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Atari

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Write for Monitor 2

Our thanks to those who replied to our request for writers in the last issue. We now have enough people who can review products, but we are still looking for people to write technical articles about the ST or the XL/XE ranges. If you are keen to see your name in print and can write clearly and precisely about programming techniques, the hardware, add-ons, etc., then write to the Editor as soon as possible! We would like to thank Paul Rixon for his contribution of a regular eight-bit news column and P.B. for his new ST adventuring articles entitled 'Awandering'. Maybe someone out there would like to start one for the 8-bit?

Atari Xmas Show

Once again the club has taken a stand at the next Atari Show, to be held at Alexandra Palace on November 25th to 27th. Send the coupon on page 3 to Database Exhibitions to get your tickets at £1 off the normal entry price, if taking your family this could save you quite a few quid! If you don't want to spoil your magazine, a photocopy is acceptable. We are on the same stand as we were at the April show, so if you saw us on stand S23 you'll know exactly where to find us. See you there!

STOP PRESS

Demo disks showing the attributes of STOS and Powerdrome are late additions to the ST Library. If you would like copies then send to Mike Stringer and ask for ADEMO 13 (STOS) or ADEMO 14 (Powerdrome). Usual Library rules apply.

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CONTENTS

2 **Cracking the Code**
Part 16 covers the various system handlers such as K:, S: and E:..

8 **Laser Barrage**
Can you stop the robots from destroying all your bases?

11 **8-bit Reviews**
This issue we look at G.O.E., Daylight Robbery, Pothole Pete, Cops n' Robbers, Pro Golf and 10-Print.

16 **Eight Bit Library**
This quarters selection of new programs.

17 **8-bit Matters**
New regular column of general news for all 8 bit owners.

19 **Random Access**
A close look at the Note and Point commands.

21 **Monitor Bookshop**
Now you can purchase selected books from us.

22 **Pictures from Space**
Read one mans efforts to receive pictures from orbiting satellites.

23 **Chessbase Corner**
Feature for chess buffs, competition result given.

24 **Awandering**
Introduction to a new ST adventuring column.

26 **ST Reviews**
Includes Digicalc, Certificate Maker, Jackpot 1, Lords of Conquest, B Base 2 and B Spell, and many more.

33 **ST Programming**
This episode we look at the use of Object Trees for menu bars and dialogue boxes.

40 **ST Library**
All the new additions to the library are shown.

42 **Classified**
Your opportunity to sell something or find a bargain.

43 **ST News**
A look at some of the goodies that are to be released over the next few months.

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CRACKING THE CODE

Part Sixteen by Keith Mayhew

Continuing with our study of the operating system, the facilities of each of the system handlers will be described in-depth.

Keyboard and Screen Handlers

Input from the keyboard is provided by the keyboard handler, 'K:', which converts key presses into ATASCII (ATARI ASCII) codes. All the standard modes of the screen are set up by the screen handler, 'S:', which allows the reading and writing of individual pixels or characters, depending on the selected graphics mode.

The third handler in this category is the editor, 'E:', which uses the functions of the 'S:' and 'K:' handlers to provide an interactive way of editing text before it is passed on to the requesting program. The editor only works in the screen handler's graphics mode zero and forms the familiar interface to many programs, such as BASIC. This allows the deletion and insertion of individual characters or lines in a consistent, yet flexible way.

We will now examine each of these handlers in turn.

The Keyboard Handler K:

The main function of the keyboard handler is to wait for a key press and return its ATASCII code. To achieve this, it works in two separate halves. The first half consists of an IRQ interrupt handler which is called each time any key is pressed, with the exception of the control and shift keys. Remember that the function keys 'RESET', 'OPTION', 'SELECT' and 'START' are not part of the keyboard handler's domain; 'RESET' is specially handled via its own interrupt and the others are only readable directly from the hardware.

Upon receiving an interrupt due to a key press, the keyboard handler reads the key's code from the hardware along with the state of the shift and control keys at that time. The variable 'CH' at 2FC hex is used to store the key code for the last key pressed. The key code itself occupies the lower six bits of 'CH' while the top two bits indicate the state of the shift and control keys; if bit 6 is set then the shift key was down and if bit 7 is set then the control key was down.

Table 1 lists all the sixty-four possible key codes, ignoring the top two bits of shift information, followed by the actual key that generates that code. Note that not all codes can be generated from the keyboard and this is indicated by 'Not Used'. The last three columns represent corresponding ATASCII codes and will be explained soon.

The interrupt handler responds specially to the control-1 key combination by not storing a key code in 'CH' but toggling the state of the 'start-stop' flag variable, 'SSFLAG', at 2FF hex, between its usual value of zero and FF hex. 'SSFLAG' can be monitored by other routines to halt their output whenever it is set to FF hex; both the screen handler and the editor are affected by this flag and enter a loop whenever they see it active.

A zero is also stored in the variable 'ATRACT', at 4D hex, whenever a valid key code is written to 'CH'. This resets the attract timer, which, if allowed to count up to over 127, starts the cycling of the colours on the screen to attract attention because no one has pressed a key for about ten minutes! If you write a program which may not make use of the keyboard then you might consider periodically writing a zero to 'ATRACT' to prohibit colour cycling. Alternatively, you could disable the VBI interrupt routine which implements the counting and colour cycling.

The 'break' key is also handled specially, in that no code is written to 'CH' but zero is stored in the following variables: 'BRKKEY', 'SSFLAG', 'ATRACT' and 'CRSINH'. 'BRKKEY', at 11 hex, is a flag which indicates to other routines that the break key has been pressed. This is used by most handlers to indicate user-abort and generate the appropriate CIO error code for a break; after a routine detects the break key flag set to zero it should set it back to its normal value of 80 hex to clear it. Pressing break also re-enables screen output if it was stopped; resets the attract timer; and re-enables the cursor of the editor handler if it was previously inhibited, i.e. hidden, by setting 'CRSINH', at 2F0 hex, to a non-zero value.

The other half of the keyboard handler is activated by CIO in response to a 'get key' operation. It examines the variable 'CH' and waits until a value other than FF hex is found, i.e. a key was pressed. It then resets 'CH' to FF hex ready for the next key and processes the key code it obtained. If the key code is valid an audible click is generated, either through the keyboard speaker for the 400 or 800 models, or via the sound output for the XL and XE. If a key is held down then no further interrupts are generated but key repeat is implemented in part of the VBI code by simply storing the key code into 'CH' at regular intervals for as long as the key remains down.

A look-up table is used internally to translate from the key codes to ATASCII codes which are then returned to CIO. Table 1 shows the associated ATASCII codes in the last three columns: the first is for an un-shifted key, i.e. without shift or control; the second is for the same key but with the shift key; and the third is with the control key. Note that not all shift and control combinations return a value at all, in particular, any key combination where both the shift and control keys are held down simultaneously are ignored.

There are two variables which can affect the values returned from the keyboard handler: 'INVFLG' at 2B6 hex and 'SHFLOK' at 2BE hex. 'INVFLG' is the 'inverse' flag which is toggled whenever the ATARI key (half shaded box on XL/XE) is pressed. Normally this flag is zero, but when set to 80 hex it causes further returned values to have their top bit set, the following key combinations are the exceptions: escape, cursor-left/right/up/down, clear-screen, back-space, tab/set/clear, return, control-2, insert/delete-character/line.

The shift-lock variable 'SHFLOK' can have one of three values: zero is normal mode; 40 hex is shift-lock; and 80 hex is control-lock. The 'caps-lower' key when pressed does not return a value from the keyboard handler but is used to change the state of the 'SHFLOK' variable. The 'caps-lower' key by itself will set the normal mode where all further 'letter' keys will return the codes for lower-case letters, i.e. un-shifted. When 'caps-lower' is pressed with shift all further letters are returned as upper-case. When 'caps-lower' is pressed with the control key all further letters are returned as if they were typed with the control key down. Note that no matter what lock is currently selected, pressing either the shift or control key with a letter key will over-ride the lock.

The keyboard handler responds to the following CIO commands:

OPEN:
Device name is 'K:'; read only.
CLOSE:
No action taken, just releases IOCB.
GET CHARACTER:

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How To Get There

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

TABLE 1

Key-code to ATASCII conversion

Key Code	Key	Un-Shifted	Shift	Control
00	L	6C	4C	0C
01	J	6A	4A	0A
02	;	3B	3A	7B
03	Not Used			
04	Not Used			
05	K	6B	4B	0B
06	+	2B	5C	1E
07	*	2A	5E	1F
08	O	6F	4F	0F
09	Not Used			
0A	P	70	50	10
0B	U	75	55	15
0C	Return	9B	9B	9B
0D	I	69	49	09
0E	–	2D	5F	1C
0F	=	3D	7C	1D
10	V	76	56	16
11	Not Used			
12	C	63	43	03
13	Not Used			
14	Not Used			
15	B	62	42	02
16	X	78	58	18
17	Z	7A	5A	1A
18	4	34	24	**
19	Not Used			
1A	3	33	23	9B
1B	6	36	26	**
1C	Escape	1B	1B	1B
1D	5	35	25	**
1E	2	32	22	FD
1F	1	31	21	**
20	,	2C	5B	00
21	Space	20	20	20
22	.	2E	5D	60
23	N	6E	4E	0E
24	Not Used			
25	M	6D	4D	0D
26	/	2F	3F	**
27	Inverse	**	**	**
28	R	72	52	12
29	Not Used			
2A	E	65	45	05
2B	Y	79	59	19
2C	Tab	7F	9F	9E
2D	T	74	54	14
2E	W	77	57	17
2F	Q	71	51	11
30	9	39	28	**
31	Not Used			
32	0	30	29	**
33	7	37	27	**
34	Backspace	7E	9C	FE
35	8	38	40	**
36	<	3C	7D	7D
37	>	3E	9D	FF
38	F	66	46	06
39	H	68	48	08
3A	D	64	44	04
3B	Not Used			
3C	Caps-lower	**	**	**
3D	G	67	47	07
3E	S	73	53	13
3F	A	61	41	01

Notes: 1. All values are in hex.
2. The symbol ** represents 'no value returned'.

Table 1. Keycode to ATASCII conversion.

Reads a single key and returns its ATASCII code, waits if necessary.
GET RECORD:
Reads keys until return is pressed.
GET STATUS:
No action taken, status set to 1 for OK.

The following error codes can be returned from a get character or record operation:

80 hex: Break-key pressed.
88 hex: End-of-file.

Both of these error conditions return the end-of-line code 9B hex, i.e. as if return was pressed. The end-of-file error is generated by control-3 and so, for example, you could copy from the keyboard device to another, say a disk file, and terminate the transfer with control-3.

You may find that having the get character operation wait for a key particularly awkward, in which case you can test the variable 'CH' yourself for a value other than FF hex before getting the character.

The Screen Handler S:

The screen handler can set up a screen display in any one of sixteen pre-defined formats and provides the ability to read or write any character or pixel of the screen. Due to its general purpose nature, screen I/O is no where near as fast as it could be if you accessed the data directly, but there is no reason why you cannot mix access between CIO and direct manipulation to obtain the best of both worlds.

Once the 'S:' device has been opened a display list is set up and the display area is initialised. At this stage you may decide to modify part of the display list to suit your application. The screen handler may still be used but it will not know of your modifications; as long as you are careful, you can use the screen handler effectively to access most parts of your screen, usually the text segments and update the rest by direct access.

Table 2 lists the sixteen modes which 'S:' supports and shows the corresponding ANTIC mode number of the lines which constitute the basis of the display list. The number of lines down the screen are shown for both a full display and a 'split' screen, if it is available. A split screen mode has four lines of text mode 0 appended to the end of the standard screen.

All the display lists built by 'S:' have three eight-blank-line instructions at the top to ensure the main display will be visible on all displays. Note that modes 9 through 11 are the same as mode 8 except that they turn on one of the three special GTIA colour modes and that modes 12 through 15 are only available with the XL/XE operating system. The following descriptions will assume you know the individual characteristics of the graphics modes, if you do not, you might wish to refer to parts ten, eleven and twelve of this series.

To open the screen device you need to specify the device name 'S:', the type of access is required in auxiliary byte 1 and the graphics mode in auxilary byte 2. The access type consists of the usual read/write selection plus two further bits: bit 5, if set, means that the screen will not be cleared; bit 4, if set, causes a split screen mode to be built - if it is not supported for the specified mode then a full screen is built instead. Note that both of these options are ignored if you specify mode 0 in auxiliary byte 2.

The split screen mode is only available if you have previously opened the editor device, as it is required to control the text portion of the screen. As the editor is opened by the system on IOCB zero, you will usually be able to open 'S:' straight away in split mode, however, it is safer to close IOCB zero and re-open it for the editor device to ensure that it is open.

Assuming the open was successful,

TABLE 2

Screen Modes

Mode	Antic Mode	Pixels/Characters Across	Lines Not Split	Lines Split
0†	2	40	24	–
1†	6	20	24	20
2†	7	20	12	10
3	8	40	24	20
4	9	80	48	40
5	10	80	48	40
6	11	160	96	80
7	13	160	96	80
8	15	320	192	160
9	15/1	80	192	–
10	15/2	80	192	–
11	15/3	80	192	–
12†*	4	40	24	20
13†*	5	40	12	10
14*	12	160	192	160
15*	14	160	192	160

Notes: † = Text mode. 'Lines' refers to character cells.
* = Mode only available on XL/XE.
/1 = GTIA PRIOR bit 7 = 0, bit 6 = 1.
/2 = GTIA PRIOR bit 7 = 1, bit 6 = 0.
/3 = GTIA PRIOR bit 7 = 1, bit 6 = 1.

Table 2. Screen modes.

then several internal variables are initialised. The current cursor's row and column positions are both set to zero, which corresponds to the top-left of the screen. The row is held in 'ROWCRS' at 54 hex and the column is held in two bytes starting at 55 hex in low/high format. The 'cursor' never really exists on the screen in any mode other than zero, but the position determines where the next put or get operation will take effect. In mode zero the cursor's position is shown by inverting the character at the specified point. If you wish to turn this off you can set 'CRSINH' to any non-zero value, as already explained, but you must follow this by some screen operation, such as getting a character, to have it actually turned off, alternatively, you could invert the character at the cursor position yourself by directly clearing its top bit.

The address of the screen data start location is stored in low/high format at 'SAVMSC' starting at 58 hex: you can use this pointer to gain access to the screen data yourself, or you can change it and have 'S:' read and write a totally different area of memory, for instance a second screen. If you have modified the display list and wish to access a portion of the screen which is out of the standard range of the cursor, you can move 'SAVMSC' to point to the new area, effectively moving the origin of the screen.

Although opening 'S:' sets it up for one particular mode, it is very easy to make it work as if it were in a different mode by altering the mode number in the variable 'DINDEX', at 57 hex. With a combination of this method and altering 'SAVMSC', as above, you can easily deal with mixed mode display lists.

The put character operation places the specified data at the cursor position and moves the cursor to the right by one pixel or character. In text modes, all eight bits of each data byte are used but this is translated into the appropriate character code before it is stored in screen memory. For graphics modes only one, two or four of the low order bits are used, depending on the mode, and these are stored directly into the corresponding bits in the display area.

In all modes, the end-of-line character, EOL (9B hex), does not put any data onto the screen but moves the cursor's position to the start of the next line down. Similarly, the clear screen character, 7D hex, will always clear the entire screen and set the cursor back to the top-left 'home' position. Often you will not require the EOL function in graphics modes and so you will do all cursor movements by direct manipulation of 'ROWCRS' and 'COLCRS' before putting the next piece of data.

Whether you use EOL or not you must be aware that if the cursor moves beyond the bounds of the screen you will get an appropriate error code. When the cursor is on the bottom-right pixel of the screen the next put operation will cause the cursor to move to the start of the next line down, but this is not on the screen! In all modes except zero, another put operation would cause an error, so you would have to re-position the cursor first. In mode 0, when the cursor moves past the bottom of the last line, all lines are scrolled upwards, the last line cleared, and the cursor positioned at the start of it. This, however, makes it impossible to write to the last character on the screen without it scrolling!

Mode zero is treated differently to the other screens because it forms the basis of the 'E:' device, as we will see later. Firstly, all cursor movements are restricted to be between a left and a right margin value: 'LMARGN' (52 hex) and 'RMARGN' (53 hex). These are usually set to 2 and 39 respectively to give a two character margin on the left, but you can change these values at any time. Furthermore, you can temporarily over-ride the margin settings by manually changing the cursor position.

The major difference of mode 0 is that adjacent physical lines of text on the screen can become associated together to form logical lines of text. Logical lines are formed by writing text which extends beyond the right hand margin, causing it to start a new physical line. A logical line is terminated either by an EOL character or by the fact that it has exceeded three physical lines of text.

Whenever the screen is scrolled in this mode the top logical line is deleted which means that anything from one to three blank lines are formed at the bottom of the screen. The cursor is always positioned immediately after the last remaining logical line, i.e. anywhere from the first to the third line up from the bottom of the screen.

If the 'S:' device has been opened to allow reading, then characters or pixels may be read back from the screen at the current cursor position, for character modes the data is converted back into ATASCII. Unlike the put operation which will work in CIO's 'record' mode, the get operation should only be used in the 'character' mode, otherwise CIO will keep reading until the cursor goes out of range due to it not finding an EOL character!

The other standard CIO operations, CLOSE and STATUS, have no effect within 'S:'. As the screen is not cleared by a 'close', it is possible to re-open the device with the option specified for no-clear and thus have the screen preserved. There are two additional operations provided by 'S:' which are the DRAW (11 hex) and FILL (12 hex) commands, both of which work in any mode. Note that the codes for these commands in part fourteen were given transposed!

The draw command uses an algorithm which attempts to draw the best 'straight' line between any two points on the screen. The first point is specified by 'OLDROW' at 5A hex and 'OLDCOL' in low/high format starting at 5B hex. The last point is specified by the current cursor position in 'ROWCRS' and 'COLCRS'. You can either manually set both of these co-ordinates, or rely on the fact that after the current cursor position is used by 'S:' its position is automatically transferred into 'OLDROW' and 'OLDCOL'. This is particularly useful if you wish to draw a series of connected lines as you need only re-specify the current cusor's position each time. The variable 'ATACHR' at 2FB hex determines the data value which will be plotted by the draw command; as it always contains the value of the last

character/pixel read or written it is not necessary to change it unless you want a different character or pixel colour.

The fill command is really just a simple extension of the draw command. The cursor positions are set up, as described above, and the fill command is invoked. This causes a line to be drawn between the two points, but at each pixel another line is drawn to the right for as far as the data remains zero. If there is no bounding pixel before the right hand edge of the screen then the process continues on the same line but from the left edge of the screen. In the worst case it will fill the entire line, but assuming you have drawn some pixels to the right of the line being drawn you will get the area filled in. The character or pixel colour used for the fill part of the algorithm is obtained from 'FILDAT' at 2FD hex which you must set to the desired value.

The screen handler can produce the following error codes:

8D hex: Cursor out of range for mode.
91 hex: Screen mode invalid.
93 hex: Not enough memory available for specified mode.

The last two of these can only be generated in response to an open command.

The Editor Handler E:

The editor is really just an extension of the screen handler which only works in mode zero. Internally, the editor shares most of the screen handler's code and incorporates the keyboard handler as well. Due to this relationship, we only need to describe what is different about the editor compared to the screen handler.

As was mentioned above, the editor needs to be opened to use the screen handler in its split screen mode. When this is done, the screen handler manages the main area of the screen and the editor manages the four mode 0 lines at the bottom. Due to a conflict of the shared variables, the editor uses its own private variables for the split screen modes, thus allowing independent operation of both parts of the screen. The key locations are: 'TXTROW' at 290 hex, 'TXTCOL' at 291 and 292, 'TINDEX' at 293 hex and 'TXTMSC' at 294 and 295 hex; these correspond to 'ROWCRS', 'COLCRS', 'DINDEX' and 'SAVMSC' respectively.

Opening the editor requires the specification of the device name, 'E:', and the first auxiliary byte for reading and/or writing (usually both). The second auxiliary byte is ignored as mode zero is always assumed.

Output to the editor behaves in exactly the same way as the screen handler except that certain characters have special meanings as follows:

1B hex: Escape; Sets the 'escape' flag. The next character will clear this and will be processed specially.
1C hex: Cursor up; Cursor up one physical line; wraps to bottom.
1D hex: Cursor down; Cursor down one physical line; wraps to top.
1E hex: Cursor left; Cursor left; wraps to right.
1F hex: Cursor right; Cursor right; wraps to left.
7D hex: Clear screen; Screen is cleared.
7E hex: Backspace; Character to left of cursor is erased; does not go past the start of the logical line.
7F hex: Tab; Moves the cursor to the next tab point in the logical line or moves to the next line if one is not found.
9B hex: EOL; Moves the cursor to the start of the next logical line; scrolls if on the last logical line.
9C hex: Delete line; Deletes the entire logical line which contains the cursor; the lines below it are scrolled up.
9D hex: Insert line; Inserts a physical line on the line containing the cursor; this can split the current logical line.
9E hex: Clear tab; Removes a tab point at the current column position in the logical line.
9F hex: Set tab; Sets a tab point at the current column position in the logical line.
FD hex: Bell; Makes a 'bell' sound through the consol speaker.
FE hex: Delete character; Deletes the character under the cursor and scrolls the rest of the logical line.
FF hex: Insert character; Inserts a character to the left of the character under the cursor and scrolls the rest of the logical line.

The above characters, with the exception of EOL, can be printed if they are 'escaped'. This is done by sending the escape character and then the actual character you want printed. The escape character sets the 'escape' flag to indicate to the editor that the next character is to be printed, not acted upon. After the next character is printed, the escape flag is cleared. Following an escape character with another causes the escape character to be printed. If you are printing many of these escaped characters then you can set the 'DSPFLG', at 2FE hex, to a non-zero value which causes every character to be treated as if it were escaped.

The tab points, mentioned above, are held in fifteen bytes starting at 'TABMAP', 2A3 hex. Each of the 120 bits in the tab map represents a column number in a logical line; if any bit is set then the corresponding column is a tab point and the cursor will move to it when the tab key is pressed. The tab points can either be set or cleared directly or by setting the cursor's position and sending the editor the appropriate character. Note that the tab map applies to every logical line on the screen: setting a point on one line will affect all tab points on all lines.

The CLOSE and STATUS commands have no effect within the editor: as with the screen handler, the display is not cleared when the close command is issued. Where the editor differs substantially is in its handling of GET commands. A get character or record command will cause the editor to go into its 'editing loop'. This reads characters from the keyboard handler performing editing functions if necessary, such as deleting and inserting, until an EOL character is read. At this point all the characters on the entire logical line containing the cursor, not necessarily the one which it was on when it was first called, are returned; one by one if it is a character get or all of them together if it is a record. Finally, a terminating EOL will be sent back after the whole line has been read, with the exception that trailing spaces are ignored.

There is one exception to the above rule and that is if text was previously printed without a terminating EOL, then only the characters from the cursor's original position onward are returned by the get operation unless characters were typed to the left of that point. This is useful if you want to print a prompt before an input line as the prompt will not be returned. The exception to the exception(!) is that if the cursor is moved out of the logical line and then back in again, the whole line is returned as normal.

To allow you to read data from the screen directly rather than via the keyboard it is possible to use a 'forced' read mode. If bit 0 was set in the first auxiliary byte when the editor was opened then get operations read entire logical lines directly from the screen. It is possible to directly alter the IOCB's auxiliary byte once the editor is opened, as it always re-checks this byte for each get operation. For instance, if you POKE 842,13 (IOCB 0) in BASIC, you will cause BASIC to continually read blank lines from the screen - unless, of course, you have put some command in the way, like RUN.

This 'trick' has often been used within BASIC programs to allow them to enter new program lines, such as data. The program will print text lines on the screen in the usual BASIC format and follow them with a CONTINUE or GOTO statement. It will then position the cursor above the new lines, switch on forced-read and execute a STOP statement. The new lines will be read as if they had just been typed and then the CONTINUE statement will start the program running again!

Next Time

There are four remaining handlers left to examine: Cassette, Printer, RS232 and Disk. We will start with the disk handler and, hopefully, I will present a small disk utility program (using CIO, of course!) next time.

Want to catch up?

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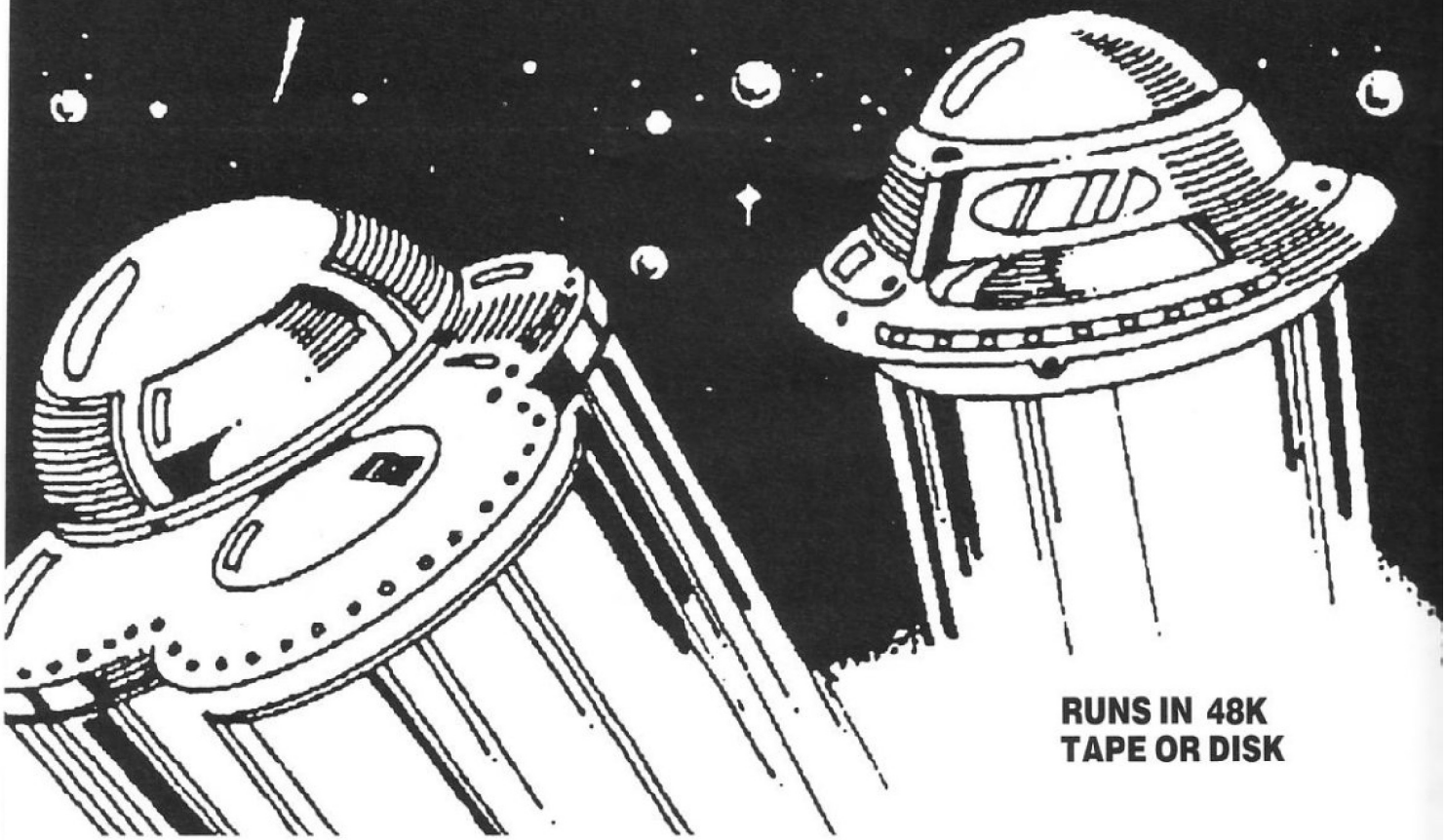
LASER BARRAGE



