$)›20 THEN GOTO 10
40 PRINT A$
50 GOTO 10
```

You can input to the string as many times as you like, it will clear the string and write in the new elements. Using a FOR/NEXT loop the string can be printed one element at a time, as shown below. As your first test you can print it in reverse.

```
40 FOR E=1 TO LEN(A$)
50 PRINT A$(E,E):NEXT E
```

Remember that I mentioned that strings can have enormous lengths? This can cause a problem when you want to fill up the string. After all, you can only input on one logical line (about three physical screen lines). To see what a logical line is, go to Basic and enter 10 PRINT "1234567890 and repeat from 1 to 0 again and again. When you have almost completed the third line you will hear the computer beep. This is a warning that you have almost come to the end of the logical line. When you have, any data from here on will be ignored. Keep typing until you finish the fourth line then press RETURN. List out the program and you will find only the logical line has been entered. The way to get past this is to say on one line that A$(1,100)= something, then on the next line A$(101,200)= the next part and so on. The (1,100) is only an example, use your own limits but keep within the logical line limits. Your second test is to find out the maximum length of a logical line.

Remember that all strings must be dimensioned and if the string input is bigger than the DIM figure then excess data is ignored. But if you have a large string how can you add to it without the original data being overwritten? Easily. Let us suppose that A$ has 100 free elements and B$ has 10. If we stated that A$="ATARI" and B$="is great" we have to let the computer know that we want A$ to hold both sets of data as a whole sentence. Obviously B$ must join A$ at the next point after the data ATARI. So we just state that the length of A$ has 1 added to it to set the start at 6, so that the first five elements (ATARI) are protected. Then the rest is equal to whatever is in B$. This can be done continuously until you reach the limit of A$. This is shown below and your third test is to insert the necessary space.

```
A$(LEN(A$)+1)=B$:PRINT A$
```

Let us suppose that your program has a lots of mixed input, letters and numbers. If you used strings for the letters and variables for the numbers, then tried to print it all out nice and neatly in vertical lines problems would occur because you cannot find out the length of a variable. To solve this, the numbers are input as strings, which can be measured. To do any mathematical work on the numbers you must first get their value with the command VAL, e.g. A=VAL(A$). Once the maths is all done, it can be put back into string format by using the converse command A$=STR$(A). Let us look at this a bit closer. If we state that A=5, how can we print this variable as A=5.00? Try it and see; A will always be printed as just 5 when it is a variable. As a string it can become 5.00 by adding a second string that equals ".00". Easy enough when you know that A is an integer (whole number), but what about the times that it is a decimal, say 5.5?

To get round this just add 0.001 to A, change it to a string by using A$=STR$(A) and PRINT A$(LEN(A$)-1). Thus A$ becomes 5.501 and one short of the length of A$ will be 5.50 and, because of the two figures after the decimal point, is termed as working to two decimal places. As an aside, to make any input a two decimal place figure just multiply the figure by 100, moving everything two places to the left and making the first two decimals integers. Then use the INT command, A=INT(A), to get rid of any remaining decimals and finally divide by 100 to change the integers back to decimals. Thus 123.45678 becomes 12345.678, then it becomes 12345 and finally 123.45. This works out to the following statement:

```
A=INT(A*100)/100
```

Can you work out how to get four decimal places?

Once everything has been put into a string it can be printed using PRINT. This will set everything left justified, that is, every line starts at the same horizontal position from the left. To do this with right justify we just subtract the length of the string from a certain position on the horizontal then use PRINT. No matter what length the string is (within the limits of the horizontal screen length), the printing will always finish at the same position. This is shown below.

```
POSITION 25-LEN(A$),10:PRINT A$
```

Now for a harder test. How would you centralise the printing? By this I mean that the middle of the string is always in the middle of the line and the string is of equal distance from each side of the screen. Think of how you would draw a figure in the centre of a piece of paper, but remember that where a four element string will fit in neatly a five element one will never do so.

Looking back at the point where we added B$ to A$, if we state that B$=A$ then B$ becomes ATARI. But if we stated that B$=A$(3) then the beginning of B$ starts at the third element of A$, i.e. B$ becomes ARI. At this point I think it is a good idea to give you some terminology to learn. You already know what a string is. A substring is a portion of a larger string; for instance A$(2,5) is a substring of A$. The numbers 2 and 5 in A$(2,5) are known as subscripts or string variables. Any command that directly relates to a string (VAL, LEN, etc.) is known as a string function. This is most of the detail about strings, all you need to do now is try it all out yourself.

