

# QL TECHNICAL REVIEW

ISSUE 3

PRICE £1.50

## CONTENTS

EDITORIAL .....	2
DIARY .....	2
NEWS .....	3
P.D. NEWS .....	3
PERSONAL FINANCE MANAGER .....	4 - 7
ADJUSTING T.V.'S .....	7
TECHNICAL HINTS - MDVS.....	8
QL COMMUNICATIONS - BULLETIN BOARDS .....	9 - 14
QJUMP NEWS .....	15
SUPERBASIC HINTS .....	16
MACHINE CODE TUTORIAL - PART 2 .....	17 - 20
QL CONNECTIONS - APPLE IIGS .....	21 - 22
HELPLINE .....	23
PC EMULATORS UPDATE .....	24
NETWORK FLUSH .....	25 - 26
SUBSCRIPTIONS ETC .....	26
MINERVA - RESPONSE FROM QVIEW .....	27 - 28
MINERVA ROM REVIEW .....	29 - 31
RALF'S AMAZING DISK .....	32 - 33
QUEST UPDATE .....	34
DI-REN'S NEW PRODUCT .....	34
LIGHTNING SPECIAL EDITION REVIEW .....	35 - 36
MANDELBROT UPDATE .....	36

PUBLISHED BY CGH SERVICES, CWM GWEN  
HALL, PENCADER, DYFED, CYMRU, SA39 9HA

# EDITORIAL

# DIARY

Welcome to the third issue of QL Technical Review. This issue is literally bursting at the gills, and we've even had to drop or delay a few items due to lack of space. My apologies to anyone who has had an item delayed. I hope that future issues will be similarly blessed!

This issue sees follow-up articles on a number of subjects. Rich Mellor and Michael L. Jackson continue their series on machine code and financial programs; we've updates to the Quest, Minerva, PC Emulator and Mandelbrot sagas; a few technical hints and queries and two articles on QL Communications, one from Carl Cronin on interfacing a QL and an Apple IIGS and a mega article from Dave Fullerton on Bulletin Boards. Robin Barker of Di-Ren has kindly furnished us with his Network Flush code and I've nicked some SuperBasic hints from the Scottish QL User Group's newsletter.

I must say that I have been very pleased at the general level of feed-back from the first two issues, although QView were less than pleased with John Vennard's comments on Minerva (see their letter) and Freddy Vachha pointed out a few mistakes or misinterpretations regarding his products. Please feel assured that we retain an independent line on the QL scene. We are not in business to unduly praise or condemn software or hardware or other QL writers, publishers etc. If we make mistakes we'll print corrections. If people think reviewers have missed out something important - write in and let us know. Unlike QL World, we are produced by users for users. There are no payments involved, people write in because they have something to say, not to promote personal vendettas or for self-publicity. Alas your editor cannot personally check out everything that people write due to lack of resources, time and knowledge. So, rather than readers seeing what is in these pages as gospel, simply because it is in print, see it as a collection of personal opinions offered in good faith, but open to amendment in later issues.

Next issue will be on sale this summer. Deadline for inclusion is July 1st (which should help our student writers). Please send things in Quill\_doc form. Other editors may be better - but if I can't load their files into Quill, then I can't edit them.

Richard

There's quite a few interesting things happening that may be of interest to QL users in the next few months.

25 April. 8.00 p.m. First meeting of Surrey QUANTA sub-group. The Plough, Stoke d'Abernon on A245 between Cobham and Leatherhead.

28 -29 April. 2nd All Formats Computer Fair, New Hall, Royal Horticultural Society, Victoria, London. £3.00 to get in. We won't be there.

12 May. 4th Northern Home Computer Show. Stokes Hall, Church Road, Leyland, Lancs. £1.50 to get in. This one we should have a stall at!

20 - 21 October. QUANTA weekend workshop in Worthing. Contact Andrew Knights, "Kitlands", 57 King's Stone Avenue, Steyning, West Sussex, BN44 3FJ.

## LOCAL GROUPS

Andrew Knights is also trying to get a QL group organised in the Worthing area.

Stuart Coburn is interested in contacting QL users in the London area. Write to him at 27c Foxley Road, Kennington Oval, London, SW9 3EX.

I understand that QL users are getting themselves organised in the Chorley area. Michael L. Jackson is in the process of moving, but if you contact Keith Reader, 50 Hawkshead Avenue, Euxton, Chorley (Lancs, PR7 6NZ he'll probably be able to give you the relevant info.

In Scotland, in addition to the Scottish QL Users Group (contact Alan Pemberton, 65 Lingerwood Road, Newtongrange, Midlothian, EH22 4QQ, tel. 031-660-1826), there is another group based around Motherwell. Contact there is Ken Barrie (Tel. 0698 - 69737).

As the future of QL World looked rather dodgy (and may well still be) I'm sure a lot of QL users, especially those already members of QUANTA, will be looking to building up contacts with other QL users. So if you want penpals or want to meet people, do write in to us and we'll pass the info. More next time!

Richard

# NEWS

Prime news on the QL scene is that QL World has, along with the rest of the Focus Magazines, been bought by Robert Maxwell's publishing empire. The short term future of the magazine seems quite secure, but if it does start to lose money then it may well go under. No time scales offered on that one.

On the other hand it looks as though QL SUB has finally gone under. I say looks, as it may just be a communications problem, but they appear to be totally uncontactable.

Product news. QView have released their multibasic version of Minerva. Full details next time. You'll have to contact QView to get info on their upgrade policy. Keep up-to-date on the Minerva scene, log onto TF Services bulletin board.

QJump have released QPAC II an much improved pointer environment and accessory package. Again look forward to a fuller review when people have got to grips with it. One possible use for QPACII is for a HyperText system on the QL. If anyone has access to an ST I can supply a Public Domain disk with an example HyperText program. First off - how about a revised QL manual!

Dilwyn Jones has opened up shop on his own. He's sent three programs for review, see his ad in this issue for more details. Good to see Dilwyn back in business. He is also looking for software authors for a few projects he has designed.

No sign yet of PDQL's "C" Compiler or SuperBasic C-Port. Some of our readers paid for copies last year!

Schon have quit the QL scene, but I understand that the keyboards they used to sell are still available from other sources, while stocks last.

No news from Thor International. I sent them a copy of the last issue, but have had no response so far. I am given to understand that work is still continuing.

C.G.H. Services have been offered a font designer for publishing and once it has been tidied up should be available. If anyone can do form designer for the QL, we'd be very interested, or any other utility software.

Richard

# P.D. NEWS

Quite a lot of interesting items have found their way to C.G.H. Services these past few months, and a big thank you for all the people responsible for supplying the goods.

First, we've got a disk from Dick Taylor of the US Sea Coast QL User Group with (it says) 417 Business Letters in \_lis format so that they can be imported into Quill for editing. They originate in the States and fill an entire 1440 sector disk. Could be useful if you're stuck for the correct way of expressing (for example) refusal of credit to a potential customer. May be too American for some, if anyone cares to Anglicise them, do let us know.

Andy Dean has worked out a way to transfer Spectrum screens to the QL using an RS-232 interface on the Speccy. The code is written in "C" and both the code and the exec version are now in our P.D. Library. Andy reckons 2 minutes to port a screen across. He has also sent in a small graphics program featuring an Amiga and a QL, which you'll find in the graphix collection.

Dilwyn Jones, a long-time QL programmer, has been sifting through his collection of old programs that he has written and generously donated 20 to the P.D. Library. They're a mixed bunch, some games, hi-fi utilities, a QL palette display etc. I'll probably keep all these together on 2 mdvs (or equivalent). We'll also have "Sorter", a type of mini-database in the library, probably as a stand-alone program. Many thanks to Dilwyn for these.

Chris Adams is keeping his QL World/User index up-to-date and is now working on an index for QUANTA newsletter. Latest version is always available from the C.G.H. Library.

Thanks to Alan Pemberton and Rich Mellor's excellent ST - QL screen transfer program we can now offer some ST screens (3 disks) and ST Clip Art (2 disks). These take some time to sort out. At present the Clip Art is taken from ST Hi-Res screens but this often necessitates using several QL screens to get everything in.

See the mandelbrot update on page 36 for more P.D.. news

Richard

# PERSONAL FINANCE PROGRAMS

- THE FIRST BATCH!

FOUR PACKAGES REVIEWED IN BRIEF BY M. L. JACKSON

Those of you who saw my article in QLTR #2 will realise that a large range of business and financial programs has been produced for the QL. Some such programs are still being published in the 1990's, despite the QL's false image as a 'dead' microcomputer. "Personal Computer World" recently reviewed computer 'failures' of the 1980's and was distinctly critical of the QL, claiming that nearly 100% were faulty when delivered! I find that hard to believe, especially bearing in mind the numbers of enthusiasts who continue to support the machine, including those who rely on it in some way for their livelihood. New software packages continue to appear, whether commercially or in the Quanta or CGH Services libraries, and there is a lively market in second hand programs. The home finance programs I have been looking at in the past few weeks have come from a variety of sources: 'bargain buy', Quanta, shareware via CGH Services and a commercial publisher. I would like to thank John Shaw of Bristol for the loan of his Home Banker disk and manual. I would appreciate similar help from other readers who may be able to offer to loan programs for review purposes.

## RESERVED JUDGEMENT

I must confess that pressure of work recently has prevented me from devoting as much time as I would have liked to testing the four programs. In addition, I believe one of my QLs has developed a fault which is preventing the network from functioning. Furthermore, I've just upgraded one machine to Minerva 1.66 and have not had the chance to test the programs sufficiently thoroughly to be certain that all features will work correctly in the new environment. It is because of this that I am keeping the review to general observations about the programs, preferring to reserve final judgement to a later date.

## QL HOME FINANCE - SINCLAIR/BUZZZ SOFTWARE

Though this package is no longer published, it is available second hand or at bargain prices, for instance reduced from £25 to £9. It is only available on microdrive cartridge, though it can be converted to disk operation with some effort. It is the most professionally packaged of the four programs, the software wallet and 102 page manual coming together in a QL-style mini black plastic box. The manual is one of the best features, being clearly printed and explaining the operation of the program with example screens and diagrams.

I liked the screen displays of Home Finance and found the ability to swap between television and monitor modes quite useful when using different computers. This program would be very easy to recommend were it not for its unfortunate drawbacks. It can only use 128K of memory and does not come with a memory reset routine, requiring the owner to obtain a suitable memory shrink utility (such as Boot128K in the CGH catalogue). Minerva owners get a quick solution to this problem by holding down the shift key when pressing F1 or F2 (it resets memory to 128K - a clue for those who haven't yet got Minerva). This memory restriction means that the maximum number of transactions is limited and ramdisk cannot be used as a temporary storage medium to speed up operations. Needless to say, I have not found any way of getting this program to multitask, so have been unable to do any screen dumps of its menus etc.

An improved version of Home Finance, which could use expansion memory, was developed but was not sold commercially, being available as an upgrade to existing owners via a Quanta member. Ownership of the rights to the program might be a difficult issue, as it was marketed by Sinclair. I would like to see the enhanced version of this package on sale and will attempt to obtain a copy for further evaluation.

## HOME BANKER PLUS VERSION 3.1 - DJW SOFTWARE

I believe that this program is available on cartridge or 3.5" disk for expanded QLs from DJW at 11, Pound Close, Bramley, Hants, RG26 5BL. Write to DJW for current prices - I don't know so cannot comment on the value for money aspect. Versions are also available for those of you still using 128K QLs.

The program is supplied with an eight page A4 photocopied manual, but this seems to be adequate. The program has attractive screen displays and seems to be 'user friendly'. Though expansion memory is required, Home Banker does not grab it all for its own purposes, though use of free memory as ramdisk is recommended for temporary storage of transactions. The program will multitask - I have tried it in the QRam pointer environment, but other task swappers should also work. It loaded under Minerva but I have not given it sufficient testing to be sure that all aspects function properly.

One reader has commented that after a few months of transactions have built up, loading and saving of files becomes unacceptably long. I fear this is a problem with many accountancy or home finance programs and can generally be overcome only by splitting the year into quarters or shorter accounting periods. Operation from hard disk might be more pleasurable, if somewhat expensive. A further criticism is that because of the difficulty in producing a quick list of the analysis categories, it is too easy to enter related expenses under similar but different headings, for instance "Computer Expenses" and "Computing Expenses".

