

ORIC

USER

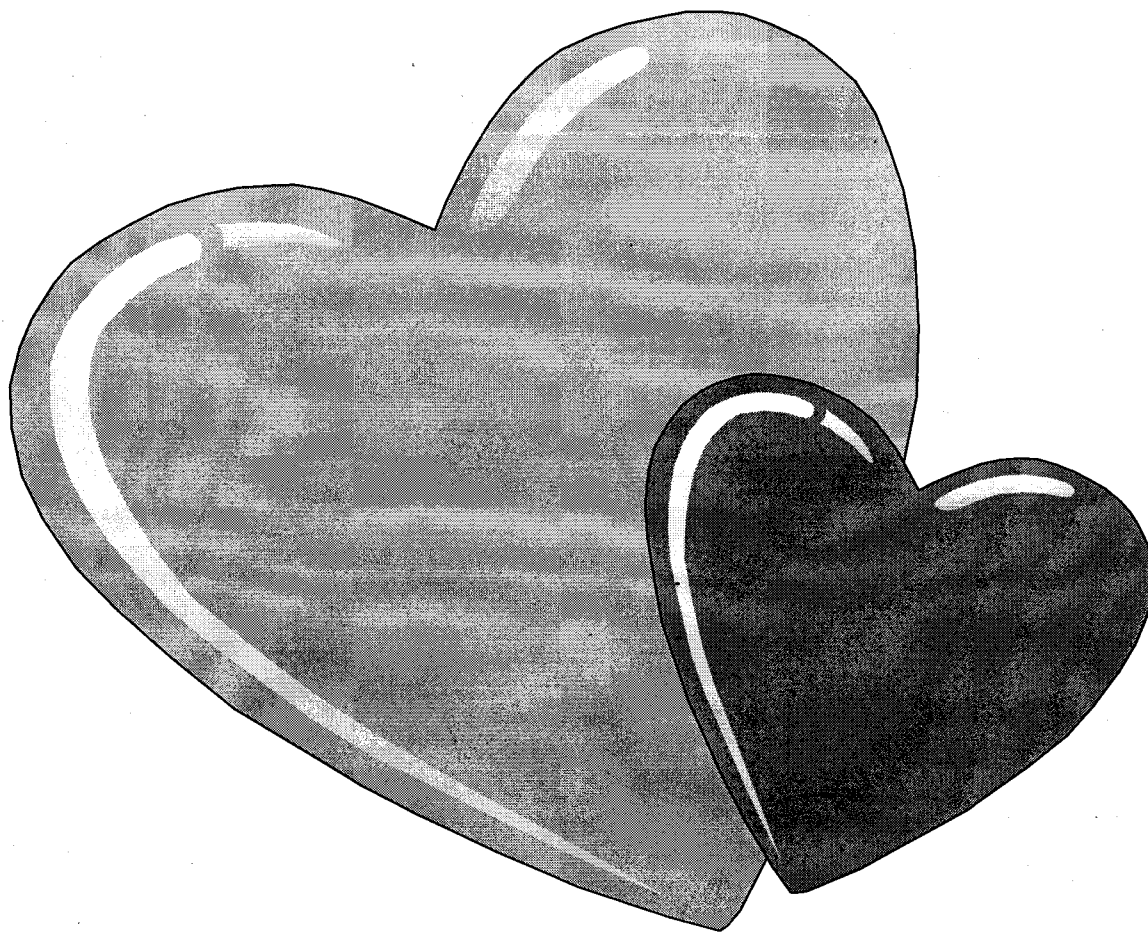
MONTHLY

with Alternative Micros

Number **90**

February 1995

*Keeping the
Oric alive*



HELLO,

AND WELCOME ONCE MORE TO O.U.M.

AS WE GET INTO FEBRUARY ONE TENDS TO THINK OF LONGER DAYS AND WARMER WEATHER, AND OF COURSE - HOLIDAYS.

I HAVE DECIDED TO HAVE A BREAK AT 'BUTLINS' IN MINEHEAD AT THE BEGINNING OF APRIL. THIS MEANS THAT THERE WILL BE NO APRIL ISSUE OF O.U.M, BUT INSTEAD A DOUBLE ISSUE IN MAY.

THE BACKLOG IS STILL BEING WORKED ON!
THIS MONTH SEES THE APPEARANCE OF SOME VERY INTERESTING ARTICLES - NOT ALL ORIC RELATED. KEEP UP THE GOOD WORK.

I WILL SOON BE FIXING THE DATE OF THIS YEAR'S AYLESBURY ORIC MEET - SEE NEXT ISSUE.

AND SO TO THIS ISSUE:-

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Pages 14-16 . RAMBLING IN THE ROM (Pt.67) - Jon Haworth continues the saga.

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OUMDISC#6

THE SIXTH OUMDISC IS ALL BUT COMPLETE - I HAVE TO TYPE UP THE INSTRUCTIONS ETC. INCLUDED ON THE DISC ARE: another version of MASTERMIND, an excellent DOTMAN, cheat version of GRAVITOR, cleaned up version of NHL ICE HOCKEY MANAGER, a version of MIND MADNEZ allowing you to design your own screens + lots, lots more.

Expected release date is March 1st.

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MARCH O.U.M

Articles for inclusion in the March issue should reach me by February 24th - PLEASE!

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RAFFLE TICKETS

Starting with this issue, you will be receiving raffle tickets - see BRIAN'S PAGE for the full story. Look after these tickets with your life! I will NOT be keeping a note of who has what tickets. You will only be able to claim a prize if you have the ticket in your possession. YOU HAVE BEEN WARNED!

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Important NEWS

WAVE

PAGE 3

'WAVE' OF CUMBRIA ARE CURRENTLY OUT OF STOCK OF 3" DISCS.

A BUDDING PROGRAMMER

RODNEY TITCHENER'S SEVEN YEAR OLD SON NEIL HAS RECENTLY STARTED TO USE DAD'S ORIC, AND SEEMS VERY KEEN ON LEARNING PROGRAMMING. IT IS NICE TO SEE THE YOUNGER GENERATION GETTING INVOLVED.

DISPLAY ELECTRONICS

"DISPLAY ELECTRONICS" ARE SELLING THE 'ALPS' MECHANISMS FOR 49 POUNDS + V.A.T. THEY ALSO HAVE BOXES OF PENS FOR 5.50. ALAN BOWERS TELLS ME THAT HE HAS THE FULL TECHNICAL SPECS. ON THESE UNITS.

