

The U.K. ATARI Computer Owners Club Issue 11 Price £1.00

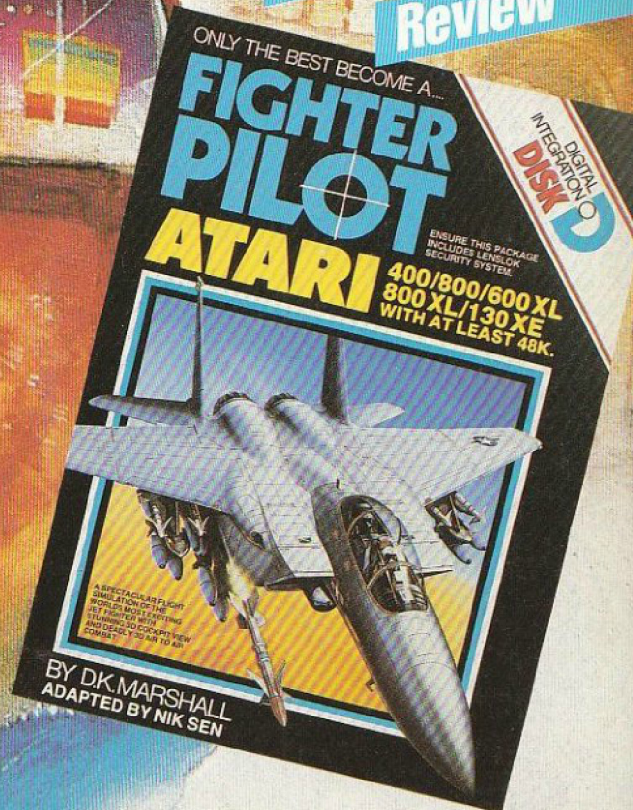
Independent User Group

Monitor

Look Inside for
Hex Code Generator
6502 Machine Code
MIDI Programs
RAM Talker
ST Hat

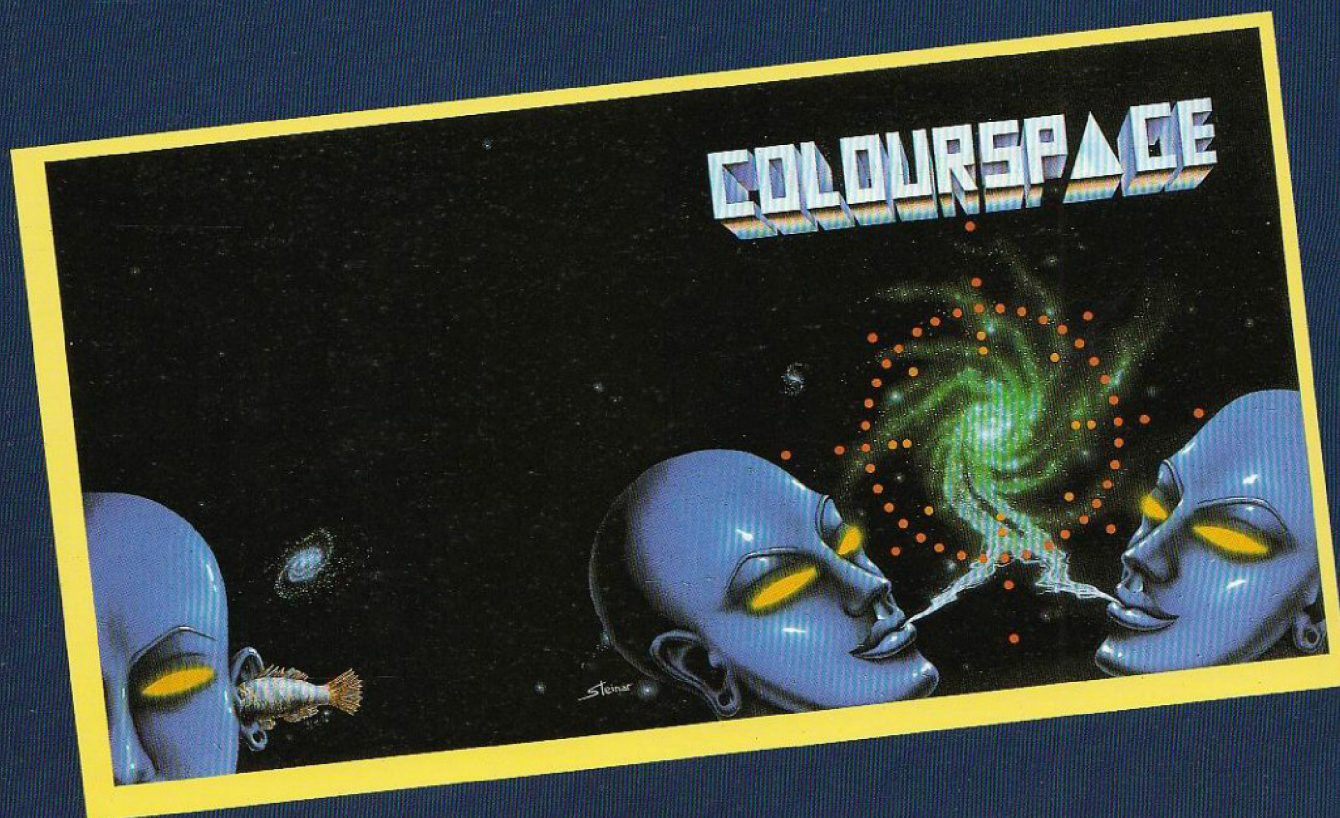
Lotsa Reviews
Koronis Rift
Goonies
Mercenary
Sidewinder
Electraglide
Alternate Reality

Fighter Pilot
Review



LLAMASOFT

presents



The **THIRD GENERATION** of Jeff Minter's unique LIGHT SYNTHESISERS
- MIND/MACHINE SYNERGY -

COLOURSPACE: allows the user to create **dynamic, interactive light displays** using the Atari's 320 x 200 512-colour graphics. Do it to music... your ears won't believe your eyes...

COLOURSPACE: mouse control, over 100 keyboard commands, compatible with NEOchrome images (for foreground and background displays), 20 presets, 84 definable lightforms, record mode, load and save of performance data from disk.

COLOURSPACE: raw 68000 power harnessed to create a completely new artform... the first true **light synthesiser**... play light like music...

COLOURSPACE. Discover why you bought your ST.

NOW AVAILABLE at £19.95, from retailers of ATARI software or direct from
LLAMASOFT 49 Mount Pleasant Tadley Hants
Tel: 07356 4478

SEND S.A.E. FOR CATALOGUE & NEWSLETTER

Atari Show

The first ever British Atari show is to be held at the Novotel, Hammersmith, London from Friday the 7th to Sunday the 9th of March 1986. All your favourite suppliers will be there, as will Atari themselves. The show is being organised by Database Publications who, as you probably know, publish Atari User magazine. This show has been a very long time in coming for us dedicated Atari enthusiasts, so let's make it a big success, by getting along there and giving it good support. In that way it could turn into an annual event. And that would be great.

The fortunes of the Atari computer in this country have certainly taken a turn for the better in the first part of the year, due in the main to the bargain prices of 800XL packs in the high street shops. Let's hope it continues right through the year and the Atari computer takes its rightful place as the best value home micro on the market. The ST too is having a good time and is gaining in prestige with every day that passes. I am sure if you asked practically anybody what computer they would like to own, the answer would be the 520ST (or maybe the 1040ST now that we know its coming). But it takes time for the good news to spread sometimes, there are still many places, especially computer shops, where you can get any way out program you like for a Spectrum or Commodore 64, but if you ask for Atari, you are looked on with disdain and given a polite 'Sorry, I don't get asked for that stuff'. Well the tide is turning, there are more and more Atari owners every day, so get in there and ask and keep asking until they see the light and stock the goodies. And they will if they see there is a market for the software. Many software houses who have ignored Atari in the past are tentatively putting their foot in the water, they seem to be seeing sense, its about time the dealers did too!

We get many requests from members for reviews of new programs, so in this issue of Monitor we present a bumper feast of new titles that are coming soon or available now. All are excellent quality and as the prices have stabilized to about £10 for cassettes and £15 for disks, are all good value for money. Who said there was nothing new for Atari owners!

CREDITS

Editor	Roy Smith
Art Editor	Peter Blackmore
Technical Editor	Ron Levy
Technical Editor	Keith Mayhew
Adventure Editor	Steve Hillen

CONTENTS

2 What's MIDI?

Part 3 concludes with some MIDI programs.

6 RAM Talker

Listen to your own voice or your favourite singer.

8 Book Reviews

Some of the best reading around.

10 ST Hi-res Pattern

Demo programs in ST Basic.

12 AtariWriter Plus

A sneak preview of this improved program from Atari Corp.

14 Starting from Basics

Part 4 of our series for beginners.

17 Software Library

This quarters new programs.

18 Reviews

Software bonanza includes: Sidewinder, Koronis Rift, Electraglide, Mercenary, Fighter Pilot, Goonies and Alternate Reality.

24 Cracking the Code

Part 6 of our 6502 tutorial.

28 Competition Result

Find out who was in the picture and what he was saying.

29 Hexadecimal Code Generator

Useful utility giving a better presentation of your programs.

30 800XL Disabler

Load binary files without holding down Option.

30 Hot Gossip

Whispers on the grapevine!

Due to a lack of space, Opening Out and the Adventure Column have been omitted.

SUBSCRIPTION RATES

U.K. and Ireland	£4.00
Europe	£7.00
Outside Europe (Surface)	£7.00
Outside Europe (Airmail)	£10.50

The above prices are in English Pounds Sterling and include postage and packing.

A subscription/membership fee to join the U.K. Atari Computer Owners Club is just £4.00 for four issues of the club magazine. All

cheques/postal orders are to be made payable to the 'U.K. Atari Computer Owners Club'. Overseas membership is also available at slightly higher rates. Overseas members who use the Library service should include enough extra monies to cover return postage.

ADVERTISEMENTS

Please note that the club cannot be held legally responsible for claims made by advertisers.

Cover: Koronis Rift from Activision and Fighter Pilot from Digital Integration.
Club Address: The U.K. Atari Computer Owners Club, P.O. Box 3, Rayleigh, Essex.

Copyright: "The UK ATARI COMPUTER OWNERS CLUB" is an independent users group and is in no way affiliated with ATARI. All material is subject to world wide Copyright protection, and reproduction or imitation in whole or part is expressly forbidden. All reasonable care is taken to ensure accuracy in preparation of the magazine but the UK ATARI COMPUTER OWNERS CLUB cannot be held legally responsible for its contents. Where errors occur, corrections will be published as soon as possible afterwards. Permission to reproduce articles or listings must be sought from the UK ATARI COMPUTER OWNERS CLUB. ATARI (and any other Atari product mentioned in the magazine) is a trademark of ATARI CORPORATION.

WHAT'S MIDI?

by Michael Stringer Part Three

In the second part of this short series I gave a brief review of the current musical instruments that were equipped with MIDI and the enormous potential the ATARI 520ST has as a Master Controller. Also covered, in some detail, were the complexities of creating new sounds from scratch and the storage of the data in a form of library. The MIDI language, the concept of MIDI WORDS and SENTENCES and the various categories were introduced.

The MIDI categories still to be covered are System Real Time, System Exclusive, System Common and System Reset. These topics will only be briefly described because of the overall complexity of the subject. In many respects it is comparable to using a computer — its internal architecture is very complex, but it is a simple device to actually use. The degree of ease is dependent upon the software. Similarly, to the end-user, MIDI consists of a pair of wires in its simplest form, but it can be controlled by a computer using suitable software.

System Real Time

The requirements for transmitting live from a keyboard to a computer. In this instance, the computer is behaving like a rather sophisticated tape-recorder. The software requirements would produce some form of lead-in, in the form of a metronome, of a couple of bars. Some form of accurate clock to synchronise everything is also required.

The MIDI Standard for timing is covered in this section. The clock is normally 24 clock beats per crotchet (quarter note) with 96 per bar. This is covered in "Timing Clock in Play" (248). At the end of a bar or measure, "Timing Clock with Measure End" (249), is sent. "Start from First Measure" is transmitted

Status	Description
11111000	Timing Clock in Play
11111001	Timing Clock with Measure End
11111010	Start at First Measure
11111011	Continue
11111100	Timing Clock in Stop
11111111	System Reset

Table 1

Status	Following Bytes	Description
11110000	0iiiiiii	Reserved for special system functions.
	"	"
	"	MSBit = 0, any number of bytes.
	11110111	End of block

Table 2

Status	Following Bytes	Description
11110000	01000011	Status byte
	0ssnnnnn	Identification Number (Yamaha=67)
	0ggggggp	Sub status and Channel number
	0ppppppp	Parameter group number
	0ddddd	Parameter number
11110111		Data
		End of Exchange

Table 3

when it is intended to re-play the piece. The System insists that the "First Timing Clock in Play" code is transmitted within 5ms. When it is intended to "Continue" (251), again the system insists that the "First Timing Clock in Play" code is transmitted within 5ms. When the system is stopped, or pausing, another code "Timing Clock in Stop" (252) is transmitted to re-synchronise everything. See Table 1.

System Exclusive

This is the portion of the MIDI Standard that lays down the Status Bytes reserved for manufacturers to

design unique code for their own devices. See Table 2.

These codes have the highest priority within the system, with the exception of the System Reset. The Yamaha DX7 System Exclusive is very extensive and by way of an example, I will describe only one, small, section. Under the heading of Parameter Change, the sequence of data bytes shown in Table 3 is transmitted.

If we now take Table 4, it is quite easy to see how, using just a few bytes, it is possible to control the enormous range of the principal parameters. Under the 'd' column, which appears in the 0ddddd (Data) section in Table 3, the degree of range is covered.

The p allocation 21 to 125 repeats the data for Operators 5,4,3,2 & 1.

This completes the formatable of the MIDI Standard. Although the coverage has been brief, I hope that it has been reasonably thorough. Throughout this discussion I have made it clear that the subject is not easy to grasp, especially if you do not have access to a MIDI equipped instrument, but if you do intend, at some time, to get involved in computer music generated



p	Parameter	d
0	Op6 E.G. Rate 1	0 - 99
1	" " 2	"
2	" " 3	"
3	" " 4	"
4	" Level 1	"
5	" " 2	"
6	" " 3	"
7	" " 4	"
8	Op6 K.L.S. Break Point	"
9	" Left Depth	"
10	" Right Depth	"
11	" Left Curve	0 - 3
12	" Right Curve	"
13	Op6 K.B. Rate Scaling	0 - 7
14	Op6 Modulation Sensitivity Amp	0 - 3
15	Op6 Key Velocity Sensitivity	0 - 7
16	Op6 Operator Output Level	0 - 99
17	Op6 Oscillator Mode	0 - 1
18	Op6 Oscillator Frequency Coarse	0 - 31
19	" Fine	0 - 99
20	" Detune	0 - 14

g = 0		
p	Parameter	d
126	Pitch EG Rate 1	0 - 99
127	" " 2	"
128	" " 3	"
129	" " 4	"
130	" Level 1	"
131	" " 2	"
132	" " 3	"
133	" " 4	"
134	Algorithm Select	0 - 31
135	Feedback	0 - 7
136	Oscillator Synchronisation	0 - 1
137	L.F.O. Speed	0 - 99
138	" Delay	"
139	" P.M.D.	"
140	" A.M.D.	"
141	" Synchronisation	"
142	" Wave	0 - 4
143	Modulation Pitch Sensitivity	0 - 7
144	Transpose	0 - 48
145	Voice Name Character 1	ASCII
146	" 2	"
147	" 3	"
148	" 4	"
149	" 5	"
150	" 6	"
151	" 7	"
152	" 8	"
153	" 9	"
154	" 10	"
155	Operator On/Off	0=OFF, 1=ON

Operator		1-ON	D6	D5	D4	D3	D2	D1	D0
			0	1	2	3	4	5	6
g = 2									
64	Mono / Poly Mode Change					0 - 7			
65	Pitch Bend Range					0 - 12			
66	" Step					"			
67	Portamento Mode					0 - 1			
68	" Glissando					"			
69	" Time					0 - 99			
70	Modulation Wheel Range					"			
71	" Assign					0 - 7			
72	Foot Controller Range					0 - 99			
73	" Assign					0 - 7			
74	Breath Controller Range					0 - 99			
75	" Assign					0 - 7			
76	After-touch Range					0 - 99			
77	" Assign					0 - 7			

Table 4

with the help of a 520ST and a synthesizer, I hope you will find this information will be of some use.

There have been some very interesting developments on the MIDI front with CASIO coming into the market with some very cheap, but quite reasonable, instruments. One should also look at the possibility of picking up instruments second-hand. The over-all quality is so good these days that this is not the risk that it was a few years ago. If the creation of exciting sounds, instead of actually playing appeals to you, consider the devices known as expanders. These little boxes contain the guts of a synthesizer and operate under MIDI. The output goes straight to an amplifier, with the input and parameter settings under the control of a Master Unit. They are effectively synthesizers without a keyboard. The savings are quite considerable, but with no loss of quality. The cheapest will cost a few hundred pounds. The best, in my opinion, is the Yamaha TS816. This device consists of eight DX7's in one box!! The sound quality has to be heard to be appreciated! The cost of eight DX7s is about £12,000 and the cost of the TS816 about £3,000. This will give you an indication of the sort of reductions that are possible. The best advice that I can give you is to pop into the local emporium, browse, ask questions and most importantly, listen. I am very fortunate in having two very good retail outlets in my vicinity (Essex) - "Honky Tonk" and "Monkey Business", there are others, but I have not tried them out. Due to the enormous current popularity of electronic music you will not have too far to look for similar shops.

On the ST front there have been a number of very interesting happenings. Since I wrote Part 2, BASIC has arrived and a number of "free-bees". Two word processors and a Data Base, to name but a few. Actually I am trying out 1ST WORD with this article! BASIC is, I must admit, somewhat of a disappointment. It has some very interesting features, but it is so slow. Some examples of Basic programs appear shortly.

The most exciting event to report is an afternoon spent on the Hard disc. I must admit, in all honesty, that I didn't expect to see it until the Summer, but it is here now, in January! My first impressions are that it is outstanding. It is very fast. Some programs were up and running on the screen before my finger was off the mouse button! The capacity of this particular model, was just over 20.66 Mega Bytes. When I get down to storing sounds and scores in the library this is one device that I must have. Probably by the time you read this, you will also have had the opportunity to try one out.

At this end there are two MIDI

programs being developed. The first is a Sound and Score Editor, with a library, for the DX7. This is, in effect, a 64 track tape-recorder with full mixing facilities and a 32 Voice Score Editor with at least a 50,000 note capacity. This program will allow Step-time and also Real-time editing and storage for the user, plus sound creating facilities and storage.

The second program is a MIDI Keyboard Tutor. This will follow the similar programs associated with Typewriter Tutors. The emphasis will be on finger training, through practice, to develop touch and dexterity. Then, as soon as possible, to play; starting at a Beginner's level to an Intermediate level. The computer will not be too critical at first, but the criticism will increase as the pupil's experience and knowledge develops. The emphasis at this stage will be on note recognition and confidence, with play-and-follow and duets achieving this aim. At a later stage, an Advanced level Tutor will be considered. The trouble is, it all takes a great deal of time to develop!

If you have a MIDI Keyboard, or access to one, I will conclude with three very simple programs in ST BASIC. The first, Listing 1, is a data monitor. Connect the keyboard to the MIDI ports on the ST via suitable cables, as shown in Part 1 for these programs. When you switch on, data from the synthesizer appears on the screen. The first string of data you will see is -2s. These are Status Bytes associated with timing - the 11111110 Active Sensing Bytes. These are continually output at the rate of 1 per 80ms except during the transmission of bulk data dumps and reception. If you now play a note you will notice the command for "KEY ON", "NOTE" and "KEY FORCE", if your keyboard doesn't have keyboard sensitivity this last piece of data is defaulted to 64. On releasing the note, "KEY ON", "NOTE" and "KEY FORCE" is transmitted. In this instance, the "KEY FORCE" is 0, effectively switching the note off. If you experiment with function controllers, such as PITCH BEND or MODULATION, you will notice an enormous amount of data being transmitted. You can now appreciate why I mentioned in Part 1 that these devices are "memory gobblers"!!

The first thing to note about these data strings is that each value is returned as a minus (-) value. After a short period of experimentation the timing status data and Note On become a distraction. To turn these off simply add:
25 IF A=-112 THEN 20:IF A=-2 THEN 20: A=A+256

It is important to realise that data coming from the synthesizer is always returned as a minus value; data that is

LISTING 1 MIDI DATA MONITOR

```
05 'MIDI DATA MONITOR FOR THE 520ST
10 CLEAR: CLEARW 2: FULLW 2
20 A=INP(3)
30 ?A: GOTO 20

25 IF A=-112 THEN 20: IF A=-2 THEN 20: A=A+256
```

Listing 1

LISTING 2 RANDOM CHORD GENERATOR

```
05 'MIDI RANDOM CHORD GENERATOR
10 A=INT(112*RND(1)):OUT 3,144:OUT 3,(A):OUT 3,64
15 OUT 3,(A+4):OUT 3,64:OUT 3,(A+7):OUT 3,64
20 OUT 3,(A+12):OUT 3,64
25 FOR I=1 TO 350:NEXT I
30 OUT 3,(A):OUT 3,0:OUT 3,(A+4):OUT 3,0:OUT 3,(A+7):OUT 3,0
35 OUT 3,(A+12):OUT 3,0: ?A
40 OUT 3,-2: GOTO 10
```

Listing 2

LISTING 3 A MIDI REAL TIME RECORDER

```
10 'MIDI REAL TIME RECORDER
20 'AUTHOR UNKNOWN
30 CLEARW 2: CLEAR
40 IF INP(-3)=-1 THEN A=INP(3) ELSE 50: GOTO 40
50 DEFINT A-M: DIM MIDARRAY (2000,1)
60 M=0
70 GOTOXY 10,8: ?"BEGIN TO PLAY NOW, HIT PITCH BEND TO STOP"
80 IF INP(-3)=0 THEN F=F+1: GOTO 80
90 A=INP(3) + 256
100 IF M=0 AND A <> 144 THEN F=0: GOTO 80
110 MIDARRAY(M,0)=A
120 MIDARRAY(M,1)=F
130 F=0: M=M+1
140 IF A=224 THEN 180
150 GOTO 80
160 ?INP(-2)
170 GOTO 160
180 GOTOXY 15,10: ?"PLAYBACK"
190 GOTOXY 12,12: INPUT "TEMPO >1 TO 5<": TEMPO

200 FOR B=0 TO M
210 IF MIDARRAY(B,1)=0 THEN 220 ELSE FOR T=0 TO M: NEXT T
220 OUT 3,MIDARRAY(B,0)
230 NEXT
240 GOTO 30
```

Listing 3

transmitted to the synthesizer is always a positive value. The simple program in Listing 2 is a random chord generator.

'A' is a random number generated to provide the root for the chord. To this number a 4th, 7th and 12th semi-tone is added to construct the chord. Out 3,64 is the default value for the velocity which these notes are played. As each note is generated it is played and then each note is turned off. The FOR - NEXT loop at line 25 provides the duration that the chord is being played. The root value is printed on the screen for reference only.

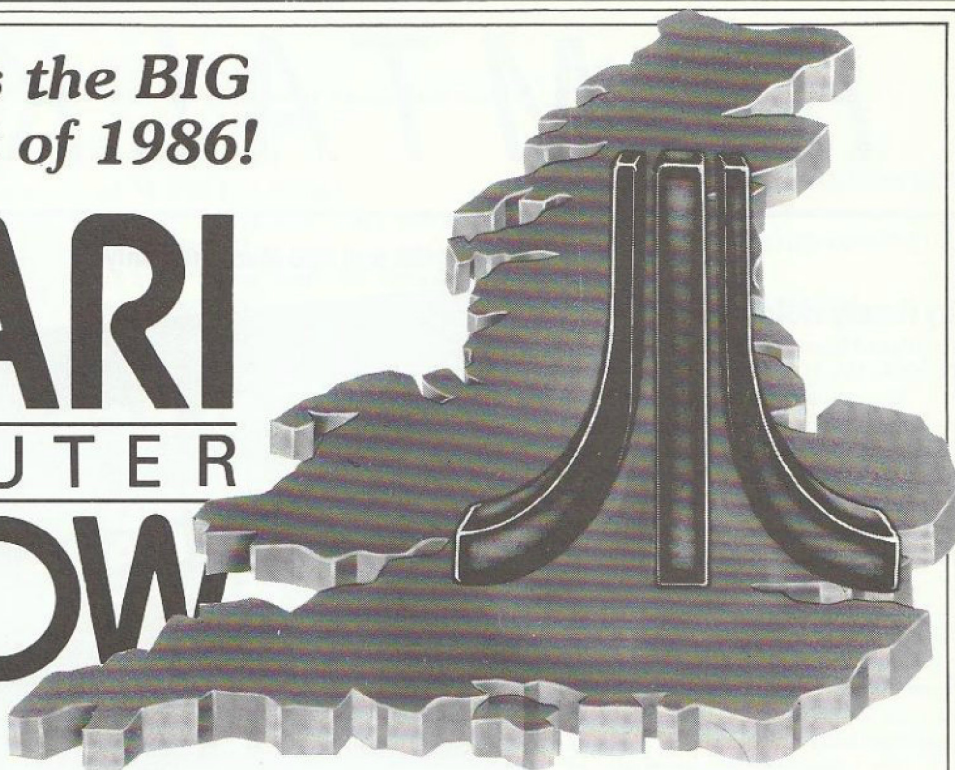
The final program, Listing 3, I picked up somewhere. I do not know who the author is, or even if it is complete. I typed it in as seen and it

appears to work quite satisfactorily. It is a recorder of sequences that are re-played through a TEMPO control. It is very important to switch the graphics buffer off before the program is run. Type the program in and save it, switch the buffer off, answer the prompt and then re-load the program which you can then RUN. Failure to do this will result in an "OUT OF MEMORY" prompt. I know this sounds strange - but I did say earlier that I was not impressed with this particular version of BASIC!!