## PERSONAL FINANCE MANAGER - HAIRBRAIN SOFTWARE/CGH SERVICES

At the time of writing, this package is available as shareware from CGH on cartridge, 3.5" and 5.25" disk, but its status may change. (Indeed it has - see comments at end. Ed.) Hairbrain Software supplied a 15 page photocopied manual to registered users. The manual states that it does not need to go into great depth because of the 'user friendliness' of the program. However, unlike some packages which require nothing more of the user than the ability to put the cartridge or disk into MDV1\_ or FLPI\_ as appropriate, press F1 or F2 and sit back until it loads, Personal Finance Manager makes its users load up Archive first then type: run object "finance"! I don't suppose this will worry too many QLTR readers, but the program could have been made more 'user friendly' if it had been written to use runtime Archive, which allows auto-booting of Archive programs.

It is perfectly logical to use Archive to produce a finance package and in doing so PFM scores points over some of its rivals. PFM can use disks and expansion memory and can be made to multitask, for instance with QRam. If you have modified your version of Archive according to the description in Simon Goodwin's article in QL World, swapping to other tasks is even easier - just press CTRL-C. However, Archive does introduce some restrictions on the numbers of records per file so this may impose a limit on the transactions saved per period. The usual features of Archive are available from most menus, but with the prompts turned on this means that general on-screen presentation is less appealing than either of the two previous programs. That does not detract much from the ease of use of the program, which is completely menu-driven and should not require much reference to the manual.

## EDITORIAL INTERRUPTION

Further to Michael's comments on Personal Finance Manager, C.G.H. Services have negotiated with the author, Jason Vicinanza, to market this as a commercial product instead of as shareware, as Jason has sold his QL and thus would find supporting the program difficult. Also we can promote the program better as a commercial program rather than shareware. We may well be looking at the manual to improve it before releasing it. As for runtime Archive, I believe one would have to pay royalties to use this. To keep prices as low as possible we'll keep it as an Archive add-in for the time being. We also hope to be able to improve it, if necessary, provided we can find someone willing to take on the necessary coding. (Richard.)

## BANK - QUANTA LIBRARY

This program is available to Quanta members from their distribution service of librarians, on cartridge or 3.5" and 5.25" disk. It is a Turbo-compiled program, but the SuperBASIC source is also supplied so that it can be examined (or modified). Because it has been compiled with DP's Turbocharge it will not work from a Quest disk system (see QLTR #2 for details of this Quest bug) but you could compile the source with QLiberator (available from CGH) and this should work.

Once compiled, the program can be made to multitask and can run on machines with expanded memory. The manual is in the form of a file on the disk or cartridge to read on screen or print out on your own printer. What more can you expect when you haven't paid anything for the program? The program operates from one main menu, but has fewer features than some of the other 'bank account' type packages. As the program is available for virtually the cost of a blank disk it is well worth obtaining by Quanta members to see whether computerisation of their financial records is worth pursuing. The program might prove adequate for your needs, but it might serve as an indication that one of the other packages would be worth purchasing.

### FURTHER REVIEWS

I will continue evaluating these particular packages as time permits and will report back when I reach my final conclusions. In the near future, I intend doing a three way evaluation of 'Integrated Accounts', 'Cash Trader' and 'General Ledger'. At present I have access to the original 'Cash Trader' published by Sinclair, but would like to examine the upgraded version distributed by PDQL. Can anyone help?

I have seen mention of further finance programs in addition to those listed in QLTR #2. For instance Sector Software advertises a program called 'Home Budget' - is this the same as the one sold by PDQL? Hilton Computing produced 'Personal Banking System' and Slatford Software did 'Investment Monitor' - these are available from TK Computerware, but I have not had review copies. I am still interested in reviewing programs not seen since 1984, as well as those just released.

Michael L. Jackson

S.D. MicroSystems "General Ledger" has been received (with thanks) and passed on to Michael L. Jackson, and hopefully he'll be able to comment on it in time for the next issue.

I've appended John Shaw's comments on Home Banker, by DJW Software, to supplement Michael L. Jackson's. Please feel free to write in to QLTR with any observations you have about financial programs.

### HOME BANKER - ADDITIONAL COMMENTS

- 1) I have been using it for six months and found that it behaves well.
- 2) There are a few minor gripes:
  - a) After a few months of accounts, the time to load and save increases to an unacceptable level. Thus it is not practical to keep a whole year's records in one block. I restart every three months. I have sent away for Schon Quickdisk hoping that it will help in this respect, as I feel the ability to analyse a year's income and expenditure is a useful feature.
  - b) I would have liked to have had the ability to do a directory of all the ANALYSIS CATEGORIES. Once you have committed a payment to say "Home Repairs", some time later you may wish to enter another payment into the same field but, thoughtlessly, put it under "Home Repairs". It happened to me! Thus your statement analyses will not be accurate.
- 3) Everything else seems to be quite satisfactory, i.e. it appears to calculate accurately (unless you discover differently!) and produces a pleasant printout.

John Shaw

HELP press F1	COMMANDS create look open close delete display back alter find	COMMANDS press F3
PROMPTS press F2	first insert last next quit type command & press ENTER (F3 for more)	ESCAPE press ESC

```

MAIN      *BACKUP PROCEDURES*
          F - All FINANCE files.
          A - CREDIT card file.
          W - WAGES file.
          U - Audit file.
          L - All system files.
          S - Load PERSONAL FINANCE PACKAGE.
          R - Reporting procedures.
          E - FINANCE enquiry procedures.
          O - Other enquiry procedures.
          1 - Dir of MDU1_. 2 - Dir of MDU2_.
          X - Export procedures.
          H - File recovery help.
          £ - Exit to SUPER BASIC \ - Exit package
          Press the required option code

```

run object 'finance'

SCREEN DUMP OF "PERSONAL FINANCE MANAGER",  
NOW AVAILABLE FROM C.G.H. SERVICES.

## ADJUSTING T.V.'S

### THE DI-REN WAY

It is not possible to get rid of 'dot crawl' on televisions being used as monitors. Tampering with the Video circuitry does not help. What can be done however is to reduce the picture 'frame size' thereby enabling you to see all the output usually only visible on a monitor.

If the Television you use doubles for monitor and normal TV duties then it is not advisable to adjust the frame size. If you know anybody in the TV engineering field then either get them to advise you or preferably ask them to make the adjustments. Failing that, then if, and only if, you are electrically competent the following notes may be of some use.

Somewhere on the chassis of most Televisions you will find some form of adjustments that are usually conveniently marked WIDTH and HEIGHT. Before you look for these adjustments make sure the TV has been TOTALLY DISCONNECTED from the mains for at LEAST 24 HOURS. This precaution will give on board capacitors and the Tube time to dissapate stored electrical charges. The Tube operates at some 3000 volts DC and can hold a charge in excess of 24 hours. So steer well clear of it.

TV's are normally full of dust. Carefully brush this away with a clean dry paint brush. If the WIDTH and HEIGHT adjustments are easily accessible then adjust them using insulated tools as appropriate. Do NOT adjust anything else. The chassis on nearly all TV's is LIVE. Ensure that you are working in totally dry conditions and not on NYLON carpets. Remember, The inside of a TV can be very dangerous so if you are not sure, seek professional advice.

# TECHNICAL HINTS

I've taken the liberty of pinching some of the following hints about microdrives from the Scottish QL User Group newsletter. Other points I've drawn from experience.

With the impending scarcity of mdv. carts, it seems a good time to bring together a number of tips on how to make the most of the ones you already have. I can't say I have tried them all, but they are worth a shot if it means rejuvenating some of the dodgy mdvs languishing around at the back of a cupboard or in a box somewhere.

One point, how can you tell whether the problem is your mdv or the carts? If you have more than one machine, try formatting a few carts in each of the drives a few times. If my 3 machines are anything to go by, 1 drive will format regularly at 218/218 sectors, whilst another won't format any at all. Others average about 210 sectors. If a tape formats poorly across several machines then it's a dodgy cart, but a drive that formats poorly requires attention. (Could be a regular feature of club meets - checking dodgy mdvs and carts!)

1) Cartridges should be formatted several times in succession. If the number of good sectors is variable, keep formatting until you get a relatively low number and stick with that. There's no point in going for the absolute maximum, when you know some will be marginal.

It helps to format the cart in the drive in which you intend to use it.

Another handy tip - bang the carts (in their sleeves) down on a solid surface, gripping the narrow sides. This should help the tape inside loosen up a bit. If nothing else it relieves some of the frustration.

2) If you get "format failed" then:

a) try formatting in another drive. Continue switching between mdv1\_ and mdv2\_ about five or six times, trying to format each time, and you may find the cart comes back to life.

b) It has been suggested that passing a strong magnet across the exposed tape of a non-functional cart can persuade it to format properly. It sounds unlikely but is possibly worth a go if all else fails.

c) Try gently prising upwards the metal clip which holds the small pad of rubber beneath the tape in the cart. This has been found to be successful on occasion but do be careful, once the clip is out of position it's extremely difficult to get it back again.

3) If you have a lot of problems with bad carts, it may be the drives themselves that are at fault.

a) The speed of the drives may need adjustment or the roller may have come out of position. These and similar problems will probably require a service engineer to sort them out.

b) Overheating can cause problems with mdvs, as well as everything else inside the QL. The best solution is to get hold of a proper 8v power supply (as opposed to the standard Sinclair one). Try Dennis Briggs of Adman Services for one of these.

c) Another problem may be the build-up of tape debris on the heads, in the same way that it happens on ordinary tape heads. A Q-tip dipped in a tiny amount of meths should shift any dirt there. Do use a fresh Q-tip to dry off any surplus meths.

d) Always check that nothing has got into the drives by accident, such as a write enable tag or paper-clip.

Even with all this it's possible that the mdv cart you're trying to use is completely (what's the polite term?) no good. You can always try exchanging them with other QL users - your failed mdvs may work on someone else's machine.

As with most things prevention is better than cure so always keep your mdvs in dust-free environments, away from direct sunlight, excessive heat, dust, cigarette smoke, coffee and electromagnetic fields. Carts that are not used frequently should have a directory run on them just to keep the tape loose. (It's also easier to recover a freshly dud cart than one that hasn't been touched for a couple of years.) And do keep back-ups!

Finally - why is that master (key) carts are always the most likely to corrupt, especially those from people that are no longer on the QL scene?

Richard

# QL COMMUNICATIONS

I'm not a very "Technical" person, more "a doer" (after being shown) !! Anyone who wants to know the "ins" and "outs" of various "modems" will have to look elsewhere for the answers. I am told, that there are plenty of books on the market referring to "Communications." To be honest, I've not yet come across one that I can understand! Tony Price of T.F. Services, supports most Bulletin Boards being run on/for the QL. Any problems or questions regarding "modems" can usually be rectified by him.

## GETTING STARTED

It was during June 1989, that I first became interested in using the QL for "communications." Like most people (I suppose) I was always a bit affraid of trying something different and always believed, that "communications" meant money, i.e. the spending of it!! (and it does).

At the Bristol "Quanta" workshop, I was lucky to purchase a "Tandata" stacking system for the costly sum of £25.00 (£5.00 of which was donated by my now Co-Sysop). On getting the thing home, I had a week or two to put a telephone outlet into my office, not an easy task, but one that is obviously essential.

The "Special Edition" of the Qualsoft Terminal programme that eventually arrived was far better than the Qconnect programme that is supplied with the "Tandata". Only one thing to say about the Qualsoft Terminal disc, it also had on it the Qconnect files. This was rather confusing as Terminal was looking for it's "Telephone Directory" named (of all things "Qconnect"). This problem was easily overcome by copying the Terminal files to a separate disc and renaming "Qualsoft" (being the Telephone Directory supplied) to "Qconnect".

So, the telephone extension was fitted, the software was sorted out and everything was ready to go. The 3 pieces of the "Tandata" system were plugged together and all the connections made. I must say, that the documentation was adequate for making the connections etc. The switches were on and the QL came alive. The "telephone directory" was displayed All those wonderful Bulletin Boards spread across the country, just waiting for me to use the arrow keys to highlight the one I wished to call, a quick "D" for dial would have my computer/modem talking to the outside world (once I was "on line" and not in "LOCAL" mode.)

NOTE Technical Review of "Terminal" Programme in QL World Jan 1990.

## TYPES OF BULLETIN BOARDS

One thing not too technical, that I must comment on before I go further into this article and that is the types of Bulletin Boards that you are going to encounter. There are only two and to keep things simple, one is "Viewdata" i.e. the Board will give you pages (usually coloured) and pictures, "Prestel".

