QUANTA

VOLUME 7   ISSUE 11   DECEMBER 1990

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QUANTA

INFORMATION ON THE GROUP

Membership of QUANTA, the Independent QL User Group, is by subscription to the group's newsletter, which is published monthly. Membership details are obtainable from the Secretary. Membership of the group is open to anyone with an interest in the Sinclair QL and compatible systems.

Members requiring assistance with problems related to the QL may write to or 'phone a Committee member. An attempt will be made to put them in touch with a member who can help with the problem. Alternatively send a note to the Editor, and the problem will be mentioned in the newsletter.

Workshops will be arranged from time to time in various parts of the country. Copies of the group's constitution and annual accounts are available from the Secretary.

The group maintains a software library. Most of the programs are free to members. Library lists and programs are available from the Sub-Librarians.

HONORARY OFFICERS OF THE GROUP

Chairman	Sydney Humphreys Wychwood,The Street Bramerton, NORWICH Norfolk NR14 7DW Tel (05088) 463	General Secretary	Philip Borman 1 Newtown Road RAUNDS, Northants NN9 6LX Tel (0933) 460690
Membership Secretary	David Johnson The Corner House Loxley, WARWICK CV35 9JT Tel (0789) 842543 0900-2200 not Sun	Treasurer	Michael Jackson 12 Church Street Adlington, CHORLEY Lancs, PR7 4EX Tel (0257) 480331
Newsletter Editor		Software Librarian	Roy Brereton 94 Teignmouth Rd Clevedon, Avon BS21 6DR Tel (0272) 871917
Committee Member	Dennis Briggs 53 Gilpin Road Admaston, TELFORD Shropshire TF5 OBG Tel (09522) 55895		

Submissions to the Editor should be on a Microdrive or disk - any format, in a 'jiffy' bag or similar. Please include a paper copy where possible. Submissions for the library should be sent in a 'jiffy' to the Quality Controller, JAMES METHLEY, 4 PARKSIDE, LEA, PRESTON, PR2 1YS. Tel (0772) 736713 Sat/Sun anytime.

The Editor reserves the right to publish or reject, to cut or condense, any material submitted. The opinions expressed in the newsletter are those of the contributors, and are not necessarily those of the Editor or Committee Members.

QUANTA

Title	Location	Date	Contact
Sussex	Usual venue	Tuesday 18th December QL Pentathlon	Andrew Knights (0903) 812820
Solent	Delta Leasing Ltd. Garfield Road Bishops Waltham	1st Saturday Every Month 1400 to 1800	Graham Evans (042) 121 3350 or Eric London (0329) 663501
London	Marquis of Clanrickad Pub Southwick Street Nr.Paddington Station	1st Wednesday each month 1900 - 2300	Jerry Davis 6 Elmcroft Crescent Harrow, Middlesex HA2 6HN Tel (081) 863 1631
Denmark	Erling Jacobsen Raevenhojvej 36 (room)vaerelse 1011 2800 Lyngby Denmark	Irregularly, but usually a Tuesday at 19:30	Arno Hasnaes Hestkoblund 117 3460 Birkerod Denmark

CALENDAR

December 18th	Sussex Sub-group	QL Pentathlon
December 22nd-23rd	Horticultural Hall, London	All Formats Show
March 9th-10th	Portishead	Quanta Workshop

EDITORIAL

The Bird's Eye View Swansong
As you will see from this magazine, there is now a new policy in place, the magazine now has to be passed to Dennis Briggs for vetting. This was the result of the last committee meeting held in Worthing on October 20th. This will have various consequences. The cut-off date for those last minute submissions will have to be brought forward to probably the 7th of each month. This is to allow us time to send the magazine over to Dennis and back again, (we all know what the post can be like at times), before doing the spelling checking etc. The commercial adverts will also have to be in at this time, as they also have to be vetted. Since I disagree with one trader vetting anothers advert, I am sending the adverts to Syd Humphreys as Chairman.

I no longer have the inclination to continue as editor under the current circumstances. We have some fundamental differences, particularly on the committee side. I feel strongly, that since we were appointed by you, you should be informed of what is going on, but I am told that Committee meetings are confidential. I feel that they should be open and available to all members, except when the good will of the group is at stake or ideas and projects are likely to be poached. This would then be similar to my work environment, where the club committee minutes have to be published.

I hope you can find a constructive way to continue this newsletter, without it returning to its old style, and without a considerable amount of extra time having to be found by someone. (For anyone considering taking on this task, I have been spending in excess of 30 hours a week doing something for QUANTA, but that does include shows, running round after printers, posting, etc.) Remember that in future, all the hardware and software submissions will be checked, be careful of your wording when criticising people or products and be careful of copyright. If you think there will be any doubt, please supply proof of ownership, if only to protect your editor and your good name.

A couple of pieces of good news: Firstly, for all submissions to the newsletter and for programs submitted to the Quality Controller for the Library, there will be no requirement on you to provide the return postage for the return of your media. This will now be provided out of the club funds. As has been pointed out to me, it is your submissions to these two areas, that keep this club going. The second piece of news, is that David paid over £54 to The Guide Dogs For the Blind. This was the total money raised on the extended Spellbound dictionary, while it was in the charged section of the library. Thank you to everyone that supported this.

Now is the time of year to consider your input to the AGM next year. Please send your nominations for committee posts, and any other matters that you wish to be raised at the AGM, to Phil Borman. This is your opportunity to put forward any suggestions or alterations to the constitution etc., that you feel would improve the club. The QUANTA Constitution was last published in the Newsletter in August 1988, or copies are available from Phil Borman.
Sarah Johnson

QUANTA COMMITTEE

Well, the AGM is coming round again - how time flies when you're having fun. We should be sending out notice of the AGM and proxy forms with the January issue of Quanta, so if you want to nominate someone for a Committee post next year, now is the time to do it.

Nominations are invited for the posts of Chairman, Treasurer, Secretary, and Committee posts to include Editor, Librarian and Membership Secretary.

Anyone nominated must have agreed to be willing to stand for election. Necessary qualifications are basically plenty of time and boundless enthusiasm, but specifically....

Chairman. The Chairman must be calm and cool with a sense of humour, and familiar with the rules of procedure at meetings. He should be able to sum up the salient points of a discussion for his Committee, and control the meetings.

Treasurer. With the size of our group and the thousands of transactions per year, accountancy expertise as distinct from book-keeping experience is essential. The records are kept on computer and interim and final Income and Expenditure accounts and Balance Sheet are prepared at present. It is desirable that this practise is continued.

Secretary. The Secretary is the primary contact point for the group, and should preferably have a broad knowledge of the QL past and present to assist in helping members with their problems. Good record keeping is obviously necessary as the job includes the administration needs of the Committee, writing to suppliers, taking minutes at meetings etc.

Editor. The main requirement is to be able to read and collate the incoming correspondence and to format it into a neat and readable magazine. The Editor is free to choose his or her own methods of producing the magazine within the limits specified by the Committee. A reasonable understanding of the English language is obviously a necessity, and the ability to produce an Editorial and short editorial comments is also required. The Editor should have a forward looking attitude to the magazine, and be able to make recommendations to improve the style of the magazine. A little experience in the editorial field is also desirable. A large amount of time is required each month, and the ability to meet printing deadlines.

Librarian. The Librarian is responsible for organising and maintaining the disk and cartridge library, and keeping the sub-librarians supplied with up to date copies. Some book-keeping experience is desirable, as the Library account is separate from the main Quanta account, and is maintained by the Librarian.

Membership Secretary. The Membership Secretary post is largely administration, the main element being maintaining the membership database and ensuring everyone receives their magazine each month. A large amount of free time is essential, particularly at subscription renewal time, and plenty of storage space for the back issues/membership forms and the like. The volume of work is such that the candidate must be a well organised person with a tidy mind. He has to work in close conjunction with the Treasurer.

Phil Borman, 1 Newtown Road, Raunds, Northants, NN9 6LX

THE FRENCH QL SCENE

The QL scene in France is not as dead as I feared some years ago, even though there are no more national suppliers of QL soft/hardware - we must import all our gear from Britain or Germany.

About three years ago, some QL enthusiasts over here decided to found their own club. We were thinking at that time that if we got, say, 50 members and lasted 2 years, it would be quite a success. Well, we are around 200 now (trend: falling), and it has been over three years already.

QUANTA does not have many members in France, I think because of the language barrier. Many frenchmen do not speak english well, or at all. This is why a purely french club was founded. We output a magazine (newsletter?) called INFORMA at irregular intervals, in fact whenever enough material has accumulated for publication. This averages at about 4 INFORMA per year. Our publication is quite different from QUANTA, in that it contains mainly articles written by a selected few - not because nobody else is allowed to write, but because nobody else does. If we were to wait on member input (as in QUANTA) not many INFORMA would have been published.

Like QUANTA, we have a software library (but no fees at all). An exchange of libraries has now been initiated with QUANTA, so our programs are now available to all QUANTA members. Now is your chance to brush up on your french.

The only other noteworthy item is the recent arrival of QL guru T.Tebby in France. Hopefully, this move will not mean that he is leaving the QL (it doesn't seem so, at least).

Wolfgang Lenerz, 16 Rue Liancourt, 75014 Paris, France

THREE-DIMENSIONAL CAD.

Like Mr Matthews (Aug, p16) I have been disappointed to find a lack of Hidden Line Removal facilities in various QL 3D-CAD programs; it seemed odd that there was nothing to match what VU-3D did on the Spectrum for a fiver! Eventually I found what I wanted in the beautiful "rigorous spacefill" drawings of Mark Knight's Molecular Graphics (now disk 16 in the QLW MDV exchange), but on the way I came across an undersung program "Image D" that might interest Mr Matthews.

I got my copy of Image D (V1.03, with generous after-sales advice) direct from the author, Bernard Denchfield, of Deltasoft Computer Software, 11 Dumaine Av., Stoke Gifford, Bristol BS12 6XH. It is a complicated program that took time and effort to get to grips with: but it has facilities that the others lack.

It produces files of data to record polyhedra rather than simple line-drawings. Each "object" can of course be rotated and magnified to choice, but it can also be "viewed", with or without hidden-line removal.

Above all it can SHADE the polyhedra, so that a solid can be black at the base and range through stipples of green (or red) to white on the catch-light face. It would even shade different objects in specified colours - though I have not yet fully mastered that facility.

Finally, and of great interest to technical authors, it will show the object in the conventional three aspects, all together, on the screen. The screen can be saved for subsequent dumping, but final tracing is a wise improvement.

The program works happily under QPAC2, but if a QIMI mouse (or better still, a Trackball) is used it must be moved quite slowly to let the screen cursor keep up.