By John Pilge

RUNS IN 48K DISK ONLY XL/XE ONLY

This program allows you to type using only a joystick. It is not a full word processor. It is more like a typewriter with extra features. Just type in the program, using the checksum letters to help you if you have TYPO 3 or KEYO. Save to disk before running the program (just in case you have made a mistake and trying to run the program wipes out all your typing). This program is also available from the Library, and if you obtain it in this way you will see that the disk contains an AUTORUN.SYS program that runs JOYTYPE.BAS. Then you just put the disk in the drive and turn on the computer (boot with BASIC). You choose what drive you want to store your letter files. Press the joystick trigger and you will go to the letter screen. On the top of the screen you select any character by moving the joystick and pressing the trigger. Special options are on the bottom right of the select area. DL both 'delete' a character. CR will do a carriage return. E is to make an escape character (for printer commands as an example). A backspace is done by the triangle. This is so you can make special characters or underline. OPT is to move from the printing screen to the OPTion menu.

The first command on the menu is, '0. NOTHING' and this does nothing. It is there in case you still have the trigger pressed as the menu appears. The FORMAT does not work unless you go into the program and remove line 810. This is to prevent errors. The program can take as much as 4k of more code if you want to add something. If you add more you must change the string length. DLAY controls cursor speed (bigger numbers slow it down). Files made by Joytype can be read by most word processors. Joytype cannot read files that don't end with inverse # at the end of a file. Joytype uses the inverse # as an end of file mark. To store a file, the filename must have 8 characters (blanks included).

Note: Underlined means enter in inverse.

```
GT 10 POKE 566,PEEK(566)+12
IL 20 REM LINE 1800 HAS DELAY, MARGIN AND
    PRINTER LINE LENGTH VARIABLES.
XH 30 REM PROGRAM BY J. PILGE
GL 40 REM POKES:77 IS ATTRACT MODE,84-85
   IS CURSOR POSITION,88-89 IS SCREEN MEM
   ORY
TJ 50 TRAP 1950:GOTO 1810
XG 60 X=129:SCREEN=PEEK(88)+PEEK(89)*256
IQ 70 FOR W=2 TO 38 STEP 2:IF X=USA THEN
   X=BRT
TV 80 POKE SCREEN+W,X:POKE SCREEN+(W+1),1
   28:X=X+1:IF X=BRT+1 THEN X=USA+1
NT 90 NEXT W
ES 100 FOR W=42 TO 63 STEP 2:POKE SCREEN+
   W,X:POKE SCREEN+(W+1),128:X=X+1:NEXT W
NX 110 X=X+2:FOR W=64 TO 79 STEP 2:POKE S
   CREEN+W,X:POKE SCREEN+(W+1),128:X=X+1:
   NEXT W
GD 120 FOR W=82 TO 119 STEP 2:POKE SCREEN
   +W,X:POKE SCREEN+(W+1),128:X=X+1:NEXT
   W
QB 130 X=186:FOR W=122 TO 128 STEP 2:POKE
