ØRIC USER MONTHLY

with Alternative Micros

Number 110

October 1996

Keeping the Oric alive

Edited and Distributed by Dave Dick, 65 Barnard Crescent, Aylesbury, Bucks HP21 9PW

THE EDITORIAL

HELLO AGAIN,

AND WELCOME TO THE OCTOBER ISSUE OF ORIC USER MONTHLY. IT DOESN'T SEEM LONG SINCE THE LAST ONE WENT OUT - COULD IT BE THAT I AM CATCHING UP?

THERE IS A MAJOR CHANGE WITH THE DISTRIBUTION OF O.U.M AS OF THIS ISSUE. BRIAN KIDD HAS KINDLY TAKEN OVER THE TASK OF PHOTOCOPYING, COLLATING, AND MAILING OF O.U.M. I WILL STILL BE RESPONSIBLE FOR EDITING, SUBSCRIPTIONS etc. THE CHANGES WILL NOT AFFECT THE READER, AS ALL INPUT WILL STILL COME TO ME. IT DOES, HOWEVER, MEAN THAT I WILL HAVE MORE FREE TIME TO CONCENTRATE ON OTHER MATTERS.

I THINK I AM NOW UP-TO-DATE WITH CORRESPONDENCE - NOW TO CATCH UP ON ORDERS etc.

YOU PROBABLY NOTICED THAT THERE WAS NO PAGE 9 WHATSOEVER LAST MONTH! RATHER THAN SEND IT OUT AS A LOOSE PAGE, I HAVE INCLUDED IT IN THIS ISSUE.

NOW TO THE INDEX:

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PAGE 20 -------- The BACK PAGE - we made it, but only just!

MAKE A NOTE

THE ADDRESS FOR ALL MAIL TO JON HAWORTH HAS NOW CHANGED. PLEASE USE THE ONE SHOWN AT THE BOTTOM OF PAGE 19.

A BIG THANK YOU

A BIG THANKS TO STEVE HOPPS FOR GETTING MY DISC DRIVE SYSTEM FUNCTIONAL AGAIN. ALL SORTS OF PROBLEMS WITH IT, BUT AS OF OCTOBER 5th. I AM FULLY OPERATIONAL ON THE ORIC AGAIN. WITH A BIT OF LUCK I WILL BE ABLE TO PUT TOGETHER SOME ORIC GOODIES FOR THE NEXT ISSUE OF O.U.M.

news ..... NEWS .....NEWS

VISUAL PROGRAMMING

JONATHAN BRISTOW WILL BE STARTING A COURSE IN NORWICH IN FEBRUARY ON VISUAL PROGRAMMING. MEANWHILE HE HOPES TO COME UP WITH SOMETHING NEW FOR THE ORIC.

O.U.M ON THE NET!

AS WE GO TO PRESS (OCTOBER 8th), I AM AWAITING RE-DELIVERY OF A FAX/MODEM FOR MY P.C. I WILL SOON BE SURFING THE NET, AND CONTACTING OTHER ORICIANS OUT THERE. HOPEFULLY THIS WILL OPEN UP NEW AVENUES. I DID HAVE THE MODEM FOR A FEW DAYS, BUT WAS GETTING ALL MANNER OF CONFLICTS. WE FITTED, TOOK IT OUT, RE-FITTED IT etc.etc. MANAGED TO SIGN UP WITH COMPUSERVE, BUT THEN COULDN'T GET ON-LINE. NUMEROUS TELEPHONE CALLS TO COMPUSERVE, SOFTNET, A.N.OTHER (THE SUPPLIER OF THE MODEM), NICK HAWORTH, AND MY COMPUTER SUPPORT CENTRE. FINALLY THE SUPPLIER THOUGHT THE MODEM MIGHT BE FAULTY AND SAID TO RETURN IT. THIS WAS DONE. RE-BOOTED THE SYSTEM, STILL HAD CONFLICT ERRORS, AND MY PRINTER WOULDN'T WORK. TRIED MANY THINGS. IN THE END I WAS TOLD TO RE-INSTALL WINDOWS '95. THIS I DID - STILL NO WORKING PRINTER. THEN MATTHEW HAD A THOUGHT - HAD HE PUT THE CONNECTION FOR THE PRINTER BACK IN THE COMPUTER CORRECTLY WHEN HE HAD TO REMOVE IT TO INSTALL THE MODEM? WE HAD'NT TRIED THE PRINTER AT THAT TIME. WE FOUND THAT THERE WERE TWO WAYS TO FIT THE CONNECTION INSIDE THE P.C. TRIED THE OTHER WAY, AND OOPS !!! THE PRINTER NOW WORKS. IT LOOKS AS THOUGH THAT MAY OF CAUSED THE CONFLICT PROBLEM WITH THE MODEM. I BET THE SUPPLIER DOESN'T FIND ANYTHING WRONG WITH THE MODEM. I STILL WONDER HOW WE GOT THROUGH TO COMPUSERVE INITIALLY!!!

O.U.M MAY WELL BE ON-LINE SOON

THE STAFFORD SHOW

THE SHARWARD ALL FORMATS COMPUTER FAIR AT STAFFORD IS DUE TO TAKE PLACE ON NOVEMBER 9th. ROBERT COOK IS CONSIDERING GOING, IF THERE IS A BAR!

EINSTEIN USERS WILL HAVE THEIR OWN STAND, MANNED BY STEVE POTTS.

MEANWHILE, BRUCE EVERISS HAS ONE OF HIS ALL FORMATS FAIRS AT STANTONBURY CAMPUS LEISURE CENTRE IN MILTON KEYNES ON THE SAME DATE.

TURBO TAPE ROUTINE

ON PAGES 13,14 & 15 OF THIS ISSUE YOU WILL FIND INFORMATION ON A TURBO TAPE ROUTINE FROM STEPHEN MEACHEN.

A CASSETTE VERSION OF THIS IS AVAILABLE FROM BRIAN KIDD - JUST SEND HIM 4 x 25p STAMPS (ADDRESS ON BRIAN'S PAGE).

FOR THOSE ON 3.5" DISC, JUST SEND ME A BLANK DISC AND A 25p STAMP TO RECEIVE THE TURBO ROUTINE + AN EDITOR, AN ASSEMBLER & MONITOR, A SOURCE CODE FILE, AND A HIRES PICTURE. THE DOS IS SUPER2DOS.

FOR THOSE USING THE ORIC EMULATOR, I CAN SUPPLY THE DISC IN MSDOS FORMAT.

BITS 'n' BOBS

BOWIE

WE MENTIONED THE FACT IN THE LAST O.U.M THAT THE ONLY WAY TO GET DAVID BOWIES NEW SINGLE WAS VIA THE INTERNET. THREE COMPACT DISC QUALITY VERSIONS OF THE SONG "TELLING LIES" ARE ON THE SITE: www.davidbowie.com

MOVEMENT IN THE RANKS

A FEW OF YOU ON THE MOVE AGAIN, AND SO HERE WE GO WITH SOME UPDATES.

STEVE MARSHALL HAS COME BACK OVER THE BORDER. HE AND ALLY NOW RESIDE AT: ELM HOUSE, CROSBY, Nr. MARYPORT, CUMBRIA. CA15 6SQ. (Tel: 01900 812527)

JONATHAN BRISTOW HAS BEEN TRACKED DOWN TO: THE PLOT, THE STREAT, CASTON, Nr. ATTLEBOROUGH, NORFOLK. WE WILL LET YOU KNOW THE PHONE NUMBER WHEN JONATHAN HAS REMEMBERED IT!