C R Oswin, 17 Bure Haven Drive, Christchurch, BH23 4BS

Three of young students arrived at the the Brum meeting a short time ago and asked if we were interested in some QL software. Well we were and still are as they showed wire frame space ships etc then moved them at lightning speed then showed the same using the hidden line technique. They are now working on colouring the faces you can see. Perspective viewing is also included. HDB

ANYONE FOR LOGO?

I recently bought a book called "Writing Interactive Compilers and Interpreters" by P.J.Brown. This, despite its forbidding title, shares with Jan Jones manual the property of being both pleasant to read as well as instructive. In it the author discusses the type of intermediate language and recommends a form of Reverse Polish. He rejects Basic essentially because of its lack of structure but he was writing before SuperBasic had been introduced.

I was rather keen to learn Lisp but found it difficult. I therefore turned to Logo which was derived from Lisp and which has much of the expressive power of Lisp whilst being easy to write and read. Logo is usually thought of as a method of introducing children to graphics but it is much more than that having extensive capabilities for string manipulation. As there was no interpreter available, I had to attempt to write one and set out to tackle this in Superbasic. It turned out to be possible to translate from Logo to Superbasic and to program nearly all the key words of Logo. I could not find a formal definition of the language but found the Atari ST Logo Users guide a very extensive description. I have omitted Throw and Catch which enable the user to jump about the program from one level to another. The excuse is that Logo is supposed to be a functional language and therefore "referentially transparent". The reason is that I have not found a way of including these keywords.

I would be very glad to hear from anyone who is interested in Logo and I could supply copies of the translator on receipt of a disk and an S.A.E. The program requires TK2 and Ramdisk or TrumpCard.

R.W.Willmer, Compton Hill Barn, Withington, Cheltenham

GROVELLING APOLOGIES!

Perhaps we ought to have a "quality controller" for programs sent to you? Or better still, I ought to check them before sending them! As, so far, two members have pointed out by telephone, the program on p.15, Issue 9, Vol. 7 doesn't work. The following changes may help:

Line 130, last assignment, "e%=1ena%"

Lines 230, 260, 270 & 280, replace "i%" by "i" (unless you have a "Minerva" ROM.)

Lines 340 on, the variable "ll" is "ell-one" throughout.

The printer is now doing, 5,000 times [the virtues of multi-tasking!]:
"I must test after making changes to a program." "I must not assume others have the same set up." [Which is not so easy when you've got used to some extras and use them without thinking], and "I must avoid the characters 'l' & '1'." [Are there any other such pairs, as well as 'B' & '8'?]
{'O' (oh) and '0' (zero) along with '5' (five) and 'S' spring to mind. The main thing is to try to think of the person reading it. It was as much my fault on this occasion in letting it through. SJ}
If any members who have had problems with it would like to send a cartridge, or a 3 1/2" disk, I will try to return a less bug-ridden version.

Paul L. Harris, 2 Tippett's Close, Enfield, Middx. EN2-0QR
Tel: 081-367-5992   5.11.90

MICE FOR THE QL

The current dearth of mice for the QL, coupled with the availability, these days, of a low cost mouse at computer shows and radio rallies, suggests the need for a simple adaptor to allow the two parties to get together. The mice cost around £10, and are reputed to be for another computer range known as A*****D. However, they are not marked as such, so we can adopt them without feeling guilty.

The interface described here, and pictured in the circuit diagram, is quite easy and cheap to make, but there may be problems for some in actually connecting it to the QL. More of this later. The mouse system works into the joystick port (CTRL1), and therefore with those programs, such as QRAM and PAINTER, which use the cursor keys, etc, as the fall-back in lieu of a mouse.

The particular mouse as above generates, at its connector, two trains of pulses (Xa and Xb, one out of phase with the other) for the left / right movement, and two similar trains of pulses (Ya and Yb) for the up/down movement. The adaptor has to do a number of things with these signals, separately for the X and Y, before inputting the QL. It must (a) decide whether the mouse is moving left (up) or right (down), (b) whether it is moving or still, (c) generate a pulse corresponding to a quick key-press of the cursor keys, and (d) feed short-circuits, as appropriate, into the QL to mimic the KEYROW function. The 4013 sorts out the direction on Q or NOT Q, the differentiator (C1/R1, using part of a 4066 as an amplifier) responds only to a moving mouse, whilst the integrator, C2/R2, generates a pulse of a certain length to simulate a short keypress.

C2 and R2 are fairly critical, and have been chosen to generate a vertical step corresponding to a single raster line, with very slow mouse movements on QRAM. The horizontal step is the same. A number of programs designed for use with mice, perhaps all, have software adjustments for mouse characteristics. If the steps with slow mouse movements cannot be made small enough, then the value of R2 can be halved or quartered to reduce the step movement.

Parallel operation of the keyboard is made using a 4066 in a similar way to the John Terry project in the June 90 QUANTA. This article includes all the information for accessing the J11/J12 connectors. The circuit for the vertical movement has to be completely duplicated, of course, for the horizontal direction.

The two buttons on the mouse merely put out 0v signals on separate connector pins when pressed. These signals need to be reversed in the 4011 before operating the QL via other parts of a 4066. The left button should correspond to SPACE, and the right to ENTER. It is here that the problems start, and how you complete this project depends on how much you are prepared to poke around inside the QL. The UP/DOWN, LEFT/RIGHT, and SPACE functions can all be accessed via the CTRL1 port, but there is no access via this, or any other port, for the ENTER function. The other problem is that the interface and the mouse need a +5v supply.

However, the interface can be completed, using only the CTRL 1 port, by providing a battery for the interface (which will feed the mouse via its lead), and forgoing the ENTER button. The drain from the +5v supply (anywhere in the range 3.6v to 6v will do) is around 25mA, so it will be necessary to remember to switch off. The connections for the mouse 9-pin D-plug are shown in Fig 2, and those for the QL CTRL1 port in Fig 3.

Mounting the whole of the interface circuit, including the battery, in a disused joystick base (£1 at the computer shows - some have switches), with the usual 9-pin to QL adaptor lead and a 9-pin D-socket for the mouse lead, completes the project.

A much more elegant solution is to take all the keyboard connections, including the ENTER function, directly into the QL, and tapping into the +5v supply at the same time. Nine connections in all are required, and I found the easiest way was to solder directly onto the actual resistors (and one diode) associated with the keyboard. There is far less likelihood of damaging something, compared with soldering onto the track, and the board does not have to be removed. These wires can be brought out and directly wired to the interface circuit, or via another 9-pin connector. Or a 9-pin connector can be fastened to the QL case after cutting out a hole using a drill, file, bread knife, etc, depending on what you are used to. I found the best place for this to be to the right of, and below, microdrive 2, after lifting this out to one side, of course. Yet another way might be to remove the 6-contact CTRL1 port altogether, and replace it with a 9-pin one with wire links direct to the board. Either way, if you get things right, this new port can also be used directly for joysticks.

The interface circuit should go on a small board about 2" x 3". An even more adventurous solution would be to put this interface board inside the QL case (carefully insulated from the rest of the works), wire directly to the resistors, and just fit a 9-pin socket for the mouse.

I have not included detail on precisely where to make contact with the keyboard resistors because it means more diagrams, but the information can be made available with an SAE.

There is sufficient interest in our Subgroup (Merseyside) to create a special PCB for the project. Anyone interested in this, or made-up boards, should contact our organiser - Don James.

Peter Tyler, 26 Ryder Crescent, Aughton, Ormskirk, Lancs L39 5EZ
Tel: (0695) 424057
13.9.90

Fig 1 INTERFACE ADAPTER

Components

IC1	4013
IC2	4081
IC3	4066
IC4	4066
IC5	4011
R1	100k (x2)
R2	47k (x2)
R3	10k (x2)
C1	.02mf (x2)
C2	1mf (x2)
C3	.02mf

9-pin D-plug
1 —— Xa
2 —— Xb
3 —— Ya
4 —— Yb
6 —— Left Button
7 —— +5v
8 —— 0v
9 —— Right Button

Fig 2 MOUSE CONNECTIONS

9-pin D-plug
8 —— Column
3 —— Left
4 —— Right
2 —— Up
1 —— Down
6 —— Space
CLIP

QL CTRL1
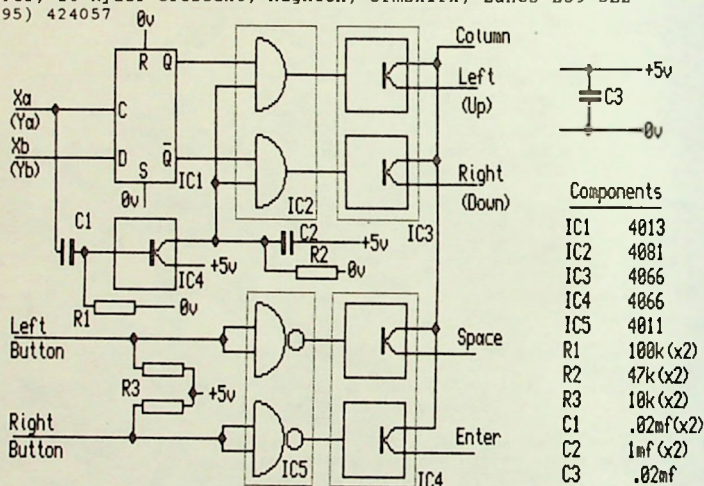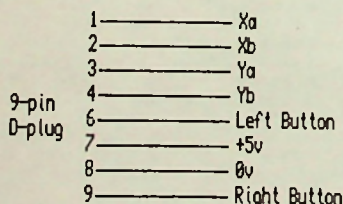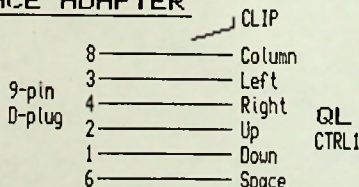
Fig 3 JOYSTICK ADAPTER LEAD

QUILL SCROLLING

Unfortunately I have no software solution to the problem of scrolling backwards in Quill which you mentioned in your short letter in September's Quanta magazine. However I am probably more familiar than most with the problem as I use my QL's for translation work and on average type 7,000 words a week with my main QL, 52 weeks a year; individual documents tending to be anything between 2,000 and 10,000 words each. The only solution that I am aware of is regular saving to disk, which seems not only to act as a natural safety measure but also to prevent the occurrence of the fault in the first place. An additional preventative measure seems to be saving to disk immediately whenever the cursor does not do what it is told, ie drop down a line or whole paragraph of text, or more precisely whenever the Quill program behaves in any unorthodox fashion.