Well, I hope you will have some fun with these little programs. Don't expect too much, the limitations are set by the speed of BASIC. Machine code routines would solve all of the problems, but that is another story....

**Don't miss the BIG
Atari event of 1986!**

ATARI COMPUTER SHOW



For the first time Atari UK and all the major suppliers of Atari hardware and software are pulling out all the stops to make the first-ever Atari Computer Show the top event of the year.

Everyone who's anyone in the Atari world will be there. Already many third-party suppliers are planning to use the show as a launching pad for products still on the drawing board.

If you're a long-standing Atari user the show will bring you right up to date on all the exciting developments now taking place in the ever-expanding Atari world.

And if you're one of the many thousands of newcomers to Atari computing it will open your eyes to the vast selection of Atari hardware and software that is now available for the whole Atari range.

It's a show you cannot afford to miss!

**Champagne Suite, Novotel,
Hammersmith, London W6**



*'It's about time there was an Atari Computer Show. It's a major breakthrough in the world of Atari'. – **Jerry Howell, Managing Director, Software Express.***

*'It's good news about the show. It will develop a lot of interest among software producers'. – **Philip Morris, Software Manager, English Software.***

*'We will give the show our total support. It is an exciting development in a fast moving market-place'. – **Tony Deane, Marketing Director, Silica Shop.***

Exhibitors who have already booked stands:

Atari UK
2 Bit Systems
Antic Publications
Atari User
Basildon ITEC
Baz
Boot-Out
Cashlink
CDS Software
Compumart

Computer Bookshops
Computer Concepts
Datascape
Direct Disc
Execon
GST
Gultronics
Haba
Intergalactic Robots
KECM

Kuma
Llamasoft
Megamax
Microdeal
Micromart
Mikes Computer Software
Miniature Tool Co
Page 6
Prospero
Ramco Electronics (UK)

Silicon Chip
Silica Shop
Software Express
Software International
Software Plus
Solidisk
Sunshine Books
Zonefour

RAM TALKER

For 400 and 800 Machines Only

by Randy Holmes.

Reprinted from STATUS,
Norfolk, VA, U.S.A.

This program allows you to experiment with digital speech on your Atari micro. It requires a special circuit to allow the computer to read an analogue voltage at Port 2. Figure 1 shows the small circuit you will need to build. In place of the microphone, you may want to substitute a simple 1/4 inch jack socket to enable you to plug in a guitar, keyboard or tape player. This will give higher quality sound than recording from the mic. Adjust the volume control on your sound source to get the best distortion free results.

The components consist of a 0.1 μ F capacitor, a NPN transistor 2N2222 (this is just a general purpose type, almost any NPN transistor should work), a 100k Ω resistor and a 9-way 'D' type socket for connection to the joystick port.

You could build the circuit on a piece of veroboard and wire to pins 7 and 9 on the port. To test the circuit, RUN the Ramtalker program and select the 'Throughput' option, with a sample speed of 1.

Plug in a microphone, guitar, tape recorder or any other form of sound source, and see if any sound comes from your TV/Monitor speaker. If not, recheck your wiring, making sure all connections are good.

The program, Listing 1, is a friendly, fast, easy to use program. When typing it in, if not using KEYO (or some other checksum program like TYPO) then ignore the two code letters before each line number.

When the program is run, a menu is presented. To perform a desired function, press the number corresponding to the function. A BASIC GET command eliminates the need to press [RETURN] after selection.

If the function you pressed was not the one you wanted, pressing [RETURN] will take you back to the main menu. If you choose 'Record' you will be asked for a sample speed. This is the speed at which the program will read the information coming in at the port. A sample speed of 1 will render the highest quality sound, while a value of 255 will result in nearly unintelligible noise.

Once a sample speed is specified, followed by a [RETURN], press the [START] key to begin recording.

The 'Play' asks for a sample speed too. This will be the speed at which the

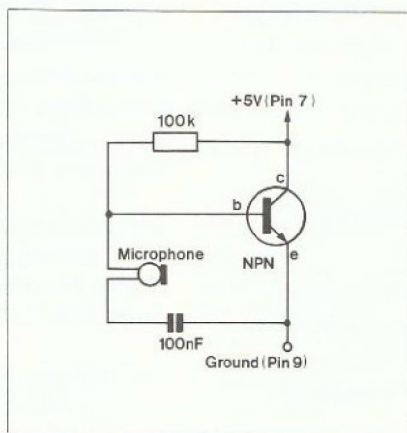
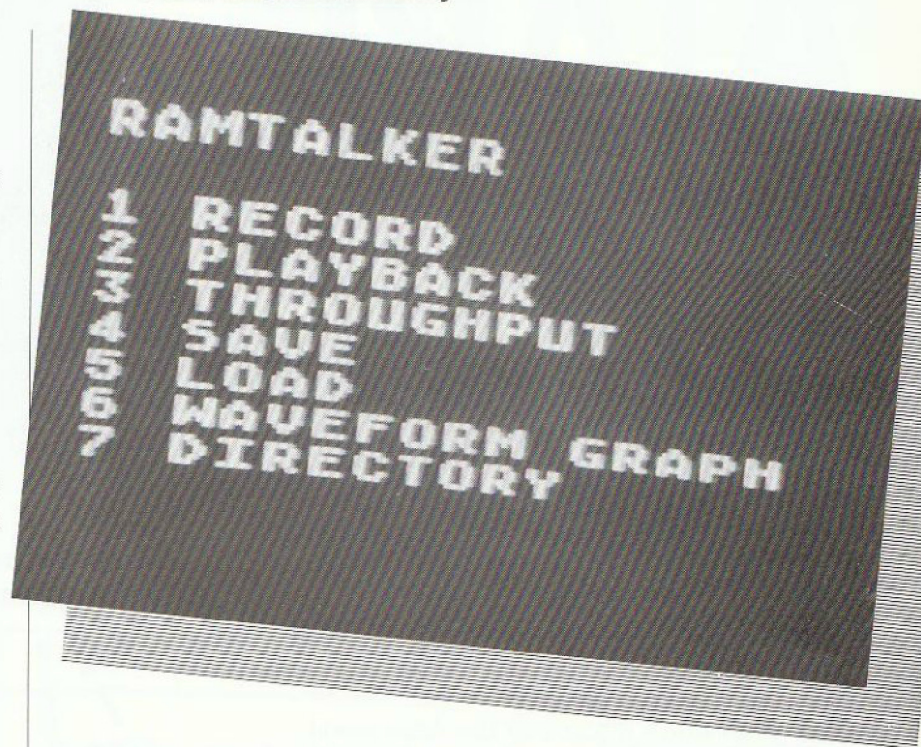


Figure 1.

sound information contained in memory will be played back. A good speed is usually around 55, giving a natural sound, but you may wish to distort the sound by giving it a higher or lower value. Again, pressing [START] after giving the sample speed will begin the playback.

'Throughput' asks for a recording sample speed, and will allow you to play sounds through the speaker with no time limitations. Press [START] to begin and [SYSTEM RESET] to get you out of this one.

'Save' and 'Load' ask you for a file name; include 'D:', or 'C:' in the file specification. The program uses the Central Input/Output (CIO) routines,



which makes saving and loading sound files quite fast, even though they are 132 sectors long (single density).

Waveform plot does just what it says, it plots a picture of the sound stored in memory (in locations 16384 to 32767) on a graph of Time against

Frequency. The Time at a sample speed of 1 is a little over 7 seconds. The sound is divided into 4 separate bands, so we are able to plot the entire contents of memory in some detail. To me the waveform plotting routine is an exciting feature of this program. You can say a

few words into your machine, and then have the computer show you what your voice looks like! You can see how different sounds are similar and where they differ.

But what ever you do with Ramtaker, just have fun!

Not XL/XE compatible.

Listing 1

```

EI 1 REM *****
NH 2 REM
JI 3 REM RAMTALKER V.3
NJ 4 REM
ZK 5 REM BY RANDY HOLMES
NL 6 REM
AU 7 REM MONITOR MAGAZINE 1986
NN 8 REM
EQ 9 REM *****
EW 20 GRAPHICS 0:POKE 559,0
IR 30 FOR I=0 TO 243:READ Z:POKE 1536+I,Z
: NEXT I
BB 40 REM
CP 50 DIM Z(255),FN$(15),FN1$(15),A$(10):
OPEN #1,4,0,"K:"
BN 60 GRAPHICS 2:POKE 710,0:TRAP 60:FN$="
":FN1$=""
QM 70 ? #6;" RAMTALKER":? #6
HR 80 ? #6;" 1 record ":? #6;" 2 playback
":? #6;" 3 throughput"
NS 90 ? #6;" 4 save":? #6;" 5 load"
OG 100 ? #6;" 6 waveform graph":? #6;" 7
directory"
LG 110 TRAP 40000:GET #1,ANS:IF ANS>55 OR
ANS<49 THEN 110
PY 120 IF ANS>51 THEN 140
BC 130 TRAP 60:POKE 752,1:? "What Sample
Speed":INPUT SS:IF SS>255 THEN 130
IX 140 ON VAL(CHR$(ANS)) GOTO 160,200,240
,270,330,640,900
KC 150 REM ===== TALK =====
KJ 160 POKE 200,1:POKE 205,0:POKE 206,64:
POKE 207,SS:POKE 209,120
UJ 170 A=USR(1536):POKE 562,3:POKE 53775,
3
RQ 180 GOTO 60
TH 190 REM ===== PLAYBACK =====
YY 200 POKE 207,SS:POKE 203,0:POKE 204,64
:POKE 208,0:POKE 206,120
TY 210 A=USR(1536):POKE 562,3:POKE 53775,
3
RF 220 GOTO 60
HD 230 REM ===== THROUGHPUT =====
KU 240 POKE 208,2:POKE 205,0:POKE 206,64:
POKE 207,SS:POKE 209,120
AC 250 A=USR(1536):GOTO 240
PH 260 REM ===== SAVE SOUND FILE =====
WS 270 TRAP 270:POKE 752,1:? "Give file n
ame":INPUT FN$:IF FN$="" THEN 60
BA 275 IO=4:IF FN$(1,2)="D:" OR FN$(1,2)=
"D1" OR FN$(1,2)="D2" THEN OPEN #4,8,0
, FN$:GOTO 290
CT 276 FN1$="D1":FN1$(4)=FN$

```

```

KF 280 IO=4:OPEN #4,8,0, FN1$
IS 290 ADDRESS=16384:NUMBER=16383:PROC=11
SS 300 GOSUB 510
RE 310 GOTO 60
EP 320 REM ===== LOAD SOUND FILE =====
VD 330 TRAP 330:POKE 752,1:? "Give file n
ame":INPUT FN$:IF FN$="" THEN 60
FE 335 IO=4:IF FN$(1,2)="D:" OR FN$(1,2)=
"D1" OR FN$(1,2)="D2" THEN OPEN #4,4,0
, FN$:GOTO 350
CM 336 FN1$="D1":FN1$(4)=FN$
HE 340 IO=4:OPEN #4,4,0, FN1$
XJ 350 ADDRESS=16384:NUMBER=16383:PROC=7
TE 360 GOSUB 510
RQ 370 GOTO 60
XD 380 DATA 104,169,8,141,31,208,173,31,2
08,41,1,208,249,160,255,162,255,32,149
,6
BE 390 DATA 136,208,248,169,8,141,31,208,
166,208,224,0,208,3,76,181,6,169,0,141
RT 399 REM TO CHANGE PORTS...LAST 3 BYTES
IN LINE 400..2,210,162...CHANGE 2 TO:
0=PORT1;2=PORT2;4=PORT3;6=PORT4...
XA 400 DATA 0,212,141,14,212,141,10,212,1
41,10,212,166,207,32,149,6,173,2,210,1
62
UF 410 DATA 19,142,15,210,162,23,142,10,2
12,142,15,210,142,11,210,174,243,6,224
,0
PG 420 DATA 208,22,41,240,141,242,6,106,1
06,106,106,41,15,9,16,141,1,210,238,24
3
NR 430 DATA 6,76,45,6,106,106,106,106,41,
15,9,16,141,1,210,41,15,13,242,6
EY 440 DATA 206,243,6,160,0,145,205,173,3
1,208,41,1,240,19,230,205,208,163,230,
206
MA 450 DATA 166,206,228,209,208,155,76,15
3,6,202,208,253,96,165,208,201,2,208,1
1,169
JT 460 DATA 0,133,205,169,64,133,206,76,3
7,6,169,64,141,14,212,169,34,141,0,212
FP 470 DATA 96,169,0,141,14,212,141,0,212
,166,207,32,149,6,160,0,177,203,170,10
6
CJ 480 DATA 106,106,106,41,15,9,16,141,1,
210,138,41,15,9,16,24,24,24,24,166
GM 490 DATA 207,32,149,6,141,1,210,230,20
3,208,206,230,204,166,204,228,206,208,
206,76
SU 500 DATA 153,6,0,0
IR 510 REM ===== CIO READ/WRITE =====
AI 520 IO=16*IO

```

```

QY 530 IOCB=832+IO:POKE IOCB+2,PROC
XV 540 ADRI=INT(ADDRESS/256)
FW 550 ADRI=ADDRESS-ADRI*256
KW 560 POKE IOCB+4,ADRI:POKE IOCB+5,ADRI
I
LP 570 NOMHI=INT(NUMBER/256)
WE 580 NOMLO=NUMBER-256*NOMHI
EO 590 POKE IOCB+8,NOMLO:POKE IOCB+9,NOMH
I
OC 600 I=USR(ADR("hhh*LVd"),IO)
OC 605 REM LINE 600 HAS 3 LOWER CASE H'S,
INV *,CAP. LV,INV LOWER CASE D
SD 610 CLOSE #10/16
ZG 620 RETURN
LI 630 REM ===== PLOT WAVEFORM =====
EI 640 GRAPHICS 8:POKE 710,0:COLOR 1:POKE
752,1:? CHR$(125):"During plot, press
any key to return to menu"
NV 650 FOR I=1 TO 350:IF PEEK(764)=255 TH
EN NEXT I
IA 660 GRAPHICS 8+16:POKE 710,0:TRAP 800:
COLOR 1:A=0:B=0:C=0:D=0:H=0
TF 670 FOR I=1 TO 4095
MO 680 A=PEEK(I+16384)
HT 690 B=PEEK(I+20480)
NA 700 C=PEEK(I+24575)
MT 710 D=PEEK(I+28670)
GR 720 H=H+0.07773:PLOT H,(A/4)-15
UN 740 PLOT H,(B/4)+30
BN 750 PLOT H,(C/4)+75
GR 760 PLOT H,(D/4)+120
IJ 770 IF PEEK(764)=255 THEN NEXT I
NA 780 IF PEEK(764)=255 THEN 780
NT 790 TRAP 40000:POKE 764,255:GOTO 60
HT 800 TRAP 800:IF PEEK(764)<>255 THEN 79
0
GA 810 NEXT I
TN 900 OPEN #5,6,0,"D:*.":GRAPHICS 0
QE 910 TRAP 940:POKE 82,1:POKE 710,0:X=0:
POKE 752,1:? CHR$(28)
ZN 920 X=X+1:INPUT #5;A$;? A$;" ";IF X/2
=INT(X/2) THEN ?
PS 930 GOTO 920
YE 940 POKE 82,2:CLOSE #5:?
ID 950 ? " PRESS ANY KEY FOR MAIN MENU
";
DG 960 POKE 540,7:POKE 755,2
IO 970 IF PEEK(540) THEN 970
BB 980 POKE 755,0:POKE 540,7
KD 990 IF PEEK(540) THEN 990
YP 1000 IF PEEK(764)=255 THEN 960
BP 1010 POKE 764,255:GOTO 60

```


BOOK REVIEWS

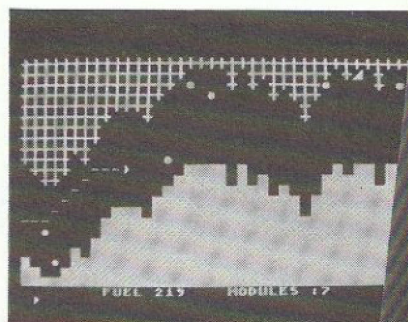
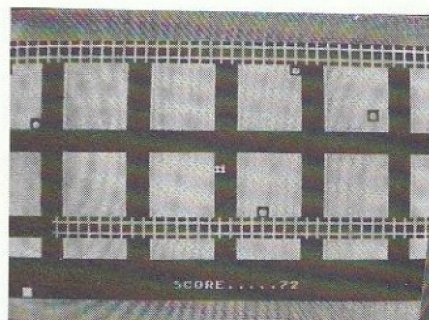
The Easy Guide To Your ATARI 600XL/800XL

by Thomas Blackadar
Published by SIBEX U.K.
Price £7.95

If you are an absolute beginner to the world of computing, then this is the book, or should it be said, the handbook for you, to help you understand and appreciate your 600XL/800XL computer. It should also be noted that other than slight changes in the keyboard and the graphics availability, this book can also be applied to a 400 or 800 computer equally well. As this book was written primarily for the American market, reference is made to a 1200XL computer.

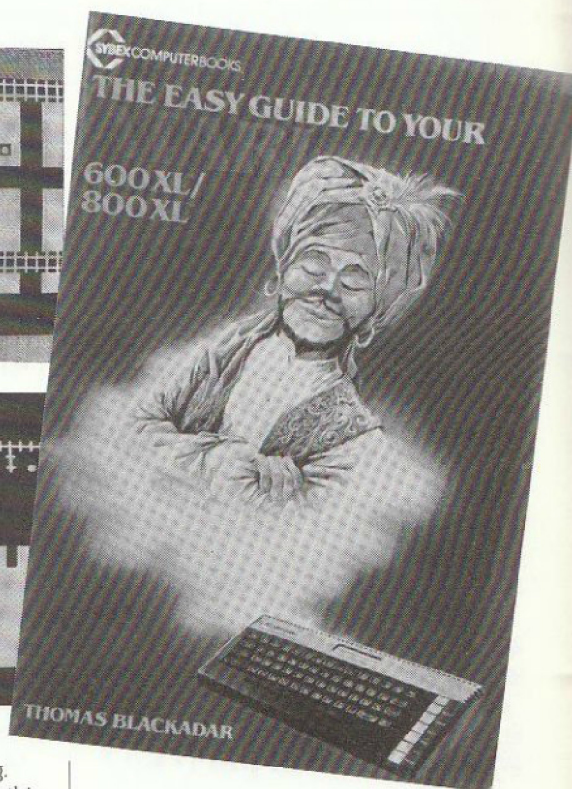
The American author has covered all the very basic points of computing in a very clear and concise language. Other than a reference to dollar prices, the book is very easy to understand and gives the reader every confidence to try and experiment with the information set out so explicitly.

The first section covers the actual setting up of the computer and peripherals, explaining the various keyboard functions and its control of the screen. Graphics is another subject very easy to understand. The section on writing programs, also covers use of variables as well as controlling your program, which encourages the reader to develop computer skills without having to wade through pages of technical jargon, which to the beginner is



often both confusing and misleading. Optional exercises are also set out in this section to give the beginner the opportunity to experiment with small programs and then, hopefully, more advanced ones.

Advanced graphics covers the control of the colours of the screen. Storage is discussed in the last section of this book and covers use of the Program Recorder and Disk Drive, with particular



emphasis on care of the disks, this does not only apply to beginners!!

The commercial software referred to is all available in the U.K.

An excellent and informative book, which is a must for all beginners who need an easy guide to enjoying and understanding the ATARI 600XL/800XL.

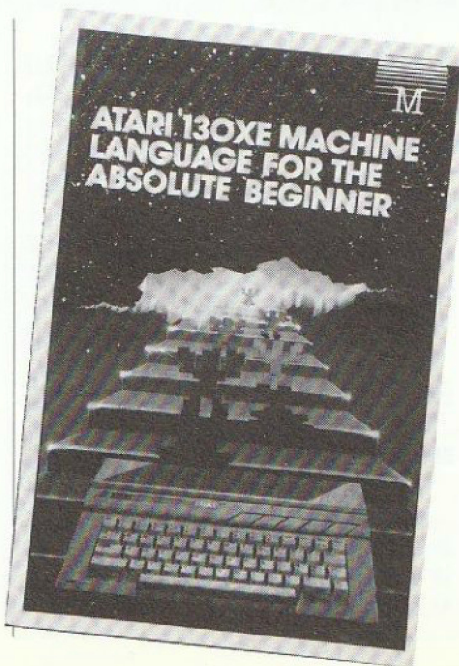
Atari 130XE Machine Language for the Absolute Beginner

by Kevin Bergin
Published by Melbourne House
Price £7.95

With the recent marked increase in the ownership of ATARI computers over the Christmas period, two books have been published by Melbourne House enabling the beginner to develop computer skills, as well as, more importantly, enjoy the superb quality of the ATARI computer.

Although both books have been written for the 130XE they are both compatible with the 800XL.

The first book by Kevin Bergin on Machine Language is, as the title indicates, written for the absolute beginner. I found it well written in such an easy to understand language making



the reader begin to feel confident and, therefore, experiment and develop the skills required in computing.

Every experienced programmer appreciates the importance of Machine Language, but as a beginner it is always very hard to get away from playing games which have been written commercially, and make the transition towards programming.

The 12 chapters of the book range from an introduction to Machine Language in chapter 1 to Program Control, Counting, Looping and Pointing as well as Table Storage. Where applicable, an exercise and summary is included after each chapter.

At the end of the book there is an appendix section which lists instruction codes as well as microprocessor operation codes and many other very useful codes and listings.

All in all a very useful and informative book.

BOOK REVIEWS

Atari 130XE Games Book

by Richard Woolcock
and Graeme Stretton
Published by Melbourne House
Price £6.95

Although several books have been written for the ATARI, some have been good and some much too complex. However, I feel that any new book which is nicely presented, easy to understand and very helpful, will find a place amongst my other computer books.

It is all too easy for the experienced computer programmer to disregard what we novices need to help and encourage us. In any new book, even if only one section helps the beginner it must be good.

This book (also for the 800XL), in fact, does both, it reminds the beginner that the Letters "O" and "I" cannot be used instead of Figures (0) and (1)!! Typing errors are important.

The book includes a CHEXSUM

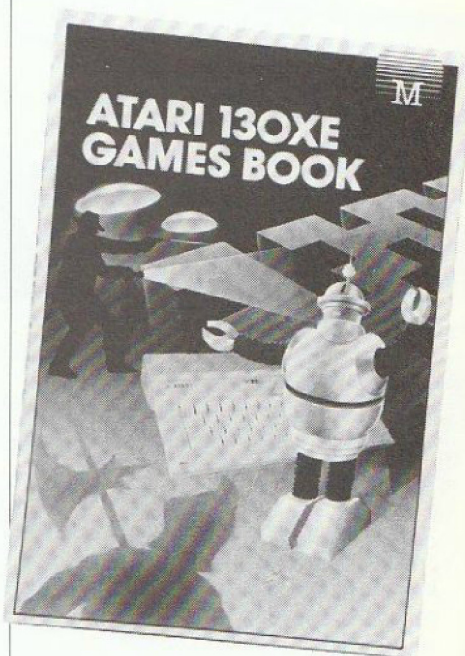
program for validation — this small addition may save the beginner a great deal of time trying to find the error.

30 suggested programs are contained in the book, which depict various aspects of actual games i.e. logic, skill, evasion, strategy. Program variables and structure are set out as well as the actual listings. A small screen display is also included.

Each listing is sub-headed so it becomes apparent which particular part of the program does what and the effect it has on the finished program. For a game like "PINGPONG" the headings are — Bats on screen, Main Loop, Adjust score & serve, Game End, Draw Court and then Initialize routine. This is set out clearly and is easy to understand.

Other programming modifications are also suggested after each section, such as adding music, speeding up missiles to make the games more interesting.

I liked this book very much, not too much data for me to input.



The Robot Book

by Richard Pawson
Published by Windward. £7.95

If you have ever wondered what to do with all that Lego that has accumulated over the last few years, and has now been stored away in the loft, then this is the book for you and your family.