PETER THORNBURN IS NOW A SCHOOL TEACHER IN CHESTERFIELD, AND HAS MOVED TO: 5 GREENACRES DRIVE, SOUTH NORMANTON, DERBYSHIRE. DE55 2LA. TEL: 01773 511365

BRIAN KIDD CAN NOW BE REACHED ON: 01633 273359

CORRECTED DETAILS FOR ROBERT COOK ARE: 10 THOMSON AVENUE, KING'S NORTON, BIRMINGHAM. B38 8YD. TEL: 0121 628 6156. I HOPE THE SETTEE IS COMFORTABLE, ROBERT!

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3" DISCS

FRANK BOLTON HAS ABOUT 50 off 3" DISCS TO SELL. THE PRICE FOR THESE SECOND-HAND DISCS IS £1 EACH, POST FREE, MINIMUM ORDER IS 5 off.
FRANK IS AT: 13 WITHENS CLOSE, LEICESTER. LE3 6QN

THE BEEB

ALAN BOSWORTH CAN BLOW EPROMS FOR THE 'BEEB'. HIS ADDRESS IS ON PAGE 5.

MICROTAN 65

PETER BRAGG HAS PROMISED TO GET SOME COPIES DONE OF HIS MICROTAN 65 INFO.

ORIC SOFTWARE LIST

PAUL SCHOFIELD ASKS IF THERE IS A LIST OF ALL ORIC SOFTWARE CURRENTLY FOR SALE. THE ANSWER - A CASSETTE LIST WAS SENT OUT SOME TIME AGO - SEND AN S.A.E FOR A COPY. DISC SOFTWARE IS ADVERTISED EVERY SO OFTEN - I WILL GET A FULL LIST TYPED UP. CLUB EUROPE ORIC AND PUBLIC DOMAIN SOFTWARE STEMS FROM JON HAWORTH - DROP HIM A LINE FOR HIS LATEST LISTS.

ARNT IN ENGLAND

OUR NORWEGIAN READER, ARNT ERIK ISAKSEN, IS CURRENTLY IN ENGLAND STUDYING. BASED NEAR THE 'ELEPHANT & CASTLE' IN LONDON, HE IS HERE UNTIL DECEMBER. I HOPE TO MEET UP WITH ARNT AGAIN BEFORE HE GOES HOME.

READERS LETTERS

DEAR DAVE,

MY WIFE AND I ENJOYED THE MEETING AT THE CLUB; IT WAS FAR BETTER THAN THE OTHER PLACE (THE BAR WAS OPEN A LONG TIME), AND YOU HAD IT RUNNING WELL.

I MUST BE GETTING BETTER, AS I'VE JUST FINISHED BRIAN KIDD'S COMPETITION, AND WILL SEND MY ANSWERS ON TO HIM.

I HAVE ENCLOSED AN INTERESTING ARTICLE ABOUT THE INTERNET, WHICH APPEARS TO MAKE MOST OF ITS USE ILLEGAL. SEE WHAT YOU THINK.

- D.J.SMITH (WALSALL)

DEAR DEREK,

GLAD YOU ENJOYED THE MEETING. IT WAS IN FACT THE SECOND TIME THAT WE HAD USED THIS CLUB. IT WAS IN 1994 (YOUR PREVIOUS VISIT) AND BEFORE THAT WE USED THE OTHER LOCATION.

BRIAN WILL BE GLAD TO HEAR THAT SOME PEOPLE ARE TRING HIS COMPETITIONS, AND I KNOW THAT FRANK BOLTON WAS WORKING ON IT. THANKS FOR THE INTERNET ARTICLE, WHICH I WILL DETAIL ELSEWHERE IN THIS ISSUE.

- DAVE

DEAR DAVE,

I SAW YOUR DETAILS IN 'MICRO MART'. WOULD YOU PLEASE SEND ME COPIES OF 'ORIC USER MONTHLY'. I RECENTLY PURCHASED ONE OF THESE DISC DRIVE SYSTEMS.

I AM AN AMSTRAD PCW USER, SO THE 3" DISCS CAUGHT MY EYE!

CAN ANY OF THE PROGRAMS BE TRANSFERRED TO OR FROM THE AMSTRAD CPC/PCW SYSTEMS?

- IAN STUDLEY, 44 PAYNTON ROAD, ST.LEONARDS ON SEA, EAST SUSSEX. TN37 7DY (TEL: 01424 713927 BETWEEN 3p.m & 7p.m)

DEAR IAN,

I HAVE WRITTEN SEPARATELY TO FIND OUT WHICH ORIC SYSTEM YOU HAVE, AND ENCLOSED AN O.U.M.

WITH REGARD TO THE AMSTRAD, PCW SYSTEMS UTILISE CPM, AND SO THESE PROGRAMS CAN BE TRANSFERRED TO OTHER CPM MACHINES. ON TRANSFERRING ORIC TO AMSTARD AND VICE VERSA WOULD NOT BE POSSIBLE ON MACHINE CODE PROGRAMS, SHOULD BE O.K. ON ASCII FILES, AND THERE IS A POSSIBLE CHANCE WITH BASIC FILES (YOU WOULD NEED TO AMEND CERTAIN COMMANDS AND CHANGE PEEKS AND POKES etc.)

MY LOCAL EXPERT WOULD BE WILLING TO ADVISE AND HELP FURTHER, AS HE IS WELL VERSED IN TRANSFERRING FILES FROM ONE MACHINE TO ANOTHER. YOU CAN WRITE TO HIM OR TELEPHONE HIM - ALAN BOSWORTH, AROSFA, WATTS GREEN, CHEARSLEY, AYLESBURY, BUCKS. HP18 0DD. TEL: 01844 208350

MEANWHILE, PERHAPS WE HAVE SOME AMSTRAD USERS OUT THERE WHO HAVE SOME SOLUTIONS.

Two Programming Oddities by Stephen Meachen

Okay all you assembler programmers, let's be honest. You waste a lot of time working around the fact that the 6502 doesn't have enough registers don't you? Well I do anyway. So one slightly drunken afternoon I decided to write a routine that saves A,Y and X on the stack with out corrupting them so I could work on the values, mess them about and then get them back without littering the code up.

```
.PUSH
first the registers are saved on the stack
PHA
TXA
PHA
TYA
PHA
now the registers are saved but we can't RTS yet because we have to move the return address
to the bottom of the stack
TSX                 get the stack pointer and
LDA #105,X          put the return address on the bottom of the stack
PHA
LDA #104,X
PHA
now we have to get the correct values back into X and A. To do this needs a little trick. We have to
temporarily  store A on the bottom of the stack.
LDA #103,X          get A
PHA                 save it on the stack
LDA #102,X          get X
TAX                 transfer X into X register
PLA                 pull A off the stack
RTS

.PULL
TSX         the fist thing we have to do is put the return address onto the stack above the three
PLA         values pushed there by the PUSH routine
STA #106,X
PLA
STA #107,X
now the return address is in place, pull the values of the registers off the stack
PLA
TAY
PLA
TAX
PLA
RTS
```

note that the status register isn't preserved so on return the status register is valid for A

Advantages:
keeps your code looking good
eliminates "where should I store these values?" hassle

Disadvantage
Isn't very quick.

Machine Code for the Oric Atmos (Part 57)

Peter N. Bragg

The Story so far

In the last article, we started to have a look at the subject of Interrupts, what they are and what they can be used for.

We found that, like most computers, the Oric makes a lot of use of the Interrupt facility, which is provided by it's 6502 microprocessor.

The Operating System is just one area, where the Interrupt facility is in constant use. We had a brief look at how it is used to handle the necessary updating operations, for the keyboard and screen display.

The control timing for these operations is produced by the VIA chip, which sends an electric signal down a line into the microprocessor, at regular intervals, which is used to activate the Interrupt system. That then causes the computer to run a set of routines to scan and update, the necessary items of hardware, such as the screen and keyboard etc.

