QUANTA

VOLUME 7 ISSUE 9 OCTOBER 1990

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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
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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' with return postage to the Quality Controller, David Johnson, The Corner House, Loxley, Warwick. Tel (0789) 842543

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.

NEW / AMENDED SUB-GROUP INFORMATION

Title	Location	Date	Contact
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

October 6th	Eurovolleycenter, Vilvoorde Brussels, Belgium	The Big Sinclair Show
October 20th-21st	Worthing	Quanta Workshop
October 27th-28th	Centro Congressi Di Maderno, Italy	QL Users Meeting
November 4th	Horticultural Hall, London	All Formats Show
November 24th-25th	Nottingham	Quanta Workshop
December 15th	Horticultural Hall, London	All Formats Show

EDITORIAL

Are you aware, that as a Quanta member, you are entitled to discounts from some of our suppliers? At one of the earlier All Formats Shows, I had the chance to check with some of them. Remember, they will require proof of current membership from you, in the form of a COMPLETE magazine envelope, so don't go throwing them out, if you are considering purchasing from one of the following:

Digital Precision	10% off normal prices.
Sector Software	5% off their own programs.
QView	£5 off a Minerva
EEC Ltd.,	£5 off any £100+ order. Any individual large purchase, contact Bill Richardson.
TF Services	5% off components and power filters.

Your COMPLETE magazine envelopes are also required by the sub-librarians as proof of membership, with each order.

I have also been informed by Progs - Van der Auwera of Haachtstraat 92, 3020 Veltem, Belgium, that you can now get a demo version of their database program called DATAdesign. At the cost of £3 (Cash, Eurocheque or Visa), you will get a completely working version with the exception of the Save commands.

Sarah Johnson

TASKMASTER ON AN ATARI

For the record let me say that this is being written in TurboQuill on a 2 Meg Atari fitted with Jochen Merz's EPROM under TaskMaster. In the background are the Special Edition versions of Lightning, FlashBack and the new SpellBound. This combination makes Quill a delight to use.

Firstly let me offer the solution to the problem with TaskMaster under the Atari Emulator. The problem was that although TaskMaster worked on the basic emulator it refused to work under the Tebby drivers. At the Workshop before the last AGM Peter Jefferies and Tony Tebby poured over a hot Atari and found what was wrong. The problem was associated with the microdrives or rather the lack of them on the Atari. The fix is simple. One line of the standard boot needs to be altered. In my version of the boot created by TaskMaster there is a line 325 as follows:

```
325 LBYTES dev$ & "_Extens_cde",base : CALL base+516 : CALL
    base+516+704
```

The fix, just DELETE or REMark out the second call, so the line becomes:

```
325 LBYTES dev$ & "_Extens_cde",base : CALL base+516
```

it is as simple as that.

As the number of Atari machines that think they are QL's increases how about an Atari Corner. I will kick off this idea with details on how to solve a problem that I met as soon as I had the machine. Phil Borman advised me that one had to use the Hot_go command to switch on the ALTkeys. Fine and simple but I then found that several of my other programs refused to work. The reason for this was explained as follows. Hot_go starts a 'Job' and therefore any RESPR in a subsequent program needs to be changed to ALCHP. That is unless you are using FlashBack which redefines RESPR for you automatically.

As Phil Borman and Tony Firshman know I was having a problem getting my Atari to speak to my Brother HR15 printer. A session of head scratching and a soldering at the Thetford workshop got them talking. It is with regret that I have to report that they (the machines) are not however talking the same language!! I will write this problem up when it has been solved and send it in for the next edition (I hope!).

Alfred Kendall, 22 Langley Hill, Kings Langley, Herts, WD4 9HD
12.8.90

THE EXCELLENCE OF WORKSHOPS

I finally managed to attend a QUANTA workshop in March, the superb Portishead meeting, much praised on the day and since for the quality of organisation. I was quite amazed by the scale of the event, almost as big as, if less well attended than, an early ZX Microfair that I went to. I met many enthusiasts, enjoyed myself, and bought both QREF and QLOAD from Liberation software (who were kind enough to give me the lift that got me there in the first place). I gave away some software that I had written, submitted Heartbeat to the library, and heard much news of more hardware and software on the way.

Tony Tebby was there, doing his usual (so I am told) rounds with a soldering iron, mending QL's and refusing to charge for his labour. The many superb talks were well attended, and used huge 27-inch monitors facing the audience to make it possible for everybody to see what the speakers demonstrating software were on about. I am never shy about approaching strangers, but I feel that even if you are, you could not hope for a more welcoming attitude from those more knowledgeable members present. There is more to tell, but to cut it short, I had an experience that will lead to my enthusiastic attendance at every workshop I can manage to reach.

Naturally, if you have never been to a QUANTA workshop, but you can go, I recommend that you do so. If you are a little shy, seek the ever helpful committee members, who have, I noted, the habit of wearing badges to let you know their names; if they cannot solve a problem you may have themselves, then they will most certainly be able to help you find somebody who can. If I am present, I will give anybody who asks me whatever help I can, or point you at somebody else if they seem better equipped than I.

Finally, to all the QUANTA committee; keep up the good work, and many thanks for your efforts so far; you have made QUANTA surely one of the best run user groups in Britain.

Mark Knight, 304 Portobello Road, Notting Hill, London, W10 5TA.
9.7.90

ALTKEYS AND QUILL

The very useful ALTKEY command in Toolkit2 provides an easy answer to Graeme Young's request for a date key in Quill. This procedure programs the date onto ALT/d:

```
100 DEFine PROCedure datekey
110 dt$ = DATE$: RESTORE 130
120 FOR f=1 TO 12: READ month$: IF dt$(6 TO 8) = month$(1 TO 3):EXIT f
130 DATA"January","February","March","April","May","June","July",
       "August","Sept","October","November","December"
140 dy$ = dt$(10 TO 11): f = dy$(2): IF dy$(1) = "0" THEN dy$ = dy$(2)
150 SELect ON f
160      =1: add$ = "st"
170      =2: add$ = "nd"
180      =3: add$ = "rd"
190      =REMAINDER : add$ = "th"
200 END SELect
210 IF dy$(1) = "1" AND LEN(dy$) = 2 THEN add$ = "th"
220 yr$ = dt$(1 TO 5): dt$ = dy$ & add$ & " " & month$ & " " & yr$
230 ALTKEY "d",dt$
240 END DEFine
```

This gives the date in the form "7th August 1990", but of course you can change it to give any format you want.

Another neat use of ALTKEY which some members may not have come across is in changing printer drivers from within Quill. You just load all the drivers into ramdisk when you boot Quill, then use ALTKEYS to change them using the Quill backup command. For example:

```
300 DEFine PROCedure Load_drivers
310   F3$ = CHR$(240)
320   COPY flp1_driver1_NLQ TO ram1_driver1_NLQ
330   COPY flp1_driver2_DRA TO ram1_driver2_DRA
340   COPY flp1_driver3_SPE TO ram1_driver3_SPE
350   COPY ram1_driver1_NLQ TO ram1_printer_dat
360 ALTKEY '1', F3$ & F3$ & "FBram1_driver1_NLQ","ram1_printer_dat",
    "y","",,
370 ALTKEY '2', F3$ & F3$ & "FBram1_driver2_DRA","ram1_printer_dat",
    "y","",,
380 ALTKEY '3', F3$ & F3$ & "FBram1_driver3_SPE","ram1_printer_dat",
    "y","",,
390 END DEFine
```

Now ALT/1 will install the NLQ driver, and so on - taking about half a second. Quill is configured to look for its printer_dat in ram1_ of course.

Tony Pearson,
52 Stocks Green, Castle Acre, King's Lynn, Norfolk PE32 2AE
Tel: (0760) 755402
{Thank you to everyone that sent in a solution for entering the date in Quill. They all appear to be based on using Toolkit 2, but David Stewart with the help of several of you appears to have come up with the most comprehensive. David is looking at putting his version into the library, but the above should keep you going. SJ}

QDII

This letter is about the QDII text editor from Jochen Merz Software, or rather the extensions provided with it - the Menu extensions file. The editor itself is very good, but is not as extensive as say DP's The Editor. It is not intended to be a word processor and has no word wrapping feature nor any audible warning of approaching the end of a line, which I would find useful since I watch the keys rather than the screen. I wrote to the author suggesting that these might be a useful addition to QDII however he is unwilling to incorporate either. He states:
"We are not planning to implement word wrap. There are many features we could add to make QDII a word processor, but this would not allow proportional spacing etc. We believe Text87 can do it much better."

I can appreciate his thinking regarding the word wrap but I would still like to have a beep, say one tab distance from the end of a line. Oh well !

MENU EXTENSIONS
These are a number of extensions which were written to make QDII easy to use and which can be used from SuperBasic as they are all available via keywords. There is no documentation for these which I know of and after some trial and error I have managed to figure out how to use them.

There are 3 procedures and 3 functions which require, of course, to have the Qjump window manager routines etc. loaded first. These are as follows:-
TH_MENU, Procedure
Prints out the Jochen Merz copyright message on to window#0. It accepts no parameters, not even a channel no. Not a lot of use to me.

REPORT_ERROR error_number, Procedure
When called this will pop up a window containing the relevant error message and wait for the user to 'do' the 'OK' symbol or press <ESC> when it will disappear. It can be used with any methods of error trapping which return an error number.