TECH.SPECS.

ALAN BOWERS HAS ASSORTED AMSTRAD SPECIFICATIONS FOR THE CPC,PPC1640 AND PC1640. HE IS ON THE LOOK OUT FOR A PC1640 KEYBOARD.

ALAN, FROM THE ISLE OF WIGHT, HAS RECENTLY CHANGED JOB LOCATIONS FROM LIVERPOOL TO SOUTH DORSET AND CAN BE CONTACTED ON: 01202 782839 (MON-FRI DAYTIME) OR 01202 733266 (EVENINGS). ALTERNATELY YOU CAN 'E-MAIL' HIM AT: ALAN@BOWERS.DEMON.CO.OK.

ONCE AGAIN ON THE SCROUNGE (HIS WORDS,NOT MINE); ALAN IS ON THE LOOK-OUT FOR A PARTICULAR MODEM,NAMELY,: US ROBOTICS WS 3000 AND IT MUST RUN AT 2400 BPS.

SEDORIC UPDATE

BOTH COLIN COOK AND JONATHAN BRISTOW HAVE BEEN IN CONTACT WITH ME REGARDING THEIR THOUGHTS ON THE SEDORIC UPDATE BEING CARRIED OUT BY DR.RAY. AMONG THE POINTS RAISED IS THE PROVISION FOR SUB-DIRECTORIES. THIS FEATURE ALREADY EXISTS IN 'RANDOS',AND ALLOWS ONE TO COLLECT ALL THE SIMILAR FILES ON A DISK TOGETHER UNDER ONE HEADING.

THE GOOD NEWS IS THAT IT IS DONE.

DR.RAY INFORMS ME THAT THE NEW SEDORIC HAS THIS FACILITY, AND IS SIMILAR TO THAT USED BY 'MSDOS'.

MICROWAVES

MATTHEW COATES was intrigued by the method of increasing execution speed (mentioned in MICROWAVES in the January RAMROM). However,when he tried it out he discovered that it also changes the speed of the internal clock (as used for the timings in his current article).

Readers should be warned of this side-effect in case they try to use it in programs,which rely on the clock for accurate timings.

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LATE ADDITIONS TO OUMDISC#6

Thanks to Matthew Coates the next OUMDISC now has a couple of extra programmes. The first is a utility for WORDSWORTH users - a word count. The second is a mortgage repayment program.



PROGRAMMERS BIND

by Matthew Coates

4

Hello again. I should start with an apology for my long absence from the pages of OUM. No excuses, I've just been doing other things. Thankyou Dave for being so patient and for your occasional, very gentle, reminders.

Since my last article I have switched from Wordworth to Word-Speed and, so far, I haven't looked back. Operation is beautifully smooth and there are lots of little things that help to make life easier but the main thing I appreciate is not having to decide in advance on the page-width since I don't usually know how much space a document will take up until I have finished writing it. This also means that the words wrap around properly on screen, regardless of the width of the eventual printed document.

Speed Trials

In the past I've gone on quite a lot about the importance of good structure and how, ideally, programs should be easy to follow for anyone who needs to understand them at a later date. This is all very well, but on occasions we need to squeeze as much performance as possible out of this tired old machine of ours and elegant coding is the least of our concerns. What I would like to do this time is demonstrate how the requirements of speed and good structure often coincide, or at least do not conflict.

To this end I have carried out a little research to compare the efficiency of various alternative methods of achieving the same results. In each case I added the test code to the skeleton shown below, which gave a time in seconds for the execution of the code, allowing direct comparisons between the various alternatives.

```
100 N=1000
110 DOKE £276,65000
```

...

```
900 PRINT (65000-DEEK(£276))/100
```

The variable, N, is used to control the number of repeats and this has to be large in order to obtain a measureable time period for the comparisons. In each case the code under test was inserted between lines 110 and 900 shown above. Occasionally, additional variables have to be set before the main routine starts, and these are set before line 100 so that they do not add to the measured execution times. The measured times are shown to the right of each listing.

Note that I have deliberately not expressed comparisons between times in terms of percentages, since this might be misleading. It is better to think in terms of the time added or saved by the different options over N cycles. Also, the examples given are the simplest possible cases and the percentage differences are larger than would be attainable in most real programs.

Loops

The three main forms of loop available for use in Oric BASIC are FOR...NEXT, REPEAT...UNTIL and the returning IF statement. Examples are shown below.

1	200 FOR I=1 TO N	
	210 NEXT	1.33
2	10 I=1	
	200 REPEAT	
	210 I=I+1	
	220 UNTIL I>N	7.93
3	10 I=1	
	200 I=I+1	
	210 IF I<=N THEN 200	12.58

From our knowledge of BASIC, we would expect the first two to be better than the last because for these the starting address is stored on the stack so that the interpreter knows where to return to when the end of the loop is reached. Because the third option doesn't make use of this facility, the interpreter has to search through the whole program (from the beginning) until it finds the specified line number. This accounts for the difference between options 2 and 3, but why is REPEAT...UNTIL so much slower than FOR...NEXT? To find out, try adding the line 205 J=J+1 to listing number 1.

Subroutines

Because GOSUB makes use of the stack to keep track of the position from which the subroutine was called, a RETURN is much quicker than a second GOTO.

4	200 FOR I=1 TO N	
	210 GOTO 950	
	220 NEXT	
	910 END	
	950 GOTO 220	11.59
5	200 FOR I=1 TO N	
	210 GOSUB 950	
	220 NEXT	
	910 END	
	950 RETURN	7.30

An important point to remember about GOSUBs is that the initial subroutine call still has to search for a line number, just like the GOTO. By placing the most frequently used (or the most critical) subroutines near the start of a listing, the search time on each call can be considerably reduced. Compare the following with listing number 5.