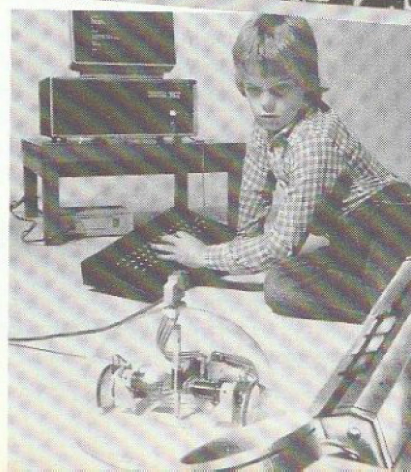
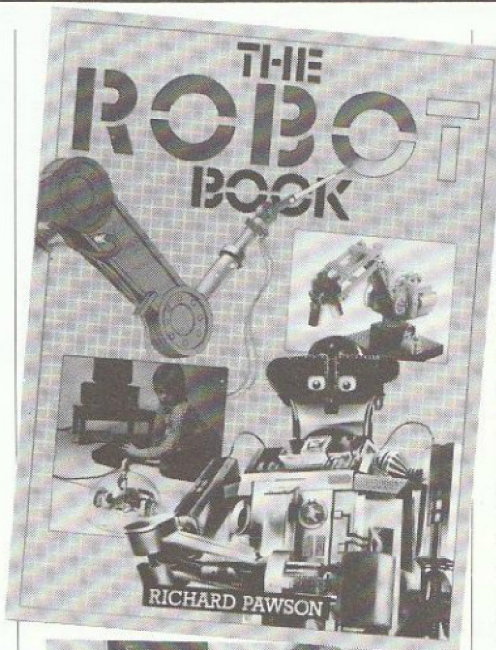
The Robot Book is not only an enjoyable book to read, written in an entertaining way, but also educates the reader on how Robots came into existence and their subsequent progression into the high technological world of which we have all now become a part.

The first part covers the history of Computers/Robots from as early as the mid-1700's to the present day, where micro technology and artificial limbs, are skills still being developed.

Robots in action is covered extensively in Part (2) such as toys, floor robots as well as pseudo robots, which are becoming increasingly popular for shop window advertising in major stores, as well as on television, e.g. the famous John Cleese robotic advert for a well known television company!!

How Robots work is detailed very explicitly in Part (3), types of construction, programming, motive power, sound and vision, as well as the use of computer interfaces are all covered in great detail.

Twelve projects are listed in this book, four of which use Lego, the



emphasis being on the beginner: with his basic approach Richard Pawson encourages electronically minded computer enthusiast to try developing one of these robots. Step-by-step instructions are included with each project together with the relevant computer program. Although none are for Atari computers, it would probably be possible to adapt them. However, the basic construction can also be achieved equally well without high level knowledge of maths, electronics or advanced computer programming skills. Each section is very well illustrated with drawings and diagrams as well as some most attractive photographs.

With the increase in the number of young people studying Electronics-Computer Sciences at school, where pupils are encouraged to design their own Robots for domestic as well as industrial use, then this is a very useful addition to any school or home library. In all, this is an excellent book, and would make an ideal gift for the enthusiastic hobbyist as well as the budding computer/robotic engineer!

ST High-Res Pattern

by Josephine Glassgow

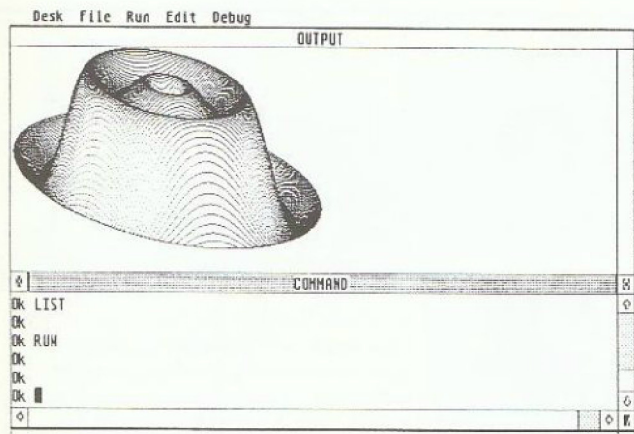
Here is an ST version of the popular 'hat' shape 3-D drawing familiar to many an eight-bit Atari owner. Program 1 will produce a picture of about one quarter the size of the screen, using the output window (window 2), and it will perform hidden-line removal. This means that, if you imagine the picture as a three dimensional, non-transparent object, you are only able to see the edges facing towards you. Program 2 on the other hand, produces a full-screen picture, but does not remove the hidden lines, in other words you are able to see right through the hat!

Program 1 works by simply plotting pixels at given intervals, so the lines formed can be rather 'dotted' in places, and experimenting with the FOR-NEXT loops on lines 160 and 190 will usually give less tidy results. Program 2, however, works by drawing lines between points, and so the resulting lines are more 'complete'. You can change the length of each line drawn each time by changing the STEP value

on line 190, the larger the value, the less curved the finished lines will be, but the faster it will run. Changing the STEP value in line 160 will (as with program 1) change the number curves drawn, so you could try experimenting with this as well.

Incidentally, the pictures shown have been produced by dumping the screen to an Epson printer. For those of

you who have not yet been bold enough to rush out and buy an ST yet, a screen image is dumped to printer simply by holding the 'ALTERNATE' key down and pressing the 'HELP' key. The ST then stops whatever it is doing (regardless of what application or language is running!) and automatically prints a copy of whatever high-res image is on the screen. Very useful indeed!

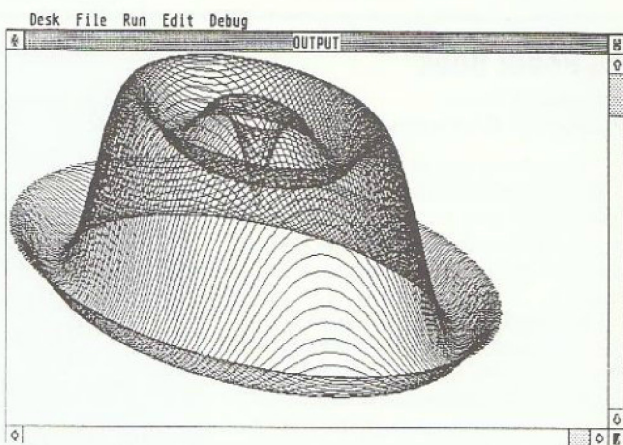


Picture 1

Program 1

```

10 FULLW 2
20 CLEARW 2
150 XP=144:XR=4.71238:XF=XR/XP
160 FOR ZI=-64 TO 64
170 ZT=ZI*2.25:ZS=ZT*ZT
180 XL=INT(SQR(20736-ZS)+0.5)
190 FOR XI=0-XL TO XL
200 XT=SQR(XI*XI+ZS)*XF
210 YY=(SIN(XT)+SIN(XT*3)*0.4)*56
220 X1=XI+ZI+160:Y1=90-YY+ZI
225 COLOR 1,1,1,1
230 LINEF X1,Y1,X1,Y1
235 COLOR 1,0,0,0:LINEF X1,Y1+1,X1,400
250 NEXT XI:NEXT ZI
    
```



Picture 2

Program 2

```

10 FULLW 2
20 CLEARW 2
150 XP=144:XR=4.71238:XF=XR/XP
160 FOR ZI=-64 TO 64 STEP 1
170 ZT=ZI*2.25:ZS=ZT*ZT
180 XL=INT(SQR(20736-ZS)+0.5)
190 FOR XI=0-XL TO XL STEP 2
200 XT=SQR(XI*XI+ZS)*XF
210 YY=(SIN(XT)+SIN(XT*3)*0.4)*56
220 X1=(XI+ZI+160)*1.6:Y1=(90-YY+ZI)*1.6
225 IF X2=0 THEN X2=X1:Y2=Y1
230 LINEF X2,Y2,X1,Y1
240 X2=X1:Y2=Y1
250 NEXT XI:X2=0: NEXT ZI
300 GOTO 300
    
```

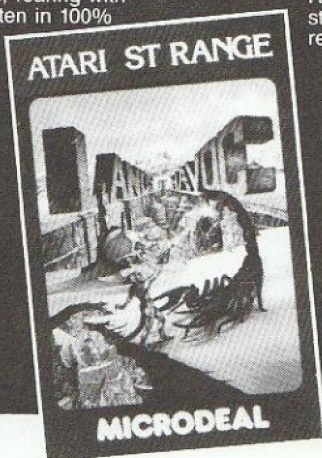

microdeal

ATARI ST *Michtron*

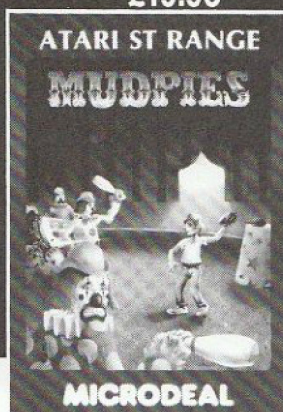
LANDS OF HAVOC From Microdeal
by Steve Bak. Microdeal's 2000+
screen arcade adventure with its full
colour maps, the Book of Change and
Sador; our reptilian hero, has just been
acclaimed as the first Mega-game
available for the machine. Superb full
colour graphics, roaring with
sound and written in 100%
machine code.
Excellent value
at ONLY

£19.95

Will run on
both colour
& black/white
systems.



MUDPIES From Michtron
... Arnold grabs a MUD PIE and
throws it at the nearest clown, hitting
him smack in the middle of the face!!
The clowns, who don't think it's too
funny, start THROWING things back
and try to catch him!! NOW THE FUN
REALLY BEGINS!!! Superbly animated
strategy arcade game. Colour Monitor
required. ONLY

£19.95

FLIP SIDE From Michtron

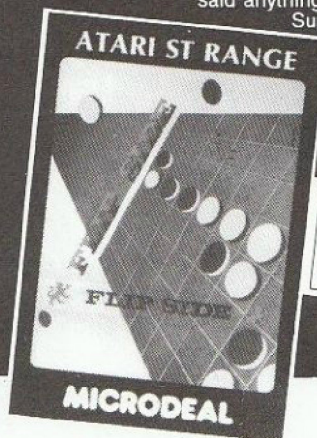
This REVERSI type game combines Chess-
like depth with Checker-like ease for an
excitement all of its own! Surround an
opponents piece and FLIP it over. This
simple rule leads to strategies as detailed as
your imagination. For 0, 1 or 2 players, 6
levels of difficulty.

a Speed option and a Help facility (who
said anything about cheating???)

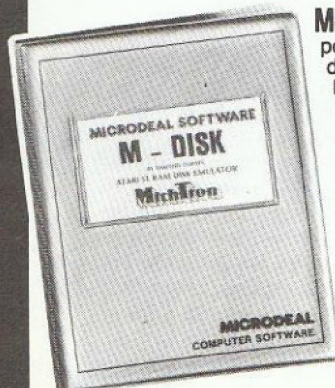
Superbly presented and

ONLY £19.95

Will run on both
colour & black/white
systems



M-DISK From Michtron A RAM - DISK emulator uses a
portion of your computers memory to load, store and save
data. IT ACTS LIKE A NORMAL DISK-DRIVE ...
BUT ... has no mechanical parts. M-DISK is
software based and can utilize up to 800K of
memory (if it is available). M-DISK is super fast,
incredibly tough, and costs

ONLY £12.95

SOFT SPOOL
From Michtron

While printing files (from
a word processor, TOS, etc.) your
computer is simply dead weight; tied up
waiting for the printer to finish. However,
with **SOFT SPOOL**, the wait is over!!!
NOW YOUR COMPUTER CAN PRINT
AND THINK AT THE SAME TIME!
This software spooler sends printed
data to the printer between tasks
freeing the Computer for more
important things (like playing
Mudpies ... maybe??) and saves
you literally hours of computer time! An excellent
utility and

ONLY ... £12.95

**SOFT SPOOL/M-DISK
TWIN PACK**



Now the previously mentioned utilities available in 1 money saving
Twin Pack. Contains both manuals plus 1 disk.

ONLY £19.95

TIME BANDIT by Bill Dunlevy & Harry Lafnear from Michtron
Battle Evil Guardians as you try to escape with the Treasures of
Time. Dual-player mode even lets two play simultaneously, each
on his own window!

Use the Timegates to visit over 20 unique adventuring areas
with over 15 levels each! Explore medieval dungeons, western
frontiers, and future worlds all in one game!

Unique creatures and 3-D terrain for each Time, beautiful
scrolling landscapes, detailed animation, thrilling sound and
music, hundreds of screens: the conquest of Time and Space
awaits you!

For the Atari ST with color monitor **£29.95** Due out
Feb 1986

M-COPY by Timothy Purves of Michtron

Designed for duplicating program discs, **M-Copy** minimizes the
time to make copies and ensures that the operator will notice
when a copy fails.

After the source disk is copied into memory just once, all the
operator has to do is put in blank discs.

M-COPY speeds through disk duplication because it formats
and copies only those tracks needed by the program. Instead of
wasting time on the rest of the disk, **M-Copy** moves on to the
next disk. For the Atari ST a must for companies copying disks
in bulk.

£49.95

UTILITIES by Timothy Purves from Michtron

Keep control over your Atari ST files, even when things go
wrong. With an ability to address individual bytes, you can
change file contents, change file and volume names, change file
attributes, format individual disk tracks, copy individual sectors,
restore deleted files, recover data from damaged disks and repair
damaged disks.

Utilities works with the GEM interface to provide easy, menu-
driven operations. Changing file contents, attributes or names is
just a matter of typing in the new information or clicking on
selector buttons.

Even restoring deleted files only requires that you inspect
data, then click on a button to save or reject it. Sector-by-sector
copy and track-by-track format routines let you gently handle
damaged disks.

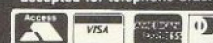
For the Atari ST **£39.95**

DISK HELP by Steve Bak from Microdeal

If your disk has crashed and you're not an experienced
programmer able to repair it with **UTILITIES** then this easy to
use menu-driven program will attempt to repair the disk and
bring back lost data. This program will format a disk without
erasing. It will re-write the directory, check a disk and list bad
sectors, repairs files with bad sectors so they become readable
even on physically damaged discs. If you use data files on your
ST you cannot afford to be without **DISK HELP**. Can be used
with 1 or 2 single or double sided drives

£29.95

All major credit cards
accepted for telephone orders



Microdeal programs are available from
ATARI ST Dealers or by post from

MICRODISK

24 hour order system

Post & Packing 75p per order.

41 Truro Road, St. Austell Cornwall PL25 5JE England
Telephone: 0726 68020 Telex: 45218 MICROD G

ATARIWRITER PLUS

A sneak preview.

By Jack Holtzhauer.

Reprinted from Current Notes.

Atariwriter Plus announced at winter 85 CES show in Las Vegas has been a long time in coming. Has it been worth the wait? Probably, although it may fall short of some peoples expectations. How does it differ from the current version? Functionally both products are almost the same. If you are familiar with Atariwriter, using Plus will be a doddle. Major differences? For 130XE owners, memory capacity has been increased to 46.5K, enough for about 32 doublespaced pages.

The first thing you notice about Plus is that it is disk based. The program disk is double sided, the standard version on one side and the XE version on the other. A second disk is also supplied containing a Proofreader Dictionary and a 66 page manual is included in the package.

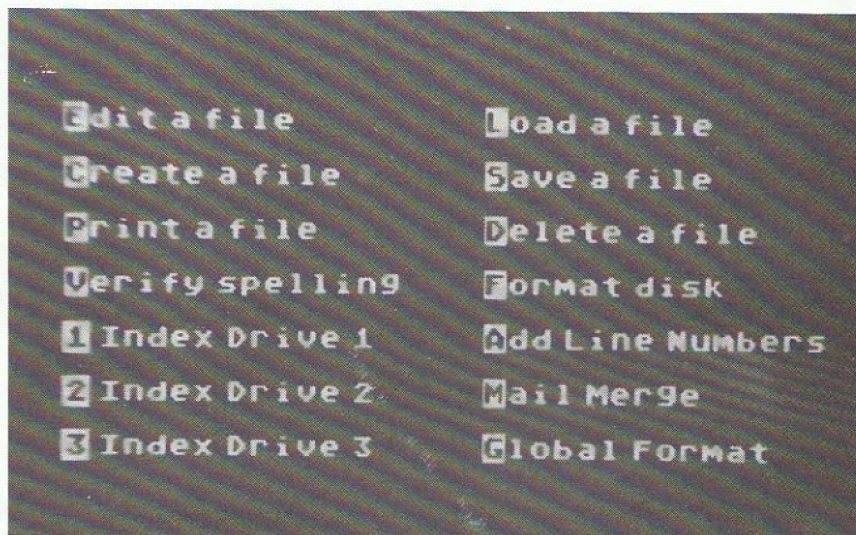
Main Menu & I/O Operations

The main menu screen will be familiar to all Atariwriter users, but two new functions allow you to load the Proofreader and Mail Merge modules. You can also get a directory listing on both drive 1 and drive 2. And guess what? The filenames on those multifile disks of yours don't scroll off the top of the screen whilst your trying to read them. The first 38 files are listed in a double column format. The rest are accessed with a tap on the Return key. At the bottom of the screen is a submenu allowing you to load, delete or save a file whilst the directory is right there in front of you on the screen.

Disk format commands can be directed to either drive 1 or 2 (enhanced density is forced if the system is booted with a 1050). By the way, all I/O commands now accept wild cards.

The only other new feature on the menu screen is the global format function. When accessed it shows all the default formatting settings, i.e. top margin, type font, justification, etc. You know, all those funny symbols you're used to seeing on the top line of the edit screen. You can make any desired changes then and there.

When first accessing the PRINT command from the menu, you are allowed to choose printer drivers from any one of seven Atari models (825, 1025, 1027, 1020, 1029, and the new XMM 801 and XDM 121), the Epson FX80, IDS Micropism 480, Juki 6100, or a custom driver created with the printer driver module (see below). You are also allowed to 'print' to devices other than your printer, to either drive or to RS232 ports R1 through to R4.



Edit Screen

Pretty much the same, but there are a couple of very helpful new features. Plus allows you to format the edit screen upto 249 columns wide. Using elite font? Set your columns to 96. Condensed? Set them to 132. Of course you can only view 40 columns, as you advance to the right the text scrolls off the left of the screen. Even so, this is a boon to anyone who has tried to columnise text using the current version. You can also switch from Insert to Typeover mode for making corrections.

Cursor Movement

Only one change here, Plus allows you to advance or backspace by word, but the two-fingered two-handed keystroke required (Select/Left or Right Arrow) is awkward.

Block Operations

Three new functions. Plus allows you to alphabetise a list of words or phrases. This might be useful in some situations. You can also obtain a word count on your entire text or any portion thereof. In addition you are allowed to save a designated block of text. Other block functions such as delete, move and duplicate are essentially unchanged. The failsafe buffer in the XE versions approximates 8K; in the non-XE version to the remaining free bytes.

Search and Replace

About the same, but keystroke sequences are different. You may search for a control character, use '?' as a wild card in your search string, search upward from the current cursor position, and search without having to respond to a replace query.

Type Fonts and Embedded Printer Control Codes

The current version of Atariwriter provides the user with 3 'default' type fonts: Pica, Condensed & Proportional, accessible through the 'G' command. Plus adds 3 more: Elite, Superscript and Subscript, the latter two claimed to be useable only with Atari's new XMM801 printers (they produce condensed super/subscript on my Epson compatible Panasonic 1092, just as intended). Both superscript and subscript are still available using the Select/Up-Down Arrow sequences. Actually, Plus allows you to set up as many as nine default fonts using its printer driver utility. An 'emphasized' or 'bold' command is provided, and you can access the international character on your printer, if it has one. As in the original version, embedded printer control codes are accepted.

Print Formatting

All the standard print formatting features remain unchanged; centering text, headers, justification, line spacing, page numbering, automatic section heading, etc., but Plus adds one additional feature, software supported double column printing. As far as I am concerned, this feature is worth the cost of upgrading! And both columns are presented side by side on the preview screen.

Memory Management (130XE)

The 130XE version of Plus can handle 46K plus and achieves this by bank-switching three blocks of text each

handling 15,872 bytes, the amount shown 'free' when you first access the edit screen. As you approach the capacity of the first bank of 15K+ you must issue a command to force the switch to the second bank. The switch is not done automatically, although saving from and loading to all three banks is handled by the program.

File Compatibility

All files are compatible with those produced by the original version and with text files produced by other word processors compatible with DOS 2.0S or DOS 2.5.

Printer Driver Module

Plus provides a printer driver module which allows you to construct a custom driver for your specific printer. You're required to input all those nasty control codes needed to toggle your printer's carriage return, backspace, reverse linefeed, etc. But it is easy to use and you can identify as many as nine different type styles using this feature, all of which can be accessed using the 'Gn' command. For example, you can set up 'G3' to be emphasized doublestrike pica, 'G4' to be condensed superscript, 'G5' to be NLQ elite, and so forth.

Mail Merge Module

This module allows you to set up a simple database which can be accessed from the main program. It can be useful in printing form letters, address labels, etc. You can use the default format or construct a custom version, but both are limited to 255 fifteen-field records. Although records can be deleted or edited, they cannot be sorted or accessed on a random basis. You can only page forward or page back.

By inserting an Option/M (replaces the old Option/Insert) key sequence anywhere in your text, followed by the number of the database field desired, data can be extracted from the database and automatically inserted into your text material during the printing process.

Proofreader Module

The Proofreader module is loaded from the main menu and utilises a separate dictionary disk containing some 36,000 words. It can be used to check the spelling of most common words in your text material, providing you with the option of making corrections as needed, or sending a list of possible errors to your printer. You can also access the dictionary when you're not certain how to spell a given word,

although some disk switching is involved. Making an enquiry on the string 'fil', for example, gave me a list of 55 words beginning with those three letters. How quickly does Proofreader function and what types of words does it fail to recognise? I've just asked for a list of possible errors in the preceding 1280 words in this article. It took 6 minutes to complete the process and gave me a list of 63 possible errors, many of which were repetitive occurrences. Among the words it did not like were Atariwriter, filenames, keystroke, pica, and surprisingly, font.

The Proofreader module also allows you to construct a personal file of frequently used words not found in the standard dictionary, such as those mentioned above, which can be added to the current database. Now, if they would only add a thesaurus!

Conclusion

It's time to sum up. There is no question that Atariwriter Plus is a major improvement over the original version. Its new I/O, editing, formatting and printing features, combined with its built-in spelling checker, mail merge and printer driver utilities make it an attractive package.

SIDEWINDER

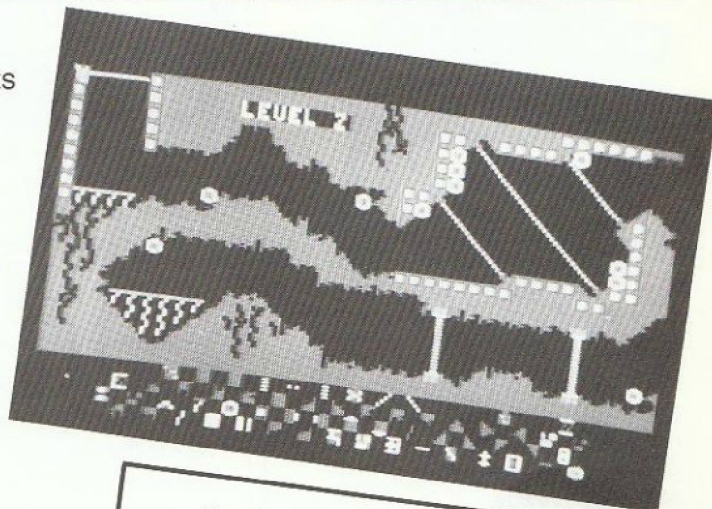
(c) 1986 FUTUREWARE

You are the only survivor of a team of agents sent underground to capture the latest development in helicopter technology - can you get SIDEWINDER out?

Also included is a SCROLLING SCREEN EDITOR, which enables you to construct your own SIDEWINDER screen for use in your game.

48K Disk £14.95/48K Cassette £9.95
Works on all Atari Computers.
See review in this issue.

*Available direct or from all good
Atari software stockists.*



**Design the best three
screen displays and win an
Atari Computer & Disk Drive**
(Offer closes August 1986)

FUTUREWARE

132 Grays Inn Road, London, WC1X 8UB.
Trade enquiries welcome.

STARTING FROM BASICS

by Captain Hacker Part Four

Welcome to the fourth part of my series of articles aimed at the beginner. Here, we try to explain how BASIC works in a way that your manuals fail to do – precisely and clearly, with frequent examples. In this issue I will continue with the theme of program-flow control.

FOR-NEXT

In the last episode, we examined how to make a program perform a given task a particular number of times. We did this using the IF-THEN command, by incrementing and then testing a variable to see if it had reached a particular value. If the value had not been reached we would loop back using the GOTO command. Here is a typical example of what I mean:

```
10 X=1
20 PRINT X
30 IF X=10 THEN GOTO 60
40 X=X+1
50 GOTO 20
60 STOP
```

This will print the numbers 1 to 10 on the screen. This will of course work, but it is rather messy. Surely there must be a neater way of writing a loop? Well, there is, the FOR-NEXT loop. Type NEW and enter the following: –

```
10 FOR X=1 TO 10
20 PRINT X
30 NEXT X
60 STOP
```

Type RUN and you will see that we get precisely the same result as with the previous program – and with a lot less instructions!