VIEW_FILE filename, Procedure
This displays the contents of the named file on to the screen in a window 80 characters wide by 20 deep with facilities to quit, wrap text, view again, advance a page full or advance a line. If an error is encountered it uses the Report_error procedure to inform the user.

FILE_SELECT$, Function
This uses the TK2 DATA_USE default to display the directory of a device on a pop-up window waits for the user to select the desired file using the pointer or enter the filename as text after a "HIT" in the input box. You can select the current or previous buffer, add an extension to the default device, or strip off the last branch of the directory tree by a "HIT" on the "<<" symbols.

Finally, if you "DO" the Dir box using <Enter> or right mouse button then the DIR_SELECT$ function is called to select a different directory. The directory has the usual Qram type scroll bars etc for scrolling through the filenames if there are too many to be displayed at one time.

The selected file is returned as a string variable which can then be used in the normal way. eg. f$=FILE_SELECT$:LOAD f$

DIR_SELECT$, Function
This displays on a pop-up window various directory devices and directory trees from which one may be chosen and returned as a string variable. The devices are mdv1_, mdv2_, flp1_, flp2_, ram1_, ram2_, win1_ and win2_. The directory trees, 8 in number, eg flp1_DATA_, are user configurable and can be changed using the Config utility supplied.

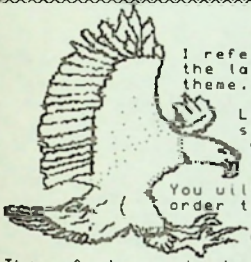
If this function is called from the FILE_SELECT$ function it puts the chosen value into the Dir box therein and shows the directory.
eg. d$=DIR_SELECT$:DATA_USE d$

READ_STRING$, Function
This displays a pop-up window which prompts for a string to be input by the user and returns it as a string variable.
eg. r$=READ_STRING$:PRINT r$

All of these procedures (except the first) and functions are useful to me and I will make use of them in any of programs which I write. Since Jochen has already done the donkey work and provided a useful and easy to use method of getting directories then I'll put them to use. I have no intention of re-inventing the wheel. All in all I am very pleased with my purchase of QDII. Along with the extensions I reckon that it was a very good buy.

Brian Coutts, 12 Glen Mark, East Kilbride, Glasgow G74 3UT
Tel: (03552) 41750
11.7.90

QUANTA - DESKTOP PUBLISHING - Chap. Six



ODDS AND ENDS (continued)

I referred briefly last month to the 'Files' menu and to the large number of items on it - now to enlarge upon that theme.

LOAD FONT - Page Designer 2 has 44 fonts (letter styles) and 28 fat fonts. On selecting this option you can load your selected font into memory and it is then available for use as required.

You will probably need to return to the 'TYPE TEXT' menu in order to determine your letter size but, from there on it is simply a matter of moving to 'TYPE TEXT TO PAGE' and typing away to your heart's content.

Three fonts can be loaded into memory along with a _hires font and a patterns file. These fonts can be cycled through on the toggling of F2 which will give you access to each of your 3 selected fonts plus the standard QL default font. Access to the _hires font will require return to the Main Menu and then selecting 'Hires Text' while the patterns file requires the 'Graphics' option'.

DELETE FILE - COPY FILE - FORMAT - are all standard QL activities.

LOAD PAGE - You will be asked for a medium and the prompt may offer you mdv1 or flp1. The probability is that both the slots in your microdrive/ disk drive are occupied having been engaged in the loading of 'Page Designer 2' and later in the selection of your fonts. Replace the disk/ cartridge in flp2/mdv2 with the disk holding the page to be loaded, change the prompt device name to flp2/mdv2 in the usual way (CTRL & cursor) to read mdv2/flp2 and then you will be able to enter your filename with its extension _page. Any other extension will not load as the assumption is that you are loading a page which has been SAVED earlier on Page Designer 2.

SAVE PAGE - The standard QL 'Save' procedure is used and you have the option of saving in a compressed form or not.

SWITCH PAGE - The program can accommodate two full pages and the option is given to switch to the alternative as required.

MERGE/SAVE SCREEN - Gives the opportunity to bring in a screen anywhere on to a page. A green 'cursor' symbol appears at the top left of the screen and indicates the top left corner of the imported screen. The cursor keys will move the symbol into your selected position and pressing 'SPACE' or 'ENTER' will bring in the screen.

PRINTOUT - Having completed your page, selection of this option will result in your being asked - 'How many passes are required (1-9)?. Next you are asked how many copies you want (1-9)? Then you are asked to confirm printer output as going to ser1 and 'ENTER' will start the ball rolling for however many copies you have selected.

WATCH THIS SPACE!

Bob Gingell

RETURN TO THE FOLD

I let my subscription lapse at the end of 1988 as I had ceased to enjoy reading most of the material in Quanta but I am now back on board and have found much of interest in the back issues received recently. I like the present format and hope it will continue as is. The variety is about right for my interests.

Beginners. One of the big problems of beginners in computing is that they don't know what it is that they don't know. How can they ask for specific help? There is a need for gentle guidance from knowledgeable and sympathetic members. This appears to be present in the last year or so.

Two Column Format. I did not care much for the two column presentation, however up-to-date and professional it may be. The fact that Quanta is a newsletter/magazine may require that the format should rather resemble a personal letter. A weekly magazine that I read regularly even uses 'ragged right' for articles sent in by readers and only the editorials are right justified. All in full page lines.

Keyboard Bounce. Over a year ago I fitted a Schon standard replacement keyboard to my UK built QL and experienced the key bounce, which has been reported several times. I tried to obtain an anti-bounce chip but was unable to find one until recently I saw an advert for these chips in QL World by Keyboard Products Ltd. I sent off for another keyboard and chip which was received within about a week. Good service. These have been fitted to a Samsung QL with JSU ROM. The chip really works 100%. The Samsung has a different connector on the PCB for the LED wires and is more difficult to convert than the UK model. I now find I do not need to replace the 8049 chip for my original Schon keyboard because over the year or more of use it has almost ceased putting double or triple letters on the screen all by itself. Why, I don't know. Maybe the bounce problem is simply one of newness. A little tarnish on the contacts may take out their feistiness.

HELP. Front Page. I have a problem with Gap Software's Front Page program and request help from any member who has the answer. My printer is a Canon A-60G. It uses the same codes as the Epson for setting 1/9 in. line spacing but then it requires further code 27-50 to enable the setting. There is no provision made for this extra code to be installed in the program. The problem is mentioned at the bottom of page 12 in the manual for version 1.05 but no solution is given except "call Gap". I understand from letters in Quanta that Gap is no longer contactable and so I would appreciate it if someone could tell me how to proceed. The default on the printer is 1/6 in. lines. The printout from a Front Page page of text has thin blank lines all through. My Brother HR-5 copes all right, but it does not require the 27-50 enabling code. Neither the Canon nor Brother printers has a code sequence for margin setting such as 27-108-n on the Epson. Is it necessary?

QL in USA. I bought my first QL in South Africa, which uses the same power and TV standards as the UK. I brought it with me when I came to live in Missouri and was a little anxious about the different current and TV standards. I bought a 120 volt power supply for the QL and a 120/240 stepup transformer for the Sanyo CRT-70 monitor and all is well. Of course the output will not work on American TV. I also bought a local QL, which I was surprised to find is built in Korea. It has a JSU rom, which shrinks the display size to fit on a 525 line TV screen. This means that most programs lose several lines at the bottom of the page. Only Psion version 2.1 programs are usable. Even when connected to a monitor in F1 mode some programs still do not work as the screen display is compressed in the horizontal dimension also. I have fitted an MGUS rom in place of my original JM and it works well though not on TV. I have also found that it will not run FrontPage. It will load but hangs up after the first keypress. I am still trying to find a stepup transformer with three cable input/output. My present one is an auto-transformer and I don't feel altogether safe with it.

QL Mystique. In spite of all the talk and letters about QL upgrading there appear to be many QL users who like the machine much as it is. This may be because it is a very useful tool as it comes out of the box. Not everyone needs hard disks and 33mhz speed. Those of us who cut our teeth on the ZX81 and Spectrum with a cassette recorder for storage saw the microdrive as the product which made our computing something more than a hobby. A Spectrum with a microdrive, Tasword2 and Omnicalc2 took care of all my needs for two years.

I still use only microdrives on the QL but may soon have to purchase a disk drive. This would mean I would not be able to type with the machine on my lap. I value highly the all-in-one-piece feature of the QL. It was the answer to my earlier desire for a Spectrum with Interface 1 and a microdrive built-in. My major QL upgrade desire (apart from more internal memory and a bug free ROM) would be a built in 3 1/2 in. drive but retaining the port at the side for a ZX microdrive. I use Abacus quite a bit and would like to see this program improved in several ways.

Bumper Sticker. Lastly, regarding the car bumper sticker for Quanta members, I would request something more suitable for those of us who are church goers, pious or prudish and not willing to display a double entendre on our cars. Something as simple as, QUANTA BELONGS TO ME or I MADE THE QUANTA LEAP.