Such operations are transparent and brief so that they can be repeated at frequent intervals, to provide a constant service, without interfering with the user's normal operation of the computer.

So, Where Now ?

Once you have interrupted the microprocessor, the next question is, how does it pass control on to those specific "interrupt" routines. Bear in mind, that there are quite a number of eight bit computers, apart from the Oric, that make use of the 6502 Microprocessor and they all have very different requirements, for their hardware, such as keyboards and displays. So, it is obviously impossible to write a single routine that would handle these operations for all 6502 computers, including the Oric, Apple, BBC Micro and Atari, to name just a few.

The answer is to have a common address for all machines and use that as a vector address for jumping off to the specific "interrupt" routine for each different type of computer. That is how the 6502 Microprocessor handles the situation. It earmarks the two highest memory locations, which are usually located in the Operating System ROM, for this purpose. These locations are #FFFE and #FFFF. The 6502 assumes that they hold the start address of the "interrupt" routine. When the interrupt line becomes active, the 6502 stops what it is doing and takes a look at the contents of those two locations for the vector address. It will then jump to that address, in order to deal with the required "interrupt" operations.

If you look at the locations #FFFE and #FFFF in the Oric Atmos, you will find that it is set to the vector address #0244. However, if you were to look at the same locations (&FFFE and &FFFF) in the BBC Micro, you would find a different vector address. The same locations in the Apple computer hold yet another address. In each case the address is the start of that computers "interrupt" routines.

So to summarise so far. Every time a piece of hardware such as the VIA timer, puts an electrical pulse on the interrupt line to the 6502 Microprocessor, it causes an almost immediate jump to a set of routines, whose address is stored in locations #FFFE and #FFFF. That is the basic principle of how the interrupt system works, for all 6502 computers, including the Oric. However, it should be noted that the system needs to be a bit more versatile than this, so let's have a closer look at the routines "start" address.

The Second Vector
---------- As mentioned before, the "start" address held in locations #FFFE and #FFFF is #0244, but in fact it should be noted that the required "interrupt routines" are built into the computers operating system ROM chip and really start at #EE22.

The fact that the interrupt routines are in ROM could make access to the Interrupt system, quite difficult for most users. However, this problem is easily solved by using that second vector address in RAM, at #0244/46, which is really a three byte jump instruction to the ROM routines. Unlike the ROM, the second vector jump in RAM can be written to and therefore altered to include any extra "interrupt routines" written by the user, in the system.

Under normal circumstances, the interrupt system starts up with a jump, via the vectors in #FFFE/FF and #0244/46 to the routines starting at #EE22.

However, if a programmer needs to make additions to the "interrupt routines", it can be done quite easily. All the programmer has to do, is to write a new routine and end it with a jump to #EE22. The vector jump at #0244/46 is then altered to point to the new routine and "hey presto !" the interrupt operation has been extended.

Don't try that yet ! You can't alter the contents of #0244/46, by writing it in, one digit at a time, because at the rate of a hundred interrupts a second, you'll get one digit in before the interrupt goes active and the Oric tries to jump to a part written address. It won't like that ! and won't speak to you again, without a reset.

That is the "how and why" of the second vector. We will have a look at how to use it in a little while. Meanwhile, there is one other aspect of the "interrupt" system to consider, that is the question of "masking" interrupts.

Interrupt Requests and Non Maskable Interrupts
---------- So far we have looked at a single type of interrupt, but in fact there are really three types available to us in the 6502 Microprocessor. We can ignore one of them for the time being as it is a simple operation, involving the Break instruction. We are not dealing with that, at the present time.

At the moment, we are only interested in the Interrupt Request and the Non Maskable Interrupt, which are more commonly referred to as the I.R.Q. and the N.M.I. or just IRQ and NMI, respectively. In fact, all of what we have been looking at so far, applies to the "Interrupt Request" (IRQ).

The obvious question is, why do we need two Interrupts and what is the difference between them. The difference between the two is that the "Interrupt Request" can be "disabled" or in other words, put out of action, by "masking" it out, whereas the "Non Maskable Interrupt", as it's name implies, cannot be "masked" out or put out of action.

The two types of Interrupt each have their own set of vector addresses. The Interrupt Request uses #FFFE/FF and #0244/46 to access a routine at #EE22, as we have already seen. The Non Maskable Interrupt uses #FFFA/FB to get it to a vector jump in locations #0247/49, which then takes it on to a routine at #F8B2, which is also located in the Oric's operating system ROM.

We will be looking at how and why these two different types of Interrupt are used, next time.....see you then.

The 8-bit A to Z part 16

I once met someone who admitted to actually liking Speccies, but that's another story. It must be remembered that Sinclair's computers were design exercises as much as anything - Sinclair Research was set up to see what could be done with technology. Well that was one excuse I heard. We now have a further and closer look at Sinclair's bits of plastic.

* ZX 80 One of the most loathsome pieces of (white) plastic ever to smoulder on a desktop. These tiny things were toys for electronics enthusiasts. 'Build your own computer and show what a smarty-pants you are.' It took some brains to reduce all the gubbins required to make a computer into the miniscule case of the ZX80. But that's about all that was good about them. They were so bad Sinclair replaced them with the ZX81 the following year.

* ZX 81 This was a proper black plastic machine like all Sinclair Devices should be. It was the first computer I owned as was the case for many others. The ZX81 was pretty much the same machine as the ZX80, except it worked!! I don't want to slag the thing off too much as I have many fond memories. Other users will remember the 'membrane keyboard' and the utterly tedious 'one-key BASIC' which involved staring at the keyboard for hours trying to find the right combination of keys.

Companies like D'kTronics sprung up from all over Britain offering add-ons so you could build the machine up be a full colour computer with proper Hi-res graphics, sound and interfaces - everything you'd expect from a real computer really. Sinclair in the meantime, introduced odd things like his 'thermal printer' which produced barely visible marks on strange silver paper. The really odd thing was the number of people who bought such devices.

SPEC: Z80 CPU. 1K RAM. SCREENS: 32x24 text 64x44 graphics. 40 'keys' on flat membrane keyboard 1 expansion port.

We all knew they weren't very good, and we all knew they were cheap - so we bought them because we couldn't afford an Apple or a Beeb like we really wanted.

* ZX SPECTRUM Sinclair manages to squeeze a colour computer in to a tiny black plastic box. Many corners are cut to get the price down. The 'dead-flesh' keyboard is still remembered with dread. The first versions were prone to over heating, (despite a large chunk of metal bolted to the circuit board!) and there ended up being 17 different versions of the 'Speccy'. However much we laugh about the damn thing, it was the success of the Speccy that companies like Oric set out to grab a slice of the action. Without it you wouldn't be ready the magazine you hold in your hands.

SPEC: Z80 CPU 16K/48K RAM 16K ROM. SCREEN: 32x24 text,256x176 graphics (on the same screen ie not separate like Oric) 8 colours (with brightness control) 21 user definable graphics characters. 40 rubber keys without a proper space bar. Beep sound via a poxy little speaker.

Speccies weren't very good but they were cheap and sold by the truck load. All the cottage industries moved from the ZX81 to the Speccy and spotty teenagers became millionaires by writing dodgy software. Strange devices like 'microdrives' appeared from all over the place and the whole world went completely bonkers.

* ZX SPECTRUM + After everybody had been laughing at the amusing dead-flesh keyboard of the speccy for some time, Sinclair bought out the Plus. This had a bigger case and better keyboard with some extra keys. Interestingly the cursor keys have been put either side the space bar like on the Oric. A reset button has been included on the side (where you can get at it !!) Inside it's the same old Speccy.