Regular saving to disk seems to have eliminated a more serious and pernicious fault in Quill which I experienced on and off for some time. This was that sole paragraphs could just disappear without any warning. The lack of a whole paragraph can be difficult to detect in long documents as things still tend to read well. In the past, despite using differing Quill "masters" I have detected the loss of a whole paragraph on about 20 to 30 occasions. I even suspect that on some occasions the word count at the bottom of the page has been unaffected by these losses. However since I have saved to disk on a very regular basis throughout the work, I don't think I have had a paragraph loss now for about 12 months.

I use Taskmaster in conjunction with a Miracle TrumpCard, allotting just 70K to Quill, but the def_tmp file to Ram3_ (with Quill, the def_tmp file will only expand to the same length as the memory allotted to Quill itself, so for longer documents the memory allocation must be increased accordingly).

The use of Ram memory for the def_tmp file may partly explain the oddest thing that happened to me using Quill, which was the overwriting of part of a paragraph from a document that I had been working on in the afternoon with about 80 words of a paragraph from a separate Zapped document that I had been working on in the morning.

Everyone who uses Quill must be aware of its bizarre behaviour to some extent or other. For the above mentioned reasons, I now tend to save to disk every 100 or 200 words which is a bit of a bore, and I am considering changing to Text 87, but I am very familiar with Quill and find it very easy to use. I have got the Editor but apart from processing text files discovered from IBM compatibles I can't get to grips with it.

Nick Spencer,
Spencer Translation Services, 21 Ritherdon Rd., London SW17
Tel: (081) 673 0865
1.9.90

BEGINNERS' CORNER

There has been quite some correspondence on this, from the 'experts' as well as the self-confessed beginners. The problem with such a section in a magazine (or newsletter) lies with the fact that the experts do not know exactly what the beginners want - and neither do the beginners!

Indeed, how can the beginner, who by definition lacks knowledge, know exactly what knowledge he lacks. Computing is a vast subject. One may be a beginner in one subject and an expert (or anything in between) on another. Someone might not have a clue on the difference between RAM and ROM, but be an expert on using such and such program. When a beginner and an expert meet, they can quickly establish the exact extent of the former's knowledge, thus enabling the expert to build upon it and start from there. This is not possible in a magazine, where direct contact is out. (So, why not come to the next meeting, either of Quanta or of your local subgroup?). The only alternative would be to suppose that the beginner knows nothing ("This is a computer. It has a keyboard, which is directly in front of you. Hitting a key on the keyboard will cause the character hit to be displayed on the monitor, i.e. the screen" - and so on). Surely, most will then find this kind of explanation too patronising.

Unfortunately, direct contact is difficult, nay impossible, in most cases. One way around this dilemma is for the beginner to give a direct, clear question (eg. what is formatting, why is it necessary?), provided his knowledge enables him to ask that question. An expert might also announce a topic and ask whether anyone is interested in it. In an attempt to get this started (and without wanting to qualify myself as an 'expert'), I have listed below several questions which I have been asked at one time or another and which I confidently feel I can answer. If anybody is interested, they might let the Editor and/or myself know, and I could then write a short piece on it. This would also get the Editor something to put into QUANTA... The list is not exhaustive, nor do I pretend that it necessarily covers important or interesting items.

1 - What is multitasking?
2 - What is RESPR and why do I need it?
3 - What is the difference between a SuperBasic function and a
    SuperBasic procedure, and is it important?
4 - What is a device driver?
5 - What is a printer driver and how do I adapt it?
6 - What is a hotkey?
7 - Why shouldn't I use GOTO in my program?
8 - What are PIPEs and why does there seem to be a problem with them?
9 - What is QDOS?
10 - What is the difference between EXEC and EXEC_W?
11 - What does the SuperBasic name table contain?
12 - What is the QDOS memory map?
13 - What is a polled task list?
14 - What are wildcards?
15 - What does the write protect tab on my mdv cartridge do?

As can be seen from the above list, the range of questions is wide.
I'm quite willing to reply to any of them if anybody is interested.

WELL, WELL, HELLO MR. RICHARDSON... In issue 8 (Sept. 1990), Mr.
Richardson had quite a number of queries concerning various QL
subjects. Not quite so cranky as he made them to be.

MEMORY EXPANSION

Ha, the eternal subject... Well, here goes: How much? Simply put, the
more the better. Go for the maximum your bank manager will allow. The
reason is quite simply that, even if you can't find any reason to use
all that memory now, you will as soon as you have got it. This may
sound crazy, but I have found it to be true in all instances. Many
programs work better with more memory (some don't work at all unless
some memory expansion is there). For example, the number of ARCHIVE
records one can deal with is directly proportional to the amount of
memory you have: ARCHIVE does not keep all the records in memory, but
it does keep its index to these records in memory. The more memory you
have, the larger the index can be and the more records your database
can have.
{There is a limit on Archine index size due to the maths used to
navigate round the table. The index is limited to 64K on current
versions. Each record occupies 6 bytes in the table, giving a maximum
of 10922 records (65536/6) until you hit problems. Ordering the file
means that each record needs an additional 8 bytes in the index for
each order key. This means that ordering on one field gives a maximum
of 4681 records (65536/14), ordering on 2 fields cuts this down to
2978 records etc. PAB}

Moreover, multitasking is only really possible if you have a memory
expansion. Multitasking is one of the main points which sets the QL
apart from all those other (lesser!) computers. Multitasking means
having several programs in the machine at the same time, it is obvious
that this calls for more memory. Whilst it is possible, of course, to
multitask in an unexpanded machine, this is only feasible with small
programs, which are not always of an immediate use (no, don't write to
me telling me all about the many small programs you use and which you
find terribly useful). Warning: Multitasking is addictive: once you're
used to it, you'll miss it...

This is especially true if you get the Pointer Environment - no QL
should be without it. So, the more memory you can get, the better it
will be. It should be kept in mind that upgrading a memory expansion
will usually involve selling the old one and buying a new one - which
inevitably leads to a loss. Buying a big one right away will save
money in the long run.

Internal or external? It is possible to DIY an internal memory
expansion. In my opinion, though, it is not really worth it: The cost
difference between an internal DIY project and an externally bought
memory expansion board is, today, negligible, unless you are a pro (or
semi-pro) and know where you can get cheap chips and how to build a
board following a circuit diagram. Quanta has published quite a few
upgrade diagrams, so if that is your heart's desire, peruse your
Quanta back issues. {E.G. Vol 3 Issue 10}

It should also be kept in mind that an external memory expansion will make your QL go faster! This is not true of an internal one. The reason advanced by most of the experts (even though I dimly remember a dissident opinion by H. Clase) is that the QL's video circuitry (that which translates the bytes in the part of the QL memory used for the video display into voltages the monitor can understand) must access the QL memory in competition with the processor (the 68008). This means that the processor's access to the memory is sometimes slowed down, because the processor and the video circuitry have to access the memory at the same time - and priority is given to the video circuitry (else the display would not be stable). So the processor does nothing for a period. This of course slows the QL down. This contentious access to memory is avoided by the external interface, so there is no processor slowdown.

Anyway, whatever the reason, it is certainly true (I have timed it) that an external memory expansion will make your QL faster (actually, of course, only those programs that run in the memory expansion are faster, but as the QL fills up from high memory, that means that nearly all programs run faster).

As concerns the internal memory expansion, it is not just a question of prying out the old memory chips and putting in new ones of a higher capacity. The QL (like any computer) needs "decoding circuitry", i.e. some chips which, when the processor says "OK, let me read address 123456", will "know" which part of what memory chip does actually correspond to address 123456. The basic QL has those chips, but for a 128K computer only. If you upgrade your memory, you must change the decoding circuitry as well.

OF DISKS AND DRIVES (AND DRIVERS)
Put simply, disks (floppy or hard) can be seen as a straight replacement for the microdrives: they are just for storing files. Once you have them, you won't need microdrives any more, except for those few programs which are (were!) copy protected, and which generally access mdv2_ in order to check whether the original is there.

As such, disk drives, like the MDVs, haven't got anything to do with the memory in the computer: it is entirely possible to have an unexpanded computer with disks (this is different for a hard disk) - though it would be a shame! Let's deal with floppies first, and then I'll add a paragraph concerning the peculiarities of hard drives.

Floppies are much better than microdrives:
* They hold more information - typically, in the QL world, 720 K (1440 sectors), whereas an mdv cartridge will only hold about 110K (220 sectors).
* They are faster: files get to and from the QL much more quickly. I've never really timed how much faster disks are, but believe me, they are very much faster!
* They are more robust: "Bad or changed medium" generally doesn't exist. Now, I know that there are some who have never had trouble with their microdrive cartridges, but they are an exception!

* Last but not least, floppies are cheaper. A single 3.5" disk will
cost less about 50p whilst an mdv cartridge (which holds 6 times less
information) has a bulk trade price of three times this! The
calculation is simple: Buy ten disks and you will have saved so much
money, compared with buying the equivalent storage space in mdv
cartridges, that the disk interface appears to be free!!!!

If that is so, why didn't Clive put in disks instead of the dreaded
mdv? Who the hell knows? (Actually, they were just cheaper to make
than disk drives at that time). I wish he had included disks, because
then the QL would be thriving today! When the QL came out, it
immediately had a bad press, because of the unreliability of the mdvs.
This led to bad sales, this in turn led to a bad financial situation
within Sinclair Research, and then to the ultimate treachery (the sale
to Mr. Sweety Pie). What a sad and sour day that was...

Comment from Dennis Briggs:
I did see a second generation 'QL' at Feltham which had floppies, a
hard disk, extra memory, go faster processor and every thing that QL
owners are asking for four years later. It worked absolutely
fabulously. The problem with the microdrives was simply one of lack of
listening by heady Cambridge to working, fixing, sorting, trouble
shooting Feltham. I have great admiration for Tony Bell and his little
band who were there. HDB.

Connecting up disks couldn't be more simple. You will, of course, need
an interface. This contains the necessary hardware and software (the
"driver") to enable your QL to speak with the drives. Unfortunately,
this has got nothing to do with ASCII, there is nothing less standard
than connecting one type of computer equipment to another.

Here, however, this is relatively easy: You plug the interface into
the QL's expansion port (the thing on the left hand side), you plug
the disks into the interface, and away you go. You cannot run the
disks from the QL power supply (unless you want to see it go up in
smoke). Have no fear, however: Normally, unless you buy "uncased"
drives or "drive units" only -where you will have to fit your own
power supply- the drives come with their own power supply: just plug
them into a wall outlet. No problem.