T.D.Sutton
12096 Rosemist Dr., St. Louis, Missouri 63138, U.S.A.
20.7.90

{Welcome back. We are trying to produce a magazine with a good variety, but it does depend on what you as members send to us. We are in constant need of contributions, to keep the magazine alive. SJ}

IDEAS RUN OUT

Well I have finally plucked up the courage to actually contribute something to the magazine. Like a lot of people I bought my QL in '85 when the price was cut to £200. I am on my third QL now, the first two failing in the first two weeks. This one (I know I shouldn't say this) has been as good as gold, the only lock-ups are caused by my stupidity and not a quirk of the machine (or my table lamp being switched on or of, yes I do have a surge protection device but it can't cope with that). The power supply is the original with some cooling holes cut in to the case to give the transformer an easier time, and I have been rewarded with no problems. Who needs low drop out voltage regulator's and lower voltage power supplies.

Last year I purchased a 256K Trump Card (expanded it to 896K myself) and the twin NEC 3.5 drives, now I don't know how I managed before, the machine is sensible to use now. Also fitted is a pair of 5.25 drives with the Miracle quad drive adaptor fitted. This should make running Conqueror a little easier, that is when I have saved up to by the program.

Hung on the back of the machine is a pair of dot matrix printers, an Oki Microline 292 elite (18 pin) plus a cut sheet feeder, and a Mannesman Tally MT160 (9 pin). The Oki is running from SER1 and the MT160 from SER2.

The Oki was easy to get working with Quill but a heck of a problem to get a screen dump from (thank heavens for the Quanta library). The MT160 proved difficult to get to flow control, until I got the manual and found that it flow controlled on pin 11 of it's serial interface (so much for industry standard RS232). The MT160 is used for listing paper and the Oki for letters etc.

Whilst still on the subject of hardware I would like to take this opportunity to recommend Miracle Systems equipment, as I have had very good service from them, the equipment is good and they are willing to help with any problems on the phone. I have one complaint with Miracle Systems and that is I wish that they would buy a new ribbon for their printer. Every piece of correspondence that I have received from them is so faint that it's difficult to read. The poor Postman must suffer from eye strain, I do.

There are a few of things that some of the readers might be able to help me with :-
i) I fitted the battery backup for the QL clock, the only problem is that the clock runs very fast, any ideas?

ii) I have two programs that I have written, the first draws the outline of an aircraft wing from the root and tip dimensions required, then will calculate the individual rib lengths within the wing. The second program plots the required outline of the wing rib to scale and then screen dumps to the printer.

My problem is how do I get the second program to read the calculated lengths from the first program. In any other words how do I get one program to supply sets of data for another program?
{Assuming that you have written these programs in SuperBasic, try using the 'OPEN_NEW #n,flp1_data_file_name' command to create a file and use PRINT #n to write the date to this file from the first program. To read the information back into the second program, you then use the 'OPEN_IN #n,flp1_data_file_name' command, with INPUT#n to read the data in. SJ}

iii) Does any one know of or has or can supply a copy of Quill that has an export command. QL World says that some copies of 2.35 have export facility and 2.36 has. For the little amount of word processing that I do, it is pointless to purchase The Editor just so I can produce the odd command file to provide down line printer control.

Any help with the above problems would be gratefully received and put to good use .

M.J.Simms, 56 Mitchelmore Road, Yeovil, Somerset, BA21 4BA
Tel:0935 79954
06.06.90

YOU ASKED FOR IT

My writing intentions are not terribly serious, but maybe I can fill a couple of pages and raise a chuckle or three?

I discovered my fascination for things mechanical when I was four. A neighbour in Taunton gave me a defunct alarm clock to play with. Within minutes, unsupervised and on the best polished table, I had reached the stage of the somewhat surprising sudden explosive exit of the two springs, scattering bits, pieces, cogs and whatall room-wide. Within twenty minutes or so, surprise, surprise, that clock had been properly re-assembled, though without those enormous springs.

A few years later I was initiated into the secrets of home made crystal sets by a new pal in a new dormy at school: (complete with chamber music - we had china pots under the beds in those days). I was soon making my own crystal sets, and later, under the same tuition, left handed valve radios. My pal, Paffett also interested me in photography, which was later to be my living.

After fairly safely surviving the war, I liberated from my Navigator the clockwork mechanism of an astro sextant which I converted into a photographic timer. Mechanical, I soon found it to be somewhat tedious, clumsy and noisy. Remembering some Higher School Physics, it occurred to me to make an electric timer. The result was of course an electronic timer, a word and device that had possibly not then been invented? (ie it was in no way mechanical apart from a relay).

Yes, I was using an electronic timer for dark-room work early in 1947. My own! And not a penny did I make out of it, but had I not invented it, I may well have given up photography in disgust - I hate timing (or doing?) anything manually!

I was soon making all sorts of electronic things, including technical cameras, to be followed by colour processing lines using my own design of electronic temperature control.

My first contact with Sinclair came when I bought a greatly over publicised little digital "clock" which came along twenty (?) years ago, but which would not work - for me anyway: useless in fact: I sent them back repeatedly for various faults to be corrected. To save postage, I always returned the things minus their batteries: the replacements (always faulty) always had batteries: I collected "dozens" before giving up in disgust!

In view of all that, I could hardly wait for computers, but like most others, and not really having the faintest idea of what to expect, I waited ages, far too long. My eventual initiation was via a ZX81 (?) with which I fiddled, intrigued, but fairly uselessly with BASIC well into most nights for a year or two. I suppose I learned quite a lot, but with the wretched insensitive "keyboard" playing havoc with the bones of my two middle fingers it was easy enough to chuck it and achingly go boss-eyed to bed, brain scrambled.

Although I made a noughts and crosses program that could sometimes beat me, as well as a self defeating snakes and ladders, the thing was of little practical use as there was no printer: I am not a person for computer games: I really wanted a computer primarily for business purposes. My "monitor" was an ancient black and white temperamental television set that had long been rejected by even my most uncomplaining grandchild. Further, SAVing programs on an ordinary audio cassette machine was tedious and unbelievably unreliable. All that collection of equipment required well aimed thumps from time to time.

Suddenly, eye catching, out of register, coloured double page tempting advertisements for the great Sir Clive's wonderful new Sinclair Quantum Leap QL started to appear in the various Sunday supplements. Far from leaping, I waited a while (but not long enough) so that the "bugs" inevitable in a new product might be properly squelched out.

In November 1985 I launched out and bought at W.H. Smith of Sloane Square "the works" as supplied by them at the time, the quantum layout being well over £1000. (I should have waited fractionally longer). The recommended set up turned out to be a QL version AH, a CUB monitor and a Juki daisywheel printer. (An NEC twin disk drive with Cumana interface came years later). The promise of simple instructions for the initial use of the thing never materialised from W.H. Smith, although I pestered the life out of them, day and night, by telephone, letter and visits, but that is another story.

It took me, frustrated, about a month to obtain even a slight clatter from Juki, the instructions for operating a printer not appearing in the very bulky QL manual (my issue supplied with about fifty pages of curious looking errata!) until almost the last obscure page, where it is written in QUser QUnfriendly QDouble QDutch. I was totally baffled. LIVID!!! Quantum Tantrum!!! After that it took another month (or so) to manage the printing of the vital character "£" and that was only with the help of my new pen pal John Gartshore of the Kingdom of Fife in Scotland who had spotted my letter of utter distress in QUANTA, which, fortunately, I had joined pretty pronto. On numerous occasions Gartshore has saved my sanity.

Putting ZX81 BASIC experience to good use, I managed to devise JUST in time a SuperBASIC program to print all my christmas card envelopes, direct, not using sticky labels, a time consuming job I had always loathed: now so simple! Luckily there are no "£" signs in those addresses! Even now I use that program, not much modified, rather than shove it all in Archive - it makes me feel fractionally superior!

What a daft arrangement about that "£"! It is easily the most important single key on the board yet by far the hardest to print. Surely if either "£" or "$" really had to be translated from the unobtainable, it would have made much more sense for it to have been the "$".

Immediately I ran into difficulties with Quill, but it seems that it had been forced into production well before it was ready. No doubt everybody found the same infuriating problems. What foxed me most was the fact that without warning the whole of an evening's work would suddenly appear in bold, apparently with no cure! At the time, of course, I assumed that it must be my own stupid fault. The time I wasted!

"2.3", the somewhat better version of Quill eventually appeared, which is still in use, here anyway. How I wish someone would do a job on Quill and make it really good. (Such things being well beyond my capabilities - I might have managed if I had been 19 again). Having got used to Quill, I would not now wish to change to something different, but certain aspects of it are somewhat clueless to say the least. For a start, whoever set the default values for writing Quill documents never writes documents, let alone letters!

Care was taken to make it easy enough to PRINT just a page or two from the middle of a very long Quill document. Would it not have been just as "easy" to enable SAVE, say to another disk, those same one or two pages on their own? If the ERASE feature were a good one, a single page SAVE facility would not be necessary. In Quill there is neither. On the same topic, the SuperBASIC deleting system, "DLINE" works a treat: why not a similarly brilliant "dpage" in Quill??

Toggling upwards through a Quill doc is very liable to cause a lock tight.

Have you noticed that if you type a long word into Quill, then tabulate in front of it, a bogus hyphen ("-") is generated just anywhere if the word wraps round the line end thus: "canta-nkerous".

I should mention that now I have two QLs, both altered to version JS and both with internal 640k memory. I had them both powered up continuously all last Summer (1989) in NET, one with Quill and the other with Invoice aboard, but I gave that up as both QLs started to play me up with lock tights. Thanks to a John Gartshore NET program I was able to use the two QLs employing just one disk machine, one Cub and one Juki.

