

Page 6

ISSUE
14
90P

ATARI
USERS MAGAZINE

LISTINGS

COUNTERACTION
SUPPLY BLASTER
CROSSWORD CREATOR
DEPTH CHARGE

plus

TYPO II



THE NEW MACHINES



PSYCHEDELIA

A Light Synthesiser



Homosoft



Page 6

March/April 1985

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THE NEW MACHINES

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COLOUR!

Welcome to an all-singing all-dancing real colour version of PAGE 6! To celebrate Atari's new machines we have thrown caution to the wind to produce an issue which may well become a collectors item! Treasure it. You may never see another like it. There again if Atari can produce and market the new machines as well as they can design them, who knows? We may finally see the British public, retailers and press take proper notice of Atari and you may at last be able to read about your Atari and buy software offered from through PAGE 6. There are strong rumours at present that THE ATARI USER will be launched soon, possibly with Atari's backing, and that it will be available nationally through your newspaper. If it comes to pass, and I hope it does, then I wish it every success. Even though it may be competition for PAGE 6 I am sure that we will all benefit from the increased awareness it will bring. I am glad somebody is willing to take the gamble. 1985 looks like it may well turn out to be the most exciting year for Atari owners since that amazing Atari 400 burst on the scene a few years ago.

Thank you to everybody who returned the Readers Poll and Survey from the last issue and there were hundreds of you. The Survey confirms suspicions that very few Atari owners bother to read the UK computing press with only two magazines getting more than a 50% readership and of that the majority being occasional only. Computer & Video Games comes out as a clear favourite, despite dropping Atari listings in recent issues, with a 36% regular readership. The next most popular has only a 14% regular readership and from there on it is downhill all the way with between 50% and 90% of you who NEVER bother! It is no wonder that many people who have advertised software or products for the Atari over the past couple of years have sunk without trace or gone on to other pastures. There are (supposed to be) hundreds of thousands of Atari owners in the UK, but the big problem has always been reaching them. Maybe the answer lies in the hands of Atari themselves who could take a leaf out of Acorn's tree. The BBC machine has an independent users magazine (not a patch on PAGE 6) which BBC buyers have been made aware of through a card included with every machine. The result is a 20,000 circulation and the opportunity for many small companies to advertise at reasonable rates to a committed readership. If they can reach their customers, small companies grow into big companies and so a whole range of support for a machine grows up. Now with a 20,000 circulation you could have colour every issue!

We were fortunate recently to acquire a goodly supply of Atari games and applications packages and will therefore be giving them away over the coming year to contributors and in competitions. Look out for how you can increase your software collection in this and future issues.

Leo Ellinger

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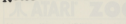
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Major news of course comes from Atari whose new products are detailed elsewhere in this issue. Nonetheless there are strong rumours that a number of 'foreign' packages will be available from Atari built around the 800XL. Unfortunately we were unable to secure any details at the time of going to press but if you are thinking of upgrading get in touch with your dealer. It may well be worth it.

English Software who have been very quiet since last summer are to release Colossal Chess 3.0 on 48K cassette or disk. It is the first chess program written in the UK for the Atari and has been programmed by Martin Bryant, one of Britain's foremost computer chess programmers. Also available will be *Seven Arts* volumes 1-3 at £14.95 on cassette or £17.95 on disk. Each pack contains five titles and, even though Jet Boost stock is included in each pack, they represent incredible value for money.

Revision C basic is now available in the U.K. Although released by Atari it is available only through Silicon Chip Ltd. 302, High Street, Slough, Berks or Software Express, 31, Stoneysant Road, Erdington, Birmingham, B24 8HA. Packages in your 400/800 or XL and cure all known ill! Price is £9.95 plus £1.50 post and packing.

Reports from America say that none of the major software producers have written anything for the Atari in the last six months. They are watching and waiting. The future is firmly in Atari's hands.

LONG JOHN SILVER: LAST STAND? By now a Private Members Bill sponsored by the Federation Against Software Theft should be receiving its final reading and is expected to become law. This Bill makes it a criminal offence to distribute or import software on which someone else has copyright. Penalties proposed are an unlimited fine or two years imprisonment. In addition it will be illegal to sell, exhibit or possess such software. Penalties would be up to £2000 fine or two months imprisonment. So far software companies have not taken action on a civil case would cost more than was being gained but, if this Bill becomes law, all that a company needs to do is get someone to hire a program from one of the less reputable hire libraries, or buy one through the small ads, and if it is a copy just pass it to the Police and sit back. Watch the papers, the next time you find yourself with a copy of a program you could well be committing a criminal offence.

FLIGHT OF THE SWAN. The disk version as listed will only work with DOS 2.0. Kennedy is to replace all reference to 10000 in lines 20, 1100 and 1117 with 1799.

MUSIC MAKER from issue 13 will not run in 16k. Oops...sorry!

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GANGSTERS

We received several calls saying that Gangsters would not run on the 600XL or the 800XL despite TYP0 clearing a reasonable 1k clear memory on XL series. It was written on our 800XL. Investigation reveals that there may well be a number of XLs with faulty BASIC. Robert Hatz of Atari proved very helpful in trying to pinpoint the fault but was unable to recreate the problem which has the corruption of the variable name-statement pointers when CSAVEing. Revision B Basic is said to be the culprit although the machine used for writing the program had Revision B.

Revision C basic should cure it by doing the following.

1. CLOAD or LOAD the listing.
2. LIST the file to cassette or disk with LIST "C" or LIST "D:filename".
3. Switch off, insert Rev. C cartridge and power up.
4. ENTER the listing with ENTER "C" or ENTER "D:filename".
5. Restart using CSAVE or SAVE.

If this does not work you could always type it in again with Rev. C in place. If it still does not work (having checked with TYP0) then your machine must be faulty.

NOTE: Before printing with your code for a Revision C BASIC check that you don't already have one! TYPEPRINT (PUSH47145) and press RETURN. If you get 96 you have Rev. A. 114 means Rev. B and Revision that Rev. C is already in place.

Readers Write

CHILDRENS TREAT

Dear Les,

Besides being an enthusiastic Atari owner who wanders around in ever decreasing circles in Sardinia or Egypt, I am, in my spare moments, a Charge Nurse of the Childrens Ward of Lewisham Hospital in London.

We were recently contacted by a local charity group who said that they had raised some money to buy a computer for the children of the ward. Imagine my surprise when it turned out to be a brand new Atari 800XL! They obviously knew a great computer when they saw one!

I have been able to supply a few cassettes that I no longer use which are now in constant use by the children but I wonder if I could ask through your columns if other Atari owners would be willing to donate cassettes or cartridges that they no longer use to a worthy cause. We cater for 23 children at one time and they are of all ages right up to 16 years. Many of these are confined to bed for long periods for a wide variety of reasons and the computer will help to relieve some of the boredom they experience.

If anyone is willing to donate a cassette or cartridge they should be sent direct to WARD C2 (Paediatric Ward), Lewisham Hospital, London, S.E.13.

Paul Boggart,
London

"A few items are wringing their way to Ward C2 from PAGE 6. How about you? Do you really still want that game you haven't played for months?"

410 PROBLEMS SOLVED

Dear Les,

I have had several problems with loading boot tapes on my 410 recorder and therefore read with interest the letter in issue 12 regarding modifications.

I decided to investigate and removed the back cover of my recorder to reveal the soldered side of a circuit board and then removed the four screws holding the circuit board to the cassette mechanism.

ing me to take a close look at the components. There was indeed a 330k resistor, in fact there were two, so which one to replace?

I decided to start with the 240k and found it to be connected across an operational amplifier, one of four within the LM124 microchip. This resistor is connected across the output and negative input of the op-amp, commonly known as negative feedback, but more importantly this resistor is used in the calculation of the gain of the amplifier. On checking the 330k resistors, I found one of them was also used in negative feedback, hence I concluded that these were the two referred to in Mr. Fleming's letter. With soldering iron in hand I replaced these two 240k and 330k resistors with more accurate ones and fitted the recorder back together.

Now came the test. I tried Colossal Adventure, a cassette that I was previously unable to load and to my amazement it worked! Thanks to PAGE 6 and Kevin Fleming, I have saved a service fee and the trouble of having my 410 checked out.

J.F. Nugent,
Petersborough

"Glad to see it works. In view of all the problems that owners have had with their recorders, there must be an opportunity here for some enterprising hobbyist to offer a 'resistor replacement' service for a small fee (thus solving a lot of problems for the less technically minded as well as making a few bob for themselves).

...ANOTHER SOLUTION

Dear Les,

A couple of months ago I had problems loading English Software's ACE program. Every time I took it back to the shop it would load fine but when I got it home, no go.

In frustration and anger I checked the shop's system against my own and found that the only difference was that they were using one transformer for both the 800 and the 410 recorder while I had a separate transformer for each. Luckily the trans-

former for my 800 was one of the older type with the extra socket for a cassette, so I wired it up and have had no problems since! Even tapes that gave me problems before load first time now.

I thought that this might be worth mentioning in case it helps somebody else. It seems that there may be a small difference in speed with different transformers.

Bjorn Deutschmann,
Guernsey

BULL ANTS

Dear Les,

Congratulations, issue 13 is excellent, however I noticed a couple of mistakes or improvements.

Line 335 of Bull Ants has IF 832=5. This should be 52. I also had great difficulty in typing lines 2000 and 2002. Perhaps you could print them again?

I liked Camelot but when the game ends and the credits appear again, all the Player Maxims are still on screen. The following lines will rectify this.

```
1280 FOR Z=0 TO 30:REPEAT 30:R=0+R/2  
1281 FOR Z=0 TO 30:COLOR 33:PRINT  
0:2:DRAWTO 15,20:Z  
1286 FOR Z=0 TO 30:REPEAT 30:R=0+R/2
```

S. Cort,
Staffs

"So many people had trouble with the control characters in Bull Ants. Here they are in full!

```
LINE 2000:ESC:CTL:LEFT:ARROW:CTL:  
:CORNER:INVERSE:R:SHIFT:ARROW:PAGE:  
:CTL:ESC:CTL:LEFT:ARROW:CTL:CORNER:  
:INVERSE:R:SHIFT:ARROW:CTL:CORNER:  
:ESC:CTL:UP:ARROW:CTL:CORNER:INVERSE:  
:L:SHIFT:PAGE:CTL:CORNER:ESC:CTL:UP:  
:ARROW:CTL:CORNER:INVERSE:L:SHIFT:PAGE:  
:CTL:CORNER:CONTROL:L:CTL:CORNER:  
:INVERSE:J:J:CTL:CORNER:CTL:ESC:  
:CORNER:INVERSE:J:J:CTL:CORNER:CTL:ESC:  
:CTL:CORNER:INVERSE:H:H:CTL:CORNER:  
:CTL:ESC:CTL:ESC:CTL:H:CTL:ESC:CTL:UP:  
:CTL:ESC:CTL:CORNER:CTL:CORNER:CTL:  
:CORNER:CTL:P
```

```
LINE 2002:R:INVERSE:CTL:J:H:INVERSE:  
:CTL:H:H:INVERSE:CORNER:CTL:CORNER:  
:INVERSE:MINUS:CTL:ESC:INVERSE:R:INVERSE:  
:L:CTL:ESC:INVERSE:CTL:ESC:INVERSE:FULL:  
:STOP:CTL:ESC:CTL:ESC:INVERSE:SPACE:CTL:  
:CORNER:INVERSE:EQUALS:CTL:ESC:CTL:ESC:  
:INVERSE:CTL:Y:CTL:ESC:INVERSE:R:INVERSE:  
:R:INVERSE:H:INVERSE:SHIFT:CTL:ESC:  
:INVERSE:R:INVERSE:INVERSE:CTL:ESC:CTL:  
:ESC:CTL:ESC:INVERSE:OPEN:BRACKET:CTL:  
:INVERSE:ARROW:R:SHIFT:CTL:CORNER:  
:CTL:ESC:CTL:ESC:CTL:ESC:CTL:ESC:CTL:ESC
```


RAINBOW START

by Robin Clark

Colourline in issue 11 provided a great effect for introductions to your programs but was limited as it did not allow a branch out of the routine. Here are a couple of routines which will give the same effect but which will allow you to exit them when the START key is pressed. Both routines are given as BASIC DATA statements and can be used as shown but for those who may like to know how they work I will explain.

In the Atari there is a location \$D40A (WSYNC) which when written to halts the processor just before the next TV line is drawn. A second location next to it (\$D40B-VCOUNT) counts, in multiples of two, how many lines down the TV the line being generated is. The Atari has 128 colours so if we wait for horizontal synchronisation and change the colour we can have a different colour on every line of the screen.

```
LDA RANDOM
STA WSYNC
STA COLREG
and round again
```

Note the hardware colour registers should be used (\$D016 to \$D01A) and not the shadow registers.