The other which is more suitable for lots of information, mail, software etc., is known as "ASCII Scrolling" i.e. Telex or Teleprinter type. On this type of Board, you get your information as though it were a continuous "listing."

One of the first Boards that I accessed was Lau's Place in London. This is "Viewdata" and what's known as a "Ring-Back Board". With "Ring-Back" Boards, you manually dial the telephone number, wait until you hear the ringing of the telephone (only once), replace your hand-set, then press "D" to dial.

Regardless of what Board you log-on to, you will have to fill in some sort of "registration" page. Normally, your name, address and perhaps your telephone number and most important, what you are going to use as a "password". Once this formality is done, you may have to wait (24 hours) for the Sysop (System Operator) to process your data and give you access to otherwise inaccessible areas of the Board.

The first time, that a "Sysop" was actually talking to me via the modem and computer (CHAT MODE) it was a strange feeling. I took some convincing, that there was actually "a live person" at the other end and not some "very intelligent" computer/programme. My greatest help came from Tony Firshman. While trying to "Download" a file i.e. obtain a copy of it. I ran into allsorts of problems. Tony was actually watching me struggle and came through into "CHAT" mode with various pieces of advice and eventually, I did manage to obtain a copy of the programme that I wanted. (Anyone who is seriously using the Tandata system is highly recommended in forking out another £30.00 for the full version of the Qualsoft "Terminal" programme.)

I went mad for the first few weeks, I logged-on to almost all the BBS's (Bulletin Board Systems) that are listed in the Terminal Directory. I really got the BUG ! Which is an appropriate lead in to Q.B.U.G. the Bulletin Board, that I am running. 24 hrs a day, seven days a week. (0272) 666187. The name is initialised from QL Bristol Users Group.

#### THE CREATION OF Q.B.U.G.

I realised, that all the Bulletin Boards that interested me were in London or even further afield. Even at "cheap rate" my telephone bill was going to be excessive. I enquired about "QLViewdata System" by QVIEW (those marvellous "Minerva" people) as I rather liked the colourful screens. The one drawback with "Viewdata" as far as I was concerned, was the fact that you had a lot of editing and very little information could be contained on one page.

So I turned to Tony Firshman for advice, telling him of my plans to start a Bulletin Board in Bristol. He was very helpful and of course, gave me all the advantages of a "Scrolling Board". The outcome being, that I purchased an Astracom 1000 (Native) modem from him and he sent me copies of Jan Bredenbeek's (Shareware) Bulletin Board programme "QBOX". The discs, that he sent also contained some Public Domain programmes to get me started and were already set up for running the Bulletin Board with the Astracom modem.

#### MODEMS

A "modem" is the interface used between your computer and the British Telecom network. Modems transmit/receive data via the telephone line at a set rate (Baud Rate). The Tandata system receives at 1200 Baud and transmits at 75 Baud. Considering, that some systems operate at 2400/2400 Baud, you will realise, that you are restricted with the Tandata and (Software aside) it would not be practicable to run a Bulletin Board with such a modem. To give you some idea of the "jargon" used in "communications" I have set below a small table.

1:- V21	300/300	Full Duplex
2:- V22	1200/1200	" "
3:- V23	1200/75	Half Duplex
4:- V22bis	2400/2400	Full Duplex
5:- Reverse V23	75/1200	Half Duplex

Full Duplex:- Means that the modem is capable of transmitting and receiving "data" simultaneously.

Half Duplex:- Means, that the modem can not receive "data" while it is transmitting or transmit "data" while it is receiving.

Before anyone asks, I don't know why V22bis is not called V24!!.

#### THE TRANSFERRING - RECEIVING OF DATA

Take for example a 32k QL screen. To transmit/receive

At 75 Baud,	it would take 73 minutes
At 300 Baud,	it would take 18 minutes
At 1200 Baud,	it would take 4.5 minutes
At 2400 Baud,	it would take 2.25 minutes

The Astracom 1000 operates V21, V23 or Reverse V23 and is quite happy running a Bulletin Board, but it is the minimum requirement that you could use and costs. £175.00. There is an "optional" upgrade from T.F. Services to enable the Astracom to operate also at V22. This "upgrade" will cost a further £95.00.

#### MEDIA STORAGE

Microdrives are out. Besides being slow, there is just no room to store the operating programme, let alone any files. So you must consider Disc Drives. Miracle systems "Trump Card" will only let you use "two" drives and while "two" drives are quite adequate when starting off, you will soon realise that they are not enough.

So if you have a disc system that will allow you to use four drives, then fine .....away you go. The ideal is a Hard-Disk. With such a device, you have fast access times and vast amounts of storage. There is always room for anyone to "upload" any size of file and all your files are on one device for easy "downloading".

Actual memory size with the QBOX system is not really of any great importance, as the programme, messages and files are all stored on the discs. Without a Hard-Disk, you would need to keep all your files on discs. The user could see what files were available from the "file area menu" and by leaving a message (or in CHAT mode) make suitable requests for the files he/she were interested in. You (the Sysop) would then have to find the appropriate disc(s) and load the selected programmes into their respective "file area" ready for "downloading".

#### SETTING UP A BULLETIN BOARD

I got Q.B.U.G. up and running in a matter of three weeks. I was lucky, as all the files sent to me were ready to use with the Astracom modem. All I had to do was "customise" them to Q.B.U.G. The documentation (Quill\_docs) were written by Jan Bredenbeek from Hilversum, The Netherlands, and are in very good English. Jan explains what is required from the "modem" and goes into full detail regarding the shortcomings of the QL's Serial Ports. He also gives details of how these "shortcomings" can be overcome.

QBOX can be adapted to run with virtually any "modem". This is due to Jan's QSPIL serial port driver. Full documentation is supplied on this subject. The most important document is an eighteen page "Sysop's Manual". In it, there is a list of "files" that are essential to the running of QBOX and others which are not necessary for the programme to run but are advantageous.

Any would be Sysops can obtain a copy of the QBOX programme (Version 1.14) and the relevant documentation from C.G.H. Services for the appropriate fee. Jan Bredenbeek will give technical support/advice to all QBOX users that send him a donation of 35 Guilders (approx £10.00). Without making such a donation, you are on your own.

#### QBOX IN BRIEF

QBOX will enable you to have a Bulletin, 32 Message Areas, 32 Files areas, Information Sections and an Editorial. The message and files areas can be restricted to any individual user(s). In this way, as a Sysop, you could create sections for a particular "user group" and allow access to the sections by that group only. Each area will hold up to 255 individual messages. With a suitable "Text Editor" (I prefer The Editor Special Edition) you design the following screens and create a number of files:

1:- LOG-ON. This is the first screen that any user will see. It should give the title of the Board. Times that the Board will be "on-line" and details of you (the Sysop) and any "helpers" (Co-Sysops).

2:- BULLETIN. Information about using the Board. Giving details of any "important" matters, updates etc. Anything in fact that you consider necessary to bring to the "users" attention.

3:- INFORMATION. With QBOX, you create an Information Section No. 00. This acts as a "menu" or "index" for the Information Sections. What information you provide is personal, but a section giving "New Users" detailed information on how to go about the Board is (I think) essential. Any number of "information" sections may be created.

4:- QUESTIONNAIRE. Relevant questions to be filled in by "New Users". QBOX requires Name, City and "Password" as a minimum. You can set out any questions that you consider essential in giving "users" what they want on the Board, i.e. their interests, membership of computer clubs, organisations etc.

DON'T FORGET "THE DATA PROTECTION ACT". While you do not need to Register as a "Data" user, you are still bound by the Act. i.e. you can not reveal information that you have to a "third" person without permission of the "Data Subject".

5:- MESSAGES AND FILES AREA. You create an index file (or menu) for each of the two areas.

i) "MAREAS\_bbs" will list from 1 to 32 the names of the "Message Areas" that are available on the Board.

ii) "FAREAS\_bbs" will list from 1 to 32 the names of the "Files Areas" that are available on the Board.

If a particular "Area" has not been allocated, then you leave a blank line in the appropriate index/menu file. In addition, with files (programmes) you will have to type in the names of each programme/file that is contained in each area. i.e. if you have files in Areas 1 to 10, then Files\_01 will be created and the files in that section typed in, likewise, Files\_02, Files\_03 through to Files\_10.

6:- EDITORIAL. This is similar to Bulletin. It is a text file and can contain whatever you like. As a suggestion, information on the system you are using, the software, what's new. (S.I.G.'s) Special Interest Groups. such as QUANTA or "Adventurer's Section).

#### THE BULLETIN BOARDS AS A USER

I shall now try and give you a "talk through" on accessing and using a "QBOX" type Bulletin Board such as Q.B.U.G. (Bristol) and T.F. Services (London).

I must take for granted that you have your "modem" software to run it and have a little knowledge on what you are doing. Unfortunately, I no longer possess the "Tandata" system (or manual) and have no knowledge of any other "modems" apart from the Astracom 1000. Qualsoft "Terminal" programme is the only software that I have used, so my "talk through" will be based on using "Terminal."

Once up and running, highlight the Board you wish to access. Scrolling Boards are depicted by "ITS" being displayed in the right-hand column. Press "A"; "F3"; "I" to get into "Interface" mode. Use the "up" or "down" arrow key until "ON LINE" is displayed. BAUD should be 9600 (Not the Baud rate used over the telephone line, but the rate at which your computer/modem talk to each other). PARITY should be SPACE. I/F should be SER2HR and H/SHAKE should be XON/XOFF. (I think !)

Once you have the above parameters set, Press "ENTER"; "F3"; "D" to return to "Dialing" mode. Press "D" and your system will start to automatically call the Board. If you are successful, you will see a "LOG-ON" screen. After which, you are requested to enter your name and password. Enter your name and you are requested to confirm this. You could also use "Macro Strings" for your name etc. Again this is explained in the "Terminal" manual, but basically from the Telephone Directory, you "edit" the particular Board that you are interested in. Where line one is indicated i.e. something like "Guest", "Qualsoft User" may be displayed followed by some control codes. Alter the words to YOUR name leaving the control codes as they are. On line two enter what YOU want your password to be. An '&' at the end of line one will ensure, that your

"password is also sent automatically.

If you are a "New\_User" to the Board, a screen will be displayed to this effect and you will automatically be taken to a "Questionnaire" "Registration" page. Fill in the page(s). Please use your correct details. It is so frustrating to see Joe Bloggs, Micky Mouse etc., entered onto the "Users List". You only have to answer the questions on your first "log-on".

Once the "formalities" are done with you are once again requested for your "password". Type in the password you first used and you will go through to a Bulletin page. Read this page carefully. It will give you information about the Board and where to find more detailed help.

The QBOX system of Boards are easy to negotiate. After the Bulletin has finished, the programme will tell you of any new messages or files since your last log-on. As you are a "New\_User" all message areas and file areas (accessible) will be shown as "new".

You will then be presented with the Main Menu:-

(M)ail section, (F)ile section, (B)ulletin, (E)ditorial, (I)nfo,  
(G)oodbye, (C)hange user settings, (U)sers list,  
(A)nsWER questionnaire, (Y)ell Sysop, (V)ersion.

(M) will take you to messages:-

Sub menu:- # (enter message number)  
(A)rea change, (N)ext, (P)revious,  
(.)current, (C)ontinuous, (L)ist, (S)can,  
(K)ill, (E)nter, (U)pdate, (R)eply,  
(M)ain, (G)oodbye

You will be given the area that you are in. The number of the last message you have read (New\_Users will be 0). The total number of messages. To save you time and money. Open a log (to ram\_disc preferably) and type in "C" for continuous. All the messages will scroll without stopping and will be on you log for reading when you are "OFF-LINE". Refer to your manual for details of opening a log.

Press "A" for Area Change. Pressing "ENTER" will give you a list of area numbers. Type in the number of the area you want and you will be given the messages in that area.

Pressing "C" will list all messages continuously (to your log).

You continue to Press "A" and the number for the area you want.

AT ANY POINT, PRESSING "(G)oodbye" will take you to LOG-OFF.

Press "E" in whatever area you choose and you will be able to enter a message. Press "R" and you can enter a (R)eply to a message.