* **ZX SPECTRUM 128+** After threatening to do so for some time, Sinclair eventually released a 128K version of the Speccy, (in Spain). This is essentially the Plus with a dirty great heat sink bunged on the side. Under the bonnet there is a new beast lurking. The 128 is a new machine with it's own version of Sinclair BASIC which you can type in properly with out using that tedious 'one-key' method. The sound has been vastly improved with a GI 8912 sound chip and sound output through the telly.

The machine also has a built in emulator to emulate the original Speccy so ALL the old programs can be loaded. When you turn the beast on you get the option of which version to use, or to run a tape test routine which checks the tape recorder is set up to its best settings, or a 'calculator' which is supposed to turn the machine into a calculator but is practically useless.

An RGB socket has been added as well as an RS 232 port. Also there is a 'key pad' socket where you can use a phone as a numeric key pad. TO BE CONTINUED.....

M U S O

THE GAMESTER

HINTS AND TIPS WANTED

PETER THORNBURN WRITES TO SAY THAT HE AGREES WITH 'MUSO' WITH REGARD TO MORE BEING PUBLISHED IN O.U.M FOR NON-PROGRAMMERS. HE WOULD ALSO LIKE TO SEE MORE HINTS AND TIPS ON GAMES THAT HAVEN'T PREVIOUSLY BEEN REVIEWED OR THOSE THAT ARE MORE OBSCURE. PETER IS PARTICULARLY INTERESTED IN WITH HINTS/TIPS FOR 'BERING' AND 'OPERATION GREMLIN'.

MEANWHILE, PETER HAS A NEW HI-SCORE ON 'INVADERS' FROM ARCADIA. IT IS 3870 - AN UPDATE FOR YOU, MUSO.

NEW DUNGEONS GAME

A NEW ORIC 'DUNGEONS AND DRAGONS' STYLE GAME HAS FOUND ITS WAY ONTO THE INTERNET. IT HAS HAD SEVERAL UPDATES, AND THE COMPLETED VERSION WILL APPEAR ON A FUTURE CLUB EUROPE ORIC DISC. Meanwhile,a preview of it is on the latest CEO disk. Mickael Pointer started the game in the 80's, but had to stop due to the dreaded 'Out Of Memory'. It has been re-written in 'C'. The characters/objects that I saw are nice and bold and colourful, and reminded me of L'Aigle D'or. You select the leader that you want to be from CONAN,ARNOLD,GANDALF or DAMOU. Choose on of 7 movements, and off you go.

3D TENNIS

Also on the new CEO disk (among other things), is a 3D Tennis game from Spanish Orician, Jose Orostivar. Although it lacks the professionalism of ROLAND GARROS, this effort (called TENIS) is a bit of fun, though I did get fed up with the ball boy running across court between every point.

TETRIS - version 4

After TETRIS from the CEO, TETRIX from Andre Widhani, and TETRIS GB from Jonathan Bristow, along comes TETRIS from Guillaume Meister. Nice graphics, tidy screen layout. My wife, and I will give it a thorough games test over the coming weeks - "Ann; Get off the computer. I'm trying to type this up. What do you mean - the hi-score table doesn't work?"

THE ULTIMATE FAVOURITE ARCADE

What in your opinion is the all-time great arcade game for the Oric? Is it ZORGON, DPTLQ, XENON, or perhaps one of the newer breed of games like GRENDEL or GALACTOSMASH. Send your list of personal top 3 arcade games to O.U.M, and we will publish the results.

DON'T FORGET - DO IT NOW!!!!!!!!!!!!

BRIAN'S PAGE - OUM Oct. 1996

BRIAN KIDD , 32 KIER HARDIE CRESCENT , NEWPORT , S . WALES . NP9 9DQ

WELCOME TO ANOTHER ISSUE AND ANOTHER SET OF MY PAGES

MY APOLOGIES GO OUT TO JIM GROOM , WHO SENT IN AN ALTERNATIVE ANSWER TO THE '9 LETTERS / 9 WORD ' POSER OF ISSUES PAST , HIS ANSWER BEING:

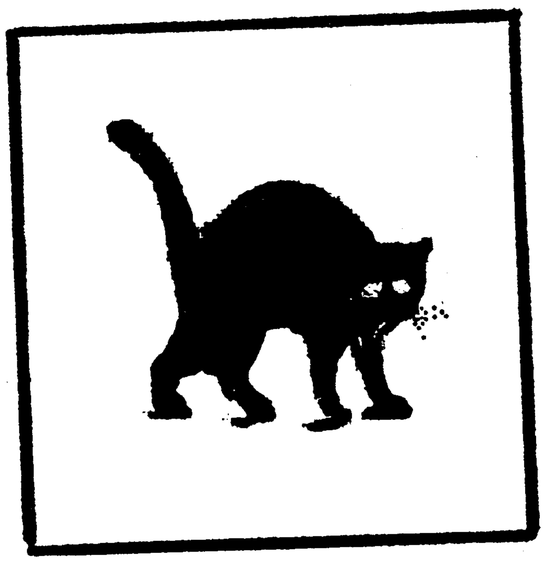
' S platters / S platter / L atter / L ater / L ate / A te / A t / A '

IN THE SAME ISSUE JIM ALSO GAVE THE ANSWER TO THE ' CIGGIE ' POSER AS 14 - I WILL ACCEPT THIS AS CORRECT , ALTHOUGH MY ANSWER WAS CORRECT , BUT COULD BE CLASSIFIED AS A TRICK ANSWER .

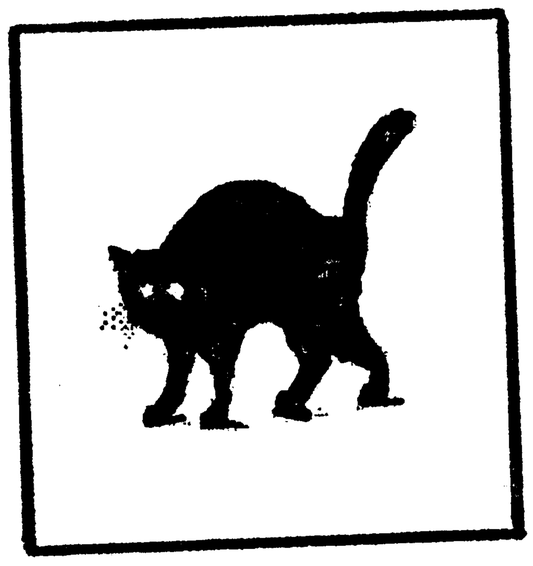
SORRY , THAT I COULDN'T ACKNOWLEDGE YOUR LETTER ANY SOONER - DATELINES AND PART PRINTED PAGES , FORCED THIS LATE REPLY .

NOW FOR THE ANSWERS TO LAST ISSUE'S POSERS:

1) THE SINGLE NUMBER MATRIX



7	8	5	6	4	2	1	3	9
3	2	1	7	5	9	8	6	4
9	6	4	1	8	3	5	2	7
2	1	9	3	6	4	7	8	5
5	3	8	2	9	7	6	4	1
6	4	7	5	1	8	3	9	2
8	7	3	9	2	5	4	1	6
4	9	6	8	7	1	2	5	3
1	5	2	4	3	6	9	7	8



2) THE LETTER SEQUENCE

THE ANSWER IS 'T' - THEY ARE ALL LETTERS MADE FROM STRAIGHT LINES .