This tends to look rather messy, if we instead load the contents of VCOUNT first into WSYNC to synchronise the screen and then into the colour register before jumping back again half of the 128 colours will be put on the screen.

```
LN 10 REM ***** START - RANDOM *****
LN 15 REM > by Robin Clark C
LN 20 GRAPHICS 0:1 00:1 *** PRESS START
*** **
```

```
LN 25 TRAP 70
LN 30 FOR I=128 TO 1:HIGH=HIGH-N:POKE 0,N:
NEXT I
LN 40 DATA 100,173,11,112,200,20,10,141,1
0
LN 50 DATA 112,141,20,200,173,11,200
LN 60 DATA 201,0,200,1,70,1,0,70
LN 70 R=POKE(1520)
LN 80 T="000"
```

```
LN 10 REM > RAINBOW START - HERE *****
LN 15 REM > by Robin Clark C
LN 20 GRAPHICS 0:1 00:1 *** PRESS START
*** **
```

```
LN 25 TRAP 70
LN 30 FOR I=1520 TO 1540:POKE 0,N:
NEXT I
LN 40 DATA 100,173,11,112,200,20,141,10
LN 50 DATA 112,141,20,200,173,11,200
LN 60 DATA 201,0,200,1,70,1,0,70
LN 70 R=POKE(1520)
LN 80 T="000"
```

```
START LDA VCOUNT : So as VCOUNT
STA WSYNC : INCREMENTS
STA $D01A : so down the
JMP START : colour register
```

Now to move the colours up (or down) the screen we need to add or subtract something that is continually changing. Fortunately we have the real time clock (\$14) which increments every 60ths of a second. Adding this to the number of VCOUNT will make the colours appear to move up the screen.

```
START LDA VCOUNT
ADC $14 : Real time clock
STA WSYNC
STA $D01A
JMP START
```

As VCOUNT counts every two lines down the screen we could multiply the number obtained from VCOUNT by two each time a number was put into the colour register and it would change the colour and narrow the band as shown in program 2. The easiest way to multiply by two in machine code is to shift everything left. So now we have

```
START LDA $D40B
ADC $14
ASL A
STA $D01A
STA $D01A : Double OS col. reg.
JMP START
```

Finally we need to load the contents of \$D01F (CONSOLE) to check if the START key has been pressed. If the value here is 6 (START key pressed) we branch to OUT (Return from Subroutine) otherwise we jump back to the beginning of our routine.

```
START LDA $D01F
ADC $14
ASL A
STA $D01A
STA $D01A
LDA $D01F
CMP #6
BEQ OUT
JMP $601
OUT RTS
```

You can use the BASIC programs to start your own programs. The number 22 in line 50 can be changed to any number between 22 and 26 to affect different colour registers. Owners of Attack of the Mutant Cansels might very well recognise the effect.

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TYPO II

We have been using TYPO now for some considerable time (courtesy of ANTIC magazine) and it has certainly helped with typing all those long listings, but it has one major drawback which is that you still have to search through a block of lines to find a mistake.

Now we have **TYPO II** which will check a program line by line as you type each line (if TYPO II will be used in all listings from issue 14 onwards and we hope to make tables available at a later date for all previously published listings).

HOW TO USE TYPO II

TYPO II tells you if you have made a mistake as soon as you have typed in a line. Begin by typing in TYPO II and **SAVE** a copy to tape or disk. Check the program very carefully for although you can use TYPO II to check itself, it may not work if you have made mistakes!

Alongside each line of the listings in this, and future, issues you will find a two letter code which should match the code generated by TYPO II. **LOAD** and **RUN** your copy of TYPO II before typing in a listing. The screen will say "Type in a program line". Type in the line as shown but not the two letter code. When you hit **RETURN** after typing the line, it will re-appear at the bottom of the screen with a two letter code at the left hand side. If this does not match the code printed to the left of the same line in the magazine, you have a mistake in that line. Type the line again until the codes match and then go on to the next line.

If you prefer to type in a listing without TYPO II you can still use it to check each line. Make sure you have a copy of TYPO II **LISTed** onto disk or cassette and add this to your program by **ENTERing** it. To check any line type an asterisk (*) followed by the line number with no space in between and press **RETURN**. You will then see the line with a code and can amend it if necessary.

You can **LIST** your program by pressing **BREAK** and can then return to **TYPO II** by typing **GOTO 32000**.

To save your correct program without **TYPO II LIST** it to cassette or disk by typing **LIST "C",DJI1999** or **LIST "D filename",DJI1999**. Type **NEW** and then **ENTER "C"** or **ENTER "D filename"**. You can then save this version in the normal way with **CSAVE** or **SAVE**.

We hope to publish a revision of **TYPO II** shortly which will automatically deletes itself after your program is correctly typed and also **TYPOCHECK** which will automatically generate codes for programs that you have typed in from previous issues. **TYPO II** is here to help you enter programs exactly as printed. Please use it as we spend a great deal of time answering queries from people who have not typed in listings correctly.

The original **TYPO** was written by Bill Wilkinson. **TYPO II** is by Andy Barton. Both are copyright ANTIC magazine and used with permission.

```

00 32000 RUN TYPO II BY ANDY BARTON
01 32010 RUN VER. 1.0 FOR ANTIC MAGAZINE
02 32020 CLR IOCM LINE0:LINE1:CLOSE H2:CLS
03 00
04 32030 OPEN H2,4,0,"E":OPEN H3,5,0,"C"
05 32040 T "M":POSITION 11,1: T "XXXXXXXXXX"
06 32050 TRAP 32040:POSITION 2,1:T "Type
07 00 a program line"
08 32060 POSITION 1,4:T " ":INPUT H2:LINE
09 1:LF LINE0:"" THEN POSITION 2,4:LIST 0
10 GOTO 32040
11 32070 IF LINE0(1,1)="" THEN 0:VAL CLR
12 H2,LINE0(1,1):POSITION 1,4:LIST 0:
13 GOTO 32040
14 32080 POSITION 1,10:T "CODE"
15 32090 0:VAL CLR H3:POSITION 1,1:T " "
16 32100 PEEK H42,10:STOP
17 32110 PEEK H42,10
18 32120 T "M":POSITION 11,1:T "XXXXXXXXXX"
19 :POSITION 1,10:LIST 0
20 32130 0:0:0:0:0
21 32140 POSITION 2,10:INPUT H3:LINE0:LF
22 LINE0:"" THEN T "LINE "H3:" DELETED":G
23 OTO 32000
24 32150 FOR S=1 TO LEN(LINE0):S=0+1:ANS=
25 ANS+10*VAL LINE0(S,0):10:NEXT 0
26 32160 CODE=INT ANS/1000
27 32170 CODE=ANS-1000*CODE
28 32180 CODE=INT CODE/100
29 32190 LINE0=CODE-10000*CODE+100
30 32200 CODE=CODE+65
31 32210 POSITION 0,10:T CODE:CODE0:CODE
32 CODE0
33 32220 POSITION 2,11:T "IF CODE 0000 00
34 T MATCH PRESS [ENTER] AND EDIT LINE 0
35 above." GOTO 32040

```

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6. The Golden Baton

The Adventures covered in the last three issues could only be played on a disk-based system. I don't want cassette owners feeling left out of the fun of Adventuring, so this issue we'll take a look at a series of Adventures available on cassette. What makes them all the more interesting for most of you is that they are written and produced in the United Kingdom! For reference, of course, to Brian Howarth's *Mysterious Adventures*.

Background: Brian Howarth had been playing Dungeons and Dragons for some years before being introduced to computer Adventures by a TV program called *The Adventure Game*. When he realized the potential for computer-mediated Adventures, he raced out and bought the first computer he could find. Unfortunately, this happened to be a TRS-80, but we can't really hold that against him, as the Atari wasn't available at the time.

Howarth became obsessed with Scott Adams' Adventures before trying to write his own. He started writing an Adventure in BASIC, but concluded that it couldn't be done. He can probably put this down to inexperience, as many others (including Scott Adams himself) have proven him wrong. Nevertheless, he started learning machine language and after six months of excitement and frustration, he finished his first machine language Adventure. It was called *The Golden Baton* and made its first appearance in the Mollmen catalogue in 1981.

Mollmen were ecstatic about the game and persuaded Howarth to do a series like that of his idol. He put together some more scenarios and came up with *The Time Machine* and *Arrow of Death Part 1*. Thus, the *Mysterious Adventures* series was born.

Over the next few months, he developed an Adventure interpreter based along the same lines as that used by Scott Adams. This allowed him to write a new Adventure by merely changing the database. From *Arrow of Death Part 2* onwards, all the *Mysterious Adventures* were written using this technique.

Howarth also decided to translate his Adventures for the newly released BBC micro. As Mollmen were not planning to support the BBC, Howarth set up his own company called Digital Fantasy. He had a mail order service and a software shop and recruited his family and friends to do administration, look after the shop, help with the programming and do the artwork for the packaging on his Adventures. Over a period of time, the series was translated for other computers such as the Atari, Spectrum, VIC-20, Commodore 64 and Dragon.

The Atari translations were done by Howarth and his staff and licensed to Channel 5 Software. Until recently, there were 10 Adventures in the series available only on a 16k cassette. The series has now been expanded to 14 and the earlier titles have been revised. The entire series should be available by the time you read this. The titles are listed below. Note that they are in a slightly different order to the versions available for other computers, so always make sure you order by title rather than number in order to avoid any confusion.

1. The Golden Baton
2. Arrow of Death Part 1
3. Arrow of Death Part 2
4. Escape from Palms 7
5. Feasibility Experiment
6. The Time Machine
7. Circus
8. The Wizard of Aloys
9. Perseus and Andromeda
10. Ten Little Indians
11. Waxworks
12. Mid Winter
13. After the Fire
14. Beyond the Infinite

Review: As *The Golden Baton* is the first in the series, it seems like the obvious choice to review.

When you first boot the cassette, you are presented with an animated title page. This is quite well done, but is the same on all the Adventures in the series and over the other repeated screenings. When the animation sequence is over, the main Adventure is automatically loaded. This whole sequence takes quite a while (especially for someone like me, who's used to dialup, so you might as well have a cup of tea while you're waiting).

When the load is complete, you are asked if you would like colour. If you answer Y for YES, the screen is divided into bands of different colours. The intention is that each colour represents a different function, i.e. room description, visible objects, player's input, error messages and so on. Unfortunately, this isn't very well done. The boundaries between the colours are very flimsy (particularly when pressing keys) and the distinction between some colours is inadequate. The overall effect is one of confusion. I'd suggest you type N for NO to the colour question and you will get a pleasant dark blue background. Alternatively, I discovered that you can turn the colours on from within the program by typing C (RETURN) or turn them off by typing

O (RETURN). You'll actually need the letter after saving a game, as this causes the colours to be re-matched whether you wanted them or not. Incidentally, the save is very quick, as it only writes two or three records to cassette.

From this point on, the game's style, screen format and even the very structure of the code and the database (I took a peek) is a direct clone of the Scott Adams series. If you've played a few Scott Adams Adventures, then you'll feel right at home with the Mysterious Adventures.

After the colour question, you are asked whether you want to use a previously saved game (as per Scott Adams), but I'd prefer to use this unused item within the program itself using a RESTORE command.

After answering both questions, your Adventure is underway. Location descriptions, things you can see and what you see printed at the top of the screen, but are not disturbed by your input or the computer's responses which scroll independently in whatever space is left at the bottom of the screen (as per Scott Adams). You'll probably notice some bad spelling and grammar (as per Scott Adams) and an illogical habit of capitalising some words, but not others. However, unlike Scott Adams, the response time is very fast.

Each of the cassettes comes with playing hints and instructions (which are very good) and a background storyline for each of the Adventures in the series. These are common to the whole series, so if you buy one, you know about the rest. As for The Golden Baton, the story goes something like this...

The Golden Baton is a priceless artifact which is believed to hold a life force that maintains an equilibrium between good and evil. As a result, your homeland has suffered so war, droughts or famines for centuries. (What about unemployment? It sounds like Maggie Thatcher could do with one of these things!) The Golden Baton has been stolen from King Fennell's palace and he looks for the future of his people. Your job is to recover the missing baton.

You begin your quest in a dense SPOONY forest (the capitals are the author's, not mine). You have no idea where the Golden Baton is hidden, so you must begin by exploring your surroundings. As you do so, examine every object in every location and you should find some interesting clues. There are puzzles at every turn, but these are not hard and can usually be solved with a little thought and the right objects. Some solutions are a little obscure, but the game has a fairly good vocabulary, so just try everything you can think of. You will also encounter various nasties such as a savage wolf, a huge yellow crab, a knight in dark armour, a gorgon and an ugly lizard-man. (If you don't know what a gorgon is, then borrow a book on Greek mythology and read about Pegasus and Medusa. I suspect that the knowledge you gain may also be helpful if you play Pegasus and Andromeda at a later date.)

The game uses quite a deal of magic in different forms, eg. weaving or otherwise using magic items and saying magic words. The HELP command will often give you hints when magic is required.

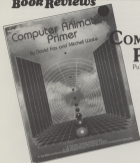
The Golden Baton suffers from a number of minor flaws in its storyline and its logical consistency, but no more so than other fantasy-based games such as Zork I and Adventureland. You must also remember that it was Brian Howarth's first attempt at an Adventure. Later titles in the series appear to be far more intriguing. All in all, I enjoyed playing it and could recommend it for beginning to intermediate Adventures, especially if price or lack of a disk drive is a consideration.

Hints As usual, look through the list of questions and you recognise the area where you're stuck. Match the numbers with the attached word list to get a hint. DON'T look ahead to questions referring to parts of the game that you haven't reached yet or you may spoil the game.

