

ORIC

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And for our next
holiday competition...



HELLO AND WELCOME TO 1992.

It is December 30th 1991 and I have finally found an hour to sit down at the Atmos. Since the first week in December I have been working up to 15 hours per day. Unfortunately this coincided with me trying to deal with many software orders and scores of phone/letter enquiries and questions. As I only had 2 days off over Xmas it has meant that Oric matters have taken a back seat. Some orders were despatched, others partly finished and some of you may still be waiting. I ran out of Joysticks and interfaces. The cassette player played up. My 3" slave drive and 5.25" drive gave problems.

All in all an abysmal month. This month will see me set about the backlog, but please be patient and try and keep any new queries down to a minimum. Some things were achieved during December. Stan Holden and Ron Evans now both have working Atmos's again. It was nice to meet up with these guys for the first time and to hear how they put their micros to use. Alistair Way came over for a week-end. Thanks for the help Ali. It's a pity that we couldn't get the demos on Jonathan Bristow's 'MUSED' to run. Jonathan - I will be in touch!!

This weekend will see a visit from Paul Baker, whose 'GRANDAD' program is coming along remarkably well. Also expected is Peter Thornburn. Making up the trio will be Sean Healy, my brother-in-law from Portsmouth. I managed to get him a MICRODISC for Xmas. I also managed to get one for David Geoghegan and he should have received it by the time we go to press.

The O.U.M office/bedroom has had an overhaul thanks to a screwdriver and some 'TEXAS' self assembly units. The wife has just decorated the bathroom and we have another new member in John Peach from London. Thanks for all the Xmas cards and I'm sorry that I didn't send any back, except to my old pal Vincent Talvas (President of the C.E.O). After doing a couple of hundred cards for some of my customers on the milk, I ran out of time.

Well, an eventful December and an eventful 1991. All augurs well for 1992. Many things in the pipeline. I now have a complete set of 'THE ORIC' and 'MICR'ORIC' magazines.

I sincerely hope that I have not bored you too much with this editorial. No jokes and no puns.

WHAT IS IN THIS ISSUE???

To be honest; I don't know. As I type this; only 11 pages are complete and thus the rest will be un-scripted.

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 PAGE 1 - another excellent cover from from JON HAWORTH. Here JON, how about a picture of your personalised number plates for the next issue???

PAGE 2 - THE EDITORIAL

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PAGES 5/6 - RAMBLING IN THE ROM - JON H takes a look at the Public Domain charts.

PAGES 7/8/9/10 - Dissassembly of the Rom - a glut for all programmers.

PAGE 11 - BITS and BOBS - yours truly passes on some information.

PAGES 12 onwards - whatever I can get into print.

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C E O S O F T W A R E

Up until now it has been the policy of the CLUB EUROPE ORIC to charge 2 rates for their software. A cheaper rate being offered to members of the C. E.O

Vincent Talvas is now offering to O.U.M members the same prices as offered to C.E.O members. This means that such classics as 'WILLY' will now be a couple of pond cheaper. If I do not find time to put prices together for this issue; then I will liase with JON to sort something out for the February issue. I would like to take this opportunity to thank Vincent very much. In return I propose to offer all O.U.M/MIRAGE titles to both C.E.O and O.U.M members at reduced prices.

The Story so far

----- We have looked at the basic requirements for machine code programming on the Oric. In the last issue we added another type of instruction to our small subset of machine code instructions. We now have just five different types of instruction, a total of sixteen instructions all of which appeared in the table, published in the last issue.

Wake up the Oric

----- The issue in particular, looked at machine code jumps, with emphasis on those that could be used to access routines from Oric's own built in software in the Operating System ROM.

Let us have a look at one of the routines built into the ROM. The obvious choice is the one which is used to read the keyboard. After all the keyboard is the first thing we use when starting up. We always need to bash a few keys to get the Oric to pay attention and do what it is told. We will now look at a short routine that will read the keyboard for us and tell us which key has been pressed. The routine we need for this is located at the address EB78 in the Atmos and is called "Go TO Read KeyBoard" or, GTORKB for short.

Being poor as a church mouse (but somewhat larger of course), I dont possess an Oric-1 (sob !), unlike these rich people who have dozens. However, Dave Dick tells me that the equivalent to the GTORKB routine in the Oric-1 is located at location E905, so if you are using Oric-1 substitute E905 for EB78.

Wait a Bit !

----- If we simply call this routine, the chances are that the only result we would get is a big fat zero. The reason for this is quite simple. The Oric whizzes off to read the keyboard and is back in a flash, long before you have decided which key, you were going to press.

However this is no great problem. All we need to do is to persuade the Oric to keep going back to look at the keyboard, until a key has actually been pressed. The question is how do we know when a key has been pressed. In fact there is a simple indicator provided by the Operating System. This uses the Negative Flag in our old friend the Status Register. When the Oric reads the keyboard it will clear the Negative Flag to "0" if no key has been pressed. If a key has been pressed, the Negative Flag will be set to "1".

So all we need to do is to arrange a routine so that the Oric will keep on returning to look at the keyboard if the Negative Flag is "0", which in fact is just a simple loop routine.

If you have our little 6502 Instruction Subset (table) handy, you will find that the Branch instruction BPL, will fit the bill for this job. The BPL Branch is only active if the Negative Flag is "0", so it can be used to provide the required loop action.

Once a key has been pressed, it's ASCII code will be put into the Accumulator, ready for use.

The required routine is quite short and simple to enter. Use Hexload II from Part 7 of the series, or similar assembler/code writing utility, to enter the the code below into the addresses as shown -

Address 1001:00 and then address 1010:20 78 EB 10FB 8D 01 10 60 finishing up at address 1018. So whats all that lot about ? Lets look at the listing.

```

-----
[ CALL#1010 ]-----[ Fetch Item from Keyboard ]-----
                                     Notes
-----
-      ----storage----
:      ---Parameter 1001
1001: (00) :      : "none yet"      : This is used to store the
:                                     : ASCII code of key pressed.
-----
-      ----start-----
:      ---Read Keyboard
1010:20 78 EB : JSR  EB78: Call "GTORKB" : Test Keyboard for key pressed
:      :      :
1013:10 FB : BPL  1010: Back to instruct 1010: Back to test keyboard again
:      :      : if Neg Flag is "0". : if key not pressed.
:      :      :
:      ---Save Key Press Result:
1015:8D 01 10 : STA  1001: Copy Accu into 1001. : Save the ASCII code for the
:      :      : key pressed in Param 1001.
:      :      :
:      ---Finish
1018:60 : RTS : Exit, back to Basic.:
-----
-      ----end-----

```

The above listing is perhaps a bit more detailed than really necessary, but hopefully this will enable those who are new to machine code to understand what is going on. You will notice that the listing is split into four columns, plus an additional column for notes, on the far right.

