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March 1986

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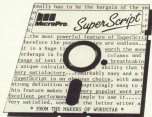
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More programs on way

A NEW division of publishers Software Express has been created to boost the number of programs available to Atari users.

Already it has reached a number of license agreements that enable it to import a range of products from the US, and to get British software distributed in America.

A key element in the new venture is Program Exchange, an open invitation to professional software houses and hobbyist programmers alike to join in the venture.

"We see our role as being like that of a record company, publishing software from many sources under one label", says Jan Dean, former Atari UK product manager who is in charge of the project.

"We would welcome the opportunity of evaluating software from professional and amateur authors.

"Quite often, some programmers have the best new ideas and approaches to software, but their programming skills are weak. If we feel a title will fit into our range we'll work with the author to make that program a quality title".

The venture will be launched officially at the Atari Computer Show at the Novotel, London, this month and Dean says details of the first batch of titles will be issued at that time.

SHOW IS ATARI'S LAUNCHING PAD

JACK Tramiel, Atari's charismatic chairman, will be jetting across the Atlantic with a party of VIPs to attend the Atari Computer Show in London.

The show that takes place in the Champagne Suite of the Novotel, Wimpole Street, London, from March 7 to 9 is the first Atari-specific exhibition to be held anywhere in the world.

"Jack's presence indicates the significance we attach to it", says Rob Harding, Atari UK's sales and marketing boss.

"We see it as the perfect launching pad for some exciting new developments which, for the moment, must be kept under wraps".

Atari has refused to comment on rumours from the States that Tramiel will be unveiling a new machine during his London stay.

However, other major exhibitors at the show are not playing it quite so tight-lipped.

The latest survey by Atari User has confirmed that well in excess of 100 new products will be unveiled at the show.

Of these, some two thirds will be aimed at the 8 bit machines - the 800X, and the 1300X - while the remainder



And Jack Tramiel will be there...

are for the 16 bit ST range.

One company alone will be unveiling more than 40 new products, many originating in the United States.

Software Express and its subsidiary SOCS has announced the mass launch as part of the group's bid to dominate the Atari market in the UK.

The most interesting contribution is likely to be De Fort's programming language for the 8 bit machines. Multi-tasking, it will be priced at £24.99 on disc.

Yet another Atari market leader, Silica Shop, will be launching at least 30 new products at the show. Once

again many will be American imports being brought over for the first time under license.

Microdeal has also jumped on to the American product importing bandwagon. The company has linked up with Microtron, one of the USA's main producers for the ST.

As a result Microdeal will be offering first time products for the ST including Time Bandit, a multi screen graphics arcade adventure, price £29.95, the Microsoft Utilities Programmer's Disc Exp, which enables programmers to look at any part of a disc or search for strings of characters, price £29.95, and MiTerm, mouse-driven communications software costing £49.95.

Microtron president Gordon Monnier and Time Bandit programmer Timothy Purves will be at the show to provide advice.

Not to be overshadowed by its American connection, Microdeal itself will be launching Disk Help, a menu-driven disc recovery program for the ST, costing £29.95.

"Companies have been pulling out all the stops to ensure that the first Atari Computer Show will be a truly remarkable event", says Derek Mackin, head of Database Publications, the show's organisers.

"I'm sure Jack Tramiel is going to be delighted with the result".

ST EDUCATION BARGAIN

In a special offer for educational establishments, Atari has bundled the 520ST with 800k disc drive, 12in monochrome monitor and mouse for £495, a saving of more than £150 over normal retail prices.

The same system with a 14in colour monitor costs £695 - £190 cheaper than the normal retail price. A

software pack including 1st Word, a window-based word processor, 88 Master One, a database, ST Basic and Logo programming languages is included with both packages.

Atari marketing manager Rob Harding said: "The 520ST is making a major impact in education, with universities, colleges and

local authorities already purchasing in quantity.

"The 520ST's leading edge technology at prices comparable with the economic pressures in education today will lead to the machine becoming the standard educational tool".

The special prices on education are in force until the end of March.

New deck

THE XCT1, replacement for the 1010 cassette deck, has been released by Atari.

It is built by a major Japanese manufacturer, approved by the computer and matches the 1300X styling. Price is £25.

It is compatible with all Atari 8 bit machines, but will be specially bundled with the 1300X at a price of £169, according to an Atari source.

Atari's out of the red

ATARI has witnessed a dramatic turn around in its fortunes during the first financial year with Jack Tramiel at the helm. It is now firmly back in the black after recording a deficit of \$500 million during the previous 12 months.

"We took an ailing company, with

considerable losses, and we have come out with an overall profit", Max Bamberidge, Atari UK's boss, told Atari User. "So we are now in a position of considerable moral strength because we not only know what we are doing, but are convinced we are right".

Canadian sales up

AFTER experiencing initial difficulty in setting up an ST dealer network in Canada Atari has now resolved its problems and sales are going well according to reports.

Limited software availability had been listed as the main reason for dealer resistance to franchise agreements, but the growing number of ST programs being produced in the USA in particular seems to have overcome the Canadians' reluctance to take on the machine.

General manager for Atari in Canada, Ian Kennedy has said that current sales of the ST are "going on target" and he expects \$2,000 will be sold there within the next few months.

Atari now has more than 130 dealers throughout Canada and more are being signed up each week.

Colours by the million

ALL the colours of the rainbow – and a few million more besides – are offered by Technicolour Dream, a graphic art utility for the Atari 8 bit range from Red Rat Software.

The program enables the user to create pictures containing the whole palette of 256 colours – 16 shades x 16 luminances – which the Atari can display on the screen at the same time.

And because a further 128 files can be used to mix new colours, the Atari's graphic capabilities are extended to more than eight million variations.

Graphic artist Maxi Gifford describes the program as "the nearest thing to real painting. We have a screen for canvas, an electronic brush and as much colour as Van Gogh could ever have wanted".

Pictures produced with Technicolour Dream can be flipped into edit mode and stored in memory while being worked on, or dumped to an Epson 8080, F650 or similar printer and saved on to tape or disc in compressed form.

Technicolour Dream costs £16.95 on cassette and £12.95 on disc.



HI-TECH ZOO BEARS

In London recently for the Toy Fair was Nolan Bushnell, the pioneering electronics wizard who started the video-revolution in the 1970s with the first consumer TV game Pong and went on to found Atari.

When Nolan said Atari to Warner Communications he was presented from developing an electronic game or toy for seven years.

But now that his nine-compete time is up, Nolan is

back in the business, and has set up a California-based company called Aalon.

He has turned his electronic genius to creating sensational new toys. They are filled with all kinds of unusual electronics that make them do fun things to challenge a child's imagination – like A.S. Best, a high-tech teddy bear that talks back to you in electronic bear talk.

● Nolan, and friends, are pictured above at London Zoo.

US borrows UK techniques

MARKETING methods refined in Britain are being copied by Atari Corporation in America.

Building micro in software and peripherals to make up attractive packages has become common practice in the UK.

This tactic proved a blip in helping the British home com-

puter industry out of the 1985 doldrums by stimulating sales.

The lesson hasn't been wasted on the Americans, to whom bundling is a novel concept, rarely used.

But now Atari has decided to market the 1300X in the USA as a "complete starter package" for computing and word

processing.

For \$299 the purchaser gets the 1300X with mouse, printer, disc drive and five software titles – two games plus Music Painter, Paint and AardWriter.

Atari is also putting together a package including the 654X which is expected to retail for between \$300 and \$350.

OS goes on ROM

THE ST operating system is now available on ROM.

Upgrades containing the set of five necessary chips are available for installation at all main dealers at a cost of £25.

Big Top thrills

A GAME intended to capture all the thrills and spills of the Big Top has been released by Infocom for the 8008X, the 1304E and 5205T.

Baldface is an interactive mystery in which the player takes on the role of a small town circus-goer caught up in a kidnapping.

Baldface must be tried, beasts tamed, clues found, puzzles solved and dangers dodged in order to gain the release of the captive, the man's daughter.

A colourful circus program introduces the characters and is included in the package with balloons, bubble gum and a ticket to Springfield. Price \$29.95.

Atari steals the show at Las Vegas

VISITING the 1988 Winter Consumer Electronics Show in Las Vegas, it was hard to believe it was only 12 months since Atari stole the CES spotlight with prototypes of the ST and XE computers.

The question then was: "What about the software?" One 520ST and 130XE lunch later, the year's CES Atari stand was dominated by banks of monitors running video snippets of software.

The only hardware consisted of two STs and two 130XEs and one model each of the 660XE, 2600 and 7800.

I asked Jack Tramiel how Atari was feeling one year-on. He replied: "Very good. We still have lots to do, but so far very good".

Company president Sam Tramiel went further. "With the introduction at CES of exciting new products and programs, we are announcing that this is the 'Year' Atari, a revitalised company with a clear claim to several market segments.

"We're the fastest growing manufacturer of popularly priced computers and the leading manufacturer of video games".

According to Sam programming for the ST is the fastest growing sector of the computer market, with 1,500 companies worldwide producing software for the range.

Atari has announced exper-

iment distribution plans for the 520ST in the USA - meaning non-specialist chain stores - but as a strategic move to limit its most powerful machine, now the 1040ST, to authorised dealers only.

The 1040ST, announced at the show and described as a business system, is similar to the 520ST but contains 1 mb of

By JON DEAN

RAM, a built-in 3½" double sided, double density drive, and has 100 an 80M.

Software includes Basic, Jet Word and Neochrome and the machine is selling in the USA now at \$1,199.99 with colour monitor and \$999.99 monochrome.

Atari also announced changes to the 520ST including a built in RF modulator enabling standard TV sets to be used, and a package price with drive and monochrome monitor of less than \$700.

A new peripheral provided

soon is a 32-mbyte, 3½" hard disc drive for the ST, designed to deliver the increased power requirements for most professional applications.

One ST at the show had been set aside for live-demonstrations from a game software house.

We only saw Audiolight demonstrating their latest title marketed by Activision, The Music Studio. Hooked up to the Mod to the ST was a Cello C2101.

Music Studio, which runs under Gem, has similar capabilities to Island Logic's Music System and can generate some music and has the ability to add up to 98 sounds of instruments.

Atari once again threw down the gauntlet saying "We Care You To Compare", and showed 55+ C's in a 40 second time (a 131785), Apple Macintosh (\$2499) and their own 520ST (\$699 with colour monitor) running a demonstration called Boink - a 3D ball bouncing across the screen and back.

The Mac with its monochrome display, was visibly

slower and looked poor in comparison with the colour computers.

Atari's point came across. At a time when Commodore is saying the Amiga is a different class altogether from the ST, the Boink comparison posed the ST to be just as fast and capable - and at a better price.

A starter pack has been introduced for the US market featuring the 130XE, 9027 letter quality printer, 1050 5.25" disc drive and five software packages - a personal finance manager, Star Raiders game, simple music and graphics packages plus Asteroids Plus, an even better word processor. All this at only at \$399.99.

Is the support to continue on 8 bit products or are Atari putting all resources behind the ST?

Atari product manager John Skirvich gave reassuring answers. Atari has an on-going commitment to all owners of 8 bit computers. In addition to the 660E (US only) and 130XE, we have launched a new model (US only) and the XE51 cassette drive".

New software titles? "Our new XE package features three new titles including Asteroids Plus, and other titles such as Planetarium and ProFreddo should be available in the US early March.