To:- Enter persons name.  
From:- Will automatically put in your name.  
Subject:- Type in the subject title.  
Private:- y/n Self explanatory.  
Quote Text:- y/n When replying to a message.  
Enter your message/reply by lines (numbered)

Pressing "ENTER" will indicate that you have finished your message and will take you to the "message editor"

(L) Will list your message.

(E) Will request line number for editing. Then word to search for and what it is to be replaced with.

(S) Will save your message to the Board.

NOTE A "PRIVATE" message to "ALL" will not be read by many !!

Until you Press "S" your message will not exist on the Board.

Return to the Main Menu by Pressing "M".

Press "F" for files. You will be given the Area that you are in. Pressing "F" in the "Files Area" will give you a list of the available files. "MISSING" means just that!

Pressing "A", then "ENTER" will give you a list of the "Files Areas". You choose the area by it's allocated number.

"D" and "U" will start the "Download" or "Upload" procedure. You will find on-screen help to assist you in "Terminal".

DO NOT TRY DOWNLOADING OR UPLOADING UNTIL YOU HAVE READ ABOUT IT. To attempt these while "On-Line" could be expensive !!!

(V)iew. If the file is "Text" or "SuperBasic" you will be able to view it. You must type in the name exactly as it appears on the Board. (Not case dependant). A "text" or "Superbasic" programme can be read off your log !! This will save "downloading". A bit of work in "Editor" and you will have the programme.

Pressing "M" will once again return you to the Main Menu.

On a second log-in, while in a "Messages area" typing a full-stop (.) will take you to the last message you read. It is a good practice, even if you do not read all the messages in any particular area, to actually go to the last message before changing area.

Always LOG-OFF correctly by Pressing "(G)oodbye." If you bomb out of the Board without LOGGING-OFF correctly. Log-in again straight away. If you don't, there is a possibility that the next "user" will take on your identity, password and access levels.

#### "CHAT MODE"

If you want the "Sysop" Press "(Y)ell for Sysop". If the call alarm is "on," a buzzer will sound on the Sysop's computer. You will then (if Sysop is present) go into "Chat Mode". Type in your message and when you have finished, enter a couple of empty lines "ENTER" alone. This will give the Sysop an idea as to when you have finished typing. You could of course be put into "Chat Mode" by the Sysop at any time. (NOT WHILE YOU ARE UPLOADING? or DOWNLOADING FILE(S)). After your "chat" the Sysop will return you to the Board at exactly the same place where you left it.

Always remember, that a Bulletin Board is a two way affair. It is not ethical to continually "download" programmes, without putting something on the Board in return. A Sysop is an "editor" and he (or she) has a hard job keeping the Board up to date with "news", "articles" and whatever else can be thought of. Like QL Technical review, many hours of hard work goes into the production of the finished article. (Especially when you have to correct people's punctuation!!!)

Get a "modem" and enter the world of "Computer Communications."

Dave Fullerton.  
Q.B.U.G. BBS.  
(0272) 668187

I can thoroughly recommend QBUG and TF Services boards. There is a new QBOX board called 4th Dimension but I haven't been able to access thus yet. (Ed.)

# QJUMP NEWS

QJUMP have recently published their Newsletter #2, dated December 1989. In it they outline the current status of QJUMP software and the plans for future releases. They also make some pertinent comments on the current QL scene, in particular the attempts at upgrading the QL. "The Thor XVI fraud now appears to be over" it says, and subsequently in reply to a written question I posed, Tony Tebby replied that David Oliver had admitted never even starting to write the ARGOS operating system before his rapid departure to Canada, and that Dansoft had been pirating his software since 1986. I have written to THOR International asking for the current state of play on the THOR XVI but have not heard from them. They seem to be busy advertising in QL World, but that often is not a good guide to whether someone is actually coming up with the goods.

Anyway, as QJUMP's Newsletter is freely available I won't take up valuable space in repeating verbatim large chunks of it. Rather a brief summary will do, for the rest, write to QJUMP.

Top of the list is the release of QPAC II. This is meant to replace QRAM (this now being obsolete) and provide a package of programs which help with the day-to-day running of your computer. Not essential, but (once you've made the effort to learn how to use them) very useful for certain applications. There are five main menus: Files, Jobs, Channels, Things together with Buttons and Hotkeys. I know that several people who have written in QL Technical Review have bought QPACII. Hopefully they will be able to give a broad summary of the package in a review in QL Technical Review 4. I suspect it'll take some time to get to grips with it. Price of QPAC II: £51.40. (Contact QJUMP for details of overseas prices and upgrade costs.)

QJUMP are working on a QDOS compatible operating system (SMS2) which will work on the Atari ST. They are also providing device drivers for the QL Emulator from Futura Datasenter in Norway. These cost £29.90 (inc of VAT) which also gives up to 4 upgrades, but the SMS2 system will be a separate product, incorporating the device drivers.

Whilst I applaud the upgrade path envisaged by QJUMP, one could suggest that the Amiga may prove, in the long-run to be a better basis for an upgrade. As an example, there is an Amiga QL emulator in the Public Domain which needs no extra hardware and is only £3.00. As the Amiga is multi-tasking it would appear to be a better machine than the ST. Another point - networking on the ST will set you back £150! I digress.

One interesting report is their investigation into the response to complaints from customers by three (unnamed) QL software suppliers. Two throw them in the bin, and the other sends an automatic upgrade irrespective of whether it cures the problem. Not our practice here! Wherever possible we notify the author of the problem and set them to work to solve the query. The limit to this being where we don't have the source code, or when the author (for whatever good reason) declines to change the product. Otherwise if there is a problem we try and fix it. Unlike some people we do not take the attitude that "if one in twenty sales generates a query then it is better not selling the product at all." If we did, we'd never sell anything!

I digress again. Finally the newsletter outlines the current situation. QPTR is temporarily suspended whilst upgrades are considered, QIMI has been dropped and QPAC I is being revised. TKII, QTYP and Hotkeys2 are still available. QJUMP are also putting together a Public Domain disk of QPTR examples. I've sent Ralf Beidermann's disk to see if they can make any use of any of the programs.

QL owners should be really grateful that Tony Tebby is still prepared to put so much effort into QJUMP. Without his efforts, and those of the team who have also worked on QJUMP products, there wouldn't be such professional standard QL software around. It is as much the quality as the quantity of QJUMP's output that has kept the QL "alive". It is bands of enthusiasts, such as QJUMP and QVIEW, who continue to produce both hardware and software that makes other computer owners envious and keeps us with this machine.

If you want more information contact QJUMP at Youngs Garage, King Street, Rampton, Cambridgeshire CB4 4QD (0954-50800).

Richard

# SUPERBASIC HINTS

This is a modified version of an article in the Scottish QL User Group Newsletter, to whom thanks and genuflections.

The first item shows how, in Superbasic, you can use the NOT Keyword to condense code. The first listing shows the obvious approach to writing a Procedure called "Switch". This is a useful way of turning on and off sound effects and such like.

## Listing 1

```
1000 DEFine PROCedure switch
1010   IF toggle = 1 THEN toggle = 0: ELSE toggle = 1
1020 END DEEFine
```

However this can be shortened using the logical form NOT thus:

## Listing 2

```
1000 DEFine PROCedure switch
1010   toggle = NOT toggle
1020 END DEFine
```

NOT changes the value between 0 and 1, or more precisely between True and False. So that if previously the statement toggle = 0 was true (i.e. had been previously set in the program), then making toggle = NOT toggle, makes the statement false, i.e. toggle = 1. And so on back and forth. According to Jan Jones book on SuperBasic, Logical operators in Superbasic work solely on true and false floating point values. They read zero as false and non-zero as true. They return false as zero and true as one.

A more complicated version of this is to use a FUNCTION to RETURN a calculated value, rather than using, for example, a SELECT form for the expression. Below in Listing 3, there is a function "points" which returns the number of points scored for a particular type of result in English Football League matches, (i.e. 3 points for a win, 1 point for a draw and 0 for a lose).

## Listing 3

```
1000 DEFine FUNCTION points
1010   SElect ON match
1020     =win: pnts=3
1030     =draw: pnts=1
1040     =lose: pnts=0
1050   END SElect
1060   RETurn pnts
1070 END DEFine
```

One can compress this by using a form in which the statements "match=win" and "match=draw" if true = 1, and are ignored if false. By using a single line one needs only to multiply by 3 the win value to complete the equation. If match=lose the whole statement is false and therefore returns a value of 0 by default. Thus:

## Listing 4

```
1000 DEFine FUNCTION points
1010   RETurn 3*(match=win)+(match=draw)
1020 END DEFine
```

This, Boolean algebra, form of SuperBasic is a very neat way of compressing code, but, you do, of course, need to know what you are doing, and be constantly on the look-out for situations where it can be employed.

Richard

# MACHINE CODE TUTORIAL

## PART 2

3. The QL screen - what is it and where is it?

A. The QL screen display.

Normally on the QL, the screen display is stored in memory at the addresses 131072 to 163839. Many programs written during the early days of the life of the QL managed to break one of the main rules on a fast growing hobby computer - they assumed that the screen would always be stored here, even though one of the QDOS routines was specifically designed to return the start address of the screen and the system variables.

So, what is wrong with this assumption?

Until quite recently, there was nothing at all wrong with assuming the start address of either the QL screen display, or the system variables. However with the advent of the THOR XVI and the ever more popular MINERVA which enable the screen to move around in memory, it becomes important that the first step of any machine code which intends to write directly to the screen, is to find the start address of the screen.

The machine code to enable you to do this is quite straightforward and does not take very long to write, compile or run (once again thanks to QDOS).

There are two important things to note about this code:

(1) It has been written so that it needs only to be called once (when the program is loaded on the computer) and then each subsequent part of the code (or indeed any basic program) which uses the start address of the QL screen, simply needs to look at the contents of the address SCR\_TOP.

In BASIC you would do this simply by the commands:

```
10 a=RESPR(1000):LBYTES mdv1_SCR_DAT,a:CALL a
20 SCR_START=PEEK_L(a+100)
```

In Machine code, the equivalent to line 20 would be:

```
MOVE.L SCR_TOP,A1
```

(2) The code will also find and store the channel identification number for the default window of the program. This is needed because, although in BASIC the default window has the channel id of 10001 (see the first article), when the program is later compiled, the id number will alter to take account of the fact that BASIC must still be allowed to access #1. Thus, machine code programs which are used from within compiled basic (or indeed all machine code programs which interact with BASIC windows) should always adopt this method of finding out the channel id and not rely on it being a set number all of the time.

Do not worry about this code, it is very straightforward, and indeed, only uses the first five lines of the program below.

B. So, what is the machine code needed?

```
GET_TOP
MOVEQ    #$28,D1
ADD.L    $30(A6),D1
MOVE.L   $0(A6,D1.L),A0
LEA.L    WIND,A1
MOVE.L   A0,(A1)
MOVEQ    #9,D0
MOVEQ    #-1,D3
LEA.L    EXTE,A2
TRAP     #3
```

```

LEA.L   SCR_TOP,A0
MOVE.L  A1,(A0)
MOVEQ   #0,D0
RTS
EXTE
MOVE.L  $32(A0),A1
RTS
SCR_TOP
DS.L    1
WIND
DS.L    1
END

```

### C. Commentary on the code:

The first five lines of the code are needed to discover and store the channel id of the default channel (ie #1 from BASIC).

If you take a look at the back of Andrew Pennell's book, you will find a list of 'Superbasic variables'. This is in fact a reference table stored in memory, which enables machine code programs to refer to Basic programs and find their way around. To make it easier to access, on entry to any machine code routine, the register A6 points to the start of this reference table. Now, the only reference which is necessary for this piece of code is BV.CHBAS (\$30) which is the pointer to the channel table stored in RAM, and so we must get the contents of this reference out of the variables area and store them in a register for use later. This is achieved by the command:

```
ADD.L $30(A6),D1
```

Which has the same effect as the following in BASIC:

```
D1=D1+PEEK_L(A6+$30)
```

As to the number already stored in D1 (\$28) I will come to that presently, but first a bit of an explanation:

What is a channel table?

This is yet another very useful reference table maintained by QDOS. It contains information about all of the currently opened windows, such as what job owns it, where the channel's dimensions are stored, and most importantly for us, the channel identification number.

Each channel which is opened on the QL has a 'channel definition block' listed in the channel table. This block is a specific 24 bytes long for every channel, whether or not it is a screen window. Now we know that the default channel (#1) must be the second definition block since the first one is #0. So, we now look to see where the channel id number is stored within each block, and see that it begins at \$10 within the block (the channel tag storage space).