6	10 GOTO 100	
	20 RETURN	
	200 FOR I=1 TO N	
	210 GOSUB 20	
	220 NEXT	5.67

You will notice that in the case of both subroutines and loops the GOTO comes off worst in terms of speed (remembering that line 210 in listing 3 contains an implied GOTO). This is the most common source of inefficiency and should be avoided where possible. For example, say we have a section of code that is only executed when a certain condition

is true. The obvious approach is to include the code in the middle of the routine and to use an IF (with an implied GOTO) to skip this section when it is not needed, as in example 7.

```
7 200 FOR I=1 TO N
  210 IF I<N THEN 230
  220 PING
  230 NEXT
```

9.96

In cases like this, where the routine in question is skipped more often than it is executed, a better solution is shown below.

```
8 200 FOR I=1 TO N
  210 IF I=N THEN GOSUB 950
  220 NEXT
  910 END
  950 PING
  960 RETURN
```

5.09

Of course in this case it would be far simpler to avoid both of these and use something like

```
210 IF I=N THEN PING
```

However, I was interested to discover that if a longer sequence of commands is required, as in examples 9 and 10, a separate subroutine can still be marginally faster than appending the commands to the IF statement. Of course, in this example, the statements are only executed once in 1000 cycles. As the number of subroutine calls increases there will be a break-even point when the cost of searching for the subroutine will start to outweigh the benefit of not having to scan through the unused commands every time.

```
9 200 FOR I=1 TO N
  210 IF I=N THEN PING:PRINT "END OF
    GOSUB TEST ROUTINE"
  220 NEXT
```

5.71

```
10 200 FOR I=1 TO N
  210 IF I=N THEN GOSUB 950
  220 NEXT
  910 END
  950 PING:PRINT "END OF GOSUB TEST
    ROUTINE"
  960 RETURN
```

5.14

REMARKS and Compaction

As I have mentioned before, I consider compaction of code an abhorrent practice which makes programs all but unreadable and has little impact on execution time. Similarly, the omission of comments in the name of speed hinders readability and is often not terribly effective anyway. Having stated my opinions I feel I ought to present some sort of evidence to support them. First of all, compare the following (which is given in full) with listing 5.

```
11 100 N=1000:DOKEF276,65000
  200 FOR I=1 TO N:GOSUB 950:NEXT
  900 PRINT(65000-DEEK(F267)):END
  950 RETURN
```

7.06

Now compare examples 12 and 13 with listing 1.

```
12 200 FOR I=1 TO N
  210 REM
  220 NEXT
```

1.78

```
13 200 FOR I=1 TO N
  210 REM USEFUL TEXT
  220 NEXT
```

2.08

The first thing to note is that the differences we find here are relatively small when compared with those we have seen up to now. Remember that the comparisons should be made using absolute times rather than percentages. Note also that the length of the comment makes a difference here, with the comparable execution time increasing to 3.45 seconds for a line of the maximum length. This effect can be minimised by keeping comments short and/or by placing them outside the most critical parts of the program, so that the processor does not have to keep scanning the same "useless" code. For example, try placing the REM statement in line 199 instead of line 210.

One other point to remember is that the length of the text following a REM makes no difference to the search time for a GOTO or GOSUB. This is because the processor only reads the line number before skipping to the start of the next line. Therefore, it is the number of lines, not their length, which matters most in any statements which appear before a line which is the object of a GOTO or GOSUB. The length of a comment is only significant when the surrounding statements are actually being executed, as in example 13. Thus, if a REM occurs in a part of the program that is never executed (eg between a RETURN and the start of the following routine), the length of the comment is irrelevant.

And Finally

So, it seems that the requirements of structure and speed can be the same. For loops use FOR...NEXT where possible, or failing that use REPEAT...UNTIL. Subroutines using GOSUB are very efficient, even if they are only ever called by one other routine and always return to the same position. Avoid repeated use of GOTOs, including implied GOTOs in IF statements. Do use REMs but think carefully about where you put them.

There are bound to be special cases where these recommendations will not be optimal. For example, how many exclusive IFs can there be in a sequence before it becomes more efficient to use a GOTO that returns control to a point after the subsequent IFs than to use a GOSUB that returns control to the next IF statement (which must be false and therefore need not be evaluated)? When is it better to create an indicator variable and use ON GOSUB? Questions such as this can only be answered for each specific case.

One last point which I was surprised to discover in the course of my research: If additional spaces are typed at the end of a statement, these are not stripped out but are retained in the listing. This can slow down execution significantly if they are in the wrong place, so take care.

MARSHALL'S MUSIC

It's been quite a while since this series started, and now it is time to finish off. If there are any subjects that call for the resurrection of this article, then that will happen, so if you want any help with music - (sound advice ?) - then write in.

For now we are going to give you a special treat and enlighten you on a subject that has been a topic of debate for musicians and non-musicians alike - the secrets of Stradivari.

ANTONIO STRADIVARI (1644 - 1737) is probably the most famous maker of musical instruments. His violins have sold for record prices and his name is synonymous with instruments of the best quality. But what is so special about a Stradivarius violin? Why has a mystique surrounded his work making him the 'Mona Lisa' of music?

Stradivari was from Cremona in Italy. At this time the best stringed instruments were said to come from Italy, and the best Italian instruments came from Cremona. Members of the Amati family were amongst the best of these luthiers, (it was a trade very much passed down from father to son). Stradivari became an apprentice under Nicolo Amati and later went on to found his own workshop in Cremona and began to use his own labels in about 1667.

Now let's look at what a workshop such as this would be like. The romantic image of a chap fiddling around carving at bits of wood is a little bit far from the truth. The typical workshop would have quite a few apprentices doing all the hard work with the master craftsman doing the finishing touches and discarding any of the apprentices' work that wasn't up to scratch. They would work about fourteen hours every day. Contrary to popular belief, a workshop like Stradivari's would have produced huge quantities of instruments and was very much a mass-production industry. Stradivari, like the other luthiers, did not just produce violins. He also made 'cellos and a few guitars as well as other stringed instruments. The pattern and shape of the violins that

Stradivari made wasn't a fixed pattern that he used, although makers today will make violins which are essentially copies of one of Stradivari's instruments. He was gradually changing the design - lengthening the instruments in an attempt to improve the sound. He eventually went back to the shorter length of instrument as we know it today. He had got the right idea here, but he was ahead of his time and what stopped the larger instruments from working properly were the strings.

A modern violin is a quite different machine to the instruments Stradivari made. In fact all Stradivarius violins in use today have been modernised. The angle of the neck and the length of the fingerboard have been changed to allow for the newer metal-wound strings which are under a greater strain (If you put modern strings on an unmodernised violin, it would collapse under the tension. This has happened quite a few times!). So what we have is an instrument that sounds quite different to the way it originally sounded. (It is true that violins improve with age as well.) But these violins are still better than the rest. What is it that makes the difference? Modern luthiers are forever trying to reproduce the quality obtained by the old masters when woodwind and brass makers are constantly improving their instruments? This is something that has frustrated makers and produced a whole mythology of its own. But now science has revealed the secrets of the past although there are many who still refuse to believe the truth and want to maintain the mystique.