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Type in the program and save it off before running it. The two code letters in front of each line are used with the checksum programs, either Typo from Page 6 magazine or our own Keyo (which is available from the library). Also note that anything underlined should be typed in inverse mode. If you have any problems, the program is available from the library.

```
TV 100 GOSUB 1070
VG 110 GOSUB 1460
MZ 120 R=0:FOR I=1 TO 200:POKE PPOS,0:POK
   E PPOS,DIR+64:NEXT I
YP 130 IF ROBOTS<5 THEN FOR W=1 TO 50:NEX
   T W
RF 140 GOSUB 200
EI 150 R=R+1:IF R>ROBOTS THEN R=0
GX 160 GOSUB 410:GOSUB 200
IC 170 IF MPOS THEN GOSUB 710:GOSUB 710
ND 180 GOTO 130
WU 200 REM PLAYER MOVEMENT
QE 210 IF STRIG(0)=0 AND MPOS=0 THEN 370
DG 220 GOTO 220+STICK(0)
ES 225 DIR=4:GOTO 320
ED 226 DIR=2:GOTO 320
EP 227 DIR=3:GOTO 320
FW 229 DIR=6:GOTO 320
FP 230 DIR=8:GOTO 320
FJ 231 DIR=7:GOTO 320
EX 233 DIR=5:GOTO 320
DQ 234 DIR=1:GOTO 320
ZT 235 RETURN
AO 320 NPOS=PPOS+DIR(DIR-1):POKE 77,0
UC 330 PK=PEEK(NPOS):IF PK=31 OR PK=158 O
   R PK=PC THEN RETURN
FS 340 IF PK=63+192 THEN 590
ZF 350 POKE PPOS,0:POKE NPOS,DIR+64
QW 360 PPOS=NPOS:RETURN
OM 370 REM FIRE MISSILE
VV 380 SIGN=-1
JZ 390 MPOS=PPOS:MDIR=DIR-1:IF MDIR>3 THE
   N MDIR=DIR-5:SIGN=1
ZA 400 RETURN
OI 410 REM ***ROBOT MOVEMENT***
QT 420 REM
WR 430 IF ROBOT(R)=0 THEN RETURN
ZQ 440 IF POD(TARGET(R))=0 THEN TARGET(R)
   =INT(8*RND(0)):GOTO 440
IE 450 RX=RX(R):RY=RY(R):TX=PX(TARGET(R))
   :TY=PY(TARGET(R))
TQ 460 RX=RX+SGN(TX-RX):RY=RY+SGN(TY-RY)
SM 470 NPOS=CRT+RX+20*RY:P=PEEK(NPOS)
LZ 480 IF P=158 OR P=31 THEN RX=RX+1-INT(
   3*RND(0)):RY=RY+1-INT(3*RND(0)):GOTO 4
   70
HC 490 IF P<>PC THEN 560
JM 500 PK=CRT+RX+20*RY
XJ 510 FOR I=59 TO 62:POKE PK,I:SOUND 0,I
   *2,8,8:FOR W=1 TO 20:NEXT W:NEXT I:SOU
   ND 0,0,0,0
TP 520 FOR I=0 TO 7:IF RX=PX(I) AND RY=PY
   (I) THEN KP=I:GOTO 540
RP 530 NEXT I:STOP
BD 540 POKE PK,0:POD(KP)=0
RA 550 PODS=PODS-1:IF PODS=0 THEN 590
FB 560 IF P>64 AND P<73 THEN 590
DT 570 POKE ROBOT(R),0:POKE NPOS,63+192:R
   OBOT(R)=NPOS:RX(R)=RX:RY(R)=RY
ZR 580 RETURN
AW 590 REM ***PLAYER KILLED ROUTINE***
PO 600 FOR I=1 TO 8
LW 610 FOR J=0 TO 3:POKE PPOS,I+COLMSK(J)
   :NEXT J
TS 620 SOUND 0,I*8+K*64,12,16-I*2:SOUND 1
   ,I*4,8,16-I*2:NEXT I
UU 630 FOR I=1 TO 4 STEP 0.5:FOR J=0 TO 3
   :POKE PPOS,15+COLMSK(J):POKE PPOS,32+C
   OLMSK(J):POKE PPOS,0
OJ 640 SOUND 0,I*4+J,8,15-4*3+J:NEXT J:NE
   XT I
PH 650 SOUND 0,0,0,0:LIFE=LIFE-1:IF LIFE
   THEN 110
YJ 660 POSITION 5,10:? #6;"          ":P
   OSITION 5,11:? #6;"GaME OVer":POSITION
    5,12:? #6;"          "
GZ 670 POSITION 7,0:? #6;"press":POSITION
    6,1:? #6;" start  ":F=0
NI 680 IF PEEK(20)>15 THEN POKE 20,0:F=1-
   F:POSITION 0,1:? #6;"      ":IF F THEN
    POSITION 0,1:? #6;SCR$
FW 690 IF PEEK(53279)<>6 THEN 680
PQ 700 ROBOTS=3:SCR=0:SCR$="00000 ":LIFE=
   3:GOTO 110
GJ 710 REM *** UPDATE MISSILE ***
OO 720 IF MPOS=0 THEN RETURN
GW 730 NPOS=MPOS+LDIR(MDIR)*SIGN
JF 740 KK=PEEK(MPOS):IF KK<65 OR KK>72 TH
   EN KK=0
KT 750 PK=PEEK(NPOS):ALT=1-ALT
NJ 760 IF PK=255 THEN GOSUB 820
UJ 770 IF PK>0 THEN POKE MPOS,0:MPOS=0:RE
   TURN
GO 780 POKE MPOS,KK:POKE NPOS,LC(MDIR*2+A
   LT)
```

```
ZZ 790 MPOS=NPOS
PC 800 GOTO 730
ZG 810 RETURN
IH 820 REM *** KILLED ROBOT ***
JM 830 POKE MPOS,0
JY 840 POKE NPOS,0
NB 850 FOR I=0 TO ROBOTS:IF ROBOT(I)=NPOS
    THEN KR=I:I=ROBOTS:NEXT I:GOTO 870
RY 860 NEXT I:STOP
EQ 870 FOR I=0 TO 7:POKE NPOS,LC(I)+128:S
   OUND 0,I*10,8,14-I*2:NEXT I:POKE NPOS,
   0
CP 880 SCR=SCR+1:ROBOT(KR)=0
TS 890 SCR$="00000":SCR$(6-LEN(STR$(SCR))
   )=STR$(SCR)
QY 900 FOR Z=1 TO 5:SCR$(Z,Z)=CHR$(ASC(SC
   R$(Z))+128):NEXT Z:POSITION 0,1:? #6;S
   CR$
HR 910 IF SCR<HIGH THEN 940
ZQ 920 HIGH=SCR:HI$="00000":HI$(6-LEN(STR
   $(HIGH)))=STR$(HIGH)
GE 930 FOR Z=1 TO 5:HI$(Z,Z)=CHR$(ASC(HI$
   (Z))-32):NEXT Z:POSITION 15,1:? #6;HI$
JG 940 KILLED=KILLED+1:IF KILLED=ROBOTS+1
    THEN 960
ZP 950 RETURN
VT 960 REM *******ALL ROBOTS KILLED*****
AO 970 FOR J=1 TO 20:FOR I=0 TO 4:POKE 70
   8+I,PEEK(53770):NEXT I:NEXT J
PG 980 FOR I=0 TO 7
AP 990 IF POD(I)=0 THEN 1020
RQ 1000 FOR J=0 TO 3:SCR=SCR+5:POKE POD(I
   ),PC+1+COLMSK(J):GOSUB 1050:GOSUB 890
YY 1010 POKE POD(I),PC:GOSUB 1060:NEXT J
BN 1020 FOR J=0 TO 4:POKE 708+J,PEEK(5377
   0):NEXT J
EY 1030 NEXT I
OO 1040 ROBOTS=ROBOTS+2:GOTO 110
UD 1050 FOR W=14 TO 0 STEP -2:SOUND 0,W*1
   0,12,W:NEXT W:RETURN
RE 1060 FOR W=14 TO 0 STEP -2:SOUND 0,150
   -W*10,12,W:NEXT W:RETURN
IM 1070 GRAPHICS 2+16:SETCOLOR 4,9,6:POKE
    53770,27
KA 1080 CHSET=(PEEK(106)-8)*256:IF PEEK(C
   HSET+11)=56 THEN RETURN
TQ 1090 POSITION 3,4:? #6;"LASER BARRAGE"
AA 1100 POSITION 4,6:? #6;"please wait"
OT 1110 FOR I=0 TO 512:POKE CHSET+I,PEEK(
   57344+I):POKE 708,PEEK(53770)
HG 1120 SOUND 0,PEEK(53770),10,8:NEXT I
MQ 1130 RESTORE 1180
IB 1140 READ A:IF A=-1 THEN RETURN
UC 1150 FOR J=0 TO 7:READ B:POKE CHSET+A*
   8+J,B:POKE 708,PEEK(53770):SOUND 0,B,1
   0,8:NEXT J
PU 1160 GOTO 1140
RL 1170 SOUND 0,A,10,INT(I/34):NEXT I
CG 1180 DATA 1,16,16,56,56,124,124,84,0
UB 1190 DATA 2,3,31,62,14,22,4,0,0
HD 1200 DATA 3,0,28,14,31,14,28,0,0
ZK 1210 DATA 4,0,0,4,22,14,62,31,3
BS 1220 DATA 5,84,124,124,56,56,16,16,0
LF 1230 DATA 6,0,0,32,104,112,124,248,192
YP 1240 DATA 7,0,56,112,248,112,56,0,0
SN 1250 DATA 8,192,248,124,112,104,32,0,0
DY 1260 DATA 9,56,68,130,130,68,56,56,124
QH 1270 DATA 10,56,68,186,186,68,56,56,12
   4
GF 1280 DATA 11,192,64,112,16,28,4,7,1
NU 1290 DATA 12,1,7,4,28,16,112,64,192
EO 1300 DATA 13,128,224,32,56,8,14,2,3
MD 1310 DATA 14,3,2,14,8,56,32,224,128
UR 1320 DATA 15,0,64,1,48,56,80,0,4
JC 1330 DATA 26,16,8,16,8,16,8,16,8
IT 1340 DATA 27,8,16,8,16,8,16,8,16
UI 1350 DATA 28,0,0,0,170,85,0,0,0
TZ 1360 DATA 29,0,0,0,85,170,0,0,0
GQ 1370 DATA 30,255,149,255,169,255,149,2
   55,255
YI 1380 DATA 31,255,255,255,255,255,255,2
   55,255
JU 1390 DATA 32,0,36,2,160,0,2,136,34
AS 1400 DATA 59,60,66,129,129,129,66,60,0
DG 1410 DATA 60,0,60,66,66,66,60,0,0
RG 1420 DATA 61,0,0,24,36,24,0,0,0
XS 1430 DATA 62,0,0,0,24,0,0,0,0
CW 1440 DATA 63,24,36,126,129,60,0,60,102
FB 1450 DATA -1
DN 1460 GRAPHICS 17:POKE 756,CHSET/256:PO
   KE 559,0
VM 1470 RESTORE 1460:FOR I=0 TO 4:READ A,
   B:POKE 708+I,A*16+B:NEXT I
FO 1480 DATA 6,8,1,10,4,6,7,10,0,14
MD 1490 KILLED=0
ZE 1500 FOR I=0 TO 3:SOUND I,0,0,0:NEXT I
OW 1510 CRT=PEEK(88)+256*PEEK(89)
BJ 1520 FOR I=0 TO 21:POKE CRT+40+I*20,31
   :POKE CRT+479-I*20,31
HB 1530 IF I<20 THEN POKE CRT+40+I,31:POK
   E CRT+479-I,31
FL 1540 NEXT I
UQ 1550 IF  NOT DIMMED THEN DIM SCR$(5),H
   I$(5):HIGH=0:SCR$="00000":SCR=0:LIFE=3
YJ 1555 FOR I=1 TO 5:HI$(I,I)=CHR$(16):NE
   XT I
OK 1560 POSITION 7,0:? #6;"LASER":POSITIO
   N 6,1:? #6;"barrage"
PN 1570 IF LIFE>1 THEN POSITION 13,0:PUT
   #6,131:IF LIFE>2 THEN POSITION 13,1:PU
   T #6,131
XJ 1580 POSITION 0,0:? #6;"SCORE":POSITIO
   N 16,0:? #6;"HIGH"
OY 1590 POSITION 0,1:? #6;SCR$:POSITION 1
   5,1:? #6;HI$
BI 1600 FOR I=1 TO 25:A=INT(18*RND(1)+1):
KO 1620 IF DIMMED THEN 1760
DP 1630 DIM POD(7),PX(7),PY(7)
EH 1640 DIM ROBOT(64),RX(64),RY(64)
YM 1650 DIM TARGET(64)
NO 1660 DIM LC(7)
SY 1670 DIM LDIR(3)
EI 1680 DIM DIR(7)
NJ 1690 DIM COLMSK(3)
OI 1700 COLMSK(0)=0:COLMSK(1)=64:COLMSK(2
   )=128:COLMSK(3)=192
TX 1710 LI=0
SK 1720 LC=0
WO 1730 PC=9
GM 1740 PPOS=0
JZ 1750 ROBOTS=3:LET DIMMED=1
AD 1760 FOR I=0 TO 7
SR 1770 PX(I)=INT(18*RND(0)+1):PY(I)=INT(
   19*RND(0)+3)
RX 1780 POD(I)=CRT+PX(I)+PY(I)*20:IF PEEK
   (POD(I))>0 THEN 1770
JO 1790 POKE POD(I),PC
XM 1800 NEXT I:PODS=8
HB 1810 FOR I=0 TO ROBOTS
WL 1820 RX(I)=INT(18*RND(0)+1):RY(I)=INT(
   19+RND(0)+3)
YN 1830 ROBOT(I)=CRT+RX(I)+RY(I)*20:IF PE
   EK(ROBOT(I))>0 THEN 1820
NY 1840 POKE ROBOT(I),63+192
LN 1850 TARGET(I)=INT(8*RND(0))
FX 1860 NEXT I
VS 1870 FOR I=0 TO 7:READ A:DIR(I)=A:NEXT
    I
ET 1880 DATA -20,-19,1,21,20,19,-1,-21
JG 1910 FOR I=0 TO 7:READ A:LC(I)=A:NEXT
   I
GM 1920 DATA 26,27,12,14,28,29,11,13
CP 1930 FOR I=0 TO 3:READ A:LDIR(I)=A:NEX
   T I
PH 1940 DATA 20,19,-1,-21
XS 1950 PPOS=CRT+INT(18*RND(0)+1)+INT(19*
   RND(0)+3)*20:IF PEEK(PPOS)>0 THEN 1950
WP 1960 DIR=1
BL 1970 POKE PPOS,DIR+64:MPOS=0:POKE 559,
   34
BP 1980 RETURN
```

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10-PRINT

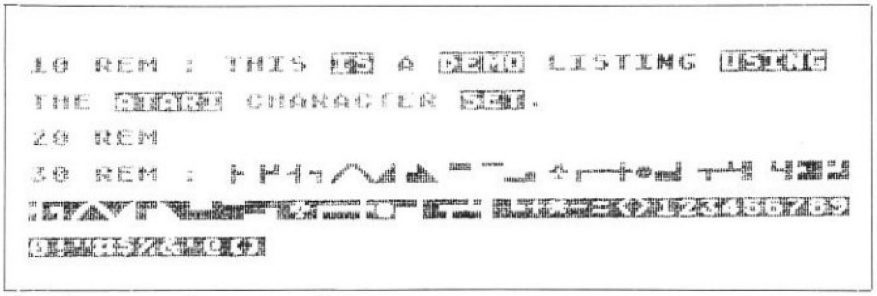
From Xlent Software
Price £14.95
Reviewed by John Lavelle

Xlent Software's latest offering is sure to create some excitement amongst the ranks of 1029 owners who, like myself, probably feel that support for Atari's own dot-matrix printer could be better. I recently acquired my printer from a friend second hand at a very reasonable price but besides the usual word processors I could not find a good utility which supported the 1029. I was after something that would demonstrate the full capabilities of this printer. Then along came 10-PRINT, a program described by it's producers as 'The Ultimate Utility' which would give you 'The most fun you have ever had with your 1029!'. A bold claim indeed!

10-PRINT comes on a single-sided, unprotected disk and is accompanied by an eleven page manual containing several spelling mistakes (perhaps Xlent Software's next effort will be a spelling-checker). The manual proved difficult reading and so I decided to load the disk and see what happened. On power-up the 10-PRINT title is displayed and then the 'READY' prompt. What next? Back to the manual. It states that a handler ,'Q:', for a new device has been added to the existing list of handlers. These being:

C: for Cassette
D: for Disk
E: for Editor
S: for Screen
K: for Keyboard
P: for Printer

Q: operates in much the same way as P: except that it prints in whatever character set the computer is using rather than the standard 1029 character set. It does not over-ride P: but remains available alongside P: until DOS is called or the computer is switched off. To reduce the need for calling DOS a small program called DIR is provided on the disk and by typing ENTER "D:DIR" the disk directory will be displayed on the screen. A nice touch I thought. Q: actually consists of 4 device numbers as follows; Q1: (or just Q:) will print a 60 character line 7 dots high. Q2: will print 38 characters per line (as per the default Graphics 8 screen) 7 dots high. Q3: and Q4: are the same as Q1: and Q2: respectively but will print characters 8 dots high and require two passes of the print head for each line. Q2: and Q4: can



Sample program listing using 'Q4:'.

be used to produce exact screen copy program listings including graphics and inverse characters. As the printer uses the computer's character set and not it's own, the print out is much bolder and much easier to read.

10-PRINT is not a single program utility but is made up of several files, many in BASIC, and I must admit I did have a lot of fun exploring it. I think the best way to describe this utility is to tackle it a bit at a time.

AUTORUN.SYS

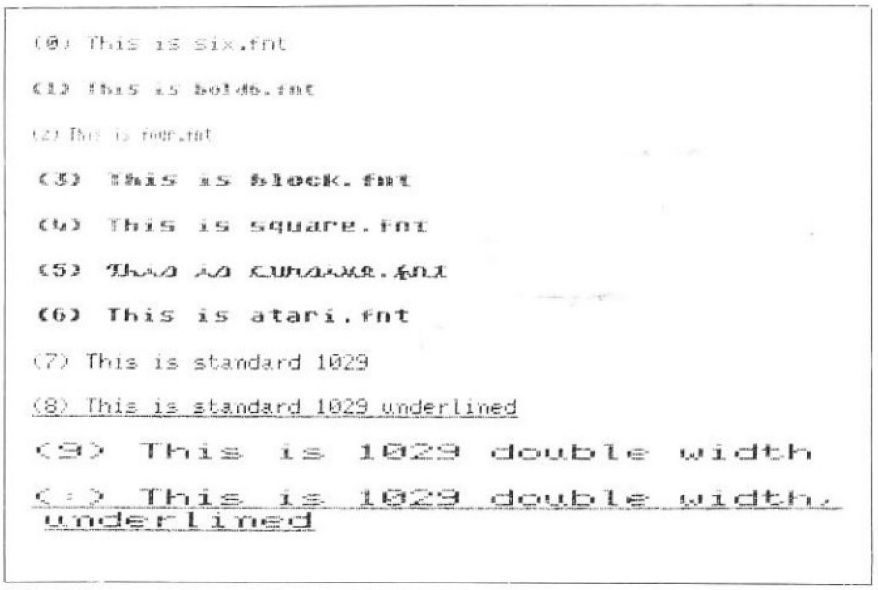
This is the first file we come to after the DOS.SYS and DUP.SYS files and it is this machine code program which is used to install the handler Q:. As I have already described the basic functions of Q: we will move on.

CUSTOM.BAS/ HANDLER.OBJ

When 10-PRINT is loaded it occupies memory starting at page 36 leaving plenty of room for multiple drives and file buffers. For single drive users who would like to reclaim some of the lost memory, AUTORUN.SYS may be customised using CUSTOM.BAS and HANDLER.OBJ. These two files work together to create a new AUTORUN.SYS file containing the new starting page. As the majority of people who will be using this utility will probably be single drive users, would it not have made more sense to configure it for single drive use in the first place? A small point, but one I thought worth mentioning.

FILEPRNT.BAS

With Q: installed this file will allow text files to be dumped to the printer in several different fonts. The files to be dumped must have been printed to disk, i.e. with all the commands for setting margins, indentations etc. embedded in the file, and so will not work so readily with word-processors such as ATARIWRITER. When FILEPRNT.BAS is run it immediately loads in seven new character fonts which are contained on the disk and then prompts for the name of the file to be printed. A demo text file



The different modes used by FILEPRNT.BAS.

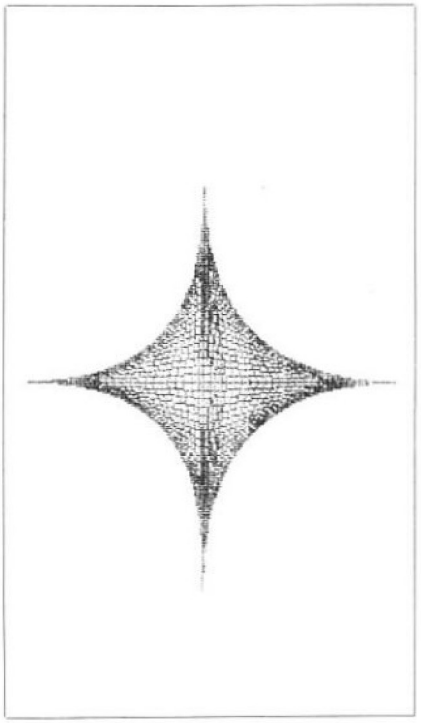
is provided on the disk and is printed in 11 different modes comprising the seven custom fonts plus the four normal printer modes (i.e. standard or wide, with or without underlining). As FILEPRNT.BAS is written in BASIC it may be modified to print in any other custom font.

TYPESET.BAS

Xlent Software claim that 10-PRINT is compatible with the TYPESETTER graphics package using TYPESET.BAS to print your text or graphics screens. This is true but, as TYPESETTER allows you to compose screens of 704 (TYPESETTER 65) or 768 (TYPESETTER 130) pixels wide and the 1029 can only print 480 dots per line, you must limit your design to the 480 left hand pixels or 60 columns. A TYPESETTER file is supplied on the disk and this produces quite a nice printout containing pictures of the 800XL and the 130XE.

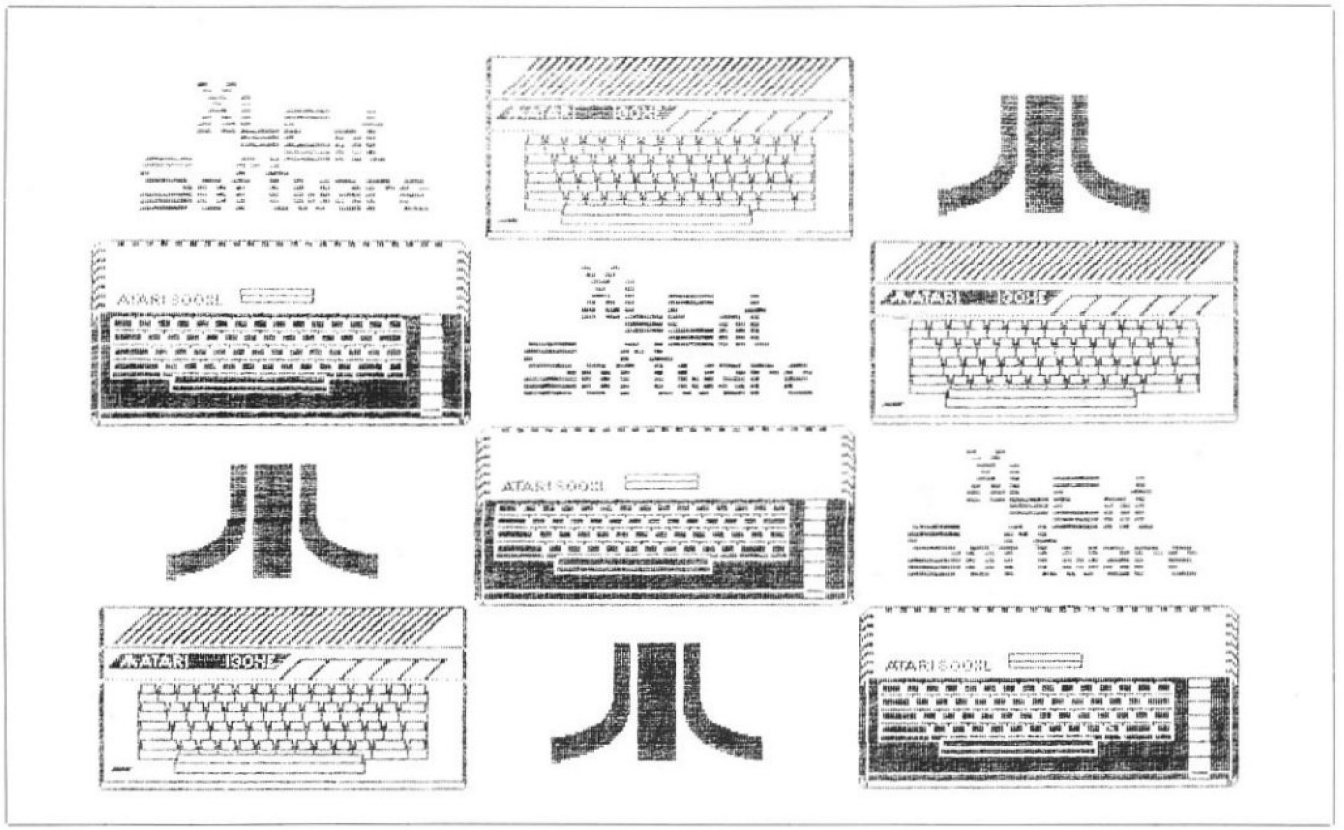
G8DUMP.LST

Last but not least we come to a handy little subroutine entitled G8DUMP.LST. This allows you to copy Graphics 8 screens to paper and as it does not need 10-PRINT installed it can be added to a program which can then be run independently. Both TYPESETTER and GR.8 print outs can be inversed by changing one line in each program. As I mentioned earlier the disk comes without protection and I found this quite useful as it enabled me to create a custom disk with my own files on it without fear of losing any of the original files through mis-operation.



G8DUMP.LST sample entitled Mandala.

10-PRINT can also be used with an Assembler/Editor present but, as I do not own one of these beasts, I am unable to comment on this any further. I'm sure that in the hours I spent using 10-PRINT I have only skimmed the surface of its capabilities but I must say that I thoroughly enjoyed every minute. 10-PRINT is well worth the asking price of £14.95 and I would recommend it to all 1029 owners without hesitation. Xlent Software have certainly lived up to their name this time. Well done! (P.S. Thanks to Peter Fellows of SOFTWARE EXPRESS for the 10-PRINT program.)



Demo Typesetter file using TYPESET.BAS.

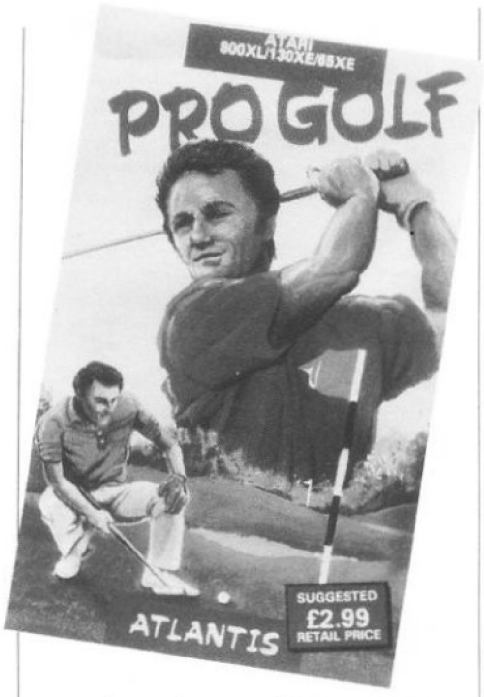
Pro Golf

From Atlantis
Cassette £2.99
Loading time 10 minutes
Keyboard only
Reviewed by Brian Smith

Decisions, decisions and yet more decisions confront you as you are about to start this game, where to play, what type of game to play, what tee position to use, what weather and ground conditions exist; so many decisions that you end up realising just how much thought has gone into this game, probably a great deal more than the £2.99 price tag suggests and I would thoroughly commend Atlantis for this 'budget' offering, budget in price it may be, but budget in quality it is not.

Golf is not new to computer games, but when you get down to it, it's basically a question of getting a ball into a hole, and with the options available to you here, your fate is in your own hands although practice is necessary. My first attempt took 22 shots to get down the hole, the second 12 but the third only 5.

Before you even load the cassette you have to choose which side to load as you have a different course on each side, Sunningdale in the UK or Pebble Beach across the pond. Having selected your course, further choices await you, whether you play a practice round, at the hole(s) of your choice, a single



round or a championship game over four rounds against seventeen other players, with three of the others being 'human' players using the keyboard as well as you, and the remainder being the likes of Sandy Lyle, Nick Faldo and Jack Nicklaus.

When you have selected the type of game you are going to play, then come further choices of weather conditions, ground conditions and tee positions. It's probably best to start practicing with little wind and dry ground although, if you feel up to it, you can choose to play in something approaching a severe gale! Here again the game is full of good detail, for example choose to play on wet or normal ground in high variable wind and you find that the course starts drying out as the game proceeds affecting your club selection. If you choose a championship match over 4 rounds, you can save your game to stop and start when it suits you.

Holes are played from an overhead view of the entire hole, which cuts down to the green when you arrive there, hit into the trees and it's a bit disconcerting to find that the tree where your ball comes to rest has disintegrated, but if you hit a tree in mid-flight your ball could well bounce back behind you.

