QUANTA

VOLUME 7 ISSUE 8 SEPTEMBER 1990

CONTENTS

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	Treasurer	Michael Jackson 12 Church Street Adlington, CHORLEY Lancs, PR7 4EX Tel (0257) 480331
Newsletter Editor	Sarah Johnson The Corner House Loxley, WARWICK CV35 9JT Tel (0789) 842543	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' 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
South-West	Middlemoor, Exeter	Next meeting Sunday 16th Sept. 2.30 to 7.00	Roy R.Johnson Flat 2 66 Victoria Road Exmouth, EX8 1DV Tel (0395) 275290
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

September 30th	Portishead	Quanta Workshop
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 22nd-23rd	Horticultural Hall, London	All Formats Show

PORTISHEAD WORKSHOP

The next Portishead workshop will be held at the same venue as before, Somerset Hall, on 30th September from 10am to 5pm. The format will be very similar to the previous very successful workshops, with large visual monitor displays by software companies, question & answer sessions etc. We will also have transport available from British Rail and Lulsgate Airport for those who require this service.

Refreshments will be available and the licenced bar will be open from 12 to 3pm. Car parking has been arranged with the Local Authority, but a car-park pass must be collected from the Somerset Hall.

The route will be signposted from the M5 Junction 19 as will the car-park on arrival at Somerset Hall.

Further information is available from either of the following:

Roy Brereton, 94 Teignmouth Rd, Clevedon, Avon BS21 6DR Tel 0272 871917
Chris Gregory, 7 Argyle St, Eastville, Bristol BS5 6PF Tel 0272 513653

QUANTA OFFERS

T - Shirts (S,M,L)	£5	UK
	£7	OS
Sweat Shirts (S,M,L,XL)	£10	UK
	£12	OS
Jan Jones Book	£10	UK
	£12	OS
Chalmers Maths Package	£14	UK
	£16	OS
Newsletter Binders	£5 Each or 4 for £18	UK
	£6 Each or 4 for £20	OS

All the above available from Phil Borman, Secretary. All cheques should be made payable to QUANTA.

Newsletter Back Issues £3 Per half year

All issues from Volume 1 Issue 1 onwards are available.

Newsletter back issues available from David Johnson, Membership Secretary. All cheques should be made payable to QUANTA

EDITORIAL

With the autumn approaching, and hopefully the weather becoming a little cooler and wetter, it is time to start computing again. Not that some of us ever stop. The summer has seen a few events, with the All Formats shows, but now we are into Workshop time again. Essex has just gone, but we have Portishead at the end of the month, Worthing next month and Nottingham in November. If you can get to these workshops, then please do so. We the members of the committee and the sub-groups want the workshops to be a success, the more members that turn up the better.

Please remember that when you are trying to contact other Quanta members, including the committee and sub-librarians, that we all have other commitments other than Quanta. As Roy suggests in the Library Corner, the majority of people prefer to be contacted between 6pm and 10pm Monday to Friday. Some members families soon become irritated with having to taking messages etc. during the day, especially when the children are fighting, the saucepan is boiling over and the front door bell is ringing! Quanta is run on a voluntary basis, but we have had a couple of incidents recently where this appears to have been forgotten and the relative taking the call has had to take the brunt of the members frustration.

Is your address on the magazine envelope correct and complete? If not, then let the membership secretary have the full details including the postcode. The postcode is important, this is used as your membership number. If you are moving, please ensure we have your new correct address and if possible your phone number. This will ensure you continue to receive your magazine on time.

We have been receiving a number of cheques lately made out either to the individual committee members or librarians. Please note that these cheques and postal orders should be made out to QUANTA or for QUANTA LIBRARY.

Sarah Johnson

NEW QUANTA GROUP IN DENMARK

Despite the demise of the local SPECTRUM-QL-PC(IBM) club (DATAKLUBBEN), we Erling and I, want to continue the club meetings. Some of the clubs 30 QL owners will undoubtedly go to the other SPECTRUM/QL club (Freakeren, around 30 QL owners). Note that the time and place may vary.

Arno Hasnaes, Hestkoblund 117, 3460 Birkerod, Denmark
25.7.90

SOUTH-WEST SUB-GROUP NEWS

A little Quanta South-West news... First, the next meeting: Sunday, 16 September, Middlemoor, Exeter. This will be our A.G.M., so it is hoped that there will be a good attendance.

There was a good attendance yesterday, at Launceston, for our first meeting in Cornwall, and several members who hitherto had been hiding in the depths of the Duchy turned up for the first time, and were very welcome. Unfortunately I was not there to help with the welcoming: I was again visited by the "bad or changed medium" message from my innards (as happens all too often, which is why I have been retired for some years, instead of still misleading undergraduates).

Dave Price tells me that, despite a dearth of power points, five systems were up and running, including as usual Eric Dawson's Thor XVI. Dave had some trouble trying to copy onto an unbranded, cheap disk; substitution of a branded disk produced success first time. A moral there?

Several members played with Mandelbrot routines from the library; as Dave remarks, it is very interesting and keeps one occupied, even if the end result doesn't actually do anything but look pretty!

Mention of Mandelbrot brings me to Mozart, by a roundabout route. (The route? Mandelbrot led to my recalling the BBC Horizon program of a year or two back, on "Chaos"; that reminded me of the music accompanying the program, the 1st. movement of the Mahler 2nd symphony; and music led me to Mozart. So here is a question: I distinctly remember reading, many years ago, that someone had produced a complete Kochel catalogue for the Spectrum. Does anyone out there know anything about this? Or ditto for the QL? I've never had a complete Kochel catalogue; I know only that my own collection of Mozart recordings, which runs well into three figures, is woefully incomplete.)

The QL is hardly a musical computer, and synthesizers are hardly the gadgets for Mozart et al., otherwise I would ask if there are any out there who share my passion for the stuff. I fear the only connection between the QL and classical music might be via Ravel: Pavane pur une Infante Défunte!

On which happy note, I will close.

Dr Roy R Johnson, Flat 2, 66 Victoria Road, Exmouth, Devon EX8 1DW
Tel: (0395) 275290
9.7.90

LONDON SUB-GROUP

At last there is a sub-group in the great capital of England. We wrote to 191 members in the London area. From 47 replies that I received, it turned out that Wednesday evening is the favourite time of week for a sub-group to be held. With the help of Tony Firshman a room was booked in the Marquis of Clanrickad pub for the 1st of August.

30 people attended, with 20 not able to come because of holidays. Tony demonstrated his network of QLs that he uses to run his QBOX bulletin board, and allowed members without modems to have a look around his board. Mark Knight demonstrated his molecular graphics program available from QL World's Microdrive exchange. Laurence Reeves gave a talk on Minerva, and Ron Dunnet attended from the Essex sub-group although he forgot to bring his QView software that he uses to run his bulletin board.

A general discussion took place, within the meeting, on future arrangements and policy, how the group would be administered and financed etc. We were fortunate, in this respect, in having guidance from Ron Dunnet. It was suggested, that in view of our large numbers, it might be better to split into smaller regional groups ie N, S, E & W of London, but this was rejected because it was felt that a larger grouping was better able to run small sections at it's own meetings which would cater for a wider variety of expertise.

It was decided by the group that we should meet on the first Wednesday of each month with the possibility of changing to alternative months if this was felt to be more suitable for members. The subject chosen for next month will be QPAC2, that I was asked to give a demonstration of. There will be 'hands on' use of QPAC2, with talks etc. for both 'beginners' and experts. It was also decided as a matter of general policy to have a beginners corner as a regular feature. Other subjects will be arranged for people not interested in QPAC2.

Jerry Davis, 6 Elmcroft Crescent, Harrow, Middlesex, HA2 6HN.
Tel: 081-863 1631

2nd ITALIAN QL USERS MEETING, ITALY 27th - 28th OCT 1990

The date of the show is Saturday 27th October (afternoon) and Sunday 28th October (all day). The place is very near last year's place, 5-10 Km away from Villa Alba, on the Garda Lake, Northern Italy.

The exact venue should be CENTRO CONGRESSI DI MADERNO, but we are not yet 100% sure of its availability. Anyway, we are quite confident that the show will be held there.

For more information please contact Eros Forenzi by phone or letter, or Giovanni Zane by phone, letter or fax, at the addresses given below.

The meeting will have the same contents of the first meeting last year. That is, we would like many exhibitors to attend with their products, and they will be given the possibility to demonstrate their products. Many users will speak about major QL topics, including word processing, hardware projects, Italian software, QRAM style programs, emulation, and many other topics. There will be a bring'n'buy stand, so please bring with you any unused equipment, or anything else you wish to sell second hand.

These two days should be more than enough for anyone to look at everything and everybody. Facilities will be available for people coming from outside Italy (booking, etc.).

Last year we had Digital Precision, EEC Ltd, Human Interfaces, Miracle Systems, SPEM and three clubs (Club-Ware, GQGL, QITALY Group). This time we hope to have more exhibitors and clubs.