- | | |
|--|---|
| 1) Can't climb the tree?
12 38 20 | 11) Can't take the glowing quartz?
14 21 16 23-32 40 25 |
| 2) Can't see in the dark beneath the cabin floor?
34 38 13 50 | 12) Can't read the runes?
32 38 34 |
| 3) Can't get past the wolf?
53 4 43 | 13) Can't kill the lizard man?
14 21 55 43 |
| 4) Can't cross the moat?
29 12 41 32 | 14) Leap out of bed?
19 31 43 31 28 46 5 20 28 |
| 5) Can't open the postcards?
18 1 8 45 43 | 15) Can't get past the huge yellow crab?
52 40 |
| 6) Can't get past the knight in dark armour?
46 22 47 | 16) Can't get the slugs?
53 26 23 49 2 |
| 7) Can't unlock the huge door?
44 8 38 7 20 25 14 8 38 36 | 17) Can't enter the lake?
27 24 1 |
| 8) Can't get past the gorgon?
6 14 11 44 4 28 | 18) Can't undo the padlock?
18 24 39 38 9 15 |
| 9) Still can't get past the gorgon?
52 40 | 19) You're on the lake, but don't know what to do?
17 38 27 43 |
| 10) Can't dry your moustache?
42 38 7 25 18 21 16 25 | |

STOP PRESS: The Mysterious Adventures have now been taken over by Adventure International and should now be available again. More titles and a complete hint book are planned.

1	CLIMB	11	PERHAPS	21	SOME	31	SEE	41	A	51	SALT
2	PROVERB	12	YOUR	22	YOURSELF	32	SEARCH	42	NEAR	52	SAY
3	SWAMPY	13	CASUAL	23	ALL	33	FISH	43	I	53	HILL
4	IT	14	END	24	SOMETHING	34	HELMET	44	DO	54	HEAT
5	WOODEN	15	CHAMBER	25		35	SLADON	45	INSTEAD	55	HYPPOCR
6	HORN	16	MAGIC	26	NEARLY	36	LAMP	46	MAYE		
7	RING	17	HEAD	27	INCREDIBLE	37	FEEL	47	POSSIBLE		
8	LENS	18	TRY	28	I	38	THE	48	DE		
9	TORTURE	19	ROTTEN	29	PRETEND	39	FROM	49	THINGS		
10	AS	20	SPARE	30	BAG	40	HELP	50	FEEL		



COMPUTER ANIMATION PRIMER

by David Fox & Mitchell Waite
Published by McGraw Hill

About 18 months ago BYTE magazine published a demo for the Atari called Waterfall and I was so impressed I searched immediately for the book from which it was taken. The book had not yet been published so I waited and waited. Now at last Computer Animation Primer by David Fox and Mitchell Waite has been published and it was well worth the wait.

Computer Animation Primer is a general look at the use of computers for animation but has the added bonus that the machine chosen to implement Computer Animation for the home user is the Atari. A glance at the facilities offered by the dedicated mainframes and other home computer show-offs. The Atari is the only home computer that comes anywhere near emulating the big ones. The author David Fox has an impressive background in animation and is a member of the Computer Games Project at Lucasfilm Ltd and was project leader for one of their last games for the Atari - Rescue on Fractalus.

The book is expensive at £19.95 but then so are a great deal of non-computer books nowadays but it is 500 pages long and contains plenty of hard information and routines that could advance your programming further than any other book you can find. The first part of the book, up to page 151, contains an overview of computer animation in general from the first steps up to the making of TRON and STARWARS with good insights into how various effects are achieved. All different types of hardware and software are fully discussed before moving on to the possibility of animation on Personal Computers. Here the reason for the choice of the Atari as the subject of the second half of the book becomes apparent. Hardware features of Personal Computers are discussed. Hardware scrolling is said to be a new feature found only on the more sophisticated computers. Colour registers are only just beginning to appear. Vertical Blank Interrupts are another new feature as are Display List Interrupts. All of these have been a feature of the Atari from the very beginning. No wonder David Fox

chooses it as the model for Home Computer animation!

From page 153 onwards the book is devoted to Atari with each of the special features fully explored. Beginning with character sets it adds fascinating information to programming examples which guide you through each of the Atari's special features. Throughout the book are 'black box' routines which are machine language routines that you can use in your own programs without understanding the programming behind them. Just a few POINTs to certain locations will give you control over Player Missiles, line scrolling animation and more. In depth information, not previously easily available, is included such as the programming and data for the classic Atari demo of a running horse. If you have not seen this first type it is straight away, it really is impressive.

Animation through colour registers comes next, and this is where the Waterfall demo comes in, before going on to Player Missile Graphics with 'black-box' routines for full Player control and animation. Each feature is illustrated at the end of a chapter with examples of commercial programs which use the particular feature discussed so that you have a good idea of what can be achieved.

Fine scrolling comes next before the book builds up into 'The Great Movie Cartoon' which is quite simply the most stunning demo available from a listing that I have seen anywhere. It combines all of the features that have been been discussed into one incredible demonstration. An urban landscape scrolls by in the background. Then in the middle distance scroll by at a different rate whilst in the foreground trucks and cars zoom by from left or right. Suddenly a human figure appears and walks across in the foreground of the scene! All of this can be controlled from the keyboard and can easily be adapted for a joystick. More importantly all of the information needed to construct this scene, and similar programs of your own, is there in the listing and in the 'black box' routines which you put to your own use.

The book is illustrated throughout with black and white photographs which are reproduced as a set of sixteen full colour pages towards the end of the book. There is a fair amount of white space as the text is set across only two thirds of the page but the book is larger than the normal paperback being 9 1/2" by 7 1/2". It is well produced and, as a welcome change for an American book, is extremely well written in an adult fashion.

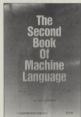
Eighteen months is a long time to wait for a book £19.95 is a lot of money to pay. Is it worth it? Unreservedly, yes on both counts. It is a superb book which many Atari owners will own look for Atari is not mentioned in the title and it may well be hard to find. If you can find it, do so.

COMPUTE's SECOND BOOK OF MACHINE LANGUAGE

by Richard Mansfield

One of the easiest to understand books for beginners to machine language is COMPUTE's Machine Language For Beginners which provides an excellent starting point for those who are proficient in BASIC. A problem when learning any new language is how to take the fundamentals you have learned and put them into applications. This is precisely what COMPUTE's Second Book of Machine Language attempts to teach.

The book sets about explaining step by step how to create a long and complex program in machine language. Rather than choose a game or a business program which many users will not be interested in, the author has hit upon the master stroke of showing how to write a full assembler which can then be used to write other programs. So, even when the book is finished, you will have a program which you can continue to use with all the concepts and practices you have learned.



The program is built up through the book stage by stage with full explanations of each stage. Every line in the program is explained, all the routines are picked apart and explained and all major routines are covered in depth. Starting with Equates and Definitions, it goes on to explain Data Base Management,

IO Management and Number Conversions, Input and Formatted Output, Data, Messages, Variables and more. The full source code of the Assembler is included and you will end up with probably the most comprehensively annotated machine code program available. More than that you will end up with a useful tool equivalent to a commercial assembler which may cost you over twice the price of the book.

The full 6502 Instruction Set is included as are notes on modifying the Assembler. Appendices explain how to use the program to assemble other programs, again on a step by step basis, and include the complete object code and a library of useful subroutines.

COMPUTE's Second Book of Machine Language is unique in its approach and should allow the novice machine code programmer to break away from the theory and begin writing substantial programs of his own. The book covers a number of 6502 based machines but all the routines are translated for the Atari. An additional advantage is that the reader should get a good insight into how to translate programs from other machines.

GETTING STARTED WITH THE ATARI 600XL

by Peter Goodie, Phoenix Publishing Associates.

Including 600XL, the title is an unfortunate choice, for the 600XL has almost disappeared without trace. Still the 600XL uses the same Operating System and Basic so is this book a good one for a new XL owner?

Well, if you just want to get started it will probably do but if having started, you want to go further you may well regret its purchase. It starts with very simple use of BASIC such as printing to the screen and using variables before going into Graphics and Sound. Graphics are covered in half a dozen or so pages of simple PLOT and DRAWTO before the heading ADVANCED GRAPHICS suddenly appears. Advanced Graphics are said to require the use of machine-code which is simply not true. The chapter says 'These advanced graphics facilities, often called Player Missile graphics are used extensively with machine code in THE 600XL PROGRAM BOOK. From which the following is an example'. There then follows a program which contains no machine code whatsoever and no Player Missile graphics!

Oh, dear! To be fair, other simpler Basic programming is covered later in the book but there is a tendency to introduce program listings for explanation which contain many concepts which a beginner might find hard to grasp.

The book will no doubt get you started but in which direction it will lead you I am not sure. £5.95 is not a bad price of today's costs but be warned that you will certainly need to buy other books once you have 'got started'.

Other books received for review...

EXPLORING ADVENTURES on the Atari 400

by Peter Goodie, Darkwork Publishing, 244pp £8.95

Although adapted from books for other machines, this would seem to be an ideal introduction to Adventuring on the Atari. Ten complete adventure listings are included as well as lots of help for you to write your own.

THE MICRO ENQUIRER - ATARI XL

by Christopher Boland and Benjamin Woodley, Century Communications Ltd. 183 pp. £8.95

A large format book on micro-computing in general with specific sections devoted to the text for the Atari. An ideal introduction for someone new to computing giving a far wider general understanding than a book dedicated to a particular machine.

THE ATARI XL HANDBOOK

by Lupton & Robinson Century Communications Ltd. 285 pp. £5.95

A book to take you through the XL, from setting up to writing reasonably complex programs. Several appendices.

More detailed reviews of some of these books will appear in future issues.

The New Machines

Four models based around the 80486. One in a hi-styled case with a new key-based and re-entrant 'Function' keys making a more compact unit. The inside has been redesigned for economy of production using fewer chips and moving parts giving a smoother running and faster computer.

XE

65XE

The basic model in the range is much the same as the 800XL. As far as software there are no improvements except for the addition of the graphics symbols on the keyboard. The peripheral bus on the 800XL has now however been dropped.

65XEM

The basic 65XE with added full music synthesiser features which can be hooked up to a hi-fi system. Eight voices giving rich music giving the following features.

XE SOFTWARE

ATARIWRITER+ is an enhanced version of the existing program with built-in proof reader (American spelling?), **INFINITY** which has received rave reviews from those who use it at CES, is an integrated spreadsheet, word processor and relational database all on one disk. The program uses windows and has 'movable graphics (alt-wire thought) only possible on 16-bit machines'. One report says that it puts its claims anything available for the Macintosh including programs like Lotus 1-2-3. **MILENT BUTLER**. A domestic accounts program.

Also... **ATARI PROTHEATER**, **MUSIC PRINTER**, **TRACK AND FIELD**, **CRYSTAL CASTLES** and **MARCO BIOS**.

Digital sample rate in excess of 30KHz. Over 90dB dynamic range. Fundamental Frequency Range of 4.5 Hz to 3.8 MHz (10.5/3 octaves). Fundamental Frequency Resolution of 0.94 semitones. Precise control of harmonic amplitudes. 64 harmonics.

No need of a music keyboard for this although one would assume that a keyboard can be interlocked to the computer.

130XE

128Kb memory in two 64K switchable blocks allowing something like 494 of over RAM available of storage which can be instantly interchanged with the RAM in use. The ideal application is for word processing and databases but there may well be adaptations of multiple disk servers and the like from third party software producers.

65XEP

The whole lot in one. The basic 65XE with built in (addition) 5" monochrome monitor and 3H" disk drives enable you to keep computing wherever you are. No details are available yet on size but it may not be quite so compact as other 'big half' models.

COMPATABILITY

All XE models are 100% compatible with the 400, 500, 600XL and 800XL meaning that the majority of existing software and all peripherals will run on the new models and software developed for the 65XE will run on the older models.

All the new peripherals for the XE range are compatible with the 400, 500, 600XL and 800XL.

AVAILABILITY

At the time of writing Atari Corp. (UK) had not decided which items would be made available and at what price. Certain peripherals may not make it over here (see the market really support seven printers?).

DISK DRIVE

The basic disk drive for the XE range will continue to be the 1050 5H" floppy disk drive although the casing may be re-pyled to match the new design.

MONITORS

A14" composite colour monitor and a 12" monochrome, 80 column monitor have been announced. One of the main features is being developed for the XE range is a being developed for the XE range to allow true 80 column applications?

PRINTERS

XTM201 thermal dot-matrix running at 20 cps. XTE201 thermal dot-matrix in colour. X104 1201 Daisy Wheel letter quality at 12 cps and the XMM201 dot matrix at 8 cps.

Much will depend on the price of these but Atari has never produced a printer to equal those available from dedicated manufacturers but if the prices are low then these may well succeed where previous models have failed.

PRICES

UK prices are reported as \$120 for the 65XE, \$160 for the 65XEM, \$200 for the 130XE, and \$400 for the 65XEP. Prices are said to be from as low as \$50 up to \$200.

COLOUR CODING

Both new ranges will be 'colour coded' with all boxes for the XE range and peripherals in red and the ST range in blue so that the consumer will know whether a particular peripheral is suited to his machine. Why? Because Atari will continue to sell through multiple stores and recognise that very few store staff will have sufficient knowledge of the product. Support will begin to come in the form of charts and reference guides but the main will be on the consumer to display more knowledge than the sales man. A shared view with greater benefit than might at first be thought.

The ST range is destined to break new ground for personal computers bringing an amazing 16-bit machine into the grasp of almost any individual.