    SCREEN+W,X:POKE SCREEN+W+1,128:X=X+1:
   NEXT W
FN 140 POKE SCREEN+130,191:POKE SCREEN+13
   1,128
YO 150 X=225:FOR W=132 TO 158 STEP 2:POKE
    SCREEN+W,X:POKE SCREEN+(W+1),128:X=X+
   1:NEXT W
IW 160 FOR W=162 TO 184 STEP 2:POKE SCREE
   N+W,X:POKE SCREEN+(W+1),128:X=X+1:NEXT
    W
DU 170 POKE SCREEN+186,37
AD 180 POKE SCREEN+187,128:POKE SCREEN+18
   8,47:POKE SCREEN+189,48:POKE SCREEN+19
   0,52:POKE SCREEN+191,128
LL 190 POKE SCREEN+192,36:POKE SCREEN+193
   ,44:POKE SCREEN+194,128
FJ 200 POKE SCREEN+195,128:POKE SCREEN+19
   6,126:POKE SCREEN+197,128
LP 210 POKE SCREEN+198,35:POKE SCREEN+199
   ,50
HH 220 POKE SCREEN+2,1:SPT=2:F=129
BO 230 FOR W=1 TO 4:POSITION 2,7:PRINT CH
   R$(156);:NEXT W:RETURN
RX 240 X=STICK(0):Y=STRIG(0):IF Y=0 THEN
   GOSUB 510
ZI 250 FOR SLOW=1 TO DLAY:NEXT SLOW
BF 260 IF X=14 AND (SPT-40)>1 THEN GOSUB
   320
WA 270 IF X=13 AND (SPT+40)<200 THEN GOSU
   B 360
JQ 280 IF X=7 THEN GOSUB 450
HI 290 IF X=11 THEN GOSUB 400
NK 300 GOTO 240
LA 310 R=R-3:POSITION 2,7:? CHR$(156);:PO
   SITION 2,R:RETURN
DQ 320 L=PEEK(SCREEN+(SPT-40)):POKE SCREE
   N+SPT,F
AL 330 IF L>127 THEN POKE SCREEN+(SPT-40)
   ,L-128
XD 340 IF L<128 THEN POKE SCREEN+(SPT-40)
   ,L+128
DE 350 SPT=SPT-40:F=L:RETURN
CE 360 L=PEEK(SCREEN+(SPT+40)):POKE SCREE
   N+SPT,F
YB 370 IF L>127 THEN POKE SCREEN+(SPT+40)
   ,L-128
UT 380 IF L<128 THEN POKE SCREEN+(SPT+40)
   ,L+128
CO 390 SPT=SPT+40:F=L:RETURN
PR 400 CNG=1:IF SPT=2 OR SPT=42 OR SPT=82
    OR SPT=122 OR SPT=162 THEN CNG=-37
IV 410 POKE SCREEN+SPT,F:L=PEEK(SCREEN+(S
   PT-CNG))
ZN 420 IF L>127 THEN POKE SCREEN+(SPT-CNG
   ),L-128
WD 430 IF L<128 THEN POKE SCREEN+(SPT-CNG
   ),L+128
GU 440 F=L:SPT=SPT-CNG:RETURN
OA 450 CNG=1:IF SPT=39 OR SPT=79 OR SPT=1
   19 OR SPT=159 OR SPT=199 THEN CNG=-37
GB 460 POKE SCREEN+SPT,F:L=PEEK(SCREEN+(S
   PT+CNG))
XF 470 IF L>127 THEN POKE SCREEN+(SPT+CNG
   ),L-128
TV 480 IF L<128 THEN POKE SCREEN+(SPT+CNG
   ),L+128
FY 490 F=L:SPT=SPT+CNG:RETURN
JI 500 Z=PEEK(85):FOR SPC=Z TO 39:PRINT "
   ";:NEXT SPC:RETURN
VB 510 A=PEEK(SCREEN+SPT):POKE 77,0:IF A=
   164 OR A=172 THEN GOTO 640
JC 520 C=PEEK(83):R=PEEK(84):IF A=175 OR
   A=176 OR A=180 THEN POP :? CHR$(125);G
   OTO 730
KQ 530 IF A=254 THEN A=194
GV 540 IF A<64 THEN A=A+32
HT 550 IF A=72 THEN A=8
AB 560 IF A=163 OR A=178 THEN A=5
QO 570 IF A=165 THEN A=27
RH 580 SP=SP+1:IF PEEK(84)=23 THEN GOSUB
   310
OZ 590 PRINT CHR$(A);:IF SP<1 THEN SP=1
XP 600 IF A=5 THEN GOSUB 500
PD 610 IF A=27 THEN PRINT CHR$(27);
PE 620 LINE$(SP,SP)=CHR$(A):R=PEEK(84):C=
   PEEK(85)
II 630 RETURN
LS 640 IF LINE$(SP,SP)=CHR$(5) THEN GOSUB
    680
IL 650 A=32:LINE$(SP,SP)=CHR$(163):SP=SP-
   1:IF SP<1 THEN SP=1
YL 660 C=C-1:IF C<2 THEN C=39:R=R-1:IF R<
   6 THEN R=6:C=2