Eros Forenzi, Via Valeriana 44, 23010 Berbenno (SO), Italy.
Tel: (0342) 492323
Giovanni Zane, Viale M.E.Bossi 39, 25087 Salo' (BS), Italy.
Tel: (0365) 40102 Fax: (0365) 520184 (automatic)

ANGLIAN WORKSHOP

Having joined IQLUG in Feb.'84, (I still have the complete set of QUANTA's from Vol 1, Issue 1!) and receiving my long awaited QL in July '84, I finally got around to attending my first QL gathering, at the Anglian Workshop, last month. So how was it?.

Being normally a very reticent person, I found the informal atmosphere relaxing and encouraging. But to a complete novice in 'computer jargon', surrounded by so many obviously total experts, who were apparently quite casually performing 'open heart surgery' on the QL's, each with a great range of appendages all around them, made me feel more than a little inadequate !!

I was pleased when the presentation talks got under way, to give me an excuse to just sit and listen. However, despite the speakers intentions of trying to talk to the 'learners' - of which I am sure I must have been the only one there! - within a few minutes I just knew I was going to feel the same as when I read each new edition of Quanta, - I can understand the first page or so, but thereafter, in spite of always reading everything from cover to cover, 99% of the content goes over my head!. There was no way that I could reveal my total ignorance by asking the first speaker such stupid questions as 'Why should the MDV's be forgotten?"

or "Where or what is that magical chip replacement that stops the QL locking up on random occasions?"
(You should have done. I bet you were not the only one there with similar questions. SJ)

Everybody seemed to be such an expert, with their extensive setups of expansion add-ons, multiple disks and range of special software packages, that my very basic standard QL made me feel almost an impostor.

After the talk from 2/3rds of the 'Mega-QView-Corp.' and determined no longer to be a total outcast, I returned on the Sunday with my two QL's and used the skill of the very able team present to have them both surgically "Minerva'd'. I must express a very special thank you to Mr Tony Firshman, who together with the QView-man Mr Laurence Reeves, not only completed the transplants, but on one of the two machines, executed some major fault rectification, - under very difficult lighting conditions!- into the bargain.

Prior to going to the workshop, I had questions to ask about obtaining material from the library. I found some difficulty in making contact with the library position occupant. He either seemed to be totally surrounded by visitors or 'just gone walkabout!'. Unfortunately when I did nail him on the Sunday, he was unable to help me, because I wanted information on MDV cartridges, and he only dealt with disks. (Mr S Hewitt of Portsmouth can expect a 'phone call in the near future !).

I was disappointed that the group members organising the workshop did not follow the example of our committee members who all wore name tags, thus making enquiries that much easier. But what a pity that the Quanta team chose to sit behind their tables, with their VDU's facing the wall, instead of being on 'our' side, to make them more accessible. Anyway it was nice to be able to put faces to those names that appear on the inside cover of our magazine, and that work so hard to keep the Group running.

Like another recent letter writer said, how silly we reluctant attendees are to deprive ourselves of such freely given time, help and advice. I enjoyed the visits on both Saturday and Sunday, and I think we should be most grateful to both the trade and to our members who make such efforts to arrange and support these events. I look forward to being able to attend the next workshop, where I hope to be a little more enquiring and find out what some of these funny bits stuck in/onto the QL really do!

Vic Avery,
"Heigham", Nedging Road, Nedging Tye, Nr. Ipswich, Suffolk IP7 7HW
Tel: (0449)-741260
5.7.90

SOME POPULAR MISCONCEPTIONS (Mostly about filenames).

From time to time I read in an article or letter about the QL statements that I know to be untrue or at least misunderstood. Sometimes the same misconceptions occur over and over again. The following comments arise from a recent (Jan 90) issue of QL World and the final issue of a US newsletter called Quantum Levels, which started with high hopes as a bimonthly in August 1986 but only managed 12 issues in three years.

Basic Filenames.
Many people seem not to realise that there are two ways of presenting QDOS commands with filenames, and that the rules for allowable characters differ between them. In each case there is a limit of 36 characters in addition to the five which define the device (e.g. MDV2_).

1. The normal method of supplying a "parameter" consisting of unadorned ascii characters when only normal letters, numbers and the underscore character "_" are accepted, e.g. LOAD MDV1_my_prog1.

2. QDOS will also accept strings, otherwise it would be almost impossible to write file handling programs. (I think early versions of the QL only worked this way.) By a string I mean
i. a set of characters in quotes e.g. SAVE "FLP1_!@#$",
ii. a string variable to which a string of characters has been assigned e.g. COPY a$,b$
iii. a string function e.g. MERGE dev$&"_"&pää$&CHR$(233).
In these cases the only restriction is that the first five characters must be a legitimate device name followed by an underscore, the rest can be anything you can type in at the keyboard, and even unprintable characters (use CHR$() as above). Thus you could create files with unprintable names that would be almost impossible to delete without reformating the medium - if there were any point to this! Some commercial programmers have used filenames consisting entirely of spaces, which are invisible in a normal listing - I once discovered one on a disk someone sent me that read "FORMAT FLP1_:FORMAT FLP2_" that was named " "; luckily I discovered it using my Ftidy program before it was activated.

As far as I can see these rules apply to all commands that take filenames in the QL ROMs and in Toolkit II, such as RENAME.

FORMAT also works in the same way as far as medium name is concerned; that's how they got the date in the form 9\9\85 on the early MDV cartridges.

You can even put one totally nameless file onto each medium; e.g. SAVE FLP1_ creates such a file. The file can be BASIC, text or machine code, and is available to any of the commands referring to a single file name. However, DIR, and any commands or programs which make use of the directory, fail to recognise the file at all. If you suspect such a file may be lurking about on one of your disks/cartridges you can reveal it by COPY FLP1_,MDV2_secret (or something similar - COPY FLP1_,scr_ also works). If a file called "secret" appears on your target device, then it is secret no more and now available to all the normal manipulations.

Psion Filenames.
It is fairly common to read that Quill files must have the extension _doc, export files must have the extension _exp etc., This is not so, these are merely the defaults that the Psion suite uses if provided with nothing else. While you are restricted to a maximum of eight normal letters and numbers for the main part of the name and there must be a three character extension you can use any three characters that can be obtained from the keyboard for the extension. You must, however, type them all in when you want to save or load the file; "letter_@#$" is quite acceptable as a quill file name for example. You can import any ascii text file into quill too, but it must also fit these rules, so you may have to COPY it to a regulation filename (or rename if you have the facility.) It is the file header itself that distinguishes quill files from abacus files etc. and not the extension as is often thought. I use a three character date code on all my letters e.g. Michael_B12 means a letter to Michael written on November 12th (to me at any rate!)

More Psion tricks
Shift + F5 refreshes the screen in all the programs, but for some reason is undocumented. (Much better than F2 twice!)

Have you discovered that CTRL + down-arrow deletes from the cursor to the end of the line, and CTRL + up-arrow from the cursor to the beginning of the line?

Howard Clase,
Box 9947, Station B, St John's, Newfoundland, CANADA, A1A 4L4.
Tel: (N. Am.) (709) 753-6415 (U.K.) 0101 709 753-6415
e-mail: hclase@kean.ucs.mun.ca.bitnet

ABACUS FOR LISTS

I use Abacus constantly for lists of all sorts. I know that Abacus is officially a Spreadsheet, and Archive a Database, so we are supposed to use Abacus for calculations and Archive for lists. But Abacus works superbly, and it prints exactly the way it looks. In contrast, I struggle in vain to get Archive to print out what I want the way I want it.

The key to using Abacus was the discovery that you can "order" text alphabetically, i.e. lists, just as easily as numbers. This means that one basic list can easily be rearranged for different categories.

An example. Our Church Electoral Roll has Christian names, surnames, and addresses; I also add one of the twelve sub-areas into which we have divided the parish. Once the basic list is entered, I can sort them into alphabetical order of surnames, street order, or district order.

A list of the Parochial Church Council has postcodes, telephones, the year their 'stretch' ends, etc. and it is so easy to alter it each year after the AGM.

On occasions we have used further categories - male or female, age-groups, etc. which make it easy to select other groupings.

I can then print any section of the spreadsheet that I wish - i.e. all the people in a certain street, or district. And I can save lists in any version.

I realise that Archive will perform the same basic functions; but Abacus allows me to see the whole picture, to alter the width of columns to suit the length of names or data, to enter further names or new columns for fresh data. Abacus is user-friendly, Archive ain't.

There are only two snags. One is remembering the " before entering text. The other is the limit of 256 entries. For most purposes that is more than enough, but our church membership is (happily) several hundred. I believe the PC version of the Psion programs, XCHANGE, has Abacus without this meagre limit, so it can be done. Anybody know how to "bust" the limit on the QL version?

I have the memory. The set-up is QL plus Sandy 512 Superboard plus disks, driving a Brother CE-60 typewriter and interface. I am about to move to Cornwall to a new parish. (Such a shame, when the Portishead workshop was in my present one!) A whole lot of new lists are required. The people in Cornwall were highly intrigued that I should have a computer, duplicator, etc; "None of our previous Rectors could even type!"