The first two columns on the left contain the addresses and the same hex code that was shown above, but this time, it has been split up into specific items (eg. Instructions).

The third column contains the assembly instruction labels.

The fourth column tells us what the instruction is doing as far as the computer is concerned and the last column of notes on the right, tells us how all the operations done by the instructions, fit in with our program (ie. What we want the machine to do). These last two columns are the most important of all, in any program. They are used to explain what is actually happening.

You will notice that a copy of the Accumulator contents are preserved in location 1001. It is not essential to do this if you are going to use them straight away. However, it is a good policy to save input for possible later use or even fault finding. There will be times when you will be glad you did so

If you now CALL#1010 to run this routine, you will find that the Oric will stop and wait for you to press a key. Once you have done so, you can then look at the contents of location 1001. The original contents of 1001 will now have replaced by the ASCII code of the key that you pressed. Key "A" will produce code 41 and Key "Z" will produce code 5A. Your manual should have the full list

This is all very well, but how can we use it. Obviously we need some way to sort out specific keys and this is the next thing we will look at.

Thats input....Next time output and how to annoy your neighbour's neighbours !!

RAMBLING IN THE ROM - 34

It was good to see 'the gang' at the Christmas Computer Shopper Show - funny how much time we spent nattering in the bar...Perhaps it should become the official second Oric meet of the year!

The PD charts

At last I've got together the full PD charts, and from now on I'll publish it each month. However, it would be a pity to let pass by the chance to give due recognition to those authors who have figured to date, and I'm sure many would welcome a guide to the best-selling programs since the library's inception (so long ago?). So here in their full glory are the charts to date. The column format is:

This Month Last Month Up/Down Title Weeks in Chart

March 1990		April 1990		May 1990	
1	Scrabble	1	(2) ▲ Monopoli (2)	1	(1) ► Monopoli (3)
2=	Superwin	2	(1) ▼ Scrabble (2)	2	(2) ► Scrabble (3)
	Monopoli	3	(2) ▼ Superwin (2)	3	(3) ► Superwin (3)
4	Design	4	(6) ▲ Dataplus (2)	4	(5) ▲ WSL (3)
5	WSL	5	(5) ► WSL (2)		(5) ▲ PRBuffer (2)
6=	Crusher		(NE) PRBuffer (1)	6	(10) ▲ Pinball (3)
	Dataplus	7	(4) ▼ Design (2)	7	(8) ▲ Crusher (3)
	Pinball	8	(6) ▼ Crusher (2)	8	(4) ▼ Dataplus (3)
	Tapdir	9	(NE) Supertron (1)	9	(7) ▼ Design (3)
	Map	10	(6) ▼ Pinball (2)	10	(9) ▼ Supertron (2)
	Golf		(6) ▼ Las Vegas (2)		
	Las Vegas				
June 1990		July 1990		August 1990	
1	(1) ► Monopoli (4)	1	(4) ▲ Superwin (5)	1	(1) ► Superwin (6)
2	(2) ► Scrabble (4)	2	(2) ► Scrabble (5)	2	(2) ► Scrabble (6)
3	(4) ▲ WSL (4)	3	(1) ▼ Monopoli (5)	3	(4) ▼ Supertron (5)
4	(3) ▼ Superwin (4)	4	(6) ▲ Supertron (4)		(9) ▲ 3D Graph (2)
5	(7) ▲ Crusher (4)		(NE) Discrevs (1)	5	(3) ▼ Monopoli (6)
6	(4) ▼ PRBuffer (3)	6	(6) ► PRBuffer (4)		(6) ▲ PRBuffer (5)
	(9) ▲ Design (4)		(6) ► Design (5)		(6) ▲ Design (6)
	(10) ▲ Supertron (3)	8	(9) ▲ Pinball (5)		(8) ▲ Pinball (6)
9	(6) ▼ Pinball (4)	9	(5) ▼ Crusher (5)	9	(9) ► Dataplus (6)
10	(8) ▼ Dataplus (4)		(10) ▲ Dataplus (5)	10	(9) ▼ Crusher (6)
			(NE) ▲ 3D Graph (1)		
September 1990		October 1990		November 1990	
1	(1) ► Superwin (7)	1	(1) ► Superwin (8)	1	(NE) Scrivener (1)
2	(3) ▲ 3D Graph (3)	2	(2) ► 3D Graph (4)	2	(NE) Patience (1)
3	(5) ▲ PRBuffer (6)	3	(10) ▲ Scrabble (8)	3	(1) ▼ Superwin (9)
4	(9) ▲ Dataplus (7)	4	(NE) Chucky Egg (1)	4	(2) ▼ 3D Graph (5)
5	(5) ► Monopoli (7)	5	(7) ▲ Screendump (2)		(3) ▼ Scrabble (9)
6	(3) ▼ Supertron (6)	6	(5) ▼ Monopoli (8)		(4) ► Chucky Egg (2)
7	(5) ▼ Pinball (7)		(6) ► Supertron (7)	7	(NE) STD (1)
	(RE) WSL (5)		(7) ▲ WSL (6)	8	(5) ▼ Screendump (3)
	(NE) Screendump (1)	9	(7) ▼ Pinball (8)	9	(NE) Jet Attack (1)
10	(2) ▼ Scrabble (7)		(NE) Fisher Sam (1)	10	(6) ▼ Supertron (8)
	(5) ▼ Design (7)		(NE) Yam (1)		(NE) Golf (1)
			(NE) Superlist (1)		