"Star Raiders it is due for launch this year". This, later, proved to be the show - could be listed to The Last Starfighter.

Third-party software support? "New titles are being announced all the time. Many companies are coming back to the 88 who have been away for a while".

One final revelation from John was that a Gem-type package will be available for the 88 using a mouse later this year.

A new Entertainment Electronics Division has been set up, and according to executive vice-president Michael V. Katz there is an indication of a continuing and growing market for video games.

* Jon Dean, former product manager of Atari UK, is managing director of EPCC, a division of Software Express.



Atari went to Las Vegas in a big way

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Now the Alien Attack gets under way



I CONCLUDE this short series by completing our examination of the assembly language listing of *Alien Attack*. Figure 1 is a list of the data that is used to create the *Player* shapes.

DELAY

300

Because machine code operations are very fast compared to Basic a delay routine needs to be incorporated in *Alien Attack* to slow things down a little. This routine decreases the X register from 100 to 119 times, a total of 1881 cycles (99×19). This is similar to the Basic routine FOR DELAY = 1 TO 10 : NEXT DELAY.

The address 39082 stores the number of cycles which is set initially at 20. This number is altered at various points in the program to increase or decrease the timing of the delay. So setting 39082 to 150 during the ship explosion routine gives a much longer delay, as the Atari counts through 14761 cycles (99×149).

SWP

- Lines 320 to 380 control the movement of the ship.

320

The current vertical and horizontal coordinates of the ship are transferred to the X and Y registers.

330

Address 632 is checked to see if the joystick has been moved. If moved then the X and Y registers are

Part III of STEPHEN WILLIAMSON'S series on how to produce your own machine code games

increased or decreased according to the joystick position.

The numerical values of the joystick positions are the same as used by the Basic command STICK(0). X and Y are stored in the ship vertical and horizontal stores to provide a record of the new ship positions. The X value is stored in 53248 to set up the new horizontal position.

380-390

The data for the ship design (see Figure 1) is stored from address 37888 to 37904 (indexed by Y). A 0 is put into address 37887 and 37905 (indexed by Y) to erase pixels previously plotted at the top or bottom of the ship.

ALLEN 1

- Lines 400 to 480 handle the movement of *Alien 1*.

410

The *Alien 1* colour register is cleared to see if it is dark red (E3) which indicates that the *Alien 1* has been hit. If hit then *Alien 1* is not plotted and the program exits from this subroutine. X and Y are loaded with

the current horizontal and vertical positions of *Alien 1*.

420-440

The shape of *Alien 1* is plotted in the *Alien 1* player strips (38144 to 38158 indexed with Y).

450

0 is stored in 38142 and 38158 (indexed with Y) to erase pixels previously plotted at the top and bottom of the *Alien 1* shape.

The accumulator is loaded with whatever value is held in address 20. Address 20 is part of the Atari clock system and the value held in this address changes rapidly. This is used to provide a pseudo-random number and thus plot a random flight path for *Alien 1*.

Many arcade games suffer from the fact that few or no random elements are included so that, after playing for a while, you learn to anticipate the movements of monsters or alien spaceships. In *Alien Attack* the flight paths of the *Aliens* conform to a general pattern, but by using this routine it is impossible for the player to predict at what point an *Alien* will change direction.

By performing an arithmetic shift left (ASL A) on the accumulator the carry flag is set or not depending on whether bit 7 of the accumulator is on or off. The carry flag is checked - it will either be 0 (on) or 1 (off) - and if not set Y is increased to provide a new vertical position for *Alien 1*.

The horizontal position of *Alien 1* is checked to see if it has reached the right hand side of the screen

coordinate 138) and if so Alien 1 must change direction and the Alien 1 direction flag held at 208 is changed.

493

A similar check is made on the left hand position and if the Alien has reached there (coordinate 50) then the direction flag is changed. X is increased or decreased according to the direction flag.

470

The vertical position of Alien 1 is checked to see if it has reached the bottom of the screen. If so, P is loaded with 0 ready to start the Alien off again from the top of the screen.

480

The updated horizontal position is stored at address 53348 (Alien 1 horizontal register) and X and Y coordinates are stored in the Alien 1 horizontal and vertical stores.

ALIEN 2

• Lines 480 to 558 handle the movement of Alien 2 in the same way as Alien 1. The only difference is that instead of the ASL operation to create a pseudo random number the LSR# arithmetic shift, right operation is performed in line 540.

ALIEN 3

• Lines 560 to 650 handle Alien 3 movement. Line 620 performs a similar arithmetic shift operation to Alien 1, but the result, instead of acting on the vertical coordinate, acts on the horizontal coordinate to give a different type of random flight pattern.

SHIP

• Lines 670 to 740 handle the firing of the ship missile.

670

Address 648 is checked to see if the fire button has been pressed. If not pressed then the program jumps 32 bytes to avoid creating a new missile.

690

The ship missile fire flag (store 1520) is checked to see if a missile is already

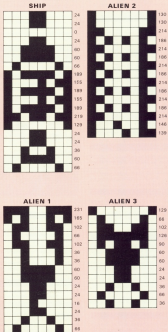


Figure 1: Ship and alien shape data

on the screen. If on screen then no further missile can be fired and the program jumps 20 bytes to avoid the new missile creation routine.

600

A 2 is added to the horizontal position of the ship to give the horizontal coordinate value of the missile so that when the new missile is plotted it will appear in the correct position above the ship. The horizontal position is stored in the ship missile horizontal register (address 52252). 1 stored in addresses 37630 and 37631 (indexed with Y) plots a pixel on the ship missile stripe.

700

Store 1633, which holds the current ship missile vertical coordinate, is checked to see whether it has reached 4, which means that the missile has gone off the top of the screen. If so, the missile need be plotted no further and the program exits from this routine.

710

A 1 is plotted in the player missile stripe for the ship missile (indexed with Y). Y is decreased so that the missile will move up the screen the next time the program reaches the fire routine.

720

The value of Y is stored in sound channel 1 pitch register (52762) to give the missile sound effect. A value of 170 sets the volume for sound channel 1. A zero in address 52766 gives pure sound.

730

If the vertical position of the missile has reached 4 this again means that the missile has gone off the top of the screen and the missile flag at 1630 is set to 0 to allow another missile to be started. The sound channels are also switched off if the missile is off the screen.

BOMB

- Lines 750 to 810 handle the movement of the alien missiles.

760

A similar routine is that used to determine the flight pattern of the aliens is used to provide a random number (0 or 1) and this decides whether the Alien 1 missile is

dropped. If the carry flag is clear then no missile is dropped and the program jumps 26 bytes.

If the carry flag is set the start position of the Alien 1 missile is set to the current Alien 1 position plus 2 so that the missile first appears on the screen immediately below the middle of Alien 1.

770

A 4 is loaded in the Alien 1 missile flag store at 1638 and the vertical coordinate stored in 1639.

780

If the Alien 1 colour register is dark red (50), and therefore Alien 1 has



been destroyed, the program jumps 31 bytes to avoid plotting the missile.

790-800

A 4 is plotted in the Alien missile stripe (37647 to 37648 indexed with Y) to create the Alien 1 missile. 0 erases the pixels previously plotted at the top of the missile.

Y is increased by 1 ready to plot the missile further down the screen the next time this routine is reached. Y is stored in the missile vertical store and checked to see whether it has reached 240 and is therefore off the bottom of the screen. If so the missile flag is set to 0 and Y decreased so that the missile stays off the screen and a new missile can then be plotted.

ALIEN 2

- Lines 810 to 860 handle movement of the Alien 2 missile in a similar fashion to that of Alien 1 missile. The new missile is dropped if the carry has been previously set from line 760.

This means that the Alien 2 missile is dropped at a different time to that of Alien 1.

ALIEN 3

- Lines 860 to 910 deal with the Alien 3 missile in the same manner as that of Aliens 1 and 2.

COLLISION

- Lines 920 to 1060 control the collision between the aliens and alien missiles and the ship.

930

During the development of the program it was found that player pixels were left plotted at the bottom of the screen. Instead of rewriting the alien and ship subroutines it was simpler to add line 930, a routine that clears the bottom of the player stripe of any debris that has gathered there.

Because machine code is so fast, short routines make no discernable difference to the speed of programs. It is often easier and simpler to add a routine to solve the symptoms of a bug in the program rather than spend a long time hunting through the program to find the bug.

940

This line checks the collision detection registers to see whether the ship has been hit by an alien or alien missile.

950

If the ship has not been hit the program jumps to the kill subroutine to find out whether the ship missile has hit an alien.

960

All the sound registers are cleared.

970

150 is stored at address 38062 to slow down the delay routine.

980-990

The ship colour register (704) is loaded with 55 to turn the ship red. 64 is stored at address 38878, 144 in the channel 0 volume register (52761) and 255 stored in the channel 0 pitch register (52766). This combination provides the basis for the white noise explosion sound effect.

The X register is stored at 1544 so that it can be retrieved after the delay routine has been executed. A loop



decreases X from 144 to 128 to run the explosion sound and flash the screen background colour between red and black. 63 stored in address 71D gives red and 0 gives black.

The formula for calculating the colours to put into colour registers is $\text{value} = \text{colour} * 16 + \text{brightness}$.

1000-1000

Initialisation operations to re-run the game after the ship has been destroyed.

1000

Sets the starting coordinates of the ship.

1010

Cleans the sound registers.

1020

Cleans the PM data stripes.

1030-1040

Alien and missile stores are cleared.

1050

The collision detection registers are cleared and the delay timer reset to 20.

1060-1080

Score 1046 which holds the number of lives left is reduced by 1. If no lives are left then the subroutine return address is pulled off the stack by the use of PLA. PLA and the program returns to Basic.

D clears the lives left indicator at the top of the screen and, according to how many lives are left, aimsheads (character 95) are displayed at the top of the screen (address 34466D).

RELL

• Lines 1090 to 1220 handle the collision between ship missile and aliens.

1100

The collision detection registers are checked to find out if an alien has been hit. If not then the program returns from the subroutine. X is loaded with a value according to which alien has been hit.

1110

64 is stored at 53768 and the sound registers cleared.

1120-1130

A loop is set up to replace the Y value

from 144 to 127 to create an explosion type sound similar to that of the collision routine. The delay timer is not changed so that the game halts only briefly whilst an alien is hit.

The colour register is indexed by X so that the Alien that has been hit will change colour to red (53). Whenever the program returns to the Alien plotting routine, a red alien will be cleared off the screen.

1140-1150

Initialisation and clearing routines.

1160-1190

These lines handle the increment of the score.

Scores 1047 to 1049 hold the character values of the score 198 to 200. A value of 16 is character 0 when displayed on the screen and 20 is character 5.

The score increment routine can be thought of as similar to the procedure that we go through when first learning to add up 1 to 3 digit numbers. For example, a score of 150 means that 3 is in the 1s column, 5 in the 10s column and 1 in the 100s column. Since 1049 keeps track of the 1s, 1048 the 10s and 1047 the 100s.

If the value of the 1s has not reached 25 (or score 50) then the 1s are incremented by 1 and the 10s and 100s left alone. If the value of the 1s has reached 25 (or score 50) then the 1s must be reset to character 16 (a 0) and the 10s incremented by one to give a score of 10, 20, 30 and so on.