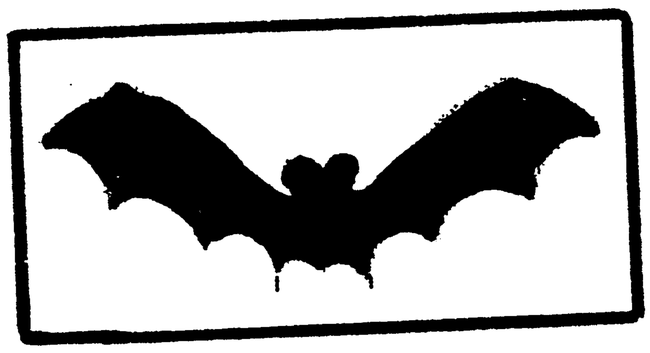
3) NUMBER CROSSWORD

ACROSS : 1) 561 (33 * 17) : 3) 666 (THE No. OF THE BEAST)
DOWN : 1) 576 (24 ^ 2) : 2) 146 ({ 12 ^ 2 } + 2)

Brians pages continued....

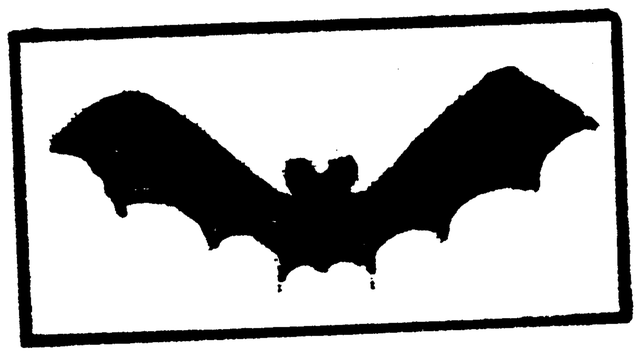
4) MAGIC SQUARES

QUITE EASY REALLY - YOU JUST HAVE TO REALISE THAT A LINE MUST TOTAL 15
THERE ARE MANY ANSWERS , AMONGST THEM :



2	9	4
7	5	3
6	1	8

4	9	2
3	5	7
8	1	6



5) THE RABBIT AND THE WOOD

A SILLY ONE THIS - THE ANSWER IS HALFWAY , ANY FURTHER AND HE IS RUNNING OUT OF THE WOOD !

RUNNING OUT OF SPACE , SO QUICKLY ONTO THIS MONTH'S POSERS

1) FIND THE SMALLEST PERFECT SQUARE THAT IS ALSO THE AVERAGE OF TWO OTHER PERFECT SQUARES.
IN OTHER WORDS , FIND THREE PERFECT SQUARES A , B & C SUCH THAT : B = (A + C) / 2 .

2) TWO NUMBERS A & B , ARE MADE UP FROM THE DIGITS 0-9 , USING EACH DIGIT ONCE AND ONCE ONLY . THE CUBE OF ONE OF THE NUMBERS IS EQUAL TO THE SQUARE OF THE OTHER , IE : A ^ 2 = B ^ 4 . WHAT ARE THE NUMBERS ?

3) A WOMAN GOES INTO HER LOCAL SUPERMARKET . SHE DECIDES TO USE HER NEW CALCULATOR , TO WORK OUT THE TOTAL OF HER SHOPPING AS SHE GOES ALONG . UNFORTUNATELY , SHE IS NEITHER NUMERATE , NOR ADEPT IN THE USE OF THE CALCULATOR , BECAUSE BY MISTAKE , SHE HITS THE x KEY INSTEAD OF THE + KEY UPON EACH OPERATION . AFTER THE SHOPPING GOES THROUGH THE CHECKOUT , THE CASHIER ASKS FOR A PAYMENT OF £7.11 , WHICH WAS WHAT THE TOTAL SHOWS ON HER CALCULATOR . THE WOMAN, HAVING BEEN ASKED FOR THE SAME TOTAL AS SHE WORKED OUT , IS HAPPY , AND PAYS FOR HER SHOPPING , NOT KNOWING OF THE BLUNDER SHE MADE.
IF I TELL YOU THAT SHE BOUGHT ONLY FOUR ITEMS , CAN YOU WORK OUT THE COST OF EACH ITEM?

4) YOU ARE GIVEN AN INDEPENDANT SERIES OF NUMBERS , NAMELY :

SERIES A) 1 , 3 , A3 , 120 , A5 , A6 ETC ETC...

IN THE SERIES , THE PRODUCT OF ANY TWO TERMS + 1 , RESULTS IN A PERFECT SQAURE.
FOR EXAMPLE IN THE SERIES :

1 x 3 + 1 = 4 : 1 x 120 + 1 = 121 : 3 x 120 + 1 = 361

CAN YOU FIND THE VALUES OF ANY OF ANY OF THE MISSING NUMBERS
ie. A3 , A5 , A6

SEE YOU NEXT MONTH !

LATE NEWS .....

TO MY SURPRISE I HAD FOUR REPLIES TO THE SEPTEMBER ISSUE, THREE OF WHICH CORRECTLY WORKED OUT THE 'SINGLE NUMBER' POSER - AS A RESULT A PRIZE GOES TO ALL CORRECT ENTRANTS, NAMELY : P. THORNBURN , D. SMITH & K. DUDDLE .

THE UNLUCKY OTHER ENTRANT THIS WAS C. COOK - BUT THANKS GO TO HIM FOR TRYING.

Time to buy some more prizes I think !

Stephen Meachen
25 Shipwright Rd
Rotherhithe
SE16 1QB
tel 0973 352662
Tuesday, 24 September 1996

Dear Dave,
thanks for organising the Oric meet.
I said I would send you my turbo tape routine and here it is. Well not quite. This is a new improved version. It runs about 2.5 times faster than the ROM routine but without using the incredibly high frequencies that the first version did. Sounds impossible? Try it out and see if you have any luck.
When I wrote my first tape routines I used a stereo cassette deck, a Realistic STC400 or something like that. I took the routines in ROM and got rid of all the timing inaccuracies and upped the frequency to the max. This was fun but the high frequency used exceeded the resolution of the tape heads in mono portable tape players. Reducing the frequency enough for mono tape players made the whole thing pointless. I had an idea though.
The standard routines only detect positive going pulses. If I rewrote them to use negative going pulses too, I would immediately double the baud rate. The only doubt was whether or not the Oric can detect them. After a little experimentation I discovered that it can.
A further increase can be achieved by removing the extra bits that the standard routines save with each byte.
This routine was developed using a Sony TCM 939 that Dixons and Argos sell for £25.
On the disk is an editor (E.COM) an assembler and monitor (U.COM) a source code file (QTAPE.W) and a hiires picture (TPIC)

Boot up from the disk and type !E to load the editor
Type CTRL D then press U to load the assembler and monitor
Type CTRL D then press L to load the source code file
Type CRTL E to assemble the source
Press ESC to exit the editor

Now you have the tape routine assembled at #5000. If you want to find the end address of the routine then type DEEK(#5001).

The command structure

CALL #5000 c "filename",A#start,E#end
c = S to save or V to verify or L to load
the parameters are the same as for CSAVE.
TPIC is a hires screen of vertical lines which can be used as a test file.
E.g. CALL #5000 S "PICCY",A#A000,E#BF3F will save a hires screen
CALL #5000 L "" will load the next file from tape

Yours sincerely
Martin

Turbo Tape Routines by Stephen Meachen

The first time I wrote a set of turbo tape routines for the Oric, I took the routines in ROM, removed all the timing irregularities and raised the bit frequency to the max. I developed them using a stereo cassette deck, a Realistic STC400 or something like that. It has great fun but the frequency used was too high for ordinary mono tape recorders. Then I made the mistake of getting rid of my Oric and so that was that for a few years. When I saw a mention of the Oric club in a computer magazine the urge to have another go was too great so I went to the meet and got an Atmos.