December 1990				January 1991				February 1991			
1	(1)	▶	Scrivener (2)	1	(1)	▶	Scrivener (3)	1	(1)	▶	Scrivener (4)
2	(2)	▶	Patience (2)	2	(2)	▶	Patience (3)	2	(2)	▶	Patience (4)
3	(NE)		Hyperball (1)	3	(3)	▶	Hyperball (2)	3	(NE)		Label (1)
4	(NE)		Hind (1)	4	(4)	▶	Hind (2)	4	(8)	▲	Superlist (3)
5	(NE)		Business (1)	5	(5)	▶	Business (2)	5	(8)	▲	Jet Attack (4)
6	(4)	▼	3D Graph (6)		(RE)		STD (2)		(8)	▲	Superwin (11)
	(8)	▲	Screendump (4)	7	(RE)		Scrabble (10)		(RE)		Converter (2)
	(9)	▲	Jet Attack (2)	8	(6)	▼	Jet Attack (3)	8	(RE)		Screendump (5)
9	(NE)		Converter (1)		(RE)		Superwin (10)		(RE)		Supertron (9)
10	(RE)		Crusher (7)		(RE)		Superlist (2)		(NE)		Desktop (1)
	(NE)		Tarot (1)								
March 1991				April 1991				May 1991			
1	(1)	▶	Scrivener (5)	1	(1)	▶	Scrivener (6)	1	(1)	▶	Scrivener (7)
2	(NE)		Unerase (1)	2	(4)	▲	Jet Attack (6)	2	(NE)		Eve (1)
3	(2)	▼	Patience (5)	3	(8)	▲	Scrabble (12)	3	(7)	▲	Clipper (2)
4	(5)	▲	Jet Attack (5)	4	(5)	▲	Hyperball (4)	4	(NE)		CAD (1)
5	(8)	▲	Screendump (6)	5	(2)	▼	Unerase (2)	5	(5)	▶	Unerase (3)
	(RE)		Hyperball (3)		(RE)		Las Vegas (3)	6	(NE)		Bargraph (1)
	(RE)		3D Graph (7)	7	(RE)		Tarot (2)	7	(2)	▼	Jet Attack (7)
8	(4)	▼	Superlist (4)		(NE)		Clipper (1)		(NE)		Net 80 (1)
	(RE)		Scrabble (11)	9	(3)	▼	Patience (6)		(NE)		Disk Spy (1)
	(NE)		QVC (1)	10	(5)	▼	Screendump (7)		(NE)		Maxit (1)
					(NE)		SoftIndex (1)				
June 1991				July 1991				August 1991			
1	(1)	▶	Scrivener (7)	1	(3)	▲	Disk Spy (3)	1	(1)	▶	Disk Spy (4)
2	(2)	▶	Eve (2)	2	(2)	▶	Eve (3)	2	(2)	▶	Eve (4)
3	(7)	▲	Disk Spy (2)	3	(NE)		Astronomer (1)	3	(4)	▲	Resistor (2)
4	(4)	▶	CAD (2)	4	(7)	▲	Unerase (5)	4	(3)	▼	Astronomer (2)
5	(7)	▲	Jet Attack (8)		(NE)		Resistor (1)		(7)	▲	Datamaker (2)
6	(RE)		Las Vegas (4)	6	(1)	▼	Scrivener (9)	6	(6)	▶	Scrivener (10)
7	(5)	▼	Unerase (4)	7	(NE)		Datamaker (1)	7	(4)	▼	Unerase (6)
	(7)	▶	Net 80 (2)	8	(NE)		Omnical (1)	8	(10)	▲	CAD (4)
	(7)	▶	Maxit (2)	9	(7)	▼	Net 80 (3)	9	(10)	▲	Clipper (4)
	(NE)		Mastermind (1)	10	(RE)		Clipper (3)	10	(RE)		Hind (3)
					(4)	▼	CAD (3)				
September 1991				October 1991				November 1991			
1	(1)	▶	Disk Spy (5)	1	(2)	▲	Datamaker (4)	1	(2)	▲	Hind (6)
	(7)	▲	Datamaker (3)	2	(1)	▼	Disk Spy (6)	2	(1)	▼	Datamaker (5)
3	(2)	▼	Eve (5)		(4)	▲	Hind (5)		(5)	▲	Eve (7)
4	(3)	▼	Resistor (3)	4	(4)	▶	Resistor (4)	4	(4)	▶	Resistor (5)
	(9)	▲	Hind (4)	5	(3)	▼	Eve (6)	5	(2)	▼	Disk Spy (7)
6	(RE)		Omnical (2)		(6)	▲	Omnical (3)		(5)	▶	Omnical (4)
7	(3)	▼	Astronomer (3)		(9)	▲	CAD (6)		(RE)		Scrivener (12)
8	(7)	▼	Unerase (7)	8	(8)	▶	Unerase (8)	8	(8)	▶	CAD (7)
9	(8)	▼	CAD (5)	9	(7)	▼	Astronomer (4)		(RE)		Jet Attack (9)
10	(6)	▼	Scrivener (11)		(10)	▲	Desktop (3)	10	(RE)		Patience (7)
	(RE)		Desktop (2)								

(NE) = New entry
(RE) = Re-entry

STOP PRESS...December CEOMAG and disc now being distributed...
Jon Haworth

FIND A BASIC LINE

Entry: #33-34 contains the number of the line to look for

Exit: C=0 if the line is not found (#CE-#CF points to the next highest line number, or to the end of program).

C=1 if the line is found, #CE-#CF contains the address of the line (pointing to the character following the 0 of the start of line).

Principle: Thanks to the links between the lines, which here have their only, but sufficient, justification, the routine jumps very quickly from line to line to compare the line numbers.

Curiosity: At each line met, the pointer at #1D-#1E is incremented. According to the entry point, this pointer may or may not be reset to zero. Quite useless.

C6DE	LDA #00	C6B3	LDA #00	Initialise
C6E0	STA 1D	C6B5	STA 1D	
C6E2	STA 1E	C6B7	STA 1E	the line counter
C6E4	LDA 9A	C6B9	LDA 9A	Take start of Basic
C6E6	LDX 9B	C6BB	LDX 9B	as start of search
C6E8	LDY #01	C6BD	LDY #01	Y indexes high byte of the
C6EA	STA CE	C6BF	STA CE	line link
C6EC	STX CF	C6C1	STX CF	Set current line address
C6EE	LDA (CE),Y	C6C3	LDA (CE),Y	Take link high byte
C6F0	BEQ C717	C6C5	BEQ C6EC	If 0, end of prog, no line
C6F2	INY	C6C7	INY	if not, index no. high byte
C6F3	INY	C6C8	INY	(LDY #\$03 gains 2 microseconds)
C6F4	INC 1D	C6C9	INC 1D	increment the line counter
C6F6	BNE C6FA	C6CB	BNE C6CF	(omitting would save 8 ms)
C6F8	INC 1E	C6CD	INC 1E	(not a lot, it's true)
C6FA	LDA 34	C6CF	LDA 34	Take no. of line to find
C6FC	CMP (CE),Y	C6D1	CMP (CE),Y	and compare
C6FE	BCC C718	C6D3	BCC C6ED	if lower, no suchline
C700	BEQ C705	C6D5	BEQ C6DA	if equal, compare low byte
C702	DEY	C6D7	DEY	Continue search (adjust Y)
C703	BNE C70E	C6D8	BNE C6E3	unconditional
C705	LDA 33	C6DA	LDA 33	take present low byte
C707	DEY	C6DC	DEY	adjust Y
C708	CMP (CE),Y	C6DD	CMP (CE),Y	and compare
C70A	BCC C718	C6DF	BCC C6ED	If lower, line not found C=0
C70C	BEQ C718	C6E1	BEQ C6ED	if equal, line found, C=1
C70E	DEY	C6E3	DEY	Pass to next line
C70F	LDA (CE),Y	C6E4	LDA (CE),Y	Take high byte of link
C711	TAX	C6E6	TAX	save it in X
C712	DEY	C6E7	DEY	
C713	LDA (CE),Y	C6E8	LDA (CE),Y	then link low byte in A
C715	BCS C6E8	C6EA	BCS C6BD	Unconditional continue
C717	CLC	C6EC	CLC	Indicate line not found
C718	RTS	C6ED	RTS	

'NEW' (COMMAND)

Action: Put two zeros in place of the first line link and effect a CLEAR, then return to the interpreter.