N.J.Eva,
The Rectory, Church Road South, Portishead, Bristol BS20 9PU

MOUSE WITH SUPERQBOARD

I have now managed to add the extra bits to my Issue 3 SuperQboard to get the mouse working.

It needs two 74HC74s in the spare 14 pin spaces, and a 74HC244 in the 20 pin space. A 9 pin D type plug fits by the 74HC74 at the power supply end of the board, and 4K 7 ohm pull up resistors have to be fitted to the inputs at the plug. The ICs fit in the same direction as all the others on the board, but some boards have extra holes at the ends of the ICs where de-coupling capacitors have been left out, so the IC position should be checked with its power supply pin positions. A different version of the ROM is required, and I can provide these for a small fee for QJUMP's copyright. The latest version of the pointer interface software from QJUMP should be used, and not the ROM resident code in the SuperQboard.

If you fit a board mounted plug you will need to rewire the Atari mouse socket to suit, as Sandy didn't use the same pin out as on the QIMI board, but I can provide a copy of the connections. I re-scrambled the lead to my plug so as to be compatible with my QIMI set up. Get in touch if you want to know more.

Congratulations to Ian Ralston on his QL with a disk drive in the side. It should be a neat setup. My version of the same idea is progressing well now that I have obtained a nice slim drive. It uses a Tonto (Badged OPD) monitor which powers all the QL gear and gives a nice high definition display now that I have sorted out the interfacing. Mr Bull sells uncased versions of these monitors less power supply, but switch mode supplies are readily available. The QL RGB and composite Sync signals but not the vertical sync, have to be inverted. It is a good plan to buffer all these signals before they leave the QL, as the raw outputs from the ZX8301 are very fragile, and it is easy to damage this chip when playing about with monitors.

There are some lovely mono TTL monitors available very cheaply just now, and they give marvellous results when properly set up, but just poking wires into connectors to see what happens can be expensive at the QL end.

I hope to put some notes together about the common faults in various disk and memory interfaces based on my repair experiences, but I don't think the QUANTA magazine is the place for it. We need a volunteer (not me) to act as a repository for hardware information. Dennis Briggs mentioned this a short while ago when he said QUANTA needed a hardware library. Working out the circuit of an interface is only worth while if there is no other way of obtaining it, and then we should make it available to other poor souls trying to repair QLs struck by lightning.

Keith Mitchell,
14 Palmer Close, Storrington, Pulborough, West Sussex, RH20 3HN
10.6.90

SHIP TO SHORE

I suppose that 34 years serving as an engineer in the Royal Navy, with its highly complex weapon systems etc., should have given me a reasonable understanding of computers. Sadly, as time goes by, one finds oneself more and more concerned with administration and less with technicalities. Consequently on retirement, I realised I had been left behind and really knew only that they (hopefully) worked, and which experts to call upon if they didn't. With more time available, it seemed a good idea to delve deeper.

Starting in 1983 with the good old ZX 81 and a massive 16k of RAM, I rapidly found the ease with which the grey dawn could arrive when programs failed to work. Lesson 1 - acquire lots more self discipline. Then, in 1984, the QL was launched and I dared to risk £399 for one of the first (AH) models, plus £75 for a Philips Monitor. I have never regretted it, and the same model (now upgraded to JM), is still in use every day. A Taxan KP 810 printer followed quickly, with Cumana twin drives and interface a year later, and the Miracle Expanderam.

Perhaps I have been lucky, but the only real problem experienced in 6 years was the sudden appearance at different times of garbage (characters) on the screen at the cursor position - without touching the keyboard. Nowhere had I seen this manifestation reported and, despite lots of advice, changing membrane and power supply etc., it continued. In desperation, I finally consulted Tony Firshman who suggested transient spikes in the main power supply might possibly be the cause. A £14 plug type suppressor cured everything! Perhaps I should have remembered I am 3 miles away from the biggest quarry rock crusher in Europe.

Initially, I used Archive extensively for a research project connected with a local hospital. Since it eventually involved working with four files open simultaneously, each containing 74 fields, I reckoned I learned the hard way! I enjoyed Archive but found it rather slow, and have no real use for it now (I have nothing to catalogue, and my address book is quicker). Today, the main value of the QL lies in word-processing and 'keeping the books' as Treasurer for five different organisations. Because they all demand different outputs, I prefer to write and compile (Supercharge) my own programs, each containing a PROC to permit immediate transfer of data via Taskmaster to Abacus for ease of tabulation, 'what if we change x ?' effects and final presentation of accounts. These PROCS are straight forward so long as I remember to get the commas and quotation marks in the right places in the import files! Graphs in Easel for cash flow projections follow as required.

I have so far resisted the temptation to change to Text87 or The Editor, and reckon that I am content with Quill (plus Turboquill of course). Perhaps it's old age, but Quill meets my (fairly prolific) needs very well. (Incidentally, David Steward's query about date insertion, justified right [June 1990] is easily solved using Turboquill - unfortunately, he doesn't). Equally, I have not been persuaded to go for DTP - mainly because the print quality of text with 9 pins in graphic modes is poor. My village Newsletter lacks cartoons but uses Sign Designer for heading and logo, QWriter for titles and five type styles for text. Sign Designer is excellent too for banners - my longest so far is 15 feet, printed sideways on roll paper.

Assembly language (Metacomco) I found as difficult as learning Norwegian, mainly because object code either works or it doesn't, and - unlike Superbasic - it is not easy to find errors. I persevere with both.

Tips for beginners, as suggested by Sarah? Well, I hesitate to presume but I strongly suggest Lesson 2 - I must read the manuals - often, especially that for my printer. In most cases the answer does lie within. Lesson 3 - do I really need that marvellously clever but expensive program? And Lesson 4 - if my program doesn't work, remember I have made the error, not the QL.

Finally, can anyone tell me how to provide more than 10 Translate facilities with Quill - without Text87? My Norwegian wife-to-be is a touch typist, and I need to accommodate three extra letters in the right places on the standard keyboard and to rearrange some others.

Peter Jones, Shirralee, Dean, Shepton Mallet, Somerset BA4 4SA
Tel: 0749 88 465
19.06.90

BLUE PETER?

"How did you get started in computing?" asked Sarah. A good question and one which I'm sure no one is interested in really, but I'll tell you anyway. If I were to say the Gerry Anderson series UFO and Blue Peter would that surprise you..? It would ? Well I'd better elaborate then!

UFO (for those unfortunates who never saw the show) was a series produced by Gerry Anderson with the premise of a secret organisation whose mission was to intercept and destroy incoming alien UFO's with dubious intentions towards mankind. This was in the days before the cuddly ET's of Steven Speilberg!

The organisation charged with this great task was called SHADO and had their headquarters crammed with what looked at the time like the state of the art computer equipment, consisting of large numbers of Magnetic Tape drives which seemed to spin purposefully churning out all kinds of mankind-saving data. Well as an impressionable young boy I decided I would quite like a SHADO HQ in my parents attic, so I set about collecting a few large packing cases and with the aid of old reels of magnetic tape and some small motors, created my own computer system. It didn't do much, in fact the pieces of paper that it spat out bore writing which was in some uncanny way exactly like mine, but a small matter. That takes care of UFO, now where does Blue Peter come in..?

Well most of the projects required large quantities of sticky-backed plastic, a commodity which I was usually unable to obtain. Then one day with the aid of a used cornflakes box, some knitting needles and assorted bits of cardboard, Val or Peter or John demonstrated how to make a 'computer' that could sort punched cards in a rudimentary way. Anybody who wants to know how to build one drop me a line or give me a ring and maybe I'll write an article for next issue!

Stage three addiction came about after reading through old issues of an American magazine called Popular Science and seeing adverts for a build-it-yourself computer called the Altair 8086 or some such. It didn't appear to have the luxury of a keyboard, screen or disk drives and was covered in lights and toggle switches used to control it. Even though it was rudimentary it was beyond my budget at the time.

Things then went quiet for a while until the arrival of the ZX81 1K computer in a local branch of W.H. Smith - that was it! The start of a series of late nights finding out what these strange silicon beasts could do. Amazing what games could be crammed into 1024 bytes in those days, says he sitting in front of a 4M Macintosh. A 16K (yes sixteen!) RAMPACK soon followed and BASIC programs began to take shape, my most ambitious project at the time being a program that logged weekly electricity consumption to give weekly costs and bill-to-date...ahh heady days of student youth!

Sinclair then launched their next gasp of technology, the ZX Spectrum which was COLOUR and expandable to 48K. I started off badly with a blown up 16K machine due to a faulty power supply and was very sad to have to give up the machine I had already waited 3*28 days for. Eventually I received one that worked and upgraded it myself to 48K and started to add bits and pieces, building it into a DK'Tronics keyboard and adding the wonderful tin-foil ZX Printer.