On the topic of SAVE. Have you ever in error tried to SAVE a new document, "Fred7", to your old pal Fred, to be told "Fred7 already exists, overwrite?" In a panic you press (or, IF you prefer, HIT) ESC. You then alter your entry to "SAVE Fred8". Needless to say, but senselessly, "Fred7" WILL be wantonly overwritten regardless. I wonder why??? Or hadn't you noticed. The only way to prevent this is to put the cartridge/disk in the other drive and positively start to SAVE again.

I have written a couple or three books, more or less as family archives, each of around 200 pages, via Quill. Some funny things happen to page numbers! Take a block of pages, say 77 to 113, comprising one long document. I wish to print on Juki just a couple of paragraphs from page 92, so I place suitable page breaks. The screen will indicate new page numbers, maybe presenting my paragraphs as the new page 93, so I command "PRINT 93 to 93". It is in the lap of the Gods what is printed out, as it is always the wrong page!

So much for Quill - though I have found other, now forgotten, curious bugs in it. I have found little use for Archive and none at all for the other two.

Those "books":
"Mostly Taunton" is about my life before leaving school. "Back to the Hat!" follows the Taunton bit when (mostly) I was a flying instructor in the Royal Air Force. "The Hat" is Medicine Hat, Alberta, Canada. "Flash Harry" continues into my life as a professional photographer. I used MASSES of conventional expendable flash bulbs in such places as hotels, on ships, in railway tunnels and the like, so in certain circles was known, not surprisingly, as Flash Harry!

If anyone is a glutton for reading any of the above mentioned rubbish, just send me a 3.5" disk per "book". If you then decide you could publish any of it for me - great!!!

Using SuperBASIC I soon made a program to do my quarterly VAT return, complete even to the extent of directly determining and printing what value my cheque to H.M. Customs has to be. Calculating VAT was a job that I had hated, ruining dozens of weekends previously.

That was very soon followed by an automatic Invoice program which produces fairly instant invoices for any of my clients, easy to fill in, complete, check on the screen and then beautifully printed. Both my programs seem to be entirely bug-free!

QUANTA? I must confess that even after all these years I still understand very little of it. I see mention of things such as "atMOS", "cosMOS", "kuDOS", "aMOS", "QMOS", "asapDOS", "nbgDOS" and whatall, and am rarely a Q the wiser! What is done with all those very lengthy matters discussed? Much of it, for me, might just as well be written in Qeskimo: regularly I cannot even figure out what relation there may be to any known subject, except, perhaps, maybe, as a purely technical, possibly fascinating, exercise! But, let's face it, I'm fick!

Have you noticed that if in a SuperBASIC program you change the name of a DEF PROC it will not function properly again until you have SAVEd the whole thing and reLOADed it?

Something I find very annoying, and for the life of me I cannot see what electrical reason there has to be for it, is that the Juki has to be switched off if any of its settings are to be altered (such as changing the spacing from 10 to 12 or 15) otherwise those changes do not take effect. This switching off/on is more than doubly annoying because it "has not been unknown" for the QL to be caused to crash, notwithstanding all sorts of surge suppression devices in every possible circuit!

Lock tights are currently a problem. Just after last Christmas both QLs failed completely and were fixed for me by John. They are currently in a state of similar flux for reasons unknown. QL3 (my brother has QL2) will sometimes only work for short periods: its lock tights consist of white-outs, black-outs or green-outs of the screen. QL1 (my original - this one) has a different form of fortunately intermittent lock tight - a locked cursor. All these faults are usually cured by a reset, but sometimes only by switching off. Often the silly things will run faultlessly for weeks on end: at other times (QL3) for only a few seconds. Last Summer was hot: no problem when there should have been overheating. Right now it is not hot, but I have a 60 watt household lamp in series with the QL mains circuit to reduce the power. It makes no difference in any respect. (It will not work properly via a 40 watt lamp). There is a superior sort of amusement arcade surge suppressor in the QL mains supply and a varistor on the mains line of every other electrical device in the house! It beats me why these lock tights have become such a periodic pain! (Aspirins do not work in this context).

Simple thumps are ineffective: QTHUMPs are now needed! Quite frankly, with so many dry joints - ie not soldered connections - dozens (a hundred?) in and around a QL, it is a mystery to me that the thing works at all! When it finally doesn't, to what computer does one move over?

Later: we have just experienced the hottest English weather this century. With the 60 watt lamp in series, no lock tights. Would I have suffered some with a direct power supply?

Harold Bennett has spoken!
18 The Ridgeway, Sanderstead, South Croydon, Surrey, CR2 0LF
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4.7.90

ANAGRAMS

Crossword puzzlers may be interested in the program below, which is a recursive method of generating all the anagrams of a string. It works by separating the initial character of a string, producing the "sub-anagrams" of the remaining string and then inserting the first character in all the positions before, between and after the characters. of each sub-anagram. If the string is only a single character, it returns that character.

So: 'abc', in the 1st. call gives 'a' and 'bc',
'bc', " " 2nd. " " 'b' " 'c',
'c', " " 3rd. " returns 'c',
'b' and 'c', back in 2nd. call, return 'bc' & 'cb',
'a' and 'bccb', back in 1st. call, return 'abc' & 'bac' & 'bca' & 'acb' & 'cab' & 'cba'.

It is rather slow with long words but is rather more elegant than multiple nested FOR loops. The method is not original.

```
100 CLS
110 INPUT a$
120 perm$ a$, b$
130 lena%=LEN(a$): lenb%=LEN(b$): s%=1: e%=la%
140 REPeat loop%
150   PRINT b$(s% TO e%);' ';
160   s%=s%+lena%: e%=e%+lena%
170   IF e%>lenb% THEN EXIT loop%
180 END REPeat loop%
190 PRINT: STOP
200 :
210 DEFine FuNction insert$(ch$,st$)
220 REMark Inserts char. ch$ into all posns. in and round string st$.
230   LOCal lenst%, res$, i%
240   lenst%=LEN(st$)
250   res$=ch$ & st$
260   FOR i%=1 TO lenst%-1
270     res$ = res$ & st$(1 TO i%) & ch$ & st$(i%+1 TO)
280   END FOR i%
290   RETurn res$ & st$ & ch$
300 END DEFine insert$
310 :
```

```
320 DEFine PROCedure perm$(in$,out$)
330 REMark puts all perms of in$ into out$
340   LOCal lenin%, ll%, c1$, p$, lenp%, s%, e%, loop%, t$, u$
350   lenin%=LEN(in$): ll%=lenin%-1
360   IF lenin%=1 THEN
370     out$=in$
380     RETurn
390   END IF
400   c1$=in$(1)
410   perm$ in$(2 TO), p$
420   lenp%=LEN(p$)
430   out$=''
440   s%=1: e%=ll%
450   REPeat loop%
460     t$=p$(s% TO e%)
470     out$=out$ & insert$(c1$, t$)
480     s%=s% + ll%: e%=e% + ll%
490     IF e%>lenp% THEN EXIT loop%
500   END REPeat loop%
510   RETurn
520 END DEFine perm$
```

Paul L. Harris, 2 Tippett's Close, Enfield, Middlesex, EN2 0QR
Tel: (081) 367 5992

QL ROBOT CONTROL SYSTEM

I have just finished developing the above project, the aim of which was to provide the QL with a 16 bit I/O port, comprised of 8 output lines and 8 inputs, all at TTL (i.e. +5v=high, 0v=low) level voltages. The QLRCS plugs into ser2_ and operates at 4800 baud, being housed in a black box, with a red LED on the front.

The 16 bit I/O port is taken, with a +5v and 0v, line to a 25-way D plug, on top of the box, so that other devices, such as a relay box or speech synthesiser, can plug in and stack, rather like the Tandata modem, thus reducing the number of trailing wires.

A 6402 UART chip was used to carry out the serial/parallel conversion. To convert the +12v/-12v RS-232c voltage levels to the TTL +5v/0v which the UART required, the 1489 and 1488 chips were used. The "clock" pulse to the UART was originally provided by a '555' chip. This proved to be unreliable beyond 75 baud so it was decided to use a crystal. The 6402 is a CMOS device, so all the lines which were not at +5v were taken, via a resistor, to 0v, this improved reliability. The whole circuit was constructed on vero-board. So far, because the whole project, which is 50% of a GCSE in Technology, including circuit diagrams and the report, is being held by the exam board, until October, it was only possible to construct one device to add on top. This was a 'relay box', which allowed the QL to control a small 'LEGO' robot.

The software for this project was very simple, this was one of the reasons for choosing the serial port and not the expansion port. The expansion port option would have required a device driver to be written, unless the software POKE'd direcly to it. Another reason for opting for the serial port was the fact it's harder to turn the QL into a smouldering computer rarebit using this method!