Disk types: You should get 3.5" drives (and disks, of course!). These
are better than their 5.25" equivalents (the inches refer to the
actual physical size of the disks) and are far more widespread in the
QL community than any other disk type. They are smaller and the disks
themselves are more robust. Even the Mastodon the IBM market, is
swinging round towards them (has any of you ever seen a mastodon
swinging around? Not a pretty sight, I assure you).

What about the different 3.5" disk types You can have single or double
sided drives, and single or double density drives: Single sided drives
have only one read/write head: this means that they can only write on
one side of the disks (no, you cannot turn them around). Consequently,
you lose one half of your storage capacity, because one side of your
disk will not be used. It is impossible to add a read/write head to a
single sided drive, so get double sided drives right away.

Density does not refer to whether or not the drive owner is thick in the head. It concerns the density with which information can be packed onto the disk: the higher the density, the more information can be crammed onto one disk: a double density drive will let you put twice as much data on a disk than a single density disk. This can easily be seen from the number of sectors to which a disk formats: A double sided single density drive will format to 720 sectors (360K). A double sided double density drive will format to 1440 sectors (720K) (for single sided disks half all these figures).

I emphasize again that these figures concern the storage capacity of the disk, not the memory contained in the computer. Once you have an interface, practically all 3.5" drives will work with it (not so for 5.25 drives, some have incompatible leads, so it is possible to buy only one drive and add several later, even tough I personally would suggest buying the interface and drive(s) at the same time from the same supplier.

Hard disks: Most of the above considerations also are valid for hard disks. However, one does need a memory extension for hard disks, because the driver for such a hard disk eats up quite some memory. Hard disks are quite faster than floppies and have a far greater storage capacity (several tens of Megabytes). However, they are not as standard as floppies. Consequently it is not possible to connect any old hard disks to a hard disk interface. This is why Miracle only sells disk and interface together, to be sure that they are compatible. This is also why Rebel states clearly with what type of drive their interface will work.

It is entirely possible to upgrade from microdrives to hard disks directly - but perhaps not desirable. First of all, using floppies will introduce the user a bit further into the world of computing, and increase his sense of security when dealing with computer equipment. Floppies also introduce the notions of subdirectories etc... more painlessly.

More important, though, is the need for backups: All computer data on whatever type of storage should be regularly backed up. Microdrive users will certainly appreciate this need, but this also holds true for floppies or winchesters (another name for hard disks). It should be obvious that, the higher the storage capacity of your device, the more you lose when something goes wrong: Crash an MDV cartridge, and you lose 110K of data. Crash a floppy and you lose 720K of data. Crash a winchester and you lose... your head! (Actually, businesses have gone under because their winchester crashed and, as they had no backups, they suddenly could no longer access vital information!). It is easy to back up one floppy on another. Most hard disks users, however have but one hard disk, so they cannot make backups onto another winchester, so the backups have to be made onto floppies. Whilst this is just possible, it is entirely unfeasible to backup several tens Megabytes of information onto MDVs (1Mb=10 MDV cartridges, so we are talking of hundreds of cartridges). Consequently, floppies are a necessity for those who have winchesters.

Upgrading options: The best way to upgrade is to buy combined memory / disk interface such as that sold by Miracle (a perfectly reliable firm) including disk drives. That way, one can be sure that everything fits together. Miracle makes the Trump Card, which gives your QL quite some memory. A QL upgraded to more memory and disks is unrecognizable: a much better, faster and more reliable machine. This is the QL as it should have been when it came out!

If more funds are available, the purchase of an Atari ST (yes, I know, heresy, but read on) together with an Emulator might be considered, provided you solemnly swear, under penalty of immediate lobotomy that you will only use the Atari in its QL mode, not in its useless native mode...

At the time of writing, several firms are also working on/completing QL compatible machines, i.e. machines having a QDOS compatible operating system (on which your software will still run). NO MICRODRIVES!!!!

As concerns winchesters there doesn't seems so much to chose between Rebel and Miracle. I have neither (I have never felt the need for a winchester, so I can't comment directly on them). Having seen them operate, though, I can say that the Rebel effort does seem to have the edge on speed.

TOOLKIT
He asks, what the hell does he need a Toolkit for? Well, to take his example, just as a car mechanic uses tools to repair a car, a programmer uses (other!) tools to do his job (even though a hammer comes in handy if the *!#@ machine again doesn't do what it is supposed to).

But even the simple user (as opposed to programmers / tinkerer / what-have-you) can largely benefit from a Toolkit. (When I say "a" toolkit, it should be understood that I actually mean the Care/Qjump one: SuperToolkit II, also known as TK II). What tools, I hear you cry, and how come I've never missed them? Oh, but you have! Remember the last time you typed in "Copy mdv1_oldfile to md2_newfile", and the machine coughed up an error, because it doesn't know a device called "md2"? Remember how you grumbled because you had to type the line again? Well (soundtrack: triumphing trumpets), to your help comes TK II: Press ALT and SPACE (at the same time), and, hey presto! up comes your old line, in window #0, ready to be edited: just add the "v", press ENTER, and there it goes. This is known as "last line recall".

A toolkit, in our meaning of the word, is just an ensemble of new SuperBasic keywords or other programs which are put into your machine by this Toolkit, and which you then can use. The "last line recall" above is just one example. Another one? Have you ever wanted to copy all files from a device to another? "WCOPY" will let you do just that. Or do you wish to copy only those files ending in "_doc"? The same new keyword will do that. And so on.

ED, for example, is not the nice owner of the pub next door, but a new keyword that lets you edit a SuperBasic program much more easily (this is one of the programmers' tools, there are others). The list is endless: Ever loaded a program that was for the other screen mode (i.e.TV and not Monitor) and that didn't accept your default window size? Type WTV or WMON and all is well.

Most disk interfaces today (such as the Miracle) come with TK II incorporated, them, so if one uses disks, there is practically no need to buy a separate Toolkit. There are other Toolkits on the market but, in my opinion, none is as vital as TK II.
I hope the above answers Mr. Richardson's queries.
Wolfgang Lenerz, 16 Rue Liancourt, 75014 Paris, France

COMMENTS FROM CONTRIBUTIONS IN SEPTEMBER 1990

Nick Ward and his multi column output from Quill; Nick comments that DTP programs are slow and difficult to use but then gives us a complicated procedure which perhaps is quicker than it sounds but certainly sounds lengthy! It also seems to me that it could be difficult to produce anything other than a perfectly regular layout even with his more advanced POLYTEXT.

Could I suggest that if Nick wants to start adding things like double height text etc it would really be well worth while looking at a DTP program such as Dilwyn Jones PD2 (or perhaps his PD1 in the Quanta Library if you don't want to splash out the not too vast sum of £35). These particular two programs (especially PD2) are really very easy and quick to use, especially when entering an already typed _doc file. As a point of interest I timed entering a page of text, in three different width columns, around two graphics. This took all of 3 mins even with a bit of 'tidying up'. Hardly excessive !

I must say, however, that Nick's programs are very clever and fine if you need fairly basic column layouts.

Ian Bruntlett suggests a monthly section giving details of Library programs. I feel this is an excellent idea as with the best will in the world the description in the Library List can only be very brief.
{If someone will do it, I will include them, but remember this is your newsletter, so you have to write them. SJ}

Incidentally congratulations to all involved in the New Member's pack. It's very impressive and also helpful to existing members too. My only comment is the size of text is rather on the small side for 'my poor old eyes' but I appreciate that larger characters means more pages!

I was very interested too, to hear of David Stringer's work in Africa and his portable QL. It sounds rather obvious but has he tried two car batteries back to back to give him his +12 and -12 volts. I'm not sure of the currents involved; they can't be large and even a motor-cycle battery would doubtless do for one of them or even a set of rechargeables.
(Dr) Mike Jackman. Pyle Dairy, Chale,IoW. 7.9.90

The battery backup is very easy and cheap as all you need is a 2 amp 7808 if you use a car battery or just use the radio controlled 7.5 volt ni-cad pack from Maplin. A multi-vibrator and a few turns of wire on a bit of a ferrite rod provides the ac for the serial ports. If you are flush with money just use the instrument regulator from a Ford Granada. The current needed for the serial port is 100 miliamp maximum or 30 miliamps in practice. A car battery can produce 10,000 times this current. What it cannot provide is the additional voltage needed to overcome the volt drop in the diodes and regulators in the circuit so to get 12 volts to the 1488 and 1489 RSS 232 driver chips you have to stuff in 15 volts.

There is a great deal to choose between different hardware set-ups as some interfaces such as the Trump card take up all the expansion slots ruling out the use of any add-ons apart from the Miracle hard disk. There is a significant difference in the overall performance between something plugged in the ROM port and a similar one plugged in the expansion slots allocated for this purpose. Terry Harman has a memory expansion, a Rebel hard disk, and EPROM programmer and a disk interface all plugged in together without any problems. Phil Borman's QL is almost as well endowed.

I have just been shown a working hard disk interface which has one 40 pin chip, 4 little logic chips and an EPROM to hold the code. The thing is so simple I doubted it would work but it does so the QL hard disk project could have a new lease of life. Perhaps the IDE drive interface could be even simpler. HDB

DISK DRIVE COMPATIBILITY

Wishing to be able to copy files to/from a PC I purchased, for £15 at the All Formats Computer Fair, an ex new equipment 5 1/4 inch drive, Hitachi model HFD516C12U, to supplement the 3 1/2 inch drives in my QL. This was sold as a 720k byte unit, however on closer examination at home the small print on the label said 'manufactured for IBM Corporation' which ominously suggested that it was an IBM high density 1.2m byte type which is not supported on the QL. This was confirmed on test when it consistently gave 'format failed'. Not knowing the address of the seller there was nothing to loose by a bit of experimentation.

On an IBM PC these drives can optionally be used as 360K byte, 40 track double side drives so they must have the necessary circuits to operate in lower density mode on command. On the main circuit board of the drive, apart from the 4 pairs of drive number selection jumper pins there were 5 TP (test point) pins in various locations and an adjacent pair of pins marked J1 in the centre of the board. Also identified were J2 to J10 but these had no pins fitted. Ignoring the TP pins, which are probably for board testing, I shorted the J1 pins together, this was immediately promising as the motor, which was running at the time, slowed by a detectable amount. High density drives run at 360 RPM instead of 300 RPM of normal drives. The unit then formatted to 1440 sectors and is perfectly satisfactory as an 80 track drive.

A note of caution to anyone attempting similar experiments; disk drives are delicate both electrically and mechanically. Do not disturb mechanical parts. It is probably safe to link adjacent pins that have J numbers as they are intended for this purpose, but do not make any other electrical connections or damage could result.