The inlay card gives comprehensive details on what club should be used over given distances and enables you to allow for wind and weather conditions, together with details of what clubs are allowable in the various hazards, ignore the recommendations at your peril as you will not move the ball and drop a stroke.

If I have a criticism of the game it is that striking the ball is a bit of a hit and miss affair using the space bar but even this improves with practice, perhaps it is just me!

I have no hesitation in thoroughly recommending this game and at the price, you just can't go wrong. Well done Atlantis, let's have more of this quality, eminantly playable and it becomes quite addictive.

Daylight Robbery & Pothole Pete

From Atlantis
Cassettes: £1.99 each
Reviewed by Brian Smith

One of the main problems with reviewing budget games is attempting to maintain an appropriate perspective, particularly about what you are entitled to expect from a game costing a couple of pounds. Recently a number of games, two of which spring immediately to mind, Rockford and Zybex, have been released in the budget price range and these have set standards we would probably wish all budget games would adhere to, as regards overall quality and value, whether this is possible in the long term for the software houses to survive, remains to be seen. It is often difficult, when you are looking at or playing a game, to think about how much it cost in relation to other games you may have bought that cost five or ten times as much, I have bought budget games that I have found thoroughly entertaining and to which I return again and again, I have also bought budget games (and also non-budget ones) that I have found totally unplayable, and these now live in a box from which they will probably not reappear. When I first looked at these games my initial response was to consign them to the box... Then I thought about them again, costing a couple of pounds each was I expecting too much from them? It is true that the graphics on both are very basic, the colours are pretty lurid and you may decide to turn the sound down, but, contrary to my initial response the games are playable, but before actually looking at the games, a word of warning - don't expect the quality of games costing considerably more and perhaps spare a thought for Atlantis, who actually seem to be trying to produce games for 8 bit Atari owners, when a number of other software houses seem to have reservations or have given up altogether.

DAYLIGHT ROBBERY
Loading time 12 minutes; joystick.

A very familiar scenario - you versus robot guards, booby traps and other hazards, in an attempt to rob the safe, which is situated on the top floor of a banknote printing company. As you travel around the vault you need to collect security passes to enter the lift on each floor, and tokens which gradually reveal the combination lock number, which is needed to open the safe.

When I started playing the game, I thought it was totally unplayable, the robot guards and other hazards conspired with the moving walkways and some very tight spaces in which to

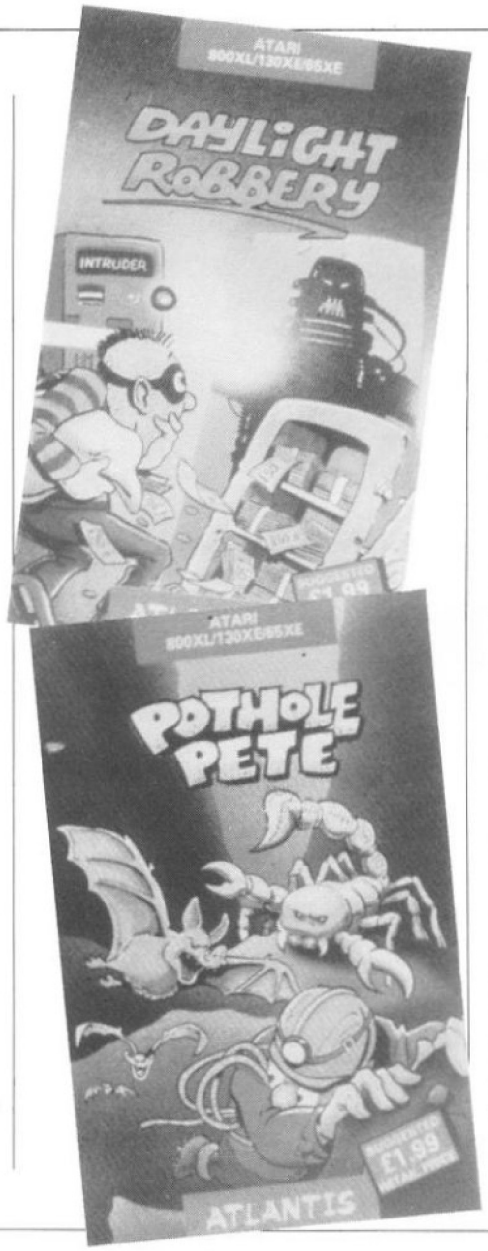
move, to keep me on the first screen - I thought it was totally impossible to get out of it and I became thoroughly sick of seeing 'SCORE 0 HIGHEST SCORE 0'.

The game takes quite a lot of practice but if you take time to work things out and plan your movements you can actually proceed around the vault. After just about giving up in the first session, I actually found that I was determined to get through to the end of the game - I wasn't going to be beaten, and when you get into that frame of mind you tend to ignore the quality of the sound, graphics, etc. and it is all out warfare against the game, it is this experience that has stopped me from committing my original review of the game to print. If like me you don't like to be beaten by a game you might get on quite well with Daylight Robbery, even if you do shout and swear at it in the process.

POTHOLE PETE
Loading time 11 minutes; joystick.

Poor old Pothole Pete (you), two miles below ground he falls a further 100 feet down an abandoned mine shaft, your task is to get back to safety by avoiding the nasties and collecting dynamite to blow your way out.

The game follows in a long line of the running, jumping, collecting genre. As with Daylight Robbery I had problems getting out of the first screen, and I must admit that I telephoned Atlantis to find out where I was going wrong - basically what was happening was I was collecting the dynamite and then found that I was unable to drop it and therefore continually blew myself up - the solution was that I was not dropping it as close as necessary to the rockfall, as it will not be released unless you are close to, but not touching, the blockage.



Again a game that I don't think you can expect too much from, at the price, but still a challenge to finish. Pete's character is pretty uconvincingly drawn - the other graphics are pretty basic too; Pete seems to have been rather influenced by Rockford, with blinking eyes and waving arms as a sign of impatience, but perhaps this comparison is a little unfair on Rockford.

So there we have it, two games that are not particularly easy to complete and therefore provide a challenge. I can't see either game ending up in the lists of games of the year, but I don't imagine that Atlantis or the programmers ever thought they would (the programmers are the same for both games). Maybe it was some sort of perverse psychology involved or perhaps it was just single-mindedness that made me persevere to finish the games, but I wonder whether my feelings would have been so strong had the games been more expensive - I think probably not.

Unless a game is totally unplayable or just dire in the extreme, which these are not, I can't see that you can really fault any game costing just a couple of pounds, as to value for money. So if you want a new game at a good price, try either or both of these, I've played worse in this price range but don't expect the quality of a game costing considerably more.

G.O.E.

From Merrill Ward, 255 North El Cielo Road, Suite 222, Palm Springs, CA 92262, USA.
Reporter: Bob Lussier

Possibly the most exciting news for Atari 8 bit owners in a long time is the release of a new program called the Graphics Operating Environment (G.O.E.), it is an ST-like desktop program. It was demonstrated at the CES computer show in June 1988. What GEOS has become to many Commodore 64 owners, it is hoped G.O.E. will become to Atari owners.

Affectionately referred to as 'ST Junior', G.O.E. will be sold as a super cartridge with 64k and priced at US $59.95. Use of the super cartridge will allow users to run all external software from the desktop. Users may access its many features by using an ST mouse in port 1, by joystick or by keyboard. The cartridge will include, amongst other things, the operating system, a word processor, a drawing package, printer drivers, an icon editor and a number of fonts. Full windowing will be employed for each program.

Merrill Ward have already released its first external desktop program employing G.O.E. It is a 2 disk package entitled 'The Celebrity Cookbook Vol. 1' which includes diet secrets and recipies (from soup to nuts) from a number of notable celebrities, a wine directory and bartenders guide, party tips, a built-in feature to help you recalculate amounts of ingredients for small or large party groups, and a personal recipe filer. All of the items will print to a printer. The price of this package is US $35. It is intended that there will be another 5 volumes released soon and these will require volume 1 in order to run. These are priced at US $19.95.

A demo disk showing the features of G.O.E. is available from the 8 bit library. You will need to use an ST mouse on the demo, plug it into port 1, click the left mouse button. Then click on disk icon A for the directory, now click twice on each demo heading with the mouse button to see the demo operate.

Cops N' Robbers

From Atlantis
Cassette £1.99
Loading time 10 minutes
Joystick only
Review by Brian Smith

I have been critical about the lack of both educational and games software available for young children on the Atari 8 bit. This program, although not strictly 'educational', does seem to be aimed at the reasonably young, mind you it's questionable whether youngsters should be encouraged to score 50 points every time they shoot a policeman!

The game is exactly what it says, you become Light Fingered Lonegan attempting to steal diamonds from the offices and mines of a mining company, whilst being persued by ever increasing numbers of police (in the offices) and ghosts (in the mines). These attempt to send you to jail or the morgue if they can catch you. In addition, you can enter the police station and try to free one of your previously captured three lives. Enjoyable enough for young ones, although they may find the 3 numbered combination on the safe rather frustrating, especially when you have to keep looking over your shoulder to make sure you are not about to be arrested. If you are arrested or carted off to the morgue, all diamonds are replaced in the offices and mines for your next life.

Some amusing touches with the police car or ambulance taking you away after capture and random power failures which switch all the lights off, leave you to try to remember your way around the mazes or just fumble about in the dark.

Strictly for the children, rather basic graphics but at £1.99 you can't complain.

EIGHT BIT SOFTWARE

Software Librarian - Roy Smith

There are two ways to get programs from the library. You can use the donation scheme by sending in a disk or cassette of your own, or if you have a program of your own which you would like to add to the library you can exchange it for 3 programs of your choice. The rules are as follows:

3 FOR 1 EXCHANGE

1. Every program you donate entitles you to three programs in return.
2. The program you donate must be your own original and not copied.
3. Your donated program must be submitted on a cassette or a disk, programs in the form of print-outs cannot be processed.
4. If your program requires any special instructions they should be added in the form of REM statements within the program (or you may present them as instructions when the program is actually run).
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.
6. Please include 30p in stamps (or cash) to cover return postage.
7. The '3 for 1' exchange is only open to club members.

DONATION SCHEME

1. Every club member can make a donation to the club, at any time, if he/she wishes to obtain a particular program(s).
2. There is no limit on the number of programs that can be asked for at any one time. (If you are asking for a lot of programs at once, please ensure that you send a sufficient number of disks or cassettes. It's better to send too many than not enough.)
3. Please include 30p in stamps (or cash) minimum to cover return postage. If your parcel costs more than 30p to send to us, please include an amount equal to that of the postage, so that we may return your parcel to you without delay. Overseas members should add an extra £1 to cover postage costs.
4. The donation fee is £1 per program. Cheques or Postal Orders should be made out to the 'U.K. Atari Computer Owners Club'.
5. You should send in blank disks or cassettes, ensuring they are properly packed to prevent damage in the post. State which programs you require and remember to give your name and address. Also remember to include the fee and return postage.
6. The 'Donation Scheme' is only open to club members.

The Library Software Service is for subscribers only

LIBRARY SOFTWARE TITLES

Listed below are the software titles received by members for inclusion in the library since the last issue was published. As the library now contains over 350 programs, it is getting too big to print the entire list. For those of you who are new to Monitor and are unaware of what is available, then send for a photocopy of the complete list which is available from the librarian. There is a small charge for this service to cover photocopying costs. If you would like a list send 50p and a S.A.E. for return.

Games

DIAMOND JIM

by Paul Berry - Sutton Coldfield.
A neat implementation of the Pinball Construction Set. You do not need PCS to play this game.
Runs in 48K min. Disk only.

BIG MOUTH

by Evan Skinner.
Move Big Mouth back and forth with your joystick trying to catch the falling objects.
Runs in 48K min. Disk Only.

LASER BARRAGE

Destroy those robots before they get your bases.
Runs in 48K min. Disk or Cassette.

MINI GOLF

Enjoy a game of 9 hole mini golf, use numbers for the strength of your shot and the arrows for direction.
Runs in 48K min. Disk or Cassette.

OIL SEARCH

Find the oil wells and then bargain on the stock market to try and make yourself rich.
Runs in 48K min. Disk or Cassette.

SPOT THE TOWN

by Mick Lee - Hinckley.
Can you spot the town from the info given?
Runs in 48K min. Disk only.
XL/XE only. 1050 only.

Demos

★★★ **STAR PROGRAM** ★★★

G.O.E.

Demo of the new operating system. You will need to obtain a mouse to use this demo.
Runs in 48K min. Disk only.
Requires 1 side of a disk.
XL/XE only.

★★★★★★★★★★★★★★★

C COMPILER SAMPLER

Demo disk and sample programs written in C on the 8-bit.
Runs in 48K min. Disk only.
Requires 2 sides of a disk.

Utilities

400/800 TURBO BASIC

Turbo Basic is now available to owners of the older 400/800 machines.
Runs in any size. Disk only.
400/800 only.
Requires 2 sides of a disk.

8-Bit Matters

By Paul Rixon

Feeling depressed by all that ST software in the shops, all those 'dedicated' ST magazines filling the newstands and all that media coverage giving the impression that Atari computers didn't exist before the ST came along? Allow me to console you. There IS still a great deal of 8 bit support around, it's just becoming more of a challenge to find it. MONITOR caters for the needs of all Atari users, and the intention of this new, regular, column is to inform the 8 bit community of current and forth coming product releases, to explore the issues of the day and to deal with 8 bit matters in general.

To begin with for this issue, a round up of some recent software releases. Atari Corp have produced two new games on cassette only - Twilight World and Thunderfox. The first is a multi-level 'find the key' type game by the author of Mastertronic's Crystal Raider, and the second is a challenging space-zapper along the lines of Mirax Force, with perhaps a vague hint of Raid Over Moscow! At the reasonable price of £4.99 each, these games are well worth checking out. Atari have also stepped up their range of ROM based titles in support of the XE Games System, launched before Christmas last year but not advertised as widely as Atari would have liked, due to problems with the IBA. Included in the range are Broderbund's Lode Runner and Blue Max, Ballblazer and Rescue on Fractalus from Lucasfilm Games and Accolade's Fight Night and Hardball (subject to confirmation). The ROMs mentioned here (all highly recommended) are priced at £14.99 each, although some less prestigious titles are also on offer at £12.99 and £9.99. Keep an eye open for bargains!

On the cassette dominated budget front, Atlantis Software have recently added a couple of new titles to their list. Pro Golf is, as you might expect, for golfing enthusiasts, but biased towards the strategic element rather than being visually spectacular. Up to four players can compete in Championship, Single Round or Practice modes. If you're a golf fanatic and aren't bothered about pretty graphics then you might like to try this one. Cops n' Robbers is a primitive shoot 'em up set in the various rooms of the Acme Diamond Company. Even when you ignore the rather dubious content - shooting Policemen isn't something that ought to be encouraged, there is no escaping from the fact that this game looks and plays like a Spectrum reject! Let's hope Atlantis have got something better up their sleeves for next time!

Zybex, a multi-level shoot 'em up with superb graphics and sound, has already become a major hit for Zeppelin Games, as did their previous game, Speed Ace. Zeppelin's stated policy is one of high quality at low cost so I eagerly await their

Knight Orc

forthcoming Atari release - Draconis. At £2.99 a game, there can be no excuse for missing out on this terrific range of software. Grand Prix Simulator - similar to ST Super Sprint - is a new release from Codemasters. It's endorsed by Johnny Dumfries who is better known for his contribution to Jaguar's win at Le Mans this year. Here's your opportunity to start training for next years race by clocking up a few miles around the Codemasters circuit! If you'd prefer something a little less conventional, Revenge II has just been published by Mastertronic. It's an adaptation of Jeff Minter's Revenge of the Mutant Camels and was programmed by Icon Design's S.A.Riding of Universal Hero fame. It's not as good as the original Minter classic but even so, it's just as weird and must be worth the £2.99 asking price!

Other new games for arcade enthusiasts include Matta Blatta at £1.99 in the B.T. Silverbird range and Tynesoft's European Super Soccer at £8.95 on cassette, £12.95 on disk. Adventure addicts needn't feel left out either. Revenge At Rigel is an illustrated text adventure from Mastertronic, price £1.99, and Time and Magik is the name of a widely advertised package from Mandarin Software - backed by the Europress organisation. It contains three respected Level 9 adventures - Lords of Time, Red Moon and The Price of Magik - which have been enhanced, enlarged and moulded into a coherent triology. It's available on disk or cassette at £14.95. Level 9's Knight Orc and Gnome Ranger are available under the Rainbird banner, but future adventures - which include Lancelot and Gnome Ranger 2 - are likely to appear through Mandarin. If you enjoyed The Pawn, you might be interested in the latest Magnetic Scrolls/Rainbird adventure. It's called Jinxter and I've heard it's a real hoot. £19.95 will let you find out.

That just about rounds up the definite 'newies' for this quarter. Other games that may - or may not - be published soon for the Atari include Live and Let Die from Domark, who seem to have a habit of writing games based on Bond movies, Casino Roulette, already out on the ST, from CDS and among the others rumoured for release in the near (?) future, Indoor Sports from Databyte, IQ from Sunstar, Bob Slay from Digital Integration, Sky Runner from Cascade Games (will it be their first decent 8 bit product?) and Scorpion from Tynesoft. Also rumoured for conversion to the Atari are Hewson's Nebulus and The Hunt for Red October by Grand Slam. Watch this space for details, and be sure to kick up a fuss if the goods don't arrive!

There is still no sign of Konami's Jackal. I wonder why they spent all that money on advertising the game last year if it's not going to appear? The same might be said of Red Rat's Speed Run, although it's reported that the company does eventually intend to let go of this one and hopefully write some more smash hits for the Atari when 'the time is right'.

So far this report has dealt exclusively with games software. This is not a deliberate bias but simply a reflection on the complete lack of any serious 8 bit programs published recently. One that should be mentioned is the Swift Spreadsheet from Audiogenic. It doesn't seem to have received much publicity so if you are looking for a spreadsheet for your Atari, be sure to look this one up. Thanks largely to the efforts of Atari Corp, the 8 bit Atari now seems to be universally regarded by non-converts as a

Jinxter

video games machine. We know different of course, but unless the software companies stage a massive turnaround, the future for the serious user does not look too rosy. This situation hasn't been improved by the non-appearance of the Atari disk drives. In fact, 8 bit hardware in general is in very short supply and Atari, true to form, do not seem particularly concerned. With more and more people choosing to trade in their systems for the ST however, there does seem to be an abundance of second-hand hardware on the market, so keep an eye on the classified pages and be ready to pounce on those bargains! Perhaps the only hardware in adequate supply is Atari's range of pocket calculators. Available from retailers such as Comet, they are variously priced and ideal accessories for dedicated Atarians - even though you'll have difficulty trying to plug one into the joystick port!!

I hope you have found this article of interest. Due to the time delay between copy being prepared and printed, certain information maybe liable to change. For this I can only apologise and invite you to inform me of any errors. I would also welcome your contributions of news items, comments, opinions and questions relating to ANY 8 bit subjects. Just send them to me (Paul Rixon) via the Editor at the usual club address. And don't despair - it won't be long before the next issue of MONITOR!

STOP PRESS

Harry Nadler of Red Rat has informed me that Speed Run is likely to be released in October this year through Mandarin. The 8 bit version is ready for release but ST and Amiga versions have yet to be completed. Meanwhile, if you sent off an application to join the Red Rat Software Club and wondered what had happened to your promised free goodies and special offers, I'm informed that the club is currently in a state of finalisation with a newsletter scheduled for release around August. Red Rat apologise to all Atari owners for the delays experienced due to marketing problems and illness within the company, and promise a return to the 'good old days' in the near future. See, it's not all doom and gloom for 8 bit Atari owners after all!!

RANDOM FILE ACCESS ON THE ATARI

By Trevor Peart-Jackson

Any one in the computer industry will say that COBOL is the bees knees at file handling. A single record can be picked out of a file of thousands in a flash by the use of an index. This is also possible on the Atari. Random file access can be achieved using the Note and Point commands. This is not as fast or as seemingly effortless as COBOL but equally as effective.

Before a record is written a 'note' must be made of the disk address that the record will be sent to. This noted address can be stored in a separate index file which is smaller and easier to handle than the main data file.

The program listing WRITE will accept from the keyboard as many records as required, the variable and file 'Records' will keep track of how many records there are. If the program is run for the first time new files are created, any subsequent runs will add to the already existing files. In this sample program the record consists of three fields; part number, description and quantity. The fields (or strings) are always the same length (hence the numeric quantity is in string format). All records must be the same length to enable flexible use of the file, i.e. part numbers, descriptions and quantities changing length/value. Lines 250-270 achieve this. Before a record is written to the main file (line 290) a 'NOTE' is made of the disk address about to be used, A is the sector to be written to and B the byte within the sector A. In this example, two indexes are being maintained, one using part number as the key and the other the description. After each write to the main file, the indexes are also updated with the new record and its disk address.

Now to explore the real flexibility of random file access. The program listing 'Read Write (IO)' will enable editing of the main file and indexes with out the need to read into memory the whole file. Each index is read into memory (this is only necessary if many main file amendments are to be made, for one or two record alterations the index may be read through till a match is found). A part number is entered and searched for in the index. If a match is found the disk address is looked up and the particular record within the main file is 'Pointed' to (line 320). After a 'point', the record can be input as a series of fields. The point only relates to the first element of the record it is up to the program/programmer to read in all the elements. The record is then displayed and prompts for the input of new values of the elements. Because in this example part numbers and descriptions may be changed it is neccesary to also maintain the index files. After the three fields have been entered, the record is rewritten to the same position within the main file by 'pointing' before the write (line 380). Lines 410-440 will update the index on the disk directly as their position was 'noted' (lines 100 and 190). Lines 450-460 update the index in memory to enable futher reliable searches and updates. Failure to find a part number match will end the program and close all files.

Indexes are wonderful things if they are there for access. Unfortunately however, indexes can be lost or dammaged. The File Reorg (reorganisation) Utility will read through the main file and recreate the indexes and (albeit not always necessary) rewrite the main file. If the main file shares a disk with other files the sectors it uses may be all over the disk. Reorg will collect the file together again if written to another disk. The beauty of Reorg is that it is capable of reading an existing file (given the known record layout) and create an index for it, with as few or as many indexes as required, dependent on the program written. On

```
MR 10 REM WRITE. THIS ROUTINE WILL CREATE
   MAIN DATA FILE AND INDEXES.
GE 20 POKE 195,0
DA 30 DIM PART$(10),DESC$(30),QTY$(5)
RZ 40 TRAP 70
NE 50 OPEN #1,4,0,"D:RECORDS"
BG 60 INPUT #1,RECORDS
MB 70 TRAP 40000:CLOSE #1
WK 80 IF PEEK(195)<>0 THEN RECORDS=0:GOTO
   160
QV 100 ? "APPENDING TO FILES"
AM 110 OPEN #1,9,0,"D:MAIN"
XE 120 OPEN #2,9,0,"D:INDEX1"
YQ 130 OPEN #3,9,0,"D:INDEX2"
LY 140 GOTO 200
EH 160 ? "OPENING NEW FILES"
EQ 170 CLOSE #1:OPEN #1,8,0,"D:MAIN"
VV 180 CLOSE #2:OPEN #2,8,0,"D:INDEX1"
YL 190 CLOSE #3:OPEN #3,8,0,"D:INDEX2"
AT 200 ? CHR$(125)
CR 210 ? "ENTER PART NUMBER";:INPUT PART$
YM 220 IF PART$="" THEN 340
LR 230 ? :? "ENTER DESCRIPTION";:INPUT DE
   SC$
WS 240 ? :? "ENTER STOCK QUANTITY";:INPUT
   QTY$
TK 250 PART$(LEN(PART$)+1)="
   "
HK 260 DESC$(LEN(DESC$)+1)="
                    "
FT 270 QTY$(LEN(QTY$)+1)="    "
TQ 280 NOTE #1,A,B
LL 290 ? #1;PART$;? #1;DESC$;? #1;QTY$
IN 300 ? #2;PART$;? #2;A;? #2;B
ZR 310 ? #3;DESC$;? #3;A;? #3;B
JO 320 RECORDS=RECORDS+1
LY 330 GOTO 200
TA 340 CLOSE #1:CLOSE #2:CLOSE #3
XG 350 OPEN #1,8,0,"D:RECORDS"
DL 360 ? #1,RECORDS
LN 370 CLOSE #1
```

```
TC 10 REM READ WRITE (IO). THIS ROUTINE E
   NABLES EDITING OF THE MAIN FILE AND IN
   DEXES.
UB 20 OPEN #1,4,0,"D:RECORDS":INPUT #1,RE
   CORDS:CLOSE #1
WT 30 DIM PART$(10),DESC$(30),QTY$(5),QUE
   RY$(10)
TQ 40 DIM SECTORPART(RECORDS),BYTEPART(RE
   CORDS),SECTORDESC(RECORDS),BYTEDESC(RE
   CORDS),SECTORMAIN(RECORDS),BYTEMAIN(RE
   CORDS)
LR 50 DIM DESCS$(RECORDS*30),PARTS$(RECOR
   DS*10)
TA 60 CLOSE #1:OPEN #1,12,0,"D:MAIN"
KC 70 CLOSE #2:OPEN #2,12,0,"D:INDEX1"
MP 80 CLOSE #3:OPEN #3,12,0,"D:INDEX2"
HM 90 FOR T=1 TO RECORDS
TK 100 NOTE #2,A,B
CF 110 INPUT #2,PART$,SECTOR,BYTE
RD 120 SUBPART=((T-1)*10)+1
KH 130 IF LEN(PART$)<10 THEN PART$(LEN(PA
   RT$))="          "
RQ 140 PARTS$(SUBPART)=PART$
ON 150 SECTORPART(T)=A:BYTEPART(T)=B
UI 160 SECTORMAIN(T)=SECTOR:BYTEMAIN(T)=B
   YTE
KL 170 NEXT T
JG 180 FOR T=1 TO RECORDS
UN 190 NOTE #3,A,B
NZ 200 INPUT #3,DESC$,SECTOR,BYTE
DO 210 SECTORDESC(T)=A:BYTEDESC(T)=B
KC 220 NEXT T
EG 230 ? CHR$(125);"ENTER PART NUMBER TO
   EDIT";:INPUT QUERY$
KV 240 QUERY$(LEN(QUERY$)+1)="          "
JB 250 FOR T=1 TO RECORDS
RM 260 SUBPART=((T-1)*10)+1
NN 270 PART$=PARTS$(SUBPART,SUBPART+9)
WA 280 IF QUERY$=PART$ THEN 310
KQ 290 NEXT T
JL 300 ? QUERY$;" NOT FOUND BETTER LUCK N
   EXT TIME":END
ZJ 310 SECTOR2=SECTORPART(T):SECTOR3=SECT
   ORDESC(T):BYTE2=BYTEPART(T):BYTE3=BYTE
   DESC(T)
AQ 320 POINT #1,SECTORMAIN(T),BYTEMAIN(T)
RG 330 INPUT #1,PART$,DESC$,QTY$
QD 340 ? PART$,DESC$,QTY$
RJ 350 ? "ENTER NEW PART NUMBER";:INPUT P
   ART$:PART$(LEN(PART$)+1)="          "
JL 360 ? "ENTER NEW DESCRIPTION";:INPUT D
   ESC$:DESC$(LEN(DESC$)+1)="
                            "
ZG 370 ? "ENTER NEW QTY";:INPUT QTY$:QTY$
   (LEN(QTY$)+1)="     "
BC 380 POINT #1,SECTORMAIN(T),BYTEMAIN(T)
LM 390 ? #1;PART$;? #1;DESC$;? #1;QTY$
HE 400 ? PART$;DESC$;QTY$
IN 410 POINT #2,SECTOR2,BYTE2
UO 420 ? #2;PART$;? #2;SECTORMAIN(T);? #2
   ;BYTEMAIN(T)
KX 430 POINT #3,SECTOR3,BYTE3
MG 440 ? #3;DESC$;? #3;SECTORMAIN(T);? #3
   ;BYTEMAIN(T)
RM 450 SUBPART=((T-1)*10)+1
ET 460 PARTS$(SUBPART,SUBPART+9)=PART$
NO 470 GOTO 230
OJ 480 END
```

```
SA 10 REM FILE REORG UTILITY
YG 20 DIM FILE$(15)
NP 30 DIM PART$(10),PARTS$(50*10),DESC$(3
   0),DESCS$(50*30),QTY$(5),QTYS$(50*5),S
   ECTOR(50),BYTE(50),FINI$(1),REPLY$(1)
GG 40 POKE 195,0
EC 50 POKE 82,0:RECORDS=0
FM 60 FINI$="N":PASS=1:REM SET UP SYSTEM
   PARAMETERS
KL 70 ? CHR$(125);" REORGANISE FILES TO A
   NOTHER FILE/DISC"
ZN 80 OPEN #1,4,0,"D:MAIN"
LX 90 TRAP 230
OB 100 ? CHR$(125);"INSERT ORIGINAL DISC"
UF 110 INPUT REPLY$
ZU 120 PARTS$="":DESCS$="":QTYS$=""
XJ 130 FOR T=1 TO 50:REM MAKE THIS VALUE
   AS LARGE AS POSSIBLE
RH 140 SUBPART=((T-1)*10)+1
JU 150 SUBDESC=((T-1)*30)+1
GB 160 SUBQTY=((T-1)*5)+1
RM 170 INPUT #1,PART$,DESC$,QTY$
RY 180 PARTS$(SUBPART)=PART$
AZ 190 DESCS$(SUBDESC)=DESC$
BU 200 QTYS$(SUBQTY)=QTY$
JY 205 RECORDS=RECORDS+1
KA 210 NEXT T
NN 220 GOTO 240
IX 230 TRAP 40000
WB 240 T=T-1
OX 250 IF PEEK(195)<>0 THEN IF PEEK(195)<
   >136 THEN ? "FILE ERROR ";PEEK(195);"
   ENCOUNTERED":FINI$="Y":REM RECOVER DAM
   AGED FILE
RJ 260 IF PEEK(195)=136 THEN FINI$="Y"
DL 270 ? CHR$(125);"INSERT DESTINATION DI
   SC"
UU 280 INPUT REPLY$
TG 290 FOR X=2 TO 4
WF 300 FILE$="D1:INDEX2.2"
XA 310 IF X=2 THEN FILE$="D1:MAIN2"
QP 320 IF X=3 THEN FILE$="D1:INDEX2.1"
IH 330 IF PASS=1 THEN OPEN #X,8,0,FILE$
JX 340 IF PASS>1 THEN OPEN #X,9,0,FILE$
HB 350 FOR I=1 TO T
LE 360 SUBPART=((I-1)*10)+1
DR 370 SUBDESC=((I-1)*30)+1
AJ 380 SUBQTY=((I-1)*5)+1
NS 390 PART$=PARTS$(SUBPART,SUBPART+9)
OJ 400 DESC$=DESCS$(SUBDESC,SUBDESC+29)
UQ 410 QTY$=QTYS$(SUBQTY,SUBQTY+4)
XB 420 IF X=2 THEN NOTE #X,A,B:SECTOR(I)=
   A:BYTE(I)=B:? #X;PART$;? #X;DESC$;? #X
   ;QTY$
SW 430 IF X=3 THEN ? #X;PART$;? #X;SECTOR
   (I);? #X;BYTE(I):REM FIRST INDEX
NJ 440 IF X=4 THEN ? #X;DESC$;? #X;SECTOR
   (I);? #X;BYTE(I):REM SECOND INDEX
CD 450 NEXT I:CLOSE #X:NEXT X
SL 460 IF FINI$="Y" THEN 490
TP 470 PASS=PASS+1
SX 480 GOTO 90
LF 490 ? CHR$(125);"FILE REORG/REINDEX CO
   MPLETE":OPEN #1,8,0,"D:RECORDS";? #1;R
   ECORDS:CLOSE #1:END
```

line 130 the program reads the main file 50 at a time, this can be bigger depending on the record sizes and the remaining memory after the program has been loaded. In line 240-450, each IOCB is opened and closed in turn, controlled by the variable 'X', otherwise a 'too many files open' error occurs. This can be altered by poking 1801 with the new maximum number of IOCB's to be open at any time and then rewriting the DOS files (option H). However I found this remedy more interesting, also the new value in 1801 uses up more memory for the IOCB buffers.