If both the 1s and 10s have reached a value of 25 (equivalent to character 9) the score is 50, 100, 200 and so on and both the 1s and the 10s must be set to zero and the 100s incremented by 1 to give a score of 100, 200, 300 etc.

Really the 1s, 10s and 100s are displayed at the top of the screen to show the current score.

1210

All alien colour registers are checked to see if they are red (53).

1220

If all aliens are red the timing register at address 35062 is decreased by one. Each subsequent wave of aliens will then be faster. This ensures that the skill needed to play Alien Attack increases the longer the game is played as, providing the player loses

1000	1000	1000	1000	1000	1000
1000	1000	1000	1000	1000	1000
1001	1001	1001	1001	1001	1001
1002	1002	1002	1002	1002	1002
1003	1003	1003	1003	1003	1003
1004	1004	1004	1004	1004	1004
1005	1005	1005	1005	1005	1005
1006	1006	1006	1006	1006	1006
1007	1007	1007	1007	1007	1007
1008	1008	1008	1008	1008	1008
1009	1009	1009	1009	1009	1009
1010	1010	1010	1010	1010	1010
1011	1011	1011	1011	1011	1011
1012	1012	1012	1012	1012	1012
1013	1013	1013	1013	1013	1013
1014	1014	1014	1014	1014	1014
1015	1015	1015	1015	1015	1015
1016	1016	1016	1016	1016	1016
1017	1017	1017	1017	1017	1017
1018	1018	1018	1018	1018	1018
1019	1019	1019	1019	1019	1019
1020	1020	1020	1020	1020	1020
1021	1021	1021	1021	1021	1021
1022	1022	1022	1022	1022	1022
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1025	1025	1025	1025	1025	1025
1026	1026	1026	1026	1026	1026
1027	1027	1027	1027	1027	1027
1028	1028	1028	1028	1028	1028
1029	1029	1029	1029	1029	1029
1030	1030	1030	1030	1030	1030
1031	1031	1031	1031	1031	1031
1032	1032	1032	1032	1032	1032
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1036	1036	1036	1036	1036	1036
1037	1037	1037	1037	1037	1037
1038	1038	1038	1038	1038	1038
1039	1039	1039	1039	1039	1039
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1067	1067	1067	1067	1067	1067
1068	1068	1068	1068	1068	1068
1069	1069	1069	1069	1069	1069
1070	1070	1070	1070	1070	1070
1071	1071	1071	1071	1071	1071
1072	1072	1072	1072	1072	1072
1073	1073	1073	1073	1073	1073
1074	1074	1074	1074	1074	1074
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1078	1078	1078	1078	1078	1078
1079	1079	1079	1079	1079	1079
1080	1080	1080	1080	1080	1080
1081	1081	1081	1081	1081	1081
1082	1082	1082	1082	1082	1082
1083	1083	1083	1083	1083	1083
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1090	1090	1090	1090	1090	1090
1091	1091	1091	1091	1091	1091
1092	1092	1092	1092	1092	1092
1093	1093	1093	1093	1093	1093
1094	1094	1094	1094	1094	1094
1095	1095	1095	1095	1095	1095
1096	1096	1096	1096	1096	1096
1097	1097	1097	1097	1097	1097
1098	1098	1098	1098	1098	1098
1099	1099	1099	1099	1099	1099

no lives, each alien wave is faster than the preceding one.

The routine does not allow the delay to go beyond 0. Decreasing a value of 0 in machine code gives a value of 255, and this would have the effect of slowing the game down to a snail's pace.

If all three aliens are hit, after a PLA instruction the program jumps to the clear routine. The PLA instruction is used in a similar way to the Basic command POP, because we are jumping out of a subroutine without going back to the return address.

The program has now completed one cycle of its operation and returns to the control routine again and continues in this manner until all the ship lives have been lost and the game is over.

Alien Attack fits into just under 15k and demonstrates something of what can be achieved by machine code without using a lot of memory.

I hope that this series of articles has encouraged you to have a go at creating your own arcade games. The techniques I have described in Alien Attack can be copied and developed to produce very sophisticated games.

Not everyone who writes their own machine code games is going to become a millionaire, but machine code programming can be a fun and satisfying pastime.

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The Worm completes a Silicon Dream

By Brillig

Snowball



THE ATARI
BOXING

Level 9 Computing

Return to Eden



Level 9 Computing

The Worm in Paradise



Level 9 Computing

As promised last month here's a treat for Level 9 fans, as I shall be reviewing in varying degrees of depth the Silicon Dream trilogy, now completed with the long awaited arrival of *The Worm in Paradise*.

The series marks the culmination of Level 9's evolution since the arrival of *Snowball* with the claim of 7000 locations.

Snowball was much in the style of previous Level 9 games in that it was text only, had verb-noun input and made great play of the huge number of locations. Of the trilogy, however, it is my personal least favourite for that very reason.

The obsession that biggest is best was prevalent at that time, and indeed to some extent still is, having only been overtaken by the obsession with graphics.

That Level 9 has always been the largest adventure writers in that sense seemed to result in this claim of a huge number of locations.

In my view there is little point in having that many locations when about 8,000 are all the same. Accepting this, however, means that the player can assume the identity of Kim Kimberley and begin to solve the problems of the giant freezer ship *Snowball*.

You start the adventure having been automatically awakened by the ship.

You are a kind of intergalactic trouble shooter so the very fact of your awakening indicates problems. In fact there is a saboteur aboard and you have to sort him out to save the 1,800,000 (minus you) frozen bottles

en route to the planet Escalor A to start a new life.

The adventure is set in the 32nd century, and is based very loosely on the Larry Niven novel 'The Mote in God's Eye', with the exception of the beginning of the program it is a highly believable impression of how such an enterprise might be conducted.

It is the rather tedious start to the game which made it difficult to get into. For instance, it seemed illogical to me that as the "sleeper" placed aboard in the event of trouble, the ship's security systems should activate "nightingales" to dispatch you to a somewhat more permanent sleep on discovering you are awake!

Once out of the initial stages the game seems well structured and has a sense of purpose - much better than some games with just toffs to bash or a few treasures to locate.

The plot and implementation mean that 7000 locations are a bit excessive, and the spelling is not all it could be. Although there are uses for most objects not all are essential, and once the initial code cracking is done the game is a little too straight line in logic for my liking.

If, as I see, you have been stuck at the beginning for some time, a few hints may be in order. After you have pushed the lever and said Out to leave the coffin you should go north and push three buttons in turn.

Go back south, get up on to the coffin fern where you can go up to the mortuary. Remember always to keep a closed door between you and the nightingales, and keep still when they are around.

Nightingales will only enter blue

mortuaries on the white level for some reason (with Kim Kimberley ought to know).

Final hint: if you want to get out of the mortuary area you should look for a lift.

In Return to Eden we discover that not only are the occupants of Snowball an ungrateful lot, in that you have been framed for the murder of the crewman and sentenced to death, but that the planet Eden on which your stratagolider has landed has most definitely gone to seed.

This game marked Level 9's first departure into graphics on several machines, although Atari owners were spared this doubtful privilege until Red Moon.

Again the idea is taken in part from a famous sci-fi author, this time Henry Harrison's Deathworld. Your task is to clear your name with the occupants of the city of Enoch, both physical and mechanical, utilising the flora and fauna.

This gives rise to some devious problems and to some quite dreadful

yet enjoyable puns. The only slight problem I had with the game was again one of logic at the start.

It seemed a little odd that rather than use the conventional way of killing people the crew of Snowball suffers from the James Bond villain syndrome.

This entails using the most convoluted and complicated method imaginable of causing the hero's death. Hence rather than shoot him/her they try to burn you with the engines as they fly past! A little implausible, I would say.

The engines incidentally can be avoided by burrowing underground.

Other than this fairly minor gripe Return to Eden is by far the best of the three games in my opinion and can be played without having endured Snowball since a resume is included in the instructions.

All this has left me rather short of space for Worm in Paradise. The new Level 9 adventure system is a wonder of programming, with the type-ahead an absolute boon. Again I find the

graphics a little too Spectrum-like and rapidly turned them off.

In Worm you play a citizen in the next century and aspire to the Seat of Power. I'm not sure if the game is a true reflection of Peter Austin's political leanings — a little to the right of Genghis Khan — but the game has a political slant.

Doubtless I shall return to this game fairly soon when I have made a little more progress, but so far Return to Eden is the best of the three for me.

Final note. A couple of licensing deals have been brought to my attention. Adventure International has signed up with US Gold, so we may see Questprobe III at last, and Bigrose Software has signed up with S.E.C.S. Inc. (yes, that's how I pronounced it too). They'll be previewing at least one new adventure at the Atari User Show.

■ Next month I shall look at Action Maze from Masala/Level 9 and hopefully have received a glitch or two.

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Move over Atariwriter... here comes Superscript

— says André Willey

WORD processing is probably the first serious application that any home computer will be put to. Like most other micros, there is a glut of word processing packages for the Atari, some more versatile than others, some easier to use, some faster, and so on.

The "standard" word processor has for some years been Atari's own Atariwriter cartridge, which is very easy to use and reasonably versatile. It was designed to run with 128k machines, and worked pretty well within those limitations.

Now that the 8000, and 130XE, with 64k and 128k respectively, are available, it was only a matter of time before a new program would be written which would use those new facilities to the full. Such a package is Superscript, written by Prologix Software and marketed by MicroPro, the makers of Wordstar.

Let's get the bad news out of the way first. Since Superscript requires a minimum of 64k, and preferably 128k, you can't use it if you have an old series Atari 400 or 600. It would not have been possible to pack all of the features into a 48k machine and still have any space left to store your documents.

The other piece of bad news is that it only comes on disc, but, quite frankly, I feel that anyone who is seriously considering word processing must realise that a disc drive is an essential item anyway.

Even though discs are pretty reliable, I feel that MicroPro has let the users down badly when it comes to back-ups. When paying this much for a program you would expect either a back-up to be provided at nominal cost, or, as you are told in the license agreement, that you should always make a back-up before using the product.

Even though you are warned to

make five back-up copies, to be completely safe, the program disc is quite heavily copy-protected, leaving you somewhat in the lurch if your disc is damaged. Come on MicroPro, be fair to the customers who pay your wages!

If I were to describe every feature that Superscript has to offer, there wouldn't be enough space in the magazine to print it.

The fully ring-bound manual provided is over 240 pages long, and I couldn't hope even to paraphrase it here.

It is split into sections, starting with a couple of tutorials on major aspects of the package, then going into advanced use, and finally a very comprehensive reference section — some 100 pages in itself.

Unfortunately, despite all of MicroPro's promises, there is no quick reference card, a serious omission in a package of this nature.

Once you've booted up your master disc — which, partly due to the copy-protection used, seems to take forever — you may create your first work disc. This will be formatted in DOS 2.0 mode, even to the extent of using enhanced density if possible, and will contain your documents and your printer-driver file.

The file can be set up from the 11 types provided, including all of the AtariPrinters, Epson, Diablo, NEC and so on, or customised in any way you wish for your own printer. Unusually

you can even use an RS232 printer.

Assuming that your printer handles them, Superscript will support the full international character set, dozens of print modes, spacings, character sizes and so on and any special features such as italics or download sets that your printer can offer.