So how does it work? Well, when BASIC encounters a FOR command, it must find at least three things:

- a) A numeric variable.
- b) Its starting value.
- c) Its finishing value.

The first operation that BASIC then performs is to load the starting value into the variable, which in our example means that the value 1 is placed into the variable X. BASIC then takes a look at the FINISHING value and remembers it, and in our example this value is 10. Having done this, BASIC continues onto the next command.

The following command is of course to PRINT the contents of variable X (line 20). Since the last operation performed on this variable was to load the starting value of 1 on line 10, 1 is printed on the screen.

Now we get to the interesting bit – line 30 and the NEXT command! At this point BASIC does several things, first it must add one to the value held in the variable X, giving it a new value of 2. Then it must check to see if the value held in X is GREATER than the finishing value given in the FOR command in line 10. Since 2 is not greater than 10, instead of continuing with the subsequent line (line 40), BASIC goes back to line 10, or to be more precise, to the FOR command. At this stage, the FOR command is not actually re-executed, but the command immediately following it is found and executed – i.e. the FOR command is now only used as a kind of marker for the start of the loop.

The command on line 20 will again be executed, and the contents of the variable X will be printed on the screen, but this time the number 2 will appear.

So once again BASIC reaches the NEXT X command. Again, the variable X is incremented, bringing its value to 3, and is tested to see if it is greater than the finishing value of 10. Since X is still not greater than 10, BASIC once again goes back to the command immediately after the FOR command.

This loop goes on for quite a while, so rather than bore the pants off you, I will leave the routine for a while, and re-join the BASIC as it approaches the NEXT command (on line 30) with X holding a value of 10. Well, BASIC will first increment X, making its value 11. It then checks to see if X is greater than our finishing value (10) and.... Yes, at last it is!

Now, BASIC terminates the FOR-NEXT LOOP, as it is called, and it

continues with the program. In our example this means that it finally reaches line 40 and executes the STOP command.

There – quite painless, wasn't it! If you are still not clear how the FOR-NEXT command operates then you should read through the previous paragraphs over and over again until you are – because if you are still puzzled now, the following paragraph will leave you hopelessly confused! Try some FOR-NEXT loops of your own, and try different starting and finishing values.

Variations on the Theme

Suppose that we want to create a program loop, using the FOR and NEXT commands, to print the numbers from 0 to 10 on the screen, but this time increasing by 2 for each loop i.e. printing only the even numbers (0,2,4,6,8,10). Well, we can do this by using the STEP function. With the STEP function, we can decide exactly how much we want our chosen variable to be incremented by each time BASIC meets the NEXT command.

```
This is how we use STEP:
10 FOR X=0 TO 10 STEP 2
20 PRINT X
30 NEXT X
40 STOP
```

Notice that the STEP is placed directly after the finishing value of the command, there is no colon or comma required, just a space. Type in the above program and RUN it; you will see the sequence 0,2,4,6,8,10 printed onto the screen.

Whatever you place after the STEP is added to the variable X each time the NEXT X command is reached; in fact, this does not even have to be a whole number. You could have STEP 0.5, or STEP 0.275, or even STEP 3.5!

ATARI 1050 DISK DRIVE

WITH FREE SOFTWARE

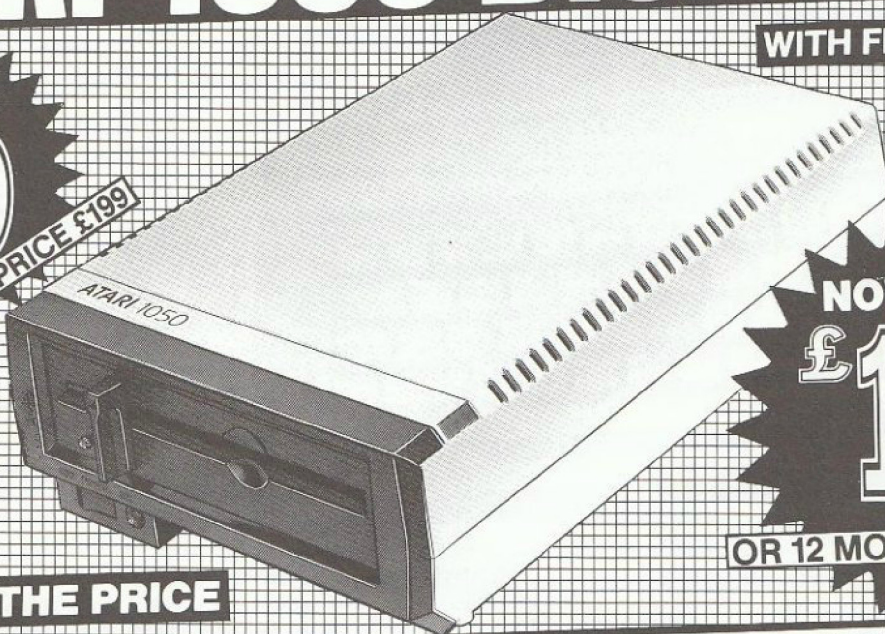
WORTH £34.98

SAVE
£70

PREVIOUS PRICE £199

POWER

WITHOUT THE PRICE



NOW ONLY

£129

inc VAT

OR 12 MONTHS AT £12.46

NEWS FOR ATARI 8-BIT COMPUTER OWNERS

Silica Shop, the UK's leading Atari specialists, based in Sidcup Kent have announced a massive drop in the price of the Atari 1050 Disk Drive. The 1050 is compatible for use with the Atari 400/800 and XL/XE computers and allows access to a range of over 450 disk-based software titles. The 1050 comes with DOS 2.5, and can also be used with other Atari Disk Operating Systems, making it compatible with the complete range of Atari Corp and Third Party software for Atari 8-bit computers. The addition of a disk drive is a great enhancement to any computer system, increasing storage facilities and cutting information access time to seconds instead of the minutes taken

by the 410 or 1010 data recorders. Many professional/business programs are only available on disk and not cassette. Until now, only a small proportion of Atari Computer owners have been able to benefit from the power and speed of the 1050. Now Silica are pleased to be able to offer the 1050 at a new low price of only £129 including VAT and FREE delivery. We also offer credit facilities allowing Atari owners to purchase it over 12 months for only £12.46 per month. The total purchase price over 12 months, with interest at a flat rate of only 16%, is only 12 x £12.46 = £149.52 (APR 32.3%). There has never been a better time for Atari owners to buy a Disk Drive!

SUPERB TECHNICAL SPECIFICATIONS

The 1050 is a dual density disk drive. This refers to the amount of information that can be stored on a single side of a disk. Three things determine the density of a particular disk format: The number of bytes in each sector, the number of sectors per track and the number of tracks per disk. Single Density formats give eighteen 128 byte sectors on each of their 40 tracks, thus giving a total capacity of 18 x 128 x 40 = 92,160 bytes. Double Density 256 bytes on each sector. This yields a capacity of 184 density sectors and are capable of holding 256 bytes on each sector. This is the one used by Atari's new 1050 kilobytes per disk. There is also a third format, Dual Density which is the one used by Atari's new 1050 Disk Drive with DOS 3 and DOS 2.5. It has 26 of the 128 byte sectors on each of its 40 tracks, giving a total capacity of 133 kilobytes, which after formatting comes down to 127K. The 1050 is capable of running disks formatted in either single or dual density and can run either DOS 2, DOS 2.5, or DOS 3. This makes the machine completely compatible with all of the previous old style software. The 1050 has a compatible with the 400/800 and the new XL/XE series of Atari computers. However, if you run a 400 or 800 you would need to already have at least 32K RAM of memory in your computer. The 1050 has a built-in 6507 micro processor and an onboard ROM operating system for automatic standby capability. It has automatic switching from single to enhanced density modes. It has a 'Disk Busy' indicator and the up to 4 disk drives can be controlled at once. Included with the Disk Drive is the Owner's Manual, the DOS 2.5 Master Diskette, Reference Manual. I/O Data cable and Mains Adaptor. The 1050 disk drive comes with everything you need to plug it in and use it immediately.

FREE SOFTWARE

The new price for the 1050 disk Drive is not the only good news for Atari Owners. The Disk Drive now comes with three FREE software titles, in addition to the DOS 2.5 Disk and Manual. The first of these is The Payoff and Manual, a new adventure game in which you play the leading role. On the reverse side of this disk is a demonstration program showing Atari's amazing sound and graphics. Also included is Home Filing Manager which will help you organise your files. It allows you to catalogue and file details of books, birthdays, your stamp collection or anything else which would normally require you to use filing cards. The software which comes free with the Disk Drive carries a normal retail price of £34.98 and is as follows:

HOME FILING MANAGER	£24.99
THE PAY OFF ADVENTURE	£9.99
DOS 2.5 DISK & MANUAL	FREE
SOUND & GRAPHICS DEMO	FREE
Normal cost of FREE software	£34.98

FREE POST & PACKING

Mail Orders to the UK and BFPO are sent from Silica with post and packing FREE. We provide a 24 hour service and aim to despatch orders on the same day that we receive them.

12 MONTH GUARANTEE

The 1050 Disk Drive comes with a full 1 year guarantee. Silica will replace any faulty 1050 Disk Drive with a new unit within this period.

BUY NOW - PAY LATER

To help you to take advantage of the new low price of the 1050 Disk Drive, we have now negotiated favourable credit terms with HFC Trust. You do not need a bank account to take out credit with HFC, and no deposit is required. Repayments can be made by post, standing order, or personally at your local HFC office. If you wish to use these facilities, simply complete and return the coupon below. We will then send you further details and an application form by return of post.

OUR SPECIALIST SERVICE

We are now firmly established as the UK's NUMBER ONE Atari specialists, so when you buy an Atari computer product at Silica you will be fully supported. Our mailings keep you up to date with news of software releases and developments. Our technical support team and sales staff are at the end of the telephone line, to deal with your problems and supply your every need. We aim to stock all available Atari hardware, software, peripherals and accessories. We also stock a wide range of Atari dedicated books and magazines. Here are some of the many facilities we can offer:

- ★ FREE POST & PACKING ON MAIL ORDER
- ★ FREE NEXT DAY SECURICOR DELIVERY
- ★ INFORMATION MAILING SERVICE
- ★ TECHNICAL SUPPORT TEAM
- ★ HIGHLY COMPETITIVE PRICES
- ★ AFTER SALES SUPPORT SERVICE
- ★ REPAIR SERVICE ON ATARI PRODUCTS

ORDER NOW - OR SEND FOR A CREDIT APPLICATION FORM
Silica Shop Limited, 1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX Telephone: 01 309 1111

HOTLINE!

If you can't wait to get your hands on a brand new 1050 Disk Drive for your Atari 8-bit computer and you have a credit card or charge card, phone our hotline now! We accept Access, American Express, Barclaycard, Diners Club, Mastercharge and Visa. Telephone our hotline with your card number and your address details and we will dispatch a disk drive to you TODAY! You can also call the hotline to request a credit application form if you wish to take out credit facilities with HFC Trust.

01-309 1111

1050 ORDER FORM

To: Silica Shop Ltd, Dept ATCOC
1-4 The Mews, Hatherley Road,
Sidcup, Kent, DA14 4DX

Please send me **1050 Disk Drive(s) at £129 each**

Mr/Mrs/Ms: _____ Initials: _____ Surname: _____

Address: _____

Postcode: _____

☐ I enclose a cheque: for £ _____ (made payable to Silica Shop Ltd)

☐ Please debit my credit card:

CREDIT CARD NUMBER: _____ £ _____
We accept: Access, American Express, Barclaycard, Diners Club, Mastercharge, Visa

☐ I wish to pay by credit: (12 monthly credit instalments)

Please send me written details and an application form





Continued from page 14.

Backwards

Suppose now, though, that rather than count upwards you want your loop to count backwards, say from 10 to 0. We can do this quite simply by once again using the STEP function (or modifier) but this time giving it a NEGATIVE value. Try this example and you will see what I mean:

```
10 FOR X=10 TO 0 STEP -1
20 PRINT X
30 NEXT X
40 STOP
```

The loop works as before except that now, when BASIC reaches the NEXT X command, it SUBTRACTS the STEP value from X, and then looks to see if the value of X is LESS THAN the ending value, returning to the FOR line if it is not.

To help you experiment with the FOR-NEXT loop, here is a short program with which you can more easily try using different starting values, finishing values, and step values. Try a starting value of 1, a finishing value of 2, and a step of 0 — this will give you a never ending loop!

```
10 PRINT "STARTING VALUE";
20 INPUT A
30 PRINT "FINISHING VALUE ";
40 INPUT B
50 PRINT "STEP VALUE ";
60 INPUT C
70 FOR X=A TO B STEP C
80 PRINT "VALUE IN VARIABLE X=";X
90 NEXT X
100 PRINT "LOOP HAS FINISHED."
110 PRINT : GOTO 10
```

ON X GOTO

For some reason, the ON-GOTO always seems to present a problem to the novice, when in fact it is one of the simplest commands available!

Perhaps the easiest way for me to explain how this command works is to show an example of what you would need to do if this command were not available. Suppose that you want to make your program jump to one of four different routines, or sections, of your program, depending upon the value of the number held in a variable. This number could have been the result of a selection from a menu of functions, and the numbers would have to be a 1, a 2, a 3, or a 4. This is how we might write the routine with which the program will decide where to go:

```
10 PRINT "CHOOSE 1,2,3 OR 4";
20 INPUT X
30 IF X=1 THEN GOTO 90
40 IF X=2 THEN GOTO 130
50 IF X=3 THEN GOTO 840
60 IF X=4 THEN GOTO 2670
90 PRINT "ONE CHOSEN": GOTO 10
130 PRINT "TWO CHOSEN": GOTO 10
840 PRINT "THREE CHOSEN": GOTO 10
2670 PRINT "FOUR CHOSEN": GOTO 10
```

RUN the program and you will find that it works perfectly. The only trouble is though, we seem to have had to write rather a large chunk of program to just decide which line number to jump to. Take a look at lines 30 to 60, where you will see a whole cluster of IF...THEN commands. Just imagine how many lines this would take up if the program were to give the user 20 or even 30

different functions — you would be knee-deep in IF-THEN statements!

Surely, I here you groan, there has to be a simpler way. Well surprise, surprise there is! It is of course the ON-GOTO command. Take a look at the same program, but this time using the ON-GOTO command:

```
10 PRINT "CHOOSE 1,2,3, OR 4 ";
20 INPUT X
30 ON X GOTO 90,130,840,2670
90 PRINT "ONE CHOSEN": GOTO 10
130 PRINT "TWO CHOSEN": GOTO 10
840 PRINT "THREE CHOSEN": GOTO 10
2670 PRINT "FOUR CHOSEN": GOTO 10
```

As you can see, line 30 on its own can do the work of four that were used in the first program. You are not restricted to just four line numbers, you can have as many as you require (provided of course, that they will all fit on one command line!). You can even have an expression or calculation in place of just one variable, for example:

```
70 ON X/2 GOTO 130,80,596
or
80 ON X*5+3 GOTO 32000,980,6349.
```

You might do something like this if your program derives odd number values which you will need to reduce to the 1,2,3,4,5 etc. sequence needed by the ON...GOTO command. Usually, however, you will probably only use this command for menu selections, so you need only ensure that the user has entered a number within the range required by your program.

ON-GOSUB

The ON-GOSUB command is, as you would probably expect, virtually identical to the ON-GOTO which we have just covered. In case some of you are not quite sure about this, I have included (below) the ON-GOSUB version of our demo program. I would also like to point out that with this command it is essential that you should also observe the same rules of tidiness as with the GOSUB command (covered in the last issue), otherwise you will get hopelessly bogged down if your program develops mysterious BUGS!

```
10 PRINT "CHOOSE 1,2,3 OR 4 ";
20 INPUT X
30 ON X GOSUB 90,130,840,2670
40 GOTO 10
90 PRINT "ONE CHOSEN": RETURN
130 PRINT "TWO CHOSEN": RETURN
840 PRINT "THREE CHOSEN": RETURN
2670 PRINT "FOUR CHOSEN": RETURN
```

Tailpiece

It is a good idea to really concentrate on understanding these commands, they are the bread and butter of many BASIC programs. Experiment with different values and see what happens.

That's all for now folks! See you again in a future issue of Monitor.

USER GROUP SOFTWARE

Software Librarian - Roy Smith

Due to demand from members there are now two ways to get programs from the library. The original scheme of exchanging '3 for 1' will still apply, but now with an added bonus. So the library rules have been extended to enable those members who cannot write their own programs to gain access, and those that can to have a possibility of some reward for their efforts. The extended library rules are as follows:

3 FOR 1 EXCHANGE

1. Every program you donate to the library entitles you to three programs in return.
2. The program you donate must be your original and not copied.
3. Your donated program must be submitted on a cassette or a disk, programs in the form of print-outs will not be processed.

4. If your program requires any special instructions they should be added in the form of REM statements within the program (or you may present them as instructions when the program is actually run).

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

6. The '3 FOR 1' exchange is only open to club members.

DONATION SCHEME

1. Every club member will be

entitled to ask for up to 3 programs per quarter from the library by donating to the club funds.

2. If a member does not take his/her entitlement for a particular quarter, it cannot be carried forward to the next quarter.

3. A member can have more than one quarter's entitlement at one time (up to a maximum of 12 programs (1 year)), but then will be unable to ask for more until his/her credit quarters have been used. Note that odd numbers of programs will be counted in quarters, i.e. if a member asks for 5 programs, the first 3 will be that quarter's entitlement, the next 2 will be the second quarter's entitlement and he/she will have to wait until the third quarter before he/she is entitled to any

more. Also note that having programs in advance will only be allowed if that member's membership covers the advance quarters.

4. The donation fee will be £1 per program and is not refundable. Cheques and Postal Orders are to be made out to the 'U.K. Atari Computer Owners Club'.

5. Members must send in a blank cassette or diskette for the chosen programs to be recorded on.

6. The 'DONATION SCHEME' is only open to club members.

Finally I would like to point out that some people omit to include return postage when donating to the library, so please do not forget to include 30p worth of stamps to cover this.

THE LIBRARY SOFTWARE SERVICE IS FOR MEMBERS ONLY

LIBRARY SOFTWARE TITLES

Games

MATCHPIX

by Mark Hewson - Birmingham.

Two player game in which you must find and match the hidden pictures. Nicely done graphics.

Runs in 32K Cassette or Disk min.

SHUTTLE CHALLENGE

by M. Trimby - Bristol.

Excellent pinball game, and in colour too!

Runs 48K min. Disk only

Home Entertainment

CALENDAR 1986

by Paul Rixon - Sheffield.

Prints a pocket sized calendar on the 1020 printer.

Runs in 16K Cassette or Disk min.

PICTURE SHOW 3

by Keith Berry - Birmingham.

Seven terrific pictures which can be displayed in sequence normally, or loaded and displayed by the 130XE's ramdisk facility.

One complete side of disk required.

Runs in 32K min. Disk only.

PICTURE SHOW 4

by Keith Berry - Birmingham

Nine superb 'Fun with Art' pictures, plus display program.

One complete side of disk required.

Runs in 32K min. Disk only.

QUIZZWORD

by Paul Brow - Leeds.

Crossword program which includes 7 ready prepared files of clues.

Runs in 32K min. Disk only.

Demos

APPLEKILL

by Scott Emond - U.S.A.

Strictly for those with a wicked sense of humour!

Runs in 48K min. Disk only.

Utilities

CHARACTER GRID

by Paul Rixon - Sheffield.

Prints an 8 x 8 grid on the 1020 printer as an aid to character redefinition.

Runs in 16K Cassette or Disk min.

Listed below are the software titles received by members for inclusion in the library since issue ten was published. As the library now contains over 300 programs, it is getting a bit too large to keep on printing the entire list. Eventually it would probably take over the whole magazine and there would be no room left for the articles and program listings. For those of you who are new members and do not know what is available from the library, then send for a photocopy of the complete list which is available from the librarian. There is a small charge for this service to cover photocopying costs. If you would like a list please send 50p and a S.A.E. for return.

DOS 9

by Mike Barnard - Guisborough.

This program makes a binary loader disk by writing a special DOS.SYS that only uses 9 sectors (5 in double density), so almost 700 sectors are free for programs. Only files that are locked can be loaded.

Runs in 32K min. Disk only.

CONVERT-A-NUM

by Paul Rixon - Sheffield.

Imperial/Metric converter with easy to use selection.

Runs in 16K Cassette or 32K Disk min.

GENERAL LEDGER

by Neville R. Will - Australia.

Comprehensive accounting system providing double entry balanced accounting with print option for Gemini 10X (could be modified, but printer must have programmable Tab positions).

One complete side of disk required.

Runs in 48K min. Disk only.

CAD/CAM

by Jack Gilchrist and

Phil Heavens - U.S.A.

Superb program offering drawing facilities, Epson MX80 picture dump, and a unique windowing feature.

Two sides of a disk required.

Runs in 48K min. Disk only.

**** STAR PROGRAM ****

HOME FM

by Mike Barnard - Guisborough.

Used in conjunction with Atari Home Filing Manager. Information from the data disks can be listed or printed more easily.

Runs in 32K min. Disk only.

MFCOPY

by Mike Barnard - Guisborough.

This is a multiple file copy program that requires 2 disk drives, one of which can be double density.

Use with US Doubler or equivalent.

Runs in any size Disk system.

MENU

by Gerry Stotts - U.S.A.

Disk based menu program, use it to enhance your disk collection. Runs in any size Disk system.

MULTI

by Mike Barnard - Guisborough.

Allows multiple program copying between double density multiboot disks, with directory on sectors 26 & 27, and single density multiboot disks with directory on sectors 48 & 49. Two drives required, one must be double density. Use with US Doubler or equivalent. Runs in 48K min. Disk only.

RAMTALKER

by Randy Holmes - U.S.A.

With a little bit of hardware, you can record your voice. Includes two demo files. Set for port 2, but others could be used. Not XL/XE compatible. Runs in 48K min. Disk only.

SKETCH ATARI 2

by Lee Brown - Southend.

Drawing program includes demo pics. Runs in 48K min. Disk only.

SKYLOT

by R. Barkley - U.S.A.

Plot the positions of the Sun and Planets with this very good astronomy program.

Runs in 32K Cassette or Disk min.

SUPER INDEX

by S.J. Davies - Pontypridd.

A Basic program for maintaining a list of files on up to 20 disks. Includes print option and string search facility.

Runs in 48K min. Disk only.

Education

CUCKOO CLOCK

by Jim Flewker - Wrawby.

Spelling and 'tell the time' childrens learning program. Runs in 48K min. Disk only. XL/XE machines only.

FRENCH/GERMAN TIME

by Jim Flewker - Wrawby.

Two programs giving time phrases in French or German. Includes demo mode. Runs in 48K min. Disk only. XL/XE machines only.

TOP TEN

- | | | |
|----|------------------------------|-----------------|
| 1 | (2) Composed Writer | Larry Farmer |
| 2 | (4) Johnnys Paintbox | Stan Ockers |
| 3 | (3) Usercomp | Trevor Skeggs |
| 4 | (1) Chase | Grahame Fairall |
| 5 | (8) Pharoahs Tomb | Sydney Brown |
| 6 | (-) Folly of Ezrhar'd Kkhann | Alex Kells |
| 7 | (-) Sound System | Matthew Tydeman |
| 8 | (5) Superfruit 2 | Grahame Fairall |
| 9 | (-) Haunted House | Mark Hutchinson |
| 10 | (-) Picture Show | Keith Berry |

Koronis Rift

Activision
48K(Min) Disk £14.99

Imagine you are a techno-scavenger travelling from Galaxy to Galaxy in your Surface Rover, searching for valuable loot left behind on fabulous Worlds. Suddenly you reach the legendary KORONIS RIFT, the Rift with the most valuable treasures to be collected. Your quest is to collect, analyse and then keep only the most useful technological treasures you can find.

On leaving your Scoutcraft, you explore the numerous Rifts — 20 in all — which are protected by various Guardian Saucers — destroying these Saucers is no mean feat, they seem to appear every time you find an interesting hulk to loot!!

Once you have managed to shoot down a Saucer, due to excessive radiation you call on your "rep tech-robot" as he or she is called, who goes into action and loots the hulk. The looted modules are then sent back to the Scoutcraft where PSYTEK — your helpful science droid system analyser — at your request, analyses each item and then gives a value in Kilocredits for efficiency and power, keep only the best to up date your own defense system, careful selection is vital to the success of your mission. Wasting time and being too trigger happy can prove disastrous.