Finally, SHOWNDX1 and SHOWNDX2 will read through the indexes and display their secrets - the key and the disk address of the record the key relates to. Poke 82,0 before keying in these listings and use a minimum of spaces, some of these lines are a touch cramped. Also remember that the checksum codes at the front of each line only apply if the listing is typed exactly as shown.

```
MW 10 REM SHOWNDX1
UB 20 OPEN #1,4,0,"D:RECORDS":INPUT #1,RE
   CORDS:CLOSE #1
EJ 30 DIM PART$(10)
QW 40 OPEN #2,4,0,"D:INDEX1"
HI 50 FOR T=1 TO RECORDS
FD 60 INPUT #2,PART$,SECTOR,BYTE
FB 70 ? PART$,SECTOR,BYTE
MR 80 NEXT T
```

```
NL 10 REM SHOWNDX2
UB 20 OPEN #1,4,0,"D:RECORDS":INPUT #1,RE
   CORDS:CLOSE #1
WI 30 DIM DESC$(30)
RU 40 OPEN #2,4,0,"D:INDEX2"
HI 50 FOR T=1 TO RECORDS
RV 60 INPUT #2,DESC$,SECTOR,BYTE
XU 70 ? DESC$,SECTOR,BYTE
MR 80 NEXT T
```

Monitor Bookshop

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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.

Price £19.50
Order Code MON 01

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.

Price £16.95
Order Code MON 02

Atari ST Internals

This 470 page book goes a long way into describing the functions of all the important components that are found in the ST. There are over 30 illustrations to help clarify the text. The book covers three main topics: the integrated circuits, the interfaces and the ST operating system. Additionally, there is an extensive commented listing of the BIOS. This book is a valuable guide to the student, programmer, novice and expert alike.

Price £14.95
Order Code MON 03

Mastering the Atari ST

The aim of this book is to give an insight to newcommers, in the main, of some of the common applications that the ST can handle in the home and business world. These are word processors, databases and spreadsheets. The software chosen as examples are First Word Plus, LaserBase and VIP Professional. This book is an outstanding buy, it is a very good tutorial.

Price £10.95
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1001 Things to do with your Atari ST

This book is a wealth of ideas for uses for your ST. It covers a multitude of subjects including: Personal applications, Business and financial applications, Mathematical and statistical calculations, Technical and scientific applications, Educational and hobby applications, Control and peripheral applications, and much more. Read this book and you'll know the answer to that age old question, 'What can you actually do with a computer?'.

Price £11.60
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Computes! Technical Reference Guide

Two superb books from Compute! Volume 1 covers the VDI and Volume 2 explains all about the AES. Both books are filled from cover to cover with vital information and are superbly written. They are written so clearly that they can be recommended for beginner and expert alike.

Volume 1 - The VDI
Price £18.95
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Volume 2 - The AES
Price £18.95
Order Code MON 07

An Introduction to Programming the Atari 600/800XL

This book takes the reader step by step, from the fundamentals of Basic on to topics such as animated graphics, variables and arrays, sound generation, strings, etc. A good, economically priced book for beginners.

Price £1.95
Order Code MON 08

PICTURES FROM SPACE

By Leslie J. Kaye

My attention was fixed by the advertisement. 'Weather Satellite decoding system. Receiving the picture information from such satellites is actually not as complicated as might be imagined', it said. The system was advertised in kit form by Maplin Electronics, and comprised a radio receiver and an analogue to digital converter which also produced picture line synchronisation. At under £200 the lot, I was hooked!

The immediate problem was how to display a satisfactory picture. A frame store was not available at that time. Such a device is a simple ROM based computer, dedicated to converting the digital output into a screen image. Although a good result can be obtained, it lacks the facility for development beyond its pre-programmed ROMs. Further, it lacks the option to save and load images from disk. I decided not to wait.

The equipment had obviously been developed for the BBC computer, although information for the Amstrad computer was added. A quick look at the graphics specification for those computers left me looking for an alternative. The Atari ST was a clear choice, despite the price and the prospect of developing software from scratch.

Boxes started arriving in the post. I unpacked circuit boards, boxes, plugs, cable, dozens of multicoloured bits, trailing wires, etc., and wished I hadn't started.

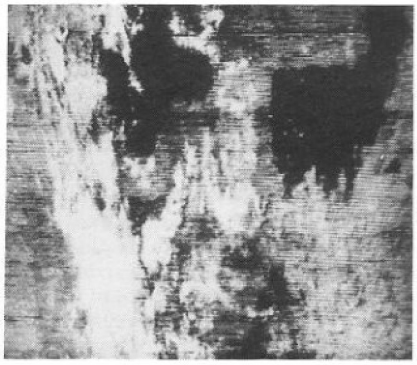
Meanwhile the ST sat obstinately on its desk, resisting assaults on its DOS, BIOS, VDI and AES despite piles of reference manuals and scribbled notes.

The aerial seemed the obvious start. Four alloy tubes glued X shaped in a box with a wire attached, what could go wrong? The glue oozed out and stuck it to the table.

The radio circuit board was already built, aligned and tested. I wired it into its box, and almost immediately heard the merry clip-clop-whistle of a passing American satellite. Perhaps the project was not going to be as difficult as I had thought.

There are a number of weather satellites in low Earth orbit. They orbit once about every 100 minutes, at 800 to 900 kilometres above the surface. During this time the Earth rotates about 25 degrees, making each satellite pass seem to move westward. The orbits are generally polar, i.e. over the North Pole, over the South Pole, then northwards again.

Two American Tiros series satellites are currently available. These are NOAA 9 and NOAA 10. Their orbits are constant with respect to the Sun, so appear predictably at about the same times each day. A larger number of Russian satellites are also available. These mostly transmit irregularly, and usually only when the satellite is in sunlight. Also the orbits may be changed without notice, making tracking difficult. Available satellites include Meteors 1/30, 2/3, 2/14, 2/15 and 2/16. Also Cosmos 1766 and 1869. This latter, launched last summer, has storage facilities, promising pictures from outside Europe.



The analogue to digital decoder part of the project required assembly of the printed circuit board in addition to switch connections, and installation in its box. Perhaps because the end was in sight, I managed to assemble this in only a couple of late nights.

Most weather satellites build their pictures in Automatic Picture Transmission format. About every half second they scan a line 1,500 kilometres or so, at right angles to the direction of flight. By putting these lines one above the other, a continuous picture is formed. The pictures may be at optical wavelengths, or in various infra red bands, showing temperature and water saturation.

It is possible to decode a 'live' pass to your computer. However it is inadvisable because the picture may be spoiled by inadvertent button pressing, or the considerable radio interference emitted by the computer and ancillary equipment. Much better, a pass is recorded (usually about 10 or 12 minutes), on a cassette recorder, then played back through the decoder into the computer at leisure.

Satellite pictures are transmitted in monochrome. Most decoders on the market produce an 8 bit digital output, giving a range of 0 to 255 levels of grey. If access to the ST is via the printer port, one data line has to be reserved for line synchronisation, leaving a range of 0 to 127 levels of grey receivable on the remaining 7 data lines. Of the ST's available 512 colours, only 8 are levels of grey. There is an advantage in this fairly low resolution, as it gives a filtering effect, adding sharpness and contrast to the image. However the normal 16 on screen colours can be utilised by either adding some false colours, or by turning down the colour control on your monitor or TV, and using a palette of increasing luminance, regardless of colour. With false colours, a pleasing image is often obtained by allocating some blues and greens to the lower end of the range, and perhaps a light blue at the top. This allows land and sea to be identified in familiar colours, while leaving the grey levels for cloud definition.

The low orbiting satellites provide detailed pictures down to a resolution of perhaps 2 or 3 kilometres. Coast lines, lakes, large towns and other features can be identified in suitable lighting conditions. However a particular satellite may be in satisfactory radio range only 4 times a day.

Much further into the cold depths of space lie the geostationary satellites. Europe is served by Meteosat 2, which is parked over the Equator, on the Greenwich meridian. At 36,000 kilometres above the surface, these satellites orbit the Earth once in 24 hours, thereby seeming stationary above us. At that distance they can see the whole disk of the Earth at once. Two optical, and two infra red images are transmitted. Ground based computers add coast lines, cut the images into areas (24 optical, 9 infra red) and return the processed images to the satellite for retransmission for general use.

To receive Meteosat images additional equipment needs to be obtained, also available from Maplin (costing around £200). This comprises a directional aerial (either a Yagi or small dish), an amplifier, and a downconverter to convert the 1694.5 and 1691Mhz, (channel 1 and channel 2) satellite signals to 137MHz for the decoder.

The author will be pleased to provide further information to interested readers. A demonstration disk is available (see advertisement elsewhere in this issue). For general information, membership of the Remote Imaging Group is recommended. This Group was established in 1985 to promote and further interest in weather satellite watching. It now has more than 1,000 members. The 1988 membership fee is £4.00. Benefits include a quarterly newsletter (the December issue was 36 pages!), and blanket permission from the Department of Trade and Industry to receive satellite transmissions. The membership secretary is Des Watson, Norton, Gote Lane, Ringmer, East Sussex BN8 5HX.

CHESSBASE Corner

Correspondent: Michael Stringer

Greetings to all Chess enthusiasts. I am pleased with the response from the first article. For the benefit of any new readers, this section is devoted to Chess and in particular, CHESSBASE owners (see review in issue 18).

Chessbase is gaining more and more followers and among those who have acquired, or are about to acquire it, are quite a number of prominent British and Soviet players. In the British camp, our olympic team is being equiped with STs and Chessbase in readiness for the Chess Olympiad to be held in Thessaloniki in November, and so are some of our junior players.

Among these, Dave Norwood and Matthew Sadler, will be using Chessbase in preparation for the forthcoming tournaments in which they have qualified. Notably Dave in Australia. Some of you may have seen young Matthew recently on T.V., where he made a guest appearance on Bruce Forsyth's Show. This young man, he is only 14 years old, is probably the highest ranked junior in the world, holding the fantastic rating of 2450!!!

Last time, I mentioned another junior, Michael Adams, as a name to watch, but I think that Matthew will turn out to have an even greater potential, provided that he is given the chance to develop at HIS pace. The pressure on a top player, whether Chess, or any other sport, is enormous and such pressures can break even the toughest. Do you remember what happened to Bobby Fischer?? I can only reiterate what I said last time out, we have, in this country, an enormous Chess force that is rapidly maturing and coming to fruition. If some of our players can get to the top and the media, both the press and T.V., give it good coverage, I forsee that Chess will gain in popularity to the same extent that Snooker, Darts and Golf have. In Scandanavia, there has been an enormous surge of tennis talent following the success of Bjorn Borg. Or the golf talent in Spain following the success of Seve Ballesteros, etc? So why not chess?

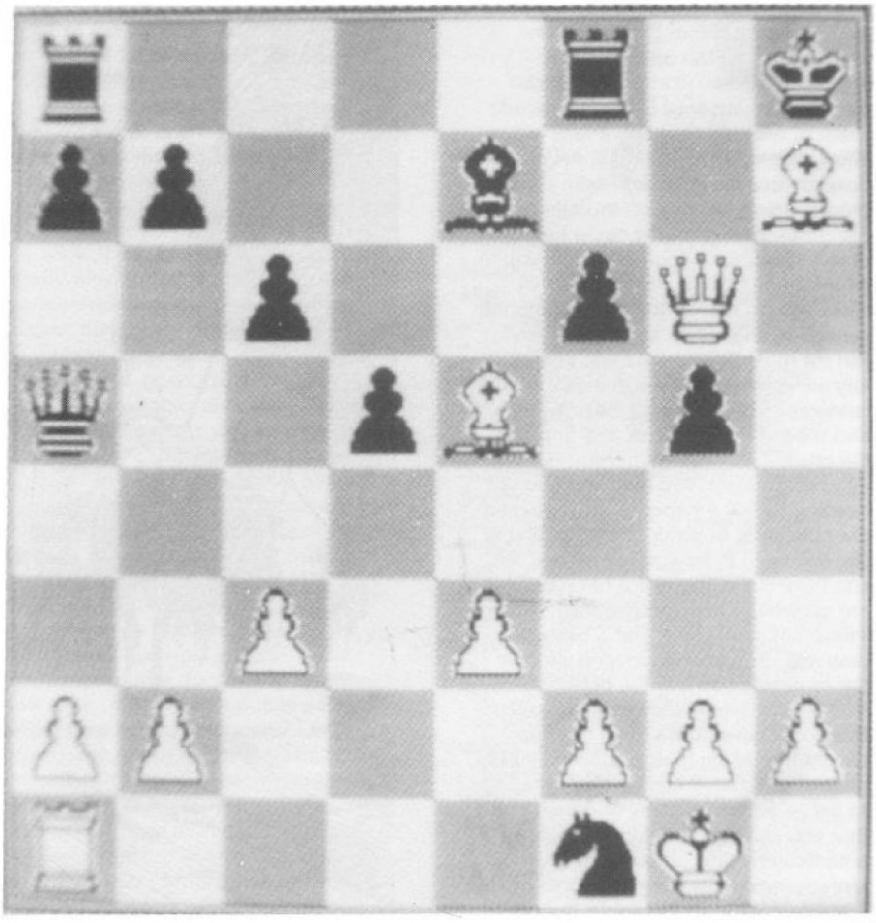
The reason why Chess is the national sport of the Soviet Union, is because their players have always been at the top, or very close to it for many, many years. With such a wealth of talent to draw upon, they seem likely to hold this position. My reason for the suggestion of doubt in that last comment is due to the lack of communication within the Soviet Union. This fact was highlighted recently by SUETIN (hic!) in an article he wrote criticising the Soviets for their lack of technical advancement in Chess. By this, he was refering to the ST and ChessBase and similar products.

No doubt because of this, and

similar comments, the Chessbase sales team has been negotiating with the Soviets and as a result they have purchased quite a number! One of the important features of the deal was that the Soviet Library of Chess games would be made available to Chessbase!! A classic example of 'you scratch my back and I'll scratch yours'. Now that 'New In Chess' and 'Chess Informator' have been made Chessbase compatible, there is shortly going to be a goldmine of material available to all, in addition to that already available. This has to be good news for chess and all chess enthusiasts, beginner and expert alike.

In the last issue, I set a little poser for you. Unfortunately, there was no outright winner, but Michael Irish, from Welwyn Garden City did come very close and he wins a years free subscription. Well done Michael. The correct solution:
axb7 (K)b8
(B)f3 (K)d7
(R)c6+

If that test was too subtle, try this one, again White to move and mate in three!!



AWANDERING

A regular adventure column by P.B.

Welcome to Awandering, the first in a regular series of articles dealing with all aspects of adventure gaming on the Atari ST range of computers.

For those of you that have never played an adventure game, I'll just explain the basic principle. More experienced players can go away and sharpen their trusty broadswords for the space of a few paragraphs.

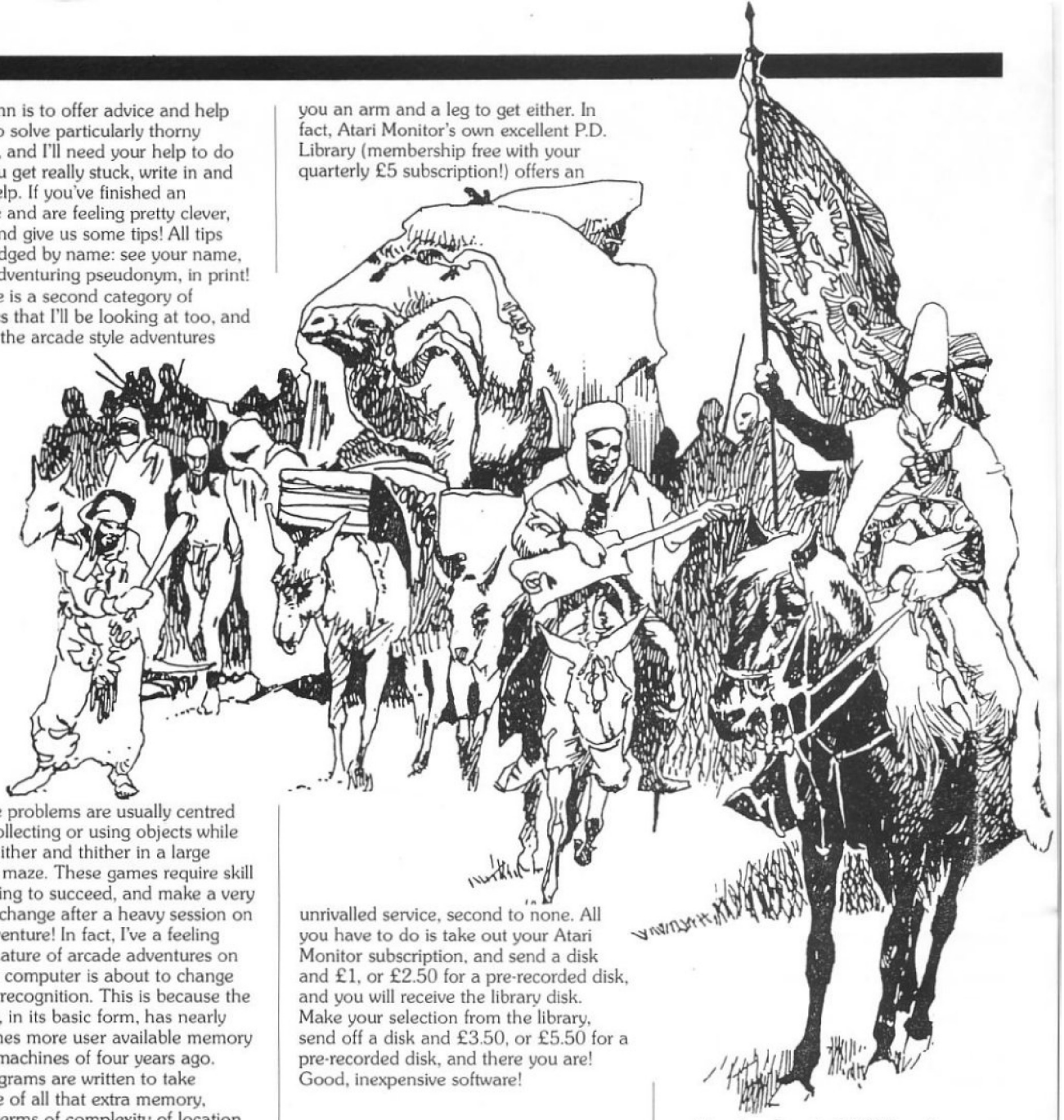
To begin with, the author of an adventure game will sit down and dream up a complete universe, world or country, which will include laws and natural forces often unknown on Earth. These conditions will then be included in a computer program, which forms the game. So you could find yourself on Tau Ceti, roaming Wonderland or lost in the Serengeti. Quite often, adventure games are based on famous books, or stories. 221b Baker Street is a good example. You also play an active part by adopting the identity of one of the characters, which gives you the opportunity to explore imaginary worlds and interact with their inhabitants! Unlike an arcade game of the shoot'em up variety, killing people, or trying to, can be a definite downer because nowadays, with clever programming techniques, the other computer 'people' in the game may object strenuously enough to 'kill' you in return! In fact, some games will even allow you to 'talk' to the other computer generated characters and receive replies. But for most people the main interest in any adventure game lies in exploring the landscape/rooms/dungeons or whatever and solving the problems and finishing the quest.

For example, you may find yourself needing to buy a paper in order to read the headlines. In order to buy the paper you will need to have some money. All you have is a guitar and a hat (yes, you are allowed to have posessions!). Answer - drop hat, play guitar and a passer by may well drop enough money into the hat to enable you buy the paper!

All that seems easy enough, except that some adventure writers seem to delight in making their puzzles fiendishly difficult to solve. It can be very irritating to get so far into a game and then find that you can't get any further because of a particularly difficult problem. Unfortunately this can put people off, but it needn't! What I'd like to do through

this column is to offer advice and help on how to solve particularly thorny problems, and I'll need your help to do this. If you get really stuck, write in and ask for help. If you've finished an adventure and are feeling pretty clever, write in and give us some tips! All tips acknowledged by name: see your name, or your adventuring pseudonym, in print!

There is a second category of adventures that I'll be looking at too, and these are the arcade style adventures



where the problems are usually centred around collecting or using objects while running hither and thither in a large graphical maze. These games require skill and cunning to succeed, and make a very welcome change after a heavy session on a text adventure! In fact, I've a feeling that the nature of arcade adventures on the home computer is about to change out of all recognition. This is because the Atari 520, in its basic form, has nearly eleven times more user available memory than the machines of four years ago. Once programs are written to take advantage of all that extra memory, either in terms of complexity of location or in graphical detail, then there really will be 'arcade quality' games for use in the home. At the moment the machine is still relatively new, but as the programmers become more conversant with its capabilities and build up their libraries of machine code routines we can expect to see the quality of the games increase by leaps and bounds. Also this column will offer reviews of adventures, which will hopefully help you to avoid buying those games liable to lead to 'terminal' frustration. In general I'll review the games on the following criteria: content, that is, is the idea behind the game new and interesting? Playability; does the game respond sensibly and well to your input? Are the problems solveable, too easy or too hard? Lastly: cost. Is the game really worth what you are being asked to pay for it?

With regard to the last point, cost, I'll also be reviewing Public Domain adventure software, either games or adventure creation systems. There are some real gems among the P.D. published material, and they won't cost you an arm and a leg to get either. In fact, Atari Monitor's own excellent P.D. Library (membership free with your quarterly £5 subscription!) offers an unrivalled service, second to none. All you have to do is take out your Atari Monitor subscription, and send a disk and £1, or £2.50 for a pre-recorded disk, and you will receive the library disk. Make your selection from the library, send off a disk and £3.50, or £5.50 for a pre-recorded disk, and there you are! Good, inexpensive software!

Now then, article nearly over, little about adventuring, big smack on wristy. Earlier on I mentioned the fact that players are able to adopt the personna of characters in the game that they are playing. Now, of course, this usually means that you can also give them a name, and the name can be anything you like. This is where the fun comes in! I don't know if any of you have noticed it, but the player's names I've seen all seem to imply qualities in the player which are often at variance with reality (whatever that might be!). For instance, Mighty Hawk the Thunderslayer, whom one imagines to be posessed of arms the thickness of aged oaks, grim countenance and double edged battleaxe, dripping with nubile putrescent women (or is that pubescent? Oh well!) often turns out to be Twiggy's lookalike, usually with acne and baggy R's jeans. If that sounds like you, accept my apologies, I have to live with it as well. Similarly Wurzlin, Wizard Extraordinary and court jester turns out to be a grim faced school teacher whose idea of fun is making the class do 1,000 lines for breathing too loudly. And Death Killer Mash Up Slaughter, ninja assassin, may well prove to be a gentle whole-food addict who devotes his life to resuscitating sick budgies. Of course, being aware of this I naturally chose a pseudonym that would truly reflect my superior intelligence, absolute skill, tremendous physique and athletic ability, general overload of charisma and magnificently powerful magnetic attraction for the opposite sex. I toyed with Grunt-thuttock the Vengeful, dismissed Bloggart the Vicious as too wimpish and decided that Dick Thruster Space Superman, was too childish. Finally I settled on the definitive name. Yes, sub creatures, tremble with fear and awe when Lord Peedelybop the Cool enters the game!

Well, enough of making you all jealous. In the next issue I'll take a look at mapping your adventure out as there are a couple of tips that will help you a lot. Bye for now!

Peedelybop.
(P.B. for short).

Digicalc

From Digita International
Price: £39.95
Review by Robin Anthony

I've always been amazed by spreadsheets and their ability to calculate masses of rows and columns of numbers to such finite degrees. For me, I always look to Lotus 1-2-3 as the champion of spreadsheets. To many others, Supercalc remains their personal choice.

Spreadsheets are perhaps best described as an electronic analysis sheet. It is made up by a series of rows and columns and at each intersection, a cell is formed. These cells can contain numbers and letters.

Very simply, cells have attributes assigned to them, either individually or in groups. Cells that contain numbers may be added, subtracted, multiplied and divided. Many other mathematical formulae can also be assigned to a cell or group of cells.

Well if that hasn't confused you then you're on the way to understanding the basic principles of spreadsheet computing.

Digicalc is a beginners spreadsheet, relatively simple to operate, yet packing a few professional features which warrant further discussion.

A quick look at some of the features will give you some idea of Digicalc's ability. There are 512 rows and 52 columns, giving 26624 individual cells. There's also instant recalculation, programmable function keys, password protection and user definable formula.

The manual supplied with Digicalc has general information on computers, a tutorial section and a reference section. The tutorial is a very simple affair demonstrating percentages and accumulative formula. Using the tutorial was made difficult by the constant interspacing of important notes describing how and why that particular function was used.

In contrast, the reference section was straight forward with only a few examples of how features could be used. A clear case of methods put back to front here!

Without going into the basic routines of the spreadsheet, which worked okay as laid out in the tutorial section, I feel you will gain a better understanding of its workings by looking at the plus and minus points of Digicalc.

First and foremost, Digicalc is memory resident, both in program and data form. Probably the most impressive part then is the speed of recalculation. Even with a fairly large file, there was no significant loss of speed when the cells were changed.

Digicalc makes use of the function keys on the ST keyboard. Text, numbers, formulae and menu commands can all be assigned to any of the function keys. For example, print the current file using all the defaults.

Another example could be to save all data in both Digicalc's standard file format, then ASCII format, clear the entire file from memory and start with a new computation.

If you find your data is likely to be confidential, a password facility is on hand to deny access to unauthorised personnel. Digicalc has a special feature it calls User Definable Formula (UDF). This allows you to store up to 52 commonly used or complex formula in a special area of the spreadsheet. For instance, if you had a formula to work out 15 percent VAT, this would be placed in one of the special cells and accessed from the spreadsheet by referring to that particular cell.