As I said above, the frequency used by the first routines was too high for mono tape recorders. Both high and low parts of the waveform would be under the tape head at the same time causing them to cancel each other out. You can tell when this is happening because you get a clicky sound instead of a horrible scream. I knew from earlier work that the ROM routines only use the positive going edge of the waveform so I reasoned that if I could get the Oric to use negative going edges as well I would double the baud rate without using high frequencies. The first job was to write a save routine that timed the high and low cycles of the wave separately. The Rom routines use timer 1 to automatically output a square wave on b7. I don't. I toggle the state of the output using an EOR instruction because it results in much nicer code.

Timer1 is loaded with #00D0, the same period used by the ROM routines. The byte being saved is in #2F. This routine saves 1 bit and has to be called 8 times to save a byte.

```
.SAVE 1 BIT
        wait for timer1 to expire because the previous bit is still being saved to tape
BIT IFR
BVC *-3
        the previous bit is now saved now so swap the output state
LDA PORTB
EOR @128
STA PORTB
        clear the timer1 out flag
BIT T1CL
        put the next bit to be saved into the carry flag
LSR #2F
        and return if we are saving a 1
BCC *+3
RTS
        if we get here, we're saving a 0
        a 1 is saved for 1 timer period, a 0 is saved for 2 timer periods
        so wait for 1 period to expire
BIT IFR
BVC *-3
        then clear the timer 1 out flag and return
BIT T1CL
RTS
```

Turbo Tape Routines by Stephen Meachen

The save routine is fairly straight forward but the load routine uses some crafty tricks to tidy the code and is a lot harder to understand.

```
.LOAD 1 BIT
      swap the bit in the PCR that controls the edge detection sense
LDA PCR
EOR @%00010000
STA PCR
```

The next four lines of code look simple but there's a lot going on that doesn't meet the eye. For the routine to work B1=B0=1 is required in the high byte of the timer so only values X3 X7 XB XF are allowed (X= any value) Because the high nibble doesn't matter I can pick a value which is suitable for loading into both the high and low bytes of the timer.

Also it takes about #20 micro seconds longer to read a +ve going edge than a -ve edge so compensate for that (this is an empirical result so I don't know if it's true for every Atmos).

```
LDY SHORTBIT                shortbit = #17 used if next edge is -ve going
AND @%00010000
BNE *+5
LDY LONGBIT                 longbit = #37
      clear the CB1 flag
LDA PORTB
      then wait for the edge to be detected
LDA IFR
AND @%00010000
BEQ *-5

      then get timer2 high byte then reload timer2
LDA T2LH
STY T2CL          \same value is put into the high and low bytes of timer 2
STY T2LH

      b1 in timer2 high byte is the bit read from tape
ROR A      \b0 is junk
ROR A      \now carry = bit from tape
ROR #2F    \so put it into #2F
      Y=0 is needed by calling routine
LDY @0
RTS
```

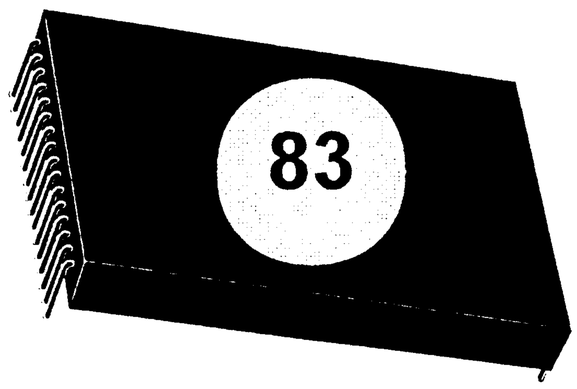
Advantages of these turbo tape routines

They go like stink.

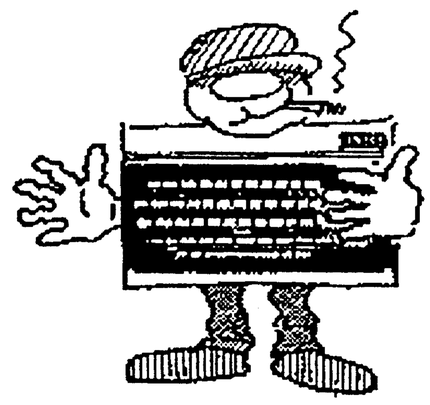
Disavantges of these turbo tape routines

Every time sombody's crap tape recorder screws-up and loses a file, they will say that I stink.

Anyway, next time I'll draw a couple of diagrams and explain the routine in more detail.



RAMBLING IN THE ROM



Please Note: With the new logo I have a **new address** - see the end of this article.

Thomas Sedoric...???

The Internet is a great place, but it does throw up the oddest things. The other day I received the following mail:

```
From: "Thomas J. Sedoric"<tsedoric@rscs.net>
To: jon@cam.dungeon.com
Subject: Name Usage

My name is Thomas J. Sedoric, and my name is protected and
registered. Who are you and why is your site using my name in an
unauthorized fashion? Please advise as to the name and location
of your legal counsel.

Thankyou for your prompt attention to this request.

Sincerely,

Thomas J. Sedoric
```

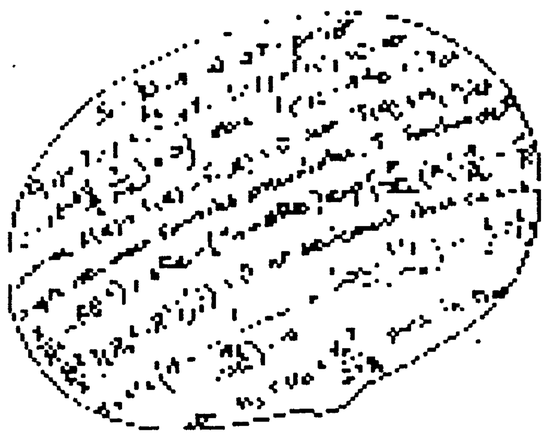
Curious fellow! Anyway, I replied explaining our use of the word since 1985, and displayed enough knowledge for him to realise I was my own counsel! I got back a response (which indicated he was serious) conceding that we got in first. How does a fellow get that name?

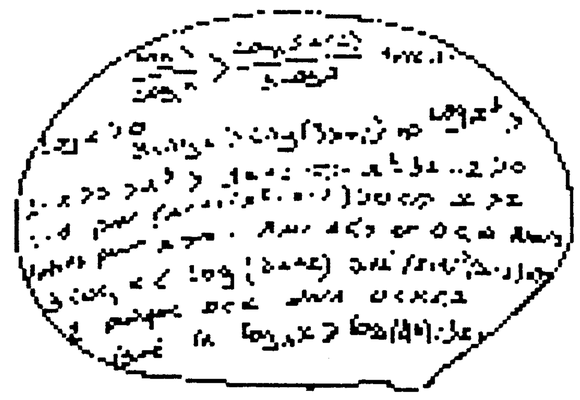
And surely his middle name isn't Jasmin !!

Rambling on into Part Three - still the maths...