If by far the most popular non-Atari printers in use are the Epson range, and I use an Epson-compatible N10 printer with which I found that all of the international characters print exactly as seen on the screen — which means that I can at last write André rather than Andre!

The same goes for that elusive £ sign. Now printer-drivers can, of course, be loaded at will, a feature which would allow you to attach a serial and a parallel printer at the same time — perhaps a daisywheel and a dot matrix — and switch between them with ease.

Once on to the main screen, the colours of which you can customise via the default file, just as you can margins, centering and justification, you can start typing.

As with most word processors, you just type in your text with no thought of line format, and the only time you need to hit the Return key is to signify the end of a paragraph.

Words will be moved down automatically to the next line if there isn't room for them on the current one.

I found that sometimes the time taken to insert new text within a long document was rather greater than I'd have liked, with frequent four or five second pauses while it head up some line space.

This could become a little annoying at times — like now, when I am editing an extra bit half way through a

“It will support the full international character set, dozens of print modes, spacings and character sizes.”

realize.

When I said long document, by the way, I meant just that. On a 128KB there are two separate text buffers, each 780 lines long (about 64k in total). This review takes up just over 350 screen lines, or about 200 lines by the time it's printed out on an 80 column printer.

I managed to re-load it five times before I ran out of memory - that's about 1000 printed lines. On an 800KB, you get about half that, and on a 250kwriter you get a measly 200 to 250 printed lines, or about 10k.

Working within the limitations of 80 columns of text is normally somewhat tricky when you think that the printer will be re-formatted to use 80 columns.

This means that typing a table requiring, say, 70 columns of text is almost impossible. Thankfully, an option has been added to set the line length to any size up to 240 characters. You simply scroll a 40 column window over the text, and any tables can be seen laid out correctly.

This is especially useful when you realize that SuperScript has a calculator function built in, giving it many of the basic functions of a spreadsheet.

All you need to do is lay the numbers for your table out in rows and columns, and SuperScript will total them for you, taking both negative numbers and bracketed numbers as subtractions.

It will also allow you to handle

“An easy way out of a tiresome menu-selection procedure.”

multiplication, division and percentages before you even enter the figures on to the page, via a mini calculator feature. If all this sounds a little complicated to grasp, perhaps it is until you get used to it, there are examples on the disc and exercises in the manual to help you out.

Every time you want to use a feature such as the calculator facility you press the Select button to bring up the main menu, from which you go

to other menus as required.

There are 11 options, each of which leads to a sub-menu, and a help function. This can also be obtained at any time by hitting the Help key.

Selection of items from the menu is possible in two ways. The beginner

“The beginner may find some features hidden under the most unexpected menu titles.”

can highlight each feature with the cursor keys and hit Return when they've made their choice. This procedure can become tiresome very quickly, so you can just as easily use the first letter of the option. For example, instead of moving the cursor to Document (Retain), then to Load (Retain), all you need type is DL.

At first you need to look at each new menu to see what your options are, but after a few days you find yourself using only the abbreviations.

My only criticism is that a beginner, who is bound to start by reading the menus, may find some features hidden under the most unexpected menu titles. For instance, would you really expect a heading of Set to give you a sub-menu including all of the quite comprehensive search and replace options?

Once you're used to it, though, such obvious operations as setting a new margin - Select's main menu, then Layout, then Margins, and finally left - become as easy as Select LML.

If, after all this, you still find that some common operations take longer than you'd like, then you can always define Macros, which allow you to execute a whole series of command and text entries with a single keystroke.

You may wish to put your full name, in bold face, at the top W, for instance. The possibilities are endless.

Another important feature of SuperScript is a very powerful mailmerge. This is the ability to use a standard letter and make the computer print multiple copies with different names and addresses on

each, and perhaps personalized with Dear xxx.

You may use either a file you've written yourself via SuperScript, or merge with a database, such as SysFile- or FieldManager 800, or any other that can create label-type output files, with one field per line.

You may use any or all of the fields at any position within the letter, and even use fields more than once.

Fields can be variable or fixed length - to fill address lines or tables - and even conditional, which will allow names and addresses to be printed with variable numbers of lines. You can even specify to skip certain records.

One slight problem in this area is the need to limit the size of your merge file to fit within your RAM, or to link two files with the LINK option.

This would preclude the easy use of very long - over a couple of hundred records - database merges without first modifying the merge file, which would involve you in extra work.

Spell-check, of course, is not overlooked, and you can configure your 30,000 word dictionary file for either British or American spellings. This is a godsend for anyone who has been driven up the wall by the computer politely informing you that you've spelt colour wrongly.

You can also add or delete dictionary words whenever you like.

Spell check can even give you statistics, such as number of words, number of unique words, number of paragraphs, average word length, and even a breakdown of how many times every word in your document has been used. There is no near-miss checking, but that really is the province of much larger systems.

All of the normal block manipulations are present, which include define block (or column label), move, duplicate, save or delete block, erase character, word, sentence, rest-of-line, full-line, paragraph, rest of document or whole document. The list is endless.

You can even have two documents in memory at the same time (if you've got 128k) and freely move text between them both, which is especially useful in mailmerge mode.

So far, I have only listed the major features, but there is so much more

You can set headers and footers to print at the top and bottom of each page (which can contain up to three parts, left-aligned, centered, and right-aligned).

Page numbers are catered for, and SuperScript will adjust its settings automatically for you to make odd and even numbered pages have larger central margins and adjusted header/footer settings ready for binding into book form.

Movement within a document can be either relative or absolute. You may go to the top/bottom of the text, or move up/down a screen or to the left/right of a line, or forward/backward by words, sentences or paragraphs.

Tab positions can be set both across and down the page. You may use overtype or insert mode for text entry, with hard or soft hyphens and spaces, and use the normal cursor keys (with or without using the Control key — the choice is yours).

These are keys to change while

Every silver lining has a cloud, and SuperScript is no exception.

works to upper/lower case, change the screen colours, add non-printing comments (useful), and use multiple levels of indent for sub-headings.

Unfortunately every silver lining has a cloud, and SuperScript is no exception.

I was hoping that this paragraph would not be necessary, because for once I received an early beta-test copy of the program, and was invited to comment on any faults that I found.

This I duly did, explaining a couple of very easy-to-fix problems, but ones which were very annoying in general use.

Thus Precision Software had a full three months to fix them before the final release came out — right? Wrong! It seems I was wasting my time explaining to them how an Atari works, and thus there are a number of little problems.

Firstly, and most frustrating of all, the Delete key's function is slightly different to the normal Atari one. When any Atari user hits Control-Delete, he would expect the character

under the cursor to be deleted, but in SuperScript, for reasons known only unto themselves, it deletes the character to the left.

As an additional function, this would be fine, but when you're so used to the normal operation of your computer it really can be quite annoying.

This problem can also cause text to back-up into the previous paragraph — even to the extent of packing two short paragraphs on to one line, or leaving multiple spaces within a document.

The re-format option will not correct this, so unless you happen to notice it, anything after the first end-of-paragraph marker will not be printed.

The really daft thing is that the manual doesn't even mention Control-Delete, and only talks about Shift-Delete, which apparently does exactly the same thing! So why change it in the first place? Your guess is probably as good as mine!

Of course, if you do finally get used to it, heaven help you if you then want to do some ordinary programming afterwards.

The other main problem I warned them about is extremely silly, but has several nasty repercussions. Thankfully a slightly knowledgeable Atari owner could spot and correct it quite quickly, but that's not really the point, is it?

The printer driver files each contain a character to tell the printer to do a Carriage Return (or **CR**), as it is sometimes known. Precision apparently put this in because the Atari range of printers is listed as using the Atari internal code of 155, whereas most printers use code 13.

However, what they totally forgot is that any use of code 155 is translated automatically into a code 13 by the Centronics or RS-232C interface anyway.

Thus code 13 should never be used as an **CR**, because the operating system won't know that the line has been finished, and will then add its own **CR** just to make sure.

Thus, at the end of a printout, it adds an extra Carriage Return (of the correct 155 type) when the last line is printed. The next page you print will then be one line lower, and so on.

On either a multiple-copy printout,

or even a shortish mailmerge, each page is printed one line lower down than the last, until about 30 lines later it starts printing over half-way down the page.

Also, the "Store printer on disc" won't work at all, which is really frustrating if you want to use SuperScript to prepare formatted files for use with another package, such as spreadsheet via a Comms package. Use with a database or in with your own programs.

If you come across anything like this, and you're not one of the few people using an Atari model printer, try changing the 13 to a 155 in your printer-driver file.

Perhaps one of the six or seven

In terms of value for money it really cannot be beaten.

people I spoke to at Precision and MicroPro will actually take note of these points before the next revision of the product is released?

Anyway, regardless of those few problems, I found SuperScript to be a generally excellent product, giving more features than any other word processor I've come across for the Atari.

Unfortunately, due to the added support being provided by MicroPro, they have seen fit to raise the price to £79.95, which will put it out of the price range of some prospective users, although in terms of value for money it really can't be beaten.

While it may seem to be twice the price of AtariWriter, by the time you've added the cost of a printer-driver and a good spell check program, there's not really anything in it.

If all you want to do is type the old letter, then AtariWriter is probably more up your street, but I can wholeheartedly recommend SuperScript to anyone who is thinking of using their Atari for any sort of serious word processing, and certainly to anyone who is a little fed up with the limitations of AtariWriter.

Anyway, assuming the Delete bug is soon cured, I know which word processor I'll be using in future.

HORSE PLAY

By
**MALCOLM
IREDALE**



THE Knight's Tour is a classic problem involving a chess board and a single knight. It involves moving the knight in its normal fashion in such a way that each square on the chess board is visited once only. To successfully complete the tour you must visit every square on the board.

In this version you see the joystick to move a cross-wire cursor. When you're on the desired square press the fire button. The knight will move to that square and the previous square occupied will be blocked in.

The program won't let you make an illegal move or visit the same square twice. It will also check to see if you're stuck. You can leave the program at any time by pressing any key on the keyboard.

I wrote the program using a monitor instead of a TV, so the colours used may not be to your liking. If this is the case, you can easily change them by altering the values in line 230.

The Knight's Tour is possible but by no means easy. When you've managed it from the normal starting point, see if you can still do it from a random starting point.

MAJOR VARIABLES

LTORANGE	Colour variables (can be changed)
ORANGE	
BLACK	
WHITE	
X	Position of knight
Y	
XX	Position of cross-wire
YY	
C	Colour flag for square routine
K	
D	
H	
N	Print/Draw coordinates
M	
COUNT	Variable for number of squares filled, holds menu status - Random/Normal
MENU	
B	
ST	

PROGRAM STRUCTURE

140	Print instructions.
150	Print menu.
160-240	Set up variables.
250-300	Draw screen.
310-400	Main movement routine.
400-450	Draw small knight.
460-510	Draw cross-wire.
520	Draw cross-wire.
530	Draw knight.
540-750	Move knight.
770-820	Check if stuck.
830-1100	End routine.
1100-1210	Fill in square flag.
1220-1300	Print instructions and menu.
1310-1350	Print screen.
1360-2000	Restart program.
2100-2150	Draw big knight.
2160-2240	Print "Press fire".
2250-2300	Print "Wait point".
2310-2340	Clear screen cleanly.
2350-2400	

AN awful lot of the letters I get regarding the more technical aspects of the Atari could be answered by one book — Mapping the Atari, from Computer Books.