LN 670 POSITION C,R:PRINT " ";CHR$(30);:G
   OTO 630
IX 680 R=R-1:IF R<6 THEN R=R+1:RETURN
JS 690 POSITION 2,R:FOR W=39 TO 2 STEP -1
YF 700 PRINT CHR$(30);:IF PEEK(93)=69 THE
   N POP :C=W+1:RETURN
LJ 710 NEXT W
KG 720 RETURN :REM ERROR TRAP
ED 730 REM MENU FOR FUNCTIONS
QB 740 POSITION 2,14
FF 750 PRINT ,,"0. NOTHING":? ,,"1. SAVE
```

```
   FILE":? ,,"2. PRINT IT":? ,,"3. LOAD F
   ILE":? ,,"4. DIRECTORY":? ,,"5. TYPE"
FH 760 PRINT ,,"6. DELETE FILE":? ,,"7. F
   ORMAT DISK":? ,,"8. ERASE LETTER";POSI
   TION 22,13:PRINT CHR$(29);
YL 770 X=STICK(0):Y=STRIG(0):ROW=PEEK(84)
VW 780 IF Y=0 THEN GOTO 820
IA 790 IF X=13 AND ROW<22 THEN PRINT CHR$
   (29);
IQ 800 IF X=14 AND ROW>14 THEN PRINT CHR$
   (28);
KJ 810 FOR SLOW=1 TO DLAY:NEXT SLOW:GOTO
   770
IV 820 GET #6,A:POKE 77,0:POKE 85,22:A=A-
   175
UK 830 IF A=7 THEN GOTO 770
FN 840 ON A GOTO 770,1070,1140,1310,1380,
   1460,1560,1600,1820
RE 850 GOTO 770
PV 860 SX=1:DR$="       ":DI$(4,13)=DR$:P
   RINT CHR$(125):PRINT "WHAT IS THE NAME
    OF FILE IN DRIVE ";DI$(2,2)
EK 870 PRINT :PRINT :PRINT :PRINT "M";CHR
   $(160);:FOR W=193 TO 218:PRINT CHR$(W)
   ;:NEXT W
RD 880 PRINT CHR$(160);CHR$(160);"DL":? "
   E":? "N":? "U"
ID 890 POSITION 2,10:PRINT DI$
AJ 900 COL=3
OE 910 POSITION COL-2,5:PRINT CHR$(31);CH
   R$(31);:FOR SLOW=1 TO DLAY:NEXT SLOW
XS 920 X=STICK(0):Y=STRIG(0):COL=PEEK(85)
BS 930 IF Y=0 THEN GOTO 980
PH 940 IF X=7 AND COL<32 THEN PRINT CHR$(
   31);
PI 950 IF X=11 AND COL>2 THEN PRINT CHR$(
   30);
ZR 960 FOR SLOW=1 TO DLAY:NEXT SLOW
QA 970 GOTO 920
QV 980 GET #6,A:IF A=196 THEN GOTO 1040
WV 990 IF A=205 THEN GOTO 730
NK 1000 IF A=32 AND SX=1 THEN GOTO 910
QG 1010 IF SX>8 THEN GOTO 1060
TW 1020 DR$(SX,SX)=CHR$(A):POSITION 5,10:
   PRINT DR$:? SX:SX=SX+1
QX 1030 GOTO 910
IX 1040 SX=SX-1:IF SX=0 THEN SX=1
RU 1050 DR$(SX,SX)=" ":POSITION 5,10:? DR
   $;" ":? SX:GOTO 910
BE 1060 DI$(4,11)=DR$:RETURN
EP 1070 GOSUB 860:OPEN #2,8,0,DI$:FOR W=1
    TO LEN(LINE$):X$=LINE$(W,W)
UB 1080 IF X$=CHR$(163) THEN POP :GOTO 11
   00
SZ 1090 PRINT #2;X$;:NEXT W
MZ 1100 PRINT #2;CHR$(163)
TK 1110 CLOSE #2:PRINT CHR$(125):? ,DI$;"
   IS SAVED"
AT 1120 GOSUB 1620
RB 1130 GOTO 730
DG 1140 PRINT CHR$(125):PRINT "SINGLE SPA
   CED OR DOUBLE SPACED?":GOSUB 1890
WM 1150 IF A=49 THEN LS=2
SA 1160 IF A=50 THEN LS=1
VK 1170 OPEN #2,8,0,"P:":PRINT CHR$(125):
   ? ,,"WAIT":PRINT #2
SM 1180 FOR W=1 TO LEN(LINE$)
YJ 1190 IF LINE$(W,W)=CHR$(163) THEN POP
   :GOTO 1330
JF 1200 FIN=W
DN 1210 NEXT W:PRINT ,,"PRINTING"
AW 1220 LL=LLP:SP=1:B=1:Y=0:PRINT #2;MRG$
   ;
PB 1230 Y=Y+1:IF Y>LL THEN GOSUB 1650
BF 1240 IF SP=FIN+1 THEN GOSUB 1780:GOTO
   730
VB 1250 IF P>53 THEN GOSUB 1710
VW 1260 IF LINE$(SP,SP)=CHR$(5) THEN GOSU
   B 1730:GOTO 1230
CH 1265 IF LINE$(SP,SP)=CHR$(8) THEN LINE