Table with 4 columns: Address, Instruction, Address, Instruction, Comment. Rows include C719 BNE C718, C6EE BNE C6ED, C71B LDA #00, C6F0 LDA #00, C71D LSR 02F4, C6F2 LSR 02F4, C720 TAY, C6F5 TAY, C721 STA (9A),Y, C6F6 STA (9A),Y, C723 INY, C6F8 INY, C724 STA (9A),Y, C6F9 STA (9A),Y, C726 LDA 9A, C6FB LDA 9A, C728 CLC, C6FD CLC, C729 ADC #02, C6FE ADC #02, C72B STA 9C, C700 STA 9C, C72D LDA 9B, C702 LDA 9B, C72F ADC #00, C704 ADC #00, C731 STA 9D, C706 STA 9D, C733 JSR \$C765, C708 JSR \$C73A, C736 LDA #00, C70B LDA #00. Comments include 'If parameters present return', 'Y=0', 'Low byte = nul (pointless)', '+high byte = nul (essential)', 'Adjust the end of program pointer', '- low byte', '- and high byte', 'Set TXTPTR to start of prog.', 'Z=1(?use #2C to save a byte)'

'CLEAR' (COMMAND)

Action: Initialises all variable pointers and executes a RESTORE. The 6502 stack is also initialised, with only the return address being preserved on the stack.

Remark: The 6502 stack is initialised at #FE, and not #FF, in order to leave on the top of the stack the #00 put there on initialisation; this serves as a stop for the routine which searches for a FOR block.

Table with 4 columns: Address, Instruction, Address, Instruction, Comment. Rows include C738 BNE C764, C70D BNE C739, C73A LDA A6, C70F LDA A6, C73C LDY A7, C711 LDY A7, C73E STA A2, C713 STA A2, C740 STY A3, C715 STY A3, C742 LDA 9C, C717 LDA 9C, C744 LDY 9D, C719 LDY 9D, C746 STA 9E, C71B STA 9E, C748 STY 9F, C71D STY 9F, C74A STA A0, C71F STA A0, C74C STY A1, C721 STY A1, C74E JSR \$C91F, C723 JSR \$C952, C751 LDX #88, C726 LDX #88, C753 STX 85, C728 STX 85, C755 PLA, C72A PLA, C756 TAY, C72B TAY, C757 PLA, C72C PLA, C758 LDX #FE, C72D LDX #FE, C75A TXS, C72F TXS, C75B PHA, C730 PHA. Comments include 'return if parameters', 'Set HIMEM as bottom of string variables', 'Take end of BASIC as end of variables', 'and end of arrays', 'Do a RESTORE', 'Initialise the string pointer stack', 'Recover return address into AY', 'Initialise the 6502 stack'

C75C	TYA	C731	TYA	
C75D	PHA	C732	PHA	+ resave return address
C75E	LDA #00	C733	LDA #00	
C760	STA AD	C735	STA AD	Set CONT impossible
C762	STA 2B	C737	STA 2B	+initialise variable flag
C764	RTS	C739	RTS	

SET TXTPTR TO START OF BASIC PROGRAM

Principal: Curiously, addition is used to subtract one from the contents of #9A. Use of the principle of two's complement would have enabled the routine to be optimised. So one adds #FFFF instead of subtracting 1.

C765	CLC	C73A	CLC	
C766	LDA 9A	C73B	LDA 9A	Take low byte of start of
C768	ADC #FF	C73D	ADC #FF	BASIC and add -1
C76A	STA E9	C73F	STA E9	+ save in TXTPTR
C76C	LDA 9B	C741	LDA 9B	
C76E	ADC #FF	C743	ADC #FF	
C770	STA EA	C745	STA EA	Repeat for high byte
C772	RTS	C747	RTS	

'LIST' (COMMAND)

Principal: The listing of keywords is a classic routine which there is no point in trying to develop.

Remark: If you press a key during the listing, #02DF will not contain #00 on exit, since you make do with an LSR 02DF, which is sufficient.

C773	PHP	C748	PHP	Save P (parameter test)
C774	JSR \$CA98	C749	JSR \$CAE2	Evaluate line no.in #33-4
C777	JSR \$C6DE	C74C	JSR \$C6B3	and find it (0 if none)
C77A	PLP	C74F	PLP	Are there parameters?
C77B	BEQ C791	C750	BEQ C766	no, jump
C77D	JSR #00E8	C752	JSR \$00E8	yes, take current charac.
C780	BEQ C797	C755	BEQ C76C	if empty, one line only
C782	CMP #CD	C757	CMP #CD	is it '-' (BASIC token)
C784	BNE C718	C759	BNE C6ED	no, exit prematurely
C786	JSR \$00E2	C75B	JSR \$00E2	yes, jump it
C789	BEQ C791	C75E	BEQ C766	all done?
C78B	JSR \$CA98	C760	JSR \$CAE2	no, evaluate ano.line no.
C78E	BEQ C797	C763	BEQ C76C	and continue
C790	RTS	C765	RTS	exit if more parameters
C791	LDA #FF	C766	LDA #FF	Initialise last line, the
C793	STA 33	C768	STA 33	actual last if no last
C795	STA 34	C76A	STA 34	line entered in command
C797	NOP	.....	
C798	NOP	.....	
C799	LDY #01	C76C	LDY #01	Index the high byte link
C79B	LDA (CE),Y	C76E	LDA (CE),Y	