It is a complete guide to the memory locations used inside the Atari. Everything is there — operating system control bytes, colours, player/missile graphics, sound, input/output, even Basic pointers and variables are covered.

But this book is much more than just a list. Many of the more complex locations have quite lengthy explanatory notes, and there are lots of programs to show you how to use them.

Some locations have as many as three or four pages given over to them, and while such a book can never be a complete tutorial to the workings of a computer, it's about as close as you could possibly get.

Even better, there is now a revised edition, which also covers all of the locations changed for the XL and XE computers (even the aborted 1300XL).

These are listed in the form of a very large appendix, so you can see at a glance which locations refer to which type of computer — and everything is listed in both hex and decimal.

Other appendices cover vertical

Answers to those Atari queries

blank functions, system timers, display lists and player/missile graphics, connection ports (including the parallel bus) and even the workings of DOS 3.5.

There is also an alphabetical index to all of the locations covered, so you can quickly find out what the location mentioned in a particular program or article actually does.

Last, but by no means least, the book finishes with a couple of very useful programs for XL/XE owners. One will convert your "buggy" Revision B Basic fitted in the XL range into the improved Revision C, as provided with the XE, and the others allow you to transfer the operating system from ROM into RAM, so that you can try your hand at modifying things for yourself.

I really cannot recommend this



book too highly, so if you feel tempted to write in to us asking "What does location xxx do?" or "How do I use POKE \$80?", then you may find that a copy of the XL/XE edition of Mapping the Atari will answer all your questions (and more).

My own copy is never far from reach, and is almost certainly my most-used reference work.

While it may seem a little expensive to some of you at £18.95, I think you'll find it worth every penny. Go out and get one today, and start finding out a little bit more about what's going on right under your nose.

DIY WORD PROCESSOR

I DON'T really know whether to review Speedscript, also from Computer Books as a book or a piece of software, as it really is both and neither. What you get for your £12.95 is a 114 page book which boils down to the complete listing of a quite reasonable word processor, written completely in machine code.

Two sorts of people will find this book useful — the ones who just want a good, cheap word processor and don't mind a bit of typing — and those who have probably got a word-pro or two already, but are fascinated to know how they work.

The book works on both levels, as it contains an easy-to-type form of the program in Basic, with extensive checkers (error-checking), plus the complete and well-commented

assembly listing.

The word processor itself is surprisingly powerful, giving you a whole range of simple but flexible commands. You can set all the usual things such as margins, headers/footers, centring and justifications, page numbers, underline and special printer features, simple macro keys, and more.

You also have search/replace, plus full text movement commands and move/delete by letter, word, sentence or paragraph. The whole thing works in a very attractive re-defined character set using Ascii Mode 3 for greater clarity.

An interesting idea then, hampered by the amount of typing involved (about 30 pages of mainly numbers), but of great use to the



machine code programmer who wants to pick up some tips.

If you just want a no-fussle word processor you may prefer to lash out a little bit more and get one that doesn't require quite so much work.

Andrew Willey

NEW SERIES

BASIC COMPILER

HAVE you ever wished your Atari ran faster? Perhaps you have written a program which redefines the character set or a vertical move routine for player missile graphics. Programs like these really show up the Atari's lack of speed when written in Basic.

An obvious solution is to write the routines in machine language using Atari Basic's USR function facility. One way to do this is to use an assembler program such as Atari's Assembler Editor cartridge.

This program performs a lot of the donkey work associated with machine language programming, but it requires that the programmer not only be thoroughly familiar with the 6502 CPU at the heart of every 8-bit Atari but also with the machine itself and with its operating system.

This is especially true where colour graphics and sound are concerned.

An alternative solution is to use a program called a compiler, which is capable of taking a program written in Basic — or Pascal, C, or what have you — and directly producing either machine language or assembly language.

In the latter case the assembly language is assembled using an assembler program as discussed above to produce executable machine code. The trouble with compilers is that they tend to be expensive, and they usually require a disc drive and more than 16k of memory, thus leaving 400 and 6000L owners out in the cold.

The program presented in this series is an exception to all the above. It is a compiler written in Basic which compiles a language similar to Atari Basic into assembly language which can then be assembled to produce a ready-to-go USR function using the Atari Assembler Editor cartridge or an equivalent assembler.

All of this can be accomplished using just a 16k Atari with cassette drive. If you have more memory or a disc drive your life will be made simpler, but it's by no means essential.

Before you get too excited I should point out that this is not a professional software development system — you can't produce large programs with it.

It is primarily intended for "Test

and dirty" routines which can be captured in about a screen's worth of Basic. Also the limitations of producing the compiler in 16k have meant that many Atari Basic features are not supported.

Floating point, strings and arrays, for example, may not be used — these are the main restrictions.

You also lose the comprehensive error checking offered by the Atari — there are few error checks when compiling, and fewer still when running your USR function.

This limitation is easily overcome by testing your routine thoroughly using Atari Basic and only then, when you are certain that it is correct, compiling it to get the benefits of machine code speed.

Initially you will find that many things cannot be done using the compiler. But you will also find things that cannot be done without the compiler.

Take sound, for example. The compiler provides an exact replica of the Atari SOUND statement, but without range checking on the four sound parameters. Remembering that compiled programs execute many times faster than normal Basic, it's possible to get new sounds from the Atari by varying the sound parameters much more quickly than is normally possible.

Other benefits of the compiler are advanced control structures such as named procedures and REPEAT ... UNTIL, and keywords to deal with timed interrupts. These are extremely powerful and open the door to concurrent programming — that is, two programs appearing to run at the same time.

Over the coming months I shall be presenting the compiler itself and also discussing the Basic which it compiles — its special features and limitations. I shall also be giving example programs which demonstrate the compiler's usefulness.

For now, type in Program 1 — listing starts on Page 23 — and save it several times on a cassette or disc all by itself. This is the compiler program.

To use it you will need the compiler library, a set of assembly language routines which the eventual USR function will require.

■ I shall present this next month, and also explain how to use the compiler.

Speed up your programs — even on a 16k Atari — with this Basic Compiler by FRANK O'DWYER

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Tired of typing?
Take advantage of our finger-pointing offer on Page 52.




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Get 'em all right

- Where a number on the screen differs from a number in the magazine this indicates a difference between what you typed and what we printed. In the case of a READ line such a difference probably won't be important. In the case of a DATA statement, a difference could be fatal. A full stop instead of a comma might cause the whole program to crash.
- Use the Return to Basic option in Get it Right and type NEW. Then re-load the program as follows:

```
Disc users  ENTER "D:TEST"
Tape users  ENTER "C:"
```

Correct the offending line and save the program again (see second step above). If you've made the corrections successfully, you should be able to RUN the program now.

However, if it still won't run you'll have to go back to step three.

It's also worth pointing out that although the micro might say something like ERROR 8 IN LINE 30, this doesn't necessarily mean that there is a mistake in line 30 itself. This is just the line that was being executed when the error condition arose.

Typically the line referred to in the error message contains a READ statement. In these cases the typing error has probably been made somewhere in the DATA that is being read by the mentioned line.

Finally, if you're new to Get it Right! and have entered it from the December issue, make sure you see the correction which we published in the January issue. "To go is to burn" - it takes a computer to really score things up!



FAST HANDLING... ARE YOU A FASTTY HANDLER?

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GUY FAWKES

PROGRAMMING BY GUY FAWKES

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PONTOON

PROGRAMMING BY PONTON

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Goonies saved by the play

NOT having seen the movie of the same name, I can't say whether or not **The Goonies** bears any resemblance to it or whether knowledge of the film makes the game any more enjoyable or easier to solve.

I say solve, for what we have here is yet another of those running-jumping-climbing platform games and ladders inside games where the basic idea is to puzzle your way through several different scenes.

Not again, I hear you cry. Trust us, but at least **The Goonies** has one novel refreshing feature which prevents it from being written off as just another in what has now become a long line of played-out game scenarios.

In order to solve each scene you need to get the two main-screen characters (Goonies) to work as a team. Goonies are children, by the

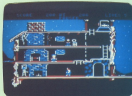
way.

Only one Goonie can be operated at a time — you simply switch control to the other by pressing the joystick fire button.

Unfortunately this unusual and interesting game-play concept is almost wasted here because the other elements in the game — contents, graphics, animation, colour and sound — are nothing to get excited about.

The Goonies' goal is to reach One-Eyed Willie's pirate ship and grab the treasure. To do this, the Goonies have to progress through eight scenes of undesignated chambers, in each of which goonies have to be cracked and the exit found before they can progress to the next chamber.

Each scene has to be separately loaded in from cassette or disc when you reach it and you can only ever



start at the first scene.

Once you've lost all of your lives, you must reload Scene 1 in again, a real pain if you've using a cassette deck, since this also means rewind the tape to the correct position.

Various hazards along the way for the Goonies include members of the dreaded Fratelli gang, lava pits, rocks, steam, bats, carnivorous turtles, flying skulls, mines and a giant octopus. **The Goonies** move around by running and leaping, climbing and bouncing, the latter on trampolines.

Although the teamwork concept is a good one, the game is sadly let down by rather blocky and unimpressive graphics, while the use of sound and colour is both limited and unexciting.

Included is a hint sheet whose riddling contents should help you in solving each of the screens.

The game is worth playing if only to try out the twin character feature, but don't expect anything earth-shaking from it or you'll be disappointed. **Bob Chappell**

Forget the cover, enjoy the story

DOFT judge a book by its cover. That's the case with **Zone X**, from Gamma Graphics, and one of their first Atari products.

I was a little apprehensive about the quality of this game, but I soon changed my mind when it had loaded.

The object is to collect plutonium that has been left scattered around in a mine-shaft. Why in an NES mine-shaft?

Well according to the inlay card material has produced so much plutonium that all the government storage tanks are full so mine-shafts have been used to store nuclear waste.

One of the shafts had been infiltrated by destructive sub-ventures who attempted to seize the plutonium. The whole operation went wrong and plutonium was scattered all over the mine.

The player's job is to collect

all the plutonium and deposit it in containers.

Easy? No way. There are robot guards which walk around in very unlogical directions and laser doors open and close when they want, making your job more difficult.

When you find a piece of plutonium you have to pick it up and then take it to a container. Since this stuff is radioactive, the longer you hold it the weaker your radiation suit becomes.

You can replenish the suit's resistance by picking up time-looms which lie around the mine.

If you wish to go through a green door you will need a key. Keys lie about and can be reached with relative ease.

Another helpful object is a mat, which can be used to block off robots. Be careful when using these, because if

you place the mat in the wrong side of your man, you will end up stuck in a room with a bunch of robots ready and more than able to kill you.

Once you have safely disposed of all of the plutonium you must leave via the "out" door which you must first locate.

Bonus points are gained by picking up question marks, but stay away from any that are in awkward positions — they ain't worth the bother.

Most players will find **Zone X** hard enough to start with, it will teach you how to avoid robots and time all your moves.

Each zone is different and since the screen scrolls in all directions they take a long time to master.

The game allows selection of Zones 1, 4, 7 and 10. Each then has a difficult level 1, 2 or 3. This gives a possible 30

zones.

Other variables which determine what you will do include doors which close behind you and never open again and air locks which may release robots enclosed in an adjacent room.

There are warp doors, assembly racks, and quotas in the game, but I failed to find these.