UPDATE OF 16 BIT QL DESIGN
This is being written using Quill on my 16 bit 68000 processor 'QL' now with 1M byte RAM, described in previous QUANTA issues. As Atari/QL and Thor 16 users will know this makes Quill very pleasant to use. Once the hard work of fitting the 68000 was complete only one small difficulty was encountered when taking the memory above the normal 68008 QL limit.

I use a RAMless Miracle Disk Card which has the disk and toolkit firmware at Hex address 10000. With up to 640K byte RAM this code is recognised and installed from an image at Hex D0000 as the initialisation firmware test searches between Hex C0000 and FFFFF for the special ROM extension identification pattern. With the normal limit of 896K byte or more this image is suppressed by the RAM and the disk control firmware is not installed. Quite how the 896K Trumpcard manages to work is another matter, and I won't give away Miracle System's technique even if I knew it. My solution is to patch the ROM, which has to be copied into 16 bit EPROM anyway, to search between Hex F90000 and FBFFFF. In the JS ROM the long word contents to change are in addresses Hex 4AC4 and 4AD0. This was made easy thanks to W. Goller's commented disassembly in the QUANTA library. A minor remaining quirk is that the firmware is installed twice, perhaps due to the aforementioned Miracle Systems fix, but this seems to do no harm.

All the software I have tried so far works normally in the large memory. The Digital Precision PC Conqueror however will not seem to allocate any more memory for the emulation than it does for a 896K system; this is perhaps more a reflection of the limitations of the 8086 processor being emulated than those of the QL.

With a 68000 processor, and no doubt a 68020 also, the microdrives and the network do not work. This could be cured with a software patch to adjust the code speed in critical areas if an enhanced QL were to one day to be produced.

RAM EXPANSION
A general note on RAM expansion, with apologies to the non hardware orientated. (I have seen something similar written some years ago but had to re-invent the wheel, this being simpler than searching through the loft). The QL accepts RAM expansions in units of 64K bytes and automatically adjusts its RAM TOP accordingly. No complications occur if units of 256K are added to the existing RAM. However if 128K, 192K or these values plus multiples of 256K are added then care is needed. Normally all unused address space is occupied by repeated images of the lowest 256K. As a result the 64K above such expansions is occupied by an image of the internal RAM and this confuses the RAM sizing test and prevents correct operation.

The cure is either to provide a duplicate image of the bottom 64K of
expansion RAM in the next 64K above the top (thus address Hex 40000
repeats immediately above RAMTOP) or to generate DTACK in this next
64K without any device providing data, the normal image is disabled by
pulling DSMCL high. (In both cases only the lowest long word of this
64K actually need be so affected but it is usually easiest to treat
the entire block or more). Again thanks for W. Goller's work.

John Attwood, 4 Rose Lawn, Bushey, Watford WD2 1HW

NETWORKING WITH WINNY AND MINNIE

Having bought a Hard Disc form Miracle, has totally made the QL a
different machine to use. Makes the directory commands in Toolkit 2
more logical to use. And since the Hard disk driver was written by
Tony Tebby, then it is certainly a winner. I have solved the noise
problem of the two fans that keep the electronics and the drive cool
by moving it to a cupboard under the stairs. Having one 384K QL
controlling the hard disk and the main 896K QL housed in a Memotech
keyboard both running under 1.81 Minerva. The network is very reliable
and does not give problems. The only problem was the connectors on the
network wire, some times short out and the network does not work.

When starting a session of button pressing to use the Hard Disc over
the net work I usually define in the boot disk after loading Lighting,
TK2, QPAC 2 etc... the WIN device name by using the NFS_USE command.
ie. NFS_USE   WIN,N1_WIN1_,N1_WIN1_   DATA_USE WIN1_   PROG_USE WIN1_

This then sets the toolkit defaults for the filing system to look at
the WIN device which is looking at the network. Because the QL is
device independent, I mean, you can call any device any name. Try it
on other operating systems to redefine the floppy disk device name
with one line of basic ie. FLP_USE QLF This gives QLF1_, QLF2_ ETC....
The network is a little slow to load but since I have the Conqueror on
the Hard Disc and it boots up into MS-DOS in about 90 Seconds. Which
is not bad, if you consider that the network is a two wire connection
and gives a satisfactory results. I know people who pay thousands of
pounds for networking and multi-tasking on IBM machines and we have
got it in built for less than £100.
Derek Stewart

PROBLEMS, PROBLEMS

I wonder if anyone can help with two problems:
1) I have a keyboard and monitor I would like to connect to the Q.L.
They come from a scrapped STAR 'Auditor' computer. The Keyboard plugs
into the monitor at the moment, via a 15-way D-plug, and bears the
number 3504817-OIB, serial TA 3330. The monitor is an Ampex, model
Dialogue 60, and carries two banks of dip switches, a printer port and
a 'primary' port. Anyone solving this problem can have the printer
that went with the set, an OKI, which Quill works with the Epson
driver, but only in condensed print. I have no manuals for any of
this. In case it's relevant, the QL has a Trump Card fitted.

2) I've tried everything but the mysterious right way - how do I formulate a translate that makes my Juki BJ130 print a pound sign, from Quill, and not a hatch? On the character set 2, the pound sign is 156, but 156,27,82,3,35,27,82,0 does not work, (I got this from a QL World, I think). 35 is for #.

David Shillam, 93 The Grove, Ealing, London, W5 5LL

Hooking the monitor up to a QL is not difficult if it contains a power supply. Usually the monitor accepts composite mono but in some cases the sync signals need inverting. Use a 74LS04 to do the job. If you are a newcomer to monitors then get someone who has SAFETY uppermost to look at it as you can get very dead by prodding about inside these glass eyes. HDB

ARTISTS AND OTHERS

Not so long ago, some industrial designers complained that the businessmen who commissioned them did not understand their work and believed that they should learn something about art; business men were not creative.

Until five years ago I considered myself solely an artist and saw myself on one side of the divide. I could add up and multiply, do fractions etc, and that was about it. For no reason at all, one weekend I started playing with numbers, picked up a few ideas about science and technology and eventually bought a QL.

The QL gave me a headache after five minutes and consequently it languished in its box for long periods. Eventually however, I learned to get 35 words per minute typing with Quill, Abacus now does a great Cash Analysis job, not to mention superb Profit and Loss sheets and I am just becoming familiar with Archive.

I regularly produce a sawyers cutting list for a local furniture manufacturer. I have an Archive file containing 1200 records with 8 fields to a record. I struggled, but eventually cobbled together the procedures to select a batch of furniture components and insert the quantities to be made. I used "dump" to drop it to the printer. This elementary list soon proved inadequate for the manufacturer and I learned to "sum up" the quantities of components that were alike. (I "Order" the printer output by the "Thickness, "Width" and "Length" of the components, (three "field" names)). The total quantities of like components are printed with an instruction to the sawyer to......

**** "CUT UP A TOTAL OF "x" Pieces "a" Long, "b" Wide, "c" Thick" ****

The sawyer looks down the list of records for a line beginning and finishing with asterisks and reads the instruction. (Hopefully, he does what the instruction tells him).

At first, I sat at the computer for an hour, selecting the furniture and punching in the quantities required for each group individually, only having to touch the keyboard twice every couple of minutes.

I have now formed a set of procedures into a program which allows the large file to read a pilot file. It now takes five minutes to insert information into the pilot file, I hit enter, and the QL works for an hour before printing, while I do something else. No doubt all you boffins think this is basic stuff.

I rang our librarian Roy Brereton last night (who prompted me to write this letter), chasing Hugh de Saram's Management Suite of Archive procedures and we got talking about my introduction to the QL. As I said, it started with my interest in maths. After getting into maths proper, I was astounded by the visual properties of just about any graph of a polynomial function.

While learning, I plotted functions with pencil and paper and "felt", (as an artist), the inherent dynamic and vital qualities of the shapes. I have analysed these shapes and know, from a designers point of view, why I find them interesting. Before long, I was using parts of the graphs to functions in my furniture designs. I manually chopped, scaled, reflected, and combined them, etc., and put them together again with "Cut and Paste" techniques. The resulting lines would form either the shape of a single component or indeed the pattern of the entire piece of furniture. I've done similar things with Interior Design layouts and for various sorts of Graphic Imagery.

After a while, it occurred to me that perhaps this could be done on a computer and plotted out, much better and quicker than I was doing it by hand and maybe even dropped to a NC machine in the workshop. Two years ago, I compiled a written and illustrated description of the program I envisaged and applied to an industrial sponsor for a grant to develop it and put it on computer.

Like I said at the beginning, manufacturers do not understand artists, I could not convince them of the relevance of mathematics to design. Neither did these particular people understand me as an amateur math and computer enthusiast. I did not get the money! (More than likely, they thought I wasn't capable). If any of you mathematical programmers out there would be interested in looking at the program description, please give me a call and I will forward a copy. Who knows, maybe we can make a useful mathematical contribution to the art and design process yet, via the computer.

I am now in my second year as a member of Quanta. I intend to visit a workshop soon. Many thanks to all contributors for their stimulating articles and an even bigger thank you to our club officials who put in their time to make it all work. I am a beginner and greatly appreciative.

A final request. If any member uses a computer for any aspect of Management Accounting, Cost Accounting or Product Pricing, I would be interested to receive a postcard from them with their address.

Derek Taylor. 13 Hardwick Street, Mansfield, Notts. NG18 2LP.
Tel: (0623) 636517 (24hrs)
6.10.90

Bringing some light into your life

A lack of any indication of the status of the caps lock on the QL has irritated many people, and there are a number of programs around giving an on-screen display of its status. These sometimes don't work, and are no good if like me you tend to watch your fingers while typing, only to look up to find an entire sentence in capitals.

Enter QView's CAPSLED kit, using minimal hardware to give you the requisite illumination, with a bonus in the form of a flashing indication when the screen is frozen. We have sold a number of these, and are quite prepared to sell more if the demand is there - but if you prefer DIY using a few scrap components, here's how. The original step-by-step instructions take two sides of A4, which is probably a bit more space than Ye Editor will let me have! If the clamour for more detail is extreme we'll dredge out the original QL document and either put it in the library or use more valuable Quanta space.

The circuit is shown below - we have used BC212 or BC214 transistors, but any moderate-gain PNP device will do, as it only has to carry about 10mA. Our preferred method of construction is shown above the circuit, the 8049 IPC being removed from its socket next to the microdrives so that the transistor and resistors can be assembled on top of it. NOTE that the TO92 packaged BC212s have a nasty tendency to come in various different pinouts! The layout we've shown is appropriate for the BC212L, which is in a TO92 package: anything called the like of TO92a will be different, so check it in a data book. Pin 24 on the IPC is bent out, so that when you replace it in its socket it doesn't go back in its hole. Usual static and over-cooking precautions apply. Most LEDs will work OK, although you may want to adjust the 330R resistor to get the brightness you like.