ST

There are two models which differ only in the amount of RAM. The 130ST has 128k of RAM and the 120ST has 64k. Both have an additional 192k ROM Operating System which includes the GEM applications package. The ROM is replaceable DPA with a plug-in cartridge although it has not been disclosed what this addition will contain.

GRAPHICS

Incredible colour graphics on a 32k bit-mapped screen with 3 Graphics modes.

Low Resolution - 320 x 200 pixels equivalent to Graphics 80 (a 16 colours).

Medium Resolution - 640 x 200 pixels in 4 colours.

High Resolution - 640 x 400 pixels in monochrome.

612 colours are available and as the computer has interrupts, these can presumably be mixed outside of the standard Graphics modes.

INTERFACES

Available interfaces include a high-speed hard-disk interface, integrated floppy-disk controller, Centronics parallel interface, RS232C serial modem interface, two joystick ports with one configured for use with a mouse and MIDI music interface.

Four video ports are provided for standard television, low resolution composite video, medium resolution RGB and high resolution monochrome. A suitable monitor will of course be required to operate all 3 graphics modes but the basic computer can be run in Low-Resolution mode on a standard TV.

LANGUAGE

The ST machines will feature an "enhanced" ATARI BASIC or be available with LOGO as an option.

PRICES

Up to now you could expect to pay in excess of £2,000 for a good 16-bit system but the 130ST is now retail at £399 and the 120ST at £399. A full system including 387" disk drive and monitor is expected to be available for around £700 - £800.



SOUND & MUSIC

Proving that there are not just business machines but all-round entertainment and serious computers for the first time in one machine, there are 3 sound channels with wave-shaping sound, separate frequency and volume control, dynamic envelope controls and frequency from 30Hz to almost audible range. The MIDI interface will allow connection to external keyboards and synthesizers.

OPERATING SYSTEM

The Operating System is TOS™ developed jointly with Digital Research to enable the best use of the GEM software. GEM is very similar to Apple's Lisa and the Macintosh and features windows, drop-down menus, icons, a calculator and clock all of which can be controlled by a mouse. For those who don't know about a mouse, it is a hand-controlled device which is run over a smooth surface and moves a pointer about the screen. Incredibly easy to use, it allows full control over the screen and applications without having to look away from the screen. The GEM system has been extensively reviewed in Personal Computer World magazine (February 1985) and elsewhere for those who require further in-depth details. It is a very powerful system that is implemented on a very small integrated machine in monochrome. The ST brings you the GEM system in full colour for the first time.

INSIDE

The computer is run by a 34,500-44 Motorola 68000 microprocessor with 8 32-bit data registers, 8 32-bit address registers, 16-bit data bus, 24-bit address bus, 7 levels of interrupts, 16 instructions, 34 addressing modes and 5 data types.

PERIPHERALS

8004 347" disk drive with 500k storage

50117 387" hard disk drive with 10 MB storage

50124 12" monochrome high-resolution monitor

50124 12" RGB monitor

5T504 thermal dot-matrix in colour

50M124 daisy wheel letter quality

50M804 impact dot-matrix

Prices are not yet available for these but have been reported as starting from an available £480 for the 347" disk drive.

ST SOFTWARE

There is none at present although the GEM system allows easy adoption of any software packages any machine running GEM. Take a look at any software running on most 16-bit machines such as Wordstar, Lotus 1-2-3 etc. and it should be relatively easy to convert it to be ST. All that has to be done is persuade the software developer that the ST is worth writing for and this should not be too difficult. In the past, development of software for a particular 16-bit machine has been costly and Atari might not have been able to persuade producers to take the risk. Now with over 35 computer manufacturers licensing GEM for their machines and nearly all of the major software producers interested, software should become available quite quickly.

The major problem might be price for many business packages cost £100 - £500 at present, which is not too bad when you have paid £250 for the computer, but will ST owners be willing to pay more than the cost of the machine to get one software package?

BASIC ANIMATION

One of the most appealing and powerful features of a home computer is the ability to move shapes around the screen - animation. Atari owners have at their finger tips a superb graphics machine with many powerful features. Some are more difficult to understand but even a complete beginner can obtain some very pleasing results by character set manipulation.

You have already used the character set. It consists of the letters and numbers and control characters that you see when you type anything from the keyboard. Each character is made up of eight lines and each line is eight bits wide, so every character is made up of an 8x8 grid. If you typed the letter T and could magnify the screen you would see the squares illuminated as in figure 1.



Figure 1

Each character is made up of a box containing 64 squares. All or some or any combination of these squares can be filled in to make a shape. If we filled them all in, we would get a solid square box. If we left them all empty we would get a blank space. If you look again at figure 1 you will see the figures 128 to 1 along the bottom. Without getting too technical, these are the decimal codes for each bit value. So, how do we use these to create a shape?

First we draw our shape onto an 8x8 grid until it looks about right. Let's start with a primitive looking space ship. Take a look at Figure 2. If you look along the first line, or location, there are two squares filled in, one in the '04

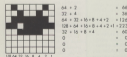


Figure 2

by Brian Williams

column and one in the '2' column. If you add these together (04+2=06) and then POKE the result into the first location of a character, the computer will know which squares to fill in. Continue doing this until each of the eight lines have been added up. We now have all the information to store a character in a DATA statement which would look like this:

```
DATA 66,26,126,222,60,0,0,0
```

Let's recap. It takes eight memory locations to store the data or information for one character so all we have to do is store different numbers and 'Hey! presto', we have a new re-defined character. Well, almost but not quite!

The character set is stored in ROM (Read Only Memory) which we can't change so our first task is to copy the character set to a location in RAM (Random Access Memory) where we can change it in whatever way we wish. Now we come to a problem which you may not have dealt with before, memory management. You have to decide where to store the character set we are going to copy from ROM. A full character set requires 1024 locations since there are 128 characters and each requires 8 locations (128 x 8 = 1024 or 1K), so we need to set aside an area of memory for this purpose. Memory is divided into 'pages', each of which is 256 bytes, or locations, long. We have to find a suitable page number and we will then POKE this number into the Character Base Register (location 756) which tells the computer where the character set to be used is stored. If you now take a look at the program, you will see that lines 10, 50 and 150 have the number 120 which is the page number we have chosen to store our new character set. If you have a 16k machine you will have to use a lower number such as 48 but whatever number you use it must appear on ALL three lines. Before going any further make sure that you understand what you have read so far. How to draw your own characters and change them into numbers that the computer can understand. If you have an idea of the principles involved, then continue, but if you are unsure go back and read it again. Although it is a lengthy process, the principles are fairly simple.

You will now need a chart to show you the order in which characters are stored in the character set. As the chart is quite lengthy we do not have room to reproduce it here but the references at the end of the article will give you further information. If you want to make up your own chart you can use Listing 2.

Look at line 20 of Listing 1 and you will see that I have assigned a value of 64 to X. This is changed from 64

```

BT 1 REM
DN 2 REM
DN 3 REM
PG 4 REM
BT 5 ?"COPYING CHARACTER SET - PLEASE W
ATT"
ML 7 REM
TR 10 FOR I=0 TO 100:POKE 128+256*I,POKE
224+256*I:NEXT I
FR 17 REM
JR 20 R=64
QR 30 FOR LOOP1 TO 0
LL 40 FOR I=0 TO 7:FOR J 0
NR 50 POKE 128+256*I+J,R
LR 60 NEXT I:R=R+1:NEXT LOOP
JR 67 REM
DI 70 DATA 2,4,4,4,5,3,2,1
DR 80 DATA 64,32,32,32,160,128,128,76
FR 90 DATA 0,0,112,0,0,0,0,1,0
SR 100 DATA 0,0,16,16,160,176,176,76
MR 110 DATA 0,0,0,64,176,1,0,0
TR 120 DATA 0,0,0,160,176,128,76,0
LR 130 DATA 0,0,0,1,16,17,18,64
SR 140 DATA 0,0,0,128,248,128,160,2
MC 150 POKE 754,128:?"CHARACTER CODE GENER
ATOR"
1:REM POKE CHARAGE REC. WITH PAGE NO.
:CLEAR SCREEN:TURN OFF CURSOR
QR 160 R=(7+R)/2:?"I:";R;"SET START POS
ITION AND SCREEN VALUE"
JR 170 POKE 710,10:POKE 700,4:REM BACKEND
AND COLUMN AND LENGTH OF CHARACTERS
LR 177 REM
MC 180 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 190 POSITION R+2,Y+1 ?"R:";Y+R+2
QR 170 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 170 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 200 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 210 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 210 POSITION R+2,Y+1 ?"R:";R+2
QR 220 IF R=14 OR R=1 OR R=22 OR Y=2 THEN
R=-R
QR 220 GOTO 180
FR 277 REM
MT 1000 A=R+2:FOR R 0,0,10,10:RETURN

```

Listing 1

through to 71 with the loop in line 30, so I am changing characters 64 to 71 of the character set which are the first 8 CONTROL characters. You are not restricted to these or you can choose any or all of the 128 characters, just specify the character number in line 50 (the value of X). Be warned though, if you change any letters or numbers... you cannot use those letters or numbers on the screen. If for example you had re-defined the letter A to a space ship and then wanted to print ATTACK, you would get little space ships instead of the A's. It is best to stick to re-defining little used characters to allow mixing of text and your own characters on screen.

Listing 1 shows how to POKE your new DATA into the character set so study it well before we go on to try some animation. Got it? Right now let's see how we can do some animation.

We can quite easily move any of the standard characters around. We could even make the letter A do triple somersaults, but it doesn't look that good so what I've done in Listing 1 is to use two characters to make a larger one. The DATA in line 70 changes the CTRL-COMMA character to the left side of a bird and the DATA in line 80 changes CTRL-A into the right hand side. Now if you PRINT them side by side, you will get a bird which is actually two characters wide. You can see that by using this method any number of intricate shapes can be designed, with each character being part of a larger shape. You are restricted only by your own imagination.

If the shapes are going to be static, for example trees, buildings etc, you can use as many characters as you like, but if you are going to move shapes around, spaceships, monsters etc, then it is best to stick to between 1 and 6 characters as the more characters there are to move, the slower the object will move about. One character will move quite fast but a monster made up of 6 characters will be rather sluggish. Going back to the program, lines 90 to 140 each alter the shape of the bird slightly and when printed alternately give quite a good impression of flight. Lines 140 to 230 move the bird by PRINTing the first two characters, five spaces then and then printing the next two characters further on. These lines could quite easily be converted to work with a joystick. Line 1000 is just there to provide a little sound.

There are many refinements to character set animation such as protecting your character set and using other Graphics modes but you now have the basis, so fill the screen and have some fun!

```

BT 5 ?" CHARACTER CODE GENERATOR
BY LES ELLINGHAM"
MR 10 POKE 700,1:POKE 752,1:POKE 84,2
QR 20 FOR I=0 TO 127
FR 30 R=(2+R)/2:?"R:";R;"SET START POS
ITION AND SCREEN VALUE"
JR 40 POKE 710,10:POKE 700,4:REM BACKEND
AND COLUMN AND LENGTH OF CHARACTERS
LR 47 REM
MC 50 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 60 POSITION R+2,Y+1 ?"R:";Y+R+2
QR 50 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 60 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 70 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 80 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 80 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 90 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 90 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 100 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 100 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 110 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 110 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 120 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 120 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 130 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 130 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 140 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 140 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 150 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 150 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 160 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 160 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 170 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 170 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 180 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 180 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 190 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 190 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 200 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 200 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 210 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 210 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 220 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 220 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 230 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 230 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 240 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 240 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 250 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 250 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 260 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 260 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 270 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 270 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 280 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 280 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 290 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 290 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 300 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 300 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 310 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 310 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 320 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 320 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 330 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 330 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 340 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 340 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 350 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 350 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 360 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 360 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 370 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 370 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 380 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 380 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 390 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 390 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 400 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 400 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 410 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 410 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 420 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 420 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 430 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 430 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 440 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 440 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 450 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 450 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 460 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 460 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 470 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 470 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 480 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 480 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 490 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 490 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 500 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 500 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 510 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 510 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 520 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 520 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 530 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 530 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 540 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 540 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 550 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 550 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 560 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 560 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 570 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 570 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 580 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 580 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 590 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 590 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 600 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 600 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 610 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 610 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 620 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 620 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 630 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 630 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 640 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 640 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 650 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 650 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 660 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 660 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 670 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 670 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 680 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 680 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 690 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 690 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 700 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 700 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 710 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 710 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 720 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 720 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 730 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 730 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 740 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 740 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 750 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 750 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 760 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 760 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 770 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 770 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 780 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 780 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 790 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 790 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 800 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 800 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 810 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 810 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 820 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 820 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 830 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 830 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 840 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 840 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 850 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 850 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 860 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 860 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 870 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 870 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 880 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 880 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 890 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 890 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 900 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 900 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 910 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 910 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 920 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 920 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 930 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 930 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 940 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 940 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 950 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 950 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 960 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 960 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 970 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 970 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 980 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 980 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 990 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 990 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R
TR 1000 POSITION R+2,Y+1 ?"R:";Y+R+2
LR 1000 POSITION R+2,Y+1 ?"R:";FOR R=1 TO
40:NEXT R

```

Listing 2

References

Internal Character Charts

- ATARI BASIC Reference Manual, Page 55
- YOUR ATARI COMPUTER (Osborne/McGraw Hill)
- Pages 394 & 417
- COMPUTE!'S THIRD BOOK OF ATARI (the most comprehensive reference)

Relating and Animating Characters

- COMPUTE!'S FIRST BOOK OF ATARI GRAPHICS
- COMPUTE!'S SECOND BOOK OF ATARI GRAPHICS

SUPPLY BLASTER

by Graham Askew

Supply Blaster is an arcade-type game for 1 or 2 players. It is written in BASIC and uses redefined characters in Graphics 1? with a machine code transfer of half a character set from ROM to RAM and machine code Display List Interrupts (DLI's) which, among other things, splits the background into dark blue cloud level, lighter blue open sky and ground.