Then came the QL on the scene - a machine which looked particularly interesting but not four hundred pounds worth of interest, so I just flicked through the lovely leaflet showing all those screen shots of Psion software and wondered what sort of strange language the User Guide appeared to be written in, after careful scrutiny of the photographs with a magnifier!

Rumours of the QL's price cut started to circulate after a while. Now two hundred pounds could be coped with as I had started work and could vaguely justify it, well sort of.....so the day of the price drop I was round to my local Currys faster than you can say 'multitasking' and a three hour lunch break followed playing the simple adventure game on the Welcome microdrive! Here I am today with three QL's, a Spectrum, a Z88, and a Macintosh SE with an '020 accelerator card....and very little remaining desk space to prove it!

If I knew then what I know now, would I still have splashed out on the addictive ZX81...? Well it's okay, so I just stay up 'till strange hours of the morning now and then...I can handle it...I could give it up tomorrow....couldn't I..? Now where's that videotape of UFO gone.....and if you've any spare empty cornflakes packets save them for me will you....?

Stuart McKnight, c/o SHADO HQ, The Moon

STAR LC24-10 PRINTER

I returned from Sri Lanka in April and, having left my old printer with the children's home there, I looked for a new printer. Prices for 24 pin printers were enticing and I paid £230 for a Star LC24-10, the other printer on my list was the Panasonic but it was then £30 to £50 more. (Latest prices in Computer Shopper are LC24-10 £187+vat; KXP 1124 £194+vat. Computer Shopper also has a couple of 'Sinclair' pages including QL news and reviews and plenty of adds for cheap consumables.). At present prices I may have bought the Panasonic as you can put A4 in Landscape as well as Portrait. Even so the Star was a very good buy and I am very pleased with the output. The LC24-10 has the following features:

Fonts	Styles	Pitches
Courier	Standard	Proportional
Courier Italic	Bold	Condensed Proportional
Prestige	Double Strike	20cpi condensed Elite
Prestige Italic	Underline	17cpi-condensed Pica
Orator	Overline	15cpi-Semi-Condensed
Orator Ital.	Outlined	12cpi-Elite
Script	Shaddowed	10cpi-Pica
Script Ital.	Superscript	8.5cpi-enlarged-condensed Pica
Cartridge(option)	Subscript	7.5cpi enlarged Semi-Condensed

Draft	6.6cpi triple width-condensed Elite???
Draft Italic	6cpi enlarged Elite
	5cpi enlarged Pica
	4cpi triple width Elite
	3.3cpi triple width Pica
	3cpi quad width/height Elite
	2.5cpi quad width/height Pica

A maximum of 12 founts, 9! (nine shriek) emphasises, 17 pitches and with single double and quad heights! Proportional is only available in Courier and Prestige.

If you are thinking of buying a 24 pin printer remember that the quality is much better than an 8 pin and that it is more versatile but probably no quicker on graphics, it has to cope with three times as much data. The Star LC24-10 can do 360 dpi vertically and horizontally, wonderful! Bigger dots than a laser printer but as many dots per inch. The only problem is that there could be 360x8x360x11 dots on an A4 printout at this resolution, that is 11.1375 Meg. of dots - even my Trump Card can't handle that!! It will however print text faster than most 8 pin machines and with many more possibilities as outlined above.

Any program which can even attempt to deal with this complexity and can show it on screen deserves a prize. Text87 can manage to give easy access to ten combinations from the above and to 1400 (yes -one thousand four hundred) with a little more difficulty. With a bit of effort the screen founts can be made to give a very good image of the page to be printed and with use of some alt-keys the selection of founts can be made a little easier. With the use of the Fountext graphics driver an image of the screen can be printed, but on a 24 pin printer, handling three times as much data as an 8 pin this is very slow, especially with the larger sized fonts, however for posters the results are worth waiting for.

However, the user interface of Text87, in particular relating to choosing of founts is not very friendly. To change fount, except to one of the ten easily chosen ([F3][n]) needs the following key presses ([F3] [T] [S] [n] [ENTER] [n] [ENTER] [ESC] [SHIFT] [F4]). The 10 easily available choices are each a single combination of a fount with emphasis, pitch and height, etc., Having only ten combinations is a bit limiting. I would like to have switches for toggling between:

(1) underline, overline & normal;
(2) bold and normal;
(3) pitch width (20,18,17,15,12,.....dpi)
(4) pitch height (single, double, quad)
(5) pitch style
(6) subscript, superscript & normal

Ideally setting these would also set the line spacing to allow for the tallest letters on a line (with an override for special effects) and manipulation of the font attached to the feature to give a screen representation of what will be printed.

This brings me to the other aspect of this, the screen representation of the printer fonts require one screen font for every variation of printer font. That is one font to represent normal, one for double width, one for condensed, one for italic, one for double height one for double height&width, one for triple width etc., etc. Could not one font be manipulated by the program, just as Basic does, to provide a number of height, width and possibly italic variations of one basic font?

Ideally the program could mimic the control panel of the printer. If this is not possible I would like to have twenty easily chosen fonts by using [SHIFT]ed numbers or even 26 or 52 by using alphabetic keying. Even better, for future development, would be a pull-down menu or menu's with lists of possible combinations to be chosen by 'hitting' the one wanted.

If you do buy a 24 pin printer and have Text87 you will need the additional 24 pin printer drivers available for an extra £15. While these are admittedly complicated bits of code which I couldn't produce on my own, I don't think, considering how common 24 pin printers are becoming, that any word processor should be sold without 24 pin drivers as part of the package.

If Text87 could do all I ask it would be perfect as far as I am concerned, as it is I'm quite happy to live with the best which is also Text87.

Peter Pillinger, 10 Harding Close, Redbourn, St. Albans, AL3 7NT
16.6.90

ARCHIVE: YOUR FLEXIBLE FRIEND

Here is a useful little procedure for setting the day of the week, date and time. It depends on the function days(), which must have as its parameter a date in the form "YYYY/MM/DD". Another function, date(0), will supply the current date in this form. Thus

```
let today=days(date(0))
```

will give you the number of days elapsed between a given reference point, set by Archive itself, and the current date; for example, Tuesday, May 29, 1990 was 148802 days from Archive's given reference point.

Note that the final products of this procedure - date$ and time$ - are left as global variables, to be used by any other procedure for which they are appropriate. Global variables are potentially dangerous, however: if, by chance, a field in an open database was also called date$ or time$, then there would be some confusion. At any given point, field names take precedence over other variables, so you might find that "print date$" would print out the contents of that field in the current database instead of the date$ defined here.

```
proc settime
local day$,today,ref,n,n1
REM .. ref day Tuesday, May 29, 1990 was 148802 under QDOS
REM .. BUT - NB NB - 148803 under MS-DOS!  Isn't that interesting?
let ref=148802
let today=days(date(0))
let n1=today-ref: let n=n1-(7*int(n1/7))
if n=0: let day$="Tues": endif
if n=1: let day$="Wed": endif
if n=2: let day$="Thurs": endif
if n=3: let day$="Fri": endif
if n=4: let day$="Sat": endif
if n=5: let day$="Sun": endif
if n=6: let day$="Mon": endif
let date$=date(1)
let date$=day$+" "+date$( to 2)+" "+month(val(date$(4 to 5)))+
" "+date$(9 to 10)
let time$=time()
if val(time$)>11: let time$=time$( to 5)+"pm"
  else : let time$=time$( to 5)+"am": endif
if val(time$)>12 : let time$=str(val(time$)-12,2,0)+time$(3 to ):
endif
REM .. This makes for a 12-hour clock instead of a 24-hour
endproc
```

Hugh de Saram, Littlefield, Bath Road, Marlborough, Wilts. SN8 1NN
Tel: (0672) 512 572

MINERVA MANUAL REVIEW

Many reviews of Minerva, the revised version of QDOS, developed and sold by the QView MegaCorp, have been written, so I thought I would try and be the first to comment on their manual. Described on the front cover as "Another tasty product from those awfully nice people at the QView International MegaCoporation", it is certainly a very professionally produced product (it was DTP'd on a Mac, (oh well) and the original was, I think, laser printed), being ring bound with a nice soothing blue cover, perfect for when you are banging your head against the wall (or the QL!) trying to understand how to use the new second screen!

The manual costs only £5 to present Minerva owners and is free with new Minervae. It covers versions 1.79 and above, although it is still applicable to other versions (but people with <1.79 can get an upgrade). It is divided into 5 main sections, similar in concept to the QL manual, but of course without the terrible omissions and mistakes. These 5 are: Introduction, Incompatibilities, Concepts, SuperBASIC, and Assembler. Most of the material is derived from the original information files on the Minerva disk, although a lot of new material is present, including very interesting biographies of the QView TMC trio.

Well that's about it really, it tells you what you want to know, explains MultiBASICs, the second screen and all other changes and additions, and for the advanced users it explains the new vectors which have been added to QDOS. It is well worth a fiver and for people who want to pad out their book shelves, it's about 30 A5 pages, that's approximately 4mm when compressed...!