C79D	BEQ C7E6	C770	BEQ C7BF
C79F	JSR \$C930	C772	JSR \$C962
C7A2	CMP #' '	C775	CMP #' '
C7A4	BNE C7AE	C777	BNE C787
C7A6	LSR 02DF	C779	LSR 02DF
C7A9	JSR \$E905	.....	.....
C7AC	BPL C7A9	.....	.....
.....	.....	C77C	LDA 02DF
.....	.....	C77F	BPL C77C
.....	.....	C781	JSR \$C962
.....	.....	C784	LSR 02DF
C7AE	INY	C787	INY
C7AF	LDA (CE),Y	C788	LDA (CE),Y
C7B1	TAX	C78A	TAX
C7B2	INY	C78B	INY
C7B3	LDA (CE),Y	C78C	LDA (CE),Y
C7B5	CMP 34	C78E	CMP 34
C7B7	BNE C7BD	C790	BNE C796
C7B9	CPX 33	C792	CPX 33
C7BB	BEQ C7BF	C794	BEQ C798
C7BD	BCS C7E6	C796	BCS C7BF
C7BF	STY B8	C798	STY B8
C7C1	PHA	C79A	PHA
C7C2	JSR \$CB9F	C79B	JSR \$CBF0
C7C5	PLA	C79E	PLA
C7C6	JSR \$EOC1	C79F	JSR \$EOC5
C7C9	LDA #20	C7A2	LDA #20
C7CB	LDY B8	C7A4	LDY B8
C7CD	AND #7F	C7A6	AND #7F
C7CF	JSR \$CC12	C7A8	JSR \$CCD9
C7D2	INY	C7AB	INY
C7D3	BEQ C7E6	C7AC	BEQ C7BF
C7D5	LDA (CE),Y	C7AE	LDA (CE),Y
C7D7	BNE C7F7	C7B0	BNE C7D0
C7D9	TAY	C7B2	TAY
C7DA	LDA (CE),Y	C7B3	LDA (CE),Y
C7DC	TAX	C7B5	TAX
C7DD	INY	C7B6	INY
C7DE	LDA (CE),Y	C7B7	LDA (CE),Y
C7E0	STX CE	C7B9	STX CE
C7E2	STA CF	C7BB	STA CF
C7E4	BNE C799	C7BD	BNE C76C
C7E6	BIT 02F2	C7BF	BIT 02F2
C7E9	BPL C7EC	C7C2	BPL C7C5
C7EB	RTS	C7C4	RTS
C7EC	JSR \$CB9F	C7C5	JSR \$CBF0
C7EF	LSR 02F1	C7C8	JSR \$C82F
C7F2	PLA	C7CB	PLA
C7F3	PLA	C7CC	PLA
C7F4	JMP \$C4B5	C7CD	JMP \$C4A8

If nul, end of list, exit
 Test keyboard + CTRL C
 If space bar not pressed,
 continue
 Clear keyboard buffer
 wait for a key press

wait for a key press
 test if CTRL C
 no, clear buffer
 Index line number
 load it (low byte)
 in X then
 index high byte
 load it
 + compare to value limit
 if not =, test not too big
 then test low byte
 if equal, still treat
 if last line passed, exit
 Save line pointer
 and high byte of number
 Go to line (X untouched)
 recover high byte of number
 + display line number
 Start with a space
 recover line index
 Eliminate b7 (last letter
 Display charac. of keyword)
 + pass to next character
 If line too long, exit
 take the character
 go and treat it
 if end of line, Y=0
 take link low byte
 in X
 index high byte
 take link low byte
 + initialise address
 of next line
 +continue if not end
 Test return mode
 b7=0: return to interpreter
 if not, simple return
 Go to the line
 printer off line
 get interpreter return addr.
 to adjust the stack
 + jump to interpreter

List a character

C7F7	BPL C7CF	C7D0	BPL C7A8
C7F9	SEC	C7D2	SEC
C7FA	SBC #7F	C7D3	SBC #7F
C7FC	TAX	C7D5	TAX

if positive, just display
 if not, restore to keyword
 number as index

//

B I T S & B O B S

WANTED

PETER THORNBURN is looking for a 'MICROTAN 65' as marketed by TANGERINE. Please contact Peter direct at: 12 Lady Wootens Green, Canterbury, Kent CT1 1NG or give him a call on 0227 766510

=====

FOR SALE

ORIC V23 MODEM for sale. This has never been used and as far as I can ascertain is complete except for documentation and software. I would think that with ORICOMMS from SHAREWARE and a little help someone could get started. RON EVANS is the vendor, but he has asked me to deal with the sale and despatch. Therefore offers please to include postage to Dave Dick at the usual address.

=====

3.5" DISC DRIVES

Trevor Shaw informs me that he has just bought a cased 3.5", 720K, 80 track double sided drive for his Oric. It appears to work fine. It has a Shugart interface with standard 34 way IDC connector (like the Atmos expansion port). It requires a +5V power supply and cables. They can be obtained for 29 pounds inc. V.A.T and 48 hour delivery. The vendors are : HOBBYKIT, Unit 19, Capitol Industrial Park, Capitol Way, LONDON NW9 0EQ. Tel: 081 205 0603. Be quick though as they only have 12000 in stock.

They also have some external 3" drives complet with power supply for 30 pounds plus post/pkg.

=====

HI - SCORES

MIDNIGHT FEAST - 1,070,330 by Henry Marke of Portsmouth. Henry still had 5 lives left at this point but decided to call it a day.

RABBIT - 113,200 (level 22) - Louise Dick. This turned into the Xmas hit in our house. We held a RABBIT competition and Louise won it easily. Another popular game with the family over the festive season was MONOPOLI from the Public Domain.

=====

COMPUTER SHOPPER SHOW

The recent show at Wembley was certainly a hive of activity. In fact many of us found that there was too much to view in one day. 3 inch discs were available at discount prices and they were quality brands such as Maxell and Amsoft.

It was nice to get together again with Jon H, Alistair Way, Wilkie and Bob Terry. David Wilkin informed me that the place was full of Crumpet. I went looking, but could only see sandwiches and rolls in the refreshment areas.

=====

NEXT ORIC MEET

I will soon be setting a date for another ORIC meet in Aylesbury. It is likely to be about mid-July. WATCH THIS SPACE !!!

=====

Recently we have had views from Bob Bazley and Adrian Westley on the Oric scene.

Now a short interview with Paul Baker who called into the OUM office . Paul has written 'PLANETS', a new addition to the Public Domain . He is currently writing a 'Quilled' adventure entitled 'GRANDAD'.

QUESTION

When and why did you start on the ORIC?

ANSWER

I first got an Oric-1 in 1983, it was my first computer. My Dad put an advert in the paper, to swap my Raleigh Winner Bicycle for any 48K computer.

QUESTION

What did you do with the machine in those early days? Play games or type in listings or program?