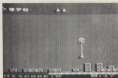
Initially there are choices of the number of players and of the limit of supplies which must be prevented from landing and remaining intact on the ground. A player's game ends either when he has lost all his ships or when the preselected number of supplies is on the ground.

A player starts with three ships and the number of ships left at any given time, including the one currently in play, is shown at the top middle of the screen. Player 1's score is indicated at the top left and, if playing, Player 2's score at the top right. A high score stands at the bottom left and the number of supplies landed and still intact is at the bottom right.

A new ship is set upon the ground to the extreme left and the object of the game is to score as many points as possible by moving the ship, with a joystick, in any horizontal or vertical direction and preventing supplies, which drop from random points at cloud level, from landing on the ground and building up to the preselected number. This is done by positioning the ship under a descending box and firing up at it by pressing the joystick button. The Player's score is increased for each supply box hit with the number of points increasing proportionately to both the height of the box when hit and the height of the Player's ship.

A fuel line is built in just below ground level and this runs out by a 20th each time a shot is fired. When it is finished the box used as alarm sounds and a flashing arrow at the extreme left of the fuel line indicates that the Player must return his ship to the starting point in order to re-arm and be able to carry on with the battle. This operation needs to be performed as rapidly as possible because supplies are still falling and, if the Player's ship is not available and armed, they will of course land.

Just to make life a little more difficult, random enemy missiles appear from either side of the screen above certain scores, vertically level with the Player's ship. These will automatically redirect their aim to any change in the Player's vertical position and the only way to avoid being hit and destroyed is to move down behind one or more landed supply boxes so that the missile impacts with one of those instead. It will be seen that it is not a bad idea to let a few boxes land, especially near the edges of the screen.



A second obstacle presents itself, depending on the supplies limit selected, when an occasional enemy ship appears from either side of the screen at varying heights. These chase across the screen towards the horizontal position of a Player's ship, and if the Player does not shoot quickly enough, they will fire a laser beam which will destroy the Player's ship. As the game progresses, these become more difficult to hit as they first begin to dodge the Player's line of fire and then later combine this strategy with that of coming down the screen towards him.

Thirdly, after the loss of a ship and provided a Player has passed a certain score depending on the level of play, the cloud level drops, thereby making it more difficult to cover the width of the screen to hit supply boxes which drop from a lower position.

Just to be fair, guided missiles and enemy ships will not be launched while the player's ship is in the left-hand column of the screen, which obviously includes the re-arming process, but remember, it is no good staying there for too long because further supplies cannot be prevented from landing in the main play area. A missile will, however, continue on its way if already launched from the right hand side of the screen. An enemy ship, if already on screen, will still align itself above the Player's ship and fire at him, unless he has commenced re-arming, in which case it will hover until he is re-armed, then it is matter of who can fire first.

The preselected last supply box trying to land is indicated by a different colour and warning sound as it descends.

If you fancy your chances of going up the screen to meet or even pass an enemy ship, just try it!

SCORING:

Points are scored for shooting a supply box.

A player's score is also increased by 250 points for each enemy ship destroyed.

An extra ship is credited at a score of 10,000 points or more.

Ships can be lost by:

- Being hit by descending supplies.
- Being hit by enemy missiles.
- Being shot or hit by enemy ships.

READERS POLL RESULTS

Well, you've done it again! Every single contribution (except one review by the Editor) received a vote in the Annual Readers Poll. This once again shows what a diverse range of interest there is amongst Atari owners and, hopefully, confirms that we got the balance right. Here are the winners:

- First: **THE HARDWARE FACTS** by John J. Savill
 Second: **HOUSE OF SECRETS** by David Blasse
 Third: **FIRST STEPS** by Mark Hutchinson

The winner has received the top award of £250 of software of his choice whilst the two runners up each receive a copy of the book Computer Animation Primer valued at £19.95.

Congratulations to the above and congratulations to all the other contributors during the year. Even if you did not win you have the satisfaction of knowing that your article, review or program gave sufficient enjoyment to others for them to vote it in the top three contributions.

Another year begins. How about an article or program?

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QUOTE PAGE 6

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ATARI 130X (9 YEAR)	£ 95	£ 1 95
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ATARI 130X (11 YEAR)	£ 95	£ 1 95
ATARI 130X (12 YEAR)	£ 95	£ 1 95
ATARI 130X (13 YEAR)	£ 95	£ 1 95
ATARI 130X (14 YEAR)	£ 95	£ 1 95
ATARI 130X (15 YEAR)	£ 95	£ 1 95
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ATARI 130X (87 YEAR)	£ 95	£ 1 95
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ATARI 130X (92 YEAR)	£ 95	£ 1 95
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ATARI 130X (95 YEAR)	£ 95	£ 1 95
ATARI 130X (96 YEAR)	£ 95	£ 1 95
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CROSSWORD

CREATOR

Crossword Creator is written specifically for the 1020 Printer/Plotter and enables the user to create any number of 9 x 9 square crosswords, complete with clues. You may enter words wherever you wish.

The size of the grid is fixed by the DIMENSIONED array. WD array contains the finished crossword and BD array contains only the positions of the black squares. ID array is also used to draw the square and number it automatically. It is possible to alter the size of the grid but it would need a lot of work to do so.

CREATING THE GRID

All input is via the keyboard. Use the arrow keys to move the cursor about, there is no need to use the CTRL key. Characters are entered at the position of the cursor and can be changed by placing the cursor over an existing letter or may be erased with the DELETE/BACKSPACE key. If you are typing a word ACROSS, then the delete will work back across the screen and if you are typing a word DOWN, the delete will erase up the screen. The SELECT key will change the direction of typing and the current direction will be displayed on screen. Blank squares are created with the SPACE BAR.

PRINTING OUT

Once you are satisfied with your crossword, you have two choices.

START will print out two copies of the crossword. The first copy will be a completed crossword and the program will stop to allow you to tear off this copy to justify you with the clues. The second copy is a blank grid with the black squares and numbering included.

OPTION will give just one printout of a blank grid with black squares.

ENTERING CLUES

When the grids have been printed, you may type in the clues against each number as it appears. Type the clue and press RETURN. The clue will immediately be printed out. If you make a hash of it press START to redo them. The printout will start ahead with either the across or down clues depending where you are up to.

The author would appreciate a copy of any improvements to the program crosswords created with it. Send them to LES HODMARTH c/o PAGE 6 and we will pass them on.

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04 10 DIM DIMS(9,9)
05 20 DIM W(1020 CROSSWORDS CREATED)
06 30 DIM CL(10) BY LES HODMARTH
07 40 DIM C(9,9)
08 50 DIM A(1000 GRAPHICS)
09 100 OPEN CL:GOTO 100
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Hardware

Hardware add-ons for the Atari have been low and far between in this country with little being imported for ease of compatibility, and little interest hereabouts by British Companies. Suddenly, a new company, W.E. Electronics has produced four add-ons for the XL computers with the promise of more to come. So far produced are a cassette interface to allow ordinary cassette players or hi-fi decks to be used for storage, a printer interface, a speech synthesiser and a 32K RAM expansion for the 600XL. Let's take a look at each in turn.



CASSETTE INTERFACE

The cassette quite compact and plugs into the serial I/O port of the computer and then, via a choice of leads into either a standard portable cassette recorder or a Hi-Fi stereo recorder with provision for remote control of the cassette motor if the recorder allows this. Programs can be loaded or saved in the normal way and the unique Atari 'word wrap' facility is retained. Using a non-Atari recorder means that you will initially have to experiment with volume levels to ensure successful recording but once this has been mastered, the settings can be left or noted for future use. Good results can be obtained but the use of a non-Atari cassette does tend to be a bit fiddly. Obviously the unit is aimed at those owners who have had troubles with their Atari Program Recorders (and these are many) who will to doubt be willing to put up with a little more inconvenience in order to successfully load and save programs. The price is £19.95 which is perhaps a little high and you need to specify which type of cassette you intend to use.

PRINTERFACE

Interfaces for printers are generally very expensive works one at £29.95 may look attractive. Again the unit is very compact and plugs into one parallel port via a very short lead with 2'6" of ribbon cable to the printer. The design works well on the XL models although it is difficult to use on the 400 and 800 as it sticks out at the front of the parallel ports. The main drawback to this type of printer interface is that it is software controlled and requires to be booted each time it is used. A boot cassette is provided for this purpose although the full source code is provided both in the documentation and on the cassette enabling anyone familiar with machine language to access it for disk saves, more substantially, via the interface to drive other devices. The interface works well with all the normal BASIC print commands and is a full 8-bit allowing graphics dumps to be performed on a suitable printer. While it is compatible with AtariWriters there would be difficulty using it with a printer driver which itself needs to be booted up for use. If you have a limited system and cannot afford the price of a printer and an interface, the Printerface would no doubt suit you. The penalty for the saving in cost is the inconvenience of booting up each time and some limitations such as mentioned with AtariWriter but it should provide the means to access a printer at about half the cost of a normal interface.

SPEECH SYNTHESISER

Speech synthesizers for 8-bit micros are not greatly sophisticated and require considerable programming to be able to achieve good results. They are however great fun and you can spend many interesting hours performing programs, trying different spellings and attempts to achieve quite good results. The W.E.E. synthesiser

FOUR ADD-ONS

is telephone based which means that it produces individual speech sounds rather than full words and therefore has an unlimited vocabulary. All you need to do is string different sounds together by pointing people of locations with a number which represents a particular sound. You need to understand the construction of speech and a comprehensive set of notes is provided for this purpose. There used to be read fully and then kept for reference to get the best results from the synthesiser. A cassette of demo software is provided which includes three programs which can be listed out to show you how to write programs for your own. The first program is the complete alphabet. The second is a demonstration of words and the third a simple children's game of guessing numbers. The speech on these is quite recognisable but could be improved with further programming.

I tried the unit out with a newly made program allowing sentences to be typed in and found that the results were good although words occasionally needed to be spelled in a different manner, for example doubling or tripling letters for the correct emphasis. This could however be incorporated in the program and the right combination will be found by experimentation and practice.

Many people think that you can buy a Speech Synthesiser, plug it in, type a question and get an answer but that's simple and you do need to know how to program (not necessarily as a complex level) but, with patience, the W.E.E. Speech Synthesiser will give you hours of enjoyment. The unit works well, is adequately documented and is a cheaper alternative, at £29.95, than those originally available from the U.S.A. Perfect for the late night compulsive programmer who gets a bit lonely!

600XL RAM EXPANSION PACK

At last a RAM expansion for the 600XL which is cheaper and, hopefully, easier to get hold of than Atari's own. Not much you can say about a RAM pack except that the unit is fitted upright instead of out flat which makes it more compact and that it works well as a RAM expansion. Note the word expansion for, unlike Atari's 64K module which is a complete built-in memory, the W.E.E. RAM pack adds an extra 16K or 32K. What this means is that some of your best programs which contain over the XL operating system will run fine. Fortunately these are quite rare and you may not have any problems. If you write your own programs or use magazine

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Atari Art



Harvey Kong Tin was a regular contributor to PAGE 6 before he moved back to New Zealand. He has since sent in many fine examples of Atari graphics using all different utilities. This picture entitled CALLY was drawn with AtariArtist and the Touch Tablet.

Another picture from Harvey Kong Tin this time using *Photos Color Picture Painter* from *Atari magazine*. Harvey considers himself more of a graphic designer than a programmer and has sent in two complete playfields for a scrolling arcade game in *Atari mode* 8. He would like to enter into a partnership with a good programmer. If you are interested write to Harvey c/o PAGE 6.



Highland by David Enck of Birmingham started off as a doodle on the Atari Touch Tablet before growing into the picture here. David has also had great success in using the overlay on the Touch Tablet to produce pictures from photographs.

For more information on the Touch Tablet or AtariArt, please contact Atari Art at Atari Art, 10000 Wilshire Blvd., Suite 1000, Beverly Hills, CA 90210. Phone: (310) 206-1000.

English Software's

E. S. FORTH

FORTH is an increasingly popular language, and E. S. FORTH is one of several versions available for ATARI computers. It will run on 400, 800 and XL models having at least 32K. Cassette and disc versions are available, and both are very good value.

Operations are carried out in FORTH by executing commands, known as "words". Every version of FORTH contains a "dictionary" of these words. A FORTH program is written by defining new words, which are added to the dictionary, to perform new functions. This is done by writing chunks (or "screens") of source code containing the definitions, which are then compiled into the dictionary.

FORTH is a structured language, in that the program flow is not controlled by jumping between numbered program lines, as in BASIC. This forces the programmer to think more carefully before he starts writing his program, and results in the program being much better organised. It also means that it is much easier to keep lots of different program utilities which are loaded in at will without worrying about conflicts between line numbers.