Carl.L.Cronin, 111 Howard Drive, Letchworth, Herts. SG6 2BX
Tel:0462-670177
16.7.90

HELP WANTED

A friend and I both use a QL and an O.P.D./Tonto. The OPD is fantastic but suffers from a small memory and a cut down version of QDOS. Many commands have been removed including all the graphics and file handling keywords and we are also unable to run any QL programs. Having managed to increase the memory and other improvements we would now like to add QL Basic. This should not be too difficult, in theory, but we lack the necessary machine code experience to modify the contents of the ROM in order to use it on the OPD. If there is anyone out there who could help us, please contact me on 0353 860645 (Ely Cambs.) If there are any OPD/Tonto users who would like info on the upgrades and or Basic project we would be pleased to help. Incidentally, should anyone have any spares for the OPD (particularly the double drive units that were on sale a year or so ago) I'm interested in buying.

David Warne,
The Fen House Restaurant, 2 Lynn Rd, Littleport, Cambs. CB6 1QG
Tel: (0353) 860645

RAMBLINGS OF AN INNOCENT WITH PROBLEMS

I submit the enclosed in some fear and trepidation as I'm not in the habit of writing to organisations such as QUANTA, my own use of the QL being reasonably straightforward and my ability, dexterity and knowledge, sadly, relatively limited.

Perhaps it would be best if I inserted my main reason for writing fairly early, then those who get bored with life can continue to read the rest of my contribution, those who just get bored can read the rest of the magazine! Following the June 1990 issue of Quanta and the heavy involvement with Hard Disks, I must advise that I received a letter from Rebel Electronics Ltd in April to say that they have withdrawn from the QL business. Sad, innit?

Okay, to continue with the ramblings. I have owned my QL since 1987, having visited one of the computer shows at the New Horticultural Hall in London on the off chance of finding something of interest.

I had owned a Speccie for several years, receiving an earlyish one from Sinclair a few months after its introduction. I was greatly impressed with it, realising that it was bound to be improved but if I waited for Uncle Clive or anybody else to come out with the "ultimate machine" I'd never get a computer. I went to several shows, both for the Sinclair and the PCW shows. This one in 1987 was as a result of not having used my Speccie in a long time and finding that the keyboard wouldn't work. I came away with a membrane I couldn't fit properly, but I also came away with a QL (JM ROM)) bought in a lucky moment of rash weakness!

On subsequent visits to the same venue I formed quite a good relationship with the Sandy people (they even gave me a free bottle of wine at a Christmas show), and I purchased a half-meg Sandy SuperQBoard, a NEC dual 3.5" drive and a Citizen LSP-10 printer from them over a period of twelve months or so. They have all worked very well for me, other than the occasional lock-up and problems getting the Psion programs to do certain things that they were supposed to do, which I have habitually put down to my own 'clutziness' and ignorance.

I have made multiple purchases from Digital Precision, inter alia, on the software front and have found Mr. Vacca to be most helpful when approached about problems, although I have yet to ring them and get an immediate response. I always get an answering machine on which I leave an appropriate description of the difficulty, Mr. Vacca telephoning me a day or so later. I love the Professional Publisher and Lightning SE software, but currently have great problems getting to terms with The Editor SE and how to use it properly. I suppose I'll just have to read the manual more thoroughly. Having recently purchased The Conqueror software, I am delighted with it other than the apparent lack of speed and the fact that I have made a couple of purchases which have proved incompatible.

These were both from Microprose, being F-19 Stealth Fighter and Red Storm Rising, both being simulations, the former for an aircraft and the latter for a submarine. On Red Storm Rising, I get an error report from Conqueror of "Illegal instruction $C0, continuing might be OK.", then it won't respond to a continue instruction. The F-19 just won't load fully, it keeps requesting the insertion of the original disk (a copyright security step). I have run the software on a genuine PC, so must assume that they try to use an area of RAM already occupied by Conqueror. Has anyone else had this problem, and is it curable?
{Certain forms of copy protection employed by games writers can cause incompatibility problems when not run on the machine they were designed for. SJ}

All the other PC software I've tried works fine. The lack of speed may well be comparable with the PC-XT, whose operating speed of 4.77 mH The Conqueror emulates well, but it can be most frustrating. I bought it to try and learn about MS-DOS during a period of redundancy, without having to resort to a college course. This, at least, has been successfully achieved and I thank Digital Precision accordingly.

Other hardware purchases include a Dennis Briggs PSU which has cured most of my lock-up problems and is used with a TF Services four-way Computer Cleaner to protect against power surges and spikes, a Ferguson MC09 TV/Monitor to relieve tying up the main TV all the time, and a Miracle 768K Trump Card bought recently so that I could play Battle Chess using Conqueror, the SuperQBoard sadly not having sufficient RAM to cope. Incidentally, the IBM version of Battle Chess doesn't appear to be as decorative as the Atari one, but it's still very clever with good graphics and I think it was well worth purchasing. I also use a Schon PS/2 keyboard, enjoying the relative freedom of an independent keyboard, and a Tandata Modem bought from Phil Borman at one of the workshops last year at Portishead. Great fun, but can severely increase the 'phone bill.

Using The Conqueror in conjunction with the Schon PS/2 keyboard, I have the extra function keys available on the keyboard but no knowledge of how to utilize them within MS-DOS. I can't re-program them into the keyboard table supplied in Conqueror as I don't know the values to attach to the individual F6-F12 keys. I don't know whether the values supplied in the Schon I/F are the same as those used in MS-DOS, or whether there would be any other conflict between QDOS, Schon and MS-DOS. I have found that MS-DOS doesn't appear to recognise my F10 key, at least. Help?

Another problem I have experienced is with the modem. Unfortunately I tripped over the telephone cable which trails from the modem along the floor to the socket. It pulled the modem off its resting place and fell about 18" to a carpeted floor. Now, all three LEDs still light at appropriate times, and I can run the QConnect and Qualsoft software as the computer wasn't affected in any way, but I can't seem to make connection with other people. The order to "Dial" is accepted and partially dealt with, as the 'Seize' LED lights up, but the line automatically aborts within a very short time. Any suggestions as to how I can check which unit is causing the problem, is it curable without too much electronic knowledge or manual dexterity, or would I have to get a complete replacement system?
{I suggest you try TF Services to see if they are able to repair it. SJ}

I was hoping to invest in a Hard Disk once I had found a job, but hadn't realised the limitations imposed by the use of the Trump Card as set out in Quanta (June issue). I intended to use the Rebel interface and RAM expansion through their backplane and run a second-hand drive with gubbins to try and save a little money, rather than fork out all that dosh on the Miracle system (awfully sorry, chaps), particularly in the light of your comments in said issue of Quanta that the use of the ROM port tended to slow things down somewhat, relatively speaking. You imply that the Rebel I/F works at twice the speed of the Miracle. I don't know much about the ABC interface, but I notice that Jochen Merz now sells it, apparently quite legally, advertising the same in the June, '90 QL World for £129.

Is it possible for some enterprising member to take on the production of the Rebel systems, either under licence or franchise, or to purchase any copyright? If they do, please try to work out some way for the system to work with the Trump Card! (Miracle N.B. I note the comments in the Troubleshooter column of QL World.) In fact, can Miracle come up with a fix or an extra piece of ROM or hardware to enable the use of a Trump Card in a multiple-socket backplane, pretty please? I also note that Miracle has, at last, produced a Trump Card and a QL Disk Adaptor that will control up to four drives, rather than the previous limit of two drives on the Trump Card. Congratulations to them, a handy expansion.

I have tried to clarify whether the system I have is the latest version with the speed increase and the addition to the floppy driver. My Trump Card is the V1.28 using V2.21 Toolkit II, of which I took delivery from Miracle at the June All Formats Show. Anybody able to answer? I note that the manual makes no apparent reference to the number of drives which the system is able to handle, but I have tried to use the FREE_MEM command as described therein to see the amount of free memory and I just get the error message "Bad Name", with and without TK2 induced. Anybody able to provide a solution to that one as well?
{?V1.28 Why not ask Miracle. You need to put PRINT in front o FREE_MEM for the result to be printed to the screen. SJ}

Digital Precision have struck again, it would appear, choosing the June issue of QL World to announce their introduction of five new programs. Has anybody yet had the chance to review the QKick Multitasker, the QFlick Card Index System, the Disktool and Quickdisk and the Toolkit III, being the ones I am immediately interested in. I have little doubt that Freddy will have been working hard at the June All Formats Show, but I wasn't able to attend. I hope someone can produce a comprehensive, forthright and comparative critique in the near future.

On the hardware front, I am also interested in tidying up my system, presumably in a KBL 128 case from Keyboard Products Ltd.. They very quickly provided data requested on the case and examples of how to adapt it, for which I'm grateful. As I said earlier, I don't have any faith in my manual dexterity or in my electronic knowledge. I wonder how best to sort this out, whom I can approach to assist. Suggestions? Put bluntly, offers of help only from those in the locality with proven ability, please, reasonable financial recompense may be made available in suitable circumstances. Before I can proceed, I must first get a job so that I have the readies to buy a Hard Disk system. I must assume that in such a confined space it would be impractical to leave a vague space if I don't know what size the Winchester will be. I'm looking for a 40 Mb disk with a preferred access time of 28 ms, but I'll 'suffer' a 40 ms drive! Hence the idea of a second-hand drive, as we're starting to talk heavy money.