When you are killed, either by being run over by a robot or running out of time, your man will explode and his remains fly off the screen.

The game has a high score table, but I hardly ever scored enough to get on it.

It is a nice offering that should keep the best of gamers occupied for many weeks. **Zone X** is available on 48k cassette or disc, and retails at £9.95 and £12.95 respectively.

Richard Munn

Chop Suey tops bargain collection

FUNNY how simple ideas can quickly turn into big money spinners. Take computer games, for instance. Walk into any second store and so sure as my name's not R-Tal you're bound to find at least half a dozen computer albums of past smash hits.

Once upon a time you could buy a set of classic board games in a box. Nowadays these old companions of Ludo, Snakes and Ladders, Draughts and Nine Men's Morris have been supplanted by a technologically more advanced phenomenon - the computer games compendium.

These collections of previously released games have proved to be very popular, and it's not hard to see why. A compilation of quality games offers a surprisingly good value for money.

English Software, publishers of the amazing British-globe (reviewed in a recent issue) and in my book the best Atari sale game ever, are no slouches when it comes to giving the Atari games-playing public what they want.

They have just released a further volume in their Smash Hits series, **Smash Hits Volume 2** contains the superb Chop Suey, Kung Fu Cousins, Hijack and one I have not seen before, Pinball.

Chop Suey is a top notch Kung Fu contest where you pit your martial arts skills against a human or computer-controlled opponent.

Impressively smooth animation and a variety of realistic moves result in a smashing game. Next is Hijack, this is English Software's best to date.

Kung Fu Cousins has you racing and leaping through a succession of obstacle-strewn streets in a gallant attempt to reach a damsel in distress. Caterpillars, frogs, bombons and bats are just a few of the hazards.

In Hijack you pilot a chopper and must rescue 10 VIPs from a moving train. To accomplish a rescue you have to position the chopper over a VIP before the chopper's

climbed on to the top of the speeding train and lower a rope for him to grab.

You then deposit him on top of the rear carriage where he will be secure. Trees and cannons add to the difficulty.

Pinball sets you speeding left to right along a four lane highway, dodging traffic - you can even zoom over it - until you reach an office.

Inside you score the maze for a safe, all the while dodging and doubling fireballs before returning to the streets and on to the next office. These skill levels are an offer. This one's tough but addictive.

Of the four, Chop Suey is easily the best, and the compendium's worth buying for that alone. But with three other decent games thrown in for good measure, you really can't go wrong.

Bob Chappell

The Zombies return to life

ELECTRONIC Arts has always been a good source of original and exciting software, but I was slightly disappointed in **Realm of Impossibility**.

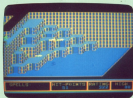
Originally released under the name Zombies, the program has now been re-worked and licensed in the UK by Activision.

The game follows a good against evil theme. The player starts in an Indiana Jones type role, fighting all forms of nasty beings from marauding zombies to small round orbs which look like gnomes.

The action starts when an evil cleric called Warrick steals the seven crystals of the middle kingdoms, and yes, you have to recover them.

This Warrick isn't stupid. He has hidden the crystals among his 13 dungeon strongholds - but he made one small mistake, he only locked six of the dungeons. The other seven contain either keys that open the remaining locked dungeons or stones for you to collect.

A menu shows dungeons that are locked, completed or unstarted. When you select a dungeon the screen changes



to a 2D view of the dungeon, giving a clear perspective some reminiscent of the famous Zaxxon. Your man stands ready to explore the passages ahead.

You will probably have wondered why this game is titled Realm of Impossibility? Well some of the dungeons have walls that would confuse any brickie.

In the Realm of Impossibility dungeons, for example, there is a 3D platform that seems to be 100 metres high,

and yet you can step down to ground level at the side of the platform.

As you move out of a room the screen scrolls the next section smoothly on and when this is complete a whole host of creatures converge towards you.

At this point you should have scanned the room and begun a dash for the next room or be running towards any object you wish to pick up.

The creatures usually wander about or just head

straight for you. When a nasty collides with you your hit points decrease. If your hit points drop below zero the game ends.

The bad guys include zombies, poisonous snakes, giant spiders and evil orbs. These supermines of the evil world play a defending role, protecting the keys and crystals against intruders. They're not stupid, so be careful when being chased.

The problem with this game lies in the area with which I completed all the dungeons. I finished the whole game on only my third go.

The game offers a two-player game which is quite fun. Both are on the screen at the same time, so this calls for complete cooperation between them. If a player wishes to leave a room he must wait for his partner to leave as well. If a player is killed, the remaining player can resurrect his dead companion by touching him.

The price for this US Top 5 hit in won't be in my top 1000 is £9.95 for cassette and £12.95 for disc.

Richard Vanner

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I PROBABLY the Fruiti Gambler game on page 144 of the August 1989 edition of Atari User were good, but found using the keyboard tedious.

I have altered it slightly to work with a joystick in port 1, and thought you might be interested in the changes.

THE EDITOR I AM VERY INTERESTED IN YOUR COMMENTS AND WOULD BE GLAD TO RECEIVE YOUR COMMENTS AND IDEAS.

Lines 430 and 431 allow you to press the trigger or start button for nudges.

THE EDITOR I AM VERY INTERESTED IN YOUR COMMENTS AND WOULD BE GLAD TO RECEIVE YOUR COMMENTS AND IDEAS.

Line 525 allows you to press and hold the trigger to nudge up.

Lines 555 to 575 allow you to move the joystick to nudge the reels individually.

THE EDITOR I AM VERY INTERESTED IN YOUR COMMENTS AND WOULD BE GLAD TO RECEIVE YOUR COMMENTS AND IDEAS.

Line 600 gives you timing to press the start button to collect your winnings.

THE EDITOR I AM VERY INTERESTED IN YOUR COMMENTS AND WOULD BE GLAD TO RECEIVE YOUR COMMENTS AND IDEAS.

Lines 1050 and 1060 allow you to spin reels by pressing the trigger.

THE EDITOR I AM VERY INTERESTED IN YOUR COMMENTS AND WOULD BE GLAD TO RECEIVE YOUR COMMENTS AND IDEAS.

Lines 1212 to 1248 allow you to hold or cancel each reel using the joystick.

THE EDITOR I AM VERY INTERESTED IN YOUR COMMENTS AND WOULD BE GLAD TO RECEIVE YOUR COMMENTS AND IDEAS.

Lines 2220 and 2230 allow you to collect or gamble by pressing shift forward (shift) or backwards (gamble) - B.N. Taylor, Birmingham.

The £20 button

I WOULD LIKE if you have any comments on a problem I have had with my Atari 1070 monitor.

The Play button broke approximately 71 months ago

Take a joystick to the Fruiti Gambler

the guarantee.

I contacted Atari who advised me to go to Masterson or Bolton. I did this, but Masterson were not prepared to undertake work while the equipment was under guarantee.

It did not seem worthwhile sending the whole unit back just for a button, so I authorised Masterson to carry out the work.

The cost of replacing the button turned out to be approximately £20, which I reluctantly paid.

Since Atari had advised me to go to Masterson knowing the unit was under guarantee, I thought it not unreasonable to request a refund from Atari.

Atari's reply was short and sweet - No.

I accept that Atari have no requirement to refund the money but in view of the circumstances felt at some of the amount should have been refunded. - P. Ward.

■ We agree.

Guy down the hole

AMY I point out a bug which occurs in the Guy Fawkes program from your November magazine.

If one moves to the edge of the screen and presses the trigger the hole is effectively off-screen, and an error 2 at line 1020 occurs, due to variable D being -1 and the "hole" being POINTED on to a non-existent screen.

This can be corrected by re-typing line:

THE EDITOR I AM VERY INTERESTED IN YOUR COMMENTS AND WOULD BE GLAD TO RECEIVE YOUR COMMENTS AND IDEAS.

- Paul Rice, Sheffield, York.

■ Roland Washburn admits

that he forget to write proof the program, so that digging off the screen was trapped. Thanks for providing the necessary safeguard.

Alien has a bug

I AM A physics student at Imperial College and have had my Atari 400 for nearly four years.

I have been buying Atari User since issue No 1 and have found it most informative and great value for money.

I particularly like the way in which the program listings are printed on a light coloured background, which makes them much easier to read and less tiring on the eyes.

It is nice to see that Stephen Williamson is doing a series on producing your own machine code games, but I would like to point out that a review bug in his program Alien Attack, which appeared in the January issue.

The problem arises because the AI machines are slightly different from the 400 and 800 machines.

The X1's only have two joystick ports, while the 400 and 800 have four ports.

On the 400 and 800 the status of the joystick fire buttons are held in memory locations 644 to 647 (284 to 287 in hex), but because the X1's only have two joysticks, locations 646 and 647 are only duplicates of 644 and 645 respectively.

Unfortunately Stephen Williamson (author) in his program to check the state of the fire button of the first joystick, which is line 1 of you have an AI machine, but on the 400 and 800 location 646 reports the state of the

fire button on the third joystick.

So to play the game on a 400 or 800, you control your ship with the first joystick and use the fire button on the third joystick - not very nice, I'm sure you'd agree.

The solution to this problem is fortunately not too difficult.

After several hours of searching through the machine code I came across the problem on line 620, which read:

520 DATA 173,134,2,201, . . . END.

To solve the problem, simply change the number 134 to 132, but don't forget that you must also change the checksum on line 40 from 171346 to 171344, to account for the different data.

I hope that this solves up any problems that 400 and 800 owners there had with using the program.

One other thing. There are several file loading programs for the Commodore 64, Spectrum and Amstrad, but can such a fast loader be written on the Atari?

Perhaps you could publish such a program, since this would greatly improve loading times for cassette users. - Stephen Gunderidge, Leicester.

■ Stephen is correct. Despite Atari's policy of making their 8 bit computers compatible there are differences, with some AI programs not running on the 400/800 models and vice versa.

Alan Adams was written on the 80000, and I inadvertently put in the wrong address for where the status of the fire button is detected.

As the program work connects on the AI, this bug that makes the program incompatible with the 400/800, was not noticed.

The decision register for joystick 0 is correct so need not be altered for 400/800 users. The X1 uses address 832 for stick 0 direction and 833 for stick 1 direction with addresses 834 and 835 dup-

listing these values.

On the 400/800 locations 834 and 835 are used to detect the direction of jumps 2 and 3.

Maybe I should buy an old 800 to check that my future programs that I write are compatible.

Stephen Williamson

Good reading

LET me congratulate you on a first rate magazine for Atari users, beginners and experienced alike. I especially liked Miller Atari's series on the Atari's display list.

I agree with Steven Hertz's

suggestion that you should include some assembly language and complex graphic routines for the more experienced Atari programmers to get to grips with.

I would be very grateful if you could help me with the following.

Could you tell me if there is a book available for the 800XX which has a disassembled listing of the Atari ROM and describes what each routine does and how it works, as does the book "The Complete Spectrum ROM Disassembly" by Melbourne House for the Spectrum?

Could you also tell me if there is a book which lists and describes the uses of the different special memory

locations and registers that the Atari uses?

I have read Mike Frame's article and wondered where he got the information about the hardware register locations and the HDVICU location.

I hope you can answer my questions as I would like to make full use of the Atari's superb capabilities which leave other consoles far behind — Alan Gilchrist, Carlisle.