FORTH is claimed to have a number of advantages over BASIC, especially that of speed. It is indeed much faster than BASIC, but this does not mean that you can use FORTH to write arcade-quality programs with the same ease as ordinary BASIC programs. If necessary though you can speed things up further by using machine code routines. FORTH is much more versatile than BASIC, and allows the user far more control over what is happening inside the computer. For this reason I find it a much more pleasing and interesting language to use.

E. S. FORTH is based on a standard called fig-FORTH, but claims to have been internally optimised for speed and efficiency. I tried a few small bench tests and found that it did indeed run noticeably faster than two other fig-FORTH based ATARI languages. The version of E. S. FORTH I tried was cassette based. This reduces costs when compared with cartridges, and renders it available to those users who do not have a disc drive. However, like all RAM based languages a program crash often means switching off the computer and starting again from scratch, which can be time consuming when you have to load the language off a cassette.

An area of RAM is set aside to simulate a disc, and contains a number of screens into which the user can write source code for his FORTH programs. The size of the area (and hence the number of screens) is set by the user at the start of a programming session. Screens are written using the ATARI screen editor, as in BASIC, except that the user must remember when altering a line to insert "P" between the line number and the line's text. Otherwise storage things happen. Other editing facilities are also provided, these are standard FORTH editing commands, although in E. S. FORTH they are permanently resident and operational, which is not usual.

Once the screens have been written they can be stored individually or as a set on a cassette, and can be compiled

reviewed by Steven Burke

into the language's dictionary to enable the program to be run. Five screens can be simultaneously stored in a 32K system and still leave room for a complex compiled program. More screens can be accommodated by sacrificing display and/or dictionary memory. However this is not necessary if you are willing to write your program in separate sections which are successively retrieved from cassette and compiled whole, with a little thought, could be done automatically.

The basic dictionary of E. S. FORTH contains nearly all the standard fig-FORTH commands. Those that are missing relate mainly to the use of discs. It should be noted that one of the basics of FORTH is that in principle adding new words, for example to make up for omissions in the basic dictionary, should not prevent programs, so long as the functions of the words are understood.

The E. S. FORTH dictionary is also well-stocked with commands specifically for the ATARI. These are mostly like corresponding BASIC commands. They include I/O words such as OPEN, CLOSE, PUT, GET, graphics words such as GRAPHICS, COLOR, PLOT, DRAW, as well as other types of words, e.g. STACK, SOUND, etc. There are however a number of commands which do not have BASIC counterparts. These is for example a very useful PLAY command, which is like SOUND except that it has a time parameter, so that the sound stops after a preset duration. Processing continues while the sound is playing.

There are also commands to make it much easier to design and use custom character sets, but the most useful of these extra commands are the Player-Missile utilities. A single command sets up the registers and allocates screen memory. Other commands are provided, e.g. for defining and switching between player shapes (to permit animation), for moving the players and missiles, setting their colours and widths, etc. Controlling player movement in response to a joystick is made particularly easy. Anyone who has tried writing even simple Player-Missile routines in BASIC will know how tedious this can be, especially if you have to resort to clever little programming tricks to get the players to move quickly enough. Having a language that can handle this for you makes a very pleasant change, and for this reason alone I would recommend E. S. FORTH.

Some versions of FORTH are provided with an assembler, which enables new words to be defined in machine code to increase speed, but unfortunately E. S. FORTH does not have one. Instead it is possible to run the language with the ATARI ASSEMBLER/EDITOR cartridge in place, and switch control between FORTH and the cartridge. This is useful in some situations, but makes saving and loading FORTH programs written partly in assembly language awkward. However, some public domain assemblers have been written in FORTH, and the interested user should be able to get hold of a source listing without too much

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THE SOFTWARE REVIEWS

JOUST ATARI 16K ROM

Joust is a direct copy of the arcade original complete with less troll, periodicity and all. The game has a medieval feel with the player feasting himself riding upon a flying ostrich¹ and jousting against other knights. You must attempt to keep the other knights off their mounts by bumping them from above. Pressing the joystick button gives you flight while the stick gives you movement. Easy? Not quite, for many different things hinder your progress such as floating platforms with which you often collide. Sometimes when you dislodge a knight he leaves an egg behind which will hatch into another knight if you don't quickly run over it. Other enemies include a lava troll who tries to grab any low-flying birds

and a parasitely² who does its utmost to eat you. Only the parasitely can be destroyed by hitting him directly on the head with your pole. One final hindrance is that you move with Newton's Laws of Motion (i.e. you cannot stop dead, you have to decelerate and accelerate).

On power-up a nice title page is shown with the top half taken up by the name written in the same style as in the arcade. The lower half is in Graphics D and gives you details of copyright, number of players (1/2) and the difficulty level from 1 to 4. Pressing START begins the game. The graphics in Joust are good. The islands are well arranged and the birds very neat. You can tell when an ostrich laps its wings and the lava troll's head is very good. The sound is simple but pleasant. Not really

brilliant but quite adequate.

Joust is a very enjoyable and addictive game. I find myself trying to knock other ostrich riding knights from the sky all day. Only a couple of gripes. Sometimes after you have lost one of your five lives your knightless bird takes ages to get off the screen and there is no high score table.

Joust is a very good game. Not the best, but very good.

SNOKIE FUNSOFT (A16 GOLD) 48k cass/disk ... 1/2 players

In SNOKIE the player controls a red and white³ jetpack moving him across a rocky landscape, onto floating islands, through laser beams and mines. The game seems to be derived from Scramble and is reminiscent of Sea Dragon although it is not as good.

The graphics are simple and fairly crude although they are very clear. Colour is adequate (just). Sound follows the same line as the graphics. No fear channel stuff here! The controls are a bit sluggish so that you can lose lives unnecessarily but a nice feature when you die is that a skull appears and sinks at you! This little feature actually makes the game a little more addictive.

A few years ago SNOKIE would have represented very good value for money at £9.95 for cassette (£12.95 for disk) but nowadays with Atari cartridges selling at the same price it no longer seems so. Even so SNOKIE is well written and is not rubbish, it is just another average game.

PITSTOP ... EPYX ... 16K ROM ... 1/4 PLAYERS

Not surprisingly PITSTOP is a racing game. In a joystick controlled formula one race, the player(s) can race around a chosen circuit as many times as he/she wishes. Grand Prix options include Monaco and Nyalami and a host of others.

Speed, time, fuel consumption and a map of the circuit are shown as you race past other drivers. Just another run of the mill driving game you might think but the best is yet to come! An extra feature in PITSTOP which makes it different to other racing games is that your tyres wear out after every few collisions and the lighter in colour they become, the sooner they are to blowing up. To add to this problem your fuel runs out as you race so that you must make a judgement about when to pull into the pits.

In the pits, the player sees four men, one holding a flag to allow you to leave the pits, one holding a fuel pipe and two ready to change your tyres. Having stopped the car you must use the joystick to select one of the pit crew to change tyres or re-fuel. The chosen mechanic must be guided either to the tyre to be changed or to the petrol tank to perform his task. Care must be taken not to overflow the tank which may then explode causing you to re-fuel from scratch. Changing tyres means that your crew member must remove and replace each tyre. All the while the clock keeps ticking and the other cars can be seen flashing by at the top of the screen. Time is crucial and as soon as you have finished you must select the man with the flag to re-start the race.

PITSTOP is not as good as POLE POSITION but with the added features it comes a pretty close second. You can even hold a competition with up to three friends.

**Reviewed
by Paul Blazeby**

THE SOFTWARE REVIEWS

BOULDER DASH FIRST STAR SOFTWARE 32K CASSETTE

This game was recently selected as game of the month in *Computer & Video Games* and was voted one of the top ten computer games of 1984 in *CMN* magazine. Would I say more?

Well, I suppose I should. Boulder Dash is what I would describe as a thinking man's arcade game. You do need to be quick on the joystick but such headlining is and your lives will quickly vanish. In the game you play the part of "Rockford", a little creature who can only be described as cute - if you please - during play or use the spectacles to locate the game to put his hands on his hips, winks at you and taps his foot impatiently.

The object of the game is similar to other digging games (i.e. you travel through caves to collect gems. It is however much more difficult than most with many problems to solve. Your biggest problem is the boulders which are numerous and, if undisturbed, will be deluged and will crush little Rockford. They fall in a very realistic manner bouncing off other boulders and trapping or killing you if you are not careful. Each screen has a time limit at the top of the picture with the number of gems needed to reveal a flashing exit.

In addition to the boulders, there are fireflies which are normally lethal but which on some screens can be converted to gems, an Amoska which can both help and hinder and magic wands. After every 5 screens there is an optional quiz, but not too easy, screen to solve for a bonus life. In addition to this, bonus lives are awarded every 500 points. There are 16 screens in all to be cleared, each more difficult than the one before and each screen requires very careful planning.

All in all an excellent game. Sound and graphics are marvellous. Easy to get into, but very difficult to solve. Well worth buying.

FORBIDDEN FOREST ENGLISH SOFTWARE 16K CASSETTE

Oh dear! Is this from the same company that brought us Jet-Boot Jack? The game is boring and the graphics are dreadful. The sound isn't up to scratch either!

You play the part of an archer who has to shoot a number of enemies. Starting in daylight, you are attacked by a number of spiders looking like badly knitted balls of wool, then by a bee, some skeletons, a phantom, a dragon and finally the Demogorgon. As time progresses, night falls and it

gets darker.

After destroying each enemy you have to sit and wait for what seems like ages whilst the archer does a silly dance. I could live with some of the game's shortcomings if it was a challenging game, however on the first attempt I cleared the first two levels and then gave up, and I am a long way from being an expert.

I should think that this is a conversion from another machine but what is the point if you ignore the Atari's superior features? Definitely not one of English Software's better efforts and I'm afraid I cannot recommend it.

Reviewed by Gerald Swan

BRUCE LEE ... DATASOFT 32K CASSETTE

This has also been chosen by another magazine as Game of the Month and again is a game that requires some thought as well as a quick hand on the joystick to overcome the various obstacles put in your path.

Your role is that of the late film star and Kung Fu expert, Bruce Lee. Your task is to enter the Wizard's fortress, find him and destroy him. On entering each room you must collect a number of lanterns to reveal the secret entrances to the further reaches of the Wizard's domain. The lanterns are revealed by jumping and climbing along the fortress walls and floors. Easy? No. As you leap happily about a black robed Ninja and a nasty green gentleman called a Yama proceed to try and knock the daylight out of you! But you are Bruce Lee, right? So using your amazing Kung Fu skills, you duck, kick and chop your way through your enemies. As you travel through the 20 rooms of the fortress, you also have to deal with electrical charges and exploding bushes. As each room is entered, thought and planning are needed. Fortunately, on some of the more difficult rooms the Ninja and Yama leave you alone to get on with your lantern collecting.

At the start of the game you have a choice of 1 or 2 players and you may select the computer to control the Yama or you and a friend can take it in turns to be Yama and Bruce Lee. Once again an excellent game. Great graphics and a lot of fun.



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Contact

WARNING: The CONTACT column in issue 10 had a message from James Stevens. There have been several complaints over this individual and readers are advised not to send money or tapes to him.

ASSEMBLER/CASSETTE: Is there any way to load machine code programs using the ASSEMBLER/EDITOR cartridge with the program recorder? Frankie Smith, 62, Oaklands Ave., Poyty, Belfast, BT10 0JH

TECHNICAL NOTES FOR 400/800: Requested news, or second-hand. Any condition would be acceptable. Frank Mearns, 18, Elm Avenue, Gosford, Middx, UK: 074

PRESTON ATARI CLUB: How meeting place is ST. ANTHONY'S CLUB, ST. ANTHONY'S DRIVE, GABLEY CAUSEWAY, FULWOOD, PRESTON. Meetings are now every third Thursday in the month at 7.30 p.m.

PEN PAL: Pen pal wanted with Atari 800 with view to swapping hints on adventure games and general discussion. Christopher Heath, 4, Cotters Avenue, Oswestry, Shrop, SY11 1DR

SANDS OFGYPSY: Cannot take my friends, side my carted or remove my cover. Help! Andrew Starke, 105, Maitland Street Road, Faberwood, Preston, Lancs. NE2 4BQ

NORTHERN IRELAND ATARI USERS: Send your name and address to F. Smyth, 62, Oaklands Avenue, Poyty, Belfast, BT10 0JH for details of User Group and FREE copy of newsletter.

SCOTT ADAMS ADVENTURES: Can anyone tell me how to get to the Indian Village in GHOST TOMMY? Or how to open the crate in PIRATE ADVENTURE? Or get past the thief-killer in Claymore? Or what to do in SAWAGE ISLAND 2 after meeting "Agg"? I will swap hints on Adventureland, Woodoo Castle, Mission Impossible, The Castle, Strange Odyssey, The Hall, Pyramid of Doom or Mystery, Porthouse, Flame Tony on 04555 3159 or Peter on 04555 4850

ISSUES 1 & 2: Copy of typed in listing of HENRIE MERRON offered in exchange for complete photocopies of issues 1 & 2 of PAGE 6, Martin Dixon, 45, Moorfield Way, Sharncliffe, Nottingham, NG11 7ET. Tel. 9602 817 598

CASSETTE BOMB: Can anyone tell me the data statements for writing to cassette are arrived at in loaders for machine code listings such as published in ANALOG? I know that the first 6 bytes are the header, beginning load address and end load address but what are the rest? Linda Trinder, 33, Perry Drive Road, Upton, Wrexham, Merseyside, L19 8EE

FLANDERS ATARI HOME COMPUTER CLUB: Recently started an Atari club in Brugge. We would very much like to get in contact with clubs in the UK. We have a particular problem with DOS 3.0. When using this we have only 34 free bytes. How do we obtain more? Paul George, 2, Montgomery Avenue, BK330 Kewdale Herts 1, BELGUM

800 THERMAL PRINTER: Has anyone got a spare handbook for the 820? A photocopy would do. Writing to pag. Please contact Brian Wells, 36, Church Road, Langley, Gloucester, GL2 0AH. Tel. 962 20145 after 6 p.m.