There are a few points about Digicalc I feel are not up to my ideal standard. One of these is the none standard interface. Digicalc is not Gem based, does not have any windows and though you can use the mouse, it moves ever so slowly and occasionally hangs up if you decide to use the command structure directly via the keyboard.

The system of keyboard scrolling uses the cursor keys for one cell movement but leaves them for screen movements in favour of control characters. An example of this is, up arrow for one cell up and control U for one screen up. A simpler method would be shift up arrow and so on.

In my opening statement, I pointed out my preference for Lotus 1-2-3, so naturally I always look for the 'cursor key pointing' method to identify cells when entering formula. This I feel makes for quick and easier data entry. In using Digicalc you have to type all the cell co-ordinates in manually, a la Supercalc. Also missing was a home and end key, although these could be programmed from the function keys.

Up to 7 decimal points could be defined in numerical format, yet there was no provision to assign any currency characters or commas to the cells. Printing was relatively straightforward with features such as all or part of the file, formula only and paging.

Digita International have marketed Digicalc as a beginners spreadsheet and to that end I found it functional, fast and reasonably easy to use. Digicalc is priced at £39.95 and the whole package comprises of one disk (unprotected), a 34 page manual and reference card, free 60 day telephone and written support and a hard plastic A5 box.

If you're new to spreadsheets and/or your budget is limited, then have a look at Digicalc, it may just fit the bill.

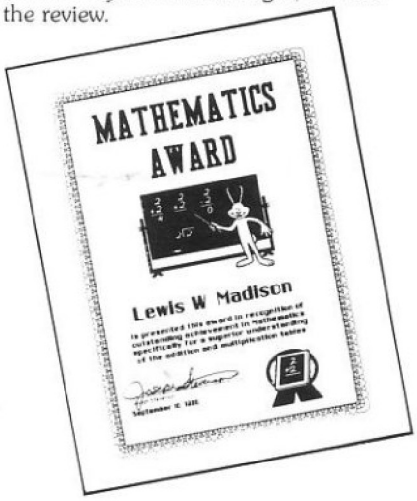
DIGICALC SPECIFICATIONS

512 rows, 52 columns.
Fully menu and command driven.
Individually adjustable column widths with text overflow.
Instant recalculation.
Integration with other programs using ASCII files.
Horizontal and vertical windowing.
User defined variables.
Programmable function keys.
GOTO cell feature.
Password facility.
Cell locking/unlocking.
Cell justification (left/right/centre).
Optional suppression of zeros.
Numeric accuracy to 7 decimal places.
Relative and absolute replication.
Print all/part of spreadsheet.
Automatic titling and paging.
Line editor.
UNDO feature.
15 standard functions including AVG, COUNT, SUM, SQRT, & TRUNC.

Certificate Maker

From Springboard
Review by Bas Langdor

I've always held printer programs in high regard. I'm not sure why, but it's probably something to do with my fetish for stationery shops. Well that's marked my card now!!! Right, on with the review.



Certificate Maker is one of those programs that defies categorizing. It's not a DTP program or even a drawing package and yet it can produce some of the most amazing graphics ever placed on to paper. Certificate Maker is an easy to use program that enables you to create attractive personalised awards or certificates for almost every conceivable situation.

In this two disk package there are more than 200 professionally designed, partially completed certificates. To actually make a certificate, all that is required of you is:

1. Select your basic layout from the catalogue of 200.
2. Choose a border from 24 different designs.
3. Select a font from the 5 styles and 2 sizes.
4. Type in the recipients name, date it and print!

All of this process can be viewed on the screen as you work.

Certificate Maker is more or less Gem based. It has mouse control, pull down menus and dialog boxes but that's all. The one window is fixed in place. There are 5 menus, File, Edit, Customise, Font and Font size. I'll go through the menus briefly outlining their attributes.

The first menu predictably houses the loading, saving, printing and exiting of certificates. You are not restricted to loading certificates from the catalogue but can also load up customised certificates from a data disk. If you find that one particular certificate is to be awarded to a number of people, a name list can be created from within the program. This is really a mini database of names which can be used to create personalised copies of identical certificates. This list can also be saved to disk.

Certificate Maker can print to a number of popular dot matrix printers including Epson and IBM compatibles. All the text that is placed in the certificate can be edited at any time. Cut, copy, paste and clear are the main components of the edit menu. There are 24 borders which will enable you to make your certificates look even more aesthetic.

There are five fonts available, you can use one font only per certificate. The two pre-set sizes of font are 16 and 32 point respectively. However you can justify the text either left, right or centred.

The fonts are: Serif, Sans Serif, Script, Gothic and Art Deco

Certificate Maker is really easy to use. The only problem I encountered was using 24 pin printers. This I have yet to work out. What real value you will get out of Certificate Maker will largely depend on your attitude, to what is mainly an American idea of supporting people when they have excelled themselves. If you're not ready for gratification and all that razzamataz then think carefully before buying.

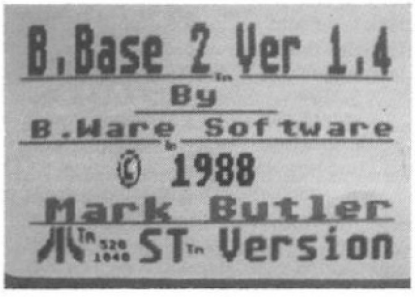
I have to admit that I like Certificate Maker, the majority of the certificates are fantastic, some are with obvious American undertones which are not easily transferred to British culture. I really would have got more use out of Certificate Maker if the drawings could have been modified, but as they were all encapsulated in the program and not stored as individual pictures, it makes the possibility of using them in DTP packages remote.

All in all, I enjoyed using Certificate Maker. It's one of those programs you may only use every now and then but it is reasonably priced and perhaps cheaper than designing your own on a DTP system. The choice is yours....

B Base 2

Distribution: B Bytes Computer Systems, 19 Southfield Road, Hinckley, Leics. LE10 1UA.
Cost: £14.95
Reviewer: Michael Stringer

B BASE 2 is a card index type of data storage system. A typical 1 Meg ST can use a file that stores about 30,000 records in a file, one file per DS diskette. Each file can contain any number of lines and the text each line can accommodate is limited to 250 characters. Each record has a limit of 32,000 characters, representing



approximately 7000 name/addresses. The program is well written and there are some very interesting features. Most databases require the user to carefully plan the layout of each record, with B BASE 2 this requirement is removed - there are no fields! One simply enters each line into the record and when the record is completed, one merely has to press the asterisk key and a new record is ready. What could be easier?

Editing is also a doddle - just by using the arrow keys and a few main keyboard keys, eight options are available to you. These should cover all eventualities.

On screen, help is everywhere, it is very user friendly. There is even a novel 'Welcome' program on the disk. There is also a 'read-me' file and a sixteen A4 page manual that is adequate - if you

need recourse to read it!

To retrieve records there are primary and secondary search features and if you need a hard copy there is also a filter feature if required. Only one file can be stored on a disk and the data is stored in ASCII format. I would imagine that it should not be too difficult to extract information into a 'Mail Merge' feature found in many word processors. I have not tried to do so, only because I have had insufficient time with the product to experiment with other permutations.

In use, I found that the searching was very rapid and moving around within a file was quite impressively fast. By using a card index type of system it makes itself suitable for many uses around the home - cheques, record collections, birthdays, recipes, diary, etc. It would also be quite useful in a small business for customer info, stock, etc. It proved to be very reliable in use. The file would only be updated at the end of a session and an automatic back-up feature is also available. As I mentioned earlier, it is a very user-friendly program and offers extremely good value-for-money.

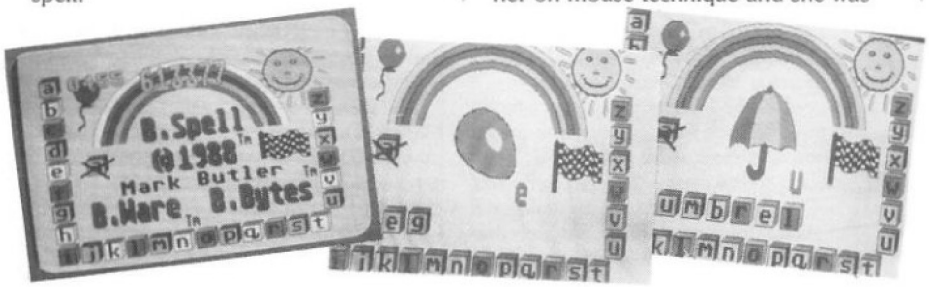
VERDICT: A good, low budget program that has been carefully designed, offering many useful, advanced options.

B Spell

Distribution: B Bytes Computer Systems, 19 Southfield Road, Hinckley, Leics. LE10 1UA.
Cost: £14.95
Reviewer: Michael Stringer

This is a little program that will interest all parents who have children in the age group 5 - 8 and are interested in their education. There have been quite a number of similar programs on this and other machines, but this one deserves special attention - it uses sampled speech for letter pronunciation!

The screen, there is only one, is very colourful - the letters of the alphabet are around the border and the central area is reserved for the object to be spelt.



There are three icons, the first is a crossed out block, the second is a question mark and the last is a chequered flag to inform the program that the student has finished the word.

The program runs under mouse control throughout - which means that your youngster simply has to point and click on the letters and icons. The voice samples are of a female voice for the 'teacher' and a male voice 'headmaster' congratulates the student for a correct entry with a cheery 'well done'.

The pronunciation of the letters is in ITA - Initial Teaching Alphabet, but the spelling is conventional, which is the current trend. The ITA spelling has probably been eliminated from all schools by now.

There are two distinct sections. The first is for the 5 - 6 age group, the second for 7 - 8. In the first, the student is given an object and the teacher spells the word. The student then has to enter the letters to signify they have recognised and copied them satisfactorily, erasing any mistakes as they progress. On clicking the flag icon, the student is informed of their success or failure. If the effort is correct, they are 'rewarded' with a nursery rhyme. Clicking on the question mark brings up the next object.

In the second age group 7 - 8, the student is given the object, the first letter and they then have to spell the word correctly from memory! The same reward is the result of a correct entry.

Not having any children of my own in this age group, I 'borrowed' my neighbour's six year old daughter. It only took a few minutes to familiarise her on mouse technique and she was away - happy as a sand boy? I managed to pry her away after an hour to have my tea, she asked if she could come back later and bring her friend! By that remark I think she approved of the product!!

The only comment I have to make and that is petty, is the rather poor diagrams of the objects. They were recognisable, but not exactly artistic!

If a second, one Meg version were available, I am sure that the object could be correctly pronounced using sampled speech - adding to the value, educationally, of the program.

VERDICT:
Educational value: 9
Graphics: 7
Music: 6
Sample quality: 9

Lords of Conquest

From Electronic Arts
Price: £19.95
Review by Dave Sayers

Lords of Conquest is a war/strategy game of substantial complexity, wherein the aim, surprise surprise, is to conquer the world, which objective is achieved when the required number of cities have been built and defended for one year. As with all Electronic Arts products it comes in a nice little library case, with attractive packaging. The immediate impression I received was that this would prove to be a straightforward copy of my all time favourite board game 'Risk'.

This is not the case, however, and having played the game it is possible for me to recommend it highly. It offers surprising complexity (you can choose from up to 27 combinations of difficulty) combined with ease of play.

You begin a new game by setting the parameters required. Number of players, level of play, that sort of thing. After this you can choose the map that you wish to play over, and in this respect Lords of Conquest is excellent. There are 19 built-in worlds selected from history or the present day and the variety is enough to keep you interested for game after game. If you should get bored with this selection then it is possible to create your own world. Playing the game is pretty easy although you do have to be careful to watch your back; the computer won't hesitate to duff you up if you don't leave the appropriate forces within the countries you control. The initial choice of countries to take control of is also very important, and can lead to some difficult choices during selection!

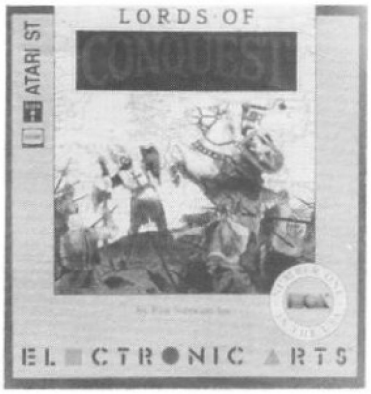
Once the game gets under way it is important that you weigh all your options carefully. The game proceeds in yearly cycles, and the production of resources within the territories that you control determines how strong your forces are.

The first phase of the cycle is

development, where each player can use the wealth in their stockpile to increase the number of weapons, boats or cities they control. The second phase is production, where each of your resource producing sites adds to the wealth in your stockpile. You must guard your stockpile above all else, by the way, as I found that the computer won't hesitate to grab it if given the chance, and this leaves you poor and the computer richer! The last phase is attack, and I guess you don't have to be a genius to work out that this is where you get to stomp your opponents into the ground, if you can!

All in all, I would like to say 'rush out and buy this game' but I can't. There is a problem, and frankly, it's a pretty stupid one.

Imagine the scene. I arrive home eagerly expecting to review the new disk. Ignoring the pitiful plea's of the childen (Dad! Neighbours is on in five minutes! I HATE you). I grab the colour telly and lug it up to the 'puter table. Insert disk into drive, turn on and yes, Lrsod oC fnuest! Ehh?



Try again. Same thing. Strange, still, let's read the label. Ah, now, let's see. Err... Nice Guys End Up With Madagascar, A Great Strategy Game, Better Than Any Board Game etc, etc. I suppose I might have agreed if I could actually have played the drat blasted thing! Try one more time before consigning the disk to the wipe out bin and spot, in minute letters on the disk, the information COLOUR MONITOR REQUIRED.

Well, well, well. Thanks for telling me! How ridiculous! Just because the original game was configured for an all in one office system with integral monitor does not mean the same has to apply for the ST! Okay, after a lot of hassling around to get the appropriate lead and a monitor I managed to play a few games, but most people aren't going to bother, they'll just take it back to the shop and complain because, on the visible outside of the box, the only indication that a colour monitor is required is a little television with the word COLOUR inside it. Most irritating of all is that from my use of the game it doesn't actually need a high res colour display. The game could be played quite adequately in medium resolution mode on an ordinary television. In fact I finally found out it can be but you MUST install the Ramdisk file before loading the programs.

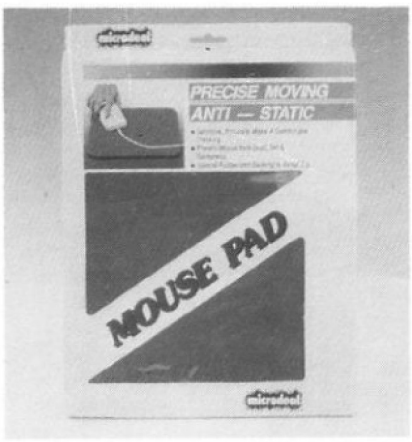
Right, spleen vented. To sum up, if you like involved strategy war games it's a winner.

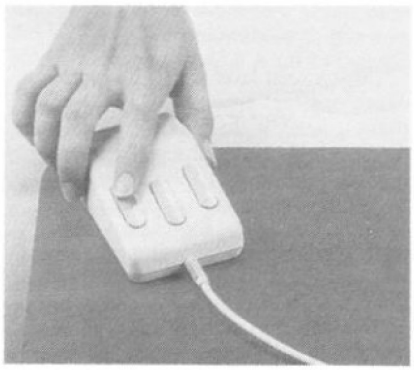
Mouse-Pad

Distribution: Microdeal
Cost: £5.95
Reviewer: Michael Stringer

Until I tried this product, my little mouse mat consisted of a) a 6 X 8 inch piece of cushion floor tyle and b) my right knee. The former was quite good actually, a little stiff but perfectly functional. Stop the sniggering at the back! The latter, would actually wear holes in my trousers. No joke. I have worn through four pairs of trousers so far. With my mouse getting anything from 12 to 16 hours use each day, that too takes a hammering.

I have worn through the feet of two mice - I am now on the third. It must be





said that I am a particularly heavy user! Now that I have this little pad, all that should change.

It is quite large: 10.75 X 9 inches. It is also thick: 5/16s, but what I like is the softness. Most mats are quite firm, but not this one. The working surface appears to be a finely woven material on top of a thick pad of antistatic rubber. The rubber makes a very nice base, it does not slip, even on wet, shiny surfaces it is surprisingly secure.

As 90% of my mouse working is done on my knee, the pad is great. It moulds very nicely to the contours, and does not slip. So no more holes in the trousers! Feet wearing should also be minimised, at least that will save me a few quid every year or so in replacements!

Conclusion: I give it the thumbs up!! Or rather, feet down!!

ST Diskdrive Head Cleaner

Distribution: Microdeal
Cost: £5.95
Reviewer: Michael Stringer

From my comments in the Mouse Pad review, I mentioned that my ST gets a daily pounding. Not just the computer, but also my drives. During the past week I have used the drives literally thousands of times preparing the latest editions into the Library. I am very pleased to say that, thanks to the drive cleaner, I have not had my usual problems appearing so frequently - due to the regular cleaning they now get. The kit consists of a special 'diskette', a spare pad and a little bottle containing the cleansing solution.

In all honesty, I was very surprised just how clean the pad was after the first useage. No doubt the frequency of use will prevent a build up of material on the heads. The computer is in the centre of the domestic environment, plus I also smoke! I have no doubt that regular use of the cleaner can only be sensible advice.

Conclusion: This piece of hard-ware should be on the shelf of all ST owners.

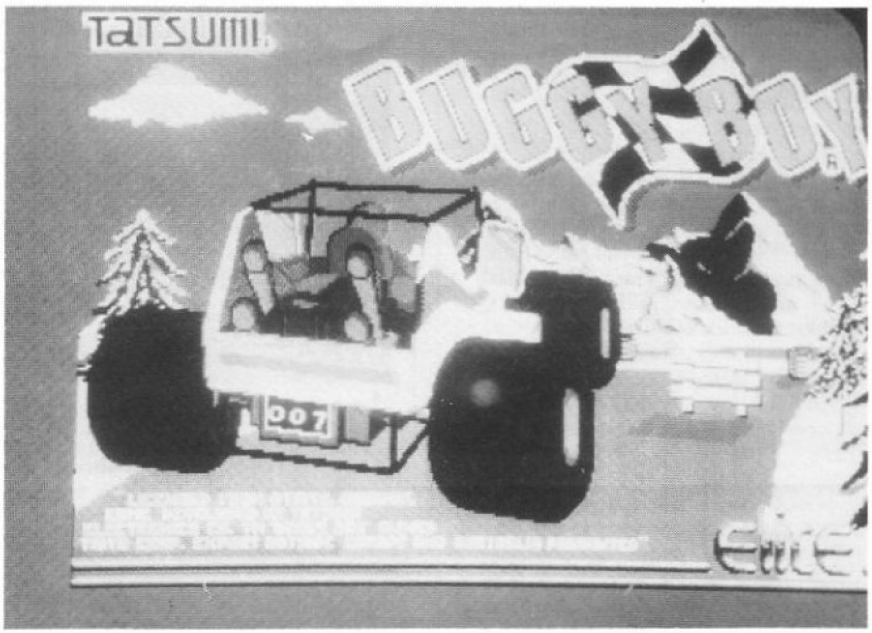
Buggy Boy

Cost: £18.99
Reviewer: Michael Stringer

Buggy Boy is a delightful game, challenging, addictive, colourful and well written.

You are belted into a dune buggy and the objective is to survive five laps from a selection of five courses. These are OFFROAD, NORTH, SOUTH, EAST and WEST. There are a number of 'diversions' to throw you - flags to collect, gates to pass through and obstacles to avoid. There are also little obstacles to look out for which can be used to your own advantage - logs and mole hills!

Hitting the logs will result in the buggy leaping into the air, over the obstacles - or they can also drop you into the cor blimey! The mole hills flip the buggy over on two wheels and you can career around in this fashion. Bonuses can be collected by driving through the TIME gates and by collecting the flags in the correct order, the sequence is determined at the top



of the screen. Periodic but quick glances in that direction are quite difficult, especially when trying to avoid gates, tunnel walls, bridges, quicksands, trees, cacti, piles of logs and so on....

VERDICT:
Game: 9
Addictability: 9
Play: 10
Overall: Brilliant!

Tetris

Distribution: Mirrorsoft
Cost: £18.99
Reviewer: Michael Stringer

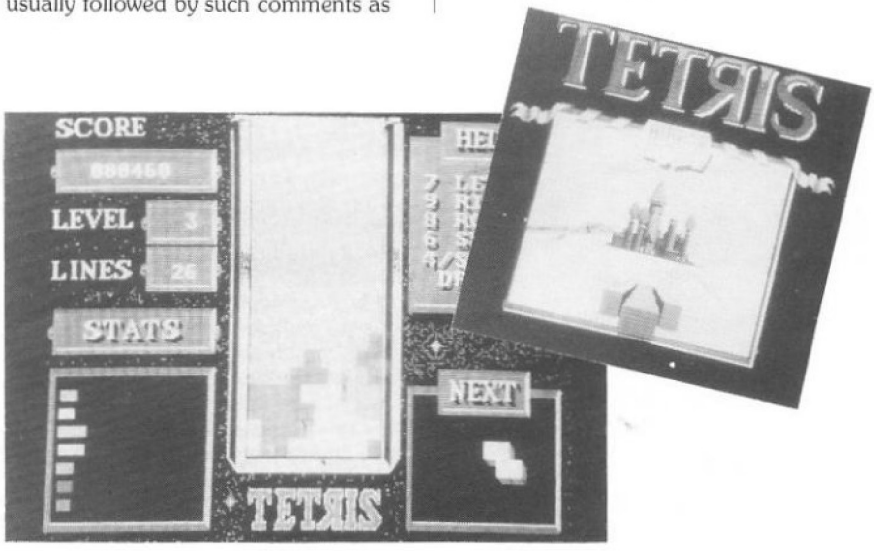
Tetris is a fascinatingly simple game. All that is required is to arrange with a Joystick, or the keyboard, variously shaped 'bricks' into a complete line, building a wall. These little bricks drop down from the top of the playing area, slowly at first, towards the bottom. By pressing the fire button, the brick is turned and by moving the stick, they can be guided across the screen. The brick can then be allowed to drop into position by itself, or you can drop it by pulling back on the stick.

If you cannot fit a brick into a convenient slot, it has to be positioned so that the next one, or the next, can fit. A small screen at the bottom will show the next brick to fall, which is activated by pressing the figure '1' on the numeric keyboard. If you dislike the distracting background, it can be switched off by pressing the figure '3'. To change the level, which regulates the dropping speed of the brick, press figure '7'. To turn off the musical accompaniment, which is quite brain numbing, turn the volume control on your monitor down.

The lowest level is '0', the highest, which appears around the 1,000 point mark is level '9'. In order to progress to a respectable score, the wall must be kept at the bottom of the screen.

My missus is quite adept at this game, I was on the high score table with 8,000 points. Note the past tense!! Her current high score is 18,000+!!! Friends who also have the game, are quite pleased with their 5,000 scores, and the first question is usually 'What is Maggie's latest score on Tetris?'. This is usually followed by such comments as 'I'll kill her!'. Tetris is a VERY addictive game, but is spoilt by the very poor keyboard/Joystick response; it is diabolical! The scrolling is reminiscent of the SPECTRUM, uuugh! If a second version were to appear, I hope that these features would be improved.

VERDICT:
Game: 8
Addictability: 10
Play: 5
Music: 6
Overall: Most enjoyable



Jackpot I

Origin: Futuresoft
Cost: £24.95
For all ST models
colour or monochrome
Reviewed by Micheal Stringer

Described by the publishers as 'The ultimate pools forecasting and plans developing program for the Atari ST', not being averse to earning a few quid, I thought I would spend a couple of months with the product to see if my luck would change. So, keen as mustard, I settled down to read the manual thoroughly unlike my usual ploy of running the program and only resorting to the manual when I come up against a brick wall!! I quickly found it! I had to have the 'manual' constantly by my side when the program was in use. I devoted Wednesday evenings to the preparation of the forecast and it would take four to five hours! This represents about three hours to update the current league positions of the teams and another couple of hours, or so, to prepare the fixtures for the following week.

The program uses the teams performance over the previous three weeks to forecast, in percentage terms, the likely outcome of the next match. An alternative device to help you come up with ten numbers for the coupon is to display the frequency that coupon line numbers have appeared, over the past 100 or so weeks, with draws.

The first criticism must be directed to the 'manual'. It can only be described as pathetic! It consists of a single sheet of stiff paper with the 'pages' printed on the front and the back, then folded like a concertina. Page 1 starts off; 'This function can be interrupted while the program is working..'??? What function, I ask myself?? No, page 1 is not at the beginning - it is the last!! Oooops!

Somebody forgot to check the manual, eh? And when you make a start, eventually having re-numbered the 'pages', away you go. First of all, prepare the leagues. You have to enter all the leagues. When I started, I was unaware that it was the last week of the UK season. When the coupon arrived for the following weeks fixtures, they were Australian. Having spent a number of hours carefully preparing the current UK league table, I was not happy. But panic set in!! Where am I going to find the Australian tables? Off to the library, hunt through the micro fiche of last years papers and from the

last match position, work out the new tables! Such dedication you good people get!!

Right, we now have the new Australian league table prepared. Upon finding within the 'manual' that the forecast is based upon the results of the previous three weeks, as I mentioned earlier, I am sitting here with a blank table!!! Back to the library. The results are OK for last years team positions, but what about promotions??

Prepare a new Australian table from last year and use that for the first three weeks, came the voice from my guardian spirit. All was done. As you can imagine, I missed the first week, but I did prepare a dummy coupon and I was able to compare the first weeks results with the dummy. In the assessment, I used a number of devices. The program, the draw/line option, self 'intelligent' guess and finally, a little basic prog to give me ten random numbers from the number of lines on the coupon.

RESULTS:

Week 1: P - 1, DL - 2, G - 4, R - 4
Week 2: P - 2, DL - 2, G - 5, R - 4
Week 3: P - 0, DL - 3, G - 3, R - 5

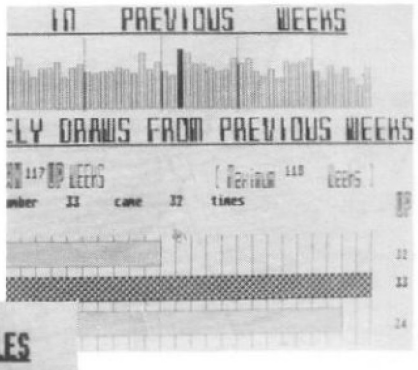
At this point, I was able to use the new table, anticipating better results for the next week's fixtures, hopes were high!! Thats a laugh!

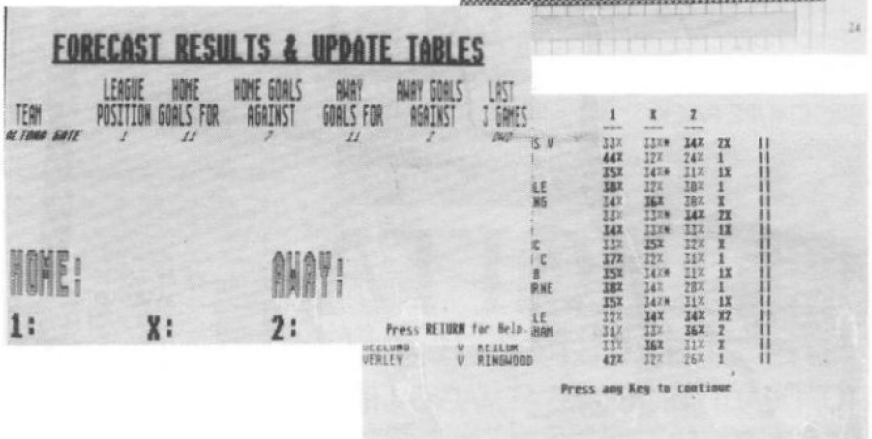
Week 4: P - 3, DL - 3, G - 5, R - 3
Week 5: P - 1, DL - 4, G - 4, R - 5
Week 6: P - 2, DL - 2, G - 3, R - 3
Week 7: P - 2, DL - 3, G - 4, R - 4

From here on, I no longer bothered. The amount of work required to update the league tables did not justify the results. Oh yes, YOU have to update the tables! The writer of the program had not, or could not, take the results of the fixtures and create a table for you. You have to enter all the table information BY HAND! How primitive! The ST could make this task completely invisible, perhaps with an option to update, manually, only occassionaly.

If only an update feature, where you were presented with last week's fixtures and simply had to enter the results, 1 - 0, 2 - 2, P, A, etc., would make the update enjoyable. The program would then have more data available to work with. Looking at the results from my little random prog, a further option of randomising certainly would not go amiss!