ANSWER

The computer didn't come with any games, just the Welcome tape. I started getting bored with Driver and the Demo, so I started reading the manual and programming. The first commercial game I bought was 'Cassette 50' from Cascade. It cost 10 pounds and only half of it loaded.

QUESTION

It sounds as though you were like many readers in as much as you thought you were the only one with an Oric and nobody was releasing software. How then did you expand your collection etc.?

ANSWER

My first commercial games were Hopper and Zebbie, which my Dad got from Computerama in Stoke as a Christmas present. They cost something in the region of 8 pounds each. The computer shop then went bust and I was lucky to find a Saturday market stall selling Oric games for a couple of pounds each. Then he disappeared. Two years went by, until I saw an advert in Amiga Action for Opelco (Steve Hopps was advertising Oric Disk Drives etc.). I wrote to Steve and he informed me of OUM. Gradually I increased my software collection, upgraded to an Atmos, got into more serious programming (even utilising a Tandy computer to help) and have recently bought a 5.25" drive and Cumana interface.

QUESTION

Tell us a bit about your text adventure titled 'GRANDAD'.

ANSWER

In the game you play the part of a twelve year old boy, visiting his grandad. You have to help the boy recover, surprise, surprise, the treasure, hidden somewhere in the Manor grounds. The game was written on The Quill, so is 100% machine code, making it work very fast and has the added attraction of almost human responses. It has three levels, the first starts at the manor, the other two you will have to buy the game to find out (you don't necessarily have to complete a level to proceed with the game.)

QUESTION

Louise has just marched into the room muttering that she has scored 49500 on STYX (that zap'em from No Man's Land). I know you liked the game. What other software has impressed you most since you've been here?

ANSWER

From my point of view the French games are the best, e.g: Willy, Lancelot, Tendre Poulet, Psychiatric, Karate, Cobra Pinball and Frelon. (Bit of advertismnt for Jon Haworth and the CEO as most are available via them, cheques to the usual address as Jon would say. Also find Easytext nice to use. For this interview, Dave is typing in the questions and I the answers.

I have recently had a letter from Trevor Shaw in Cleveland. Trevor raised a few points, some of which are worthy of inclusion as a question and answer item. Firstly the points raised and then my thoughts.

A) READING IBM DISCS

Part of my reason for buying a 3.5" drive was to see if I could devise a way of reading IBM format disks. I was intrigued to note some reference to this possibility in Iss. 51 of OUM. Using a disk sector editor ("Disked" under Oric Dos V1.1) I can certainly look at some of the disk. The main problems seem to relate to the fact that the Oric uses 256 byte sectors whereas IBM use 512 byte sectors. Therefore only half of each IBM sector can be read. What is BDDISK that you referred to in the article and what can it do? Has anyone else found a way of reading/loading data from IBM disks?

B) MODEM MATTERS

I have received one letter from a modem user - Peter Woolley from Hants. He would like a facility to save screens to disk from within Oricoms. This is something that could be done without too much difficulty. However, I would be interested to know what ideas other modem users have before making any modifications to the program. If all that anyone is interested in are simple extra features then I can probably get those done without too much problem. If a major rewrite is wanted then I doubt I have the time or interest now to do this. However I can certainly advise, provide technical info etc in case anybody else fancies writing a new comprehensive piece of communications software for the Atmos. It may perhaps be an idea to have a regular comms. column in OUM to encourage interest in articles on the Oric modem interface and how to program it. Perhaps your readers could let me/you know in which direction their interests lie?

C) CIRCUIT DIAGRAMS

In the last OUM you were asking about circuit diagrams. I have a circuit diagram for the Oric disk interface. This I worked out myself, and found it to be very similar to the Cumana interface - hence I modified the Cumana drawing rather than starting from scratch. I also have the diagram for the modem interface, which again I worked out myself by pulling an interface apart. I can send copies to interested persons (provided they send a stamped addressed envelope), or I can send a copy of each to you Dave, for you to deal with.

D) AMBER PRINTERS!

In issue 50 there was an enquiry from a Mr. Lester regarding an Amber 4000 DIY printer. Now whilst I have not heard of the 4000 I had heard of Amber before. I used to know someone who built one in the early '80s (I think it was covered as a project in Practical Electronics). So looking back through my old computer mags I discovered some info (see the enclosed advert). Now you and Rob Kimberley can add Amber to your list!!
N.B. I haven't written back to the enquirer - the 1983 address for Amber Controls may no longer be relevant anyway.

E) MIDI INTERFACE:

Has anyone built a MIDI interface for the Oric (I know the telestrat has one, but is there any software for it? Are Telesrats available?) It would be fairly straightforward to build one. Is there any interest out there in such things? If there is I could supply a relevant circuit diagram, would someone be interested in writing the software? I never was very keen on machine language programming!

.... THE EDITOR REPLIES ON THE FOLLOWING PAGE

DAVE TALKS BACK

A)

To date, I have only been successful in reading a text file from an IBM MS-DOS disc. By using BDDISK I was able to ascertain where on the disc the file was stored. I tried to read the text but only half of it appeared. Armed with track and sector locations I then used NIBBLE and was fully able to read the file and in fact dump it to printer. BDDISK is a disk editor, allows transfer of cassette files to disk, allow one to relocate GameInit, you can set up hidden files or directories. It also has other various options. Both NIBBLE and BDDISK are available from CEO via Jon Haworth. As CEO members prices now apply to OUM members, the cost would be 4.99 on 3" disk or 3.99 on 3.5" disk or 5.25". I know that Allan Whitaker and others have delved into the subject of reading IBM disks and perhaps Allan and others would like to send more information.

B)

This appears to be down to readers to let myself or Trevor their needs in Comms. matters. If I recieve enough material then I would of course feature a regular column in OUM. I know there are quite a few interested in the subject.

C)

I have written to Trevor for a copy of the circuit diagram and will send to anyone who mails me an S.A.E.

D)

Thanks for the info on the Amber printer which I will pass on to Mr Lester, who has now in fact purchased a Seikosha 1900. The advert for the Amber is quite novel and will be reproduced in this issue.

E)

I know of no one who has built a MIDI interface, unless readers tell me otherwise. I do know that Bob Terry in particular would be interested in this. Telestrats are able to be purchased from the CEO as and when they become available for about 180 pounds. These, of course are second hand machines. The CEO mag is currently running a tutorial on them. Jon Haworth and Andre Widhani have recently acquired the beasts from the CEO.



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ORIC Enthusiasts (OUM 53)

INTRODUCTION

The festive season is amongst us and chaos reigns in the Whitaker household. This should be considered the norm but at this time of year there is a tendency to step up a gear or two. Then good old mother nature slaps you back to the ground by sharing a dose of the black plague with you; offering instant karma (or is it comatose) while prostrate in the bed. Time to wind down.