FORTH: Are there any other Atari FORTH users I could get in touch with? Peter Coates, 45, Acacia Road, Hampton, Middx. (Peter was in contact with of 0825 FORTH which he has developed. VERY impressed Ed)

SOUTH CHESHIRE ATARI USER GROUP: Meetings are held once a month in Crewe. All Atari owners new or old welcome. Further details are available from the Secretary, 4, Yolen Street, Crewe. Tel. 02842 67773

HOUSE OF SECRETS: This is my first adventure and I am stuck! I have found the target and have tried my best to do something with it but without success. I have been outside again and hunted round in case I had missed something but no luck. Can anyone help? Ken Johnson, 26, Herdendale Street, North Rockingham, Queensland 4301, AUSTRALIA

BACK ISSUES: Wanted - PAGE 6 issues 1, 2, 3 and 6. Also some Atari/Amalgam issues and Atari books/documentation. Please phone Chris King on 01 478 9908 (evenings and weekends)

The CONTACT column may be used for any purpose other than exchange or sale of software. If you have a problem need it is to CONTACT, if you can help someone else, get in touch.

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THE SOFTWARE REVIEWS

SPELL ME ... CASTLE SOFTWARE ... 48K DISK/CASSETTE

One or two programs have appeared to teach preschool children the alphabet but there have been few (if any) to cover the next step of word association and spelling. SPELL ME is ideally suited to the slightly older child who has mastered the alphabet and simple words and needs to practice or recognize longer words and the association of words with pictures. The program was conceived by a teacher and programmed by someone obviously familiar with the Atari.

A series of pictures of everyday objects are presented on screen together with a word identifying the picture. The object is to correctly repeat the word using the keyboard to score points. A successful effort is rewarded with a point and the playing of one of three nursery rhymes. Failure means another try and a point lost before the computer repeats the word correctly. A word that proves too difficult may be changed with the START button. Initially words are presented in upper case as this matches the letters on the keyboard and will help the child to associate the keys with the alphabet but it is recognised that children learn in lower case and this option may be chosen although the parent may then have to help in the choice of the correct key.

On the first level the word associated with the picture is displayed on the screen and it is mainly necessary to copy



it. Level 2 shows the word for a short time and the child has then to remember and type it. The most difficult level teaches word association by just presenting the picture. There are around 38 words in all (price on the disk varies) each with an excellent illustration and the screen is laid out to good effect. Sound, although not complex, is used well.

SPELL ME comes with a brief manual emphasising the need for parents to take an active part in a child's education. If your child has reached the age of around four or four and a half and you want to encourage his or her development then SPELL ME, together with your Atari could well prove to be an excellent investment.

RAILS WEST ... SSI ... 48K DISK ... 1/8 PLAYERS

It is very difficult to review certain programs without having spent a great deal of time exploring and playing them. Simulations are a case in point and Rails West is an excellent and complex simulation of the construction of the railroads across America in the 19th century.

Up to 8 players can compete against each other on the computer (only one build a railroad and amass a personal fortune along the way. The simulation is complex, requiring a knowledge of economics, stock, floating bonds and management of debts. Add to this the threat of other interested parties trying to take over your railroad, booms, depressions and market fluctuations and you can well understand why a quick glance is not sufficient for a full appreciation of this program. As well as being a game of developing skill it is educational in the understanding of economics and the history of development of unexplored territory in the American mid-west.

Rails West may take some time to learn and fully understand but if simulations are your forte, then you will expect a long lasting game that you can return to time and time again with ever increasing knowledge and understanding. Not an occasion for beginners but well worth the effort for those who already understand and enjoy the computer simulation. Rails West should be an ideal thought provoking exercise for a family or group of friends but is also a game which can be played alone against the computer.

Reviewed by
Les Ellingham

AWARDS

Both Paul Blandy and Gerald

Swain have been awarded an
ATARI game on ROM for their
reviews.

Can you write these reviews of
your favourite, or not so favourite
programs?

THE HACKERS DOZEN

by Hugh Denholm

What is a Hacker's Dozen? Numerically of course it's a dozen (in honour of Atari's new 16 bit machine perhaps). What it actually consists of is a list of your most memorable software. The software could be memorable for two reasons, either you liked it or you loathed it. Below is my personal selection. I leave it up to you to discover which I love and which I hate!

- 1. DEADLINE.** Ideally, my list would consist entirely of Introscan games, but that would be (even more!) boring. I've chosen Deadline because it was the first Introscan game I played, because I love the "chatty" style of the adventure and because they'd even programmed in a response to my attempts to do naughty things to the lady of the house when I cornered her in a bedroom!
- 2. BLUE MAX.** The graphics are not as crisp as Zaxxon but the game is 100 times more playable. Goggles and flying helmets should be worn to generate authentic atmosphere.
- 3. STAH RAIDERS.** A miracle in many ways. A miracle that something so advanced should have been written so long ago in only 8k. A miracle that Atari never bothered to release an even better version in 16k. Upon reflection, a miracle that Atari ever produced it in the first place!
- 4. SOLO FLIGHT.** More of a navigational test than a flight simulator but still very challenging. Coming down through cloud in mountainous terrain with half your instruments not working is a guaranteed wussy games experience.
- 5. SENTINEL 1.** With a spacecraft that closely represents a fitted contraceptive and aliens that disguise themselves as love-see ghosts, who can resist this game? I can't!
- 6. UNIVERSE.** Big game, big price. Guaranteed to ruin your wallet, your disk drive and your spare time. Possibly the most comprehensive game of its type ever written.
- 7. S.A.M.** Sounds like a brain damaged American railway station announcer with severe accidental trouble, but great fun. Programs it to send you safe or instruct your mother-in-law, but doesn't get the programs mixed up!
- 8. SAVAGE PONDS.** For Chapp, clever concept, good graphics, addictive. Against we all want to fight aliens, but who wants to live in a pond?
- 9. SPACE INVADERS.** Imagine an alien race so advanced that they can develop a space ship capable of travelling

across the vast tracts of space and time to finally arrive precisely on target just above the earth. Pretty clever guys, eh? So why, oh why, do these same aliens attempt to conquer us by peering around in mid-air like an inhabited formation dancing room? What a game concept, it will never sell!

- 10. ENCOUNTER.** Boring game, amazing graphics. Good for impressing visitors, especially if you tell them you programmed it yourself!

- 11. RALLY SPEEDWAY.** The best two player game I know and a lovely simulation of car racing. I once played it for seven hours straight and my opponent and I never stopped laughing. (I don't know what he was laughing about, he lost!)

- 12. ALIEN SWARM.** A great shoot-em-up which actually gets easier after 100,000 points. Play it when you want to convince yourself that you are good.

- 13. AIRSTRIFE.** They tell me it's a classic but I find it close to impossible. Perhaps I should buy a joystick?

- 14. MINER 2049er.** The best jumping game. Lovely graphics and some really tricky screens. There is a special number you can input to enable selection of any screen, but I've lost it. Guess I'll never see screens 6 to 10 again.

- 15. EASTERN FRONT.** The Chris Crawford tour-de-force. I never wanted to go to Moscow anyway! Try the cartridge version for even more options. There's meant to be a technique to the game but the only technique I've found is to turn the bloody thing off and have a beer!

- 16. CHOPLIFTER.** A silly simple game, but those little people waving at you are most appealing. They are so trusting, they even stand there and wave as you land on their heads, then they stop waving and make squelching noise instead.

What about YOUR Hackers Dozen? One of Atari's best (or worst) 800K cartridges will be awarded to each of the FIVE most interesting, witty or clever entries or simply to those that tickle the Editor's fancy. Write them down (not too long) and include a list of the Atari ROMs you already have and you may get another to add to your list. Entries will not be acknowledged unless they are winners. Get writing!

FIRST STEPS

Write to Mark Hutchinson
at
P.O. BOX 123, BELFAST,
BT10 0DB

A-Z OF BASIC - PART 1

Over the next few issues First Steps will be presenting a complete A-Z guide to Atari Basic aimed at beginners, but with, I hope, some hints and tips which more advanced users may find helpful. It would take a whole book to cover the subject in depth but I have included examples of many commands to enable you to understand them better. If you need additional help or help in other directions do not hesitate to write to me (at an SAC). I will try to solve your problems or, at least, turn you in the right direction.

Many of the BASIC commands have abbreviations which are shown in brackets. In addition to making typing easier, these can let you use a great many statements over the three available command lines only. When LISTED, the commands will appear as normal but spread over more than three lines. Use of abbreviations in typing listings will not affect checking utilities such as TYPO II. The drawback is that editing of entered lines is limited to the first three screen lines.

Direct mode uses no line numbers and will execute directly after <RETURN>. Deferred mode is preceded by a line number and will work after RUN <RETURN> is entered.

ABS

This will return the absolute value of a variable or expression. This means that you will see the value without regard to the sign which will always be positive. This will be handy when you want a value returned from a mathematical equation, but to sign.

Example 1: ABS-003

ADR

This will return the decimal address of a specified string. The address will change as the computer shifts the string around in memory to protect it. Most users used with machine code machines that have been placed into a string and recalled using I/O.

Example 1: ADRADRSTR
or 2: ADRADRSTR-ADRSTR

AND

A logical operator used mainly with IF/THEN statements. All conditions must be true for it to work. Example 1 will only equal 3 when X=1 and Y=2 at the same time. Similarly, with example 2 the expression A will equal 1 (true) when B is greater than 0 and less than 5, otherwise A will equal 0 (false).

Example 1: IF X=1 AND Y=2 THEN Z=3
Example 2: A=(B<5) AND (B<0)

ASC

This will return the ATASCII character number for the alphanumeric (text character) supplied. The example will return the ATASCII code 65.

Example 1: ASC('A')

ATN

This will return the arctangent value for a given variable. Conversion to integers is not if the computer is running in integer or real mode.

Example 1: ATN(0.5)

BVE (B.)

This command will revert to the memo pad or keyboard mode in 400/800 machines (as will re-cartridge), and to the softest mode in XL models. Basic programs and handlers (R5232 etc.) will still be held in memory and can be recalled only through SYSTEM RESET. The screen editor works but RETURN does not send a line to the interpreter. In other machines, BVE sends a GRAPHICS screen, however. If you want to set up any other graphics mode with a window and call BVE, only the window will be in the memo pad mode. This is because the window is GRAPHICS 0 itself. This means that you can leave some pretty display for someone to see, but not tamper with. Or you could not to BVE to test the graphics control keys. Not a lot can be done with this command, but you can show more than just a simple screen.

CHR

This is the opposite of ASC. This will return the alpha numeric for a given ATASCII value. The example will return 'A'.

Example 1: CHR(65)

CLOAD

This command will load, from tape into RAM, a program that has been stored using CSAVE. After <RETURN>, you will hear a single tone. Press the play button on the recorder. Then press <RETURN> to enter the program. Anything that was previously stored in RAM will be wiped out. Once in memory, the program can be LISTED or RUN. You can use a file name such as CLOAD 'CNAME' for convenience, but the filename will be ignored. There is a program (ACE, from English Software) that will differentiate between programs stored on tape. It stores programs by filename and will only load the program with the given filename, skipping over the other files - in the same way as the BASIC menu.

CLOG

This will return the logarithm to the base 10 of a given value.

Example 1: CLOG(100)

CLOSE (CL)

This command will close any I/O device number that has been opened.

Example: CLOSE #2

CLR

This will clear any strings, arrays, or variables that have been previously dimensioned in the program. Please note that ALL dimensioning will be cleared, whenever you will have to

by Mark Hutchinson

macro-statement. This can be very handy when you only use a string at the start of a program. After use it can be cleared to save memory. It is also useful in debugging programs. Unfortunately it often seems programs because of bad programming techniques.

COLOR(C)

This statement ranges from 0 to 255. In four colour graphic modes, 0-3 will correspond to the first four SETCOLOR statements. COLOR 4-255 will then repeat, as only four colours are available. In two colour modes, 0 and 1 will correspond to the two SETCOLORS, and then 2 onwards will repeat this pattern. In text mode 0 however, COLOR will correspond to the IBM alphanumeric text characters available. In the other text modes, only the first six bits will determine the character (a minimum of 64). The last two bits will set the colour of the character (a minimum of four).

When a graphic screen is called up all pixels will be set to 0. Therefore nothing will appear when you use PLOT unless a CLEAR statement has been included. CLEAR will correspond to the background colour, that is why no colour appears. The screen will print the first 48 characters on a GRAPHICS 0 screen. If you try changing to another graphics mode you will notice the colouring effect that has been mentioned.

```
Example 10 GRAPHICS=0 TO 58:CHPLOT
      CH:NEXT CH
```

COM

This is the same as DIM. Not normally used, it was taken from the original Microsoft Basic that ATARI Basic is derived from. It seems to COMmon variables.