Test scientific notation, place the decimal point

E123	JSR $DA79	E127	JSR $DB04	ACC1+0.5 --> ACC1 (rounded base 10)
E126	JSR $DF74	E12A	JSR $DF8C	ACC1 --> #D4-#D3-#D2-#D1
E129	LDX #01	E12D	LDX #01	initialise decimal point
E12B	LDA CC	E12F	LDA CC	take exponent base 10
E12D	CLC	E131	CLC	add 10 (1E+10), it's the maximum
E12E	ADC #0A	E132	ADC #0A	that can be displayed without scientific
E130	BMI E13B	E134	BMI E13F	notation. If <0, scientific notation





E132	CMP #0B	E136	CMP #0B	exponent greater than 10?		
E134	BCS E13C	E138	BCS E140	yes, scientific notation		
E136	ADC #FF	E13A	ADC #FF	no, calculate the position of the decimal point		
E138	TAX	E13C	TAX	and save it		
E139	LDA #02	E13D	LDA #02			
E13B	SEC	E13F	SEC			
E13C	SBC #02	E140	SBC #02E13E	STA CD	E142	STA CD
E140	STX CC	E144	STX CC	save position of the decimal point		
E142	TXA	E146	TXA			
E143	BEQ E147	E147	BEQ E14B	if 0, display at once		
E145	BPL E15A	E149	BPL E15E	if >0, no decimal point		
E147	LDY E0	E14B	LDY E0	take position in the buffer		
E149	LDA #'.'	E14D	LDA #'.'	and code for decimal point		
E14B	INY	E14F	INY	adjust the index		
E14C	STA 00FF, Y	E150	STA 00FF, Y	and write the decimal point		
E14F	TXA	E153	TXA	if only decimal part		
E150	BEQ E158	E154	BEQ E15C			
E152	LDA #'0'	E156	LDA #'0'	place an '0' in front of the decimal point		
E154	INY	E158	INY			
E155	STA 00FF, Y	E159	STA 00FF, Y			

Conversion to decimal

Principle:

Simple, but the optimisation of the routine complicates things quite a bit. The general principle iss classic (and virtually obligatory): subtract from the number decreasing powers of 10 until the number is 0. However this method used in the classic way needs a comparison (is the number below the current power of 10?) and then in the end a subtraction.

To avoid this comparison a clever bit ofo programming was used: alternative positive and negative powers of 10, which enables the routine to delve into the delights of signed numbers...

Here is an exapmle of the method, converting the number 2103 (which we must imagine sved in signed binary) into decimal.

Operation	Remainder	Result
-1000	1103	0
-1000	103	1
-1000	-897	2
+100	-797	20
+100	-697	21
	.....	
+100	-97	27
+100	03	28 --> 21 (ten's complement)
-10	-7	210
+1	-6	2100
+1	-5	2101
	.....	
+1	-1	2105
+1	0	2106 --> 2103 (ten's complement)

```
E158  STY E0          E15C  STY E0          save position in buffer

E15A  LDY #00         E15E  LDY #00         index start of table
E15C  LDX #80         E15E  LDX #80         indicate numeral=0 for the moment
E15E  LDA D4          E160  LDA D4          add mantissa and value of table
E160  CLC             E164  CLC
E161  ADC E209, Y     E165  ADC E20D, Y     bit 4
E164  STA D4          E168  STA D4
E166  LDA D3          E16A  LDA D3
E168  ADC E208, Y     E16C  ADC E20C, Y     bit 3
E16B  STA D3          E16F  STA D3
E16D  LDA D2          E171  LDA D2
E16F  ADC E207, Y     E173  ADC E20B, Y     bit 2
E172  STA D2          E176  STA D2
E174  LDA D1          E178  LDA D1
E176  ADC E206, Y     E17A  ADC E20A, Y     bit 1
E179  STA D1          E17D  STA D1
E17B  INX             E17F  INX
E17C  BCS E182        E180  BCS E186        jump if passed
E17E  BPL E15E        E182  BPL E162        'addition' phase, continue
E180  BMI E184        E184  BMI E188        if not, exit
E182  BMI E15E        E186  BMI E162        'subtraction' phase, continue
E184  TXA             E188  TXA
E185  BCC E18B        E189  BCC E18F        substraction phase: jump complementing
E187  EOR #FF         E18B  EOR #FF         ten's complement (C=1)
E189  ADC #0A         E18D  ADC #0A
E18B  ADC #2F         E18F  ADC #2F         convert to ASCII
E18D  INY             E191  INY
E18E  INY             E192  INY
E18F  INY             E193  INT
E190  INY             E194  INY             index next element in table
E191  STY B6          E195  STY B6          and save table index
E193  LDY E0          E197  LDY E0          recover buffer index
E195  INY             E199  INY             and adjust the next
E196  TAX             E19A  TAX             save code
E197  AND #7F         E19B  AND #7F         eliminate b7
E199  STA 00FF, Y     E19D  STA 00FF, Y     and place in buffer
E19C  DEC CC          E1A0  DEC CC          and calculate if there is a decimal point to place
E19E  BNE E1A6        E1A2  BNE E1AA        no, jump
```

```
E1A0  LDA #'.'        E1A4  LDA #'.'
E1A2  INY             E1A6  INY

E1CB  LDA #00         E1CF  LDA #00        exponent negative:
E1CD  SEC             E1D1  SEC            complement it
E1CE  SBC CD          E1D2  SBC CD
E1D0  TAX             E1D4  TAX            and replace it in X
E1D1  LDA #'-'        E1D5  LDA #'-'       indicate negative exponent
E1D3  STA 0101, Y     E1D7  STA 0101,Y

Place the sign of a character furhter away
E1D6  LDA #'E'        E1DA  LDA #'E'       then exponent pointer
E1D8  STA 0100, Y     E1DC  STA 0100,Y

E1DB  TXA             E1DF  TXA            Exponent in A
E1DC  LDX #25         E1E0  LDX #25        prepare ASCII code
E1DE  SEC             E1E2  SEC
E1DF  INY             E1E3  INY            ASCII code +1
E1A3  STA 00FF, Y     E1A7  STA 00FF, Y    yes, place it
E1A6  STY E0          E1AA  STY E0         save exit buffer index
E1A8  LDY B6          E1AC  LDY B6         recover addition index
E1AA  TXA             E1AE  TXA            calculate indicator
E1AB  EOR #FF         E1AF  EOR #FF
E1AD  AND #80         E1B1  AND #80
E1AF  TAX             E1B3  TAX            and put it back in X
E1B0  CPY #24         E1B4  CPY #24        end of conversion?
E1BB2 BNE E15E        E1B6  BNE E162       no, start again

Eliminate the 0 after the decimal point

E1B4  LDY E0          E1B8  LDY E0         take buffer index
E1B6  LDA 00FF, Y     E1BA  LDA 00FF, Y    and last current character
E1B9  DEY             E1BD  DEY            index the previous one
E1BA  CMP #'0'        E1BE  CMP #'0'       is it a '0'?
E1BC  BEQ E1B6        E1C0  BEQ E1BA       yes, ignore and start again
E1BE  CMP #'.'        E1C2  CMP #'.'       if it's a decimal point
E1C0  BEQ E1C3        E1C4  BEQ E1C7       ignore it but exit (Y has been decremented)
E1C2  INY             E1C6  INY            if not, reset Y to a free position
```

Please send all orders and correspondence to the new address below from now on. I have reprinted the various publications, so all are in stock for immediate delivery:

Oric - The Story So Far (2nd ed.)	£5.00
The Naked Oric Part 1 - #C000-#CFFF	£4.50
The Naked Oric Part 2 - #D000-#DFFF	£5.00
Sedoric v3.0 Manual (and 3½" disk if requested)	£4.00 (£1 to OUM funds)
OUM Index (order via Dave)	£1.50 (50p to OUM funds)

See you next month,

Jon Haworth
3 Petersfield Road
Duxford
Cambridge
CB2 4SF

Email: jon@cam.dungeon.com
Oric Mailing List: oric@cam.dungeon.com

THE BACK PAGE

INTERNET - IS IT LEGAL?

A recent article in the Financial Times questions which laws are being broken by Internet users. It could be a criminal offence to send E-Mail to South Africa and China. You and your sever could be charged under the 1984 Telecommunications Act for running an unlicensed telecom system. When Microsoft and Intel market their methods to allow you to use your PC as a telephone, you could again be in bother, as at present only BT and Mercury are licensed to transmit and receive voice messages over their own international telecom networks.

When technology allows us to speak to other PC users anywhere in the world the profits of the telephone companies will show an immense decline.