OK - FACT 1: Wood of the quality of that used in Cremona violins is not available any more. It has all gone - long since chopped down, and there ain't any more growing that can replace it. To re-establish a forest like the one needed will take centuries.

FACT 2: For a violin to sound good it has to be a sort of irregular shape. Strads were in fact, 'poorly assembled' which sort of makes it more irregular, inadvertently improving the sound of the instrument. A good modern luthier will make an instrument more accurately - all squares and right angles.

So, you make a violin out of the best available wood and make it a bit irregular and it should sound something like a Stradivarius. It's been tried, and it doesn't work. This is where a German scientist with an interest in music solved the problem. He managed to scrounge a tiny shaving off a Strad. and stuck it under an electron-microscope.

FACT 3: Stradivarius violins are made from wood that is 'wet-seasoned' - ie the wood is seasoned in water, unlike anything today. Wood nowadays is usually 'seasoned' in a kiln. Wood used to be left outside stacked in boards for a number of years until it had dried and settled down so that it would not warp.

Under the electron-microscope, small 'pores' in the wood of a Strad. violin are filled in with the saps and natural juices in the wood. This helps the sound to travel through the wood. Wood that is not wet-seasoned has air in these pores.

Stradivari would have got his wood from Venice, the nearest port, about 120 miles from Cremona. Here wood would certainly have been left in water for some time.

OK, so the German scientist seasoned some quality wood in water himself, and made a violin to a Strad pattern. It was very good, but still not as good as a genuine instrument. He realised that there must be something to the polish on the instrument that effects the sound. Now violin polishes are something akin to fish batters. Each luthier has his secret recipe. Old recipes contain some very obscure substances including frankincense and myrrh. Making these potions can be very hazardous and more than one luthier has blown himself up in the process.

After a few years of begging, the scientist managed to obtain a tiny shaving of Stradivarius polish and found something quite surprising.

FACT 4. The polish on Stradivarius violins contains ground down semi-precious stones. This makes the polish rigid and kills the upper overtones produced by the violin giving its sound a wonderful richness.

The scientist again made a violin using wet-seasoned wood and polish containing ground semi-precious stones. The result was one of the finest violins made for centuries. He took his two violins to one of the greatest teachers in the world and asked him to compare them to a real Stradivarius.

He agreed that the violin was the best he had heard for years, though he still favoured the genuine instrument. (Well, like I said, they do improve with age!)

So was Stradivari a genius - a superb craftsman? Well, no. Of the hundreds, if not thousands of instruments he made, only the best would have survived through to this time - and there are relatively few surviving. All of these instruments have been modernised. He would have got his wood from the local supplier which just happened to be Venice. He would not have made the polish himself, but would have bought it from his local chemist. The chemist would have used whatever recipe had been passed down to him. So Stradivari was just in the right place at the right time.

All this has been proven, but still it is not generally accepted by the music world and Stradivari is still hailed as the ultimate master craftsman, and violin makers still argue about what is so special about his instruments. Violins will never be as good as those of the past despite what they think.

Well I hope you have found this article and the rest of the series to be interesting. I have shown that any silly bugger can contribute to OUM if they set their mind to it. So why don't YOU have a go and see what you can come up with.

Steve Marshall

LOOKING AT CLASSIC GAMES

with Arnt Erik Isaksen

Part 4

Loriciels

Part 4 of "Looking at Classic Games" is dedicated to the most famous French software company, Loriciels. Only one of their titles has been reviewed in an earlier part of my series, Crocky (part 1.1).

SUPER JEEP. Loriciels 1984. C.Perconti.

This is a version of the true classic game called Moon Buggy. You drive your patrol car on the moon and must avoid or fire at obstacles on the horizontal scrolling screen. Watch out for bombs from space-ships in the air and fire rockets against them to blow them away. There are three levels.

Super Jeep is a good Moon Buggy version with nice and colourful graphics and good sounds.

O:** G:***** S:**** A:***

FRELON. Loriciels 1984. Marc Duren.

Fly a helicopter and pick up blocks for transportation to a bridge, which is being built. Other helicopters and tanks are certainly not your friends - watch out! Ensure that you have enough fuel.

A quite popular game. However, in my opinion is the graphics not smooth enough and the sounds are a little bit too noisy. I must admit that Frelon is not my favourite game.

O:**** G:*** S:**** A:***

STANLEY. Loriciels 1984.

Flip a switch to release a disc and then push it down across a bar. There are six bars and you must collect three or more discs on every bar. Many creatures are after you to make Stanley's life hard to live. Did you get the idea?

Stanley is a very original game that is fun to play. You have a lot of options, i.e. make Stanley move faster/slower etc.

O:***** G:**** S:**** A:****

DOGGY. Loriciels 1984. Eric Chani.

A dog is running home to his dog house. You must help him on the dangerous road home. Holes in the road, traps, logs and other obstacles make it difficult for you. Fight other dogs to score bonus points if you have enough energy. Bones that lay in the road can be eaten to gain energy.

What about this game? The animations of Doggy are just superb, while the music is excellent at the same time. Doggy was one of the first French games I ever saw, and I played it frequently during a period in 1987.

O:**** G:***** S:***** A:****

SORVIVOR. Loriciels 1984.

Sorvivor is a pure shoot'em-up-game. Fire at the enemy's space-ships that move down the

screen.

The graphics in Sorvivor move very smooth and is the best thing about the game. Sorvivor lacks originality and playing it a few times is enough.

O:** G:***** S:*** A:**

JIMMY POUBELLE. Loriciels 1985.

Move up and down ladders and collect items on the screen to move on to the next level. A lot of obstacles and moving machines must be avoided.

I must admit that I, for some reason I don't know, have not played this game very much. Jimmy Poubelle seems to be a good choice for those who love ladder games.

O:*** G:**** S:**** A:***

GASTRONON. Loriciels 1983.

Gastronon is like Sorvivor a shoot'em-up-game. This game has, however, similarities with The Ultra and The Hellion but is a lot poorer.

It is not much to say about Gastronon according to my notes.

O:** G:*** S:** A:**

VIDEO FLIPPER. Loriciels 1984.

Your Oric can be turned into a pinball machine by loading Video Flipper. This version includes options for elasticity, friction, angle and rebound.