This month's article is consequently late (sorry Dave) and short (sorry readers). I intend to continue with DISC BASIC and Geoff Phillip's book next month. In the meantime, I thought that I would include a tit-bit on my experience, a few years ago, with a TEAC 3" disc drive and include an update to my price list.

So let me wish everyone concerned with O.U.M. the very best of New Years and continued enjoyment of their computing hobbies.

Allan.

TEAC 3" DISC DRIVE

I thought that the name TEKDATA (those of 5.25" disc drive fame) sounded familiar. At the first Alternative Micro User Show held at Stafford I was loaned a Tatung Einstien 3" drive for evaluation with the ORIC. I found it to be incompatible with the ORIC in that transfers were extremely sluggish and nearly always failed. I could not understand why so after determining that the drive was a TEAC FD30A and its part number was 19307130-00 I pursued the UK importers for TEAC. Yes, you guessed it; it turned out to be TEKDATA.

Speaking to Peter Shaw, one of their technical experts, he informed me that those particular drives had a step rate of 12 milliseconds instead of the faster 6 mS drives supplied by Hitachi for the ORIC. I realised that Cumana DOS V1 had the facility to vary the step rate using the !DSTEP command, so after bootup I issued the command and found that I could transfer to and from the drive without any trouble. Unfortunately, Cumana DOS isn't the most popular DOS in the ORIC world so the drives are really next to useless if you cannot alter the step rate in SEDORIC DOS.

I am pretty sure that this can be done but I never have had the time to investigate. Pity really, as the drives were packaged neatly with their own power supply and strong metal case, and at the price of £55.00 were good value.

Price List (4th January 1992)

SHAREWARE SOFTWARE - disc only

The shareware software scheme may be considered to be a 'try before you buy' option which allows you to send off for the software, at a nominal initial purchase price, and if you like what you see you then register your name. Registering your name will result in receiving the full program and documentation where applicable. Registering also ensures that you are eligible for support and updates, at reasonable cost, as and when they occur. As in the recent case of SEDORIC V2.0.

COMMUNICATIONS - ORICOMMS (A) £1.00 initial purchase, £3.00 to register + manual.
 DATABASE MANAGEMENT - Megabase £1.00 initial purchase, £3.00 to register + manual.
 DISC UTILITIES - SEDORIC DOS (V2.0) 50p initial purchase, £7.50 to register + English manual.
 GRAPHICS/HIRES - Graphpad (A) 50p initial purchase, £1.00 to register + instructions, for disc only.
 PROGRAMMING - E-File (as found in Megabase) 50p initial purchase, £2.00 to register + manual. DISC-FORTH (A) 50p initial purchase, £2.50 to register + manual.
 TEXT/WORDPROCESSORS - Wordworth (A) 50p initial purchase, £4.00 to register + manual. ** WORD-SPEED initial purchase is 50p for registered SEDORIC users otherwise it is £1.00. Professional manual and registration is £7.50.

HARDWARE AND OTHER PRODUCTS

Blank Computer Cassettes £0.30 each ** Blank C15 Cassettes £0.60 each **
 Blank 3.5" Discs £0.80 ** Byte Drive Disc System Power Supply Unit (supplies 2 drives with +12v and +5v supplies) £17.75 ** EEPROMS, 27128s £3.50 ** ORIC ATMOS Label £0.30 ** ORIC Cassette Lead (3-pin DIN to 3-pin DIN) £1.50 ** ORIC Cassette Lead (3-pin DIN to 2*3.5mm jack sockets) £1.50 ** ORIC Label £0.30 **
 ORIC Modem System (with Modem, RS232 i/face, Prestel Software & Bulletin Board Software) £25.00 (only 5 left) ** ORIC TV Lead £1.50 ** ORIC-1 Keyboard Overlays. Allows you to mark the keys in use with your favourite commercial program or your self-penned ones. Only a few sets in stock. Cost is £0.50 per set **
 ORIC-1 Label £0.30 ** Switched Mode PSU £12.00 ** 34-way edge connectors, suitable for 3" and 5.25" disc drive data cables £1.00

BOOKS FOR SALE

An Introduction To Programming The ORIC-1 by R A & J W Penfold - Babini (A) £0.75
 ** Easy Programming For The ORIC-1 by Ian Stewart & Robin Jones - Shiva (A) £1.00
 ** Games For Your ORIC by Peter Shaw - Virgin (A) £1.50 ** Games To Play On Your ORIC-1 by Czes Kosniowski - Shiva (A) £1.00 ** Getting Started on the ORIC-1 by D G J Cole - Ellis Horwood (A) £1.00 ** Meteoric Programming For The ORIC-1 John Vander Reyden - Melbourne House (A) £1.00 ** ORIC Advanced User Guide by Leycester Whewell - Adder £4.00 ** ORIC ATMOS Manual by Ian Adamson - Pan £3.50 (Spanish version also £3.50) ** ORIC ATMOS Manual plus Welcome To ATMOS cassette £3.75 **
 ORIC-1 BASIC Programming Manual by John Scriven - Sunshine Publications (A) £2.00
 ** ORIC-1 BASIC Programming Manual plus Welcome To ORIC cassette (A) £2.25 ** The ORIC Book Of Games by Mike James, S M Gee & Kay Ewbank - Granada (A) £2.00 ** The ORIC Handbook by Peter Lupton & Frazer Robinson - Century (A) £2.00 ** The ORIC Programmer by S M Gee & Mike James - Granada (A) £2.00 ** The ORIC-1 And How To Get The Most From It by Ian Sinclair - Granada (A) £1.00 ** The ORIC-1 Companion by Bob Maunder - Linsac (Edition 1 or 2 - for those wanting to understand the ORIC-1 and its ROM) £1.00 ** The ORIC-1 Program Book by Vince Apps - Phoenix (A) £2.00
 ** 20 Games For The ORIC-1 by Wynford James - Micropress (A) £1.50 ** 30 Hour BASIC (ORIC Edition) by Clive Prigmore - National Ext College (A) £3.50 ** 6502 Reference Guide by Alan Tully - Melbourne House £3.00 (1 only)

KEY ()

A - Suitable also for the ATMOS when taking into account the differences in the PLOT command between the ORIC-1 and the ATMOS. The range on the ORIC-1 is 0 to 39 while on the ATMOS it is 0 to 39.