Carl.L.Cronin, 111 Howard Drive, Letchworth, Herts, SG6 2BX
Tel: (0462) 670177
7.7.90

MULTI-COLUMN OUTPUT FROM QUILL

I'm a great fan of Quill. No other word processor seems as easy to use. It may lack sophisticated functions, but for my purposes its ideal. Desktop publishers however, lie at the other extreme. These are complex beasts, versatile but slow and difficult to use. For the production of simple magazines and pamphlets, one of the nicest techniques not directly available with Quill is the use of columns. Although quite limited, a simple program that processes '_lis' files can simulate the multi-column output of a DTP.

Suppose you have three thin Quill pages of 25 characters line length. Lying side by side, they fill a page but leave a margin of 5 spaces at the right hand edge. This combination of pages can be readily written in basic - see the listing. To use the program we must first calculate the format requirements. With 'n' columns, a left margin of 'm', and a text length of 't', the right hand margin 'r' may be obtained from the following:

```
r = 80 - n * ( m + t )
```

To look good, r must be similar to m. For instance try -

```
n = 2 : m = 10 : t = 25
n = 2 : m = 6  : t = 31
n = 3 : m = 5  : t = 20
```

These all produce pleasant displays.

Quill must now be set up with a left margin of 'm'; a right margin of 'm + t'; and the indent somewhere between. Next the footer must be set to 'none', and the file printed to a '_lis' file. This produces a long thin straggle of text.

Since Quill fails to add a last new line (causing the final 'input' to crash), this must be added in a sneaky way.

```
OPEN#3,file_lis
SCROLL#3,32000,42          - gives EOF error.
PRINT#3:CLOSE#3
```

If the file length is less than 32k (a must) the strange scroll positions the file pointer at the end of the file allowing the extra new line to be added. Now for POLYT.

This program, listed below, should be configured for Epson style printers. If yours is different, then changes should be made to the 'select' in function 'cut$'. This routine takes into account the extra characters involved with bold and underline. A brief explanation of what is involved is included in the 'Rems'.

Running the program you are asked for the filename, lines per page, characters per line (= m + t), and number of columns. If all goes well it tells you the expected right hand margin, and whirrs away for several minutes formatting the first page (better compiled - integer optimisation). The text is then previewed on screen and you are asked whether it should be printed or not. A brief explanation of how the program works is contained in the 'Rems'.

Obviously this is extremely limited! The entire work is produced in the same format; the text is all the same size; finally any tail end lines are printed in a single column. With careful planning however it can produce good results - try to ensure that the number of Quill pages is an exact multiple on the number of columns - this can be adjusted using the top and bottom margins or altering the page length.

With this simple version complete, I have gone on to develop a more sophisticated version called 'POLYTEXT' which allows different numbers of columns on the same page. Using simple embedded commands, it formats the page automatically from a '_lis' file and special printer driver. When written in 'c' it should be amply fast and will soon be offered to the QUANTA library.

A further version 'POLYTEXT2', as yet just a dream, should add double sized characters for headlines and the ability to mix in small graphics. If this gets written it will allow sophisticated layouts from Quill text alone; anyone fluent in Quill should be able to use it. This is however far off as I no longer have much time with the old black box.
I hope this is of interest to somebody - if you wish to contact me about 'POLYTEXT', my address is below.

```
100 REMark get basic information
110 MODE 4:INPUT'source filename ';a$
120 OPEN_IN#4,a$:OPEN#5,SER1:OPEN#6,con_480x180a32x16
130 INPUT'lines per page ';lpp
140 INPUT'characters per line ';cpl
150 INPUT'number of columns ';nc
160 REMark calculate right hand margin
170 rhm=80-nc*cpl
180 IF rhm<0 THEN PRINT'not enough line space':STOP
190 PRINT'right hand margin ';rhm;' charcters.'
200 REMark get a full page of text
210 REPeat lop1
220 DIM text$(lpp*nc,160),cnt%(lpp*nc),c$(160),scn$(lpp*nc,cpl),
    h$(cpl)
230 FOR n=1 TO lpp*nc
240 IF EOF(#4) THEN EXIT n
250 REMark get a single line
260 INPUT#4,c$
270 IF LEN(c$)>1 THEN
280 REMark remove carriage returns
290     IF CODE(c$(LEN(c$)))=13 THEN c$=c$(1 TO LEN(c$)-1)
300 REMark store text, calculate true length, h$ is text without
    escapes
310     text$(n)=c$:cnt%(n)=cut%(c$):scn$(n)=h$
320 ELSE
330     text$(n)='':cnt%(n)=0:scn$(n)=FILL$(' ',cpl)
340 END IF
350 END FOR n
360 REMark output text to screen
370 CLS#6
380 FOR n=1 TO lpp
390 REMark print each column of one line in turn
400 FOR p=0 TO nc-1:off=p*lpp+n:PRINT#6,scn$(off);:END FOR p
410 PRINT#6
420 END FOR n
430 INPUT#6\\\'output to printer (y/n - e to end)? ';f$
440 IF f$=='e' THEN EXIT lop1
450 IF f$=='y' THEN
460 REMark output to printer including escapes if required
470     FOR n=1 TO lpp
480     FOR p=0 TO nc-1
490     off=p*lpp+n
500     PRINT#5,text$(off);FILL$(' ',cpl-cnt%(off));
510     END FOR p
520     PRINT#5
530     END FOR n
540 END IF
550 IF EOF(#4) THEN EXIT lop1
560 END REPeat lop1
570 CLOSE#4:CLOSE#5:CLOSE#6
580 STOP
```

```
590 DEFine FuNction cut%(d$)
600 REMark this function finds the true length of a line without
    escapes
610 REMark it also provides clean text for the screen in h$
620 q=1:cp%=0
630 REPeat lopc
640 IF q>LEN(d$) THEN EXIT lopc
650 cp%=cp%+1:h$(cp%)=d$(q)
660 IF CODE(d$(q))=27 THEN
670    cd=CODE(d$(q+1)):cp%=cp%-1
680 REMark this bit needs to be configured for your printer
690 REMark each escape sequence longer than two characters must be
700 REMark noted. esc,83,n for instance - becomes '=83:q=q+2' -
710 REMark two characters follow the escape character - all this
715 REMark for bold and underline
720    SELect ON cd
730       =45:q=q+2
740       =83:q=q+2
750       =REMAINDER :q=q+1
760    END SELect
770 END IF
780 q=q+1
790 END REPeat lopc
800 h$=h$(1 TO cp%)&FILL$(' ',cpl-cp%)
810 RETurn cp%
820 END DEFine
```

Nick Ward,
Seale Cottage, Worth Matravres, Swanage, Dorset,BH19 3LQ

ARCHIVE QUERY

I have a JS QL with Miracle Systems Trump Card, dual disk drive and 40mb hard disk. I also have an Epson RX80F/T+ printer and PC Conqueror from Digital Precision.

I use my computer for various tasks - keeping check of our various bank accounts, local club annual accounts, music record catalogue, record of video recordings, games etc. But the main task is a home job entering a database for a commercial business and that is where I have a query.

I copy my files into RAM and as I do not want to take the risk of losing work because of a crash, I like to save the file after 50 entries. The only way I have found to keep a check of how many records I have entered is to come out of "insert" mode, "print recnum()" and continue inserting. This takes time, albeit a few seconds, but time is money!

If any one knows any way to print the record number to the screen as I enter records, I would be very grateful.

I would like to say how much my husband and I enjoy reading the Quanta magazine every month, and also how much we enjoyed the last 2 workshops at Portishead. We find everyone we come into contact with, in relation to our computer, very interesting and helpful. We also have had very good response to queries with various software houses, Digital Precision and Sector Software to name a couple.

Mrs Margaret Budden,
3 Coleridge Gardens, Burnham-on-Sea, Somerset, TA8 2QA
6.6.90

PRINTING FROM EDITOR

Although a subscriber to QUANTA for some years, I have only written to the editor once before, and that was about a problem to which I still have not found the answer. Perhaps I can mention it again.

When I am using the Digital Precision "Editor" program, if I write a document to a file (i.e. 'save' it), and then use the edtprt_bin command to make a hard copy, it prints out fine; but if instead of saving it I send it directly to the printer, with the wp. command, when the print-head comes to the right-hand margin I have set there is a Line Feed, but no Carriage Return, and the printing goes on to the end of the carriage (132 characters) before it Line Feeds again and the carriage returns. The same thing happens with some of the reports when using Sage Integrated Accounts, making them go diagonally across the page instead of in proper columns.

I have tinkered with Preambles and Postambles and Dip-switches for hours, all without achieving the desired result. There have been letters, in QL WORLD and I think in QUANTA, from others with the same problem, but I have never seen a reply. Are there any suggestions?

T. Rendall Davies,
(C.I.S.), P.O.Box 538, 61 Church Hill, London, N21 1LF
Tel: (01) 882 7562
11.6.90

FELLOW LOONIES

Yes it's that chap Brian Richardson again, and yet again he's asking for more help (dam cheek! we hear cries of, pay for your own therapy like everyone else!) Well if you lot won't write in to your own magazine to keep it alive and fresh, then I'm afraid your going to keep getting lumbered with us nut cases, asking the 'same old thing' that do write in.