Two other pinball versions exist for the Oric, Macadam Bumper (ERE Informatique) og Cobra Pinball (Cobra Soft). All three versions has some advantages. Video Flipper has the options as its best side.

O:** G:**** S:**** A:***

REVERSI CHAMPION. Loriciels 1984.

This is a version of the ever popular board game Othello and gives you a test against the computer or a human friend.

Compared to many other versions of Othello for the Oric, I find this very good. Reversi Champion is extremely fast compared to Reverse (IJK Software), Othello (Kenema) and Othello (CEO). Reversi Champion has not as many options as Othello (CEO), i.e. 3D display etc. No ratings

I will give a summary of Loriciels's games from Your Oric's charts for June/July 1987:

- 12.Super Jeep
- 15.Frelon
- 20.Doggy
- 25.Star

Loriciels did not only release arcades and the top 3 adventures in Your Oric's charts were from them, "Le Diamant De L'île Maudite", "Secret du Tomb" and "L'Aigle D'or". Another remarkable program is Master Paint, which is one of the best drawing programs for the Oric.

Next month we look at the games from one of the Oric's best or maybe the best author, John Marshall. Look forward to that. See you then.

READERS LETTERS

DEAR DAVE,

I have just written over a Sedoric disc file with another file, with the SAVED command. Both files were in Basic, but were different. Is there a way that I can recover the original file?

- JONATHAN BRISTOW

DEAR JONATHAN,

there is a program on Public Domain that will allow one to recover a file. Unfortunately I do not think that this will work after the SAVED command has been used, as the second file would have been saved on the same Track/Sector. You will, I'm afraid, have to write the program again.

- DAVE

=====

DEAR DAVE,

I'm pleased to read that you are up and going ready to face another year with the ORIC. My days of retirement would be very boring if it were not for being able to switch on the trusty machine for an hour or so any day.

I have finally added a 5.25" drive to my existing 3" one - the 5.25" drives are still available from GREENWELD for 5.95. They are 360K and the model is: Z5971/FD55BR.

I have been making my collection of stored programs even better lately. By making the new discs Menu Driven, so that on booting up every file is able to be read from the opening screen, and selected with a single button push. Also I have a Master 3" disc for the OPELCO drive that immediately transfers control to the 5.25" drive and calls the menu screen ready for use. My daughter is very impressed.

- JOHN HURLEY

(Yeovil)

DEAR JOHN,

Nice to hear that you have got the second drive up and running. Good also to see that you are getting to grips with Sedoric.

I assume your 3" Master Disc has its INIST set up as: B-MENU or B-!MENU (if Slave or Gameinit).

- DAVE

=====

DEAR DAVE,

"MONTANA PATIENCE" is so addictive that I've taken to dealing a pack of cards out on a table to play the game properly. Echoing Steve Marshall's remarks, but not wishing to nag, I'd also like to see a better shuffling routine, easy replay, and if the layout were split into 2 halves, there would be space to get some colour attributes in for the suits, which would make it easier to find the cards.

Glad that my "MASTERMIND" is enjoyed. My high score for this is a paltry level 3, but I'm sure someone has done better by now, so let the boasting begin!

- COLIN COOK (Pitsea)

DEAR COLIN,

perhaps Nick will update Montana Patience for us. Meanwhile I wonder how far Henry Marke has got with MASTERMIND!

- DAVE

Machine Code for the Oric Atmos (Part 43) Peter N. Bragg

It's only money

----- Editor Dave's recent excursions on behalf of OUM, into the logic of large numbers, reminds me of a time, when a friend was doing the rounds at work, trying to flog tickets for the Directors Ball. It was hard going, until he mentioned that they were raffle tickets, not dance tickets !!

I am not a gambler, having never filled in a pools coupon or been in a betting shop. However, like most people, I usually join in sweepstakes and club raffles. All good clean fun. However, the "Lottery" is a whole new ball game. There is the chance of winning millions and my feelings are that if you are going to have fun gambling, it is best to go for the "big one". Greedy, thats me !! My only reservation on the subject is, never ever gamble anything you are not prepared to lose.

I have not yet bought a ticket for the "Lottery", but have read all the info. It inspires the thought. Could one write a computer program to predict the winning line ? We have a very easy to use computer. Would it be possible to use the Oric to predict a set of Lottery numbers for us ?

True, that is not a particularly original thought. There have been software packages to predict racing form and football pools. How successful are they ? Well, if they were really that successful, the writers wouldn't need to sell their software, they would be raking far more money, by using the software themselves !

Flights of Fantasy

----- However, providing you don't take it too seriously, there could be quite a lot of fun to had, trying to write a program to predict the weekly lottery result. Sorry to say, that I haven't done anything myself in this particular field, as yet, having been a little bit too busy to do much computing in the last few months. So I haven't got a neat little machine code routine to make us all multi-millionaires, but we can dream, can't we ?

The question arises, surely there are programmers out there who are better than us and machines (perish the thought !) that are faster and better equipped than the Oric ? Surely they have a much better chance of success, predicting Lottery numbers ?

That doesn't necessarily follow. Expert programmers are probably too busy writing safe and saleable software packages to earn their daily crust and few of them would really want to spare the time for a "fun" project. Secondly, what the Oric lacks in speed and memory, it more than makes up in ease of programming and operation, so we have an advantage there. Don't forget, most computer users now, have very little ability or interest in programming anyway, where as we do. It is our interest that has kept the Oric going so successfully for so long.

One in 14 Million

----- Those are the odds on winning the jackpot. So how do you pick the numbers and how much do you stake ? First consideration, the stake. In theory, if you have confidence in your ability, a single £1 coin, is all you need, however you don't need binary code to tell you that a second £1, will lop a cool seven million off the odds against you. Thats good value at £2, because if you doubled up again, it would only knock off another three and a half million from the odds, which is less of a bargain.

That's the easy bit providing you have the money, of course. Picking the the right numbers is where we need the trusty Oric. Everybody probably has their own ideas of how to go about this. As usual, my own feelings are to concentrate on keeping it all nice and simple. Not being experienced in this particular field, I would probably go about it in the following way.....

The "White Stick" Technique

----- First thing is to make a note of the most recent results. You don't need many, say about four consecutive weeks results. Ignoring the "Bonus" numbers leaves four sets of six winning numbers each. Look at them in another way, to see that you have six sets of four winning numbers in sequence and what you need is the 5th number for each of the six sets. In theory you have a choice of 1 to 49 for each number. However, as you need to choose six numbers, the lowest cannot be higher than 44 and the highest cannot be lower than 6 and the other four numbers are restricted in a similar fashion, which must improve the odds somewhat.