So, to point at the id number, we need to set D1 to  $\$18+\$10=\$28$  (or for those of you who hate hexadecimal  $24+16=40$ ).

So, this is made to be the starting value of D1 (line one of the program) and we then add the start address of the channel table to D1 as per above. However, we are left with a slight problem in that all of these reference tables do not contain absolute addresses within the QL RAM (so as to allow things to move around) and so our address in D1 is still relative to the base of the system variables as contained in A6 (as above).

So, when it comes to removing the channel id number out of the channel definition block (remember D1 is still only pointing to the location of the channel id), we need to use the line:

```
MOVE.L $0(A6,D1.L),A0
```

What does this line do?

The command MOVE.L is simply the same as a LET (and also PEEK) statement in Basic. So the line could be re-written as:

```
LET A0=PEEK_L(A6+D1+$0)
```

In the machine code equivalent, D1 must be followed by a '.L' to show that we want the whole long-word address contained within D1 to be added to the register A6. The \$0 outside the brackets is necessary as an added machine code reference. It merely means here that we only want the contents of the address pointed to by A6+D1. If the number was altered, this would be added to A6+D1 ie.

```
MOVE.L $2(A6,D1.L),A0 is equivalent to:  
A0=PEEK_L(A6+D1+$2)
```

Finally, having removed the channel id from memory, we need to store it somewhere accessible to the rest of our machine code without having to go through the above procedure all over again. So we use the lines:

```
LEA.L WIND,A1  
MOVE.L A0,(A1)
```

These simply point A1 to the label 'WIND' and then POKE A0 to that location. If the machine code later needs to use the channel id number (e.g. for calls to QDOS to print to the screen), it merely needs to retrieve the number from this location by the command:

```
MOVE.L WIND,A0
```

D. Okay, so what does the rest of the machine code do?

The start address of the QL screen is not (unfortunately) readily ascertainable using QDOS, but is actually stored in memory which can ONLY be accessed by writing special code which is run by a special trap (SD.EXTOP). The same is also true of all of the different attributes of every screen window on the QL.

What do we actually need to do?

When you first call this trap, if you ensure that A0 contains a specific channel id (as ours already does from the above code), A0 is made to point to the specific channel definition block (containing the attributes for the channel - NOT the 'definition block' above).

Looking at page 60 in Andrew Pennell's book, you can see a long list of the different attributes which will be contained within this definition block. You can see that the one which concerns us is SD.SCRB (\$32), which contains the start address of the screen - hooray!!

So, now we need to write a special routine which will be called by the trap routine (SD.EXTOP) to retrieve this value. Well this is easy, knowing that A0 will contain the start address of the channel required, we simply have to issue the command:

```
MOVE.L $32(A0),A1 (equivalent to LET A1=PEEK_L(A0+$32)
```

followed of course by 'RTS' so SD.EXTOP knows that is all you want to do and it can therefore return to the main program)

Now all that remains is to write the code which will call the trap, and store the value returned in A1.

This is done by the lines:

```
MOVEQ    #9,D0
MOVEQ    #-1,D3
LEA.L    EXTE,A2
TRAP     #3
LEA.L    SCR_TOP,A0
MOVE.L   A1,(A0)
```

These lines do the following:

1. Load D0 with the routine to be called (SD.EXTOP)
2. Load D3 with the timeout (-1) which means, do everything before returning control to the main program.
3. Point A2 to the special routine to be called by the trap (stored at the label EXTE)
4. Call SD.EXTOP
5. Store the address of the start of the screen.

Easy wasn't it??

E. That all seems fair enough, but I also understand that the system variables can move around in memory - how do I find the start of these?

What are system variables?

These are a long list of different references which QDOS looks to when it is doing things. It controls lots of interesting features of the QL, such as whether CAPS LOCK is switched on, how quickly to flash the cursor, key repeat delay and lots more....

Where are they?

In QL ROMS up to JS, the system variables always started straight after the screen, at \$28000 (163840), but on MINERVA, when the second screen is enabled, the second screen is (at present) stored at this address instead, which means that your program could get mightily confused if it expects the system variables to always be in one place.

Okay, so how do I find them?

The procedure to find the base address of the system variables is much easier than that to find the start address of the screen, since T. Tebby kindly provided us with a ROM call which would return the base address with no fuss.

This ROM routine is called 'MT.INF' and is used in the following way:

```
MOVEQ    #0,D0
TRAP     #1
```

On return A0 will contain the address of the system variables.  
It's as simple as that!!

Well I hope that this second article on machine code programming has helped you all to understand a little more about machine code on the QL. I also hope that the code included here will inspire software authors to delve into machine code and just think a little about the possibilities of expansion on the QL, and make allowances for it in their programs. It is rather silly that major incompatibilities with hardware are brought about by the failure of software authors to recognise that their machine code may be required to move around in memory, and also that the QL ROM development is not dead as of yet, and therefore no assumptions should be made about the QL when writing machine code.

Rich Mellor

# QL CONNECTIONS

## Linking to the Apple IIgs

During the summer holiday last year, a friend and myself decided to attempt what we thought would be a long and very difficult project, to link his Apple IIgs to my QL, via the RS-232 ports and send ASCII data and, hopefully, pictures. We were very suprised how easy it was and this article is aiming to show others how to do it, for the GS and hopefully for other computers.

We ordered, from Maplin, a 6-way BT plug, some wire, a terminal block and an 8 pin mini DIN connector, which arrived within a week. I transported my QL to my friend's house, (using a rucksack, my bike and a pillow to protect it - all very technical stuff!).

Fitting the plug in the QL proved to be the hardest part, the QL uses upside-down BT plugs, not very easy to get hold of, and we had ordered a normal one. Shaving the top off it with a knife proved to be the answer, allowing it to fit snugly in 'ser2'. After fitting the wire into the BT plug we had to work out how to wire or machines together. The basic wiring was as follows:

QL	Apple IIgs
GND -----	GND
TxD -----	RxD
RxD -----	TxD
DTR -----	CTS (or other sutible ready in)
CST -----	DTR (or other sutible ready out)

Handshaking is an interesting thing, often confusing. It works like this - a 'ready out' line tells the other device when it is ready to recieve data (eg, it's buffer may be full up). It is only enabled when the first device is ready to recieve. The other device should check it's 'read in' line and only transmit when the other device indicates that it is ready. This works both ways. Some ports don't support handshaking; others won't work without - it can be important. The problem, when interfacing the QL to other computers, is that handshaking lines aren't given simple names like 'ready out' and 'read in', they are called DTR (data terminal ready), DSR (data set ready), CTS (clear to send) and others. When two different devices have totally different handshaking lines, it may not be clear which to connect to which. A manual that has the pin-out details of the port should provide the answer, by indicating which pin is the handshaking output and which is the input. However do remember that the output of the QL has to be attached to the input of the other computer, and visa-versa.

This leads nicely onto another potential problem, namely that there are two types of RS-232 ports, DTE (data terminal equipment) and DCE (data communications equipment). The DTE port ('ser2' on QL) is corrently wired, but on a DCE port the recieve, transmit and handshaking lines are reversed, ie output means input and visa versa. My advice, if you are trying to link two ports is to first find out if they are DTE or DCE then, on a piece of paper write down what each connection will be, drawing diagrams if necessary, and when you are ready, wire up the cable then check it, or you could be left with one smoldering QL!

The software on our link up was very simple, a tribute to the excellent QL SuperBASIC, my friend had to use a terminal program on his Apple, I used a ten line program:

```
10  BAUD 300
20  open#3,ser2hc
30  repeat forever
40    apple$=inkey$(#3)
50    print#1,APPLE$;
60    print#3,apple$;rem *** only if you need echo
70    key$=inkey$(#0)
80    print#3,key$;
90    print#2,key$;
```

```
100 end repeat forever
```

Line 60 is quite interesting, it was there because my friends comms program expected everything to be echoed back to him, that means that what he types, goes to me, then my computer sends it back to him and his program displays it on the screen! I found the baud rate reliable up to 4800, the handshaking was operated automatically by QDOS and the start and stop bits were set to the default, line 20 set QDOS to convert chr\$(10) (the QLs and I think UNIX's newline) to chr\$(13) almost every other micros newline. It was also possible (with #3 closed) to type 'copy\_n mdvl\_filename\_BAS to ser2' and see the file appear on my friends monitor, quite a fascinating experience!

ASCII files were sent with no problems both ways and the QL's device independence allowed me to type open#0,ser2hc, and then carry out all my operations from my friends computer as if I were sitting at my own. One point to watch though, is that you type list#0, dir#0,mdvl\_ etc, all operations to channel #0 else you won't see the output on your screen, only on the QL's!

A note on sending Quill doc's, DON'T, use a printer driver to print it to a file first, set it with no control codes and only chr\$(13) for the newline, then 'copy' it to the serial port. Appleworks won't be able to make head or tail of Quill files, but it might just stand a chance with a standard ASCII file.

Sending pictures was found to be possible, but of little practical use, perhaps fun for the hackers among us? It basically involved using the PIXEL% subroutine given in June '89's QL World and scanning the screen using a couple of for...end for loops, sending the colour of the pixel to the serial port:

```
5 window#1,512,256,0,0
10 open#3,ser2n
20 for x=0 to 512
30   for y=0 to 255
40     print#3,pixel%(#1,x,y)
60   end for y
70 end for x
80 close#3
```

A similar program would be needed on the other end to get the value sent to the port and then plot it on the screen in the appropriate position. The programs I have given could be made more complex, for example by sending back the pixel colour to check it was not corrupted along the way, but I have left these ideas to you...

In conclusion, I would recommend using RS-232 links to send ASCII files and, if you feel up to it, pictures, they are cheap and relatively painless.

(I would like to take this opportunity to thank Stuart Aitken, the man with the GS for participating in this experiment, and would like to issue a small plug - I am on the look out for a QL Disk Interface, for a pair of 5.25 inch drives I scrounged, if anyone has one for sale I would be willing to make them a generous offer! phone Carl on 0462-670177, after 4pm, I'm at school, thanks, - plug over!)

Further Information

A very good book about computer comms and interfacing is:

An Introduction to Computer Communications  
R.A.Penfold  
ISBN: 0-85934-151-8  
price £2.95

Carl L. Cronin

# HELPLINE

Unlike QL Leisure Review (previously QL Adventurers' Forum) where I occasionally know what I'm talking about, here I am totally at the mercy of our readers to answer the queries raised in these pages.

First up, we come to the continuing saga of QL Disk interfaces. R.L. Fowles of Liverpool writes:

"Recently I was presented with a Micro Peripherals disk interface for my QL (JM). However two comments in QLTR2 have caused me to doubt the wisdom of fitting the interface. On page 5 Michael L. Jackson says "Sinclair/Micro Peripherals owners can buy a replacement QJUMP ROM to upgrade their interfaces to current standards", but on page 14, John Silk of PDQL says "Quest and Micro Peripherals interfaces - avoid them except as museum pieces". Where does that leave me? Am I the owner of a piece of useless junk, or will the fitting of the upgrade QJUMP ROM really have the desired effect and give me a satisfactory disk interface? If your advice is to upgrade and all will be well, which disk drive would you recommend?"

Luckily Michael L. Jackson has written to update his pieces in our previous two editions:

Following the articles in QLTR #1 and #2 I have been in touch with a number of QL users who have bought second-hand Quest disk interfaces. Most had discovered the bugs I mentioned in the articles. Fortunately I have not found a version of the QDOS driver software later than v1.05 - one owner had v1.01! John Silk's comments about the Quest interface were less than helpful. As the driver software is loaded into RAM from microdrive cartridge presumably it would be possible to write a modified version of the software which added direct sector access and changed the device name to 'FLP'? Such a program could be made public domain or be provided with software which needs the sector accessing, such as Solution, Success, Conqueror, Media Manager, Discover, Xover, etc.

The Micro Peripherals interfaces can be upgraded by the purchase of a QJump ROM from Care Electronics. I have seen ready upgraded interfaces for sale at £35 and unmodified ones at £17.50 (then add about £15 for the ROM). Though the interfaces

will never be as good as those produced now and in the past by Miracle Systems, Sandy, Spem, CST, Cumana, PCML and so on, they are probably worth considering by the QL owner on a tight budget. Quest interfaces should only be considered if they can be bought very cheaply, unless improved driver software becomes available....