A simple SuperBASIC program generates the capslock and screen freeze driver code:

```
100 b=RESPR(128)
110 RESTORE 240:check=0
120 FOR i=0 TO 127
130   READ byte:check=check+byte
140   POKE b+i,byte
150 END FOR i
160 READ checksum
170 IF checksum<>check
180   PRINT #0;"Checksum error - check typing!"
190 ELSE
200   CALL b
210   PRINT #0;"CAPSLED code installed"
220   INPUT #0;"Enter device to save code to >";dev$
230   SBYTES dev$&"capsled_bin",b,128
240 END IF
250:
```

```
260  DATA  114,32,116,255,112,24,78,65
270  DATA  74,128,102,26,40,72,65,236
280  DATA  0,8,67,250,0,22,41,73
290  DATA  0,12,112,28,78,65,41,124
300  DATA  76,69,68,37,0,16,74,128
310  DATA  78,117,32,43,0,20,103,8
320  DATA  97,2,96,42,47,0,78,117
330  DATA  74,46,0,51,103,18,83,107
340  DATA  0,2,110,58,8,83,0,0
350  DATA  55,124,0,25,0,2,96,14
360  DATA  66,107,0,2,48,46,0,136
370  DATA  227,88,70,0,22,128,48,19
380  DATA  176,107,0,4,103,24,55,64
390  DATA  0,4,16,60,0,1,63,0
400  DATA  66,167,63,60,12,1,38,79
410  DATA  112,17,78,65,80,143,78,117
420  DATA  7727
```

Flying wires to LED

1K

BC212

330R

+5V IPC pin 40

1K

MDRS IPC pin 24

BC212

330R

0V IPC pin 20
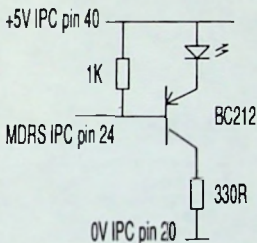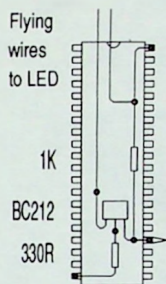
This generates a file which you can LRESPR or RESPR/LBYTES/CALL from your usual BOOT file. The CAPSLED is operated by some code tacked into the "polling interrupt", and can thus be updated up to 50 times a second. The source code for this will filter through to the library at some stage, together with some arcane comments on how to drive it yourself. The IPC signal used by the CAPSLED add-on was going to be used to reduce the read sensitivity on the microdrives to provide early warning of a dying tape by reading at a lower sensitivity: failed reads would then be re-tried at higher sensitivity with a warning to the user. The facility was never implemented, for some reason I can't recall (if I ever knew it).

Jonathan Oakley, c/o QView, 29, Carnaby Close, Godmanchester, Cambs. PE18 8EE
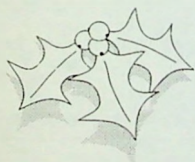
The QView MegaCorporation would like to take this opportunity to wish all Quanta members, and especially the Committee, a very Merry Christmas and Happy Qnew Year, and thank you for all the support you have given us and our products over the last year.

Laurence Reeves   Stuart McKnight   Jonathan Oakley

GREETINGS FROM THE SOUTH PACIFIC

Having read letters in the Quanta magazine in recent months from such
far-flung places as Canada, Israel, India, USA, North Wales ... I
thought it was about time you had one from Papua New Guinea!

QUILL MOANS
I enjoyed Harold Bennett's list of 'niggles' when using Quill (QUANTA
7/9 - OCTOBER 1990). I'm sure we all have our own pet annoyances with
the Psion programs - one of mine is the failure of Abacus to name the
spreadsheet you are working on, so that, when saving, you could be
offered the name as a default, as in Quill, instead of having to type
it out in full every time. In P.N.G. the electricity cuts are so
frequent that I have learnt, by painful experience, to make regular
saves every 15 minutes, so this lack in Abacus is a pain.

The cure for lock-ups when scrolling up through large Quill docs is
simple - don't do it! Much better to Goto an earlier page and scroll
down; it's quicker too.

Also, it is possible to 'SAVE' a page or two from the middle of a doc.
Proceed as if you were printing the pages but when offered '...to
printer', instead of pressing ENTER, type a file name, and the page(s)
will be printed to a _lis file. If you ensure that there is no
'printer_dat' file in Drive one, this file can subsequently be
Imported into an empty quill. (F3, F3, F, I, filename, by Paragraph.)
To avoid having to delete a load of 'padded spaces', it is best to
re-format the appropriate pages a bit before 'printing': set both Left
& Indent Margins to 1 (NOT 10 !!) and the Justification to Left.
Having Imported the file it can then be tidied up with your usual
Margins & Justification and saved as normal. It's not very elegant (as
they say in the colour magazines) - but it works!

CORRUPT MASTERS
Dennis Briggs, in the same issue, asks for more quick tips. One that I
discovered recently is that if your Master Microdrive Cartridge fails,
all is not lost if you have a RamDisk facility. If you type 'FORMAT
RAM1_MDV1' you will have a (very quick) copy of your faulty
Microdrive. If you then DIR the RamDisk, one or two of the files,
usually Exec files, will show up with asterisks - i.e. 'Tre*' instead
of 'Trel'. Use a rename procedure to correct the file names then
simply copy the RamDisk back to a good formatted Microdrive.
Unfortunately, I learned of this too late to recover a corrupt Master
of 3D-Slime, which went in the bin in frustration a long time ago.
Does anyone have an unwanted copy for sale - or swap for Match Point
or QFlash? In this case, even a back-up copy would not seem to be
unethical, as I did buy the program originally and have subsequently
been unable to replace it.
*{Warning: This only works on some of the more recent Tony Tebby
ramdisks, such as RAMPRT and the recent Trumpcard. Also the names with
asterisks mean that the file itself was corrupt when copied to the
ramdisk. The ramdisk cannot correct the corruption since it does not
know what the file should have contained. Ones which appear to work OK
probably have their corruption in a non fatal section of the file, but
they are still corrupt. PAB}*

HELP PLEASE
I have seen utilities for beeping when a key is pressed and utilities
to put a CapsLock indicator on the screen in Quill. What I need - as a
definite 'looking at the keyboard' typist - is a utility to sound a
beep only when a key is pressed with CapsLock on. Is it possible??
I've never quite seen much point in the Indicator - you have to be
looking at the screen to see it, so you can see the capitals being
typed anyway. SO OFTEN I HAVE BEEN TYPING MERRILY AWAY, ONLY TO
DISCOVER THAT FOR THE LAST COUPLE OF LINES I'VE HAD CAPSLOCK ON AND
NEVER REALISED IT! An audible warning would be most useful.

Also, does anyone have a routine to change a Disk name (Volume Name)
without re-formatting the disk? This is the sort of thing I would love
to be at the workshops for.
*{This was in the newsletter earlier this year. January 1990, Vol 6
Issue 12, page 28}*
Tony Gay, United Church, P. O. Box 90, RABAUL, Papua New Guinea.
Tel. (from UK) (010-675)-922610   14.10.90

ARCHIVE QUERY

I recently wrote a letter to the Quanta magazine which was printed in
the September issue. As a result of putting my query into print I have
received several replies from some very kind QL'ers giving me the
benefit of their valuable experience. So come on you timid colleagues
struggling with a difficult task - get yourselves into print. You will
be pleasantly surprised at the generosity of other members who are
kind enough to help.

I have written to everyone who gave me a reply but I would like to
thank them all publicly. It is very encouraging to find people ready
and willing to help those of us who are merely "dabbling" with the QL
and marvelling at the things others can do with it!

I received a very long list of procedures from Dennis Briggs who went
to a lot of trouble to help me to produce simple procedures to build
up a library. This library can be merged into any program and those
procedures not required deleted. I will try to follow his idea of
writing short procedures to do those tasks required and add to my
library.

Just in case anyone else is trying to do what I want to do, ie print
record number on the screen while entering data using Archive, in
order to save on a regular basis, here are 3 of the relatively simple
solutions which I like. None of them means that I have to alter my way
of entering data very much - this is important because when one has
entered some 200,000 records over the last 4 years, old habits die
hard!

The first idea doesn't actually print the record number, but sets the
alarm to ring at regular intervals, say every 20 minutes (which in my
case would be after about 50 records) thus reminding me it is time to
do a backup. A simple solution which I ought to have been able to
think of for myself!

The clock has to be set first then the coding needs to be added to a boot file:

```
100 for x = 9 to 18
200 for y = 0 to 60 step 20
300 alarm x,y
400 next y
500 next x
```

Thank you Dr Roy Johnson of Exmouth for this idea.

The second idea I liked does actually print the record number to the screen and involves adding a procedure to do this. (I also have to adjust my procedures slightly to make it fit in with my method). You have to press F4 after pressing F5 to enter each record, a keypress which takes virtually no time at all and can be done while I am looking for the next record to input. This forces the record number to be printed.

```
Procedure change
cls
local n
let n$="n"
while n$<>"y"
insert
let n = n + 1
print n
endwhile
endproc
```

This was sent to me by John Vennard of Stockport.

Thirdly a solution from Peter Jones of Shepton Mallet. Instead of using "INSERT", Peter suggests using "APPEND". He produced the following procedure:

```
proc add
  open "raml_address" logical "a"
  order sname$;a
  cls
  let n=0
  while n<50
   cls
   print at 2,5;"Records added since last backup: ";n
   print at 4,5;"Total records: ";count()
   let sname$="": let fname$="": let tel$=""
   input at 7,5;"Surname ";sname$
   input at 9,5;"Forename ";fname$
   input at 11,5;"Tel No ";tel$
   append "a"
   let n=n+1
   endwhile
  close "a"
  cls
  print at 2,5;"50 records added since last backup.  Backing up...."
  kill "address_dbf"
  backup "raml_address_dbf" as "address_dbf"
  cls
```

```
input at 2,5;"Backup complete. More records? ";an$
if an$="y" : add : else : quit : endif
endproc
```

I hope this letter will encourage others to make use of the vast amount of talent available just for the sake of writing a letter.

Mrs Margaret Budden,
3 Coleridge Gardens, Burnham-on-Sea, Somerset, TA8 2QA.   28.9.90

ARCHIVE TRICKS

I've been ask to write to inform other members of a little trick I've used to change, add or delete field names of Archive files without resorting to separate routines etc. The trick is to use Abacus YES Abacus. Some members may already be aware that this is a more flexible way to add field names to Archive, for those who don't here goes.