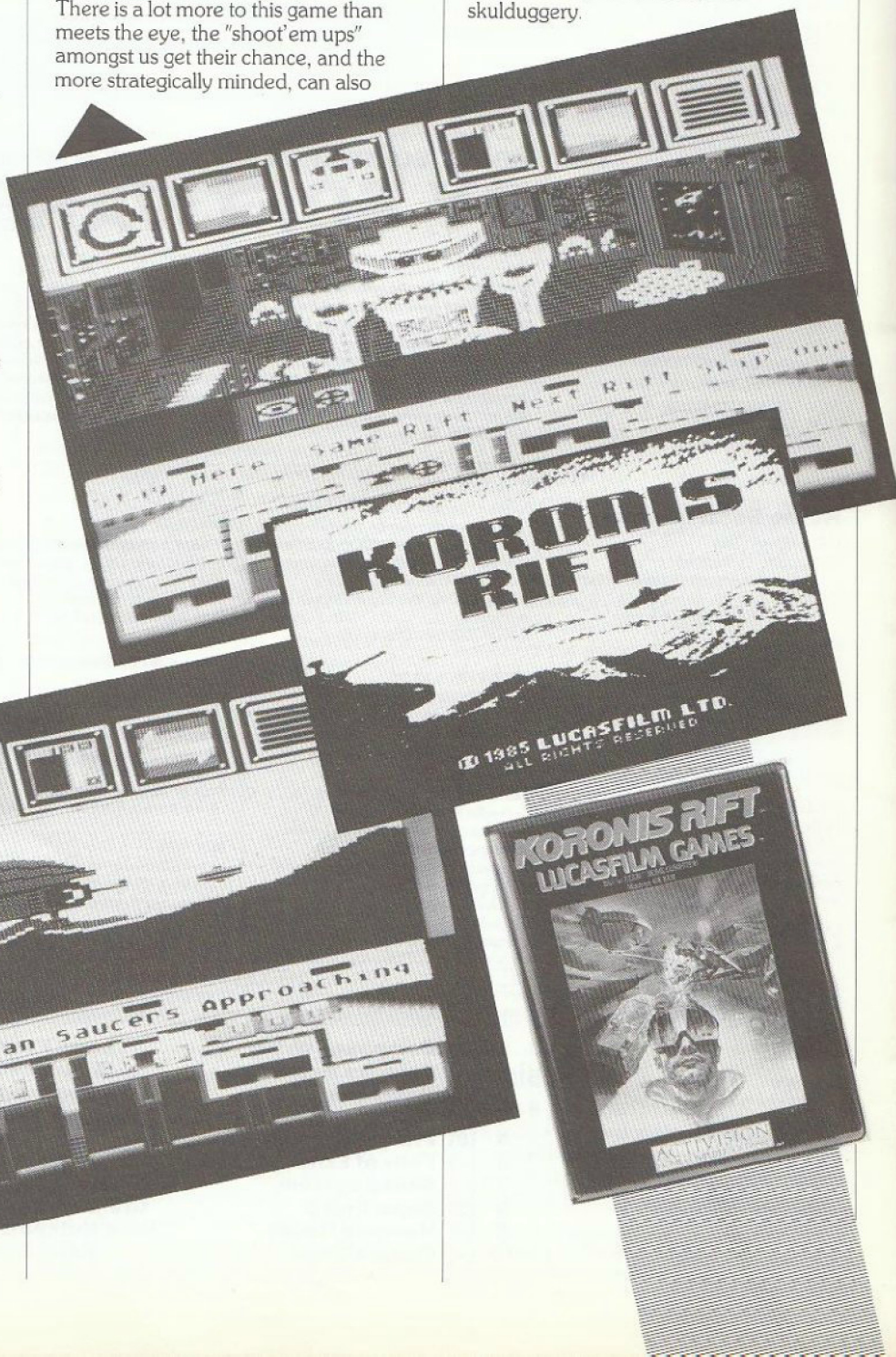
Data is shown at the top of the screen and depicts direction of hulk,

shield strength, as well as power reserves — use of your shields is another vital factor in how successful you become. Mapping the Rifts can help you from game to game. Strategy and tactics are very important and the "guide to the game" instructions are very helpful and clearly written.

The graphics are great, I particularly liked the view window, and PSYTEK has been animated very well indeed. There is a lot more to this game than meets the eye, the "shoot'em ups" amongst us get their chance, and the more strategically minded, can also

enjoy this game and pit their wits against the various galactic forces.

If you liked RESCUE ON FRACTULAS then you will think this is great, plenty of hulks to loot and many Rifts to explore — you can cheat and miss the odd Rift if you think there are no worthwhile hulks to be plundered — read the instructions thoroughly and they will help you to enjoy what I think is an excellent piece of computer skulduggery.



►► REVIEWS REVIEWS ►► REVIEWS REVIEWS ►►

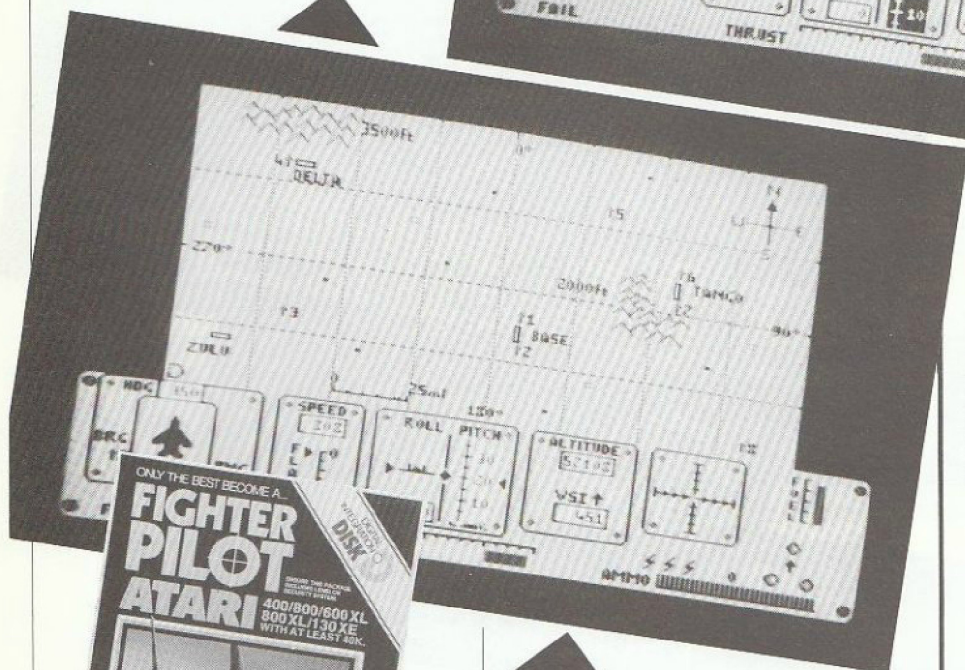
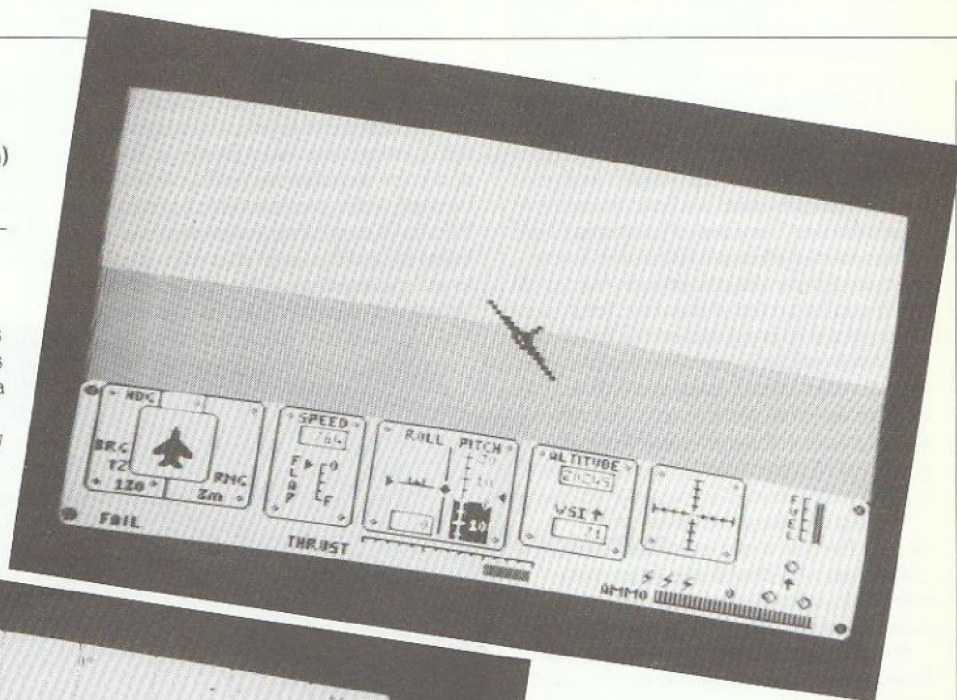
Fighter Pilot

Digital Integration

Cassette £9.95 Disk £12.95 48K (Min)

Having spent the best part of 10 minutes working out the loading code — an ingenious if not frustrating ploy by Digital to stop piracy — I started on my training mission.

Flight simulation type software has never been one of my favourites, that is until now — having recently been sent a copy of Fighter Pilot to review, I have been greatly surprised by its complexity and, in fact, have become quite a fanatic!



Fighter Pilot originally written for the Spectrum by Dave Marshall, co-owner of Digital, who was an ex-fighter pilot and flight simulator programmer. The game was also voted "simulation of the year" for 1984.

The game is based on the USAF F15 Eagle and is described as a spectacular flight simulator. The accuracy of the instrument panel on the F15 Eagle is excellent and includes a radar compass, to find the enemy which is a flashing dot moving around your own plane, as well as VSI (vertical speed

indicator) which gives your rate of climb and descent.

On loading the program you are confronted by 5 options, landing practice, flying training, blind landing, air to air combat practice as well as air to air combat.

The cockpit view can be replaced by a map showing where you are. The object in the final option is to defend 4 airfields with the codenames of BASE, TANGO, ZULU and DELTA. Location of the enemy is achieved by using your radar and flight computer. After combat any damage to your aircraft is shown by the change of colour of the aircraft symbol on your radar.

The noise from the cockpit sounds very authentic to me and I really was very impressed with the whole package. I shall certainly look forward to the next masterpiece from Messrs. Marshall and Swift — hopefully TOMAHAWK!!

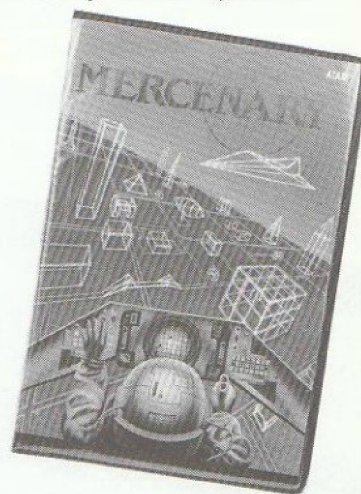
Mercenary Escape From Targ

by Novagen

Cassette £9.95, Disk £12.95

400/800 48K, 800XL/130XE 64K

Review by Matthew Tydeman.



After waiting a very long time for Mercenary to arrive from Novagen Software, it is now available and was well worth the wait! Both the disk and cassette versions of this simulation contain two separate games. The first is for the old 400/800 series and incorporates a low resolution, fast paced action game, whilst the second version is for the XL/XE series of computers and has high resolution, but rather jumpier graphics.

▶▶ REVIEWS REVIEWS ▶▶ REVIEWS REVIEWS ▶▶

You take the role of a 21st century soldier of fortune who has just crash landed on the planet Targ. This planet has two main 'tribes', the Palyars and the Mechanoids, who are both at each others throats. Your task is to simply escape from the planet! But how? There are quite a few options open to you when you begin this simulation, for example a ship is sighted on the ground in front of you (your old ship can be seen on the horizon, nose down in the mud) which just happens to be for sale and at a reasonable price too! Should you buy it? How do you buy it? That's for you to find out!

Help is at hand however, in the form of Benson a computerised policeman who doubles as a taxman, mechanic, sales assistant, comedian and alround helper. The total environment is represented on Bensons screen display. Using good old Benson you can buy that sleek good-looker of a ship and explore all of Targ. Patrol the area for a while and you may be offered a job by one of the inhabitants which could create new problems, even all out war between the Palyars and the Mechanoids.

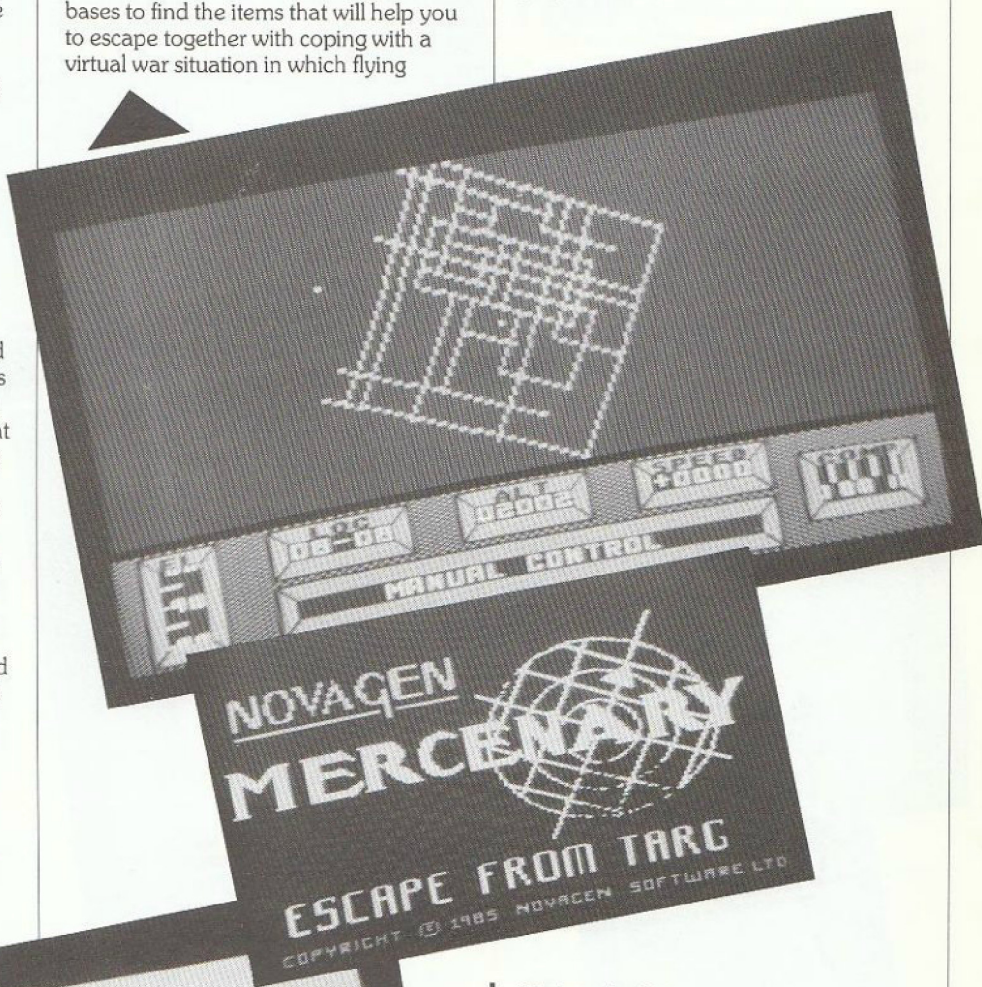
Mercenary boasts truly amazing graphics especially in the fast 48K version. When comparing the speed and graphics of Mercenary to a program like Flight Simulator 2, one can begin to appreciate how complex the coding in Mercenary must be. This game could literally take weeks to complete, which adds a great sense of realism to the program. As you cannot die, you could

play Mercenary for ever!

You may be saying to yourself that flying around the sky collecting a few bits and bobs sounds easy, well you would be right, it does sound easy, but it isn't. You have to get into the underground bases to find the items that will help you to escape together with coping with a virtual war situation in which flying

spaceships will attack you.

Mercenary is a very comprehensive adventure/simulation which will give long lasting enjoyment, combined with an original design which makes it a program hard to beat.



Sidewinder

from FUTUREWARE

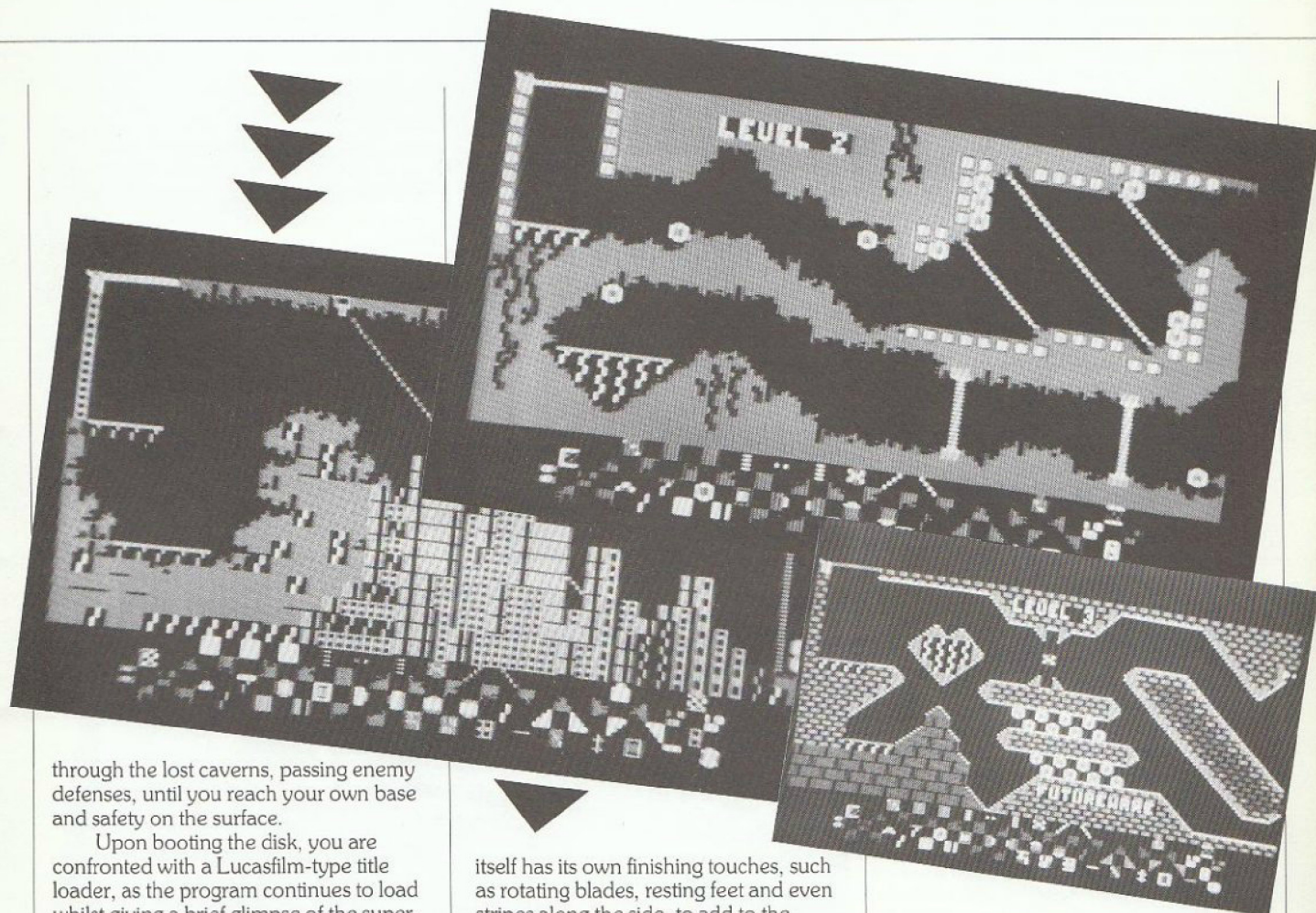
£14.95 48K Disk/48K Cassette £9.95

Advance Preview by Matthew Tydeman.

FUTUREWARE are about to launch you off into a world of challenging helicopter simulation, in their soon to be released SIDEWINDER — an action-packed program which is soon to hit your screen. This program, the first arcade-type game from FUTUREWARE, will give you full control over a Helicopter equipped with the latest technology. Strap yourself in and get ready for action!

You are the only survivor of a team of agents sent underground to capture the latest development in helicopter technology. The rest of your team were captured by enemy personnel in earlier missions. Your task is to fly SIDEWINDER

►►REVIEWS REVIEWS►REVIEWS REVIEWS►►



through the lost caverns, passing enemy defenses, until you reach your own base and safety on the surface.

Upon booting the disk, you are confronted with a Lucasfilm-type title loader, as the program continues to load whilst giving a brief glimpse of the super-techno helicopter you are about to encounter. In no time at all, the main title screen appears and is accompanied by some quite superb music, which I found mind blowing! Begin the game and you are launched into the unknown depths of the hidden caverns.

You are zoomed into a cluster of 3-Dimensional futuristic cities, landscapes and caverns through which you have to manoeuvre your super-heli by means of your joystick, by which device you also drop impact bombs and launch missiles. Moving mid-air floating mines, together with the narrow passages, make the task of moving through the scrolling caverns somewhat hard to master at first, but a little experience at being behind the stick of *SIDEWINDER* soon makes the game more manageable, giving you more time to spend on navigating your ship to the end of your first mission. Your second mission then begins, with the offering of harder screens, and yet more difficult objects to successfully pass!

All screens are well detailed with waterfalls, buildings, mountains and other almost impassable objects, making each level harder and harder as you go. The *SIDEWINDER* helicopter

itself has its own finishing touches, such as rotating blades, resting feet and even stripes along the side, to add to the futuristic look of this super-sonic chopper!

There is more to this program than meets the eye. Contained on the flip side of the disk/cassette comes the *SCROLLING EDITOR*, which was actually used to construct the game *SIDEWINDER* itself. The Editor contains features to scroll through five continuous screens (per level) which allows you to construct your own screens, in order to challenge yourself further if you find *SIDEWINDER* screens too easy! Not that you will, I think! Characters can be brought in from a pre-defined selection or by a set which you yourself made with the use of the built-in Character Editor (brought in at the press of a button). This allows you to experiment with different effects and shapes. Screens and character sets can be saved in order to incorporate them in a later program.

Colours can be changed on screen, making selection simple and convenient. A test mode can be selected so that you can try out the screen you've just made, before saving it to disk, or before making a final addition to one of your recently created masterpieces. The disk version loads separate screens/characters, whilst the cassette versions loads in both at the

same time from a single cassette.

The above points are perfectly good reasons for you to go out and buy this product as soon as it becomes available but, if you do require a few more deciding points, consider this: *FUTUREWARE* are offering an Atari Computer and Disk Drive to the person who designs the best 3 cavern screens with the *FUTUREWARE SIDEWINDER SCROLLING EDITOR* program! (Offer closes August 1986.)

Both *SIDEWINDER* and its Editor have proved to be simple to operate and understand. A lot of work has gone into it to make the operation simple and easy to get along with. I feel that the programmers have put a tremendous amount of work into getting this program the way it is - not just in simplicity but with the overall program.

This program, the first of many for *FUTUREWARE*, is certainly going to be a program with a difference for the Atari market. A game of this standard and variety is very rarely seen and deserves to do well when released.

Enjoyment, entertainment and the possibility of a free computer system cannot be bad for £14.95 - get it and get constructing!

▶▶REVIEWS REVIEWS▶▶REVIEWS REVIEWS▶▶

Goonies

Datasoft (U.S. Gold)
Cassette £9.95 Disk £14.95 48K

It is very enjoyable to be able to review so many very good new games which have recently been released for the ATARI - about time too, did I hear - let's hope there will be many more to come.

"GOONIES" is based on the story by Steven Spielberg - say no more! If you buy the cassette version, it is a good idea to have a pad and pencil handy, because the use of your tape counter (if you have one) plays a big part in the progression or otherwise to each scene or level.

The object of the game is to outwit the Fratelli gang, headed by MAMA and reach One-eyed Willy's Pirate Ship to find the treasure and then save the GOONIES families. The journey through to the 8th scene is thwarted with dangers - the GOONIES have to be manoeuvred as a team, sometimes only one character will be needed to enable you to reach the next scene, but more often than not, two or three are used to negotiate the perils which can be met in the underground chambers. The graphics of the various screen displays are very clever, although if you have played 'platform' type games before, you may find them easy - the chair and money help you through the first scene and lifts, avoiding other objects such as bats and crunching rocks, take you through to the steam scene - this one is not quite so easy - only manipulating the GOONIES as a team will you be able to get through each scene. No cheating, it is not possible to achieve this without using the

character featured in the particular scene. Mind you, I bet there is always one who can, has or will! Turning off the steam was not at all easy.