   $(SP,SP)=CHR$(35)
XF 1270 IF LINE$(SP,SP)=CHR$(27) THEN PLL
   =LL+2:SP=SP+1:GOTO 1230
QS 1280 IF LINE$(SP,SP)=CHR$(126) THEN LL
   =LL+2:GOTO 1230
IT 1290 IF LINE$(SP,SP)=CHR$(32) THEN PRI
   NT #2;LINE$(B,SP);:SP=SP+1:B=SP:GOTO 1
   230
HB 1300 SP=SP+1:GOTO 1230
PB 1310 GOSUB 860:LINE$=" ":SP=1:PRINT CH
   R$(125)
JD 1320 OPEN #2,4,0,DI$
TS 1330 GET #2,V:IF V=163 THEN SP=SP-1:GO
   TO 1350
YK 1340 X$=CHR$(V):LINE$(SP,SP)=X$:SP=SP+
   1:GOTO 1330
AZ 1350 CLOSE #2:PRINT CHR$(125):PRINT :P
   RINT DI$;" LOADED":CLOSE #2
RO 1360 GOTO 730
BF 1370 CLOSE #2:PRINT "ERROR--NO SUCH FI
   LE":FOR W=1 TO 200:NEXT W
MT 1380 DB$(2,2)=DI$(2,2):PRINT CHR$(125)
   :OPEN #1,6,0,DB$
CF 1390 INPUT #1;F$:IF ASC(F$(3,3))<65 TH
   EN 1440
DF 1400 PRINT F$(3,13);MRG$;
WW 1410 INPUT #1;F$:IF ASC(F$(3,3))<65 TH
   EN GOTO 1440
WS 1420 PRINT F$(3,13)
TC 1430 GOTO 1390
DA 1440 CLOSE #1:PRINT :GOSUB 1620
RN 1450 GOTO 730
BW 1460 ? CHR$(125):POSITION 2,7:PRINT
QO 1470 GOSUB 60:FIN=LEN(LINE$):IF FIN<1
   THEN GOTO 240
TI 1480 FOR W=1 TO FIN
HG 1490 IF LINE$(W,W)=CHR$(163) THEN R=PE
   EK(84):C=PEEK(85):POP :GOTO 240
IR 1500 IF LINE$(W,W)=CHR$(27) THEN PRINT
    CHR$(197);:GOTO 1540
AH 1510 IF LINE$(W,W)=CHR$(126) THEN PRIN
   T CHR$(194);:GOTO 1540
AN 1520 IF LINE$(W,W)=CHR$(5) THEN PRINT
   CHR$(5);:GOSUB 500:GOTO 1540
HH 1530 PRINT LINE$(W,W);
NR 1540 R=PEEK(84):C=PEEK(85):IF R=23 THE
   N GOSUB 310
CD 1550 NEXT W:SP=W-1:GOTO 240
BJ 1560 GOSUB 860
BB 1570 XIO 33,#1,0,0,DI$:PRINT CHR$(125)
   :? ,DI$;" IS GONE"
BT 1580 GOSUB 1620
SB 1590 GOTO 730
HS 1600 PRINT "NOW FORMATING DRIVE ";DI$(
   2,2):XIO 254,#1,0,0,DI$
MC 1610 PRINT "DISK IS NOW FORMATTED":GOS
   UB 1620:GOTO 730
ID 1620 PRINT ,"PRESS FOR MENU"
LP 1630 Y=STRIG(0):IF Y<>0 THEN GOTO 1630
AX 1640 RETURN
JX 1650 IF LINE$(SP+1,SP+1)=CHR$(32) THEN
    PRINT #2;LINE$(B,SP):SP=SP+2:B=SP:IF
   Y=LLP THEN GOTO 1680
XE 1660 IF (SP-B)>40 THEN PRINT #2;LINE$(
   B,SP):IF LS=2 THEN PRINT #2:GOTO 1690
UY 1670 PRINT #2
IC 1680 IF LS=2 THEN PRINT #2
CI 1690 Y=1:LL=PLL:PRINT #2;MRG$;
AN 1700 RETURN
GA 1710 FOR W=1 TO 12:PRINT #2:NEXT W
MK 1720 PRINT #2;MRG$;:RETURN
JV 1730 IF B=SP THEN PRINT #2
MC 1740 IF B<SP THEN PRINT #2;LINE$(B,SP-
   1)
YV 1750 IF LS=2 THEN PRINT #2
LH 1760 SP=SP+1:B=SP:Y=0:LL=PLL:PRINT #2;
   MRG$;
BI 1770 RETURN
WZ 1780 IF B=SP THEN GOTO 1800
IQ 1790 PRINT #2;LINE$(B,SP-1);CHR$(155)
XU 1800 CLOSE #2:SP=1:RETURN
XZ 1810 OPEN #6,4,0,"S:":SETCOLOR 2,0,0
PS 1820 CLR :DIM LINE$(19955),X$(1),F$(15
   ),DR$(8),DB$(6),DI$(13):SP=0:R=6:C=2:D
   I$="D :":DB$="D :*.*"
TA 1830 DLAY=10:DIM MRG$(10):MRG$="
       ":PLL=64
HW 1840 POKE 756,204:USA=131:BRT=200
CR 1850 ? CHR$(125):PRINT "STORE MESSAGES
    TO DRIVE ONE OR TWO?":GOSUB 1890