1) Export the data base using the export routine in Archive. When asked which type of export file ie: Quill abacus etc answer abacus. A file will now be saved as "filename_exp". This will enable abacus to import the file.

2) Load and run Abacus go to the files routine and import the previously saved export file (from Archive_). You will be asked in the command line whether to import by rows or columns, pick columns as this will give you as many field names across the spread sheet as your memory will allow. If your fields are long and don't fit in to the space, alter the column width using the WIDTH command this will then show all of the details in each entry.

3) So now you should be able to view all of your Archive entries. This is now the stage where you can change field names (should be shown running along the top of the Spreadsheet). Just use the AMEND command after moving the cursor block to the appropriate cell and change the field name.

4) To add a field name anywhere in the database use the GRID command and the INSERT command to insert a column where you want the new field to go. Then move the cursor to the top of the column and add the new field name (with $ or not). Now this field has to have at least to entries.

5) You can also change any field entry by using the AMEND command, you can even add to this entry (ie: if there are spelling mistakes etc).

6) Now go to the file command and EXPORT the spreadsheet / database using "A" to export to Archive.

7) Now IMPORT your amended database into Archive (It will ask you what name to give the new data base, use the old file name if you wish BUT save a copy of the old database first just in case something goes wrong!). Hey Presto you have a new amended database. Don't forget to SEDIT your 'screen' if you've added a field.

If you have any trouble you can phone me on 0843 593995 after 6pm.

There must be more little wrinkles around so come on out there lets here about them. I am just getting involved in 'COMMS' at the moment, which is a little unnerving as one doesn't want to upset sysop's, I must admit that the help I've been getting from sysops is friendly and very helpful, as is always the case in QUANTA.

John Nickolson, Bayview, Windsor Road, Cliffsend, Ramsgate, Kent

ARCHIVE PROBLEMS

I have been using ArcDEV (which is the much better version of Archive) for several years, handling with it many sophisticated operations in the tourism business. But I have 2 Problems in using Archive.

1. I sometimes use the the close DBF basic program from the library to close those files, which mistakenly had not been closed properly. mostly I get a very odd result: although the file closes and re-opens properly, it would show only 0, 1 or 2 records in a dbf which originally had hundreds of records. The dbf shows the normal length.

2. I am using a Hayes modem, which has of course the autodial facility. I would like to use ArchDev (and of course ArchRTM) addresses program I had developed in order to send code like a telephone number directly to the modem on SER2, but the problem is that normally I "lprint" the different variables to the printer on SER1. I could modify the printer_dat program and set the printer port to SER2 and thus send ALL printing items to SER2 instead of SER1 to which my printer is (naturally) connected.

One way of solving this problem is to switch disks with different printer_dat files respectively every time using either SER port. Such an operation is too inconvenient and makes the whole operation not worthwhile. A further modification of ArchDEV and ArchRTM like the modification of quill (Quill driver program in the library) which enables the use of printer_1 [2,3,...]_dat is one possible solution. Another way of solving the problem is to enable the program access to other devices besides just the printer like SER, pipes etc. Any suggestions?

PRISM MONITOR

I own a Prism colour monitor. Some months ago its high tension transformer burnt out and nobody here in Israel can repair it without knowing the details of this part, since there are no details written on it. "Prism" seems to have been out of business since 4 years. Is there anybody who has the circuit diagrams of this monitor or any information about it?

Eli Kronstein
P.O.Box 554 Jerusalem 91 004, Israel
Fax: 00 972 2 724703, Tel. 711330
15.9.90

The Prism monitor is in fact a badged Taga/Kaxan one and the response from the manufacturer is 'bin it and buy new'. Tidiman Mail Order do advertise that they will rewind obsolete transformers but I suspect it is expensive for a one off. I haven't got a Taga/Kaxan glass eye but if there were a few of these problems then and order for several off may be reasonable. I have the circuit diagram of the chassis for 10p a copy and can perhaps help if there is a reasonable demand. HDB

PRINTING FROM EDITOR

This is in reply to Mr Davies's letter on page 21 of the September Quanta, relating to a lack of Carriage Returns, when attempting to print directly from "THE EDITOR", "CASH TRADER" or "Sage INTEGRATED ACCOUNTS". The following unfortunately only works with "EDITOR" and I repeat Mr Davies's plea for any suggestions.

All you need to do is set the appropriate DIP switch on your printer to 'Auto LF' and then when using the DP Editor 'WP' command append a 'c' at the end e.g. 'WP.serc' (or ser2c). This will pass 'CRs' to the printer instead of Editor's 'LFs' and the printer will supply the now missing 'LFs'. Failure to set switch correctly will result in everything being printed on one line.

Of course altering the DIP switch means that your printer driver should be modified to 'CR' only, instead of 'CR' and 'LF', for the end of line code, in order to let you use 'edtprt' without double line spacing.

N.B. The 'c' protocol will only work with the first edition of Minerva, and if used with the enhanced version, results in a lockup after part of the document has been printed. In that case I suggest using the repeat exchange at end of line command: 'RP e>>M>' (I have used an 'M' to represent 'Control/M'). This will embed 'CRs' in the guise of 'Control/M' in your document to give the same end results as above, whilst also allowing the use of a carriage return without a line feed or vice versa if required.

E G Dawson, 'Avoca' Avoca Avenue, Torquay, Devon TQ1 4EE.

LIBRARY CORNER

Just a few notes for this month.
CARTRIDGES: Please note that Stephen Hewitt is the ONLY sub-librarian available to copy library programs onto MDV's. For some reason James Methley has had requests for cartridge copying, and as I said in last month's Corner, James can now copy to 3.5" & 5.25" disks as well as taking on the job of Quality Controller. So, there we are!! Stephen Hewitt only for Cartridges please!

Following on from Novembers "NEW PROGRAMS", there now follows a few slight amendments (thanks to Leighton for burning the midnight oil).

```
Netman..................................................Comms_xfer_2
VT52_bas...............................................Comms_xfer_2
Ptools...................................................Util_tkmc_2
Colours...................................................Graphics_2
Converter_bas..........................................Comms_xfer_2
Matchbox..................................................Games_gen_3
Trek......................................................Games_gen_3
Tetris....................................................Games_gen_3
Bulletin Board.........................................Comms_xfer_2
```

plus 2 programs inadvertently missed

```
Error Messages............................................Util_gen_3
Edlin_bas.................................................Util_gen_3
```

All these new programs have been sent to your sub-librarians as of 14 November 1990, BUT please allow a few days for these hardworking chaps to sort their programs into the new order.

Qlcad which was shown as a new program has had to be withdrawn due to a copyright infringement. Anyway, all things being equal, I hope that you enjoy the new programs and perhaps Sarah could have a few comments about some of the programs in the library. I know that submissions would be most appreciated.

Finally, public thanks to Hugh de Saram for his help so far with the Libguide and to his continuing work to improving the guide.
Merry Xmas to you all.

Roy Brereton, 94 Teignmouth Rd, Clevedon, Avon, BS21 6DR

SMALL ADS

FOR SALE
Penman plotter complete with manual, pens etc. Virtually unused. Works fine with Caddette and Techniql/kit. Cost £230, Offers close to £150.
(Dr) Mike Jackman. Pyle Dairy, Chale,IoW. Tel: (0983) 79462

Panasonic Mono Green Monitor Model TR-120T1L £25.00.
Peter Hamill, Lynncot, Back Lane, Elton, Peterborough PE8 6RW.
Tel: Oundle (0832) 280342.

QPAC2 £30.
George Blezien, 5 St.Marys Rd, Boxgrove, Chichester, W Sussex.
Tel: (0243) 771680

Text87 V3 +tutorial +24pin drivers. 3.5" disks £25. MDVs: QL Switch £5, Speedscreen £7, Lightning £7. QFlash ramdisk+TKT on ROM £7. JS ROM set £10. Juki 5200 colour printer £180 + spare ribbons. Printer/terminal from DEC computer, (+ dismantled DEC if required with old cartridge disks), £80. OKI heavy duty printer £80. Number of correctable film typewriter ribbons - Offrex 666009 £5 for 6; and 661015 £7 for 10.
D.Shillam, 93, The Grove, W5 5LL.

I have what I believe is a CST 4-way expansion card and a Quest buffer Paddle Card which a tinkerer may find uses for. Only £10 incl p&p or exchange for copies of TurboQuill Plus for Quill 2.35 and 4-matter + Locksmith.
Ron Allpress, Tel: 0449 767130

Complete enhanced QL system £600 complete or will split as below. QL + ABC IBM keyboard interface and keyboard, £120. Microvitec CUB colour monitor, £100. Full Miracle TrumpCard with twin NEC 3.5" drives, £200. Spare non working QL with new keyboard and spare AH, JS and JM ROMS, £40. Books all at 40% pp. SuperBasic - Jan Jones, Advanced User Guide - Dickens, QDOS Companion - Pennell, QL Assembly Language - Pennell, Handbook - Hartnell, Technical Manual - Sinclair, QL Companion - Allan, Ql Desktop Computing. Digital Precision's Software all at 40% pp. Media Manager Special Edition, Super Media Manager, Turbo V2, Solution+MS-DOS, Lightning, Better Basic, Editor Special Edition and Microbridge. GST Macro Assembler and Qualsoft's Terminal. Magazines all filed, QL User and QL World, from commencement and Quanta from '86, 25p each. For buyer of complete package hundreds of other programs also on many boxed microdrives and disks. All with carriage extra or preferably will motorway meet over reasonable distance from Newport.
Frank Wiseman, Hillcrest, Llanvaches, Newport, Gwent, NP6 3BA
Tel: (0633) 400836

JM QL & Abacus, Archive, Easel, Quill £65. JS QL & Abacus, Archive, Easel, Quill £65, ICE from Eidersoft (ROM) £10, Modem £15, Minerva & software £20, Centronics printer interface (Miracle) £15, QL-Chess (Psion) £8. Cartridge Doctor (Talent) £13. Modem software Terminal (Qualsoft) £20, Cosmos (Talent) £10, Scrabble (Leisure Genius) £8, Meteor Storm £2, Reversi £5, Flight Simulator (Microdeal) £10, Lands of Havoc (Microdeal) £5, Locksmith (Zitasoft) £8, Inkwell & 20 Font Pack £8, Sign Designer £5, BJ in 3D Land (Eidersoft) £6, Citadel (Eidersoft) £6, Zapper (Eidersoft) £6, Vroom £6, Quboids £3. 100 Microdrive cartridges £1:00 each + postage. QL Quill book Blueprint £5, QL Archive book Blueprint £5. SuperBasic (Donald Alcock) £5, 50 Sinclair QL Worlds from 85 Oct to 90 Sept any offer. 35 Quanta mags from Feb 87 to Sept 90 any offer. + Postage on all items over 22p. P.S. I will take near offers.
Michael Jeal, 25 Abyssinia RD,Gt. Yarmouth, Norfolk.NR30 3RD
Tel: (0493) 859165