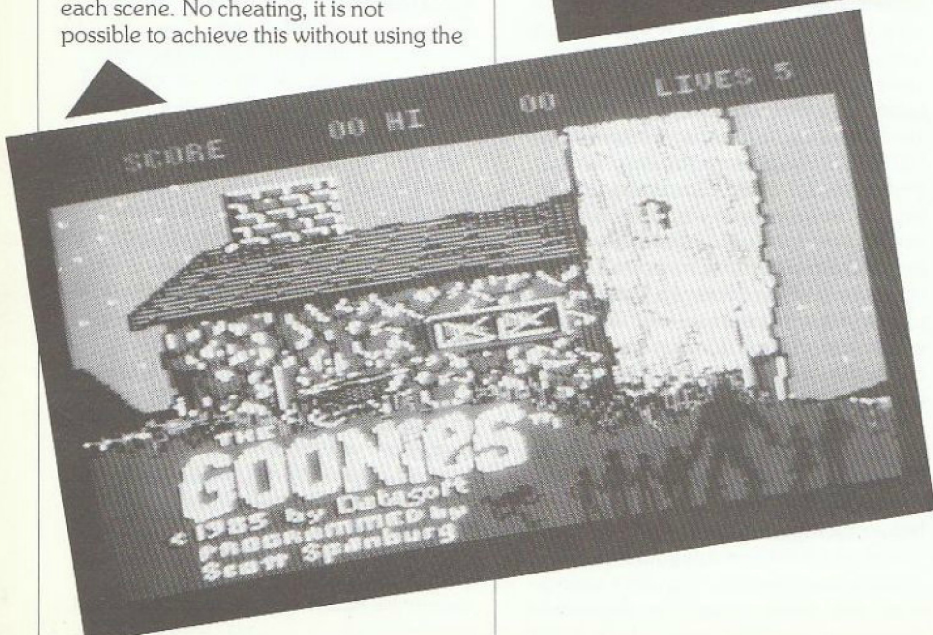
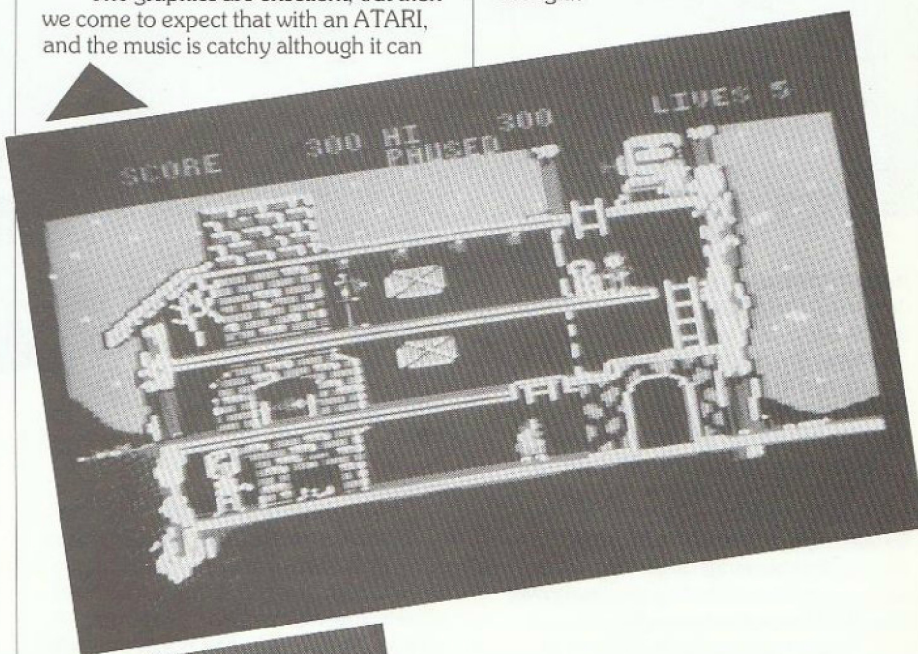
While being a most enjoyable game to play, strategy plays a big part in how successful you can become and how quickly you reach the treasure.

A GOONIE Hint Sheet in rhyme is included to help you on your way. Each GOONIE is moved independently, so when switching characters just press your fire button. You can gain three extra GOONIES after you have completed the Cannonball Chamber scene.

The graphics are excellent, but then we come to expect that with an ATARI, and the music is catchy although it can

be turned off by pressing 5!!

My only reservation about this game on cassette, is that each screen has to be loaded separately, which of course takes time, and if you do get "crunched" you have to return to the previous scene, and therefore have to rewind the tape to the exact spot - hence the use of your tape counter and note pad. Naturally, if you are lucky enough to have a disk drive, then loading or going back is done much quicker and easier. However, I did find the waiting a bit frustrating, other than that I think the game is great and am becoming quite an addict, still got to get the treasure though!!



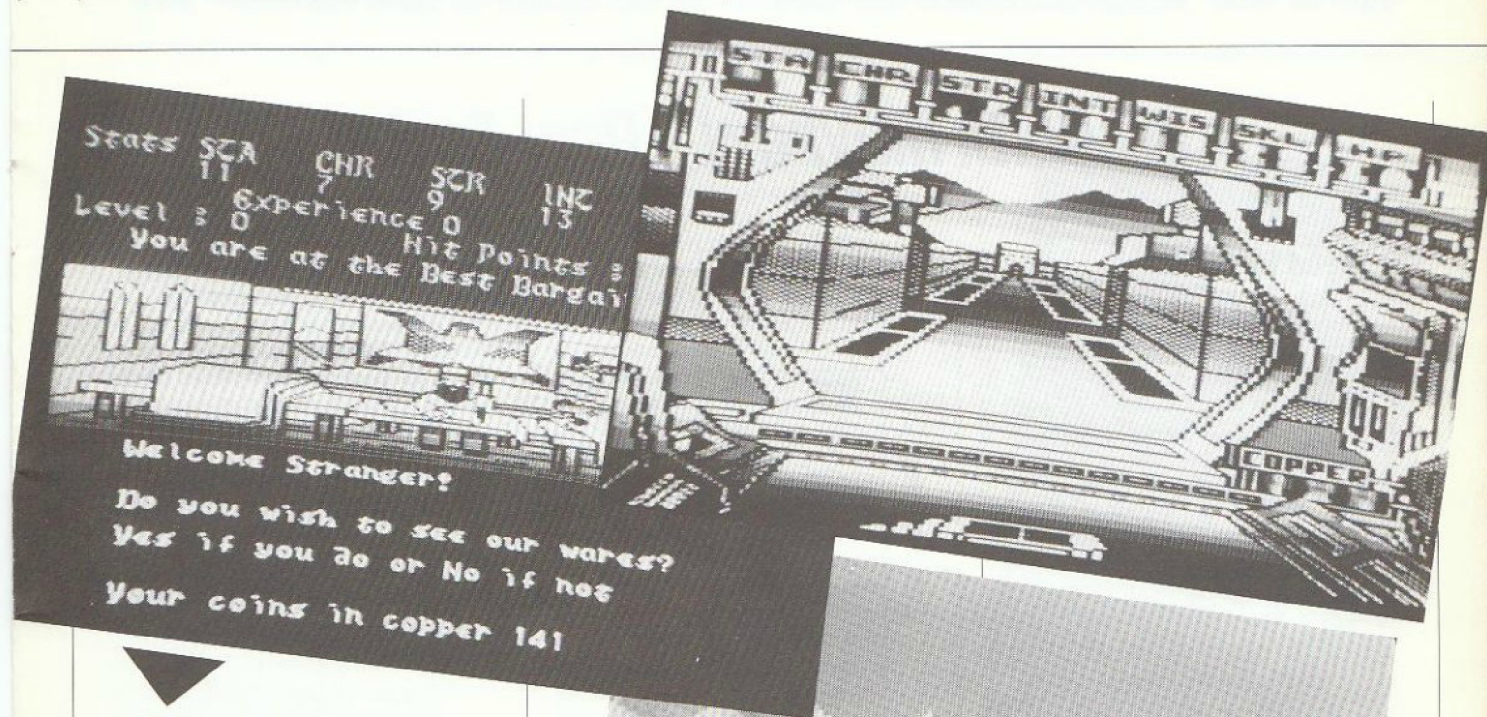
Alternate Reality The City

by Datasoft (U.S. Gold)
48K Disks, Price £19.95

An exciting new fantasy role playing game is to be released by U.S. Gold on the 5th of March. It is the first in the 'Alternate Reality' series and is titled 'The City'. There is to be six others in the series (which can only be played if you have a copy of City), the second is 'The Dungeon', followed by 'The Arena', 'The Palace', 'The Wilderness', 'Revelation' and 'Destiny'.

The package consists of two disks, one is the main master game disk and the other is the City game disk (you obviously need the main master disk for playing the games to come). In addition you need to use a blank formatted disk of your own to create Characters. You

▶▶ REVIEWS REVIEWS ▶▶ REVIEWS REVIEWS ▶▶



can play without this option but you will not be able to save a game.

You will need a joystick too, as the game uses a combination of keystrokes and joystick movements. A map of the City is also included showing the Floating Gate which is in the main square surrounded by many shops, taverns, inns, banks, smithies, healers and guilds. There are also secret passages which you will stumble across quite by accident.

And of course in any city you will find all sorts of inhabitants, and this one is no exception! There are the Poor and the Commoners who in the main are easy to get along with, there are Merchants, Couriers, Thieves, Noblemen, Imps and Dwarfs, Guards, Gladiators and Assassins, Mages and Wizards, and the dreaded Night Stalker, an extremely powerful beast that no one can be certain does not exist!

Well that's the City, but what are you doing there? The story goes that you were kidnapped from your safe abode on Terra Firma and whisked off to an 'Alternate Reality', all this is superbly shown in a fairly lengthy intro sequence (can be skipped) containing some of the best graphics I've seen for a long time. You really start when you are put down into the Gateway, which has only one exit, into 'The City of Xebec's Demise'. Above your head a panel of changing numbers will set your level of Stamina, Charm, Strength, Intelligence, Wisdom, Skill and Wealth as you pass into the City proper. So pick your entry time carefully to try and get the best ratings for yourself. Then all you have to do is survive.

Electraglide

The English Software Company
Cassette £8.95 Disk £12.95 48K

We have all been waiting a long time for a really new and exciting game for the ATARI computer and English Software have come up with one. Electraglide although by no means an easy game to play is similar to Pole Position or Baja Buggies. It is a very fast moving game giving a choice of three Continents, the tracks are similar but as the game is so fast it does not seem to matter.

Having chosen your Continent, there is also a choice of "steering control envelope", this selection depends on the type of joystick you use, the more sophisticated ones are not, in my opinion, very good for this game, a very light control is needed to speed around the track, through the tunnels and dodge the various obstructions on your way.

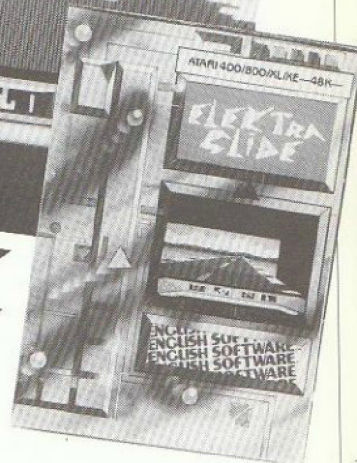
Each new section is reached through a tunnel but your progress is greatly hindered by bouncing missiles as well as a rocket, which drops very large columns onto the track — these

obstacles should be avoided at all costs as time is very important — each new section must be reached before the allotted time.

A display at the bottom of the screen shows a velocity indicator up to 60 units. When the countdown timer reaches 0 you have to start again. There are definitely 3 sections but so far I have not been able to see how many more there are — the road divides somewhere, so watch out!

The scrolling graphics are very good — and the music is equally enjoyable.

English Software describe this game as a "Fantasy Racing Epic" — well it comes very close!!!



CRACKING THE CODE

by Keith Mayhew Part Seven

The need for Pointers

To recap from the last issue, the two indexed-indirect modes we studied accessed their data through two-byte pointers stored in page zero of memory. The pre-indexed used the X register by adding it to the given address to create the actual address of the pointer which was then used indirectly, see Figure 1. Post-indexed used the Y register and indirected through the pointer first to give the base address of the area and then added on the Y register to give the final address, see Figure 2. The key

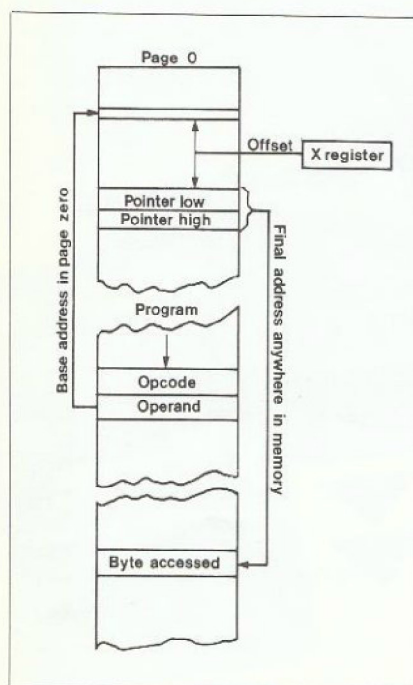


Figure 1. Pre-indexed e.g. LDA (\$CB,X)

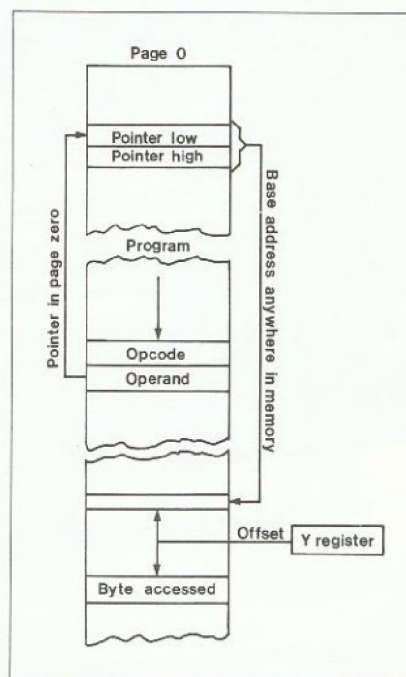


Figure 2. Post-indexed e.g. LDA (\$CB),Y

element to these addressing modes is, of course, their use of a pointer in accessing a byte of data; it is important that you understand their operation clearly as they are used very often when programming.

The first reason why a pointer can be used, is to overcome the limitation of the 6502's absolute-indexed modes. As the index registers are 8-bits long, only 256 bytes can be accessed from any given, absolute, base address; the solution is to save the base address in a page-zero pointer and then use an indexed-indirect mode. The idea here is

to change the pointer's value to access any byte we choose. We could use either the pre-indexed or the post-indexed addressing mode, the following shows the use of the pre-indexed mode to move a table of values:

```
LDX #0           ;Keep zero
                  ;index.
LOOP LDA (POINT1,X) ;Load a
                  ;byte.
      STA (POINT2,X) ;Save it.
      INC POINT1     ;Inc. low
                  ;pointer.
      BNE! SKIP1     ;Skip if not
                  ;zero.
      INC POINT1+1   ;Else inc.
                  ;high byte.
SKIP1 INC POINT2     ;Same for
                  ;second
                  ;pointer.
      BNE SKIP2
      INC POINT2+1
SKIP2 / /           ;Perform
      / /           ;some test.
      / /           ;"branch to" LOOP ;Go back if
                  ;more to
                  ;copy.
```

POINT1 and POINT2 are assumed to be in page zero and to have been initialised to point to the start of two areas of memory, or tables. The X register is kept at zero, otherwise we wouldn't be accessing the same pointer each time! Each time around the loop the 2 two-byte pointers are incremented by one and then some test is performed followed by a branch back to the start if more is to be copied; thus it is possible to

This time we conclude our study of the indexed-indirect modes and find out why they are useful! Having done that we will have covered all the 6502's instructions and addressing modes and will be free to explore the many features of the ATARI computers; further articles will be concerned with using the machine's resources from assembly language, such as controlling the graphics and sound hardware.

The operating system will also be covered to see how we can perform input/output operations; we will also be studying the use of interrupts and how the operating system employs them for a lot of its work.

move any size blocks of memory. The program could have used the Y register in a similar way, but the post-indexed mode can be faster and more flexible:

```

LDY #0           ;Start with
                  ;zero.
LOOP LDA (POINT1),Y ;Load byte.
  STA (POINT2),Y ;Save byte.
  INY           ;Inc. index.
  BNE SKIP1     ;Skip if not
                  ;zero.
  INC POINT1+1 ;Else inc.
                  ;high bytes
  INC POINT2+1 ;of pointers.
SKIP1 / /
      / /           ;Perform
      / /           ;some test.
      / /
      / /
      "branch to" LOOP ;Go back if
                        ;more to
                        ;copy.

```

This program will work a lot faster because less memory accesses are being performed in the loop. This time we increment the Y register instead of the low byte of the pointer to copy upto 256 bytes, once the Y register goes back to zero we simply increment the two high bytes of the pointers to move along another 256 bytes into each table. As you might have guessed, this post-indexed mode is used far more often than its pre-indexed counterpart on the basis of saving speed and bytes in the program, a useful consequence is that the Y register may be re-loaded with a new index, used, and then the old index restored, without having to touch the pointer.

Keeping Track

The second reason for using pointers, even when accessing 256 bytes or less, is that tables of data may not be in a fixed position in memory. Consider the problem of building several tables in memory, each of an undetermined size. You could start each table at a fixed address and then hope that one table doesn't overwrite the next, even if they don't you could well be wasting a lot of memory unnecessarily. The solution would be to set the pointer to the first table at the start of available memory, once built, the next free address would be stored as the pointer to the second table and so on, in this way the memory will be used more efficiently. A similar problem is when a subroutine has to be able to work on an arbitrary table, the calling program could simply save its pointer to its table into the subroutines pointer, and then call the subroutine.

Pointers are used by the Atari operating system for one main reason: the amount of memory in the system could be different. For instance, the screen memory in a 16K machine starts at a different place than that in a 48K machine, as a consequence a pointer is

kept to the start of the screen; it then doesn't matter to the operating system where the screen is actually located, it will always access it correctly. It should be stressed that it is bad programming practice to assume that some area of memory is fixed when it could in fact be in a different place (I have seen programs that were written for a 48K machine and when run on a 16K machine, although there was enough memory, a blank screen appeared because the screen memory had moved!).

Accessing the Screen

The reason why I have chosen to start with the screen is that it is an effective way of demonstrating the indexed-indirect accessing with instant visual results for you to relate to, and is a practical situation.

The short program I left you with last time (Listing 4), when run, showed all the possible 256 characters at the top of a graphics 0 screen. It did this by using the operating system pointer to the start of the screen, which is located at 58 hex, the Y register was used to index upto 256 locations into the screen, and at each location it stored the index value by transferring the Y into the accumulator.

The Screen Layout

Each of the standard graphic and text modes display a fixed number of bytes per line and fixed number of lines down the screen. In common with all these modes is a simple mapping from a contiguous memory area onto the physical screen. The first byte of the memory area is mapped to the top left hand part of the screen, the next byte is mapped to the right of the last one, and so on, until one complete line is displayed, the consecutive bytes are then mapped to the start i.e. left side, of the next line, and so on, until the whole picture is displayed. Figure 3 shows this mapping for a 40 byte by 24 line display, such as graphics 0, with the byte offsets to each screen position, from the start of the screen memory, in bytes, shown inside the positions.

	Start of screen memory			Byte offset into screen memory to position shown	
Line 1	0	1	2	38	39
Line 2	40	41	42	78	79
Line 3	80	81	82	118	119
...					
Line 22	840	841	842	878	879
Line 23	880	881	882	918	919
Line 24	920	921	922	958	959

Figure 3. Screen Layout

Character & Bit Mapping

The Atari hardware allows for two methods of displaying screens: character and bit mapped, the difference being how the bytes from memory are displayed; both have the effect of turning a set of picture elements, or physical pixels, into a particular colour on the screen. A pixel is the smallest addressable unit of the display.

In a character mapped mode, such as graphics 0, each byte read from memory causes a matrix of physical pixels to be set, in this case it covers an 8 by 8 pixel area. The exact pattern of the character is determined by the character set being used.

A bit mapped mode splits the byte into a number of bit groups, or fields, each with the same number of bits i.e. eight by 1 bit, four by 2 bits, two by 4 bits or one whole byte. Each group of bits then determines the state of one logical pixel on the screen. Note that a logical pixel is a group of physical pixels, which can be treated as an entity; because only the hardware addresses the physical pixels we will abbreviate the logical pixels we address to just pixels or points. The distinction is not very important, just as long as you understand that a group of bits in a byte are controlling the state of one area, of some dimension, on the screen. For example graphics 8 has 40 bytes per line and 192 lines per screen, each byte is split into eight bits, each bit either turns a pixel on or off (one colour or another), giving 40*8, or 320 pixels per line by 192 down.

Using a Bit Mapped Screen

Listing 1 accesses the bit mapped screen of graphics 8 via the operating system pointer at 58 hex, used for all modes, to produce a random moving pattern.

CONSOL and RANDOM are labels set up to access special locations in the hardware, all you need know for now is that reading from CONSOL gives the status of the START, SELECT and OPTION keys and reading from RANDOM produces a 'random' 8 bit number. SAVMSC is the name given to the pointer to the start of the screen memory. PZERO and TEMP are variables used by the program, they have been assigned the values of \$CB and \$CD respectively. Straight forward equates could have been given e.g. PZERO = \$CB, but instead I have set the location counter to \$CB and defined the label PZERO. *= *+2 assigns the value of the location counter, *, plus two back to the location counter, thus moving it forwards by two, the same occurs for TEMP, giving it the value of \$CD. This forward movement of the location counter is often referred to as 'define space' and on some assemblers there is a special directive to perform this

0100	CONSOL	=	\$D01F	;Read START/SELECT/OPTION.	0360	STA	PZERO
0110	RANDOM	=	\$D20A	;Random number generator.	0370	LDA	PZERO+1 ;Add high byte.
0120	SAVMSC	=	\$58	;Screen pointer.	0380	ADC	TEMP+1
0130	*=	\$CB	;Start of variables.	0390	STA	PZERO+1	
0140	PZERO	*=	++2	;Pointer to screen.	0400	ASL	TEMP ;Multiply TEMP
0150	TEMP	*=	++2	;Temporary locations.	0410	ROL	TEMP+1 ; by 4
0160	*=	\$0600	;Start of program.	0420	ASL	TEMP ; to give 32 times	
0170	PLA		;Clean up stack.	0430	ROL	TEMP+1 ; as total.	
0180	START	LDA	SAVMSC ;Copy low byte	0440	LDA	PZERO ;Add to PZERO again.	
0190	STA	PZERO	; of pointer.	0450	CLC		
0200	LDA	SAVMSC+1	;Same with high.	0460	ADC	TEMP	
0210	STA	PZERO+1		0470	STA	PZERO	
0220	NEWY	LDA	RANDOM ;Get random number.	0480	LDA	PZERO+1 ;Add high byte	
0230	CMP	#192	;If 192 or more	0490	ADC	TEMP+1 ; to give 40*Y value.	
0240	BCS	NEWY	; get another one.	0500	STA	PZERO+1	
0250	STA	TEMP	;Save as low byte of Y.	0510	NEWX	LDA	RANDOM ;Another random number.
0260	LDA	#0		0520	AND	#3F ;Zero top 2 bits.	
0270	STA	TEMP+1	;Zero high byte.	0530	CMP	#40 ;If 40 or more	
0280	LDX	#3	;Count of 3.	0540	BCS	NEWX ; get another.	
0290	MULT8	ASL	TEMP ;Multiply by 2...	0550	TAY	;Save as index into line.	
0300	ROL	TEMP+1		0560	LDA	RANDOM ;Another random number.	
0310	DEX		;Dec. count and branch	0570	STA	(PZERO),Y;Save on screen.	
0320	BNE	MULT8	; to give 8 times TEMP.	0580	LDA	CONSOL ;Test buttons.	
0330	LDA	PZERO	;Add low byte to PZERO.	0590	CMP	#7 ;All up?	
0340	CLC			0600	BEQ	START ;Yes - go again.	
0350	ADC	TEMP		0610	RTS	;Else return to BASIC.	

Listing 1.

operation. The advantages of this method are that you can instantly see how many bytes are intended for each storage area, two in this case, and that you do not have to do any calculations for the value of each label, lastly the whole block can be moved to another area by simply changing the origin value before the labels — a great time saver if there are a lot of variables!

Now onto the program. The code starts at 600 hex, the first thing done is to remove the byte BASIC gave us on the stack. So as not to change the contents of SAVMSC, the two-byte pointer is copied into PZERO and PZERO+1. A random number is then loaded into the accumulator and tested against the number of lines down our screen — if it is greater than or equal to 192 then another number is picked, when the loop is finished A will contain a number between 0 and 191 inclusive.

This Y co-ordinate is then saved in TEMP and the high byte of TEMP (TEMP+1) is zeroed, the code from lines 280 to 500 then multiplies this Y value by 40, the number of bytes per line, to give the offset to the start of the given line, which is then added to our pointer to the start of the screen, PZERO.