I also have problems with fitting an RGB or Scart lead to my monitor. I tried a Scart lead from TF Services and one from Care Electronics, the latter company first supplying an RGB lead. I failed to get any proper picture with the Scart lead from TFS and the RGB lead from Care. The current problem being that I can't seem to fit the Scart plug supplied by Care to the MC09 monitor. It will partly insert but not fully, failing to connect properly to the point where I can tell whether it produces a picture or not. The pins appear to match the sockets and the shape of the metal casing matches in both the set and the plug. Anybody got any suggestions I can try? I should point out that when operating with the QL, the Ferguson MC09 needs a width reducing kit fitted to cope with the 85-column display of the QL. Mine was eventually supplied by the retailer and fitted by a local TV repair man. It works fine, but I don't know whether it affects the non-TV display output.
{It maybe that the socket is non-standard. Why not try a Ferguson dealer.}

Floppy users may be pleased to know that there is at last a lockable disk case available in hard opaque plastic with the capacity to hold 150 3.5" or 180 5.25" disks, so we're no longer limited to a stack or array of 80-disk cases. I bought my first one at the first All Formats Show but they weren't available at the second. I therefore got one through the post for £24.50 from Overseas Media Distributors, OM House, 139-141 Dominion House, Glenfield, Leicester LE3 8JB (0533) 877733.

My compliments on the standard of the contents of the Quanta magazine, both old and new, but I do criticise the standard of typeface and print quality sometimes. I like the idea of a Beginner's Page for those, like me, who sometimes get into difficulties understanding instruction manuals or have problems doing various relatively simple things like fitting a RAM expansion board, where we can raise issues that puzzle us without being thought a total simpleton. As has been said many times, we all have to start somewhere. Please ensure that the answers are provided in simple terms with jargon either not used or explained, e.g. RAM (Random Access Memory, the main memory component of your computer for the intermediate storage of programs or information) or Modem (MOdulator/DEModulator, a piece of equipment connected to the computer used with appropriate software to communicate with other Modem users over the telephone line).
{I agree with the comments about typeface and print quality, hopefully we have now found a reasonable combination. We hope we have interpreted your acronyms correctly! SJ}

Thank you for your patience with my ramblings.

Simon Corbishley, Flat B9, Exbourne Manor, 37 Christchurch Road, Bournemouth, Dorset BH1 3NX
Tel: (0202) 295956
12.6.90

SO WHAT DO WE USE OUR QUANTUM LUMPS FOR?

In response to the editor's plea for articles on what people actually do with their QLs, I thought I would write this piece, as I think I have put my QL to about as practical a use as is humanly possible, while retaining the "mad glint in the eye" absent minded professor image which all QL users are so proud of, or else they would go off and buy a different computer.

The QL scene in Israel is quite limited. The one dealer who used to sell hardware and software closed down a long time ago, but to my amazement I found out not long ago that there is a laboratory in Tel-Aviv that still does QL repairs, although he has problems getting spare parts. I think that there are five serious users in the whole country.

I am a student of linguistics at Jerusalem university, this year I finished my BA and to do so I had to write two seminar papers on real textual research which I carried out. One of them was on New Testament Greek for which the QL was completely useless because of the alphabet problem, the other was on the Anglo Saxon Chronicle, which the QL could help me with, albeit with a few modifications here and there. The subject of the paper was word order in subordinate clauses.

Luckily a subordinate clause, at least according to my definition of it, is quite easy to identify because it begins with a word, a subordinate, which identifies it as such. Theoretically all you have to do is look for all these words and Aethelred's your uncle.

The first thing I did was to copy the whole of the part of the text that I was working on, about 800 lines, into the Editor. This program is easily the best £50 I have ever spent on computer software, and is definitely the most versatile piece of text processing software I have ever come across.

After the whole text had been copied in, together with notes and word meanings in a separate column, I numbered the lines. The last two operations are not available in any other program I know. The first was simple due to the fact that in the Editor you can fix a margin and then write outside of it, which is absolutely insanely useful. I then printed out the whole thing using condensed print so that it would all fit, width wise, onto a normal piece of computer paper.

The next thing was to do the actual searching. This was accomplished by the index command file in the Editor manual, which I wrote at the top of the text, each time changing the word I was looking for, and activating it with the EX command. The lines containing the words then came out at the bottom of the text, in reverse line-order. The order was corrected using the Editor block sort command. Once I had the lines I wanted I deleted duplicates and other lines I didn't want.

As the whole thing was columnar in fashion, it was very simple to write a command file to convert all the lines which I had found into an Abacus/Archive import file. It's simply a matter of adding the requisite commas and quotation marks.

The total number of examples that I had found was about 190, which was lucky, because if there had been more than 256 the following trick would not have worked. The idea was that eventually I would import it all into Archive to sort it and print out tabulated reports of all the examples found.

First of all however, I imported it all into Abacus so that I could add columns which would correspond to the extra field names that I would need in Archive afterwards. This is a simple way of adding fields to Archive files, so long as they do not have more than 256 records.

After that it was a question of going over the text by hand to get other examples which it was impossible to get by the automatic search method. For instance the Old English word "tha" can either mean "then', or it can be the plural of the definite article "the", or it can be a subordinate meaning "when". If I had used the automatic method for this word, I would have ended up with hundreds of examples which I didn't need. In fact it would have found nearly every line in the text. So I searched out the examples one by one with the repeat search key in Editor, and manually wrote them into Archive. Multi tasking turned out to be very useful in this case and from here on. I also had to add text to most of the examples, as the search routine in the Editor only picked up one line, and for context, syntactic environment etc, you need at least the whole sentence.

I wrote a little half-finished Archive front end to allow me to insert, delete, alter etc with single key-presses from a menu at the bottom of the screen, while my custom designed entry form was at the top. It was quite convenient but a little slow.

After I was sure that I had all the examples I sorted them by subordinate and line number, and printed them out with my very rudimentary "report generator" that I wrote for Archive. Very rough and ready but it did the job (more or less.)

After that the computer could no longer help me, and it was a question of going over the examples, now properly sorted, and finding some kind of system in them.

The question is, of course, was it worth all the bother? I think it was, as it is a much cleaner and neater way of working than the traditional index cards, although I am not sure that it is any quicker, as you have to copy the whole text into the computer, which took quite a long time. The actual searching is of course, very much quicker.

In any case, this could not possibly have been done as easily on any other computer I am aware of, because of the lack of multi-tasking on other computers, and more importantly, because the Editor doesn't exist on any other computer.

Daniel Baum,
Olei Hagardom 502/2, Armon Hanatziv, Jerusalem 93801, Israel
Tel. 010-972-2-715987

DENNIS BRIGGS JOTTINGS

Let me lay to rest this lock-up business as it is a recurrent theme with many half hearted comments or part cures for a one-off situation. Tom Bent has used some very expensive gear to find out the real reasons then advised on the solutions. Others have tried his ideas, with in some cases, slight alternatives or improvements with great success. None of the suggestions are guesswork or found by rubbing bits of wet seaweed. Thank you Tom Bent.

The main cause of lock-ups is in many cases the software. How many times do I get lock-ups mentioned and then as an afterthought a hint that Quill or Archive was being used. For goodness sake, update your Psion Suite as a start point. Does anyone know how to tell which version of Quill etc. you are using? Don't bother with the name on the cartridge or the name on the loader. Just look at the length of the file with WSTAT. A list here from those with the latest versions would help.

The other 24% of the way to reliability is to use a power supply which is big enough and which delivers a s-m-o-o-t-h 7.5 volts. How do I know? Simply because the designer of the QL power supply says so and sales of over 400 'smoothies' point in that direction. Unfortunately there are no more smoothies at present.

Now for the technical readers. Tom Bent found that the crashing problem was due to Radio Frequency Interference (RFI) and noise on the data bus. In simple terms this means that something like your TV or Radio is putting little messages into your QL which it cannot make sense of. It is identical to a beginner reading Quanta. The result, immediate frozen cursor or a mouth locked in the agape position.

Wrap the QL plus extra this, that or the other in metal to stop the aliens getting in. The Samsung built QLs had this. Now fit the capacitors etc as in September's Quanta plus the HCT chips or put 68pf on each data line. The result is a rock solid non-crashing QL. How does this fellow Briggs know? Simply by looking at the many thank you letters I have from those who have done it.

Where are all the one-liners, hints and tips which abound in other technical magazines? Here are a few to get started with:

Does anyone out there know the difference between an Issue 6 and an Issue 7 board? They appear to be the same to me except that the composite display does not suffer from electronic noise.

Any one out there with a CST interface that plays silly devils with a 3.5 inch disk drive? Shove in the latest EPROM for a cure.

If you have just obtained a disk drive and interface, only to find it does not work because the drive light goes on and the motor runs continuously, just turn the 34 way connector the other way up. You may have to cut off the locating tongue first.

The intermittent running of cartridges when copying can be eliminated by copying via a ram disk or by using the Convert program given away with the CST interface or by creating a very large keyboard buffer. Come on software buffs with the easy large keyboard buffer.

Someone mentioned a microdrive with a ghost that makes it run of its own accord. The way to bust this ghost is to hook out the 'anti-bounce' chip and fit a bog standard one.

Not all disk interfaces have all the Toolkit 2 commands on them. Many have only a few, sometimes just three of them on. What is TK2? It is Toolkit 2 from Tony Tebby. It adds a whole host of new functions and procedures into the QL, many of which I personally find no use for. To get over this I purchased configurable Toolkit 2 and only have the bits in I need regularly.