Michael L Jackson

I've also received the following letter from Geoff Wood writing from the New Zealand Embassy in Baghdad (c/o New Zealand High Commission in London.)

"I have a specific interest in QL expansion, via CST+6 backplain, with regard to a "real" MIDI interface. Am also desperately seeking info on CST SCSI interface, as mine has no manual or utility software."

If anyone out there can help Geoff, a letter to us or directly to the nearest NZ embassy will be most appreciated.

Louis de Veauce sent a rather complicated letter enquiring about a monitor which can also be a disassembler which has a bug in the "JOB" command. Louis has also found bugs in the MT.CJOB and MT.JINF traps on the JM ROM. The D2 bug in the MT.CJOB trap causes the new job to have an improper JB.OWNER. Apparently if one doesn't put a suitable value into D2 on entry then the monitor can crash. I've shown a copy of the letter to a couple of people and nobody has been able to check any of it out. Let us know if you're aware of any problems in this area.

A query from several of us. Has anyone else found their boot programmes acting strangely? I've found disks that worked perfectly well one day, refusing to load the next due to a problem in the basic of the QL. We hope no-one has introduced a virus to the QL scene - but be on your guard! May just be disk drives going slightly out of alignment or duff disks. (Another reason may be saving incorrect boot progs that have been Edited, but one hasn't exited a line properly, thus re-instating the original line.)

Finally why isn't there a way of notifying users that a mdv is copy-protected when copying to it?

Richard

# PC EMULATORS UPDATE

Having used The Solution for several months now, the degree of PC compatibility it offers seems remarkable. I have swapped my Sandy Superdisk interface from the 384K QL to the 640K one in order to give MSDOS more RAM to play with and this has allowed Solution to run a far greater range of PC programs than previously. Problems still arise when a piece of software needs more memory than the QL can provide or requires to operate from a hard drive, but the emulator can hardly be blamed for the shortcomings of PC software or my hardware set up!

The point has probably been reached when it would make more sense to maintain a list of specific programs which will not run with Solution under any circumstances. I believe the list will be a short one.

Furthermore, now Digital Precision's PC Conqueror has arrived on the scene it would appear that the vast majority of PC programs which require only CGA or MDA screens can be made to work on the humble QL. I have seen DP's new emulator at the pre-Christmas Leyland show and at my local computer club and find it quite impressive, particularly in improved speed of screen handling.

DP have almost certainly cornered the market in PC emulation for QLs and Thors. An advertisement in March's QL World implies that Schon PCP, intended distributors of "The Transformer" emulator, may have ceased trading. The Leicestershire manufacturer of the Schon keyboards seems to be continuing sales of some of their QL products but does not advertise the imported software items. It is not certain whether the German PC emulator ever reached a marketable stage of development. (According to certain sources, it was never started! Ed.) The same can be said of version 2 of the Ant Computing PC emulator. It was reported that it had reached a point of being able to run some MSDOS programs and that the author had the intention of selling it at less than £15. However, no advertisements have appeared (to the best of my knowledge). My only suggestion to Ant Computing is that the program is released into the public domain so that the curious can play around with it as they wish. It is perhaps the only way the author can do anything to restore his integrity.

The choice will probably continue to be between the two Digital Precision products. Solution is quite adequate if you have a need to learn about MSDOS, as I had, and do not find its speed too frustrating. PC Conqueror might suit more serious usage. I have multitasked Solution quite successfully with QRam and would expect Conqueror to perform as well, if not better. Both should benefit from use with the ROM versions of Speedscreen or Lightning screen speed accelerators.

In March 1989 D.P. announced that Solution would support disk partitioning on the Miracle Systems hard disk, but to date I have not been aware that there has been any notification that this has been achieved. Can recent purchasers of DP's emulators comment on their use with hard drives?

Michael L Jackson

## EDITORIAL COMMENT

Freddy Vachha very kindly pointed out to me that I had made a mistake in an addendum to Michael's previous piece in QLTR2. At no time have D.P. suggested that they would be bundling Windows with MS-Dos v4.01. They are bundling GW-Basic though (a public domain basic.) Freddy also thought that the comments on his adverts weren't fair and that the adverts were changed to avoid confusion as the speed claims on "comparable ST hardware" had been misunderstood. (Not having a PC or QL emulator for my ST I can't test or verify any comments made about ST emulators.) Finally (to truncate a four hour phone call) he offered to send us software to be reviewed in future issues. So, perhaps, Michael L. Jackson will get a copy of PC Conqueror to test soon. (I've also sold my PC and am selling all my software as the PC1512 is so inferior to an STFM 1040.)

Richard

# NETWORK FLUSH

Robin Barker of Di-Ren has very kindly sent in the following program which allows a QL Network Flush to be achieved without using Toolkit 2. I presume that Robin intends this for the Public Domain BUT that does not mean it can be pinched for use in Commercial programs. I daresay Di-Ren would like a royalty payment if you do want to use this one in a commercial program once they have given the go ahead.

2 NEW BASIC KEYWORDS:

FLUSH_NET	PROCEDURE
TEST_INPUT	FUNCTION

FLUSH\_NET is a procedure and requires a channel number, i.e. FLUSH\_NET #10.

This will send the data in the network buffer over the QL-QL Network. Unfortunately it has to send a full buffer of 255 bytes. Therefore if you have printed, or put less than 255 bytes into the network, the remaining buffer content on the receiving machine will be full of zero's. All 255 bytes in the receiving machine will need to be 'READ' even if not used. This will allow transmission of the next data block to take place.

If TURBO TOOLKIT is installed then the ideal routine is to read the buffer in one move by, for instance: x\$=INPUT\$(#10,255). This ensures that the buffer is clear. The only problem with this routine is that if any bytes have been 'READ' from the buffer previously, the programme will seize until the next transmission takes place. Total confusion then reigns.

Reading the buffer content in BYTES (Single CHRS) is probably the best idea. For instance A=CODE(INKEY\$(#10,0)). No wait is necessary as a return will be immediate if there is anything to be READ.

Again, unfortunately, using the CODE(INKEY\$) command will return '0' if it has 'READ' '0' or '0' if it has not NOT 'READ' anything at all. So there is no way of telling from this whether there is anything remaining in the buffer or not.

To solve this problem I have included a FUNCTION called TEST\_INPUT. This will return '1' if there is any input waiting, or '0' if not.

I.e. IF TEST\_INPUT(#10)=1: THEN a byte or bytes are awaiting input.  
IF TEST\_INPUT(#10)=0: THEN nothing is waiting.

TEST\_INPUT calls IO.PEND, TRAP#3, and can be used to test any channel for awaiting input.

The basic loader for the new routines is overleaf. The routine is 292 bytes long. Therefore:

```
PLACE=RESPR(292):LBYTES MDV1_FILENAME,PLACE:CALL PLACE
```

will load the extensions.

(Obviously you'd change mdv1\_ to whatever you need to load the extensions from.)

These routines have been tested on JS and JM ROMs, with and without QJUMP's Toolkit II. They should work equally well under Minerva and AH ROMs. (Certainly I've played Fleet Tactical Command, which makes extensive use of the networking on QLs and which was written by Di-Ren, on a Minerva QL without any problems whatsoever. Ed.)

```

100 RESTORE
110 CLS: INPUT 'SAVE FILE NAME ? 'DEV$
120 PLACE=RESPR(292):START=PLACE
130 FOR A = 230 TO 430 STEP 10
140 COUNT = 0
150 FOR B = 1 TO 7
160 READ X:COUNT = COUNT+X
170 POKE_W PLACE,X:PLACE=PLACE+2
180 END FOR B
190 READ C
200 IF COUNT<>C: PRINT 'LINE ';A;' INCORRECT ':STOP
210 END FOR A
220 SBYTES DEV$,START,292
230 DATA 17402,12,13432,272,20114,28672,20085,99989
240 DATA 1, 150,2374,19541,21320,24398,17748,85532
250 DATA 0,1,86,2644,17747,21599,18766,60843
260 DATA 20565,21504,0,-17461,26368,198,2102,53276
270 DATA 7,-18431,26368,188,12045,10827,20621,51625
280 DATA 12045,13432,274,20114,9823,10847,15414,81949
290 DATA -26624,-13060,40,-9042,48,-17234,52,-65820
300 DATA 25088,146,19126,26624,27392,138,8310,106824
310 DATA 26624,17024,20085,25016,26362,17024,30209,162344
320 DATA 20035,19072,26116,29185,24586,29184,3200,151378
330 DATA -1,-10,26594,8814,88,21897,11593,68975
340 DATA 88,15745,-26624,30723,28672,20085,24968,93657
350 DATA 26314,17024,12040,20033,9320,120,8744,93595
360 DATA 124,9759,18499,8794,-18839,16,26156,44509
370 DATA 3217,0,288,26128,3113,255,28,33029
380 DATA 26120,9276,0,287,24614,3217,0,63514
390 DATA 336,26124,3113,255,68,26116,29765,85777
400 DATA 24594,-19830,28360,24580,28922,20085,28913,135624
410 DATA 20085,17024,20085,5052,255,10240,18499,91240
420 DATA 8259,18663,64,17024,30463,28677,20035,123185
430 DATA 8799,19072,26332,16945,10240,24794,0,106182

```

1990 Robin Barker, Di-Ren, London.

Well I hope I haven't made any mistakes in that listing. I can supply a photocopy of the original if anyone thinks I have so that they can check for themselves. Whilst I am most grateful to Robin for sending this in, I'd be very pleased if, in future, contributions involving listings were sent in on disk or microdrive so that I can print them out direct, thus avoiding any transcription errors. Cheers, Richard (editor, publisher and TYPIST.)

## SUBSCRIPTIONS ETC.

QL Technical Review is published by C.G.H. Services, which is Richard Alexander's trading name. He also edits this publication (and does the layout, typing etc.) All material is copyright of the original authors as far as intellectual content is concerned. We claim the right to reproduce the material. If you wish to reproduce any material in this magazine please write for permission. (This is usually given to non-commercial groups.)

Please note that all signed articles express the opinions of the authors concerned. They do not necessarily express the view of the publisher. Where time and resources permit we try to confirm any

criticisms or correct any mistakes prior to publication. A right of reply is guaranteed to any written submissions correcting mistakes in earlier issues.

Subscriptions will be £6.00 for 4 issues (4 - 7). Back numbers are always available and can be ordered at the rate of £1.25 each plus P&P of 25p.

Articles for Issue 4 are most welcome, and should be with us by 1st July 1990. We welcome programs for review, and also for publication by C.G.H. Services. Our Public Domain Library is also open to expansion!

Richard Alexander

# MINERVA RESPONSE

6 January 1990

To:

Richard Alexander  
CGH Services  
Cwm Gwen Hall  
Pencader  
Dyfed  
Cymru  
SA39 9HA

Dear Richard,

I received today your issue number two of the QL Technical Review containing an article by John Vennard on the MINERVA upgrade. I must confess that when I read the article I thought we were talking about a totally different John Vennard! I do not know how old that article is but I hope you will permit the space to answer some of the points raised by John and point out some of his errors. It would be a pity for his review to put people off when reading other notes and comments from many other sources say things to the contrary.

With regard to fitting and other instructions, it quite clearly stated on the leaflet that technical information was returned on the medium supplied - there seemed little point providing printed documentation at that point because the whole system was being revised so frequently it would have cost us more in reprinted manuals than all the MINERVA total sales.

We would admit that the versions of the QL PCB which had EPROMS such as early AH etc were not covered in the fitting instructions. When people have contacted us about this we have explained the procedure and warned them that unless they knew what they were doing they should seek the help and assistance of somebody who did to avoid a dead QL. If we had blithely published a DIY bodge your QL sheet I think there would have been a few unhappy QL owners. However printed documentation is now in hand and the fitting instructions carry a section with suitable warning on how to convert and EPROM based machine.

With regard to John's comments on running The Editor from within TaskMaster, he is in fact incorrect in stating that this combination will run without modification on a JS. I tried it and it failed with JS/MGUK and MINERVA. Checking back with John Norton of TaskMaster provided a solution, which John Vennard is now happy with.

The War in The East program is almost certainly a QLiberated object code with an early version of the QLIB Runtimes included at time of compilation. This is known to give some problems with versions other than MINERVA so we provided a fix. We provide a program which "un-links" the internal runtimes so that a more recent version of QLIB Runtimes can be loaded into the system for the program to use. In 99.9% of the QLIB program problems this has worked fine.