LV 1860 IF A=49 THEN DI$(2,2)="2"
HC 1870 IF A=50 THEN DI$(2,2)="1"
YZ 1880 PRINT CHR$(125):POSITION 2,7:PRIN
   T :GOSUB 60:GOTO 240
MB 1890 PRINT ,,"1":PRINT ,,"2":POSITION
   22,2:PRINT CHR$(29);:FOR W=1 TO 100:NE
   XT W
YK 1900 X=STICK(0):Y=STRIG(0):R=PEEK(84):
   C=PEEK(85)
OP 1910 IF R>2 AND X=13 THEN PRINT CHR$(2
   8);
QQ 1920 IF R<3 AND X=14 THEN PRINT CHR$(2
   9);
HL 1930 IF Y<>0 THEN GOTO 1900
VN 1940 GET #6,A:RETURN
WQ 1950 POP :OOPS=PEEK(195):IF OOPS=138 T
   HEN PRINT "CHECK PRINTER OR DRIVE":GOT
   O 730
ZD 1960 IF OOPS=139 THEN PRINT "FAULTY DR
   IVE?":GOTO 730
BJ 1970 IF OOPS=5 AND SP<2 THEN PRINT "NO
   THING WRITTEN.":GOTO 730
JC 1980 IF OOPS=5 THEN PRINT "TOO MANY CH
   ARACTERS. SUGGEST SAVE":GOTO 730
LM 1990 IF OOPS=144 THEN PRINT "DISK PROT
   ECTED":GOTO 730
EB 2000 IF OOPS=167 THEN PRINT "FILE LOCK
   ED":GOTO 730
KV 2010 IF OOPS=169 OR OOPS=162 THEN PRIN
   T "DISK FULL -- TRY AGAIN WITH ANOTHER
    DISK":GOTO 730
IL 2020 IF OOPS=170 THEN GOTO 1370
FQ 2030 IF OOPS<143 THEN PRINT "WHAT HAVE
    YOU DONE TO THIS PROGRAM?":? "ERROR -
   - ";OOPS:GOTO 730
WA 2040 IF OOPS=160 THEN PRINT "WRONG DRI
   VE?":FOR SLOW=1 TO 200:NEXT SLOW:GOTO
   1850
```

Classified Classified Classified

The classified section is for private individuals only (not companies) to buy and sell computer hardware, software, make contacts, find pen pals, etc. All adverts will be free up to 30 words, thereafter the charge will be 10p per word (cheques and postal orders made payable to the club). Send your advert to us at P.O. Box 213, Southend-on-Sea, SS1 2QF as soon as possible for the next issue together with any payment necessary. Please mark your envelope 'Classified'.

Help! Has anyone got any hints or tips on the game Cloak of Death. Please write if you can help me. Malcolm Kettlewell, 39 Healey Crescent, Ossett, West Yorks, WF5 8NB.

1050 Circuit. Has anyone got a copy of the circuit of the 1050 disk drive. Also is there a cure for a slow running drive? Contact: M.J. Bennett, 26 Warramill Road, Godalming, Surrey, GU7 1LU.

Power Unit. I have lost the power adaptor for my Atari video computer system. Could someone tell me where I can obtain another? Write to Paul Clarke, 42 Westfields, Railway Side, Barnes, London, SW13 0PJ.

Advice. I want to get some machine code games off of DOS and SpartaDOS. I need to know how to find the load addresses and (run) initialisation addresses. Can you help? Also has anyone got a TRUE dòuble density Multiboot menu? Contact Ron James, 8 Lauderdale Road, Ribbleton, Preston, PR2 6RQ.

For Sale Atari 800, 1050 disk drive, 1029 printer, new ribbon and paper, 200 disks (many games), 3 disk boxes (2 lockable), books and lots of magazines. £300 the lot. Phone: 0357 857329.