The videoing of workshops has attractions at first sight and has been tried to a certain extent. The practicalities are somewhat restrictive in that a workshop may last 10 to 48 hours, with some activities occurring concurrently. The lighting is a bit dim for filming, also some activities are best not recorded for posterity. With only one camera available it means that at least two people are locked into it the whole time, producing a pile of video cartridges which then need editing. What do they edit out and what do they leave in? They cannot leave in Minerva being disassembled or show Quill being loaded from a hard disk or a bare hi-res monitor tube. It has been tried by a volunteer but the result was really 15 minutes of how not to use a camera. The only way to video a presentation is to nail the presenters feet to the ground and leave the solitary camera locked on to him. It is outstandingly boring this way.

Come on, what is this about QUANTA should go into the commercial world. The committee first of all, has no mandate from the membership to risk the assets on what are non starters or flights of fancy hardware. There was absolutely no risk in the modem offer or Jan Jones' book and anyway the modems were not capitalised by QUANTA in the first instance. Let me repeat, there was no asset risk but a certainty of capital enhancement. The same cannot be said for a QL go-faster and anyway who is going to wind up the speed of the 8301?

Oh hasn't the go-faster brigade found out that the 8301 is the controlling factor in regard to speed. You can easily run the 68008 at a much faster speed except you cannot see or control what it is going on. If you want a go-faster QL use an ST with the emulator.

The suggestion that QUANTA should become a trading company or at least have a commercial arm does not bear investigation. The committee again does not have a mandate from the AGM or the membership for this course of action, with the constitution to some extent precluding it. The two off bargain offers are unlikely to be repeated as the workload on Phil has been tremendous. Any company must have paid staff, which our constitution debars. If an established company such as Miracle or Digital Precision can see no gain in pursuing an 'improved' QL what chance has a company starting from rock bottom.

The Lilley board was quite a different project in that it started life as a design exercise just to keep a couple of brains ticking. It never was and never will be commercial in any sense of the word.

What is cost price? I had a small board made and before I got one board, I had to supply the art work. I had this, but I had a quote for £150.00 to produce it. The board manufacturers charged another £90.00 engineering fee plus the cost of each board with the proviso I took 200 boards. In effect one board of three inches square would have cost me £200.00 for starters. Take the Lilley board at about a foot square using existing tried circuitry using a £3500.00 CAD package on a £2000.00 computer and an expert designer to drive it or buying in the time at £100.00 per hour and you are starting to think. Think now of multiplying this by an unknown factor for different technology. Got the picture? Wait a minute though, don't you want software for this wizzo and a box and a keyboard and a power supply and marketing people and service personnel and training and, and, and, ... What sort of investment are we talking about? Where does the ultra high risk capital of a few hundred thousand pounds come from? Who will make it? How long are we, assuming a tomorrow start, from a launch date? Will it sell in numbers? What is the target selling price? What new technology will be available when the product is launched assuming a three year time scale from inception to launch? Finally have we got our feet on the ground? Sir Clive enjoys a good joke but this is neither a joke or good.

Dennis Briggs, 53 Gilpin Road, Admaston, Telford, Shropshire, TF5 0BG
Tel: (09522) 55895

PRISM MONITOR

Help! Where can I find out the electronic details of the high tension transformation of a Prism monitor, or the manufacturer of its tube? Please answer to:
Eli Kronstein, P.O.Box 554, Jerusalem 91 004, Israel
Fax: 00972 2724 703

BEEP IN ARCHIVE?

I have for ages been building up the courage to write in the hope that some member, somewhere around, can solve a small difficulty that I'm having. Here is the brief background:

I use a database file of 800 records each with three (3) fields in the Archive environment. It is necessary to update the contents of one field in many of the records (up to 400 of them) during a one to three hour stint two or three times each week.

Each record is called ("Type Member's Number and Press ENTER") by its position(n), the first field, and the field to be updated, the second field, is displayed on the user defined screen.

The relevant field is mathematical. By means of Alter (and "Type sum and press Enter") the new sum replaces the previously recorded sum and is added to, or subtracted from, a cumulative figure in a defined variable - also displayed but otherwise unalterable.

THE PROBLEM. Can the QL be made to BEEP when Archive is in use to indicate that a given operation (user defined procedure) has been successfully completed?

Having got thus far may I say that I have:
a. Been a member of QUANTA for three years.
b. Attended one workshop at Leyton where I met many people I didn't (and still don't) know, spent money with T.F. Services and with D. Briggs - whose name be blessed among many for of him hath I further made purchases - and bought a monitor.
c. Two QL's at home and one in Spain but have not advanced beyond (nor yet mastered) SuperBasic.
d. Had contact with a number of members all of whom have been most helpful and they include your very good-self and spouse, other members of the committee, the most generous Mr. (graphics) Beveridge from over the Border and others.

The Magazine is an important item in my life. If I make use of one fifth of the information and understand one third of the articles I consider I've done well. I have entered into no arguments over this or earlier committees, other than to vote in a manner that reflects my gratitude to them for being there. And I feel now, as ever, that the time, dedication, knowledge, skill and courtesy that started, administered, nurtured and guided QUANTA to its present position deserves rewards through one channel or another. I hope this committee feels that it is getting them in a more tangible manner that perhaps gratitude itself can offer.

Ron Williams,
The Old Man Antiques, Yewdale Road, Coniston, Cumbria, LA21 8DU
Tel: (05394) 41389
3.8.90

"HYPERTEXT" ON THE QL

I am currently working on a set of routines to display "Hypertext" style presentations on the QL. There really isn't much to the basic idea, but for various reasons this style of presentation of documents on a computer is quite superb from a user's point of view. I intend to call the program that presents this data "QuantumText", as the word "Hypertext" is in fact a trade mark.

All QuantumText files will be in a set format, so that the same program can access and present many different files. The file format is the difficult bit to design, as it must allow files to consist of all text, mixed text/graphics, or all graphics, and various types of cross-index are needed for the user interface part of the program. QuantumText will allow documents with up to 255 pages to be displayed, each with text, or graphics, or text and graphics mixed.

The Hypertext idea is great; like many of the best ideas, it is also very simple. A Hypertext page, or "card" as they are often known, is just like a page of a book or a card in a card-index box, containing text and possibly pictures for the viewer to look at. The difference is that this "book" has a layout that allows readers to skip around in it with butterfly abandon, reading explanations of difficult points on distant pages and then jumping back infallibly to where they interrupted their reading.

An example may help; suppose you are reading a Hypertext page about the QL; there is a reference to Digital Precision, and the reader has been living on Mars for a while, and has never heard of DP. As DP is an indexed item, pressing one key takes the reader to a page (or a sequence of pages) that explains who Digital Precision are and what they do; the reader can then jump back and continue reading about ROM cartridges or whatever. A later explanation of the keyboard may well be poorly understood, so the reader can skip out to a more detailed explanation of what a membrane keyboard is, and then resume as before.

If all this seems like a programmers nightmare, then rest assured that it isn't, and the basic mechanism is tested and working on my own QL already. I hope by September 1990, to have the first QuantumText release ready; this will probably be a multi-tasking, constantly available QL SuperBASIC manual. Because QuantumText will multi-task on any QL, without Taskmaster or QRAM or whatever being required, this manual will be available while programming, and will be very fast to access. I hope also to do a number of GCSE revision manuals, but obviously these are longer term projects.

After the first release, when all the bug reports are in and I have killed the nasty little blighters, I hope to produce a set of programs that will allow other QL users to produce QuantumText "books". I can't really promise this, as it is a much longer programming task, but if I can't do it myself then I will document the file format in great detail and allow somebody else to take over.

Any comments are welcome. Write to QUANTA so everybody gets to hear what you think, not just me. QuantumText will be a public domain program, by the way.

Mark Knight, 304 Portobello Road, Notting Hill, London, W10 5TA
9.7.90

QL-INTEGRATED ACCOUNTS

I have always wanted to own a real accounting program and learn how proper accounts work. So when I saw the SAGEsoft package advertised for £20 rather than the original £90, I jumped at it. Looking at back copies of QUANTA, I see that this package has never been reviewed. However now the price is so low some other members may buy the package and be interested in getting it up and running converted to run from disks.

First things:
The package is supplied as 3 program microdrives and 1 blank data microdrive. For starters make a backup onto another 3 microdrives.

Now there are 4 programs:
POST - used to enter data
REPT - used for general reporting
UTIL - used for initialisation, periodic reports and purging
INSTALL - used to configure for disks etc

All programs are written in C and need to be called using a new SuperBASIC keyword CRUN. This of course needs loading via a boot program before you start. The SAGEsoft documentation then recommends a RESET between each program and a re-boot. Given that you will want to swap frequently between POST and REPT, this is all too tedious for words. It may have been necessary to reset when running from microdrives on a 128K machine, but does not seem necessary on my 640K JM QL.

I started running from microdrives to keep compatible with the documentation. The first action required is to initialise the data cartridge. This requires you to boot with the cartridge containing UTIL in drive 1 and a data cartridge in drive 2. Then type in the command CRUN 'MDV1_UTIL'
With my system a green loading screen appeared and the data cartridge spun and spun and spun...

Initialisation:
Maybe its just my copy, but before you can load the UTIL program to create and initialise the data files, you need to have a data cartridge containing a control file. AAARRRGGGHH!!!!
To get round this problem type in the following SuperBASIC program
100 REM AAARRRRGGGGHHHH!!!!
then type the command: SAVE mdv2_CONTROL_DTA

On rerunning the UTIL program, after a few seconds accessing the data cartridge, the menu will appear.