I will only mention the arrogant presentation of the PERM features. NOT FOR THE NOVICE you are informed. No additional information



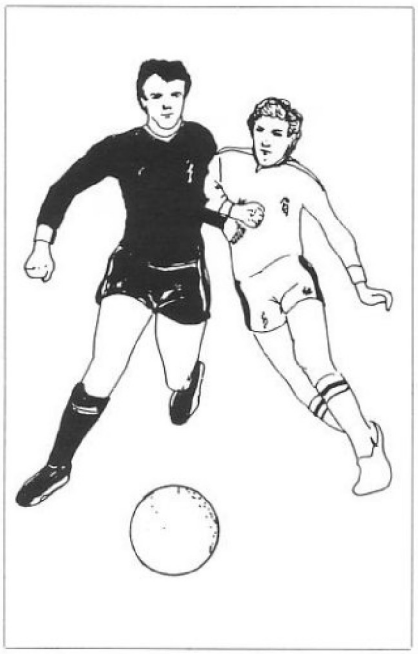


with which the novice can utilise these features were given at all. It simply goes straight into the method. You must appreciate that this is for the expert.

They quote 'First you will be asked for the number of selections per line, then the number of selections per line, then the number of selections you want correct, and then the total number of lines. At any time you will be told that the number you key in should be greater or lower than X. To take the best advantage of this function you should key in the line that is first in the lex order of these numbers last.' WOW! To think that my old NAN was an expert at perms, no doubt she could understand all that gibberish, but it left me totally confused!!

I will not go into the screen architecture - all pretty, large, fancy lettering everywhere - except for your info, which is in minute print, or the tedious routines in updating.

The program may work, at least those who own it, can verify my results -



they will have exactly the same forecasts that I obtained. Similarly, if any winnings were obtained, they would also receive the same amount. One thing you can be rest assured of, no way will you win sums larger than a few hundred quid, because all owners of the program will share the dividend! Even the JACKPOT could be shared with a few hundred owners!

The comments above apply, obviously, to the Treble Chance, but where you may be able to pick up a few quid is to opt for the HOME and AWAY options on the coupon. I say 'may' because I did not try them, or keep a detailed log of their results, merely concentrating on the TC.

Conclusion: I think that with a decently written and informative manual, more care and thought about the presentation and, finally, a complete rethink on the mechanics of the program to make it much more friendly, would result in a very good utility. But as it stands, it is not that good.

ST PROGRAMMING

By Keith Mayhew Part Six

Having described the basic structure of GEM's object trees last time, we will now study them in greater detail and see how they can be manipulated by the user to provide information to a program. The most common uses of object trees are in providing menu bars and dialogue boxes. We will look at the latter this time and menu bars next time.

Objects

Each object which forms part of an object tree consists of a fixed number of fields, called the OBJECT structure. Referring to the definition of the OBJECT structure in Listing 1, the first three fields are the WORD size links which join the objects together to form a tree. The 'ob_next' field holds the index of the sibling or parent object; 'ob_head' holds the index of the first child; and 'ob_tail' holds the index of the last child object. Part five of this series explained the parent, child and sibling relationships of objects in a tree.

An object tree is represented as an array of object structures appropriately linked together with index values specifying the position of an object relative to the start of the array; the root object has an index of zero as it is the first object in the array. As mentioned last time, any links which do not point to another object hold the value of -1, called 'O_NIL' in Listing 1. It is important to realise, especially for assembly language programming, that the index values do not specify the offset to the object in terms of bytes but in whole OBJECT structures, i.e. 24 bytes at a time, so the index value for the second object in the array is one, not 24.

The next field in the object structure, 'ob_type', is used to distinguish between different types of object, such as a graphic box and a text string. There are twelve predefined types of object which the AES can draw. In addition there is one 'user-defined' type, allowing a specific application program to extend the available number of objects; this can be used to provide, for instance, rounded buttons rather than the usual rectangular ones. The values for the 'ob_type' field are defined in Listing 1, note that the names all start with 'OT_' for 'object type'. We will be examining the attributes of each of these different objects one by one, although we will only cover the most common types this time.

The 'ob_flags' field is used to indicate basic properties of an object, such as 'this object can be selected by the user', 'this object causes an exit from a dialogue if selected', etc. These properties generally do not change for the life-time of the object and are applicable to most types of object. The 'ob_flags' field is made up of individual bit flags so that more than one type of attribute can be selected at one time: their names and bit-values are given in Listing 1, starting with 'OF_'. The name 'OF_NONE' is not a flag, as it has the value zero, and is simply used when none of the flags are applicable.

The 'ob_state' field is very similar to

```
/*-------------------*/
/*  O B J E C T . H  */
/*-------------------*/

/* 'Form handler' definitions. */
#define  FMD_START      0
#define  FMD_GROW       1
#define  FMD_SHRINK     2
#define  FMD_FINISH     3

/* 'Root' object index. */
#define  O_ROOT         0

/* 'Nil' object index. */
#define  O_NIL          (-1)

/* Maximum search/draw depth. */
#define  O_MAX_DEPTH    16

/* Object types. */
#define  OT_BOX         20
#define  OT_TEXT        21
#define  OT_BOXTEXT     22
#define  OT_IMAGE       23
#define  OT_PROGDEF     24
#define  OT_IBOX        25
#define  OT_BUTTON      26
#define  OT_BOXCHAR     27
#define  OT_STRING      28
#define  OT_FTEXT       29
#define  OT_FBOXTEXT    30
#define  OT_ICON        31
#define  OT_TITLE       32

/* Object flags. */
#define  OF_NONE        0x0000
#define  OF_SELECTABLE  0x0001
#define  OF_DEFAULT     0x0002
#define  OF_EXIT        0x0004
#define  OF_EDITABLE    0x0008
#define  OF_RBUTTON     0x0010
#define  OF_LASTOB      0x0020
#define  OF_TOUCHEXIT   0x0040
#define  OF_HIDETREE    0x0080
#define  OF_INDIRECT    0x0100

/* Object states. */
#define  OS_NORMAL      0x00
#define  OS_SELECTED    0x01
#define  OS_CROSSED     0x02
#define  OS_CHECKED     0x04
#define  OS_DISABLED    0x08
#define  OS_OUTLINED    0x10
#define  OS_SHADOWED    0x20

/* Object text sizes. */
#define  O_TXT_LARGE    3
#define  O_TXT_SMALL    5

/* Object text alignment. */
#define  O_TXT_LEFT     0
#define  O_TXT_RIGHT    1
#define  O_TXT_CENTRE   2

/* The object structure. */
typedef struct OBJECT
{
   WORD        ob_next;
   WORD        ob_head;
   WORD        ob_tail;
   WORD        ob_type;
   WORD        ob_flags;
   WORD        ob_state;
   LONG        ob_spec;
   WORD        ob_x;
   WORD        ob_y;
   WORD        ob_width;
   WORD        ob_height;
} OBJECT;

/* The text structure. */
typedef struct TEDINFO
{
   CHAR        *te_ptext;
   CHAR        *te_ptmplt;
   CHAR        *te_pvalid;
   WORD        te_font;
   WORD        te_resvd1;
   WORD        te_just;
   WORD        te_color;
   WORD        te_resvd2;
   WORD        te_thickness;
   WORD        te_txtlen;
   WORD        te_tmplen;
} TEDINFO;

/* The icon structure. */
typedef struct ICONBLK
{
   WORD        *ib_pmask;
   WORD        *ib_pdata;
   CHAR        *ib_ptext;
   WORD        ib_char;
   WORD        ib_xchar;
   WORD        ib_ychar;
   WORD        ib_xicon;
   WORD        ib_yicon;
   WORD        ib_wicon;
   WORD        ib_hicon;
   WORD        ib_xtext;
   WORD        ib_ytext;
   WORD        ib_wtext;
   WORD        ib_htext;
} ICONBLK;

/* The bit-image structure. */
typedef struct BITBLK
{
   WORD        *bi_pdata;
   WORD        bi_wb;
   WORD        bi_hl;
   WORD        bi_x;
   WORD        bi_y;
   WORD        bi_color;
} BITBLK;

/* The 'application' structure. */
typedef struct APPLBLK
{
   WORD        (*ab_code)();
   LONG        ab_parm;
} APPLBLK;

/* The 'parameter' structure. */
typedef struct PARMBLK
{
   OBJECT      *pb_tree;
   WORD        pb_obj;
   WORD        pb_prevstate;
   WORD        pb_currstate;
   WORD        pb_x, pb_y, pb_w, pb_h;
   WORD        pb_xc, pb_yc, pb_wc, pb_hc;
   LONG        pb_parm;
} PARMBLK;
```

Listing 1. OBJECT.H file.

'ob_flags' but defines attributes which are generally visual in nature rather than associated with a meaning, such as: 'selected' - inverse image, 'disabled' - shadowed, etc. These attributes are often dynamic because user actions can alter them. The names of the bit-values for this field all start with 'OS_' with 'OS_NORMAL' indicating none of the special states have been selected.

As well as the ability to extend the basic types available, through the user-defined object, it is also possible to extend the meanings of the 'ob_flags' and 'ob_state' fields in an application specific way. We will see how this can be done in a future article and look at some of the benefits which this has.

The object 'specific' field, 'ob_spec', is LONG value which is interpreted in different ways for different objects. For simple types such as boxes it indicates the thickness and colour of lines. For more complex object types it is actually a pointer (a memory address) to some more information for the object. This can be just an ordinary text string or one of the other structures defined in Listing 1: 'TEDINFO', 'ICONBLK', 'BITBLK', 'APPLBLK' and 'PARMBLK'.

The last four fields of the 'OBJECT' structure: 'ob_x', 'ob_y', 'ob_width' and 'ob_height', are used to record the object's position, relative to its parent object, and its size, respectively. Recall from last time that the root object, at the top of the tree, specifies its position relative to the screen's top left-hand corner and that all the co-ordinates are given in terms of screen pixels.

A Simple Dialogue

Having dealt with the basics of objects and object trees we will now look at how we can build a tree and use it to provide a simple dialogue with the user. The dialogue itself will serve no practical purpose but will illustrate how a dialogue can be incorporated into one of your own programs.

The example I have chosen presents the user with a titled dialogue box with 'CANCEL' and 'OK' buttons, as is typical of most dialogues. There are also two sets of radio buttons: one consists of three choices, the other of two. Recall from the last part of this series that radio buttons are similar to ordinary buttons but pop out when another choice is made, hence one and only one button of the set is ever selected at one time. A screen dump of the example dialogue is shown in Figure 1.

Listing 2 is the actual program for the demo. To compile it you will require the 'OBJECT.H' include file of Listing 1 and the 'DEFS.H' include file from Part four of this series.

As we are not using the VDI directly in this program, the global VDI arrays 'contrl', 'intin', 'intout', 'ptsin' and 'ptsout' are not declared. If your linker is stupid enough to still want these arrays then you will have to type them in! Remember that Lattice C does not require these definitions as it includes them automatically, if necessary.

The macro 'bit_set', defined near the top of Listing 2, is used in this program to test to see if a particular bit of either 'ob_flags' or 'ob_state' is set or cleared. If the bit is set then it will have the value 'TRUE', otherwise 'FALSE'. The macro was used simply to make the program slightly more readable.

The definitions which follow 'bit_set' are the indices into the object tree for each of its constituent objects. Note that the root object has not been named here because it is always referred to as 'O_ROOT', as defined in Listing 1.

Next we declare all the text strings we will require in the dialogue and allocate the storage for thirteen OBJECT structures: one for the root object and the twelve already declared.

The program initialises the '_tree' array, which will form our object tree, by calling the routine 'init_tree' with a pointer to the start of the array. The initialisation consists of thirteen calls to 'set_object' with the address of the tree array, the index of the object to be initialised and the values for all of the fields of its OBJECT structure. We will look at the values used for each object's fields later.

Originally, instead of the initialisation routines, the program was written with one large initialisation as part of the array declaration. This worked fine with the Megamax compiler but both the Lattice and the Mark Williams compilers complained of the initialisation being too complex! Rather than try and work around their limitations it was decided to place the initialisation into actual code: it consumes much more storage this way but the compilers don't moan about it!

The main program loops until the

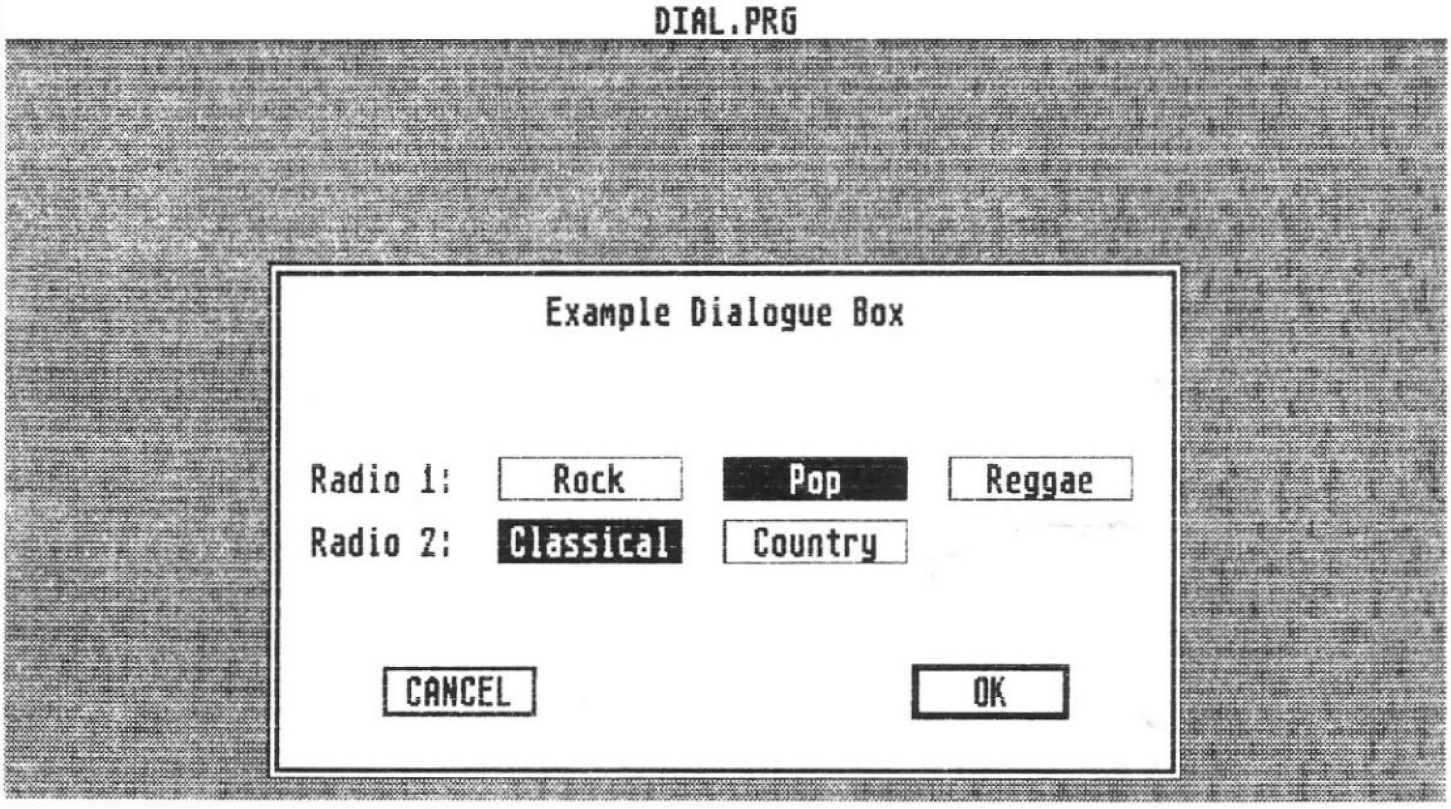


Figure 1. Example dialogue box.

Listing 2. Example dialogue program.

```
#include "defs.h"
#include "object.h"

/* Declare functions. */
VOID        init_tree(), set_object();
WORD        dialogue();

/* Macro to test "bit code" 'b' in 'x'. */
#define  bit_set(x, b)  (((x) & (b)) != 0)

/* Names for each object in our tree.
   Note that the root object of any tree is always
   called 'O_ROOT', as defined in "object.h".
*/
#define  TITLE       1
#define  MSG1        2
#define  RAD1        3
#define  BUT1A       4
#define  BUT1B       5
#define  BUT1C       6
#define  MSG2        7
#define  RAD2        8
#define  BUT2A       9
#define  BUT2B       10
#define  CANCEL      11
#define  OK          12

/* Text strings for objects. */
CHAR        *_title_p = "Example Dialogue Box";
CHAR        *_msg1_p = "Radio 1:";
CHAR        *_msg2_p = "Radio 2:";
CHAR        *_but1a_p = "Rock";
CHAR        *_but1b_p = "Pop";
CHAR        *_but1c_p = "Reggae";
CHAR        *_but2a_p = "Classical";
CHAR        *_but2b_p = "Country";
CHAR        *_cancel_p = "CANCEL";
CHAR        *_ok_p = "OK";

/* The object tree. */
OBJECT      _tree[13];

main()
{
   WORD          exit_obj;
   BOOLEAN       done;
   OBJECT        *tree_p;
   CHAR          *choice1_p;
   CHAR          *choice2_p;
   CHAR          message[60];

   appl_init();
   tree_p = &_tree[0];
   init_tree(tree_p);
   done = FALSE;
   while (!done)
   {  exit_obj = dialogue(tree_p, 0);
      switch (exit_obj)
      {  case CANCEL:
            choice1_p = (CHAR *)NIL;
            break;
         case OK:
            if (bit_set(tree_p[BUT1A].ob_state, OS_SELECTED))
               choice1_p = "Rock";
            else if (bit_set(tree_p[BUT1B].ob_state, OS_SELECTED))
               choice1_p = "Pop";
            else
               choice1_p = "Reggae";
            if (bit_set(tree_p[BUT2A].ob_state, OS_SELECTED))
               choice2_p = "Classical";
            else
               choice2_p = "Country";
            break;
      }
      objc_change(tree_p, exit_obj, 0, 0, 0, 0, 0,
         tree_p[exit_obj].ob_state & ~OS_SELECTED, 0);
      if (choice1_p == (CHAR *)NIL)
      {  if (form_alert(1,
               "[2][You cancelled][QUIT|CONTINUE]") == 1)
            done = TRUE;
      }
      else
      {  sprintf(&message[0],
            "[0][You selected %s|on Radio 1][OK]", choice1_p);
         form_alert(1, &message[0]);
         sprintf(&message[0],
            "[2][You selected %s|on Radio 2][QUIT|CONTINUE]",
            choice2_p);
         if (form_alert(1, &message[0]) == 1)
            done = TRUE;
      }
   }
   appl_exit();
}
/* Initialise the object tree. */
VOID           init_tree(tree_p)
OBJECT         *tree_p;
{
   set_object(tree_p, O_ROOT, O_NIL, TITLE, OK, OT_BOX, OF_NONE,
      OS_OUTLINED, (LONG)0x00021000, 0, 0, 400, 200);
   set_object(tree_p, TITLE, MSG1, O_NIL, O_NIL, OT_STRING,
      OF_NONE, OS_NORMAL, (LONG)_title_p, 120, 8, 240, 16);
   set_object(tree_p, MSG1, RAD1, O_NIL, O_NIL, OT_STRING,
      OF_NONE, OS_NORMAL, (LONG)_msg1_p, 16, 75, 64, 16);
   set_object(tree_p, RAD1, MSG2, BUT1A, BUT1C, OT_IBOX, OF_NONE,
      OS_NORMAL, (LONG)0, 100, 75, 280, 16);
   set_object(tree_p, BUT1A, BUT1B, O_NIL, O_NIL, OT_BUTTON,
      OF_RBUTTON | OF_SELECTABLE, OS_SELECTED,
      (LONG)_but1a_p, 0, 0, 80, 16);
   set_object(tree_p, BUT1B, BUT1C, O_NIL, O_NIL, OT_BUTTON,
      OF_RBUTTON | OF_SELECTABLE, OS_NORMAL,
      (LONG)_but1b_p, 100, 0, 80, 16);
   set_object(tree_p, BUT1C, RAD1, O_NIL, O_NIL, OT_BUTTON,
      OF_RBUTTON | OF_SELECTABLE, OS_NORMAL,
      (LONG)_but1c_p, 200, 0, 80, 16);
   set_object(tree_p, MSG2, RAD2, O_NIL, O_NIL, OT_STRING,
      OF_NONE, OS_NORMAL, (LONG)_msg2_p, 16, 100, 64, 16);
   set_object(tree_p, RAD2, CANCEL, BUT2A, BUT2B, OT_IBOX,
      OF_NONE, OS_NORMAL, (LONG)0, 100, 100, 180, 16);
   set_object(tree_p, BUT2A, BUT2B, O_NIL, O_NIL, OT_BUTTON,
      OF_RBUTTON | OF_SELECTABLE, OS_SELECTED,
      (LONG)_but2a_p, 0, 0, 80, 16);
   set_object(tree_p, BUT2B, RAD2, O_NIL, O_NIL, OT_BUTTON,
      OF_RBUTTON | OF_SELECTABLE, OS_NORMAL,
      (LONG)_but2b_p, 100, 0, 80, 16);
   set_object(tree_p, CANCEL, OK, O_NIL, O_NIL, OT_BUTTON,
      OF_EXIT | OF_SELECTABLE, OS_NORMAL,
      (LONG)_cancel_p, 50, 160, 64, 16);
   set_object(tree_p, OK, O_ROOT, O_NIL, O_NIL, OT_BUTTON,
         OF_EXIT | OF_DEFAULT | OF_SELECTABLE | OF_LASTOB,
         OS_NORMAL, (LONG)_ok_p, 286, 160, 64, 16);
}

/* Set the fields of an object in specified tree. */
VOID           set_object(tree_p, obj, sibling, first, last,
                  type, flags, state, spec, x, y, w, h)
OBJECT         *tree_p;
WORD           obj, sibling, first, last, type, flags, state;
LONG           spec;
WORD           x, y, w, h;
{
```

```
    tree_p[obj].ob_next = sibling;
    tree_p[obj].ob_head = first;
    tree_p[obj].ob_tail = last;
    tree_p[obj].ob_type = type;
    tree_p[obj].ob_flags = flags;
    tree_p[obj].ob_state = state;
    tree_p[obj].ob_spec = spec;
    tree_p[obj].ob_x = x;
    tree_p[obj].ob_y = y;
    tree_p[obj].ob_width = w;
    tree_p[obj].ob_height = h;
}

/* Display dialogue, interact with it and return exit object. */
WORD          dialogue(tree_p, edit_field)
```

```
OBJECT        *tree_p;
WORD          edit_field;
{
   WORD          x, y, w, h;
   WORD          exit_obj;

   form_center(tree_p, &x, &y, &w, &h);
   form_dial(FMD_START, 0, 0, 0, 0, x, y, w, h);
   form_dial(FMD_GROW, x + w / 2, y + h / 2, 0, 0, x, y, w, h);
   objc_draw(tree_p, O_ROOT, O_MAX_DEPTH, x, y, w, h);
   exit_obj = form_do(tree_p, edit_field);
   form_dial(FMD_SHRINK, x + w / 2, y + h / 2, 0, 0, x, y, w, h);
   form_dial(FMD_FINISH, 0, 0, 0, 0, x, y, w, h);
   return (exit_obj);
}
```

flag 'done' becomes 'FALSE'. On each iteration of the loop it calls the routine 'dialogue' to display the object tree and let the user interact with it. When the user selects either the 'CANCEL' or 'OK' buttons, the routine returns with the index value of the button which caused the exit.

The 'switch' statement decides the action to be taken next depending on which button was pressed: If it was 'CANCEL' then the pointer 'choice1_p' is set to 'NIL', otherwise 'OK' was selected and 'choice1_p' is set to point at one of three strings depending on which one of the first three radio buttons is selected. This is acheived by using the 'bit_set' macro on the 'ob_state' field of the object with the bit value of 'OS_SELECTED'. The pointer 'choice2_p' is similarly set to point at one of two strings depending on which of the last two radio buttons was selected.

Having extracted the information we require from the dialogue box we are ready to display our results. However, because the program is going to loop until the user decides to exit, it is necessary to reset the state of the exit object from selected to not selected, otherwise it will be displayed as already selected the next time. This is done by 'objc_change', a routine in the 'object' library of the AES which allows us to alter flags in 'ob_state' and update the screen to reflect the change.

The call to 'objc_change' is as follows:

objc_change(tree_p, object, dummy, x, y, w, h, state, redraw);

Where 'tree_p' is a pointer to our object tree; 'object' is the index of the object we wish to alter: in our case it is the exit object; 'dummy' is ignored by 'objc_change' so we set its value to zero; 'x', 'y', 'w' and 'h' define a clipping rectangle which will be used if we decide to redraw the image on the screen: we set these values to zero because we are not going to be redrawing; 'state' is the new value for the object's 'ob_state' field: we pass the old value with the 'OS_SELECTED' bit masked off, i.e. set to zero; Lastly, 'redraw' is a flag which is one if the image is to be redrawn and zero if the change is limited to the object's state field. Note that as we do not change the state of the radio buttons they will remain as they were last used if the dialogue is re-displayed.

If 'choice1_p' is set to 'NIL' then another dialogue is displayed asking whether to continue or quit. If quit is chosen then the flag 'done' is set to 'TRUE', otherwise the program will loop and re-display the original dialogue. When a dialogue consists of a message and one, two or three choices, in the form of buttons, we can use the routine 'form_alert', such a dialogue is called an 'alert'. This builds an object tree from a text string which describes the dialogue and performs the user interaction for us. We will look at the exact details of this later, but for now it will suffice to know that it returns either one, two or three depending on which of the buttons were selected.

If the 'OK' button caused the exit from our dialogue then 'choice1_p' and 'choice2_p' point to two strings. In this case we wish to place this text into the alert box. To do this we use a standard C library function, 'sprintf', with a 'template' string and the chosen piece of text as an argument. Thus 'sprintf' works just like the 'printf' function but rather than displaying its result on the screen it places it in a string. With our complete string set up in 'message' we call 'form_alert' as before. This process is then repeated for the second choice string.

How Objects are Displayed

The 'objc_draw' function accepts a pointer to an object tree, the index of the item to start drawing from, the maximum depth to draw and the x, y, w and h values which define a clip rectangle. Usually the starting object is 'O_ROOT', which will display the whole tree, and the clipping rectangle will be the dimensions of the root object. The depth value is used to stop the drawing at a certain nesting depth. If it is one, only the starting object will be drawn; if two, all of its direct children will be drawn; and so on. Unfortunately, you always have to specify how deep you wish to draw and so this value is usually set to 'O_MAX_DEPTH' which is a sufficiently large value to suit virtually all object trees (it is defined as sixteen in 'OBJECT.H').

When an object tree has been displayed and an object within it has later been modified, it is possible to call 'objc_draw' with a starting object index of the modified object and a depth value of one, if it has no children. This will update only the altered object's image so making the process much quicker than redrawing the entire dialogue each time. The routine 'objc_change' which we looked at earlier simply stores the new state value in the object specified and then calls 'objc_draw' if the program requested redrawing of the image.

When an 'objc_draw' call is made to the AES, it starts at the specified object in the tree and calls an internal routine to draw the object via a series of VDI calls. It then visits each child of the starting object in turn: at each one it draws it at its relative position to its parent and then draws all of its children, and so on, before moving on to the next child of the starting object. This recursive process is called a depth-first traversal of the object tree. The result of this method of drawing is that if two children of an object overlap then the right-most one of the two in the tree will be drawn after all the previous one's children have been drawn and will thus be 'on top' of all of them. Note that the position of an object on the screen has no effect on its visual 'priority', this is purely due to its positioning in the list of siblings of an object. If you have a large number of objects in a tree then it is advisable that you order them in terms of their screen co-ordinates: left-to-right and then top-to-bottom, or vice-versa. Due to the time it takes to draw an object, this ordering will produce a more pleasing effect on the eye and also makes the drawing process seem faster.

Object Attributes

As mentioned earlier, each object's 'ob_type' field indicate to the AES what

type of object should be drawn. We will consider five of the most common types now, they are 'OT_BOX', 'OT_IBOX', 'OT_BOXCHAR', 'OT_STRING' and 'OT_BUTTON': the rest will be covered in the due course of this series. In the following descriptions we will ignore the effects different bits of the 'ob_state' and 'ob_flags' have on the drawing of an object, that is we will describe their 'normal' state.

The object 'OT_BOX' draws, as the name suggests, a simple rectangular box to the position and size specified by the object's x, y, w and h values. The box has a background and a border which can be drawn in different ways depending on the value in the 'ob_spec' field. Figure 2 shows how the 'ob_spec' value is split up into a number of independent fields and the effect each of them has on the drawing of the types 'OT_BOX', 'OT_IBOX' and 'OT_BOXCHAR'.

Note that the border thickness is a signed value in two's complement form, so minus one is FF hex. If a border thickness of one is specified, the border will be drawn on the actual perimeter of the object's co-ordinates, higher values cause that number of pixels to be drawn inwards from this one. A value of zero means that no border is drawn and negative values draw outwards from the object's border such that a value of minus one draws a pixel-thick line around the outside of the object's actual perimeter.