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Contact. I wish to correspond with any 8 bit cassette software users. I would also like to meet in person any in my area (Pontefract/Wakefield). Andrew Knop, 3 Powell Street, South Kirkby, Pontefract, WF9 3DD.

Help! I cannot get my Citizen 120D to print graphics from programs like Degas Elite and Typesetter Elite. All the DIP switches are set to off, is this correct? Is it that these programs won't work with the Citizen? Would some kind reader write and advise me? Ian Craggs, 80 Westminster Street, Crewe, Cheshire, CW2 7LF.

Pen Pals! Hi! I'm an 800XL user with a disk drive and tape player. I'm into adventures, arcades, simulations, etc. My address is Danny Sp, 4 Gazeteciler Sit, C-1 D-6 Levent, Istanbul, Turkey. Please write!

Wanted. Issues 1 and 2 of Monitor in clean condition. Top price paid (to complete collection). Phone John on 065 76 363.

Wanted. 1050 disk drive, reasonable price please for senior citizen with 65XE. Tel: Arnold on 0823 274407.

DynaCADD. Are there any club members using this program who could give me some information on it? Ring Brian on 0382 22181.

Help! I am looking for a program that will generate a test pattern for TV sets on my 65XE, (similar to a program for the QL by John de Rivas published in September 86 edition of Television magazine). Contact: T. Thirsk, 15 Daisy Way, High Lane, Nr. Stockport, SK6 8EF.

ST LOGO Does any one know of an implementation of LOGO on the ST. Please write with details to R. Morgan, 13 Henwaen Street, Blaina, Gwent, NP3 3DU.

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GFA Basic - Advanced Programming

This book, by the author of GFA Basic, is the definitive work on this popular implementation. Its chapters take the reader through the steps involved in using the language to the full. Program optimisation and techniques of re-design for greater efficiency in displays and disk access are examined. Graphics including SETCOLOR, clipping and raster commands as well as flicker-free graphics and image storage are covered. Other features include the development of a fully-flexible dialog box, consideration of sound control along with, among other things, recursion, the EXEC command, the creation of fonts and the development of a microscope function. The book comes with a disk of programs from the text and additional examples.

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Mastering Sound and Music on the Atari ST

This book is packed with theory, good programming examples, software/hardware appraisal and much more. Subjects covered include: Acoustics, Making music, Sound programming, Polyphonic music, Sound and music effects, and MIDI applications. Three appendices cover Books, Magazines and Glossary. Sybex have attained a good reputation for quality books, this is no exception.

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Includes: Cracking the Code. 2 new series; Opening Out and Starting from Basics. Horizontal and vertical scrolling. Mask of the Sun, Sorcerer, Conan, Alley Cat, Ghostbusters and Spy vs Spy all reviewed. Programs include Quickplot, Nightmare Reflections and Matchbox.

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Number 17.

Includes: Vertical and horizontal scrolling routines. Berg, a super adventure set in the freezing waters of the north atlantic. Scrabble Crossword, a type in board game. A colour chart to adjust your TV with. Druid, Pirates of the Barbary Coast, The Dungeon and Lightspeed C reviewed. ST section includes: More useful routines in assembler, including a Degas picture display utility. GEM function calls such as VDI, AES, attribute, control, output and input. Terrorpods, GFA Draft, Fast ASM, M-Cache, Tempus and STuff reviewed.

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Number 19.

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Includes: All you need to know about screen and keyboard handlers. Laser Barrage type in game. Random file access article. 8-bit news column. 10-Print, Pro-Golf, Daylight Robbery, Pothole Pete, Cops N' Robbers and G.O.E. are reviewed. ST section includes: Pictures from Space. Awandering adventure column. The why's and wherefor's of Dialogue Boxes. ST news column.