You should then select the INITIALISATION option. I recommend you use the initialisation values suggested in the chapter on a trial run of the package. Then select the INSTALLATION option to check and if necessary change the BAUD, page length and other printer characteristics as required.

If you wish to continue trying out the package using the system on cartridges, you may now do so.

Converting to disk:
Copy the following files to disk: CRUN (from any cartridge), POST, REPT, UTIL, INSTALL. Now we need to configure for disk. LOAD the BOOT file from any cartridge and change the MDV1_ reference in it to FLP1_ and save on disk. For the programs themselves, SAGEsoft were very thoughtful. If you run the INSTALL program, you will be able to specify device names to be whatever you wish. (Note the manual should have an ERRATA slip advising the the INSTALL program must be run using the same CRUN command and not the LOAD command as given in the manual.) You should also return to the UTIL program INSTALLATION option to change the drive capacity from 100K to whatever capacity your disk drives are. (720 if you format to 1440 sectors.) Finally copy all the files on the data cartridge onto a second data disk.

Building a proper front end:
Now its time to start operating in a grown up manner. The ideal is for a menu from which you may select any of the programs and to which you will return. This ideal is very easy to achieve.

First discard the above BOOT and replace it with this one.

```
100 REMark   BOOT PROGRAM FOR SAGE SYSTEM
110 REMark   created 13 Dec 88,  by Gerard T. Phelan
120 REMark
130 FOR i=0 TO 2:WINDOW #i,512,256,0,0:PAPER #i,0:NEXT i
140 WINDOW #0,448,46,32,210
150 CLS
160 PRINT #0,"--- starting SAGE system ---":PRINT#0
170 i = RESPR(430)
180 LBYTES "FLP1_CRUN",i
190 CALL i
200 PRINT #0,"--- CRUN INSTALLED ---":PRINT#0
210 PRINT #0,"--- now calling menu ---":PRINT#0
220 PAUSE 30
230 LRUN "FLP1_SAGEMENU"
```

Then enter the program below and save as SAGEMENU

```
100 REMark ------------ SAGE menu program ----------
110 :
120 REMark     13 Dec 1988  by Gerard T. Phelan
130 :
140 _SPEED 1:  REMark  to initialise SPEEDSCREEN
150 WINDOW 512,256,0,0:CSIZE 2,1:CLS
160 AT 2,8:PRINT "SAGE INTEGRATED ACCOUNTS"
170 AT 4,8:PRINT "PROGRAM disk"
180 AT 6,8:PRINT "master menu"
190 AT 8,8:PRINT "Dec 13 1988"
200 PAUSE 270: REMark reduce to 70 if not using SPEEDSCREEN
210 :
220 REMark main operating loop
230 REPeat SAGE
240   CSIZE 1,0
250   CLS
260   AT 1,20:UNDER 1:PRINT 'SAGE INTEGRATED ACCOUNTS':UNDER 0
270   AT 4,14:PRINT 'Select program required'
280   AT 6,14:PRINT 'P  -  POSTINGS'
290   AT 8,14:PRINT 'R  -  REPORTS'
300   AT 10,14:PRINT 'U  -  UTILITIES'
310   AT 13,14:PRINT 'I  -  INSTALLATION'
320   AT 17,14:PRINT 'S  -  SuperBasic'
330   ans$=INKEY$(-1)
340   IF ans$(1)=='p' THEN CRUN "flp1_POST"
350   IF ans$(1)=='r' THEN CRUN "flp1_REPT"
360   IF ans$(1)=='u' THEN CRUN "flp1_UTIL"
370   IF ans$(1)=='i' THEN CRUN "flp1_INSTALL"
380   IF ans$(1)=='s' THEN EXIT SAGE
400 END REPeat SAGE
410 :
420 PRINT #0;'Now in Basic...'
430 STOP
```

Now place the disk in flp1_, press RESET and away you can go, happily popping into one program, then another without a care in the world.

Notes on the menu system
1. DON'T merge the BOOT and SAGEMENU programs. The result will not work for a very good technical reason. (The boot adds a new SuperBASIC keyword, which is not available until AFTER that CALL command is executed. If the SuperBASIC program also includes a reference to that keyword, then the interpreter will assume that it is a SuperBASIC procedure, and not a new keyword. The result will be a error message.

2. Integrated Accounts programs themselves ARE compatible with the Speedscreen ROM version 1.27, hence my _SPEED 1 command. However the green loading screen with the words SAGESOFT on it is NOT compatible and you get a rather messed up screen.

3. The menu system is not very pretty. I will leave that to you to improve. The guts work, and that is important.

4. Don't try to multi-task these programs using Qram, Qpac, Taskmaster or any other such utility.
I have every faith that the multi-tasker will successfully make the programs physically run together - but think about what you are doing! All these programs rely on the same data files! If two programs are trying to update the same data file and a third trying to report on the result - then you can expect a corrupted data file.

5. Please don't complain to me if following this article causes you to lose any data. You follow advice from other than SAGEsoft at your own risk.

The programs in use? AH! This is where this article stops being useful. I started by wanting to learn about how an accountancy program works. The manual is quite good and leads you through many examples, although I am told the section on correcting input errors is incorrect. However I did not finish to learning process myself.

Discussions with other members and reading old editions of Quanta I learn of rounding errors in this program that can cause unbalanced entries that cannot be removed or balanced. At one time Sage offered, to their support scheme members, a utility program which among other things would correct such errors. However Sage long ago lost interest in the QL and their QL programmer left them. Accordingly you would be best advised not to use this system for anything more than self training or perhaps home accounts.

Gerard Phelan, 17 Gunnersbury Court, Bollo Lane, LONDON, W3 8JL
Tel: (081) 993 3273

ADVPRINT V2.6: A PROGRAM FOR SEIKOSHA GP100A OWNERS

In April last year, I purchased a Seikosha GP100a printer from EEC Ltd, for a bargain price. So being very proud of my new toy I started word processing all my work for school. After a while, sarcastic comments began to emanate from my English Teacher "Carl, when will you learn that you can use non capital letters for Y, P, G and J!!". After spending a long time trying to explain that this was because it was a rubbish printer, I thought of another method!

So when the summer holidays eventually came, I spent a couple of days (and nights!) writing 'AdvPrint', which drives the Seikosha in graphics mode and gives it true descenders and even bold. So if you want this program, get it free from the QUANTA library now!

It should be possible for other members to adapt this program to other printers since all the data sent to the printer is for each of the letters is held in DATA statements. If anyone wants to know in detail how the program works, then write to me or ring:
Carl L. Cronin, 111 Howard Drive, Letchworth, Herts, SG6 2BX
Tel 0462-670177 3.7.90

HEARTBEAT 2.50

I have just had a program accepted for the QUANTA library, an educational program that teaches about the human heart, and includes an animated heart that beats in real-time on the QL screen. The program includes a quiz routine, so it will test you on what it teaches you, and won't let you cheat. The program is called "Heartbeat", and has reached version 2.50. Unfortunately, due to all the data included, the program will not run from microdrive, and can't be supplied that way. In order to animate the heart, the program has to access the screen RAM directly, so you should only run it on its own, not force it to multi-task with Qram or anything.

As supplied, Heartbeat will boot from "flpl_", but there is an install routine for users of disk interfaces that use "fdkl_" as the name, or for rich people who want to install the program on a hard disk, i.e. "winl_". Our QUANTA library quality controller has heaped praise upon this program, so if you are interested in the heart, or you like seeing animations running on your QL, then go ahead and order it. Heartbeat is a public domain program.

There are various names, so I am told, for some of the valves in the heart; what are commonly known as the "semi-lunar valves" for example, are called, equally correctly, the "Aortic valve" and the "Pulmonary valve" by Heartbeat. I used a book written by Dr. Christian Barnard, so the names that Heartbeat uses are those that a Heart surgeon would use, not a school biology teacher. I will do something about this in a later release, perhaps including both sets of names.

Mark Knight, 304 Portobello Road, Notting Hill, London, W10 5TA
9.7.90

MicroEMACS

In response to my letter published in the July edition of our magazine, I have received several letters containing a multitude of suggestions and advice concerning EMACS. It has been suggested that a MicroEMACS corner might be established on a regular footing in the magazine. Failing this suggestion, a second is that a postal sub-group might be established to enable suitably interested members to exchange ideas, information etc.

Would anyone interested, please write to me. When numbers are known, perhaps something could be set up.

George Dale, 96 Heaton Terrace, Porthill, Newcastle, Staffs. ST5 8PL
{ I do not mind having specialised articles, but remember a MicroEMACS corner will only come about if articles are sent in on a regular basis. I would suggest that postal correspondence might be more successful, with the occasional article composed from these letters. SJ}

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Tel: (0673) 60798 evenings

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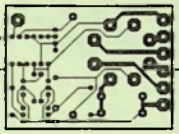
Peter Hull, 6 Burleigh Place, Oakley, Bedford, MK43 7SG
Tel: (02302) 4929 between 6.00pm and 10.00pm



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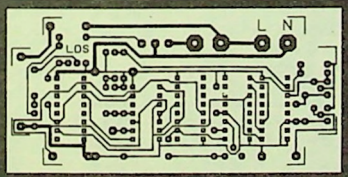

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