Which brings me on to my bemusement at John's statement of not being able to contact me - I have spoken to him several times. I try to clear and return calls on the answering machine the same evening but if it is very late I put it off until a more convenient time than midnight! I have copies of several letters written to John which I know he received because he referred to them in later telephone conversations. As Richard added, the QL market is not sufficiently lucrative for us to devote our full time attention to filling

orders and answering letters. Please bear with us if we have to have an evening or two off for "normal" activities. Sometimes our letters arrive at about a dozen a day, sometimes simple queries which I can answer straight away down to problem software which may take a little detective work to sort out although on a couple of occasions these too have been sent back by return. I think we can hold our heads up with the full time companies as far as customer relations goes.

To cite the main difference under MINERVA being a changed colour cursor is as absurd as stating that the difference between a Ferrari and an Escort is the pretty badge on the Ferrari. No I'm not making comparisons of QDOS/MINERVA to ESCORT/FERRARI but it is the best analogy I could come up with at the present!

I would urge anybody contemplating the MINERVA upgrade to read the article by Simon Goodwin in November QL World or read some of the reports appearing in QUANTA lately. Talk to us and we will then try and talk you out of buying it if you think it will make QUILL run faster. We don't want to solicit orders from people who would not benefit although there are changes that have been made "under the bonnet" so to speak which will hopefully never be seen, the sort of changes that make the machine more, not less, reliable.

To sum up we would happily refund John's money if he feels it has been a waste of time. With over three hundred customers to date we have only had one returned because a "C" program didn't compile in less time than the 1.5 hours it took under a JS running on a RAM Disk. I have to ask what this amazing C program will do when completed. If "Hello World" is the sum total then it's a disappointment! Anybody I have spoken to since supplying MINERVA has been very pleased and encouraging with the work we've done to date. We have had production problems due to shortage of particular components and we thank people who have been patient and understanding - our policy is that cheques are not banked until the order is in the post. If you can't trust a QL user then who can you trust..?

My apologies to Richard if this appears a bit of a diatribe but it would have been nice if CGH followed the QUANTA example in providing us with an advance copy of the article to allow our comments or corrections. I feel that publishing such errors in a magazine whose title is the Technical Review does little to help people like ourselves or I would suggest your credibility.

If anybody would like to talk to me about MINERVA and is afraid of answering machines then please feel free to call evening or weekends and I'll do my best to talk you out of it!

Wishing you all a Happy New Decade,

Kind regards,

  
Stuart McKNIGHT

"QVIEW MINERVA",  
29 Carnaby Close,  
Godmanchester,  
Huntingdon,  
CAMBS,  
PE18 8EE.  
Tel: 0480 412884

# MINERVA - TAKE TWO

by QVIEW

Price: £40 (£35 to QUANTA members)

When the QL was launched well back in 1983, the first operating system hung dangerously out of the back of the QL in the well known 'dongle'. Since then, the operating system (QDOS) has undergone several changes, until it seemed to level out at the JS Rom version in the UK and the better MG Rom for overseas markets.

However, despite much work by the design team, and much patience by QL users, Sinclair stopped production on the QL and sold all of its rights, complete with the rights to QDOS, to Alan Sugar of Amstrad. Wise businessman that he is, Mr. Sugar elected to try and bury the QL once and for all, refusing to make any more, and refusing to sell the rights to anyone else. This meant that work on a new operating system which would get rid of many of the bugs inherent in the earlier versions had to be stopped and shelved through fear of copyright.

Luckily for the QL fraternity, QVIEW have now seen fit to produce a new version of the QL Rom, which purports to be compatible with existing software. To by-pass copyright restrictions, they have used a small loophole in the law in that selling an 'upgrade' to an existing product is not a breach of copyright, and therefore, so long as you can prove you own a copy of the original operating system, QVIEW can sell you a copy of the new MINERVA Rom.

So, why do you need a new Rom?

There is not a great deal wrong with the native QL Roms, except that development has stopped. This has left a few nasty bugs lurking in the Rom and mean that a lot of refinement has been missed out. The new Minerva attempts to fix many of those bugs, speed up Rom operation and improve the QL all around.

How easy is it to fit?

I have heard a few people complain about fitting the new Rom into the old Rom socket on the QL board. There is no soldering necessary, and it merely involves opening up your QL (ensure you leave the two screws under the microdrives where they are), removing the old QL operating system Roms from their sockets (easy with a thin screwdriver and a little patience) and pushing the new Rom home.

This last step may take a little pressure on your part, unless you happen to have put the Rom in fairly horizontally and square, (or happen to be an elephant!) - is the difference in experience of pushing the new chip home due to slight differences in the sockets used by QVIEW to contain the new Rom I wonder?

However that is basically it, and I must admit that although I am not very well versed in technicalities (I can just about replace a keyboard mat), I managed to replace the chip without even having read the instructions (something I do not recommend - read them!!)

I must have a little moan at QVIEW here though - if the instructions had been printed, I would have been obliged to look at them in the first place AND been able to refer to them once I had taken the back off the QL (I cannot afford a printer - ah, shame!!). It seems to have become quite common practice for QL instructions to appear in the form of QUIL documents (or just plain text files) - this just shows a lack of commitment I'm afraid (I do understand though that here it was mainly due to the Rom constantly being updated and now that the development has settled down rather, QVIEW are looking into re-writing the documentation and supplying it in printed form).

So what do I get for my money?

The new Rom helps to speed the QL up in several areas. Most notably, the new graphics

routines run at about 95% of Lightning Special Edition. The new Rom also searches Superbasic more quickly when looking for the start of a called procedure, and ensures that integer mathematics is used as much as possible in order to keep the maths routines at their quickest. Unfortunately, the Rom does not appear to speed up text output very much, indeed, sometimes you may wonder if it is printing text somewhat more slowly than the normal QL rom. Perhaps this is one area that QVIEW ought to investigate improving.

Minerva also adds several new commands to Basic, including a fully implemented WHEN ERROR and WHEN variable command syntax which allows exception processing in Basic. They are very useful, but see below for problems with Turbo. The Rom also extends some of the existing commands, which enable the user to have access to some very useful functions. For instance the ABS function has been extended so that it can accept several parameters at a time and will return the square root of the sum of their squares (useful for Pythag). It is a pity that v2.05 of Turbo will not compile this, reporting that there are too many parameters. These are just some of the many improvements which although may be very useful to Minerva users, may cause some problems with incompatibility with earlier Roms (I wonder if such extended commands would work ok on earlier roms once compiled?)

MINERVA has received much praise from both QUANTA and QL World, but just how compatible is it with existing software?

I have experienced no problems with most mainstream software, but perhaps the most notable problems are the following:

#### QLOAD/QREF - Liberation Software

This seems to work in the main alongside Minerva, but I have experienced a minor niggle in that upon loading programs with QLOAD, the error 'bad name' has been reported in #0. (Liberation Software have now released a Minerva compatible version of QLOAD. Ed.) Perhaps a more major bug has been shown when I tried to QLOAD my updated version of War In The East, when #0 was filled with the error 'bad parameter' not allowing any further entry. This has been reported to both Liberation and Qview so let's hope that they can sort out the problem soon.

#### TURBO - Digital Precision

Although I have not experienced any real problems with using this package alongside Minerva, it must be noted that Turbo seems unable to cope with many of the improvements Minerva makes to Basic:

When Error - although it worked ok in Basic, failed to stop an error in the compiled code.

When variable - Turbo could not compile this, reporting 'not implemented' during compilation.

Extended ABS - Turbo refused to compile this, warning that there were too many parameters: it seems Turbo will merely assume that there is only one parameter for this command.

SDATE - although this seems to work fine in Basic, when I tried to compile the following lines, the compiled program stopped with a 'Channel Not Open' error at line 120:

```
100 DIM c$(1)
110 C$='0'
120 SDATE 1989,12,18,C$,0,0
```

changing c\$ to a normal floating point or integer variable works to get around this problem. (Here the problem with the compiled SDATE has once again been notified to Digital Precision and Qview).

Other programs:

I have not yet come across any more problems (Return To Eden by CGH will not work due to the SDATE bug), but the disk sent with Minerva contains a few short programs to fix problems with early versions of some software (most of which has already been fixed). About the only real problem remaining is that some of the new things which Minerva does, are over-written by toolkits (e.g. Toolkit II, QPTR) which means that all of Minerva's hard work is a little wasted. I guess that as time goes by, many of these things will be rectified and software will be written which takes account of the new things offered by Minerva. (N.B. QView say that Return to Eden problem is due to a SuperBasic extension with an illegal name "S\*&\*" (or similar.))

The main problem seems to lie in using Minerva with the second screen mode enabled, which means that the system variables, and even the screen may not be where software is expecting it. This is not Minerva's fault, but is due to lazy programming which does not bother to use the QL Rom routines to find start addresses, but just assumes they will always be at the same place.

The documentation.

Unfortunately this leaves something to be desired, being solely in the form of text files on disk which must be copied to the screen, or imported into Quill or Editor to be read. They could do with a little rewriting also in parts, with some examples of the different Basic commands. Lets hope that Qview finds the time to print the instructions out properly, possibly even in a form compatible with the standard QL manual, so that new commands can be inserted alongside their standard forms. (Printed docs will be issued with the new versions of Minerva. Ed.)

Just one question for those in the know -

Does anyone out there understand the new maths routines in the TECH\_ASSEMBLER file? I know TOS means Top Of Stack and NOS means Next On Stack, but what are the minus numbers after the equ statement?

Where to now?

Minerva is set for great things. I just hope that Qview will be able to cope with the demand. It will certainly bring a new lease of life to the QL, and could possibly be the next step for a new machine to be designed which would be compatible with the QL. The designers stand to make a good return for their investment of time and money and deserve to go onto better things. Let's hope that any bugs which remain can be sorted out soon and that software soon becomes available which will make use of the new capabilities of the new Rom, especially the new two screen mode.

Rich Mellor

Contact:

QVIEW

29 Carnaby Close, Godmanchester, Cambridgeshire, PE18 8EE

\* WHEN ORDERING - send disk/mdv containing copy of your own QL ROM - Do so simply by entering the command SBYTES flpl\_ROMDUMP,0,49152

WARNING - do not despair if you find that your cheque has not been cashed. QVIEW do not present cheques for payment until they are ready to send out a copy of the new ROM.

\* QUNATA/QLSUB members: price £35. Send copy of current newsletter envelope to obtain discount.

UPDATE : QView are now issuing the new MultiBasic Minerva ROM's, hence the price increases. So we should be able to bring another update next issue. Keep an eye on Tony Firshman's bulletin board for the latest news. They can also accept Access and Visa.

# RALF'S AMAZING DISK

BEING AN INTRODUCTION TO RALF BIEDERMANN'S DISK OF PUBLIC DOMAIN SOFTWARE.  
INTRO BY IAN BRUNTLETT.

The progs on this disc are amazing.  
Sit back and enter the Pointed Zone...  
Wilkommen zu QPTR!!

There is a little toolkit for handling 3d lines. It has a demo that may be run by typing LRUN flpl\_boot\_shape. This loads the extra commands to SuperBasic and then loads a long SuperBasic programme (shape\_bas) that gives a demo of them.

If you have Minerva and you decide to play around with the 3d routines, make sure that you use them on the first screen as Ralph assumes the screen is at \$20,000 and so his routines draw only on screen 0. Alternatively you could modify shape\_asm so that you can put stuff on screen 1 as well.

There is a rather nice file viewing prog that starts off with a big window. First you give it a file name (press D for Dateiname or Filename). To Search (or Suchen) for something then press S and type in the word you want to look for. To carry on with the search, hit 'W'. Pressing 'L' removes the current file from memory. I can't tell you what happens when you SPLIT the window - my version of the window manager (1.14) does not support this. Apparently you need version 1.23 or more. You can presumably have 8 different views of the file at any one time - you can do something like this in QL Easel. Another nice touch is that when an error window pops up, the pointer is changed into a head that shakes!

DRUCK\_EXE is a menu driven programme for Epson printers. As my printer is not with me at the moment, I cannot test it. But it looks as if it will give you plenty of opportunities to set the current printing mode of your printer eg Pica, Elite. It has 40 different options, all in German.

ADDRESS\_EXE is an address book. I wonder why card indexes are all the rage for Qptr programmers. It has a nice pointer sprite - an envelope.