For speed and convenience the method by which TEMP is multiplied by 40 is to multiply it by 8, add it onto PZERO, and then to multiply TEMP by a further 4 to give a total of 32 times which

is also added to PZERO. The 8 times TEMP plus the the 32 times TEMP gives the 40 times TEMP we needed to add PZERO. The multiplications are all

```
QZ 10 DIM HEX$(16)
CV 20 LINE=10000:TRAP 100:J=0:START=1536
VA 30 READ HEX$,CHKSUM:SUM=0
AA 40 FOR I=1 TO 15 STEP 2
ZG 50 D1=ASC(HEX$(I,1))-48:D2=ASC(HEX$(I+
1,I+1))-48
KT 60 NUM=((D1-7*(D1>16))*16+(D2-7*(D2>16
)))
LW 70 SUM=SUM+NUM:POKE START+J,NUM:J=J+1:
NEXT I
LY 80 IF SUM=CHKSUM THEN LINE=LINE+10:GOT
O 30
IN 90 ? "Checksum error on this line:"
VO 95 LIST LINE:END
YS 100 PRINT "Data in memory."
TB 10000 DATA 68A55885CBA55985,1080
KF 10010 DATA CCAD0AD2C9C0B0F9,1415
LK 10020 DATA 85CDA90085CEA203,1011
XV 10030 DATA 06CD26CECAD0F9A5,1279
WF 10040 DATA CB1865CD85CBA5CC,1238
TG 10050 DATA 65CE85CC06CD26CE,1099
RB 10060 DATA 06CD26CEA5CB1865,148
MN 10070 DATA CD85CBA5CC65CE85,1350
PO 10080 DATA CCAD0AD2293FC928,942
DI 10090 DATA B0F7A8AD0AD291CB,1332
JG 10100 DATA AD1FD0C907F0AA60,1126
```

Listing 2.

performed on TEMP and TEMP+1 using shift and rotate operations, multiplying by two each time.

Another random number is now loaded, but this time it has to be between 0 and 39, so we compare it to 40 and get another number if the carry is set. To speed the selection process, the top two bits of the random number are zeroed by AND with a mask of 00111111 or \$3F, giving a number between 0 and 63, thus more of a chance it will be in the right range (15% verses 63% in theory!). This value is used as the byte index into the selected line and is moved to the Y register. Yet another random number is loaded and the 8 bit pattern is stored into the selected byte of the screen, pointed at by PZERO and offset by the Y register. By changing the byte, 8 pixels will set to on or off in that area. Lastly the program loads the value of CONSOL and checks it against 7 (all keys up), if it is equal the program starts again, otherwise it stops and returns to BASIC.

To run the program either type in the BASIC program, Listing 2, or assemble the source code of Listing 1 and load the object code. Once the program is loaded, from 1536 onwards, it can be run by typing:

GR.24:X=USR(1536) from BASIC. If the screen fills up with random rubbish, don't worry: that means the program is working! To abort it press either the START, SELECT or OPTION key.

BASIC Loaders

To finish this time we have five BASIC programs, the one last time read a binary file from disk or tape into memory, these five are short utilities to create data and to read data for use in a BASIC program.

Listing 3 asks for a device to write its file to, again, for cassette use C:, and for disk D: followed by a filename. It will then ask you for four more decimal numbers. Assuming you have got assembled code sitting in memory, the program will create a file containing line numbers and DATA statements. The data in the area you specified by the start and end addresses will be placed after the DATA statements and the line numbers will start at the number you gave and increment by the number you gave. The program will then tell you how many bytes had been read from memory. The file, once created, can then be ENTERed over any existing BASIC program which can then read in the data, such as Listing 4, note that if you know how many bytes are to be read it is easier to use a FOR/NEXT loop.

Listings 5 and 6 are similar to those in 3 and 4. Listing 5 makes a file of DATA statements but lists its data in strings of hex characters, which can then be read by a program such as that in Listing 6. If you haven't got an assembler then listing 6 is particularly useful as you will be able to write hex characters on the DATA statement lines in the following way:

```
10000 DATA A460FF458296D51ABC579830
```

The twenty-four characters represent the twelve hex numbers to be placed in consecutive locations, you could write more or less characters per line, but this is the number of data which Listing 5 generates. Lastly, Listing 7 creates a file containing a string dimension and then some string assignments. If any quote or carriage return characters are found, then separate assignments are made for them using the CHR\$ function. If you use this method you must make sure that the program which is placed in the string, MC\$, is relocatable e.g. there are no jump, or jump to subroutine, instructions as the program will crash. To call the code in a string use the string address function:

```
X=USR(ADR(MC$))
```

Hopefully I have covered enough short utilities in BASIC for most of your purposes and it shouldn't be too difficult to modify the routines to suit your own needs.

Next time we will start a detailed examination of the hardware and operating system facilities.

```
XQ 10 DIM FILE$(14)
FW 20 ? "Please enter device/file name"
CH 30 ? "for output..."
AR 40 INPUT FILE$
LY 50 OPEN #1,8,0,FILE$
GK 60 ? "Please enter start address..."
ZM 70 INPUT ST
YS 80 ? "Please enter end address..."
RQ 90 INPUT EN
GB 100 ? "Please enter starting line..."
IC 110 INPUT LIN
WM 120 ? "Please enter line increment..."
DU 130 INPUT INC
ZB 140 CH=0
MH 150 FOR I=ST TO EN
DV 160 IF CH=0 THEN PRINT #1;LIN;" DATA "
;
DP 170 IF CH=7 OR I=EN THEN PRINT #1;PEEK
(I);GOTO 190
RJ 180 PRINT #1;PEEK(I);",";
VC 190 CH=CH+1;IF CH=8 THEN CH=0;LIN=LIN+
INC
FS 200 NEXT I
LA 210 CLOSE #1
GF 220 ? "Number of data = ";EN-ST+1
```

Listing 3.

```
DU 10 TRAP 40:LOC=1536
QH 20 READ NUM;POKE LOC,NUM
DF 30 LOC=LOC+1;GOTO 20
YS 40 END
```

Listing 4.

```
NZ 10 DIM FILE$(14),HEX$(24),CONV$(16)
HL 20 CONV$="0123456789ABCDEF"
FX 30 ? "Please enter device/file name"
CI 40 ? "for output..."
AS 50 INPUT FILE$
LZ 60 OPEN #1,8,0,FILE$
GL 70 ? "Please enter start address..."
ZN 80 INPUT ST
YT 90 ? "Please enter end address..."
UJ 100 INPUT EN
GD 110 ? "Please enter starting line..."
IE 120 INPUT LIN
WD 130 ? "Please enter line increment..."
DW 140 INPUT INC
JI 150 LN=EN-ST+1;LOC=ST
GO 160 NUM=12;HEX$=""
GE 170 IF NUM>LN THEN NUM=LN
MA 180 FOR I=1 TO 2*NUM STEP 2
IM 190 X=PEEK(LOC)
YY 200 D1=INT(X/16);D2=X-D1*16
PH 210 HEX$(I,I)=CONV$(D1+1,D1+1);HEX$(I+
1,I+1)=CONV$(D2+1,D2+1)
HH 220 LOC=LOC+1
FY 230 NEXT I
WP 240 PRINT #1;LIN;" DATA ";HEX$
RC 250 LIN=LIN+INC;LN=LIN+12
MG 260 IF LOC<=EN THEN 160
GP 270 ? "Number of data = ";EN-ST+1
LO 280 CLOSE #1
```

Listing 5.

```
QK 10 DIM HEX$(24)
DE 20 TRAP 100:LOC=1536
BS 30 READ HEX$
VK 40 FOR I=1 TO LEN(HEX$) STEP 2
ZG 50 D1=ASC(HEX$(I,I))-48:D2=ASC(HEX$(I+
1,I+1))-48
KT 60 NUM=((D1-7*(D1>16))*16+(D2-7*(D2>16
)))
VO 70 POKE LOC,NUM;LOC=LOC+1
IW 80 NEXT I
SI 90 GOTO 30
NQ 100 END
```

Listing 6.

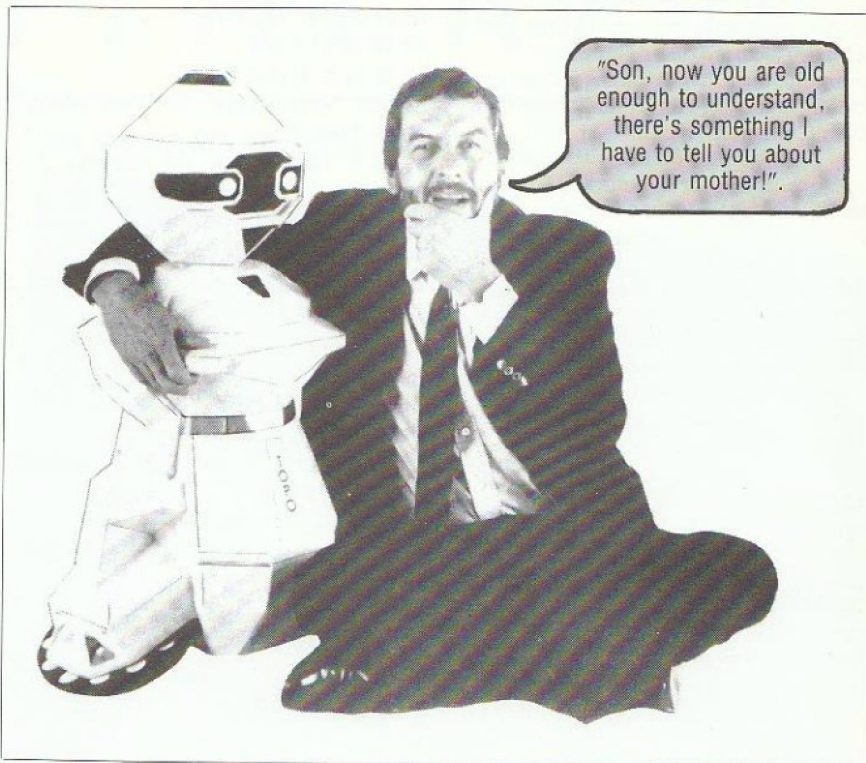
```
JK 10 DIM FILE$(14),CRS(50),QTS(50)
FW 20 ? "Please enter device/file name"
CH 30 ? "for output..."
AR 40 INPUT FILE$
LY 50 OPEN #1,8,0,FILE$
GK 60 ? "Please enter start address..."
ZM 70 INPUT ST
YS 80 ? "Please enter end address..."
RQ 90 INPUT EN
GB 100 ? "Please enter starting line..."
IC 110 INPUT LIN
WM 120 ? "Please enter line increment..."
DU 130 INPUT INC
SS 140 LN=EN-ST+1
JH 150 PRINT #1;LIN;" DIM MC$(";LN;")"
WR 160 PSS=1;PSE=50;FIN=0
LV 170 CR=0;QT=0;LIN=LIN+INC
FJ 180 IF PSE>LN THEN PSE=LN;FIN=1
GZ 190 PRINT #1;LIN;" MC$(";PSS;",";PSE;
)";:PUT #1,34
AL 200 FOR I=PSS TO PSE
DH 210 X=PEEK(ST+I-1)
UN 220 IF X=34 THEN QT=QT+1;QTS(QT)=I;X=3
2
CK 230 IF X=155 THEN CR=CR+1;CRS(CR)=I;X=
32
SB 240 PUT #1,X
GC 250 NEXT I
BZ 260 PUT #1,34;PUT #1,155
GS 270 IF QT THEN GOSUB 320
GF 280 IF CR THEN GOSUB 370
VU 290 IF NOT FIN THEN PSS=PSS+50;PSE=PS
E+50;GOTO 170
KZ 300 CLOSE #1
NU 310 END
ZA 320 X=34
HZ 330 FOR I=1 TO QT
ZA 340 P=QTS(I);GOSUB 420
GD 350 NEXT I
ZL 360 RETURN
RN 370 X=155
YL 380 FOR I=1 TO CR
VA 390 P=CRS(I);GOSUB 420
FU 400 NEXT I
ZC 410 RETURN
ZY 420 LIN=LIN+INC
FD 430 PRINT #1;LIN;" MC$(";P;",";P;")=CH
R$(";X;")"
ZI 440 RETURN
```

Listing 7.

2 in 1 Competition Result

The answers came flooding in for the competitions published in issue 10 of Monitor. There were two competitions, the first was to caption the picture shown here, and the second was to guess the name of the celebrity and give his Atari connection. There were some interesting guesses which included Sam Tramiel, Jack Tramiel (we were surprised at that one, we thought everybody knew what Jack looked like!), and Mr. Warner (Warner Bros!). The correct answer is Nolan Bushnell who founded Atari and marketed the first home video game, which was called 'Pong'. The first out of the hat with the winning answer was Mr. D. Goodyear from Abingdon in Oxfordshire. Congratulations Mr. Goodyear, we hope you find a good use for your prize. The caption competition was a close run thing, several good entries were received and the final choice came down to two. Kerry Masefield, from Leeds, wrote: "I wonder if they will be able to tell which one of us is the Robot?", which was very good but was just piped by the winning entry, which was sent in by Matthew Taylor, from Newhaven, East Sussex. His caption read: "Son, now you are old enough to understand, there's something I have to tell you about your mother!".

COMPETITION RESULT



From...

Computer Support "THE UTILITY SPECIALISTS"

A fine selection of software and hardware directly from its makers Something for every ATARI enthusiast*

ULTIMON!

A built in machine code monitor capable of stopping any program on the fly, functions include: DISPLAY/ALTER REGISTERS/MEMORY, MOVE MEMORY, FIND STRING, SINGLE STEP, DISASSEMBLE MEMORY, FORMAT DISK, READ FROM DISK, WRITE TO DISK, and many more. This is the most powerful and the lowest priced on-board monitor available for the ATARI*, don't take our word for it, try one!

£49.95

80 COLUMN PACK!

A built in 80 COLUMN text mode, enabled by holding the [SELECT] key down during powerup. Great for word processors, works on a normal TV. Compatible with most software.

£69.95

TRIPLER!

A high quality printed circuit board allowing the ATARI* XL/XE range to have 3 separate operating systems on one machine, selectable before powerup. Very easy installation.

NEW £19.95

XOS

A completely revised operating system for the ATARI* XL/XE range. Compatible with more software than the original XL/XE O.S. with XOS you'll probably never have to use the TRANSLATOR again. XOS also has some totally unique functions including: CARTRIDGE OVERRIDE, FORCED WARMSTART, ANTI-COLDSTART, FASTER CASSETTE, HOLD [OPTION] TO ENABLE BASIC, and many more. **XOS comes free with 80 COLUMN PACK and ULTIMON (XL/XE versions only).**

XOS TRANSLATOR

The operating system described above in the form of a TRANSLATOR. This means you can have all the functions of XOS when you want them.

NEW £9.95

THE GAP!

Fill the 4K gap in your 400/800 with this hardware modification, once fitted to a 48K machine there will be 52K of user RAM. Can be used on 16K & 32K machines. Plug in installation.

£29.95

OVER-WRITE!

Use the other side of all your disks, also saves removing the write protect label on a disk you simply want to update. Installation very simple.

NEW LOW PRICE £7.95

ROM EMULATOR!

Develop and debug cartridge software quickly and effectively, just write to a specific location then the cartridge RAM area becomes ROM, can also be used to backup cartridges. For 8K & 16K programs, can be switched out if not required.

NEW LOW PRICE £19.95

BAD SECTOR

A hardware modification. Write bad sectors to any disk, can be used for custom creation of bad sectors or to backup some protected disks. Comes complete with sector writer and speed checking software.

£19.95

PORTPRINT

Run a standard centronics compatible parallel printer from the joystick ports. Includes a relocatable handler, runs with most boot programs. Complete with lead.

£29.95

PRINTER INITIALISER

An autorun/batch file that automatically flushes the printer and presets printer defaults, such as font styles etc. Completely reprogrammable.

NEW £9.95

SUPER DISASSEMBLER

Disassemble any disk, cassette or cartridge. Uses XL system labels, separate input to pre-determine data bytes. The end result file can be customised then re-assembled using an assembler.

£24.95

FILE LOADER

A self booting menu and mini DOS system which purely loads files, saves at least 60 sectors on every disk.

NEW LOW PRICE £8.95

*BOOT LOADER

A self booting menu, compacts disks and cassettes to a file format, can be written to any disk. Utilities include: TAPE to DISK, DISK to TAPE, DISK to DISK.

£14.95

*DISK BACKUP

Density smart, fully automatic.

NEW LOW PRICE £9.95

*128K DISK BACKUP

Same as above but specifically for the extra memory of the 130XE.

NEW LOW PRICE £12.95

* Sold subject to not infringing Copyright.

OTHER PRODUCTS AVAILABLE: MAILING LIST £12.95, BIORHYTHMS £7.95, ZAPPING ZOMBIES £6.95, UTILITY PAC ONE £8.95, UTILITY PAC TWO £8.95, UTILITY TAPE ONE £7.95, MACRO LIBRARY £12.95, CARTRIDGE BACKUP £15.95, CASSETTE BACKUP £9.95 and SERIAL I/O PLUG £2.99

DEALER ENQUIRIES WELCOME

We are continually adding new and exciting products to our range please send S.A.E. for more details. ATARI* is a trademark of ATARI CORPORATION

Mail order only, to order send cheque or postal order to:

COMPUTER SUPPORT LTD

26 Seacourt Road, Abbey Wood, London SE2 9UW

Tel: 01-311 7339

All prices include postage & packing. Same day dispatch.

Hexadecimal Code Generator

Runs on Disk systems only

by Steve Hillen.

This program has been designed to produce hexadecimal BASIC listings from a machine code object file. The output listing generated by this program is in the same form as Happy Typer, Nightmare Reflections and PCB Paranoia (Issues 8,9 and 10 respectively), and the assembly games found in such magazines as Analog.

You can only use this program with machine code binary object files, such as one produced by an assembler. Once you have created an object file, run Listing 1 from BASIC. It will first remind

you that the object file must start on a page boundary (This is so that the cassette-boot information is correct). Then it will ask for the title of the program you have written, this will appear in line 10 of the finished BASIC program. Then you must type in the disk filename of the object file you are using, making sure that it is not a compound file. Finally, the program will ask you for the run address of the object file. Type this in decimal.

Once you have done all this, the

program will output a file, HEX.LST in ASCII of all the BASIC data statements needed to create new versions of your object file. To complete the final BASIC program, load up Listing 2 and then ENTER HEX.LST over the top. The two programs will merge and form a BASIC listing like that of PCB Paranoia.

This final BASIC program can now be used to create cassette-bootable tapes or Autorun.Sys files of your original machine code file. And, if it's good enough, you may get it printed in an Atari magazine.

Listing 1

```
AT 0 ? "Binary file-->Analog style Basic"
ZF 10 ? "File must start on page boundary
":?
KG 20 DIM HEX$(16),HI$(1),LO$(1),DISK$(14)
):HILO=1000:DIM DSK$(14):DISK$(1,2)="D
":DIM NAME$(35)
VJ 30 HEX$="0123456789ABCDEF"
IA 40 ? "What name for the program ";:INP
UT NAME$
TL 50 ? "What input filename ";:INPUT DSK
$:DISK$(3,14)=DSK$
FW 60 ? "What is the run address in decim
al ";:INPUT START
XJ 70 OPEN #1,4,0,DISK$:OPEN #2,8,0,"D:HE
X.LST"
ZW 80 ? #2;"10 REM ";NAME$;? #2
KO 90 V=START:GOSUB HILO
KZ 100 ? #2;"150 PUT#1,224:PUT#1,2:PUT#1,
225:PUT#1,2:PUT#1,";VLO;":PUT#1,";VHI;
":CLOSE#1:END"? #2
ED 110 ? #2;"190 ";
GZ 120 GET #1,A:GET #1,B:GET #1,C:GET #1,
D:GET #1,E:GET #1,F
UQ 130 TOP=E+256*F+1:LENGTH=TOP-(C+256*D)
+40
AT 140 V=45*INT((E+256*F-C-256*D+44)/45)+
C+D*256-1:GOSUB HILO
SI 150 ? #2;"PUT#1,";A;":PUT#1,";B;":PUT#
1,";C;":PUT#1,";D;":PUT#1,";VLO;":PUT#
1,";VHI;":GOTO 210"? #2
ET 160 ? #2;"230 DATA 0,";INT((LENGTH+127
)/128),"216,";D-1,"255,";D-1,"169,0
,141,68,2,169,60,141,2,211,169,";
XP 170 V=TOP:GOSUB HILO
TZ 180 ? #2;VLO;","141,231,2,133,14,169,";
VHI;","141,232,2"? #2;? #2;"240 DATA 1
33,15,169,";
QL 190 V=START:GOSUB HILO
XE 200 ? #2;VLO;","133,10,169,";VHI;","133,
11,24,96"? #2
```

```
OH 210 LINE=1000
VW 220 TRAP 320: ? #2;LINE;" DATA ";
VV 230 FOR I=1 TO 45
CA 240 GET #1,BYTE
EN 250 HI$(1)=HEX$(INT(BYTE/16)+1)
KY 260 LO$(1)=HEX$(BYTE+1-16*INT(BYTE/16)
)
VH 270 ? #2;HI$;LO$;
LZ 280 SUM=BYTE+SUM:IF SUM>999 THEN SUM=S
UM-1000
GK 290 NEXT I
MW 300 ? #2;" ";SUM
XQ 310 LINE=LINE+10: ? #2;GOTO 220
LD 320 CLOSE #1
XO 330 IF I=1 THEN 360
LA 340 ? #2;"00";:I=I+1:IF I<46 THEN 340
NG 350 ? #2;" ";SUM
MF 360 ? #2;CLOSE #2:END
DV 1000 VHI=INT(V/256):VLO=V-256*VHI:RETU
RN
```

Listing 2

```
YT 20 TRAP 20: ? "MAKE CASSETTE (0) OR DIS
K (1)";:INPUT DSK:IF DSK>1 THEN 20
UK 30 TRAP 40000:DATA 0,1,2,3,4,5,6,7,8,9
,0,0,0,0,0,0,10,11,12,13,14,15
LI 40 DIM DAT$(91),HEX(22):FOR X=0 TO 22:
READ N:HEX(X)=N:NEXT X:LINE=990:RESTOR
E 1000:TRAP 120: ? "CHECKING DATA"
JG 50 LINE=LINE+10: ? "LINE ";LINE:READ DA
T$:IF LEN(DAT$)<>90 THEN 220
UU 60 DATLINE=PEEK(183)+256*PEEK(184):IF
DATLINE<>LINE THEN ? "LINE ";LINE;" MI
SSING!":END
LY 70 FOR X=1 TO 89 STEP 2:D1=ASC(DAT$(X,
X))-48:D2=ASC(DAT$(X+1,X+1))-48:BYTE=H
EX(D1)*16+HEX(D2)
FG 80 IF PASS=2 THEN PUT #1,BYTE:NEXT X:R
EAD CHKSUM:GOTO 50
BG 90 TOTAL=TOTAL+BYTE:IF TOTAL>999 THEN
TOTAL=TOTAL-1000
LR 100 NEXT X:READ CHKSUM:IF TOTAL=CHKSUM
THEN 50
MO 110 GOTO 220
ZR 120 IF PEEK(195)<>6 THEN 220
EQ 130 IF PASS=0 THEN 170
MY 140 IF NOT DSK THEN 160
DM 150 PUT #1,224:PUT #1,2:PUT #1,225:PUT
#1,2:PUT #1,X:PUT #1,X:CLOSE #1:END
IJ 160 CLOSE #1:END
IS 170 IF NOT DSK THEN 200
GO 180 ? "INSERT DISK WITH DOS, PRESS RET
URN";:DIM IN$(1):INPUT IN$:OPEN #1,8,0
,"D:AUTORUN.SYS"
SW 190 PUT #1,255:PUT #1,255:PUT #1,X:PUT
#1,X:PUT #1,X:PUT #1,X:GOTO 210
SD 200 ? "READY CASSETTE AND PRESS RETURN
";:OPEN #1,8,120,"C;":RESTORE 230:FOR
X=1 TO 40:READ N:PUT #1,N:NEXT X
QS 210 ? ; ? "WRITING FILE":PASS=2:LINE=99
0:RESTORE 1000:TRAP 120:GOTO 50
MI 220 ? "BAD DATA: LINE ";LINE:END
```


800XL BASIC Disabler

For those of you who load binary files with an AUTORUN.SYS menu loader, this explanation of how to boot them without holding down the OPTION key will be of great interest.

The XL series enables and disables BASIC at address \$D301, decimal 54017. The old 400/800 series uses this address for input from joyports 3 and 4. The XL series uses this for a variety of different things, for example bit 0 at hex \$D301 says the operating ROM is active or you are using RAM below it. Bit 1 says BASIC is enabled or disabled. One of the other bits tells if the diagnostic ROM is enabled or disabled. The normal values for \$D301 are \$FF (BASIC disabled) and \$FD (BASIC enabled). All we have to do is add some instructions to the loader program to access RAM not BASIC, thus elevating the need to hold down the OPTION

button to load binary files. If you are 'into' machine code you could try the following:
LDA #\$FF, STA \$D301

Since Atari files can have multiple segments (each having their own start and run address) and all files start with two \$FF bytes, you could specify that a file starts at \$D301 and ends at \$D301, and consists of only one byte \$FF. This would put an \$FF byte at \$D301, enabling RAM and disabling BASIC.

However, there is an easier way! The first way is to boot a DOS 2.0S disk whilst holding down the OPTION key (for the last time), then place an AUTORUN.SYS file in the drive. Now hit the 'E' option to rename the loader, e.g.:
AUTORUN.SYS, AUTORUN.OLD. Next hit the 'K' option to binary save AUTORUN.SYS at a starting address of D301 and ending address of D301, e.g.