The border and fill colours are indicies into the VDI's colour palette: zero will always give the background colour; one will provide a foreground in colour or black and white; values from two to fifteen will only work in the colour modes. Lastly, the writing mode affects how text is written and so is only of importance for type 'OT_BOXCHAR': if it is replace then the background to the text is drawn; if it is transparent then the background to the character is not drawn and hence any image under the text will still be visible. Note that as the writing mode does not apply to the way the background to 'OT_BOX' is drawn, the background will still be drawn even if a colour of zero is selected.

Type 'OT_IBOX' is very similar to 'OT_BOX' except its background is never drawn, no matter what the value in the 'ob_spec' field is, which means that the image under this object will always be visible. If a border thickness of zero is specified then the box becomes totally invisible, i.e. nothing is drawn. This is why it is called an 'I-box': the 'I' stands for invisible. The main use of an I-box is as a place-holder for other objects, especially radio buttons, as described last time.

Type 'OT_BOXCHAR' is drawn like an 'OT_BOX' except a single character, as specified by 'ob_spec' is drawn in its centre. If transparent mode is used to write the character then the background fill pattern will be visible under the character. An example of the use of a boxed character is in scroll bars where the arrow symbol is displayed.

Plain text can be written using type 'OB_STRING'. The 'ob_spec' field for this type is an address of a text string which is terminated by the character zero. This object is always drawn in transparent mode so anything underneath it is still visible.

Buttons are really a combination of a box and a string. Type 'OT_BUTTON' is drawn with an outside border thickness of one and the string pointed to by 'ob_spec' is drawn centred within the box. The background to a button is always drawn in the background colour when it is in its non-selected state.

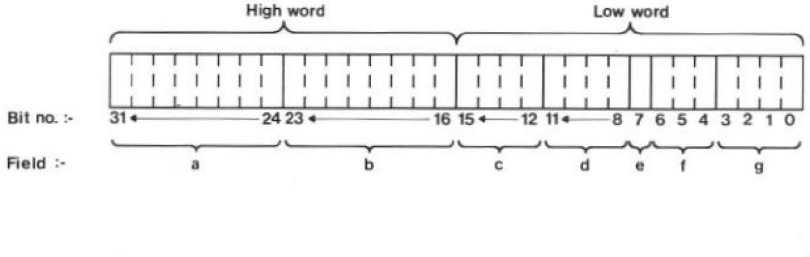
The Example Tree Hierarchy

The tree for the example dialogue described earlier consists of the four types 'OT_BOX', 'OT_IBOX', 'OT_STRING' and 'OT_BUTTON'. The root of the tree is an ordinary box with a hollow fill pattern thus ensuring that the background to the dialogue is cleared. This object has the traditional border of two pixels inside and the outline flag turned on, giving a double border.

The children of the root consists of (in the actual order): 'TITLE' which is a string at the top of the box; 'MSG1' which is a string to the left of the first set of radio buttons; 'RAD1' which is an I-box to hold three radio buttons; 'MSG2' which is a string to the left of the second set of radio buttons; 'RAD2' which is another I-box to hold two radio buttons; 'CANCEL' which is a button in the lower-left corner; and 'OK' which is a button in the lower-right corner. Both of these buttons are marked as exit and selectable, which means that if either of them are selected when a user clicks on them, 'from_do' will immediately return. The 'OK' button is further flagged as a 'default', this is an attribute which should be given to only one object in a tree, if at all, and indicates that pressing return during a 'from_do' will also cause it to be selected and an exit performed. The default button has a slightly thicker border to make it stand out from the rest of the buttons, similarly, all exit buttons have slightly thicker borders than plain buttons. There is one special flag, 'OF_LASTOB' which must be set on the very last object in the tree array, regardless of its position in the tree's hierarchy: this is used by many of the AES routines and they will not perform correctly if it is missing.

The radio buttons are placed as children of the two I-boxes and their 'OF_RBUTTON' attributes are set so that each set of radio buttons will behave as expected, i.e. only one will ever be selected at one time. The first button of each set has its 'OS_SELECTED' flag set so that they become the initial choices when the dialogue is first drawn.

It is worth noting that although we named all the object indicies in the tree we do not refer to all of them in the program. This was done simply so that the tree's link fields were easier to check or modify. Having seen how awkward it is to describe an object tree in your code, we will be looking next time at how a resource construction set makes life much easier!



a = Character code for type OT_BOXCHAR. Ignored for other types.
b = Border thickness. 1 to 128 for inner border, 0 for no border and -1 to -127 for outer border.
c = Border colour; 0 to 15.
d = Text colour; 0 to 15.
e = Text writing mode. 0 = transparent, 1 = replace.
(Note: 'd' and 'e' apply only to type OT_BOXCHAR).
f = Fill pattern. 0 = hollow, i.e. background. Increasing density of fill patterns down to maximum 7 = solid.
g = Colour for fill pattern; 0 to 15.

Figure 2. The ob_spec field for OT_BOX, OT_IBOX and OT_BOXCHAR.

The Form Library

Closely related to the object library, the form library deals mainly with the user interaction with an object tree. The term 'form' is an alternative for a 'dialogue'.

The 'form_center' call is passed a pointer to an object tree and four pointers to four word values. The function uses information about the current resolution to centre the root object of the tree with respect to the whole screen and stores the new x and y values in the root object. When the function returns the x, y, w and h values are passed back via the pointers.

The 'dialogue' routine at the bottom of Listing 2 calls 'form_center' to position the object tree on the screen and uses the x, y, w and h values in the

subsequent calls.

Also 'form_dial' takes nine parameters: one is a flag to indicate the operation to be performed, the next four are the x, y, w and h values for a 'small' box and the next four are for a larger box. The first call with a flag of 'FMD_START' reserves it a space on the screen defined by the second set of four parameters - the first four are ignored and so are set to zero. The flag 'FMD_GROW' is used next to animate an expanding box from the smaller to the larger box areas. This effect is purely visual and can be omitted, as can its inverse, 'FMD_SHRINK', which animates a box from the larger back to the smaller boxes. The flag 'FMD_FINISH' is used when the dialogue has been exited and causes the AES to produce a redraw message. We will look at the reservation and redrawing procedures again in more detail another time.

Once an expanding box has been animated a call is made to 'objc_draw' to place the dialogue on the screen. The call 'form_do' then takes a pointer to the start of the tree and the index of the first field, which is 'editable', i.e. a field where the user is allowed to type in text. As there are no editable fields in our example dialogue, we pass a value of zero for this parameter. Note: you should NOT use minus one as has been documented in some books.

Also note that 'form_do' uses the event functions of AES to let the user interact with the dialogue. As a modification is made to the object tree the image is updated on the screen to reflect it, such as a selection. It is important to note that the screen image has no effect on 'form_do': it doesn't even have to be the actual dialogue which is displayed; it will however still update the screen if you press the mouse button in the right places though! Once the user has exited the dialogue by selecting an exit object the index of the selected object is returned.

Lastly, we will look at two functions: 'form_alert' and 'form_error' which provide simple dialogues. They have one benefit over ordinary dialogues in that they save the screen image underneath them in a buffer so that it can be restored without having to send any redraw messages. The buffer used is exactly the size of a quarter of the screen and so alerts cannot be any larger than this.

The 'form_alert' call takes a number indicating the default button of the dialogue from one to three, or zero if there is no default button. The second parameter is a pointer to a string which is formatted as follows, note that the square brackets must be placed in the final string:

"[icon-number][message][buttons]"

The icon number determines the image which will be displayed in the upper-left corner of the alert - if it is zero then no icon is displayed. See Figure 3 for the three different shapes available.

The message is an ordinary text with the exception that vertical bars separate text to be placed on different lines. The text displayed for the buttons is placed between the last set of square brackets, and if you are using more than one button they are separated by vertical bars. An alert can have a maximum of three buttons.

Care should be taken to keep the length of each line of the message to thirty characters or less. More than this is likely to crash the system at some stage, so be careful! Furthermore, you should make at least one of your message lines long enough, using spaces if necessary, to make the box wide enough to hold all the buttons.

The 'form_error' call takes a single number as its argument and displays the number in alert box with a 'stop' icon and an 'OK' button. The message says 'TOS error number ...' where the actual number you pass is displayed. Note that this is a word-size value and positive: TOS returns LONG negative error numbers.

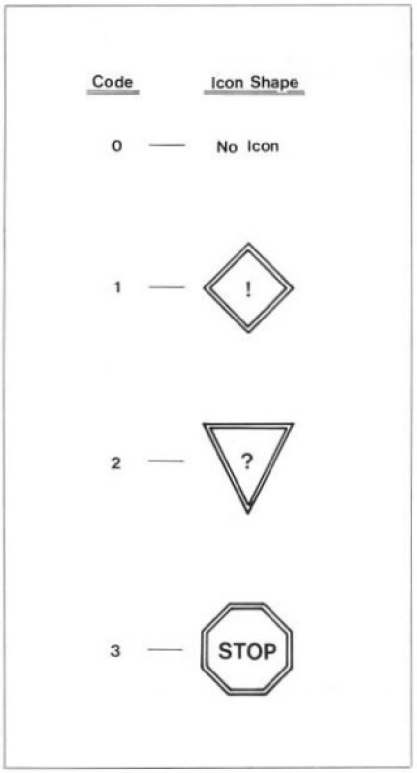


Figure 3. Form_alert icon shapes and codes.

Next Time

We still have plenty of ground to cover on object trees, but now the basis for them is out of the way we will be looking at their more advanced aspects. Until then you might wish to try and incorporate some simple dialogues into your own programs.

Editors Note: In this series many of the program listings require the use of files shown in earlier issues. Back issues of Monitor are available or the ST PROG disk (from the ST Library) contains all files up to date. ST Programming started in No. 15, but relevant files were not given until No. 18.

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by R. A. Penfold

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All the subjects are covered in much detail with particular reference to the ST computers. Whatever your interest in music and the ST computer, this book will provide plenty of interesting and practical ideas for you to develop your interest and musical talents to the full. Price £5.95

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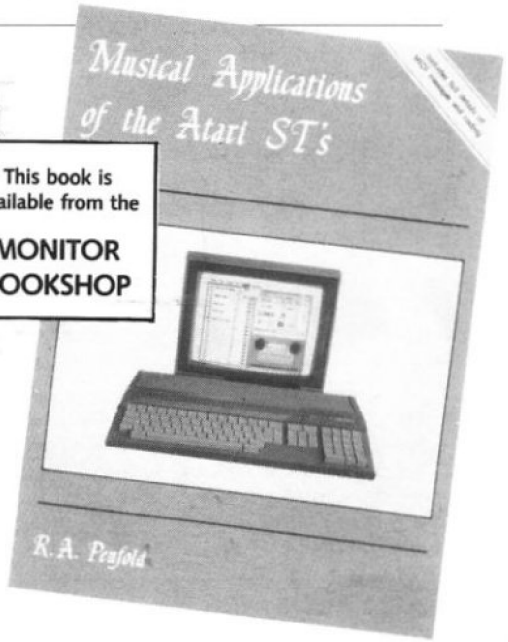

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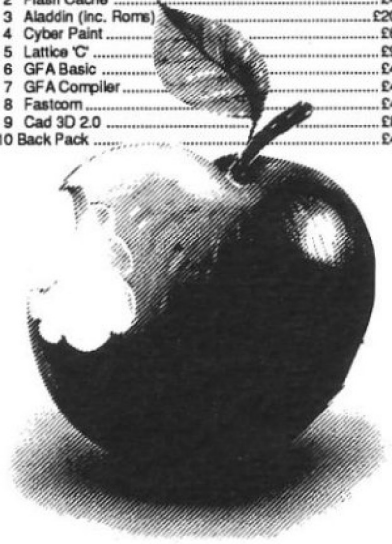

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ST LIBRARY

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

First of all, I would like to thank those members who have contributed so many new disks to the library - too many to thank individually. It is not so much the quantity - over 40 - but it is also the quality of many of them. I have endeavoured to add disks that you have requested such as shoot-em-ups, classics, a great Dungeons and Dragons (HACKER), etc. One member thought that there may be some golf enthusiasts out there who are users of Mean 18. He has supplied five disks - each with three courses, that he has created. Each course is very accurately done, some are of his local courses and I must admit it has been great fun in playing a few rounds on them. I am looking forward to actually using them 'live' later in the year.

For the MIDI enthusiasts, there are two CASIO librarians, for the YAMAHA DX100 series - a librarian and random voice generator, but the star program has to be a librarian for the AKAI S700! The author, Kevin Adams, a member, also believes that the program may work with other sample synths, provided they use the standard sample dump format. The program should also work quite satisfactorily with the AKAI X7000. He has also produced a second disk containing some additional samples. Additional disks of samples will be periodically added to the listing. Please let me know if you have any success with the program so that I may inform the author of any observations, suggestions, etc. There are also quite a number of Music Studio compatible files with arrangements especially created for the DX7, FB01 and the CASIO 101.

Also some of the older commercial demos have been added, which new ST owners may have missed, such as BARBARIAN (I do love the little character who does the 'tidying up') and KARATE KID II - see the scenes other players cannot reach, STAR WARS, STAR TREK, etc.

The 'LC1' language disk has been up-dated with the latest listings that are associated with Keith Mayhew's ST Programming articles. Remember, it is obtainable at the Library List disk rate and conditions! There is also a 'C' disk of source and header files that I have compiled from disks in the library. this has been designated LC2. I am awaiting a number of new source listings supporting C, PASCAL and Modula II.

From my friends in Australia I have received three disks: N-VISION, which have been created by one of their members, which contains some of the most impressive graphics I have seen. There is also a new section (AUTIL) which contains ART UTILITIES, which should interest all graphics enthusiasts.

Because of the extremely large input of disks this time, the presentation of the Library List disk has been completely re-designed. There are almost 5000 programs and files available to you. I am still able to contain the details to a file that is readable by half megabyte owners without resorting to archiving, but I do not know for how much longer!

Here are the latest editions and changes to some previously announced disks.

ADEMO 4

A Pot pouri of 20 progs/files. 1 MB mono and colour.

ADEMO 5

TEX big demo, brilliant! 1/2 MB colour.

ADEMO 6

Incl: Skymap, Murray, Kal. 1/2 MB mono.

ADEMO 7

Incl: Kiss, Car Show. 1/2 MB colour.

ADEMO 8

The brilliant 'Shiny Bubbles'. 1/2 MB colour.

ADEMO 9

Incl: Digi-Med, Bogballs, Rdraw. 1/2 MB colour.

ADEMO 10

Incl: Cube, Pieram, Newsin. 1 MB colour.

ADEMO 11

Incl: ST UK and Grusel; the latter is a brilliant, animated graphic scene in a graveyard, dancing ghosts, zombies and a skeleton, music is good too. 1/2 MB colour.

ADEMO 12

TEX 1.2 & 3; great sounds, chat and colours! 1/2 MB colour.

ART 18

Dslide show incl: A6, 16, 01, 39, from Australia; brilliant graphics. 1/2 MB colour.

ART 19

N-Vision 4; various pics, brilliant. 1/2 MB colour.

ART 20

N-Vision 3; brilliant. 1/2 MB colour.

ART 21

Naughty Pics: Pinup, Sandra, Tanis. Cert X. 1/2 MB colour.

ART 22

Superb graphics incl: Saturn3, Bugs. 1/2 MB colour.

ART 23

Digi pics: Phil Silvers, Gable, Cheval, very good. 1/2 MB colour.

ART 24

Some more naughty pics: Suzanne, Isabel. Cert X. 1/2 MB colour.

ART 25

TEX show; Moreta, Einhorn, Midearth. 1/2 MB colour.

ART 26

The great demo; Steely. 1 MB colour.

AUTIL 1

Picswitch and documentation. 1 MB colour.

AUTIL 2

Graphic Artist; menu based. 1 MB colour.

AUTIL 3

Atari Image Manager. 1/2 MB colour.

COMDEMO 2

CAD 3-D; Cyberscape. 1 MB colour.

COMDEMO 3

PFS Met Satellite prog/data. 1 MB colour.

COMDEMO 4

Star Trek demo. 1/2 MB colour.

COMDEMO 5

Star Wars demo. 1/2 MB colour.

COMDEMO 6

Barbarian demo. 1/2 MB colour.

GAMES 5

Mono games: Diamond, Minen, Solitaire. 1/2 MB mono.

GAMES 6

Incl: Leather, Fractree, Airball. 1/2 MB colour.

GAMES 7

Incl: Target, Stargame. 1/2 MB mono/colour.

GAMES 8

Incl: Laser, Twogame, Mylife, Ripcord. 1/2 MB colour.

GAMES 9

Incl: Monopoly, 66. 1/2 MB colour.

GAMES 10

Incl: Bridgeit, ST-Agg, Bgammon, Poker. 1/2 MB colour.

GAMES 11

Hacker; a Dungeon and Dragons type of game. 1/2 MB colour.

GMEAN 1

3 courses for MEAN 18. 1/2 MB colour.

GMEAN 2

3 more courses. 1/2 MB colour.

GMEAN 3

3 more courses. 1/2 MB colour.

GMEAN 4

Another set of three courses. 1/2 MB colour.

GMEAN 5

Three more courses! 1/2 MB colour.

LC2

40 'C' source files, including the MDXCASL files that have been lifted from the library. 1/2 MB.

MAKAI S1

Sound Samples used with the next disk. More will be coming!! 1/2 MB.

MAKAIL

Librarian and samples for AKAI S700. 1/2 MB.

MDXCASL

Librarian, randomiser, documentation and source files for DX100, CASIO 101 type synths/expanders, very good. I hope you will now be able to send banks of voices to the Library for these instruments!! 1/2 MB mono/colour.

MMS 4

Special arrangements for DX7 and FB01 Music Studio files, incl: Blackrag, Dncqueen; 20 files. 1/2 MB colour.

MMS 5

Music Studio files for the CASIO, including the CASIO librarian - CZPHONIX. Files incl: Ghostbusters, Daylight, Funktown. 1/2 MB colour.

MVAR 3

20 files and programs incl: Miami, Midito, Play, Sequencer. 1/2 MB colour.

SOUND 13

Sampled 'Crush on You', from TES. 1 MB colour.

UTILS 11

PD Spreadsheet. 1/2 MB.

UTILS 12

Multi-Boot constructor. 1/2 MB.

UTILS 13

Supercopy for your backups. 1/2 MB.

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CODA

FOOTBALL MANAGEMENT GAMES THE ST DESERVES

Football management games, both Soccer and American Football, have the potential to produce excellent strategy games of some considerable sophistication. QUALSOFT produced League Division One in 1983, and Mexico 86 in 1985, but otherwise the implementation has been infantile. When Coda sent me HEADCOACH for the BBC Micro, 2 years ago, I saw an American Football computer game for the first time that measured up to the same standards. QUALSOFT is pleased to offer Atari ST users "World of Soccer" and "Head Coach v3", two games I honestly believe will fill a yawning gap for those looking for realistic simulations of the real games.

Malcolm Howard, QUALSOFT

WORLD OF SOCCER

International management is the ultimate challenge in soccer. To build a squad of players to defeat the ball playing skills of Brazil, the fluid play of Holland, the organisation of West Germany, the counter-attacking of Italy, and the many varied styles of many others, demands an insight into the game rare amongst managers let alone fans. Do you exploit a team's weaknesses, or play to your own strengths? Do you attack down the flank with wingers, or pierce the centre with powerful midfield running? Do you play a flat back four, or use a sweeper or libero?

In "World of Soccer", players are not just attackers/defenders/midfield but goal poachers, play makers, ball winners, wingers, left, right and centre backs, sweepers (19 types of player in all). The results of matches are determined by simulated soccer matches controlled by the skills of the opposing players. Strategy is determined by the skills you build into your squad, and tactics by the particular skills you use to defeat particular teams. Substitutions and tactical moves can be made during the match to change or reinforce your plans.

For four years, through the Qualifying and Final stages of the European Championship and the World Cup, you will guide the European team of your choice. You can prepare for the competitions with friendly matches of your choosing, developing your strategy to match the in-form players at your disposal. Success is there for the taking, but it will need earning.

Choose from 33 European squads. The 4 UK home countries have 16 man squads which can be increased to 36 with players of your own. A customisation program will allow squads for any of the 33 countries to be created.

HEAD COACH v3

On the field 220lb blocks of concrete-on-legs collide, while a small man in a suit paces the touchline stroking his chin. He's the Head Coach. He has more tactical skill in his little finger than the MCC can muster in the entire club. Third down and 9, he signals to his quarterback. The quarterback takes the snap back into the pocket, dummies to his star running back, wheels to the right skirting two defenders, motions to throw to his rightside wide receiver and then swings his pass back over the pack to his open Tight End. He catches and makes another five yards before being grounded. An eleven yard gain and another first down, thanks to 2 hours of rehearsal the previous Thursday afternoon. The crowd cheer the quarterback but the head coach knows that his Right Guard really deserves the credit. This is American Football, Chess with mobile human pieces.

It's your first season as a Head Coach in the NFL and you face two pre-season games. You must give as many of your 45 players a run out to see how they've come through the close season. Through these matches and the time spent at training camp you must devise your game plan to face your first NFL game. Over the next 16 games you will meet the likes of the Chicago Bears, the Washington Redskins, the Dallas Cowboys, the LA Raiders (hiss). Each game will need a new plan to exploit the weaknesses and nullify the strengths of such teams, and in the game you will probe their defense and try to stifle their offense. Success over these 16 matches will put you into the playoffs and in sight of the Superbowl. Failure will give you the best of the college draft, which will allow you to make up for the deficiencies you must by now have discovered in your side. Providing of course that the club keeps you on . . .

Let us be straight , Head coach v3 is NOT an arcade game. It's a sophisticated game based on American Football. For those who already understand something about the game, it's a chance to find out just how much they really know. For those to whom the game appeals but is something of a mystery, then Head Coach v3 is the ideal way to find out what the game is all about. In the match itself, you have a choice of 27 offensive plays and 21 defensive plays, and so you can bias your plays to suit the skills of your squad and negate those of the opposition. The training camp will give you an insight into the current performance of your players, even checking their speed in 40 yard sprints. There's only one thing that can prevent your team from eventually achieving a Superbowl place; YOU! But we warn you, this game is addictive!

"World of Soccer" and "Head Coach v3" are published by QUALSOFT at £17.50 and £19.95 respectively.

QUAL-SOFT **Tel: 0438** **Dept. MON, 721936** **18 Hazlemere Road** **Stevenage SG2 8RX**	Please supply: World of Soccer ❐ £17.50 Head Coach v3 ❐ £19.95	Name: Address: Access No. (if applicable)

If replying to advertisers please mention Monitor.

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 as soon as possible for the next issue together with any payment necessary. Please mark your envelope 'Classified'.

8 bit software Disks: Ghostbusters £3.50; Pole Position £3.50; DOS 3 £1.25. Cassettes: Smash Hits 5 £3. Atari ST User magazines, March 1986 to March 1987 £5. Tel: (0444) 459551.

Help! Are there any users of the Steinberg 24 or Iconix Music System who could help me out? Contact R. Punter, 45 Tongres Road, Canvey Island, Essex, SS8 9AZ.

For Sale. Konix Speedking joystick, unopened, £9. Moonraker joystick £5.50. Also unopened. (2 unwanted birthday presents.) Write with cheque to D. Betts, 8 Healey, Lakeside, Tamworth, Staffs, B77 2RF or phone Tamworth 287505.

Exchange. Wishbringer, Zork II, Blade of Blackpool, Wizard & Princess, Mask of the Sun, Rasterblaster, Datasoft Compiler, Diskey Utility, Sands of Egypt, Star Raiders. Wanted: Stationfall, Lurking Horror, Guild of Thieves, or any new adventure. Disk only. Tel: 0502 566026.

Atari ST/Mapsat weather satellite project software. Demo disk £3, requires computer only. Refundable against full program and manual £19.95 inclusive. GEM based machine code, data and processed screens (Degas) to disk. Orbit forecast, construction tips, interfacing and more. Contact Les Kaye, Fieldvale, Park Lane, Snitterfield, Warwicks CV37 0LS.

Pen Pals! 800XL pen pals wanted. Gilad Milstein, 34A Harofe, Haifa 34367, Isreal.

For Sale! Atari software for sale on tape, disk and ROM. All titles are originals. Tel: Nottingham (0602) 205595, ask for Stuart.

800XL with 256k RAM and RS232 interface, £100. Also set of DRAMs for 256k upgrade, £25. Atari 800 48k, £40. Tel: Ian on 0633 880714.

Pen Pals! I am Ralph Azzopardi, I wish to make contact with Atari XL owners. Write to 33 St. Francis Street, Marsa, Malta.

Programmers/Hardware enthusiasts in the Worthing area please contact P. Lumley to swap ideas. Tel: 0903 35226.

Fastcom version 1.66 for Atari ST. New and unused £30. Ring Roger Horner (0742) 584240.

Instructions for the Atari Music Composer Cartridge wanted. If you can oblige please contact: Mike Guest, 31 Beech Grove, Abram, Wigan, WN2 5YG.

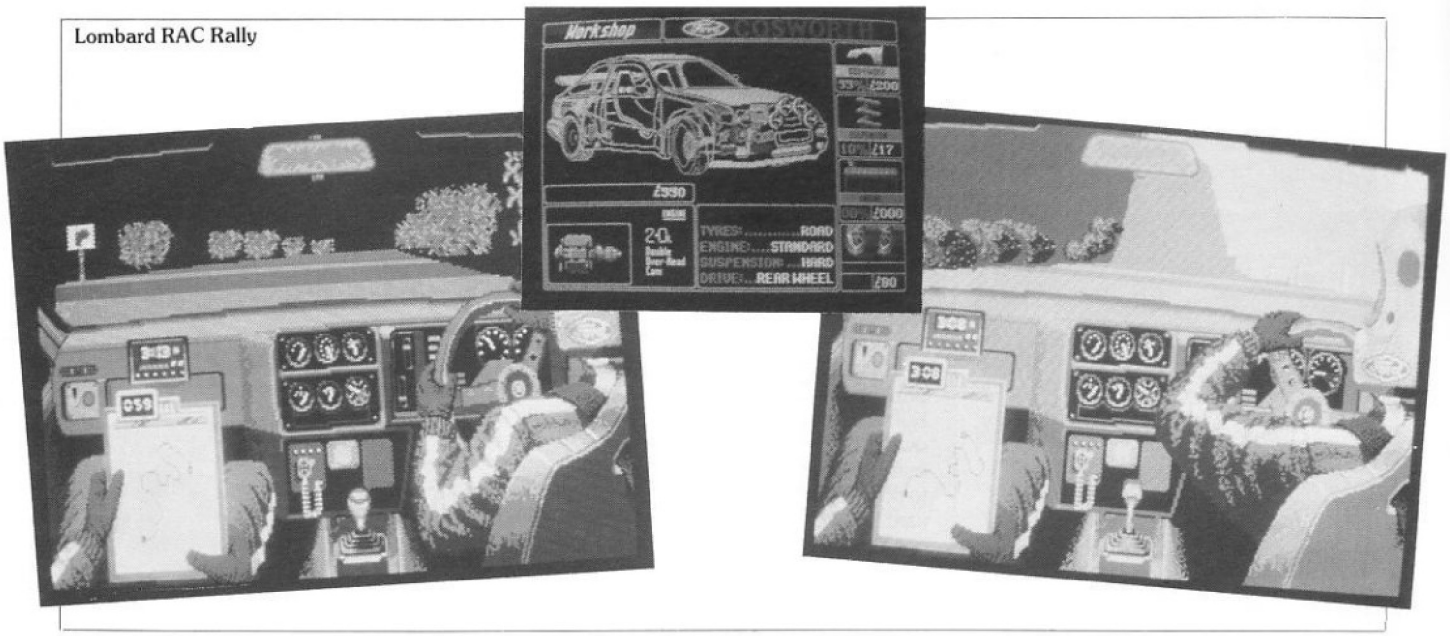
For Sale. Atari 8 bit games (tape) like Fighter Pilot and Tomahawk. Contact W. R. Matthews on (041) 641 6254.

Wanted Acorn Electron, good condition, don't mind if slightly defaced. Also; for sale C64 and Amstrad games from £1, plus Konix joysticks, never opened, £9. Selling 800XL £80. Tel: Darren on Tamworth 287505.

Pen Pals. Atari 8 bit cassette user would like to hear from fellow users. AM I ALONE? Contact W. R. Matthews, 62 Bullionshaw, Eastfield, Rutherglen, Glasgow, G73 3NF.