This time I am asking for help on upgrading a system from scratch, I mean, just what does one do? What does one buy? Where does one start? After all, there's so much to choose from, even for our 'meagre old' QLs.

Let's start with a memory upgrade, OK fine, but how much is a sensible amount to upgrade to? or by what? after all if you are constantly compiling any form or amount of data 40Mb could be insufficient for your needs, even for a person compiling a list of the highly acclaimed lesser spotted tree cracking warblers societies, exactly! And why is it pray, that the internal memory is so restricted on our beloved machines? Why is it that we can not upgrade internally to any amount of our own choosing, by adding the required chips as and when affordable to each individual? Which leads me very nicely to my next query (Oi, that's enough of that, this is a family magazine).

Now what if you wanted to make up your own expansion board? Ah ha! a little more adventurous, and I can see the lips whetting now (I warned you of that before!) but where do you begin? It all seems very ambiguous to me, and probably does to many others a lot more brighterer than wot I is.

Alright, alright, I know start at the beginning; well I did see, (so there!) I got hold of this book from the library all about machine code, cos it's supposed to give some insight for construction, well that's what it said on the cover anyhow, but would somebody please tell me how ... pretty, pretty, pretty, please! OK, so now I understand that 1001 in binary equals nine, so what! What I really want to now is, what the hell does it do to the machine? and how do you input it in to the machine so that it understands? I mean come on now, it really isn't anything like building bricks, blocks or anything sensible, this electronics, well you tell me! But the bug is there, so I must find out, or death take me. "It's the challenge of the thing though isn't it?" He gibbered helplessly.

Just as an over simplified (as I know I am) example of what I mean, now when I went to school (no not pre-war, just preposterous) we were told how to wire things up in parallel or in series, (advanced stuff!) OK I feel that I got to grips with that one alright, and also that if two wires of opposing forces (positive v negative) cross or touch one another en route to there respected destinations (light bulb, bell, or whatever) you would have what was termed then, as a short circuit, fine makes sense so far, but now and then I see in varying wiring diagrams, two power sources with resistors and the like in between them, what is this? expert suicide, kill thy neighbour, or perhaps something blindingly simple that I have obviously missed?

Assuming that the thousands and thousands (hope, hope) have by now heatedly written to me to explain not only how thick I have been over the last point of issue, but also elucidating all the other ambiguous points I have listed thus far, but there is more ("Even more sir?", "Yes, and stop yawning in the back there Jones!") I shall continue.

Right upgrade from internal expansion, Umm, Oh yes, Toolkit, right you lot, wots all this then, now I know a car mechanic might have one, but a toolkit for a computer user, and budding programmer, now come on! you can't fool me, for crikey sake, I mean I can't even find the dam brakes on this blasted thing! So what the hell do I need a toolkit for?

Disk drives next under fire, well they might be, but which ones do you choose? will any drives do? Do they take the place of the internal memory? How do you connect a separate power source without blowing up the computer, or is it as obvious as connecting up a tape deck to a stereo? And how do you know if a power source is necessary, after all the microdrives seem to whirr quite happily on their own steam? How much faster than microdrives are they? If they are better than microdrives why on earth didn't uncle Clive put them on the end instead of these things in the first place? Can one replace the microdrives completely with them? And what advantage as to the type, 3" 3.5" or 5.25" which to choose, which is better? And what capacity the memory? so confusing ... single side or double, double side double density, the list is endless, could we please have a clear and detailed explanation as to what is what, and which goes where, please, as forewarned as they say, is definitely forearmed.

Some of the same questions apply to hard disks as they do to floppies, (this bloke still waffling on! Good grief!) the memory for example, does it need to be upgraded if you connect up a hard disk, but other than that I am a little confused (or rather a lot confused!) as to why any old hard disk can't be plugged in, for, as I thought, most (if not all) computers were controlled by this ASCII coding structure right? (or whatever it is) then everything should fit everything else, right? (probably wrong! again!). Also as a point of interest, are floppies necessary if you have a hard disk, or is it possible to go straight to hard disk and omit the floppies altogether.

Just an idea that has come to mind, but perhaps, between the various meetings in and around the country, notes could be taken (by some poor unsuspecting soul) or tape recordings made, and then centrally collated and compiled to make up a small booklet or even book, for the use of beginners in computing (as many of us are). Even the more advanced hardware and software fanatics, clearly explaining some of these points I have raised, and others, in a much finer detail.

Also, maybe giving a clear printed diagram of the circuits within the QL, how the keyboard is connected, and other simple, and maybe not so simple, hardware projects. Possibly including a few tips, and other sources of information useful to the QL user, even by charging a cover of around £5 to £10 possibly even £20 (if the book was detailed enough) would I am sure be willingly shed out by those of us eager to learn more about our trusty chosen beasts. So how about it you pros! and those of you in the know, do us ingrates a favour and knock your heads together a few times! There might even be someone, who even as a novice, sees a new beginning, of a new machine ... just like Clive did.

All and any information, suggestions (preferably clean) on learning matter, books to read (ditto) etc., more than gratefully received by yours truly, at 24, Is-y-llan, Llanddarog, Carmarthen, Dyfed, Wales. SA32 8NX. Or better still, write in to Quanta, and let everyone share the knowledge! *(Crikey... now there's a challenge for someone. Or one could 'phone a committee member for the answers. SJ)*

POINTS ARISING

The following thoughts are in response to items in recent QUANTA and QL World issues.

PARITY AND PRINTERS

I have never had problems getting my QL (build D07) to operate with odd or even parity. However one must be aware that the QL will only produce parity when set to 7 bit code length. This is not very useful as it only permits transmission of text with character codes of 0 to 127. Graphic printers (and presumably plotters) require 8 bit codes and thus must be set to match the QL in 8 bit no parity mode. When I first obtained an early model GLP printer some years ago, it could only be set to odd or even parity with 7 or 8 bits length, and thus would not print graphics. Centronics however very promptly provided a replacement ROM for the printer allowing 8 bit no parity, and also giving the full QL character set as a welcome bonus (no translates in Quill etc. and no wrong characters in listings).

OPD MICRODRIVES

Anyone following Dennis Briggs' article in QL World (Jun 90) on using OPD Dual Microdrives as an expansion of a QL may be interested in the following additional details. These units seem to be designed to run the motor from a 12 Volt supply and may be marginal in respect of motor speed and starting torque if run from the QL power unit. This is particularly evident if the Sinclair power unit has been replaced by a lower voltage one to reduce heat generation. The cure is to short circuit the large 12 Ohm resistor which is in series with the feed to the 9 Volt motor. This is found at the motor end of the pcb alongside the crosshead screw.

When wired as described in the article the microdrives can not be write protected, this should be acceptable as long as one is aware of it. The OPD unit can also be used to replace the internal drives in a re-packaged system but will not fit into the QL case. I have details if anyone needs them.

QUANTA HARDWARE LIBRARY
I support Tom Erlandsen in calling for a QL Hardware Library and will be sending him some of my circuits (see Quanta July 90). I hope that QUANTA can organise such a library but foresee it could be quite expensive as a lot of photocopying would be needed. Perhaps all descriptive aspects of projects could be on disk/MDV in the normal library, from which users would select which diagrams they wish to pay for copying. If any contributors have QL screens of layouts etc then these could of course be on disk, but I suspect this would not apply to many cases.

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

QL WANDERINGS

Hardware upgrades.
To sensibly decide on a QL upgrade you must first realise that people will have to do the work. Despite incredible competence they need money to pay for food and a roof over their heads and to pay for components and advertising. They have to decide which QL users they will target and so pick a price bracket - people with expanded machines will have disk drives and expansion memory available to be used, cutting down on costs. It might be a good idea to have a poll of QL users to find out what they would seriously pay for an upgrade if they do want an upgrade. But the costs of the enhancements will have to be common knowledge before people simply write down "dream-machine" specs with a price tag of £300. Take a look at what you use and what you need before deciding what you want.

A 'high density fast reacting LCD colour screen' is probably asking far too much. Portability is an expensive asset. Implementing an optimised Qdos can be done with the help of QViews' Minerva. If you haven't seen v1.80 then you don't know what you are missing. Bundling software is a good idea but the software house has to be paid a royalty. Fair enough. But demanding 'optimised' versions is incredible! I am sure Steve Sutton tried to make Conqueror as fast as he could. If PC compatibility is that important maybe you would consider having a PC processor inside the machine and having some kind of virtual memory mechanism looking after the PCs access to QL memory in the jobs area. Maybe you could even come up with some system that has the PC processor multitasking. This will get over the problem of the speed of PC programs.

I have spent nearly one year in PC technical support and have had a good look at MS/PC-DOS and am now less critical of the speed of my QL and the quality of its software. Programming a QL is much more fun than programming in MS/PC-DOS. But it seems to me that Microsoft Windows is easier for a programmer to cater for than QJumps' Qptr.