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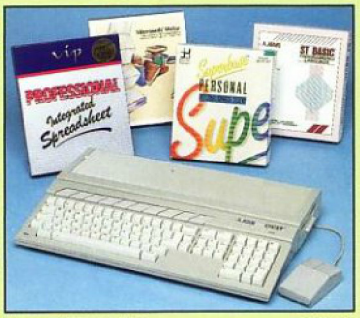

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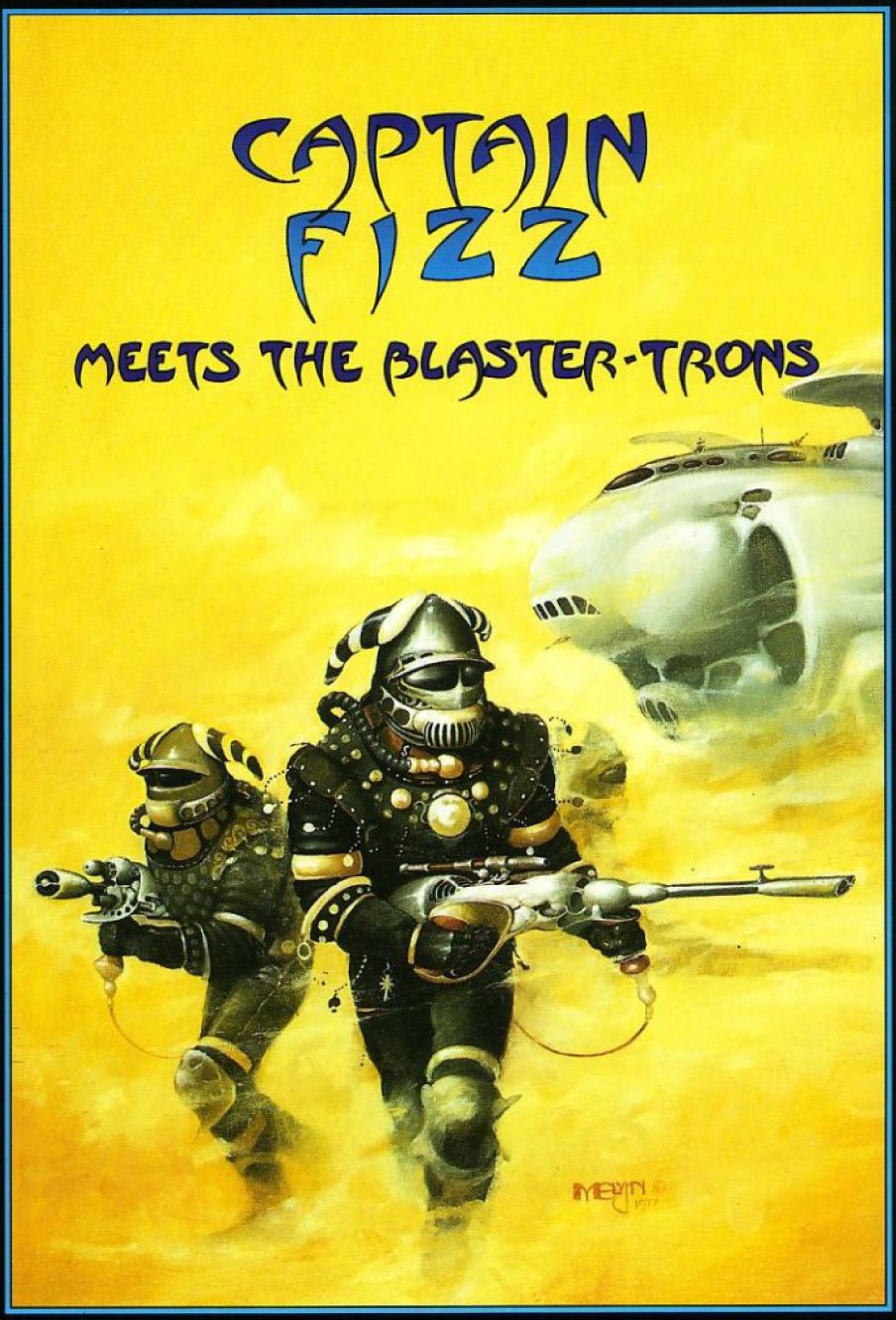
CAPTAIN FIZZ

MEETS THE BLASTER-TRONS



CAPTAIN FIZZ Meets The Blaster-Trons
The message is simple: co-operate or die!

It's double fun and double trouble all the way in Captain Fizz, the most exciting simultaneous two-player game you and a friend are ever likely to play. It's a whole new world of split-screen, high-speed action, as **both** of you take on the nasty Blaster-Trons infesting the planet Icarus.

Yup, it's a tough mission alright, but you might just be able to do it if between you you've got the right blend of co-operation, courage, laser-hot reflexes, tactical sense... and brains. The action is fast and furious in Captain Fizz, but if you can't work out the right tactics you'll both be dead meat.

There are 22 levels of savage and relentless action to battle through before you reach your objective, the central computer that's causing the evil infestation. You'll never get there, though, unless you put your heads together and co-operate; your buddy can't do it on his own, and neither can you. This is one program where even the easy games are hard. So remember — united you stand, but divided you fall...

Warning: this game is *Impossible* to beat on your own.

Two joysticks required for two-player game
Screen Shots are from the Atari ST. Version

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