POSTAGE & PACKAGING - This is included in the cost for dispatch within the U.K., B.F.P.O. and the Channel Islands. Customers in other parts of Europe should add £2.00 per book, £3.00 per disc storage unit and £12.00 per computer/printer/PSU. Outside Europe the rates are per book £4.50 (airmail) £2.00 (surface mail), per disc storage unit £6.00 (airmail) £3.00 (surface mail) and please write for postage charges for a computer, printer or PSU. With most orders, the item(s) will be sent within a week of receipt of order but please allow 28 days for delivery.

PAYMENT & ORDERS - Send cheques/P.O.s payable Mr A. Whitaker in pounds STERLING addressed to ORIC Enthusiasts, 8 Staley Hall Road, Staleybridge, Cheshire, SK15 3DT. Cheques will not be cashed until the order is sent out. Please ring outside office hours for personal attention. Tel: 061-303-7369. Any faulty items must be returned within 4 weeks of invoice. Please use a certificate of posting.

TERMINUS

David Hall asks if anyone has managed to open the door of the building on the level after you ascend from the metro in 'TERMINUS', which is on the new CEO disc/cassette.

ERRATA

In the November O.U.M we printed the code word for KRYSTAL 1. The first word should of stated DRON and not ORON.

KRYSTAL WORLDS

In KRYSTAL 2 - FILL CANISTER WITH WATER AND FILL TUBE TO GET RING. PUT COIN IN SLOT - READ SCROLL - SORT OUT DEMON.

PLAYGROUND 21

I loaded the main file of PLAYGROUND 21 from IJK into BDDISK to have a look at the program. Near the end it states: " Copyright Ocean Software". I can only assume that Mr. Gyllup got a better deal from IJK.

FOR SALE

Judy Simms has for sale a 'SIMPLEFRAME' knitting machine complete with case, manuals, patterns tec. Price is 50 pound + post/pkg. Interested parties can reach Judy on 021 454 0326.

KRYSTAL WORLDS

In KRYSTAL 3 : EXAMINE RUBBLE GROUND - MOVE ROCK FOR HOLE - BREAK BOTTLE WHILE HOLDING BREATH - EXAMINE SHIP - DRINK POTION AND GO THROUGH HOLE - SELECT ARCHWAY AND SAY PASSWORD: " DIEE ONRE "

GAMEBOY

Judy Simms tells me of a GAMEBOY addict who was in the next bed to Judy in hospital recently. The addict played TETRIS all day - rather unusual for an 82 year old lady.

Needless to say Judy is now hooked and rather tahn spend 70 pound on a machine and one game is ordering TETRIX from Mirage/OUM and TETRIS from the CEO. Well done to Andre and Daniel for writing such great versions.

How about a new arcade game from the British. Mirage pay royalties, so earn a few pound.

TA MATE !

Paul Baker's trip to OUM land lasted 4 days and I put him to good use. Ta Paul for helping with the typing of this edition and collating of pages.

WORDSPEED

Unfortunately I haven't had time to look further at Dr. Ray's word processor. Hopefully a review next time. Incidentally a couple of additions are already planned at the next update start.

H U M O U R

DUE TO POPULAR DEMAND, THE SELF-IMPOSED BAN ON THE EDITOR'S HUMOUR IS TO BE LIFTED WITH EFFECT FROM THE NEXT ISSUE.

SEDORIC V2.0 - A BUG !!!

Although the new SEDORIC allows one to format a Master or Slave to 82 tracks/17 sectors; it does not permit one to do so on the short games Dos known as GAMEINIT. There is a note to this effect at the foot of page 47 of the new manual.

Option 4 on the new Sedoric menu is to initialise a GAMEINIT disc. On pressing '4' the response is : " ILLEGAL QUANTITY ERROR in 430". This refers to line 430 of the menu, which reads: "IF A#=4 THEN GAMEINIT:A". The way that I found around this problem was to go into the Directory and load the program from here with for example: GAMEINIT:C,42,17,S - which will INIT my 3" single sided drive configured as Drive C or GAMEINIT:A, 82,17,D for my 5.25" drive at A.

Another oddity that I found was that if I replied 'N' for No to the command 'Format disc (Y/N); then it would still ask for the disc name and date. Would it of also of formatted the disc???

MANIC MINER

For all those hooked on Manic Miner , and I know that it is Steve Hopps's favourite, here is the complete list of screens to be solved.::

- 1- CENTRAL CAVERN 2- THE COLD STORE 3- THE MENAGERIE 4- ABANDONED UKRANIUM MINE 5- EUGENES LAIR 6- PROCESSING PLANT 7- THE VAT 8- WILLY MEETS KONG BEAST 9- WACKY AMOEBATRONS 10- ENDORIAN FOREST 11- ATTACK OF THE MUTANT PHONES 12- RETURN OF KONG BEAST 13- ORE REFINERY 14- SKYLAB LANDING BAY 15- THE BANK 16- THE SIXTEENTH CAVERN 17- HOME AT LAST 18- BACK TO WORK 19- DOWN THE PIT 20- HALL OF THE MOUNTAIN KONG 21- CENTRE OF THE EARTH 22- THE END OF THE WORLD 23- SPACE SHUTTLE 24- AIRLOCK 25- WHERE IS THE HYPERSPACE BUTTON 26- IN A DEEPDARK HOLE 27- THE CHANNEL TUNNEL 28- NOT YHE CENTRAL CAVERN 29- THE WAREHOUSE 30- AMOEBATRONS REVENGE 31- SOLAR POWER GENERATOR 32- FINAL BARRIER.

Thanks to Graeme Burton for the info. Apparently screens 16 to 27 are in addition to those on the Spectrum.

DUM FUNDS

Prior to despatch of this issue there was approx. 250 pound in the DUM account.

A meaningless figure until I work out the total number of advance copies paid for. I will try and get a more meaningful accoun done for February, especially as photocopy charges are rising. Our photocopiers absolved the V.A.T increase, but with increased paper costs, have had to pass on an increase of approx. 16%.

THE SOFTWARE CLUB

is now at : PO BOX 164, CARDIFF CF5 3YB

IS CARDIFF THE CAPITAL OF SCOTLAND ??

OOPS!! - Glancing through the contact list on the latest CEO disc I noticed that some Welsh addresses were shown to be in Scotland. I bet they get some stick !! Incidentally, the latest disc/cassette also contains the excellent FRELON and my kid's fav. of the moment - RABBIT.

WELL I MANAGED TO PUT 19 PAGES TOGETHER AND I DO HOPE THAT THERE IS SOMETHING HERE FOR EVERYONE.

ISSUES 50,51 and 52 WENT OUT TO 100 READERS. ARTICLES FOR INCLUSION IN THE FEBRUARY EDITION SHOULD REACH ME BY JANUARY 24th.

A HAPPY NEW YEAR TO ALL - Dave Dick.