A 'high-density mode with all necessary colours'. I for one, want to see a low-density mode with limited colours and no pixel graphics - maybe this could link in with the PC processor, giving CGA display quality. Why? Because writing a character on a text only screen will take a minute amount of time compared to the amount of time writing the same character to a mode 4 or mode 8 screen. This will make things like text editors and spreadsheets blindingly fast. The CGA screen has box characters and line symbols so crude graphics may be produced and colour is available. Also, the more pixels and colours you have on screen, the more memory it uses up. If you have the Qjump Pointer Environment (QPE) installed then a job that uses the whole screen will have a memory overhead of 32K on top of what the program would normally use. This extra 32K is used to store a picture of the jobs screen so that it can share the screen with other programs.

My main hardware problem is the 20 bit address bus. Adding extra address space would allow more user ROMs (eg with hotkeyable programs) and more RAM as breathing space. QL programmers have only had the 68008 to play around with. There is a tendency on other machines to write the program in a high-level language and let the high speed of the processor take up the slack. Also, with single tasking machines it is easier to get away with slow programs that guzzle memory as you don't have to share processor power and memory with other jobs.

As an existing QL user I don't need bundled software/printer etc with a QL upgrade. I need a solid foundation for expansion (68000 acceptable but 68020 preferred) with a place for a maths co-processor and extra expansion slots.

The library.
The library has a lot of useful programs in it but it can take a lot of time to find the right program for your needs, evaluate it and go through the learning curve. How about having set aside a little section each month for the library programs? Not a list of librarians but a little summary of each recently added program. Then they become fair game for people to write mini-reviews for Quanta. Otherwise you will find that people merely find gems in the library and assume that everyone knows about them.

SuperBasic.
Here are some ALTKEY definitions that some people might find handy. They use toolkit two and turbo toolkit.

1. Rename a file.
   This accepts the old name and presents it to the user so that it can be edited to the new name.

```
ALTKEY 'o','INPUT#0;"»";_$!!!:RENAME _$ TO EDIT$(#0;_$,80)',''
```

2. Edit the toolkit two data defaults. (This should be one line).

```
ALTKEY CHR$(161),"INPUT #0;'0=DATAD$,1=PROGD$,2=DESTD$ =>'!_n$
:n=('0'&_n$)+1:n=(n*4)-3:_q$='DATAPROGDEST'(n TO n+3)
:TYPE_IN _q$&'_USE EDIT$(#0;'&_q$&'D$,80)'&CHR$(10)",""
```

They should be self-explanatory. If you don't understand it then go to a Quanta sub-group meeting and ask to see a SuperBasic programmer for 5 minutes. That is my excuse for not explaining it. What's yours for not understanding it?

Minerva allows proper error trapping. Here is a (possibly) useful routine to include in programs to help debug them.

```
100 WHEN ERRor
110   LIST #0;ERLIN:PRINT #0;"At line ";ERLIN!!:REPORT #0
120   PRINT #0;"Stop/Continue/Retry/Miss >";:CURSEN #0
130   REPeat lp_err
140     _a$=INKEY$(#0;-1)
150     IF _a$ INSTR 'SsCcRrMm' THEN PRINT #0;;_a$:EXIT lp_err
160   END REPeat lp_err
170   SELect ON _a$
180     ='S':STOP
190     ='C':CONTINUE
200     ='R':RETRY
210     ='M':CONTINUE ERLIN+1
220   END SELect
230 END WHEN
240 PRINT 'Hello'
250 PRINT 'strt':PRINT x/0:PRINT 'end'
260 PRINT 'Bye'
```

When an error occurs, the failed line is listed and an error message is printed. Then SuperBasic waits for a valid keypress.

S Stop program now.
C Ignore error and go to next statement.
R Attempt to retry the bit that caused the error
M Ignore error and go to next line.

The lines 240-260 are there to give something to cause an error so you can get used to the different options. Lines 100-230 are important.

I'm flying in the dark at the moment. People have written to Quanta asking for help on SuperBasic. Is this useful to anyone?

Ian.R.Bruntlett, QL Forum,26A Ferrers Ave, West Drayton, Middlesex
1.7.90

BEGINNER MK1.

It's unbelievable how long this letter is taking. I began it on the 5th June (this year) Every time I edit it I become dissatisfied with what I read and scrap the lot. This time I mean to submit it come what may.

There have been two letters in recent QUANTA'S that stick in my mind, Mr Tommy Thompson's "REALISATION" March 90 and Mr Raymond L. Fowles "STAND UP AND BE COUNTED" they are also the reason for my writing this letter, well they and David Johnson.

I bought my QL (JM) in 1986, since then I've struggled on with one finger typing and MDV's. Why upgrade when I could not cope with what I have? It's been 18 months now since I became a QUANTA member, 90% of the contributions I can't understand. There are obviously different MK's of beginner, MK2 and above up to MAGICIAN, are the people who normally contribute to QUANTA. A BEGINNER MK1 does not write in heading, "BEGINNERS QUERY", "I have recently purchased Trump which is failing to give results without an overlocked underarm interphase sock being fitted to the endwhistle SER port. Can anyone HELP? with this slight but annoying problem?"

My problem was that having read the two letters previously mentioned and incidentally the June editorial about articles the shortage of, I felt I too should "STAND UP AND BE COUNTED" but how? It may seem impossible to believe but I couldn't write a letter and get it onto a cartridge. (BEGINNER MK1, remember)' I phoned David Johnson who summed things up nicely by saying "LOAD QUILL, TYPE IN LETTER, PRESS F3, SAVE, QUANTA". Now that is advice for you. Thank you David, though when you read this letter you may regret letting me loose.

Last week I received my three microdrive library guide cartridges, nothing else, just three cartridges, it took me ages to puzzle out what to do with them. I loaded Archive having read somewhere that the contents were stored on an Archive file. At 3am it came to me, that the LIBGUIDE_DOC should be in Quill. Should I have known straight away? if so I'll admit it, I'm thick.

{I'm more than happy to see this letter in the magazine. A 'phone call to a committee member, will often get immediate help with your problem, as this member found. But we can't help you with your problems unless YOU tell us what they are. (Read the inside front cover). DJ}

Mr G. Wright, "Bagend", 6 Cottage, Far Coton, Market Bosworth, Nuneaton, Warwickshire, CV13 OPJ.
16.6.90

"A TRANSportable QL in Central Africa"

As with many QL enthusiasts, I started my computing life back in 1986 with a Dixons special offer of a QL plus Thermal 8056 printer. Since then the QL has seen many many changes, both in add-ons and new homes.

The QL started life in suburban London, moved up to the wilds of Bonny Scotland, then onto France, then London again and finally here to the wilds of Rwanda, Central Africa. Rwanda borders onto Zaire, Burundi, Uganda and Tanzania. Wildlife fans may remember Rwanda as the home of the famous few remaining mountain Gorillas. In all the QL has moved house with us 6 times in less than 5 years. What provokes all these moves? A crook on the run? Not really, just a missionary! And no, I don't have a pith helmet.

The basic 128k QL was joined back in 1988 by a disk interface and a 3" SDSS disk drive. To this was added 512k of extra external memory and two 3.5" drives. This set up soon began to develop faults on account of the constant moves of home and country, and the fact that it lived in a wardrobe on a sliding ledge. This unusual "home" was on account of the "Mid Africa Magic", (if you leave anything in view it soon disappears). It became more and more obvious that with all the moving about we did, the wiring trailing around (and my wife's constant complaints about the mess), the time had come to pop the QL into a "box".

Whilst on home leave in the UK last summer I bought a "Computrak" case, and once back home in Rwanda installed the QL and 2 of the 3.5" drives. The Computrak case I bought was not large, (one of the main reasons I bought it), and soon it occurred to me that two power supplies, two disk drives, two microdrives, a QL with extra memory, disk drive interface and two small fans to keep it all below boiling point, were just too much for one small computer case. However out here we cannot simply pop down to the corner shop to buy another. (No corner shops!)

About two months ago, as a result of my producing one working computer from two non-working "Kaypro 10" CPM machines, I inherited the broken machine and a working 5.25" disk drive. The CPM machine was junk, (in any case CPM is no match for QDOS or Minerva which I now use), so I removed the innards and installed the QL plus 4 disk drives. Now I had an almost complete TRANSportable QL with a built-in 9" B&W monitor (thanks to Leighton Davis).

If you have ever travelled in these parts, you may have noticed that we occasionally have power cuts. To get over this I purchased a UPS from Frequency Precision, (an excellent buy and worth the money whether you live in Africa or Central London). The UPS provides about 20-25 minutes of 5v power supply to the CPU thus retaining the memory while the mains electricity is off.

Sadly our mains is often off for several hours at a time, so whilst the UPS helped, it didn't give me what I really needed. What finally drove me to take drastic action was losing DTP work too large to fit on a microdrive. watching the little green light on the UPS fade drove me nuts.