ST NEWS

Lombard RAC Rally



Mandarin Rally-round

"Lombard RAC Rally" is a faithful re-enactment of one of the world's most spectacular rallies, the program allows the player to slip behind the wheel of a 300hp Group A Ford Sierra RS Cosworth warming up on the start line. Then it's away on the most exhilarating ride of a lifetime through four distinct stages – road, forest, mountain and night driving. From steep descents to hairpin bends, the animation is breathtakingly realistic. All this has been lovingly recreated with the input of experts from Lombard, the RAC Motor Sports Association and Ford. Even the accompanying manual has been designed to conjure up the excitement. The simulation is being released on the Atari ST at £24.95 in November.

Beware – it's 'orri-Baal!

Psygnosis are pleased to announce the forthcoming release of "BAAL", the game with an addictive mixture of strategy and arcade action, which was a great hit on their stand at the recent PC Show. BAAL – the supreme God of Evil, has despatched his army of undead to steal a dreadful weapon of destruction – a War Machine. The future of the world lies in the hands of an elite force led by *you*, the leader of 'The Time Warriors.' Your mission sounds near suicidal; you must guide the Time Warriors through three different domains, each one full of monstrous demonic beasts who are created to kill or be killed. In two of these levels BAAL has hidden the War Machine, but unfortunately not in one piece. Only by collecting the 18 different components of the machine, will the third level (if you have enough fuel left) be in your hands. But be warned – the awesome fire power of BAAL will be waiting for you – will you have the strength left to finish the job? You must; if you kill him Earth is saved, if not . . . we have a very large problem on our hands. Features of the game include – excellent strategy/arcade game play; 8-way ultra-smooth scrolling; 3 distinctive domains, each containing multiple levels; over 250 highly detailed screens; superb graphics and sound effects; more than 100 monsters and 400 traps. BAAL will be published on the *Psyclapse* label complete with stunning illustration by Melvyn Grant complimented by Roger Dean lettering. The game will be priced at £19.95 (including VAT) and the Atari ST version will be available at the end of October.

Fancy a Flutter!

"A Day at the Races" is a simulation of the horse race track environment. Much more than the horse race itself, this simulation allows you to buy and sell horses, choose jockeys, and of course wager on races. Each horse and jockey have their own distinct attributes and abilities which affect the outcome of each race. Just as at a real track it is up to you to discern which abilities each horse and jockey possess and to attempt to pick the probable winner of the race. It is as close to the real world of horse racing as you can get without going to the track. The actual horse race itself is presented in exciting, nail-biting real time. Dynamic database files are kept for the horses and the jockeys. All the various statistical items (including horses' past performances) are maintained to assist in an intelligent horse purchase, or a jockey selection. "A Day at the Races" is a multi or single player game. Knowledge of horses or the track is not necessary at all to enjoy "A Day at the Races". The simulation is presented in such a manner as to make it easy for all users to understand. Depth is combined with simplicity to create a real-world environment which can be enjoyed by everyone whether or not they are race track aficionados. "A Day at the Races" operates in the GEM environment, is entirely mouse controlled, and makes full use of the ST's superb graphics and sound. The simulation requires 512K of RAM with TOS in ROM, at least 1 disk drive, and a colour monitor. Optional equipment include a second disk drive and a printer.

"A Day at the Races" is installable onto a hard disk drive. Using a printer, you may obtain hard copy output of the Racing Program, the Racing Form, the Cheat Sheet, various standings, and many other statistics that are available. You will, of course, be able to view these items on the

screen also. The program retails for U.S. $39.95, and is available from Team Software, P.O. Box 7332, Washington, D.C. 20044, USA.

From Promotion to Expansion!

For all those lovers of Football and in particular Football Manager 2, Addictive Games are bringing out "Football Manager 2 Expansion Kit". The advantages are that you are able to modify a saved game, i.e. team names, colours, players names, sponsors names, name of Cup, etc. Or, for a brand new game, you'll be able to do all the above plus select the division that you start in, decide how much money you start with, and change the amount of points received for a league win or draw. "Football Manager 2 Expansion Kit" comes complete with a number of previously saved games enabling the player to take part in the Scottish, French, Italian and World leagues. Available on the ST for £12.99 in February 1989.

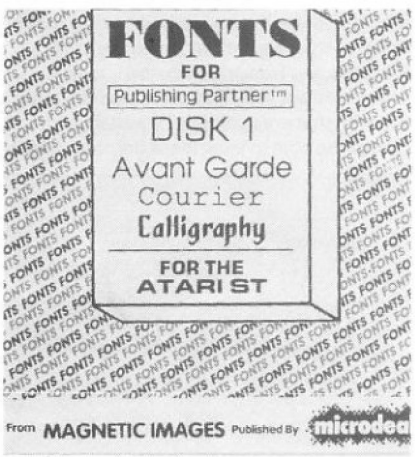
Kuma Free Prize Draw Entry

Kuma Computers are offering a free prize draw entry to all new purchasers of Kuma software products when they register ownership. Each Kuma product has a numbered registration card, all the user has to do to register is complete and return the card. The registration number is also marked in the manual, this number must be quoted in the event of a technical query or an upgrade request being made. This offer gives several major advantages to all concerned: 1. Kuma retain control of the products without the need for protection on the disks, making hard disk operation and working disk production easier for users. 2. Users have the opportunity to win a valuable prize. 3. Users can be better supported with product update information. 4. Kuma can assess the specifications of micro's being used, vital information when considering adding new features to products. 5. Retailers benefit from both extra sales because products do not have to be purchased directly from Kuma and also from the free prize being offered to the first dealer named on a drawn card.

The prize is a three way B.T. cordless 'phone. The draw will take place at the Kuma offices in Pangbourne on December 14th 1988. For more details ring 07357 4335.

Two from Electronic Arts

Electronic Arts are to distribute the 'War game of the Century' namely Empire from Interstel Corp. In the Empire you take on the role of William P. Brown, Captain of the U.G.A.S. Britannia. It has been reported that the enemy Krellan Empire is invading Alliance space at an alarming rate and ravaging all the helpless planets in its path. The Krellan Empire has developed Operation Big Brother, a plan to install one of its own generals as emperor on each of these planets and take it over. You have been assigned to patrol the region and intercept as many Krellan vessels as

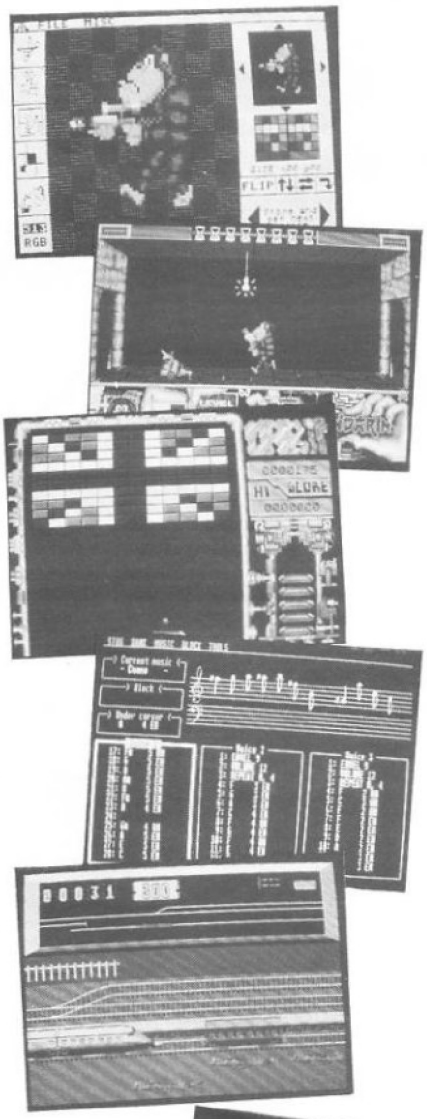


Publishing Partner Add-ons

Microdeal have introduced a range of useful disks for use with Publishing Partner. There are two ranges; 5 disks of Clip Art and 6 disks of Fonts. Each 'clip art' disk contains several icons which are grouped under various headings such as Animals, School, Travel, Sports, Music, Borders, Tools, Holiday, Business, etc. There is 5 groups on a disk. The 'font' disks usually contain 3 new fonts, except disk six which contains a set of 11 LaserWriter screen fonts.

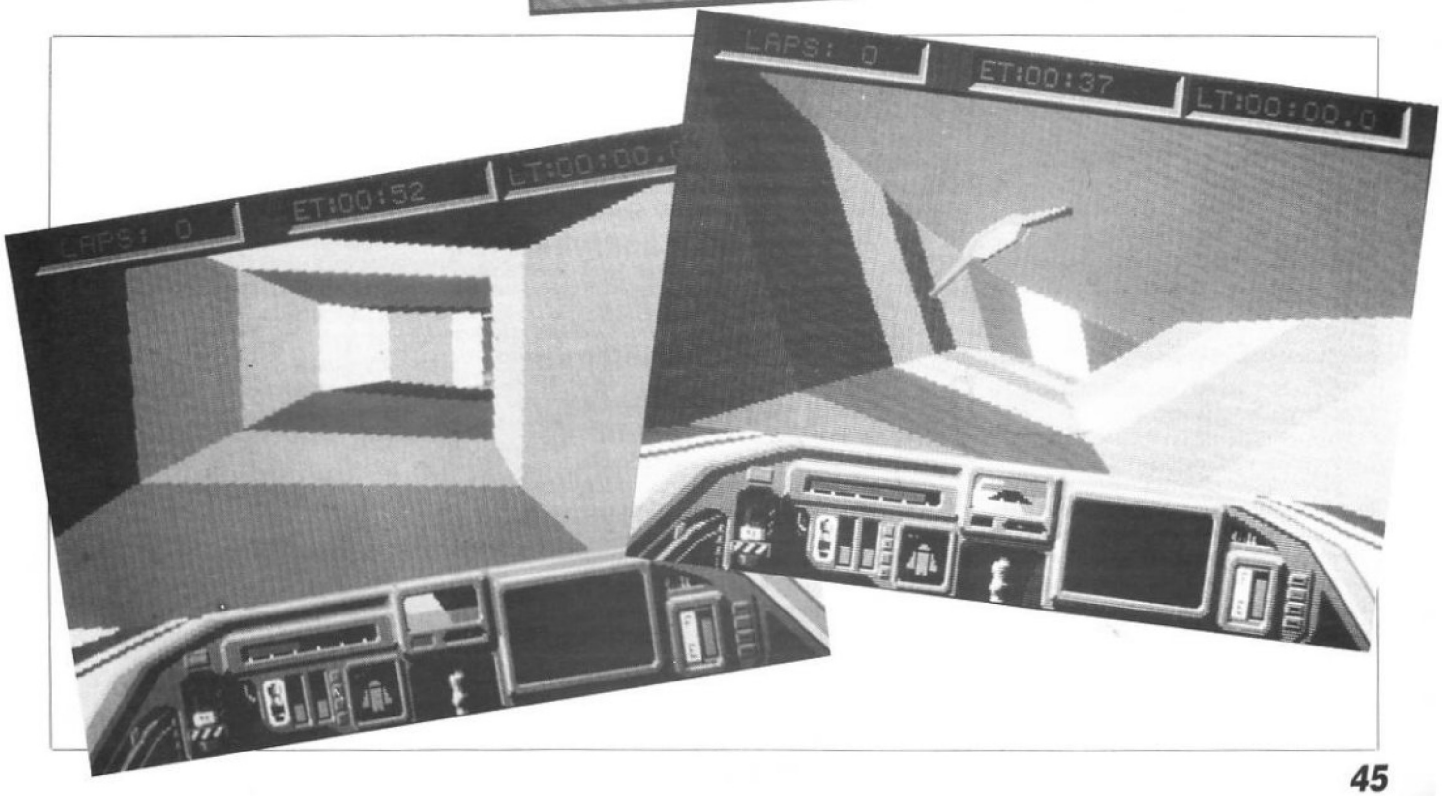
possible in an attempt to stop Operation Big Brother. As part of your overall strategy you must decide what to produce to best aid your war effort. As production grows, players can command armies, fighters, destroyers, troop transports, submarines, aircraft carriers, cruisers and battleships. There are no compromises, each player must strive to overpower the others until all resistance stops. Release date late August, price £24.95.

The second release is a futuristic racing simul called Powerdrome in which you become a jet racer pilot trying to win the coveted Cyberneufe Trophy. Powerdrome features fast moving solid 3D graphics, realistic sounds of engines roaring, competitors screeching past and crashes and bangs as the five jets fly around the course. A special feature is a two player option via a dual data link between two machines which allows a player to race against a friend. There are six circuits on which to race or practice or you can attempt the full Powerdrome season of six races. Each track is situated on a different planet with its own atmospheric conditions requiring careful adjustment of the player's craft to achieve peak performance. Tuning the jet racer is the key to success. The tune-up screen allows adjustment to air brakes, aerofoil sensitivity, fuel selection and engine filter type. Sounds like this could be a real goodie, look out for it in late September, price £24.95.



STOS is coming!

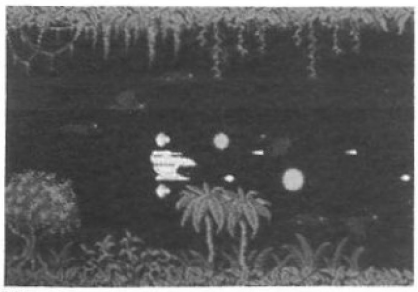
Mandarin are about to launch STOS, a new basic language primarily aimed at easy games writing on the ST. It was written by the programming team at Jawx International in Paris. STOS has 320 commands designed to simplify the creation of fast, action packed games. The main features are: Move and animate up to 15 sprites at once with full collision detection; add a musical soundtrack; create special sound effects or use one of the pre-defined effects; define up to 16 different types of scrolling areas; compact Neochrome or Degas screens or sections of screens; zoom and reduce pictures; store screens in memory banks or in strings; define up to 13 windows; generate pull-down menus; add machine code routines with the built-in line editor, etc. The package consists of a massive spiral bound manual, reference card and 3 disks containing STOS Basic, a sprite editor, a room designer, a character set editor, an icon editor, a music editor which incorporates an envelope definer, a screen compacter, a disk sector editor and other utilities. Additional add-on modules (up to 26) are planned, the first being a Fractal module to create fractal landscapes. The disks also contain three games written in STOS; these are Bullet Train, a sideways scrolling train game; Orbit, a break-out type game; and Zoltar, a space shoot 'em up. And finally the price for this potentially stunning software is just £29.95!



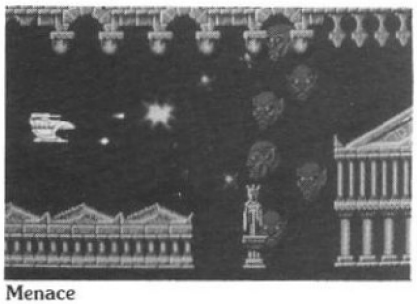
ST NEWS ST NEWS ST NEWS

New Label

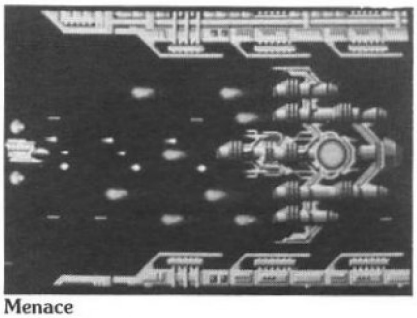
Psygnosis have announced the launch of a new label to be called Psyclapse. The new label with its range of software will maintain its own separate identity and will be instantly recognisable with its specially designed packaging which will carry the Psyclapse logo, designed by Roger Dean, and distingtive illustrations from a broad spectrum of well known artists. Six titles are scheduled for release over the coming months, the first being Menace, price £19.95 and due out at the end of September.



Menace



Menace

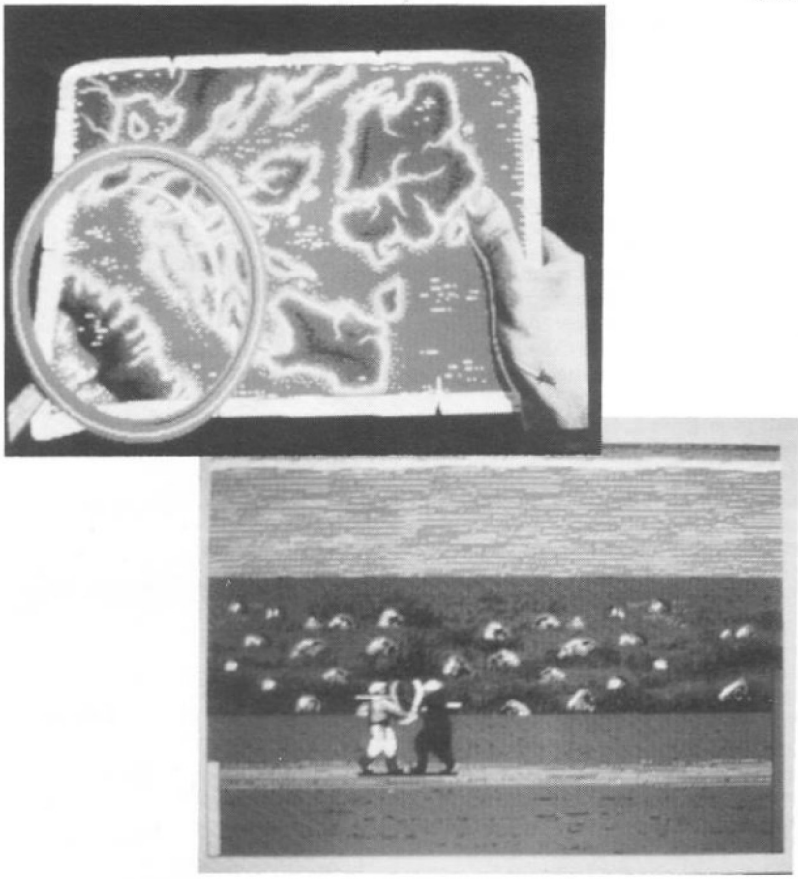


Menace

Coming Soon

Mediagenic (formerly Activision) are to release SDI in October, R-Type in November and Afterburner in December. TV advertising is planned for Saturday mornings throughout November, watch out for them! Also Mediagenic have acquired the rights to produce a computer game version of the new Bruce Willis action movie Die Hard. The game won't be out till next year though.

Sinbad



Sinbad ST

Mirrorsoft have brought the release date of Sinbad and the Throne of the Falcon forward to 25th August, price £24.99. As Sinbad you must battle against dark mysterious forces in an epic seafaring quest. You'll need all your wits to defeat the Black Prince and his minions. The game features dozens of bit mapped screens, enhanced sound effects and original music. Check it out!

Latest Games at Half Price!

Special Reserve, a software club set up by public relations firm Inter Mediates, claims to be offering its members the lowest overall prices foe entertainment software. Most games in the club's catalogue of over 400 products are on offer to members at not much more than half price (less if the post and packing charge is excluded). Annual membership is £4 and includes 3 issues of Special Reserve's detailed Buyer's Guide, updates on new releases with each game bought, a folder for the guide and a membership card. Interested readers can get full details by sending a SAE to Special Reserve, P.O. Box 847, Harlow, CM21 9PH.

Other News

Migraph's Easy Tools which is drawing accessory for use with Easy Draw 2 and Supercharged Easy Draw 2 is now available for £39.95. It features 5 new tools, an angulator, an inquisitor, a rotator, a converter and polytext. Angulator measures the length and angle of an object, inquisitor enables the user to specify x and y locations of an object and makes the production of grids very simple, rotator speaks for itself. Convert literally converts all

Savage

objects (except text and bit images) to polylines. Polytext allows the creation of text labels which can be rotated and placed on plans and layouts.

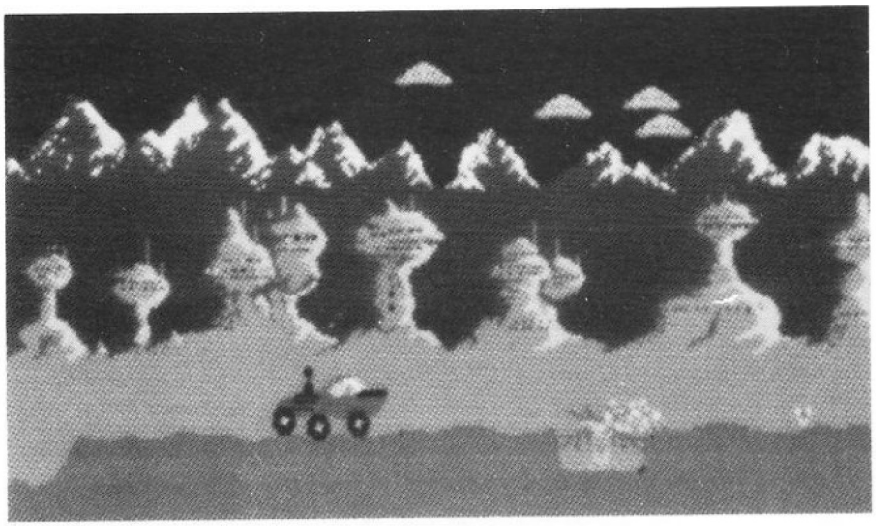
Firebird are to release Savage on the ST sometime in November, price £19.99

Incentive are to bring out Driller on the ST at the PCW Show in September.

Atari are to release Moon Patrol on the ST soon.

Finally

See part of a page from the recent User Group Newsletter from Atari (USA), giving details on the new DynaCADD package from ISD Marketing. Could be coming your way soon!



Moon Patrol

New CAD Solution Appears for Atari MEGA

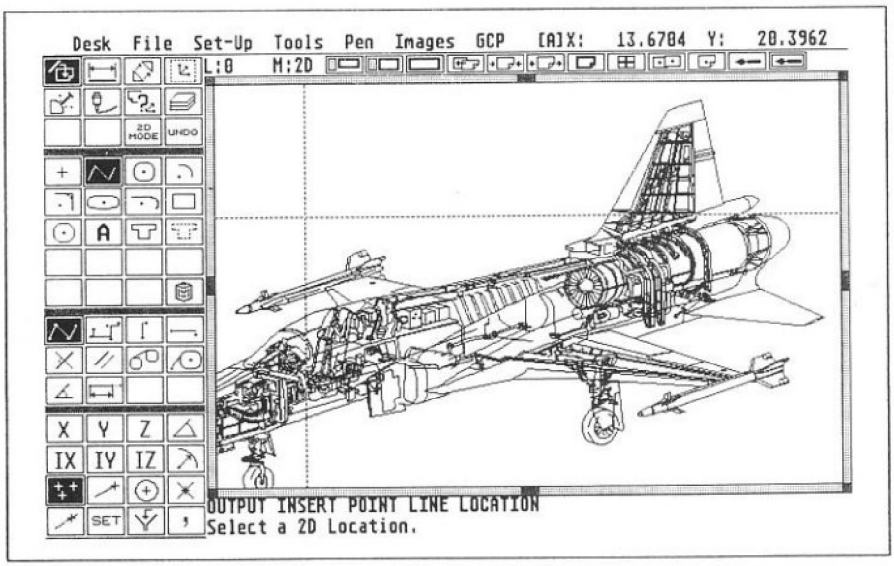
DynaCADD, the newest product from ISD Marketing, and the latest computer-aided design product for Atari computers, should be on store shelves this month.

DynaCADD is a professional package, designed for use by working engineers and architects. DynaCADD is 2D and true 3D CAD and drafting package for electrical, mechanical, architectural, or civil engineering applications. It can revise, design, and detail drawings, read and write the industry-standard DXF file format, and provide compatibility with the new desktop publishing package from ISD, Calamus (due out later this summer). DynaCADD is compatible with a wide variety of output devices, including a wide variety of pen plotters, dot matrix printers, laser printers, and postscript laser printers. Nathan Potechin, ISD president, said DynaCADD "is not entry-level. It's a complete, professional CAD solution based on the Atari platform."

ISD believes that DynaCADD and other professional-level solutions like it are the key to future sales of MEGAs and other Atari computers. "The MEGA has the power and the memory capabilities that these sophisticated programs require," said Potechin. "DynaCADD is a very powerful package. It's a total solution that has the power to create drawings that require lots of memory."

Competitive programs, such as the IBM and Macintosh-based VersaCAD and AutoCAD, retail for $1995 and $2800 respectively. In comparison, DynaCADD will carry a suggested retail price of $695. A complete MS-DOS machine-based system, including the necessary graphics card, high resolution monitor, high-speed processor (the equivalent machine for speed would be the new IBM System 60, 70, or 80), and plotter, would cost up to $40,000. The equivalent Atari-based system running DynaCADD will total only about $10,000.

In addition, according to ISD representatives, DynaCADD's special features enable it to do more than either the best-selling VersaCAD or AutoCAD programs. According the dealer product literature, "Based on functionality specifications, DynaCADD has more combined 3D Design and drafting functionality than either AutoCAD or VersaCAD and considerably more usefulness than any other PC-CAD package. DynaCADD has equal or greater competitive functionality with products selling up to the $8,000 range."



BACK ISSUES

Previous issues of Monitor are obtainable from the club for £1 plus 30p postage each. They contain many interesting and informative articles, hints and tips, program listings, reviews and practical advice. If you have missed out send for your copies of back issues today!! Please note that issues 1,2,3,4,5,6,7 & 9 are already sold out.

Number 8.

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.

Number 10.

Includes: All about digitised pictures. How disk files work. Cracking the Code, Starting from Basics and What's MIDI all continue. Programs include: Disk Jacket, PCB Paranoia and 3D Maze. American Road Race, Kennedy Approach, Asylum, Red Moon and Wishbringer reviewed.

Number 11.

Includes: RAM Talker for 400/800. Book reviews. MIDI programs. ST Hi-res Hat program. Hexadecimal Code generator. Reviews of Atariwriter Plus, Sidewinder, Koronis Rift, Electraglide, Mercenary, Fighter Pilot, Goonies and Alternate Reality. Plus Starting from Basics and Cracking the Code.

Number 12.

Includes: Add-on circuits for various motors. Disk file handling. Matrices and Arrays explained. Write your own adventure. Space Invaders program. Reviews of Technicolour Dream, Eidolon and Action Biker. ST reviews include DB Master One, Time Bandit and Menu Plus.

Number 13.

Includes: Omnimon and Ultimon compared. Data compression. Megamax C and Lattice C evaluated. Temper the sound of your 8 bit. Players and missiles explained. Programs include Graphics 8 page flipper, Demon adventure game. Reviews of Super 3D Plotter II, Planetarium, Price of Magik, Last V8 and Nuclear Nick. ST reviews include Cornerman, Cards and Major Motion.

Number 14.

Includes: Display Lists. Adventurers sentence analyser. In depth look at Happy Revision 7. Graphics Modes. Video digitiser mods for use with XL/XE machines. Deathzone, a superb arcade game. Reviews of Crystal Raider, Molecule Man, Domain of the Undead, Laser Hawk, Rick Hanson, Colleen Music Compendium and Spellbreaker. ST reviews include Music Studio, Starglider, TrimBase, Electronic Pool, Easy Record and Pinball Factory.

Number 15.

Includes: Player/missile priorities and interrupts. Turbo Basic commands and functions. 1050 write switch project. Enter commands directly in Basic. Whist card game for you to type in. DOS modifications. OS Controller Card evaluated. Reviews of Spitfire 40, Crumble's Crisis, Robot Knights and Replay. Intro to ST programming. ST Blitter. Reviews of Hollywood Hijinx, BCPL, K-Resource, Make, Micro-time Clock Card, Alternative, Trivia Challenge and Fast Basic.

Number 16.

Includes: Character mapped modes and an introduction to scrolling. Using PLOT and DRAWTO in Graphics Zero. A useful hexadecimal converter program. Minotaur, a machine code monitor from Basic. Split screen effects for adventure writers. XIO for beginners. Mini Office II, Autoduel, Death Race, Sprong and Space Lobsters reviewed. ST section includes: How to use GEM with examples in C. Useful routines written in assembler. Six ST books reviewed. Hades Nebula, Airball, ST Replay, ST Digidrum, Crafton & Xunk, Animatic, Zoomracks II, Mousetrap, Prohibition and Barbarian are all reviewed.

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.

Number 18.

Includes: CIO commands and how to use them. Basic checker program to give error messages. Program for 130XE owners to display disk directories on boot-up. Amaurote, Nightmares, Music Matrix, Storm, and a mouse for the XL/XE are reviewed. ST section includes: Useful assembler routines. GEM applications in C including AES windows. Reviews of the Waddington 32 track MIDI sequencer, Enduro Racer, Super Sprint, DXpert V1.4, Mailshot Plus, Chessbase, Lattice C V3.04, Trauma, Rampage and Skyrider.

Number 19.

Includes: How CIO executes commands. Add-on Thermometer project, full details. Turbo Basic search and replace program. Upgrade your 800XL to 256K, do it yourself! Expander, SpartaDOS Toolkit, League Challenge, Spooky Castle are reviewed. Oh Damn is an excellent game to type in. ST section includes: Predator, Obliterator, Dungeon Master, International Soccer, Dizzy Wizard, Music Construction Set, Cambridge LISP and the Russ AI DX7 Editor are all reviewed. Prospero and Metacomco's Pascal compilers are compared. 4 ST books reviewed.

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