CONT (CON)

Using this and CLEARCON will cause the program to start running again after STOP, END, or BREAK has been encountered. The only problem is that, if the program has been stopped in the middle of a command line, it will continue on the next line. Therefore sleep may not be executed and an error may appear. It is normally used during debugging, but it has a use during the 'forced read/write mode' (PAGE 8, issue 04) when, contrary to ATARI's Reference Manual, it can be used in the deferred mode.

COS

This returns the cosine value for a given variable. Again, care must be taken about degree/radian mode.

```
Example 7=COS(45)
```

CSAVE

This transfers what is stored in RAM onto tape (RAM will not be wiped clean). Two tones will be heard when you press <RETURN>. You must now press both play and record buttons on the recorder. Press <RETURN> to transfer the program. A program saved this way can only be re-entered using LOAD. Under certain conditions it is able to provide CSAVE with LPRINT (LP). Disregard any error message generated.

DATA (D)

This statement is always used with READ. It holds all the information that will be used by a program. The bits of data to be read are separated by commas, and any spaces will be considered as part of the data (this is one of the most common causes of faulty programs). The number of READ must equal the amount of data stored, otherwise ERROR 8 (out of data) will occur. The computer will take care of precisely where the next bit of data to be read lies in the table. Therefore data statements can be placed anywhere in the program. Some people prefer to have the DATA associated with the READ statement, for easier debugging. Others prefer all DATA to be together, at the end of the program, for neatness. Both work equally well.

```
Example 11 DIM D$(8)FOR T=1 TO 6:READ
      D$:IS:NEXT T
      IS:DATA THIS IS A SA:ITEMS OF DATA
```

DIM (DL)

This will set dimensional functions to degrees. The computer is set to radians mode on power up.

DIM (DL)

This will dimension of strings, arrays and matrices. This means that memory has been set aside to store data in the above forms. It is good programming to place DIM statements at the start of a program. It must be noted that an array is one dimensional list and a matrix is two dimensional table but both start at 0, whereas a string starts at 1.

```
Example 12 DIM A(10):DIM S$(8)
      IS:DIM M(4,3):DIM S$(5)times 10
      IS:DIM A$(20):DIM S$(8)array
```

DIS (DO)

The Disk Operating System (DOS) consists of two parts. The DOS System (DOS-SYS) which is loaded into RAM during power-up of the computer with the drive switched on, and the Disk Utility Package (DUP-UTS) which is loaded by the command DOS. It will have no effect if DOS-SYS has not been loaded. Calling DOS will clear RAM, unless a MEM-SAVE file has been set up to store the current program. Returning to Basic will make the MEM-SAVE file load the original program. This can take a long time. Types of DOS (Mini-Cos, Triplus, etc) use Basic FORs or DOs to accomplish various functions without having to load up DUP-SYS.

DRAWTO (DR)

An initial point must be set up using PLOT. A line will be drawn from this point to a second point if the co-ordinates given by DRAWTO. This second point will now become the start point for another line again using DRAWTO. A graphic mode and colour must be designated first.

```
Example 13 GRAPHIC P, 0:IS:DR 100,80 PL
      219,159
```

END

This terminates a program, closing all files and sound channels. BASIC normally does this, so you should not need END except during debugging. However you will find some programs do not shut off sounds when complete, so END is needed occasionally.

ENTER (E)

This will transfer a program to RAM that has been saved using LNK. It will not overwrite an existing program, providing that the line numbers are not the same. This is an excellent way of storing small subroutines and adding them to existing programs without disturbing the program. This can be done with disk or cassette.

```
Example ENTER "C"
      ENTER "D:PART2.BAS"
```

EXP

This will return the exponential of a given variable. It is easier to limit this to six figures for accuracy.

```
Example 7=EXP(4)
```



continues next issue

GOTO DIRECTORY

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Retailers who are interested in an entry in this feature are invited to contact the Editor on 0388 47182.

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DEPTH CHARGE

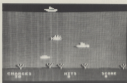
by Sydney Brown

1985, SPECTRUM
1986, SPECTRUM

The object is to try and destroy the submarines with a limited number of depth charges available to your destroyer.

Flag is a joystick to move the destroyer horizontally across the top of the screen and press the trigger to drop the depth charges. Charges will be dropped alternately from each side of the ship and only two may be dropped at one time. The fast moving small purple subs score 50 points each, the medium yellow ones are worth 20 points and the large green subs score only 10 points. Thirty depth charges are allowed for each game.

Bombis says!



```

NY 10 REM *****
PA 11 REM *          DEPTH CHARGE          *
PY 12 REM *          by Sydney Brown      *
QA 13 REM *          -----              *
RA 14 REM *          First published in    *
SA 15 REM *          ACE NEWSLETTER      *
TA 16 REM *          1982, Wine Maple Drive *
UA 17 REM *          Eugene, Oregon, U.S.A. *
VA 18 REM *****
WA 19 T "*****GRAPHICS 7:POKE 752,127 " JOY
XB 20 STICK 1 MOVES THE SHIP AND THE
YC 21 000 RELEASES THE DEPTH CHARGES "
ZA 22 T "*****          *****          *****
ZB 23 "
ZC 24 POKE 760,128:POKE 760,129:POKE 710
ZE 25 ,10:GOTO 700:POKE 505,82:POKE 822,1
ZF 26 POKE 5240,100:POKE 5247,120:POKE
ZH 27 5250,140:POKE 5251,100
ZI 28 POKE 764,0:POKE 765,100:POKE 766,1
ZJ 29 80:POKE 767,200:PC:POKE1000-12:POKE 5
ZK 30 4275,50:POKE 5237,1:GOTO 700
ZL 31 POKE 5270,1:POKE 5267,1:POKE 522
ZM 32 0:POKE 5257,0
ZN 33 POKE 5270K 1:POK MP:POKE5265 TO POK
ZO 34 5270K 1:POK MP:POKE MP,0:POKE MP,0:POKE
ZP 35 MP+1,0:GOTO MP
ZQ 36 POKE MP:POKE5265 TO POK5265:1411
ZR 37 STEP 2:READ D:POKE MP,0:POKE MP+1,D:IN
ZS 38 0:PO
ZT 39 POKE MP:POKE5265 TO POK5265:1411
ZU 40 READ D:POKE MP,0:POKE MP+1,0:GOTO MP
ZV 41 POKE MP:POKE5265 TO POK5265:1411
ZW 42 STEP 2:READ D:POKE MP,0:POKE MP+1,D:IN
ZX 43 0:PO
ZY 44 POKE MP:POKE5265 TO POK5265:1411
ZZ 45 POKE MP,0:POKE MP+1,0:GOTO MP
ZAA 46 POKE MP:POKE5265 TO POK5265:1411
ZAB 47 STEP 2:READ D:POKE MP,0:POKE MP+1,D:IN
ZAC 48 0:GOTO 300
ZAD 49 POKE 77,0:GOTO 0,100,0,1

```

```

AA 50 POKE 77,0:GOTO 0,100,0,1
AB 51 POKE 77,0
AC 52 IF STICK000=0 AND 5:127 THEN GOTO
AD 53 2,200,0,10:5-5:0:POKE 52340,5
AE 54 POKE 52370,0:IF STICK001=11 AND 5:
AF 55 THEN GOTO 2,200,0,10:5-5:0:POKE 52
AG 56 240,5
AH 57 GOTO 2,0,0,0:IF STICK000=0 THEN G
AI 58 0:GOTO 300
AJ 59 GOTO 0,100,0,1
AK 60 IF 5:120 THEN 5:1-200:INT 0:00-0:0:0
AL 61 5:100:0:0:0
AM 62 5:1-0:0:0:0:IF 5:1200 THEN POKE 5
AN 63 3240,5:1
AO 64 IF 5:110 THEN 5:2-200:INT 0:0:0:0:0
AP 65 1:0:0:0:0:0:0
AQ 66 5:2-0:0-1:0:0:0:IF 5:1200 THEN POKE 5
AR 67 2700,5:1
AS 68 IF 5:120 THEN 5:3-4-INT 0:0:0:0:0:0
AT 69 1:0:0:0:0:0:0
AU 70 5:3-5:0:0:0:IF 5:3-0 THEN POKE 5220
AV 71 ,5:1
AW 72 IF 0:0 THEN 200
AX 73 5:0:0:1,0:1-0,10,0:POKE 0:0,0:0:0
AY 74 0:IF 0:0:0:0 THEN 0:0-0:0:0:0:0:0 200
AZ 75 5:0:0:0:0
BA 76 5:0:0:0:1,0,0,0:IF 0:0 THEN 270
BB 77 5:0:0:0:0,0:0-0,10,0:POKE 0:0,0:0:0:0
BC 78 0:IF 0:0:0:0 THEN 0:0-0:0:0:0:0:0:0 270
BD 79 POKE 0:0,1:0
BE 80 5:0:0:0:1,0,0,0:IF 0:0 THEN 300
BF 81 0:POKE 0:0:0:0:IF 0:0 THEN 300
BG 82 1:0:1:IF 0:0 THEN 40:0:0 400
BH 83 0:0:IF 0:0 THEN 0:0:0 400
BI 84 0:IF 0:0 THEN 0:0:0 400
BJ 85 0:0:0:0:0:0:0:IF 0:0 THEN 370
BK 86 0:0:IF 0:0 THEN 0:0:0 400
BL 87 IF 0:0 THEN 0:0:0 400
BM 88 IF 0:0 THEN 0:0:0 400
BN 89 0:0:0 300

```


Club Call

It has been a few months since our regular column appeared and we've been progressing quite considerably. First, though, a mention of a few points raised at the Annual General Meeting (A.G.M.) which took place on November 15th. The attendance was, for want of a better description, 'tidy', but it was missing wasn't it?

The retiring committee were all successful in their re-election and even managed to enlist an additional member and co-opt another two. The Officers of the club are:

- | | |
|---------------------|----------------------------|
| Mike Reynolds-Jones | - Chairman (773 2849) |
| Mike Coleman | - Vice Chairman (474 3946) |
| Chris Sola | - Secretary (458 3866) |
| Dave Jones | - Treasurer (444 2349) |

and the other Committee members are:

- | | |
|----------------|----------------------|
| Mike Wilkinson | - Software Librarian |
| Bill Cohen | |
| Les Bostock | |
| Keith Mason | |
| Mr Malcalz | |

So if you have a problem, criticism, or just want to buy somebody a pint we will be available, (wearing our little yellow badges).

Due to the total inefficiency of the membership records we have started from scratch this year with new membership cards and new membership numbers. We do not intend to admit anyone who does not show their new card at the door (unless they pay the visitors fee), so beware - you have been warned. And as the entrance fee has risen slightly, the Software Library is now open to all members, free of any additional charge - so let's see you taking software out.

Mike Coleman is running the Modern Sub-Group and is frantically working on the setting up of CHANGES (pronounced kabaddi?) and that is the Central Birmingham Atari Bulletin Board Service, which should be up and running in the not-too-distant future, and all you Atari buffs nationwide will be able to contact B.U.G. via a modem (since we know what the phone number will be!)

Another sub-group recently set up is the Advertisers - but you should know all this - it's in our Newsletter... Newsletter? ... yes, thanks to an absolutely amazing amount of work by one Chris Sola, last November saw the emergence of the all new B.U.G. Newsletter. We actually announced some months earlier of our intentions to produce such a 'rag' and made a plea for items worthy of inclusion. Your response, as usual, was overwhelming, and Chris had to write the whole thing himself. We will not be mailing it to members so if you want one (and it really shouldn't be missed), you will have to come and collect it at one of the meetings. We hope that all future issues will be compiled entirely from members submissions, so if you have anything at all that you have written, from a one line sub-routine to a full 64K machine code programme we want it!

As well as the newsletter and CHANGES to look forward to

the year, we are revising the rules, where you will (hopefully) be able to win worthwhile prizes for a token payment. The list of such rules took place at the main December meeting, and just because a few committee members was on the party night doesn't mean to say it's agreed! The main event at the first night, however, was provided by Archie Willey and Al Arnold, who brought along, and demonstrated, the N.T.S.C. system on some rather expensive Sony equipment. So we were able to see and play games at the speed the Americans play them, some 15% faster than in the UK.

And a final note to all those lucky people who, with grateful thanks to Santa, have become proud new owners of Atari hardware, and reside in the Birmingham area. Come and join us and discover what Atari really means. We are a user friendly (nice) users group and get pleasure in showing you how to get more pleasure from your machine. For a very small membership fee you get a free magazine, free newsletter and access to a software library. It is an ideal opportunity to share your ideas and problems, and make new friends with other Atari enthusiasts. For more details phone one of the committee officers or come along and visit us instead. We meet at 7.30pm every 1st, 3rd and 4th Thursday of each month at the Mariner, opposite St. Martin's church, in the Bulling. We hope to see a few new faces this year!

Mike Wilkinson

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For our good friends with other home computers, our programmers are busy producing original games for you as well. They are all illustrated on this page. **HERRY'S HOUSE** on the Commodore 64, and **JET-BOOT JACK** on the Electron are now available at selected branches of **M.H. SMITH**.

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