There is no book that gives a complete ROM disassembly for the 800XX, but let us recommend a few very good books for your purposes.

Firstly, "The Technical Reference Notes" (Atari) provides a full listing of the OS on the old 400/800 machines, which gives you a very good

idea of how everything works on the XL too, plus you get the "Operating System Users Guide", an invaluable book to the machine code programmer.

The "Atari Basic Source Book" (Computer Basics) gives a disassembly and explanatory notes of the Rev A Basic cartridge, which for a few bytes, is the same as the XLXE.

DOS (LBI) is covered in two books, "Inside Atari DOS" (Computer Basics) which covers the same (DOS.BYS), and "The DOS Utilities Listing" (Atari) which provides a full listing of DUF.BYS (the utilities/menu segment).

As a good complement to the above books, there is a

FINAL WORD ON THOSE OS BUGS

HAVING bought an 800XX for Christmas 1982 I am now on my third one. The first locked up while listing in programs and was replaced.

The second had the same fault, and my third one, delivered only two weeks ago, does the same.

My attention has been drawn to a letter in *Atariage*, issue 32, which states that 800X, and 800XX computers are being supplied with faulty Basic, and gives a simple test. Type in:

PRINT PEER (40034)

If the result is 00 you have the defective Basic, but if you get 234 you have the updated Revision C Basic which is all right.

This matter was explained to my retailer, but it appears that all his XL models give the same, wrong, answer, therefore all have defective Basic.

According to the letter writer, Atari no longer have any Rev C Basic units left and say it is too expensive to set up a production run.

If this is the case, and Atari are deliberately marketing faulty machines, speedy action is necessary to remedy this situation, otherwise Atari will not last long.

Don't get me wrong — I do

entirely/fully intend I want, having had the games console, 400 computer, 800 computer, and now an 800XX, which has wasted hours of typing by locking up repeatedly.

If the Atari letter is correct the sooner Atari take such action, the better.

Have any other 800XX units found this fault? — G.J. Donohue, Inverness.

LET me congratulate you on your magazine for the Atari user. It will fill a void for the beginner and user of long standing.

The main reason for this letter is hopefully to help your reader J. Williams writing in the October issue.

I bought my Atari 400 early in 1982 and found that the control manual and the Basic manual supplied only covered the surface of the capabilities of the machine.

I found I was getting faults, like J. Williams, which were not mentioned in either manual.

When editing a program, including re-writing errors, the keyboard would occasionally lockup, making it necessary to switch off and start up again (using whatever was in memory).

A phrase used to the Atari

machine gave me the solution. Generally with too much editing and no LIST command the error buffer fills up and causes the keyboard to lock up.

The solution is to edit a little and then give the LIST command. I now have the habit of listing or editing no more than two lines at a time and then giving the LIST command.

It is interesting that I do not get duplicate any more. — G.A. Edwards, Braintree.

I OWN an Atari 800X which I bought over a year ago. Until I saw your June issue of Atari User I had not been getting very far with understanding my machine, but I am now an avid reader of your *Beginners and Graphics sections*, which have taught me quite a lot.

I would like to know if you can help me with a problem that I have with my 800X.

When I type a program it sometimes stops working.

I lose control of the cursor and the only way I can regain control is to use the Atari button.

This is the norm of the time, but sometimes this will clear all of the program that I have

typed in and I have to start afresh again.

Will you please tell me if this is normal or if there is something wrong with my machine. — P. Turner, Tottenham.

Let's clear up this problem of bugs in the OS and Basic once and for all.

Like all computers, there are minor bugs in Atari's machines. We can be thankful that they are not as serious as, say, some of the early Sinclair or Acorn machines, but they are nonetheless still there.

Don't all go rushing back to the shops and ask for your money back, because the bugs can mostly be worked around.

The two most major ones concern the EXPAND and CONTRACT routines within Basic itself.

On the old 400/800 Basic cartridge (Rev A), one of the routines to move memory quickly downwards (CONTRACT) had a fault which meant that the machine would crash and lock up whenever it was asked to move a multiple of 256 bytes.

This only rarely happens of course, but it made much worse by a lot of editing, especially involving deleting lots of lines.

There is no cure for it,

superb memory map produced by Computer Books called "Mapping the Atari".

It covers locations within the OS, Basic, DOS and all of the other useful bytes for graphics, sound, I/O and so on.

Make sure you get the revised edition if you have an 800XL, as it also covers locations on the XL and XE computers and DOS 2.5.

One other book that wouldn't go amiss is "De-As Atari" Atari which is a slightly less technical guide to the workings of the machine and its OS.

This is not a substitute for the "Technical Reference Manual", but is much more helpful to the less advanced machine code programmer.

Common variables

QAN you refine please if there is a way in which one Basic program can load and run another disc without losing the variables and their values set up in the first program?

I appreciate that the command `ATN "D:\xxx.xxx"` would flow within a program, but it resets variables to zero.

Creating a data file on disc and then reading it from the second program would work, but it would be slow and the extra programming would be tedious and defeat the object, which is to modularise programs and keep them to a

minimum size.

On the subject of long programs, is there any way of suppressing the maximum line number, 9999, that can be used to list ranges of lines?

As far as I am aware to list a range starting at over 1000, one has to list the whole program. — A.G. Barton, **Barnes**.

■ There is no easy way to use common variables with Atari Basic, but how about setting up a file which contains your new program in LISTed format, plus lines containing just a line number to delete anything that remains of the old program?

If you using RETURN key mode you could then get the new program to RUN correctly

after you had ENTERed it. You may find that this is easier than setting up a variable file on disc.

The other question has no easy answer, I'm afraid. You'll just have to put up with typing that extra "comma 9999" after your LIST commands.

Strip Poker on disc

I HAVE just read the review on Strip Poker in your excellent October edition, but although it was a good review your writer, Pat Coates, wasn't too clear about the disc

except to make sure you SAVE your program regularly.

You'll know if it happens, though, because the keyboard will accept nothing you type, and pressing RESET will only let you enter one more line, then it will lock up again.

When Rev B Basic was written for the XL the limit — 2 bytes, would you believe — was introduced.

Unfortunately some bright spark at Atari decided that had better do the same to the older routine EXPAND (which was perfectly OK as it was), hence the same can now happen when you add lines on an XL, so some people get locked when entering programs.

This problem with EXPAND can also cause failures during the OS command, giving you an error 16 where there should not be one.

Rev B Basic had a few other faults, minus zero gives odd results, as does INPUT with no variable, LOCATE and GET can occasionally get their data mixed up under very rare circumstances, and the SORT command is a bit quirky.

Rev B cured all these other problems, of course, but introduced one other rather major one.

As the system could sometimes wipe out the last few

bytes of memory before the display comes up at Atari thought "Ah! Let's add a little extra bit to Basic to tell the program that it can't use the last 16 bytes of memory".

Good idea, but he did it by adding 16 to the "end of program" counter, so that it would register as being out of memory 16 bytes too early.

This effect is cumulative, which means that every time you SAVE a program 16 useless bytes are added to it.

On a 128k machine this quickly mounts up, so, of course, you think "Ah — go let's just LIST the program and re-enter it every so often to clear up the tables".

But then the EXPAND routine is used to the fullest, of course, to add lines, and you can well crash the machine. The only thing to do is SAVE it first, then LIST it.

If ENTER crashes the machine, re-load the normal version, and try adding a few bytes to some of the lines (such as a REM or two) then LIST it.

Many other curses have been pronounced, but I can stress that none will work — the most likely probably being to wave garlic over the keyboard!

All of these bugs have been cured in Rev C, which is in the

XL machines and also available on cartridge for other computers.

The OS is not without its problems too. The old 400/800 OS could time-out every so often during disc or printer I/O.

It would come back about 30 seconds later, but would have spent a pintout by then.

This was caused by a routine accidentally left in the machine code which allowed for older printers to cool down during a long print run.

Also the cassette routines don't clear their buffers correctly, so CSAVE could sometimes leave garbage at the start of a file, causing it not to load back again.

The cure for this one is simple. If you have a 800 or 800, always type LPRINT before trying to CSAVE a program (ignore the L38 error).

This will ensure that the buffer is clear before you start.

A number of other things could cause minor problems, but only at a machine code level, so I won't cover them here.

On the XLs, the OS was evolved to clear these problems, and is by and large bug-free. However the hardware isn't.

There exists, in early 800XL,

and 800XL machines, a timing problem with the OS/OS chip.

It normally works fine, but after a lot of use as it seems up one particular brand of chip lost all track of time, and couldn't communicate with the other chips in the machine.

The cure for this is a replacement 8002 chip, but only use an Atari supplied version, or you'll run into further problems.

You can find out if you have this fault (known as the math pack lock-up) by running the following program:

```

10 GOTO 1000000000
20 PRINT 416-416/E
30 GOTO 10
  
```

Leave this running overnight, and if it fails, probably with a yellow screen and garbage on the bottom line of the screen, you have the faulty chip, and you should take your machine in for repair.

Only the math pack problem will cause this program to fail while running.

Perhaps this will clear up just what the bugs are, and what they cause. As I have said, though, they are generally minor, and can easily be avoided by the common practice of making regular back-ups of programs.

André Willey

contains.

Having got the other version I thought I'd better point out a couple of things.

For one thing, it only requires 48K, not 64K as the cover stated.

I had trouble loading it until I decided not to press OPTION on start-up. So you need BASIC for the other version.

I hope this helps people having trouble with this excellent game. — **Mark Ooley, Newton Abbot.**

■ I think that I'm probably the best qualified person in the UK to answer this one, as I did the cassette version for US Gold.

The other version is basically the same as the standard release (48K), and it requires Basic.

As I didn't add anything apart from some protection routines to the disc, you must have Basic resident to play the game — that is, don't hold down OPTION on an XL/XL.

As I did a lot of re-writing to the cassette version, and tested all the pictures under both the operating system and Basic, you must have a 64K machine to run it.

In fact I only had about 52 bytes to spare under there, so it's a tight squeeze.

The cassette also requires Basic, but if you accidentally do press the OPTION key and disable it the new machine code loader routines I wrote will just turn it back on again. Need, or not?

So if you're feeling kind, and want to save the computer about a millionth's worth, then don't hold the OPTION key down.

But only had the cassette to go by, and so couldn't know the changes for disc.

André Willey

Disc doublers

I AM about to buy a disc daver for my 8000X.

For a number of issues you have been advertising a disc doubler which is designed to "double your cost".

It's in two minds about buying one, as according to my friends, modifying a disc while

ATARI USER Mailbag

WE welcome letters from readers — about your experiences using the Atari 8000s, about tips you would like to pass on to other users ... and about what you would like to see in future issues.

The address to write to is:

**Mailbag Editor
Atari User
Europe House
66 Chester Road
Hazel Grove
Stockport SK7 5NY**

was described can be harmful to the drive and corrupt the disc.

They say that the issue paper which lists the discs is printed in such a way that turning it backwards will tend to scratch the magnetic particles from the surface. Is this true? — **Richard J. Harrison, Barnsley.**

■ Opinion is divided on whether disc doublers are a good or bad thing.

Disc manufacturers obviously don't like them and have probably been responsible for several scare stories.

Balanced against this is the fact that many people use them without problems.

The Atari User editorial team contains proponents of both positions, so you'll have to make up your own mind.

User groups

A 64K user group has just been formed in Devonshire meeting twice monthly.