BACKUP\_EXE is an advanced disc copying utility. While I think Ralf's motives were pure in writing this programme, it may end up as an aid to piracy. The same could have been said about WCOPY - maybe I am over reacting. But someone who copies commercial software without paying for it is ripping off the producer just as surely as if they had placed a gun against their head and said "Let me inspect your petty cash box". I now have a splinter from my soap box. It would be wise to think "Do I want to do this quickly or slowly but more surely?". (Ralf says that he wrote the program because other people sell similar programs for good money but without the power of this program.)

RETTUNG\_EXE is appropriately named 'last hope'. It attempts to resurrect deleted files and place them onto raml\_. It worked with a test file. If you do delete a file accidentally, don't save anything else to that disc - it may overwrite what you are about to rescue. Run Rettung on it and hope for the best. The instructions have been translated into English and are in rettunge\_doc. I haven't written a prog like this because I usually only lose files by losing the disc or overwriting it. (Now available as "Rescue" in an English language PD version, with all onscreen prompts in English as well.)

BUTTON\_BAS helps you convert jobs into buttons. What are buttons? They are little rectangles on the screen with a programme name on. If you 'hit' them they will either go away (ESC), move window or start that programme by loading it in from disc or running a 'hotkey' like Qram. It needs toolkit two - but then who doesn't? When I ran it with my system I could not get it to work. But then Ralph is playing with version 2.11 of wman and I have a much earlier version. Maybe the programme just doesn't like a task name of 'Button Moon'. (Note this prog has been superceded by HOT\_BUT on the same disk.

REN\_EXE is a task to rename a file. This is a bit excessive. I use an ALTKEY and a routine from Turbo Toolkit to do the same thing eg :

```
INPUT#0;"||";_$_!"TO"!!:RENAME _$ TO EDIT$(#0;_$_,80)
```

The advantage of REN\_EXE is that it does not need SuperBasic or Turbo Toolkit.

UPN\_EXE is a Reverse Polish Notation ready reckoner. Given the line 1 2 4 - + gives 1+(2-4) which is -1. The current line (expression or result) may be exported to the keyboard queue of the nearest task, like the Q-Pac 1 clock.

SECURE\_EXE seems to be some kind of password security system. (Ralf says that this works by securing links into flp/io and then everything written onto the disk can only be recovered using this program.)

MACRO\_EXE seems to be another address book. (Ralf says that this actually is a Macro editor program. With it you enter the abbreviation in the little line on the top of the screen, then enter the full text below. For example: type "fi" in the little line at the top, then enter 'for instance' in one of the big lines. After that activate Macro, leave the program and type ' fi '. (needs a space fore and aft.))

QLOG\_EXE will send a record of all your key presses to a file. This could be useful to come up with a 'software robot'. Simply record the key presses for an action to a file and later on use a SuperBasic programme with the TYPE\_IN command to 'play back' the key presses. Below is a small SuperBasic prog that uses TYPE\_IN from Turbo Toolkit and PICK from Qptr. It was used it when playing around with batch processing and the QL and is now on the disc under the name Quill\_typer\_bas.

```
100 REMark (C) Tund 30th December 1988
110 OPEN_IN #3;'raml_Keypresses'
120 job_num=3
130 job_tag=2
140 _err=PICK(job_num+ job_tag*65536)
150 REPEAT loop
160 IF EOF(#3) THEN EXIT loop
170 INPUT #3;q$
180 PAUSE 10
190 TYPE_IN q$&CHR$(10)
200 END REPEAT loop
210 CLOSE #3
```

LOADER\_EXE takes a binary file and produces a SuperBasic prog to generate the binary file again. This is useful for magazines who want to print machine code programmes. .alph could have made life easier for the prospective typists by using hex in the data statements produced. Hex numbers usually take less time than decimal numbers to type in. He includes check-sums in the listing to help detect typing errors.

TK2FLP\_EXE sets the SuperBasic defaults. Unfortunately, if you have a programme default that is different to the data default, it does not behave like Toolkit II and alter only the data default. It also sets the programme default as well. (TK2FLP doesn't only change the defaults, but it also makes the subdirectories usable from other jobs. Enter a subdirectory and read and write something with an editor. Ralf)

I have only scratched the surface of the disc - have a look for yourself. Other features are a Qdos shell and a very fast 'Life' programme.

(Ed: I've included Ralf's comments in brackets after Ian's text. There's plenty more goodies on this disk waiting for people to discover. Armed with a good (and up-to-date) German dictionary you should be able to work out what is going on in most of the progs. Besides "Rescue", we have also got English language versions of TCOPI and ARC in our Public Domain library. Richard Alexander, CGH Services.) If you'd like a copy of this disk send a blank 1440 sector disk with £3.00 and an s.a.e. to us and we'll copy it over for you. Ralf hasn't asked for any payment for his work, but instead has asked people to send a donation to a charity that helps animals.

# QUEST UPDATE

## QUEST SOFTWARE AND MINERVA

I have upgraded one QL to Minerva v1.66. As I suspected (see QLTR #2), Quest's CP/M-68K will not work with Minerva. This tends to confirm that Quest cheated and used QDOS routines in their alternative operating system.

## QUEST AND EPROM PROGRAMMERS

After my move to Lancashire I changed the configuration of my QL system. I discovered that the Quest disk interface will still work when plugged into a Spem Qeprom board with through connector in slot one of the expansion console. On this QL I now have Ice v1.12, Toolkit II v2.12 and Speedscreen v1.29r on ROM, leaving one socket empty on the Qeprom and two console slots free for other use. However, I have tried Qjump's QEP III v1.07 and Camel Electronics' Qprom v1.0 eeprom programmers in the spare slots and neither would work at all. The eeprom programmers both work correctly when used in the expansion port of the other QL. I must admit that I am having difficulty using these recent second-hand purchases, due to my inability to understand the instructions! If any QLTR reader can offer any advice, please get in touch. I have several projects in mind, including putting the Quest software on eeproms.

Michael L Jackson

# DI-REN'S NEW PRODUCT

## OUR NEW PRODUCT

### MINI PROCESS CONTROLLER DPR 001

The product is a very cheap, effective, computer operated switchgear that will operate on most computers that have a Centronics Parallel output/interface. The great majority of printers operate on this system. Although more sophisticated versions will become available for more complex operations this basic version is expected to allow up to 7 independent low output ON/OFF Switching operations to be effected. Apart from Security options, the switchgear could, for example, if you are a Photographic hobbyist, be used for critical development timing, time lapsed photography etc. etc. The uses are endless.... Useful optional extras also will become available, such as 'through connectors' for printers.

The unit does not come with its power supply, either batteries or a 9 -12 volt regulated power supply pack can be used.

The price for the basic version ? Just £49.95....  
For further information contact DI-REN.

Di-Ren have also announced in their latest catalogue another process Controller. This can be connected to most computers via the Centronics port. It can house 8 banks of of 8 "plug-in" modules that have 8 switch outputs per module, giving 64 possible independent switching operations. It can be further expanded by plugging a slave unit into one of the banks giving a further 8 \* 8 expansion capability. No price for this unit yet, but Di-Ren hope to have it available from May 1990.

All units come supplied with interfacing cables and will operate on 240/110 volts ac.

Finally, In favour of the QL's, I have to say that we find these machines to be ideal development tools. Not only are they cheap, they are also more versatile even now, than a lot of other machines.

Robin J A Barker - DI-REN

# LIGHTNING UPDATE

LIGHTNING SPECIAL EDITION V2.09  
(£49.95)

Since my earlier review of Lightning, I have upgraded my version of the program to the new special edition. The most notable difference from the earlier versions is that Lightning now comes on both a ROM and a disk.

The plug in ROM fits nicely into the ROM port at the back of the QL and thus may be unusable with some programs which also need a ROM cartridge to operate (unless of course you have one of those little attachments which allow you to use more than one ROM cartridge...). But do not worry about this, since the disk supplied contains a RAM version of the program which works just as well (if a little more slowly).

The ROM itself contains only the text enhancement routines of the package, due I guess to the limited space available on a plug in ROM, and so the graphics and maths packages have to be loaded in off the disk itself.

The new version is certainly a lot quicker than the earlier versions (mainly of course to the utilisation of the ROM which runs much more quickly than routines in RAM). But, overall the user is unlikely to notice much difference in operation between the two versions, since the program is entirely operated in the background, and beyond having to turn the package on, the user does not actually need to do anything to get the advantages of the extra speed.

I was also glad to see that all of my criticisms of the earlier version have now been fixed. Mortville Manor players will be glad to learn that the program now runs quite nicely alongside Lightning, although I am not certain that it actually manages to speed the game up any, since Mortville uses its own graphics routines to draw the pictures. Also, the problems with programs written with Metacomco's C have now been fixed and no longer is it necessary to switch off Lightning to play games like Hack out of the Quanta library.

New with this version of Lightning, is a smoother scroll option, which is achieved by moving the display up one row of pixels at a time. However, this enhancement does not achieve its full potential by the mere fact that the line of characters is not printed until enough rows of pixels have been moved up (ie 10 pixels). However, at the higher speed settings, this scroll is certainly an improvement on the QL's native routines and makes scrolling text much easier to read even at high speeds.

Also included in the new version are lots of new fonts (many of which have appeared with other packages such as Turbo, but a great deal of which are brand new), and a program called CHANNELMASTER.

CHANNELMASTER is a small task which can be executed alongside current tasks. Its main function is to enable the user to mess around with all currently opened windows on the QL. This may seem very dangerous, as indeed it can be, but it enables the user to move windows; change the ink, paper and strip colours, attach a new font to a given window; and alter the character size. This may seem useful to many users, but I must admit that I have not actually found any use for it. Perhaps the main problem is that you will need to run this program each time the program you want to change is reloaded, since the changes will only last for as long as the QL is switched on. Another possible use for the program would be to move windows so as to achieve the best results with Lightning (by aligning the left hand side to a word boundary). Unfortunately, the program does not give the co-ordinates of the window which you are altering, so you cannot tell when it has been aligned to a word boundary.

In all, the Special Edition of Lightning is well worth purchasing if your ROM port is free, since I cannot really see much advantage in spending an additional £25 to get RAM based routines only, since the speed improvement here over the original would not be too great. In all, any programs which help to speed up the QL as it begins to reach

pensionable age is well worth the effort put into it, and I can only hope that the program sells as well as it should do and brings Steve Sutton some just reward as an incentive to going on to better things.

Rich Mellor

NOTES

-----

The lengths of the different sections are now:

Fonts 214 bytes  
Graphics 4258 bytes  
Maths 6916 bytes  
Text (1) 22360 bytes  
Mini Text 4594 bytes

NOTE - comparison with the earlier sets of figures will show that the file lengths have changed very little - well done to Steve Sutton for excellent coding to get extra speed with very little extra machine code.

(1) The file for text is also on the ROM and therefore does not actually use any memory unless loaded in off disk - thus making it available for unexpanded QLs.

CONTACT:

Digital Precision  
222 The Avenue,  
Chingford,  
London  
E4 9SE

# MANDELBROT UPDATE

Carl.L.Cronin

This is an update to my article which appeared in QLTR 2. The Mandelbrot program I had written has now reached version II. This being a complete re-write (the first version was my first ever QL program, and as a result was pretty rubbish).

Version II now has a cursor, making it much easier to enlarge any area you want, this means you don't need to place a ruler on the screen and measure anymore!! It also has on-line help, which does away with the need for instructions, although they are supplied and stipples are optional. Hopefully in the near future (if GCSE coursework & revision allow!) I should be able to add the Julia Set function and the Animate procedure, which I have working in prototype form....

Mandelbrot II is available from CGH, and best of all it is totally FREE! (apart from a £1.00 copying charge.)

YET MORE QL MANDELBROTS AND FRACTALS

Emmanuel Verbeeck has sent a complete disk of Public Domain software for the QL. No space in this issue to go through it all, but there is a splendid Mandelbrot program on there. Disk also includes an excellent screen dump prog and loads of other goodies. Cost £5.00 for the disk or a quid just for the Mandelbrot.

John de Rivaz of Fractal Report has very kindly sent in a compendium of fractal progs written entirely in SuperBasic. Over a dozen different fractal progs are included. If anyone gets time there is a 2880 dot screen dump program in assembler that needs sorting out on there too, and a compiled version of the fractal progs would be an asset as well. Price - a quid for this one too, provided you send the relevant media.

Richard Alexander