Initially, I would probably make some use of Oric's Random (RND) number routines to generate a continuous sequence of numbers. The Random number routine is located at #E34F (or #E34B for the Oric-1). Of course, initial experiments could be tried using Basic, but I would probably use hex values and assembly language. You can in fact use decimal values in machine code programs, the instruction SED (code F8h) sets it up in the 6502 Status Register and instruction CLD (code D8h) clears it back to hex operation again. However, you do have careful when using Decimal operation, that nothing in the machine (including the Operating System), clears the Status Register back to hex operation, when you are least expecting it.

Taking the above example of six sets of four numbers each, I would set up the Random number routine to generate a continuous output, with the aim of producing a matching set of four numbers for each of the six sets of four winning numbers. This could be done by passing the random output through a set of four CMP (test) and BNE (branch) instructions, in much the same way as we have used in the past, to look for a specific address. This would be set up to indicate when the Random number generator has produced a matching set of four numbers, at which point, the next random number that follows the sequence of four, is the magic "5th Number" that we are looking for.

The next thing is to repeat the above operation for each of the six sets of four winning lottery numbers to produce a new set of six numbers (the "5th Numbers") for the next weeks Lottery ticket.

Of course, in theory the numbers should be in the same numerical sequence as the original six sets of four winning numbers. It means that the "5th Number" generated for the lowest set of four should be the lowest of the new set of "5th Numbers" and so on, in sequence up to the highest value set, which should produce the highest "5th Number". It might be necessary to generate quite a few sets of the magic "5th Numbers" in order to produce the desired sequence of values. However, it should be possible to write a routine to test for such a sequence, which would enable the whole thing to be done automatically. The Oric is able to generate and test vast quantities of numbers, far faster than anything done by hand. It should be possible to achieve quite a lot with comparatively simple routines.

OK, so it's a far out idea ! but would it really work ? I have not tried it myself yet, but who knows ? One thing, it is a great way to gain programming experience. As for the Lottery ticket, it is more interesting than using birthdates or house numbers and you never know.....

BRIAN'S PAGE - FEB. ISSUE O.U.M. 1995

FIRSTLY THIS MONTH , PLEASE NOTE THAT YOU HAVE FOUND A RAFFLE TICKET WITH THIS ISSUE - THESE ARE FOR USE WITH SOME PRIZES I AM/HAVE COLLECTED . A DRAW WILL BE MADE IN TIME FOR THE NOVEMBER EDITION . IF YOU WIN THEN CONTACT ME AND I WILL ENSURE YOUR PRIZE REACHES YOU BEFORE XMAS. THERE IS NO CHARGE FOR THESE TICKETS AND FURTHER TICKETS WILL BE ISSUED WITH EACH MAGAZINE DELIVERED TO YOU. YOU CAN FURTHER ENHANCE YOUR CHANCE OF WINNING BY SENDING YOUR SOLUTIONS TO MY POSERS . FOR EACH REPLY I WILL GIVE THE CORRESPONDAND A FURTHER RAFFLE TICKET - SO WRITE TO ME !

SECONDLY , LAST MONTHS ANSWER , WHICH IS $775 * 33 = 25575$ - DO IT BY LONGHAND AND YOU WILL SEE IT'S CORRECT . SHOULD ANYONE WISH TO SEE HOW THESE POSERS ARE WORKED OUT THEN SIMPLY SEND AN SAE WITH MEDIA , AND I WILL FOREWARD THE SOLUTION .

NOW FOR THIS MONTHS POSER - SIMPLY WORK OUT THE VALUE OF 'INCH' WHERE :

INCH * INCH = ****INCH - EASY IF YOU PUT YOUR MIND TO IT.

NOW FOR THE END PIECE , WHICH AS PROMISED LAST MONTH IS TO DO WITH BINGO - THIS PROGRAMME WILL GENERATE ALL THE NUMBERS IN A RANDOM SEQUENCE , DISPLAYING THE CURRENT NUMBER IN DOUBLE HEIGHT , AND ALSO CURRENT NUMBER OF NUMBERS DRAWN , AND ALSO ALL PREVIOUS DRAWN NUMBERS. I HOPE TO EXPAND IT FURTHER IN THE FUTURE TO INCLUDE 1) SELF PRINTING OF CARDS (WITH CODES) 2) CHECKING OF SAID CARDS FOR 1/2 LINES AND FULL HOUSES (AS IN ALL BINGO CLUBS , BUT ONLY THE ORIC WAY!) - SO HERE GOES WITH THE LISTING - NO DOUBT DAVE WILL ALSO PUT IT ONTO THE NEXT OUM DISC FOR THOSE TOO LAZY TO TAP IT IN !

```

100 TEXT:PAPER 0:INK 7
110 DIM A(90),B(90)
120 CLS:?"PRESS ANY KEY TO RANDOMIZE"
130 CLS:?"RANDOMIZING THE NUMBERS"
140 Z=INT(RND(1)*F)+1
150 IF Z=F THEN 170
160 B(G-1)=B(G)
170 NEXT F
180 REM NUMBERS CHOSEN..
190 Z$=KEY$:GET Z$
200 FOR Q=21 TO 22:PLOT 13,Q,14:PLOT 14,Q,0:PLOT 15,Q,"GAME PAUSED":NEXT Q
205 PLOT 11,25,"SPACE BAR TO PAUSE"
215 FOR F=15 TO 16:PLOT 1,F,7:PLOT 2,F,10:PLOT 11,F,"NUMBER :      ="
225 PLOT 26,F,1:PLOT 24,F,7:PLOT 19,F,4
235 I=1
245 PLOT 1,F,I:I=I+1
255 NEXT F
265 FOR F=1 TO 90
275 IF A(F)<10 THEN Q$="0"
280 B$=STR$(A(F)):B$=MID$(B$,2,LEN(B$)-1):Q$=Q$+B$
290 FOR G=15 TO 16
300 PLOT 28,6,Q$
310 C=INT(A(F)/10)
325
320 E=3*(A(F)-(*10))+6
330 C=0
340 C=C+1:R=RND(1):K$=KEY$
350 IF K$="^" THEN 430
360 IF K$<>" " THEN 340
370 PING:WAIT 100
380 PLOT 11,26,"PLAY AGAIN (Y/N) ?"
390 FOR Q=21 TO 22:PLOT 14,Q,5:NEXT Q
400 Q$=KEY$:REPEAT
410 FOR Q=21 TO 22:PLOT 14,Q,0:NEXT Q
420 PLOT 24,25,"PAUSE":GOTO 365
430 CLS:?:?"EXIT CALLED":?
440 A$=KEY$:GET A$
450 IF A$<>"N" THEN 440

105 POKE 48036,0:POKE #26A,10
115 FOR F=1 TO 90:B(F)=F:NEXT F
125 REPEAT:Z=RND(1):UNTIL KEY$<>" "
135 FOR F=90 TO 1 STEP-1
145 A(F)=B(Z)
155 FOR G=Z+1 TO F
165 NEXT G
175 CLS
185 ?"WHEN READY TO PLAY - HIT A KEY"
195 CLS
210 PLOT 15,26,"^ TO EXIT"
230 NEXT F
240 FOR F=1 TO 10
250 IF I=7 THEN I=1
260 REM SHOW NUMBERS
270 Q$=""
295 PLOT 20,G,STR$(F)
305 NEXT G
315 D=C+1:IF D=10 THEN D=9:E=36:GOTO
325 PLOT E,D,Q$
335 REPEAT
345 UNTIL C=75 OR K$<>" "
355 IF K$=" " THEN 390
365 NEXT F
375 PLOT 11,25," END OF SEQUENE. "
385 GOTO 440
395 PLOT 24,25,"CONT."
405 Q$=KEY$:UNTIL Q$=" " OR Q$="^"
415 IF Q$="^" THEN 430
425 :
435 ?"PLAY AGAIN (Y/N) ?"
445 IF A$="Y" THEN RUN
455 CLS:END