FOR SALE
Prism QL14 Colour Monitor.
Phil Curtis, 2 The Meadows, Beer, Seaton, Devon, EX12 3ER

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plug into QL disk interface. £95. Also I.C.E. ROM £10.
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QL issue 14 JM Rom, Quest 64k expansion, Toolkit (Rom), Miracle Printer Interface,
Psion Four, Desision Maker and all Manuals £85.
Ken Tilley, 1 Holly Marie Court, Highland Rd, Coventry, CV5 6GQ.
Tel: (0203) 670891

Hardware: Rebel Hard Disk I/F + Cables £120, 10 MB 5.25" Hard Drive £35, 20 MB 3.25"
Hard Drive £50, Z88 computer/case/mains Ram cartridge £140 Software:
Taskmaster (3.5") £12, Page Designer 2 (3.5") £15. All above complete with original
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Tel: 061-682 7136

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Two Microvitec 653 Cub Colour Monitors, Advanced Programming with Sinclair QL -
Gandoff, Psion Organiser 2 CM, Five Datapacks and Finance Package.
John Shakespeare, 1 Hatlex Hill, Hest Bank, Lancaster, LA2 6ET
Tel: (0524) 822060

WANTED / FOR SALE / SWAP
Wanted: 3D-Slime, TankBusters, Ice ROM + Mouse, Cue Print. Payment by UK cheque.
For Sale: QFlash, Match Point, Spook £5 each, or swap for any of above.
Tony Gay, United Church, P. O. Box 90, RABAUL, Papua New Guinea.
Tel. (from UK) (010-675)-922610

WANTED
Back numbers of any QL magazines, or relevant books.
Mick Halpin, 158 Penhill Road, Bexley, Kent, DA5 3EA
Tel: (081) 302 7470

ROM for Cumana Interface or disk interface with or without 3.5" drives.
Dr E.H.Squance, 11 Ballymenoch Road, Holywood, Co.Down, BT18 0HH
Tel: (02317) 2762

24 pin printer or good 9 pin may be considered.
J.McCourt, 74 Earlswood Road, Belfast, BT4 3DZ

Disk interface and 512K RAM combined. Like the Sandy QRAM or one which does not
give too much problem, not MCS as it cannot read sectors properly.
Orjan Larson, Varmlandsvagen 8 B, 6 tr, S-691 32 Karlskoga, Sweden.

At reasonable prices: Nucleon, QRAM on Eprom, Text 87. Please understand the time
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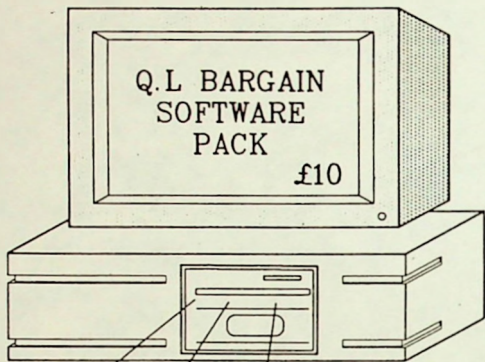
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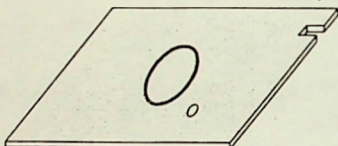
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IF YOU OWN A 9-PIN STAR PRINTER SUCH AS THE LC-10 OR THE OLDER NL-10, CONGRATULATIONS! YOU HAVE PROBABLY THE MOST FULL-FEATURED PRINTER ON THE MARKET. IF NOT THEN AT CURRENT PRICES YOU WILL NEVER HAVE A BETTER OPPORTUNITY TO BUY.

HAVING READ THE MANUAL YOU WILL KNOW THAT ALONG WITH ALL THOSE WONDERFUL FACILITIES IS AN ENORMOUS PRINTER BUFFER WHICH WITH THE APPROPRIATE DIP SWITCH SETTINGS WILL ALLOW YOU 76 OF YOUR OWN LETTER SHAPES IN THE RAM BUFFER. THESE NLQ FOUNTS, STORED AS BINARY BYTES, ARE IN AN UNUSUALLY LARGE DESIGN MATRIX OF 23x18 DOTS. NOT CONTENT WITH THE IN-BUILT FACILITIES WE HAVE DESIGNED A SERIES OF NEW ONES WITH THE AID OF OUR GRAPHIC DESIGNER. THESE HAVE BEEN PERFECTED OVER THE YEARS AND HAVE BEEN IN GENERAL USE BY PROFESSIONALS (DOCTORS, ACCOUNTANTS ETC..) AS WELL AS IN BUSINESS CORRESPONDENCE. OF THE MANY COMMENTS EXCITED BY CVs PRODUCED WITH OUR FOUNTS - REMEMBER, THIS IS ON A 9-PIN PRINTER, NOT LASER OR 24-PIN - ALL HAVE BEEN FAVOURABLE, SOME TINGED WITH ENVY AND MANY ENQUIRING JUST HOW IT WAS DONE?

NOW YOU TOO CAN ENJOY THE ADVANTAGES OF WELL BALANCED, FULLY PROPORTIONAL FOUNTS ACHINGLY PRODUCED OVER HUNDREDS OF HOURS AND HAVE PRINTER OUTPUT THAT WILL AMAZE YOUR FRIENDS AND COLLEAGUES. ONCE YOU HAVE SET THE DIP SWITCHES AS PER THE MANUAL, A SIMPLE COPY "" TO SER1 COMMAND, WILL MAKE ALL FURTHER OUTPUT IN THE NEW STYLE. THIS IS NO PLUG-IN CARTRIDGE THAT WILL COST YOU UP TO £50 NOR DOES IT REQUIRE ANY OTHER PROGRAM TO GENERATE THE NEW LETTERING IN SOME ARTHRITIC FASHION - IT'S ALREADY ALL THERE IN THE PRINTER. THEREFORE, ALL STANDARD FACILITIES SUCH AS UNDERLINING OR EMPHASIZING OR EVEN USING DOUBLE HEIGHT/ DOUBLE WIDTH IS ALL INSTANTLY AVAILABLE JUST LIKE WITH THE RESIDENT FOUNTS. NOT ONLY ARE OUR LC-10 FOUNTS FULLY PROPORTIONAL BUT THERE ARE ALSO ITALIC VARIANTS FOR MANY OF THEM AND TO AID IN JUSTIFICATION EACH FOUNT IS ALSO AVAILABLE IN STANDARD 10 CPI FORM. AS THE NL-10 HAS A LARGER BUFFER BUT NO PROPORTIONAL ABILITY EACH FOUNT CONSISTS OF 96 CHARACTERS.

THE COST? ON SOME MACHINES (THE BBC) WE HAVE SEEN SUCH FOUNTS OFFERED FOR £25 EACH! UNBELIEVABLY, EACH OF OUR FOUNTS WILL COST YOU ONLY £2.50 OR LESS WHEN BOUGHT IN OUR FONTPACKS. SO HURRY, ORDER NOW TO GET THE MOST OUT OF YOUR PRINTER (IT ALSO MAKES A WONDERFUL GIFT).....

ACTUAL 9-PIN STAR PRINTER OUTPUT (10 CPI):

This is News fount — in italics
This is Fine fount — in italics
This is Bamboo fount — in italics
This is Outline fount — in italics
This is Cursive fount

FOUNTS:	STANDARD(PROP)	ITALIC(PROP)	10CPI	ITALIC(10CPI)
NEWS	0	1	2	3
FINE	4	5	6	7
BAMBOO	8	9	10	11
OUTLINE	12	13	14	15
CURSIVE	-	-	16	-

PROPORTIONAL IS NOT AVAILABLE ON THE NL-10; ALL SUCH FOUNTS WILL BE 10CPI.
PLEASE QUOTE THESE FOUNT NUMBERS WHEN ORDERING ON THE FORM.

Ordering information:

PLEASE ADD £2.50 FOR PAP (£5 FOR OVERSEAS). FOUNTS AVAILABLE ON 3.5 OR 5.25 INCH DISCS (PLEASE SPECIFY). MICRODRIVE ORDERS ONLY PROCESSED CURRENTLY IF SUPPLIED BY YOU. LC-10 FOUNTS ARE PROPORTIONAL OR 10CPI, 75 LETTERS; NL-10 ARE 10CPI ONLY, 96 LETTERS (SPECIFY WHICH). IF YOUR 9-PIN PRINTER SUPPORTS USER SPECIFIED NLQ FOUNTS (>=75) THEN SEND DETAILS OF THE APPROPRIATE SECTION OF THE MANUAL AND WE WILL TRY TO CONVERT OUR FOUNTS FOR YOU. WE ARE CONSTANTLY EXPANDING OUR RANGE WITH IMMINENT RELEASE OF STYLES SUCH AS COSMOS, COMPACT AND SCRIPT - BUT ONLY WHEN WE ARE ARTISTICALLY SATISFIED WITH THE BALANCE OF EACH LETTER. AS THIS IS A PRINTER RELATED PRODUCT IT IS COMPATIBLE WITH QL HARDWARE ARRANGEMENTS AS LONG AS THE NORMAL ROUTE OF ADDRESSING YOUR PRINTER IS MAINTAINED. PAYMENT IS BY (EURO)CHEQUE/CASH OR POSTAL ORDER (IN STERLING) TO AMINASOFT, 59 MAIN ST, NEILSTON, GLASGOW, UK (ENSURE ALL CHARGES ARE PAID AT YOUR END). PLEASE ALLOW 28 DAYS FOR DELIVERY.

PLEASE SUPPLY ME WITH:	FOUNTS:	£2.50 EACH	FOUNTPACKS	
3.5 INCH DISC ____	NUMBERS ____		A: ____ ALL (PROPORTIONAL)	£20
			B: ____ ALL (10 CPI)	£20
5.25 INCH DISC ____			C: ____ STANDARD (PROPORTIONAL)	£10
			D: ____ STANDARD (10 CPI)	£10
MDV (YOURS) ____			E: ____ ITALIC (PROPORTIONAL)	£10
			F: ____ ITALIC (10 CPI)	£10
NL-10/LC-10/OTHER (DELETE)			G: ____ ALL (NL-10)	£20
MY NAME & ADDRESS IS:			TOTAL COST: (ADD PAP)	