AUTORUN.SYS, D301, D301. Finally, hit the 'C' option to copy a file. This will be used to append AUTORUN.OLD to the just saved AUTORUN.SYS file, e.g.:
AUTORUN.OLD, AUTORUN.SYS/A.

The second way is to use a similar procedure using OSA+ or DOS XL. Once again you boot the DOS whilst holding down OPTION and on DOS XL you hit 'Q' for the menu. Put an AUTORUN.SYS file into your drive and type:

RENAME AUTORUN.SYS, AUTORUN.OLD
then type:
SAVE AUTORUN.SYS D301 D301.

After that type:
COPY -AF AUTORUN.OLD AUTORUN.SYS
and you should then have an AUTORUN.SYS that will load any binary file without holding down OPTION.

HOT GOSSIP

● Atari Smash Hits Vol. 4 is now available for the 400/800/XE/XL 48K and includes: CHOP SUEY, FIRE CHIEF, KISSIN' KOUSINS and HIJACK - very good value for money - Volumes 1, 2 & 3 are all well worth buying too. Cassette £9.95, Disk £12.99.

● If you enjoyed SPY v SPY then you will be pleased to know DATABYTE have released SPY v SPY II (The Island Caper). It should be in your shops now, both on cassette £9.99 and disk £14.99, for all ATARI computers with a minimum of 48K.

● By now you will probably have bought RESCUE ON FRACULAS, seen BALL-BLAZER, read about KORONIS RIFT, well here we go again, EPHYX/LUCASFILMS have come up with yet another fine piece of software. ACTIVISION have given us THE EIDOLON a mysterious 19th Century machine crafted of wood and brass, and powered by the forces of magic - dragons, trolls and jewels, what more can you ask for - it is great. 800XE/XL 64K only Disk £14.99.

● Two other new games available now are ZORRO and the dreaded DIARY OF ADRIAN MOLE.

● WATCH OUT! "THE ZOIDS" are hopefully coming, if you are a fan of "ZOIDZILLA" then you will be pleased to know that MARTECH, so we are informed, will be releasing this game on ATARI in May - from what we have heard, one to look out for!

● U.S. GOLD - if you are a U.S. Gold Club member and have wondered what has been

happening, well we are pleased to say a Bulletin is with the printers now, so hopefully you will be getting all the up to date information, i.e. release dates, etc. very soon. However, if you are still awaiting the arrival of WINTER GAMES and SUMMER GAMES II for the ATARI, then you may well be disappointed - from what we have heard there are no immediate plans to release either on ATARI at the moment, even though WINTER GAMES does keep appearing on various advertisements and SUMMER GAMES II has been included on a price list, so we have been told. May be the new Bulletin will settle the matter!!

● U.S. Gold have also formed an association with software-house ULTIMATE. Let's hope ATARI computer owners will benefit from this association.

● HELP - we do get many letters from new ATARI computer owners seeking advice about choosing software, be it on cassette or disk - how about sending us your list of top ten original favourites, you can also include any original utility programs which you think would help other new ATARI computer owners. We will make up a list from your replies in a future issue, any details such as why you have chosen them would also help.

● PRICES quoted may naturally differ from place to place - when buying software it does pay to shop around if you can.

● ST USER - there is to be a magazine called ST USER, launched this month - it will only be sold through ATARI dealers and not available through other retail outlets.

● There is a new version of the famous 'Boink' bouncing ball demo going around. In place of the ball is a rotating Fuji symbol, one side of which has scrolling rainbow colours. Very impressive, and its on the 130XE too!

● Star Raiders, the classic 8-bit game, is being converted for the ST. A demo version was shown at the CES show in Las Vegas in early January. It had solid model ships and an impressive control panel, similar to Koronis Rift.

● Star Raiders Two is to be released for the 8-bit machines. Improvements include a moving star field and more difficult orbiting of space stations.

● Alternate Reality is being converted for the ST and should take advantage of the ST's facilities to incorporate many new features that there was no room for in the 8-bit version. Activision are hoping that the first part (the City) will be available by Xmas 1986.

● Soniture Inc. have a product called a Space Pen which is said to be a three dimensional Light Pen. Its for the 8-bits but an ST version will be available soon.

● Microprose have introduced a new strategy simul entitled 'Conflict in Vietnam'. It is based on five actual decisive battles from that war. Also available from Microprose is a submarine simul on the ST called 'Silent Service'.

● Hybrid Arts (creators of MIDI Track-3 on the 8-bits) are developing MIDI software for the ST. DX-Droid is a patch librarian/editor which can actually program your Yamaha DX-7 for you.

Also lined up by Hybrid is a sequencing program called MIDI Track ST, which will be able to read and write SMPTE time code and record and playback System Exclusive data.

● The upgraded 520ST, known as the 1040ST, is to be announced at this year's Hannover Computer Fair. It will have 1024K of RAM and will include the console with built-in, double-sided double-density 3½ inch disk drive, a mouse controller, a high-res monochrome monitor and software.

● There is to be a new 130XE starter pack containing the computer, a 1050, a 1027 letter quality printer and software: Atariwriter Plus, Silent Butler, Star Raiders 2, Music Painter and Proof Reader.

ATARI 400/600/800/800XL/XE

Why not compliment the greatest home computer on the market by obtaining membership with **MIDLAND GAMES LIBRARY**.

The first, biggest and best Atari library on the market.

MIDLAND GAMES LIBRARY: The company who over three years ago first conceived the use of a software library.

Now over 1,300 titles on disk, cassette and Rom (games, business, educational and utilities). Often purchasing popular programs in multiples of five or six to give all our members a fair chance. Always adding approximately 40 new programs monthly.

Over 1,500 very satisfied members, many as far away as Iceland, Sweden, West Germany, Holland, Denmark and Eire.

A fast, efficient and friendly service. Requests are attended to immediately virtually assuring you a 24 hour return of service. Regular newsletters and program updates plus other inter-club activities. **FREE GIFT for members joining us over New Year period. Send large s.a.e. for full details to:**

MIDLAND GAMES LIBRARY (M11)

48 Readway, Bishops Cleeve, Cheltenham, Glos.

Tel: 0242-67-4960 9.30-4.30

All our programs are originals with full documentation

Please do not confuse **MIDLAND GAMES LIBRARY** with Midland Computers, we are in no way connected or responsible for them.

Corrigenda

Monitor No. 10, page 32, listing 7 of Cracking the code; Line 20 should read:
20 LINE=10000:TRAP 100:J=0: START=1536
Also line 30 should read:
30 READ HEX\$,CHKSUM:SUM=0

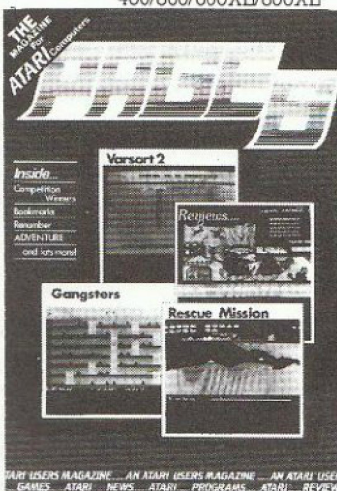
Monitor No. 10, page 31, the cassette listing for Happy Typer, delete line 90 from listing 1.

PAGE 6 THE MAGAZINE

FOR ALL ATARI[®] COMPUTER* OWNERS
*400/800/600XL/800XL



NEWS
REVIEWS
TUTORIALS
UTILITIES
HINTS & TIPS
plus more



THE BEST PROGRAM LISTINGS from
U.S.A.
U.K.
AUSTRALIA
PUBLIC DOMAIN SOFTWARE LIBRARY
SPECIAL OFFERS

PAGE 6 is published bi-monthly.
Annual Subscription is £7.00. Send TODAY to:
**PAGE 6, P.O. BOX 54,
STAFFORD, ST16 1DR**
Tel. 0785 41153

CONTACT

- PEN PAL required, write to me and discuss our common interest in all matters Atari. Ray Christie, 15 Heather Grove, Greensborough 3088, Victoria, Australia.
- PEN PAL required, exchange information and correspondence with particular interest Atari User Groups to Michael Becker, Clayallee 343, D 1000 Berlin 37, Germany.
- PEN PALS required for The Portland Atari Club in Oregon, please contact: Margaret Manning & Lee Bole, at 2515 N.E. 41 Avenue, Portland, Oregon 97212, U.S.A. if you would like to exchange disks and other information.
- CHALKBOARD Power Pad. I have recently purchased one of these and I would like to buy some software for it or find some technical details on how the unit works. Is there anybody who can help me on this? Contact J. Dimmer, 16 Highdyke Road, Cranwell, Sleaford, Lincs. Phone 0400 61383.
- NOTTINGHAM MICRO CLUB meets at the Castle Gate Congregational Federation Building (opposite Marks & Spencer) in Nottingham town centre at 7.30pm. The Atari section of the club meets on the 2nd and 4th Mondays of every month. All are welcome. Or write for more details to: Steven Hind, 28 Chapel Lane, Ravenshead, Nottingham, NG15 9DA.
- NEWSLETTER EXCHANGE - Atari Madness User Group, P.O.Box 251, Cedarhurst, New York 11516, U.S.A. Contact Jonathon Nowak - also can be reached at Modem Madness BBS (516)-569-0589.
- I have a Seikosha GP250X printer, and I am experiencing difficulty with replacement ribbons, the last few I've bought were 'dry' and were no good. Has anybody had similar problems and knows of a solution. Contact Ian Favell, 34 Ruffs Furze, Oakley, Beds, MK43 7RS.
- I am in the process of constructing a bulletin board phone number list for the Lea Valley Atari Users Group. If anyone has any details regarding a bulletin board they have logged onto, or a board they run, please send info on the board itself, operating times, baud rates, special features, etc. All details will be compiled into a worldwide list for 1986. Contact Matthew Tydeman, 125 Cadmore Lane, Cheshunt, Waltham Cross, Herts, EN8 9JH.

ATARI LOVERS SWEATSHIRTS & T-SHIRTS

from only £4.50!

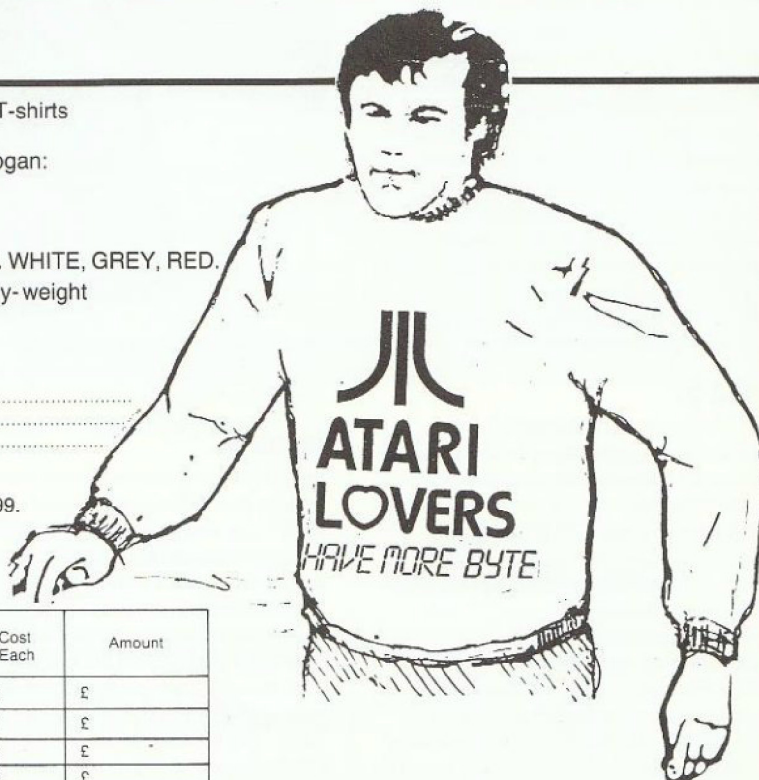
The new range of ATARI LOVERS Sweatshirts & T-shirts for men and girls by Churchill Cavendish. Quality UK made garments emblazoned with the slogan: **ATARI LOVERS HAVE MORE BYTE!** Choice of SIX COLOURS & THREE SIZES - S (32"-36"), M (36"-40"), L (40"-42").
T-SHIRTS £4.50. Crew neck short-sleeved T-shirts. WHITE, GREY, RED.
SWEATSHIRTS £6.99. Top quality crew neck heavy-weight long-sleeved sweatshirts. MAROON, GREEN, ROYAL BLUE.

ORDER FORM

Name
Address

Send off today to Churchill Cavendish, Timothy Lane, BATLEY, W.Yorks WF17 0BA. COD Phone 0274-875299. Please allow up to 14 days for delivery.
P & P FREE on orders over £30. It would help if you could give an alternative colour choice in Column 5.

T-Shirt or Sweatshirt? Enter T or S	No. Reqd.	Size S,M,L	Colour Choice	Alt. Colour Choice	Cost Each	Amount
					£	£
					£	£
					£	£
					£	£
PLEASE ADD £1 PER GARMENT IF ORDER IS LESS THAN £30.						£
TOTAL REMITTANCE ENCLOSED						£



MONITOR ON DISK

Like the look of a program but can't find time to key it in? You've asked the wife three times to do it for you whilst you're out at work, and she still hasn't. Or maybe you have typed it in but it won't run. Then why not take all the effort out of it and send for the MONITOR DISK. All the main programs in each issue of MONITOR are now available pre-recorded on disk for you. They cost £4.95 which includes postage and packing, send a cheque/postal order made payable to the 'U.K. Atari Computer Owners Club' to Monitor Magazine, P.O. Box 3, Rayleigh, Essex. If you live in Europe add 50p, if outside Europe add £1.00. Please allow 28 days for delivery.

Monitor Disk 8.

Includes: Quickplot, a fast Graphics 8 Plot/Drawto handler. Nightmare Reflections, an exceedingly frustrating adventure. Matchbox, improve your concentration with this memory game. Interrupts, 5 demo programs showing various uses of interrupts.

Monitor Disk 9.

Includes: Keyo, a new typing checker. Multiboot Bootbase, database program for 'Multiboot disks'. Binload, binary loads from Basic. Happytyper, automatic line numbering. Ramdisk, for use with the 130XE. Fast Fill, a speedy shape filling utility.

Monitor Disk 10.

Includes: 3D Maze, escape from the maze in time if you can. PCB Paranoia, destroy your enemies before they get you. Disk Jacket, useful program for making your own disk covers. Chase, an excellent game, not to be missed.

Monitor Disk 11.

Includes: Hexadecimal Code Generator, better presentation for your programs. Cracking the Code, seven mini progs from the series. RAM Talker, with a little bit of hardware and this program, you can hear your own voice, (for 400/800 only). Bonus Program: HomeFM, a useful utility for use with Home Filing Manager to give quick access to data disks.

BACK ISSUES

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

Issue 4.

Includes a complete in-depth look at Display Lists, what they are, how to use them, LMS explained, horizontal and vertical scrolling, etc. Another article shows how to get text on a Graphics 8 screen and gives an example graph to prove the point. A comprehensive review of many of the different types of joystick that are available gives ratings for comfort, action, looks and value. Program listings are aplenty and include 'Peckman' a BASIC version of a well known arcade game, Stunt Rider in which you must jump your motorbike over the buses, Hex is a two player board game with excellent graphics, and for the more serious minded, you can enjoy designing your own shapes with CAD (computer assisted design).

Issue 5.

The first part of the series on 'Cracking the Code' starts in this issue and covers Binary, Hexadecimal and Decimal mathematics. There is an article on protecting your BASIC programs from prying eyes and an interesting article on hardware modifications to the 800/400 machines to give improved sound and picture quality, a cold start key and a busy light for your cassette player. Also included is a review of the new programming language 'Action!' showing its potential for creating exciting fast action games. Games listings shown include Gil-bert, which is a 'Q-bert' type game, also Dragonfire in which the player must cross the drawbridge dodging the dragons flaming breath to



reach the treasure room. Other listings include a label maker and a QRA locator for Radio Amateurs.

Issue 6.

Includes a useful tutorial showing how to print Micropainter and Versawriter pictures, also contains a terrific program demonstrating 80 characters across the screen. A new regular column for adventure enthusiasts is started to give reviews of adventure games and give hints and tips on how to play them. Part two of Cracking the Code continues with addresssing modes and binary sums. The hardware design for a Light Pen is shown together with some simple programs use with it once you have built it. Fun with Art from Epyx is reviewed and some of the excellent results of using this package are shown. Programs

include Planetron and a RTTY listing for use with a short wave band radio, the Atari 850 interface and a signal terminal unit (such as the Maplin TU1000).

Issue 8.

Contains a preview of the new Atari computers. Two new series start, one about how files work and the other 'Starting from BASICS' for beginners. Cracking the code continues and concluding part of 'Interrupts' discusses horizontal and vertical scrolling. The adventure column includes reviews of Mask of the Sun and Sorcerer. Other reviews include Conan, Spy vs Spy, Alley Cat and Ghostbusters. Programs are Matchbox, a concentration game, Quickplot, a Graphics 8 Plot/Drawto utility and Nightmare Reflections, an exceedingly frustrating adventure.

Issue 9.

Includes a RAMDISK for the 130XE as well as a review of this excellent machine. Introduction to MIDI, just what is it! KEYO typing checker program. Utility to give binary load files from Basic. Reviews of TopDOS, Homeword and Mr DO! Overview of FORTH as an alternative to Basic. Utility to fill in shapes in Graphics 8 and fast too! Profile on Lea Valley Atari Club. HAPPY TYPER gives automatic line numbers and programmable function keys. Utility for indexing 'Multiboot' disks.

Issue 10.

Includes all the facts about Digitised Pictures. Disk Jacket, a neat program for making your own disk covers. Opening Out, more about how files work. Reviews of the Great American Road Race, Kennedy Approach, Red Moon, Asylum and Wishbringer. Two excellent games: PCB Paranoia and 3D-Maze. Introduction to the world of communications. Continuation of regulars: Cracking the Code, Starting from Basics and What's MIDI?

THE CHART
TOPPING FLIGHT
SIMULATION
NOW ON
ATARI

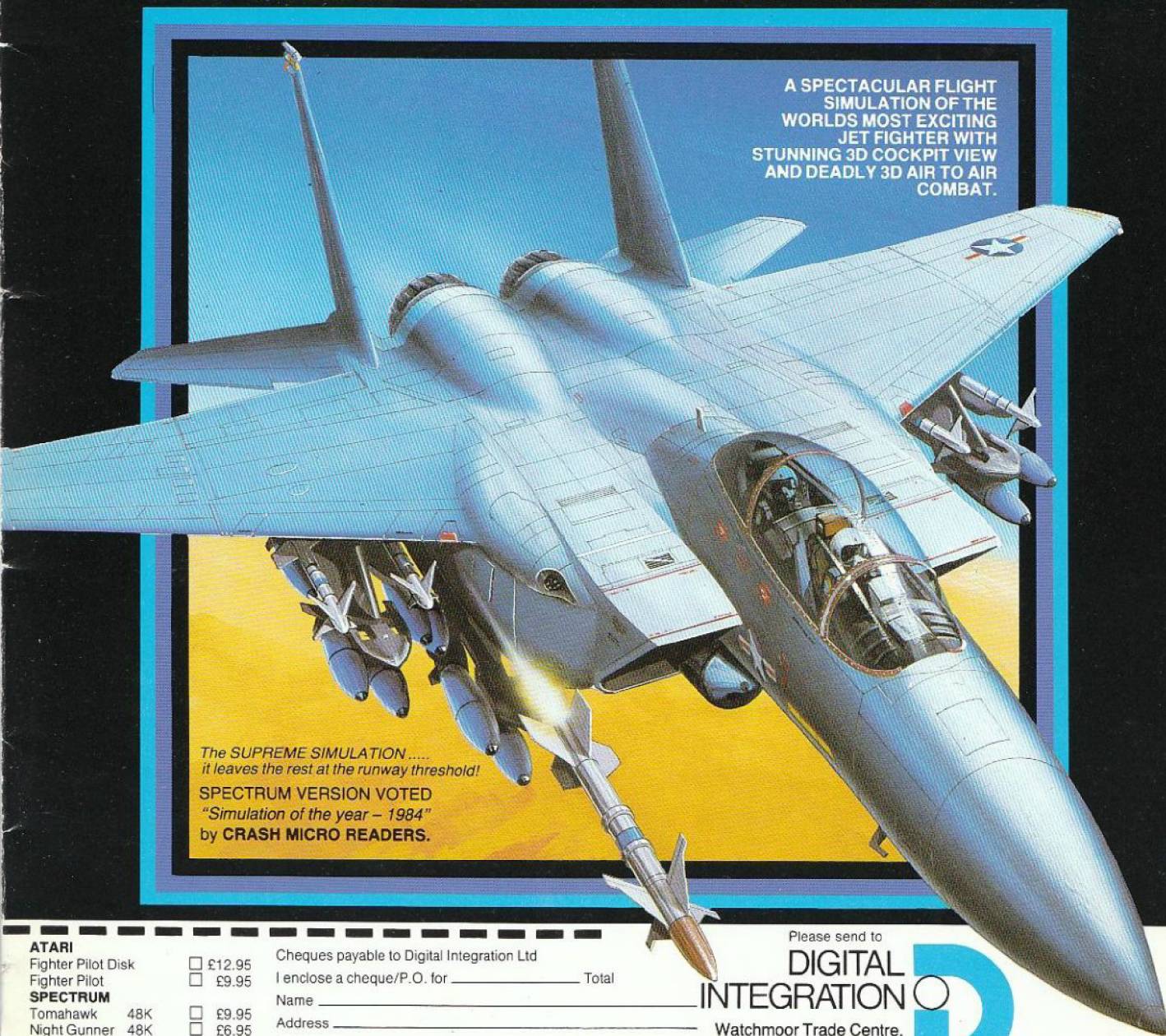
FREE COLOUR
POSTER AVAILABLE
WITH DISK VERSION

FIGHTER PILOT

ALSO AVAILABLE
ON 48K SPECTRUM,
CBM64 & AMSTRAD

BY D.K. MARSHALL
ADAPTED BY NIK SEN

ATARI 400/800/600 XL
800 XL/130 XE
WITH AT LEAST 48K.



A SPECTACULAR FLIGHT
SIMULATION OF THE
WORLD'S MOST EXCITING
JET FIGHTER WITH
STUNNING 3D COCKPIT VIEW
AND DEADLY 3D AIR TO AIR
COMBAT.

The SUPREME SIMULATION
it leaves the rest at the runway threshold!

SPECTRUM VERSION VOTED
"Simulation of the year - 1984"
by CRASH MICRO READERS.

ATARI

Fighter Pilot Disk
Fighter Pilot

SPECTRUM

Tomahawk 48K
Night Gunner 48K
Fighter Pilot 48K

COMMODORE 64

Speed King Disk
Speed King Cassette
Fighter Pilot Disk
Fighter Pilot Cassette

AMSTRAD CPC 464, 664, 6128

Fighter Pilot
Fighter Pilot Disk

☐ £12.95
☐ £9.95

☐ £9.95
☐ £6.95
☐ £7.95

☐ £12.95
☐ £9.95
☐ £14.95
☐ £9.95

☐ £8.95
☐ £13.95

Cheques payable to Digital Integration Ltd

I enclose a cheque/P.O. for _____ Total

Name _____

Address _____

Please debit my Access/Visa card no.

Expiry date _____

Please send to Digital Integration,
Watchmoor Trade Centre, Watchmoor Road, Camberley, Surrey GU15 3AJ.

VAT and p. & p. inclusive within UK (Overseas inc. 55p. per cassette)

Please send to

**DIGITAL
INTEGRATION**

Watchmoor Trade Centre,
Watchmoor Road,
Camberley, Surrey
GU15 3AJ

Access Visa
Tele Sales
(0276) 684959

Trade and Export enquiries
welcome. Lifetime Guarantee.



A NEW CLASSIC

FROM PAUL WOAKES
AUTHOR OF ENCOUNTER!

YOU CHOOSE THE ACTION IN **MERCENARY**

Mercenary – a unique combination of flight simulation, adventure and arcade fun. You choose the action.

There is complete freedom of movement in a truly three-dimensional vector-graphic environment. Graphics of exceptional speed create a very realistic experience.

You'll never play the same game twice. Random elements attempt to seal your fate. Your interaction is crucial.

Mercenary presents an absorbing challenge that you will accept again and again.

MERCENARY **ESCAPE FROM TARG**

Fly above the planet Targ in a variety of craft. Investigate the multitude of structures on the planet surface in your quest for essential supplies. Search the mysterious subterranean complex in pursuit of your fortune.

Become embroiled in the continuing conflict between the Palyars and Mechanoids. Accept their paid assignments or work independently to gain wealth.

You only have one true friend – the ever-reliable Benson, an almost human PC, who guides you in your travels.

Pursue your objective as you will : To succeed you have to escape from Targ.

INITIAL RELEASE
FOR COMMODORE 64 ATARI 48K 800 XL 130 HE

CASSETTE £9.95

DISK £12.95

NOVAGEN SOFTWARE LTD: SALES 142 ALCESTER ROAD BIRMINGHAM B13 8HS

NOVAGEN