We await the review from the Department of Trade and Industry.

Euphoric

Euphoric (the ORIC emulator) has now reached version 0.99d. I have not got a copy yet, but features include: better command lines for calling up specific ORIC systems, fascinating tape functions, and digital sound.

I have halted my EUPHORIC FOR DUMMIES article at present, as I have now moved on to version 0.97c, and I think I will wait for the latest version before I comment further.

One thing that I would like to see (if it has not already been done) is to be able to print direct to the printer from an ORIC word-processor, rather than via a 'PRINTER OUT' file, which is a pain in the butt!

Tim Colgate wrote to me recently asking for a list of games currently available for sale on disk on the Internet, alternately a published list of games available.

Anything on the Internet can be down loaded freely (ORIC wise), as long as it has the authors permission or that of OUM and CEO. OUM owns the rights to much software. I will publish a list of what can be bought on ORIC disk format and also as an MSDOS file suitable for the Emulator. I have no intention of selling OUM software over the NET at present.

NOVEMBER ISSUE

All articles for inclusion in the November issue of OUM should reach me by October 24th at the latest please.

Meanwhile I am looking forward to a week off work, and promise to go through the archives for some old listings etc.

Old ORIC magazines

I recently acquired some old ORIC magazines from David Hall as follows:

A) ORIC USERS INFO was published by ORIC USERS HOLLAND. I have issues 1 and 2 (July and August 1986). The index includes such items as - Inleiding, Nieuwsbrief and Aanmeld ingsformulier!!!!

You guessed it - It's in Dutch

B) PLUG NEWS was published by Paul Meadows of King's Cliffe, Peterborough. Membership was £4 for 4 magazines and 2 tapes. I have a couple of issues from 1986, which included listings from Paul and a R.H. Morgan Jones.

C) ORIC NOTES appears to stem from the same source. Dated prior to PLUG NEWS, and probably it's predecessor, the magazine has many listings and helpful hints.

We hope to reproduce these shortly.

XMAS GOODIES

Steve Hopps will be coming up with some special prices for an ORIC ATMOS with cassette software in time for Xmas. We will publish them next month. Meanwhile Steve will be in touch with those who expressed an interest in his ATMOS's and DISK DRIVE INTERFACES.

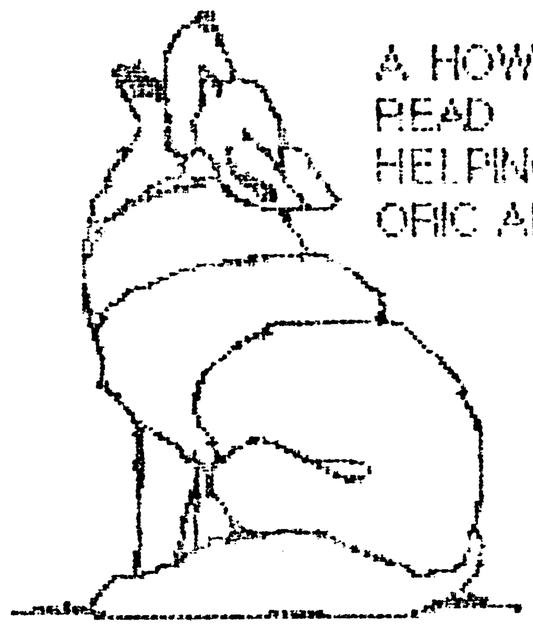
The alternative front cover - by Brian .

Øric User Monthly

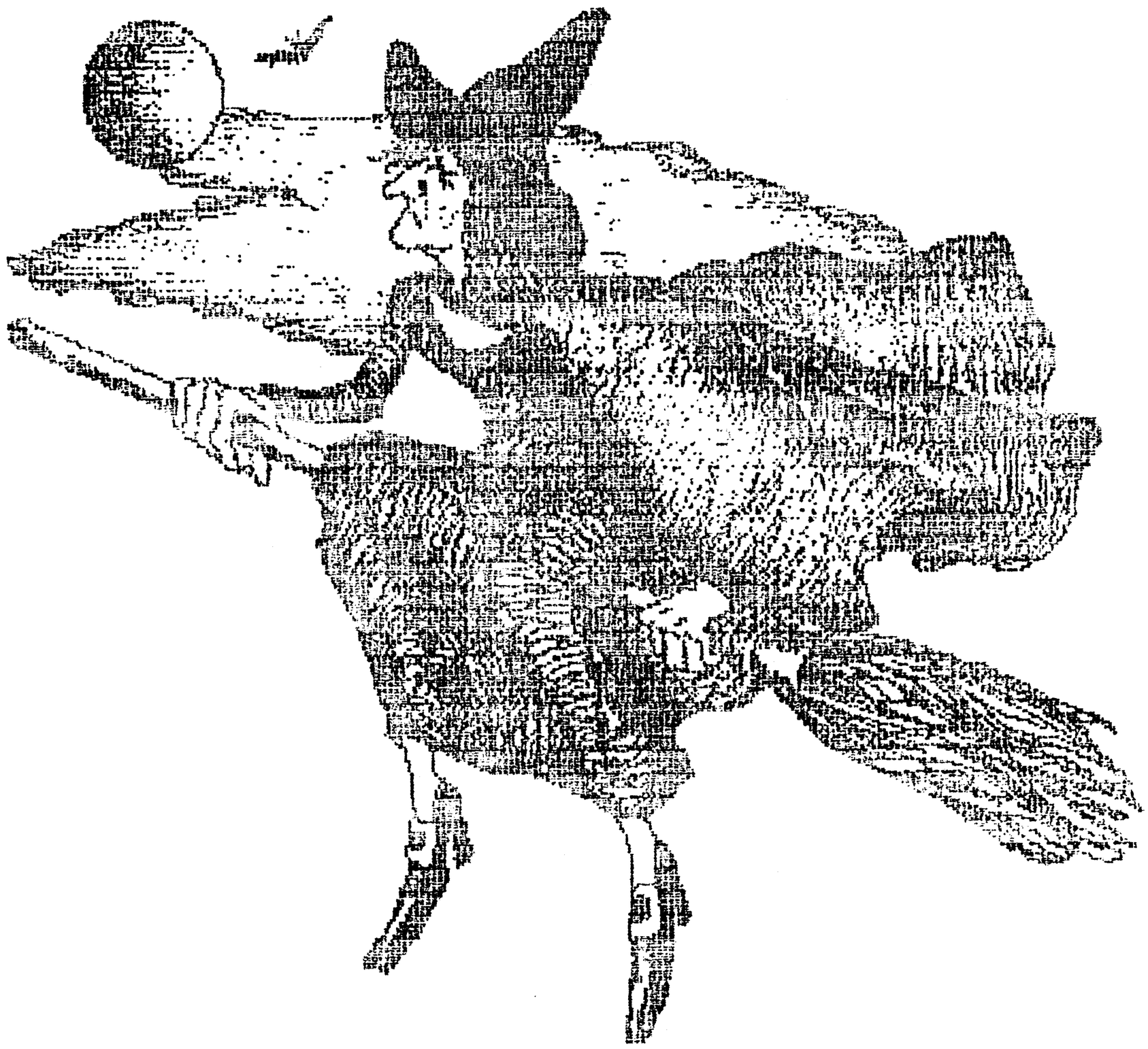
with Alternative Micros .

NUMBER 110

OCT. 1996



A HOWLING GREAT READ AND STILL HELPING KEEP THE ORIC ALIVE .



Edited by D. Dick , 65 Barnard Crescent , Aylesbury , Bucks . HP21 9PW

Disbributed by Brian Kidd , 32 Kier Hardie Cres. , Newport , S. Wales . NP9 9DQ