If anyone is interested then please telephone Colin on 02783 898370. — **Paul Taylor.**

AMU I appeal through your columns for Atarians in my area to contact me with a view to setting up a Mailbag and Society Atari User Group. — **Brian Duckett, 15 Bridge Walk, Yaxley, Camberley, Surrey GU27 7TX.**

I AMU "output", do you have "input" and live in the Cardiff area? If so and you are interested in joining or forming

an Atari User Group please contact me at the address below.

You may even find a computer being put to rest that you had not thought of. Look forward to hearing from all you Atari enthusiasts out there in the walls of the Cardiff area. — **Raymond Price, Mandeville House, 8 Lewis Street, Canton, Cardiff.**

Newspaper accounts

I AMU an 8000X, after drive (I DAD) and will soon be getting a printer.

I run a newspaper and I was wondering if there is a program for the Atari that will help with my newspaper accounts.

There are over 700 accounts and the program must be able to access each one, change the contents, save to disc and then load the changed accounts at a later date.

It should also be able to calculate bills output by the printer. — **Neil Thelwell, Plymouth.**

■ You could use an accounts package, but this seems rather like overkill in this case.

Have you thought about putting the information onto a database which has a built in calculator feature, such as Synfile 1.7?

It's worth thinking about, and may end up saving you a lot of time and trouble in the long run.

Simple bills, of course.

address, date and outstanding amount could be printed, and anything more complex could be linked into mail merge on a good word processor, SuperScript perhaps.

Auto-boot tapes

COULD you please tell me if there is any way of turning an ordinary Basic program into a boot-tape, and could you explain fully how it works.

I would like to know what I'm doing rather than just trying to do a Nothing. — **J. Walker, Aston Vale.**

■ The easiest way to produce a boot-tape is to save the program using BASIC "C". You can then load and run the program with the single BASIC "C".

We hope to publish other ways of producing auto-boot tapes and discs in a future issue. Needless to say, we'll give full explanations.

Expanding the 600 XL

AMU I expand the memory of my user's 600XL with modules of 64K up to 128K that are an offer in your magazine?

After doing so, would I need to buy games that have been specially made for expanded systems — or do I need to adapt it and start again? — **M. J. Leggett, Romford.**

■ With the present high cost of expansion modules you'd be better off starting again with either a bargain 8000X, if you can find one or a 1000X.

Piracy printers

I READ with interest your report on John Lawson's campaign to stop printing his company's (Computer Support) hardware, and I have two observations to make.

I bought Computer Support's 80 column 6000 hardware modification system and had them fixed it.

It took out the colour

In other important graphics programs, did not work any more and Computer Support offered to change their product if I told out the chip myself.

If you are worried about such things that is the software being damaged they would make the change for £20, bringing the total package to £700.

Equally important, their hardware is incompatible with Starline, a detail which they forget to mention.

Prices are a marked phenomenon, if customers change monopoly prices, prices open up the market.

CompuShare Computer Support should get their house in order and change prices at which printing becomes unworkable. — **Geoff Wainwright, Oxford.**

Looking for a printer

GARET the Atari world seems to have been moving very fast and I was wondering if you could answer the following enquiries.

Am I down to release Atlantis, Street Hawk, Daley's Super Fast and Destruction via the Atari? If so, when?

I heard that Beyond were to convert some of their games for the Atari some time ago, is this true?

Do you know if any of the other prominent British software houses are planning any releases for Atari?

Having read through the files from the Atari by the Sinclair I was looking for a book which would not only go into depth about the Atari's advanced features but would also explain them clearly.

"Your Atari Computer" looked good but £17.50 is a lot of money to waste if it only tells me what I already know.

Can you advise me on what is available and possibly recommend another book? — **Chris Howarth, Preston.**

■ The answer to your first two questions is — possible, but unlikely in the near future. The best way to find out is to contact the companies con-

cerned.

Melbourne House, Airing, Grimsby Graphics, Wizard Development, Tennessee, MicroPro/Precision and many others are all planning releases on the 8 bit Atari.

"Your Atari Computer" is a very good book, and covers as much ground as it can without going into machine code.

It is a little expensive, but we think it's worth every penny. Ask any serious Atari user about "The Blue Bible", and you'll see what we mean.

New releases

I AM hoping shortly to buy a printer for my 800XL, so I will require an RS232C or a Centronics parallel interface.

This is where I need your advice as to an inexpensive, but reliable one.

I phoned various retailers (scissors) and found the range to be between £50 and £80, a price that suits my pocket.

A couple of telephone retailers fell in this range, but I was told by one outlet that they would not touch or guarantee them. — **Lee Charlton, Malvern.**

■ The best answer is to look through the ads in the magazines. Any interface sold by a reputable company will have a 12 month guarantee and after that you can always go direct to the manufacturer if the retailer can't help you.

However most interfaces, being solid state will work trouble-free for ever more.

If your retailer says he won't touch a particular interface, find out why and let us know.

Reluctant camels

I HAVE a 800XL and a T240 Data Recorder with which I cannot find "data" of the Mutual Camels.

It is a machine code game so you have to get the computer in machine code mode when it is switched on, but after about 30 seconds it goes into the self test, it will not load Basic either, although

you can hear data going onto the tape and if you play the tape back you hear the data.

Incidentally do you know why the recorder has a stereo feed and the data is recorded on one channel? It baffles me. — **Phil Doody.**

■ The problem is almost certainly with the recorder. Try taking it into a local shop and see if they'll let you try it out with one of their machines. If it works OK, take your computer back for repair.

Otherwise send it back to the place you got it from, asking for a new one. The stereo system is to allow the extra track to be used for a soundtrack while loading.

BBS on test

YOUR readers may be interested to hear of a new BBS under test on Birmingham 0622 274269. Hours 22.00 to 02.00 daily. Space Mike Jarvis, speed 300 baud Atari based. Special interest by factory. — **M. Jarvis, Macclesfield.**

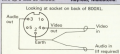
Video connection

COULD you tell me how to transfer graphics produced by the 800XL on to video tape? — **Derek Hopton, London SW5.**

■ The 800XL, as with all Atari computers except the 800, has a video out socket on the back — marked monitor.

This 8-pin DIN can be connected to the "video in" socket on the video recorder, and the video select switch changed from Turner to Atx or sometimes Camera.

This will give a far better result than simply plugging the TV lead into the audio socket on the video. Either use a standard monitor cable, or wire up a lead as follows:



Location 54017

I OWN a F304E, bought after my last acquired his 800 with 1986.

I thought I'd better share that it may have been something from the family planning clinic!

My other half's 800 has been back at Alan's for five months with a keyboard fault, but that's another story.

My question is this: The 130 hand-book states that "currently, memory location 54017 contains a F3R". If I press 5407 F get 280, and so does the display 130 in the shop. Can you clarify this for me? — **A.M. Wang, North Wales.**

■ Location 54017 on the 12088 should normally contain 283 with Basic turned on, not 180. See my article in the June 1985 issue for a full description of how it works and what each number means.

Andy Wiley

Fun and Games

WE would like to add a further comment to Cliff McNight's account on Turner Games 7.

We were quite happy with it and we came to the conclusion. We received gold, silver and bronze medals but not in the correct order.

The person in first place got a bronze medal and the person in second place received a gold medal.

For some unknown reason, when we ran the 800 against our time was 10.59 for which we received a world record but it rounded time 00.

There are only two of the bugs that we have found. — **Mark Perry and Darren Payfield, Malvern.**

These back issues are still available

May 1985 issue: Profile of Jack Fennell, pioneer of the new machines, stock options, Advertising Alphabet Test, Fiscal Utility Software review, Sounds in 8000, Miscellaneous, Area Images - 88 Wire, Beginners and Graphics.

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Keying in long programs too much of a chore?

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DEC 1985: Frog Jump. Guide the frog to the lily pads in the water of the world. **10000** Run Program for the area fills of memory to gain extra. **Submarine** Guide the submergence. **Fractal Search** Can generate with a joystick. **Randoms** Transcribe. Can translate numbers from machine code. **Utility** Patterns Can save the Utility Files on floppy disks only.

JAN 1986: Book Five. Features the standard-style of book code. **Hexadecimal** Find out what's going on only with your Mac. **Vocabulary Hunt** Use logical thinking to find the answers. **Personal Generator**, Buy generating passwords 80 you find new ones. **RayTracer**. Convert your images into an image. **SpaceBalls**. Can you eat the thousands of objects in the belt?

MARCH Anasimbin Make machine code program. **Magical Hexadecimal** Anasimbin program for machine operators. **Hexadecimal** Complicated to be easy. **Preparation** Present your programs from paying code. **Display List** Demonstration programs. **Stacker**

These great programs a cost by sending for our monthly club or cassette containing 60 titles programs from each issue of Atari User. See order form.



JUN 1985: Subatomic text adventure. **Book Tablets**, Documents.

SEPTEMBER: Maze Searcher Help Process the Risk search the maze without errors. **Data Maker** Convert your machine code numbers to DATA numbers. **Display List** Demonstration programs. **Review** Display Displaying Multi-frames to a 10000 screen. **Stacker** Index the Beta problem.

OCTOBER: Fontworks. Text? Not Memory Group. Generate messages in hex and Ascii. **Display List** Demonstration programs. **Warp Trap** Action game for one or two players. **Computer Caravan** Make your own microcomputer. **Anasimbin Update** Improve yours for 32-bit user level. **Stack** How's the most of the 12000's code memory.

NOVEMBER: Top Endless Help Get escape from the goblin. **Concepts** Teach your Atari to be a programmer. **Display List** Demonstration programs. **Binary Operations** Utility to generate logical functions. **Circle**, Draw and Rotate. **Play** Features of the month - **Demomaker** machine code profile game.

DECEMBER: Countdown. Make a version of the famous TV game. **Get 8 Right!** Star Wars own

display program. **Errors** Test if loaded or just. **Area** List Utility. Make using more. **Display List** Demonstration programs. **Play** Feature of the month - **Jan's Program** machine code entertainment.

JANUARY 1986: Beta. Help My Happy state. **Hexadecimal** Get it Right! Anasimbin user checkout program. **Alpha** Beta! The game to accompany the machine code review. **Learn** Make using programs only. **Stack** Play the maze or another player in the strange game. **Display 1000** program-platter machine. **Play** Feature of the month - **Hexadecimal** Flight machine code game.

FEBRUARY: Hexadecimal Programs to complete Hexadecimal program. **Circle** Includes down clock utility. **Finder** Feature/Accessibility. **Hexadecimal** to play, need to master. **Bridge** The thinking game's cool game. **Play** Feature of the month. **Demomaker's List** - an adventure game you may never escape from.

MARCH: Hexam Play Right's new program. **Stack** Anasimbin Program to generate the take with. **Area** Stack! The part of monthly using. **Play** Individual Reviews. **Hexadecimal** to the top. Can you keep your head and help Winson too? *

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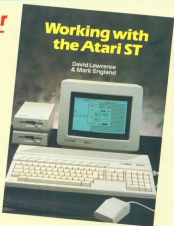
Winson has lost his head - can you keep yours and help him find it? Daniel Clippson has provided eight screens and two levels of difficulty - when you've mastered the easy level, switch to Hard! And remember, you won't find it listed in the magazine - it's only available if you buy the monthly cassette or disc.

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