```


SEDORIC - A BUG!

Colin Cook has found a bug in SEDORIC. We start with Colin's letter:

There appears to be a bug in SEDORIC. Try typing in the following program:-

```
10 DIM A%(100),B%(100),C%(100):SIZE=100
20 FOR I=1TO100
30 A%(I)=RND(1)*256:B%(I)=RND(1)*256:C%(I)=RND(1)*256
40 NEXT
50 !OPEN S,"TEST",1:!PUT 1,SIZE
60 FOR I=1TO100
70 !PUT 1,A%(I),B%(I),C%(I)
80 NEXT:!CLOSE 1
```

On running this, I get the following: "?FILE NOT OPEN ERROR IN 50". It crashes at the !PUT statement. The same happens after a QUIT. If a dummy line:-

```
!OPEN S,"TEST1":!CLOSE
```

is inserted before line 50, the message is: "?BAD SUBSCRIPT ERROR IN 70". This error seems to occur because array A%() loses its contents and its dimension, so anything indexed >10 gives the BAD SUBSCRIPT error. The same problems are encountered with two integer arrays, or even just one, but they do not occur with real arrays.

I've encountered this problem before, using ORIC DOS V1.1, but it does not occur under RANDOS, (with reservations). There is obviously conflict between the operating systems and variable storage, because no error is generated if the disk is not accessed.

This is an extremely serious problem for me, because my novelty hires word processor program "Nova-Ryt" was developed on Randos and is so memory hungry that it has to use integer arrays. The only way I can publish this now is if you put it on side 2 of a 3"disk, because this is the only format that can have 2 different operating systems, and of course you have to put most of your programs on side 1 under Sedoric. I'm also planning another byte-hungry program, "Keyboard Karaoke", which will run up against the same problems. Can one of our gurus please have a look at Sedoric and integer arrays? Let's get this skeleton out of the cupboard!

- Colin

THE EDITOR STEPS IN

Me thinks this is one for Dr.Ray, and thus a phone call or two.

DR.RAY REPLIES

After running Colin's program, the Doc encounters the same problem. This jolts something in Ray's memory, and the answer is forthcoming:-

It is caused by a Pseudo array that file handling sets up automatically. This array is effectively called FI%.

When Sedoric comes accross commands such as OPEN or PUT etc., it looks for a long Integer Array. In the case of Colin's program it sees that the first one is a long one and assumes it to be FI%.

The solution is to make the first one short or not Integer. That is to say - a dummy one. Dimension a short Real Array e.g: DIM A(1), or a String Array e.g: DIM A\$(1).

WHAT OF THE FUTURE?

Dr.Ray's says that Sedoric will not be updated as yet to put this right. However, when his Sedoric is available on EPROM, then the matter will be resolved.

AND FOR NOW!

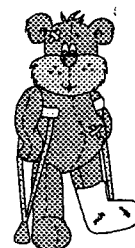
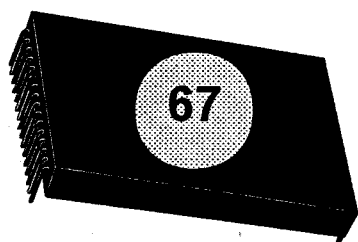
I suggest that Sedoric users make a note of this in their manuals. I would also recommend that Jon Haworth mentions the bug in the update to the Sedoric manual that he is working on.

- Dave

RAMBLING

IN THE

ROM



Rambling on...

'HEX\$' (FUNCTION)

Principal:

Simple enough, though the function is a little complicated by the fact that one has to ignore any 0's in front of the number if it has less than 4 significant digits. The indicator #2F (nil) is used when a significant digit is not found.

Bug: In V1.0 if the number is 0 the result is just #, which is unsightly.

D917 JSR \$D867	D9B5 JSR \$D922	ACC1-->#33-#34
D91A LDX #00	D9B8 LDX #00	prepare index
D91C STX 2F	D9BA STX 2F	indicate nil for the moment...
D91E LDA #'#'	D9BC LDA #'#'	hex identifier
D920 STA FF	D9BE STA FF	at the start of the string
D922 LDA 34	D9C0 LDA 34	take high byte
D924 JSR \$D8F5	D9C2 JSR \$D993	and convert
D927 LDA 33	D9C5 LDA 33	take low byte
D929 JSR \$D8F5	D9C7 JSR \$D993	and convert as well
.....	D9CA TXA	is the number 0?
.....	D9CB BNE D9D3	no, jump
.....	D9CD LDA #'0'	yes, put a 0 (it looks better)
.....	D9CF STA 0100, X	in the buffer
.....	D9D2 INX	and adjust to place the 0
D92C LDA #00	D9D3 LDA #00	take terminator
D92E STA 0100, X	D9D5 STA 0100, X	and end the string
D931 JMP \$D4E0	D9D8 JMP \$D59B	and end as STR\$
D934 JMP \$CFE4	D9DB JMP \$D070	'SYNTAX ERROR'

'LORES' (COMMAND)

Use: Passes into TEXT mode, and arrives at #D93D/#D9E4 with the parameter (0 or 1) in X

D937 JSR \$EE9A9	D9DE JSR \$EC21	do a TEXT
D93A JSR \$D80D	D9E1 JSR \$D8C8	take a value in X
D93D TXA	D9E4 TXA	
D93E BEQ D946	D9E5 BEQ D9ED	if it's 0, jump
D940 DEX	D9E7 DEX	
D941 BNE D934	D9E8 BNE D9DB	if it's not 1, error
D943 LDA #09	D9EA LDA #09	attribute for alternate characters
D945 BYT #2C	D9EC BYT #2C	jump next character

15

D946 LDA #08	D9ED LDA #08	attribute for normal characters
D948 LDX #10	D9EF LDX #10	black paper attribute
D94A STX 02F8	D9F1 STX 02F8	and save
D94D LDX #1B	D9F4 LDX #1B	for the 27 lines
D94F PHA	D9F6 PHA	save attribute
D950 TXA	D9F7 TXA	line in A
D951 JSR \$D965	D9F8 JSR \$DA0C	calculate address of the A th line
D954 LDA 02F8	D9FB LDA 02F8	take colour attribute
D957 LDY #27	D9FE LDY #27	for the 40 characters of the line
D959 STA (1F), Y	DA00 STA (1F), Y	and write it
D95B DEY	DA02 DEY	to the end of the line
D95C BNE D959	DA03 BNE DA00	
D95E PLA	DA05 PLA	recover attribute characters
D95F STA (1F), Y	DA06 STA (1F), Y	and put in column 0
D961 DEX	DA08 DEX	pass to next line
D962 BNE D94F	DA09 BNE D9F6	
D964 RTS	DA0B RTS	

CALCULATE ADDRESS OF LINE A (TEXT MODE)

Entry: A contains a line number

Exit: $\#1F - \#20 = \text{address} = \#BB80 + 40 * A$

X unchanged. In V1.0 Y neither.

A also contains the low byte of the result, which can be useful (though not used in the ROM!)

Bug: On V1.0 the same multiplication routine as at #F700 is repeated. Curious!

Calculate $40 * A$

D965 PHA	.....	save the line
D966 LDA #00	.....
D968 STA 20	.....	initialise high byte of result
D96A PLA	.....	take the line
D96B STA 1F	.....	and save for future addition
D96D ASL A	.....
D96E ROL 20	.....	*2
D970 ASL A	.....
D971 ROL 20	.....	*4
D973 CLC	.....
D974 ADC 1F	.....
D976 BCC D97A	.....
D978 INC 20	.....	+ original = *5
D97A ASL A	.....
D97B ROL 20	.....	*10
D97D ASL A	.....
D97E ROL 20	.....	*20
D980 ASL A	.....
D981 ROL 20	.....	*40
D983 STA 1F	.....	and save the result
.....	DA0C JSR \$F731	AY = $40 * A$
.....	DA0F STY 20	save high byte
D985 CLC	DA11 CLC	
D986 ADC #80	DA12 ADC #80	add low byte of base of screen
D988 PHA	DA14 PHA	and save it
D989 STA 1F	DA15 STA 1F	especially in #1F
D98B LDA #BB	DA17 LDA #BB	and the same for the high byte
D98D ADC 20	DA19 ADC 20	
D98F STA 20	DA1B STA 20	

D991	PLA	DA1D	PLA	recover the low byte
D992	RTS	DA1E	RTS	
D993	JMP \$D807	DA1F	JMP \$D8C2	'ILLEGAL QUANTITY'

TAKE TWO COORDINATES (PLOT...)

Entry: TXTPTR correctly positioned

Exit: #2F8 and X contain the horizontal coordinate, #1F-#20 addresses the required line.

Bug: In V1.0 1 is added to the horizontal coordinate, which has no purpose at all (2 would have enabled the protected columns to be ignored). Perhaps it was done to compensate for the fact that the comparison prohibits access to column 39?

D996	JSR \$DA6B	DA22	JSR \$DAF6	prohibit HIRES mode
D999	JSR \$D80D	DA25	JSR \$D8C8	take a coordinate in X
D99C	CPX #27	DA28	CPX #28	and verify not too long
D99E	BCS D993	DA2A	BCS DA1F	if outside the screen, error
D9A0	INX	.....	.....	curious!!
D9A1	STX 02F8	DA2C	STX 02F8	and save the horizontal coordinate
D9A4	JSR \$CFD9	DA2F	JSR \$D065	look for ','
D9A7	JSR \$D80D	DA32	JSR \$D8C8	take second coordinate
D9AA	CPX #1B	DA35	CPX #1B	and verify not more than 27 lines!
D9AC	BCS D993	DA37	BCS DA1F	yes, error
D9AE	INX	DA39	INX	+1 because line 0 is invalid
D9AF	TXA	DA3A	TXA	save in A
D9B0	JSR \$D965	DA3B	JSR \$DA0C	to calculate the line address
D9B3	RTS	DA3E	RTS	

'SCRN' (FUNCTION)

Principal: Clear...

Bug: Moved as for PLOT in V1.0 (see previous routine).

D9B4	JSR \$CFD6	DA3F	JSR \$D062	look for '('
D9B7	JSR \$D996	DA42	JSR \$DA22	take coordinates
D9BA	JSR \$CFD3	DA45	JSR \$D05F	look for ')'
D9BD	LDY 02F8	DA48	LDY 02F8	take position on the line
D9C0	LDA (1F), Y	DA4B	LDA (1F), Y	take the character on the screen
D9C2	TAY	DA4D	TAY	in Y
D9C3	JMP \$D3FD	DA4E	JMP \$D4B6	Y--> ACC1 (unsigned)

Club Europe Oric

This is the time of year when members are renewing their annual subscriptions. If you are not a Club member, can I try and tempt you. There is a monthly magazine in English, which has drawn many complimentary comments this past year. In addition there are four optional software discs a year, full of excellent French and English software plus original utilities, music and clip art. Drop me a line or give me a ring if you're interested in subscribing :

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