As the monitor, the disk drives and the QL all have a 12v supply in common, it seemed that a car battery would do the job. With the use of a mains relay I could have the whole lot switch to battery power without any crashes when the mains takes a break. This is the system as it stands, and it works very very well. Even running on battery power alone gives me at least 12 hours non-stop computing before needing a re-charge.

Now to the problem.

Whilst the disk drives, monitor and QL either run on 12v or 5v DC via a 7805 voltage regulator, the serial ports on the QL run from +12v and -12v. These cannot be supplied from a 12v battery. I have tried but failed to get the system to work.

If any of you QL'ers can recommend a system enabling me to run the serial ports via a 12v car battery I will have a completely TRANSportable QL. The only one in Central Africa? A small pack of genuine (and very good) Rwandan tea awaits the sender of the solution to my problem.

On the question of MS-DOS v QDOS.

I have had occasion to use a very good modern MS-DOS machine out here, (Zenith portable) and whilst there is a lot of software available under MS-DOS that we lack, the whole system is very poor compared to QDOS. People who never heard the poor press the QL received are always very impressed by the QL TRANSportable computer, especially by its ability to multitask. The best my friend's Zenith can do is "Sidekick" - no match for Qram and TaskMaster. There is much life left yet in the Queer Lump!

David Stringer, BP 327, Gisenyi, Rwanda, Central Africa

QUILL CRASHES

Some members are experiencing some trouble with Quill when they are scrolling backwards through fairly large documents. The problem is that the QL tends to 'freeze'. Has any member managed to patch Quill to solve this problem, if so would they kindly let us know.

Sarah Johnson

LIBRARY CORNER

Welcome from your new Librarian! I only hope that I can carry-on the good work of previous librarians such as Leighton and Syd Day.

First of all, very many thanks to Leighton for all the hard work that he did on behalf of Quanta, and I am very grateful that he is remaining as Overseas Librarian. He will definitely be a shoulder to lean on in the first few months of my new job.

Talking of support could I please ask members NOT to ask David Johnson to copy library programs as he is not a sub-librarian and in any case he is kept very busy as Membership Secretary and Quality Controller.

As a general rule it would be appreciated by myself and the sub-librarians if phone calls could be limited to Monday to Friday in the hours as specified.

For myself I am available Mondays to Fridays, 6pm to 10pm. I have to request that members do not phone during normal working hours as I do hold down full-time employment and my wife is completely non-computer minded and has her hands full with two young children.

ORDERING PROGRAMS

When ordering from the library the following are required:
1. All cheques or money orders made out to Quanta Library or Quanta, for the value of the required programs i.e. 50p per copied disk.
2. Return postage stamps and an adhesive self-addressed label.
3. Proof of Quanta membership i.e. your envelope from the Quanta magazine.
4. A strong envelope or Jiffy bag to return the copied disks.
5. Last but not least the correct number of formatted disks, preferably already labelled with the name of the required disk.

It is probably sensible to telephone your nearest sub-librarian to ascertain if he can deal with your request. Sometimes it may be necessary to ask another librarian to do some copying if your nearest one is too busy.

Finally, can I ask all members to adhere to the available times as quoted by individual sub-librarians for telephone calls as they give their time freely and they do have a private life outside of Quanta.

LIST OF U.K. SUB LIBRARIANS

Cliff Martin 14 Scotteswood Avenue Chatham KENT ME4 6HB Tel: 0634 406578 6pm-10pm Mon-Fri (3.5" disks)	Roy Brereton 94 Teignmouth Road Clevedon, Avon BS21 6DR Tel:0272 871917 6pm-10pm Mon-Fri (3.5" disks)	Tom E.Mould 141 Spring Bank, Hull HUMBERSIDE Tel: 0482 212184 6pm-10pm not Wed (Both Formats)
James Methley 4 Parkside Lea Preston PR2 1YS Tel: 0772 736713 Sat/Sun anytime (5.25" 80 trk disks)	Stephen Hewitt Portsdown Vicarage Portsdown Hill Rd Portsmouth PO6 1BE Tel: 0705 375360 6pm-10pm Mon-Fri (CARTRIDGES ONLY)	Norman Dunbar 21 Ferguson Crt Bucksburn Aberdeen AB2 9AG Tel: 0224 714840 6pm-10pm Mon-Fri (Both Formats)

Note: Both Formats = D/S 80 trk 3.5" and 5.25" disks.

Well, thats all for now. I hope that my next Library Corner will be concerned with new programs in the library. See you at the workshops.

Roy Brereton.

SMALL ADS

FOR SALE
Ideal for serious beginner. QL, Minerva ROMs, 512K internal RAM, Philips green monitor, 2 5.25" disks, Tandata modem set, Modaptor+, ROM RAM disk. Quill, Archive, Abacus, Easel, Speedscreen, DiscOver, TexTidy, TechniQL, Text87, Founted89, Editor, Forth, Pascal, Assembler, Monitor, Z88-QL. Books. Offers.
Michael Stevens, Hertfordshire
Tel: (0763) 72134

FOR SALE
896K JM QL with NEC 3 1/2" 720K dual disks drives, Philips amber monitor (still under guarantee), ICE rom cartridge, Psion bundled software including Archive 2.38, Metacomco's assembler, Qmon monitor/debugger, and various programs from QL World's Microdrive exchange including molecular graphics (excellent), graph plotter, radar and stellaris. Books include Andrew Pennell's Sinclair Qdos Companion and assembly language programming on the sinclair QL. Also Martin Gandoff's Machine code programming on the sinclair QL, assorted QL world Mags and original manuals. Costs over £600 new, offers around £300 o.n.o. or may consider selling seperately.
Interested! Contact John Richards on (0443) 480480 Ext. 2612 (Monday-Friday 08.30-16.30)

WANTED
QIMI Internal Mouse Interface.
FOR SALE Microdrive Cartridges. 20 new in box £32.50, 20 used in box £22.50, 4 new in wallet £7.50, 4 used in wallet £5.50. Lightning £12.50.
David Cottom,
43 Emmets Park, Binfield, Bracknell, Berkshire, RG12 5HQ
Tel: (0344) 420501

WANTED
"QL Archive" by Ian Murray of Blueprint, published by Century Communications Ltd. in 1985, priced £14.95, ISBN 0 7126 0633 5.
James McCleery, 2 Edenvale Park, Derry Road, Omagh, Co. Tyrone, N. Ireland, BT78 5EB
Tel: (0662) 247495

FOR SALE
Digital Precision Turbo Compiler V2.00 £30 or near offer. Spectrum 48K computer with full-size keyboard, microdrive and interface, joystick with interface, Currah Microspeech unit, Maplin I/O unit, numerous games and books. £85 the lot.
Jeff Stevens, Tel: (025125) 3095

FOR SALE
QPAC-2, weeks old only £35. (Too far above my old head!) Lightning 3.5" disk £15. Both originals and complete with manuals etc.
W. Ireland, 113 Bradfield Road, Urmston, Manchester, M31 1PF
Tel: (061) 865 5809

FOR SALE
JS QL with colour monitor £90.
Hugh Miall, 42 Santley House, Frazier Street, London SE1 7RD
Tel: (071) 928 5222

FOR SALE
Q-Disk 1.16 Disk interface incl. 5.25" utility disk £45. Miracle Expanderam 512K £60. Joystick adaptor £5. Supercharge with Lenslock £10. Super Sprite Generator V4 £5. Compware Microdrive Basic Toolkit £5. QL Chess £5. QL Bounder £2. QL Quboids £2. QL Caverns £2. Steve Davis Snooker £2. Psion 2.3 software £10. Or nearest offers. 2 x 20 used microdrives in Transform case £18 each. 5 x Wallets containing 4 used microdrives £3 each.
WANTED A kind person with QPTR V0.05 to copy to 3.5" disk as my microdrive version has become corrupt.
Jon Slater, Tel: (0524) 782098 after 7.00pm

FOR SALE
NEC P6 24pin dot matrix printer with tractor feed, hardly used £180.
Gordon Senior, Melton Mowbray, Tel:(0664) 822007

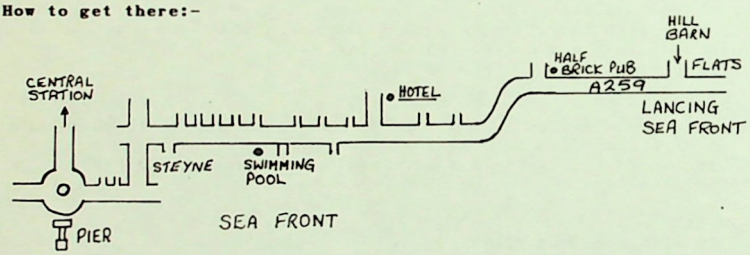
WORTHING WORKSHOP
OCTOBER 20th - 21st
Windsor House Hotel
Windsor Road

There will be plenty to see and do, both in the Hotel and out and about.

Why not bring down the whole family? While you are key tapping they can explore the shops, beaches and South Downs...

Accommodation is available at the hotel and also in the towns many guest houses.

How to get there:-



By train; Worthing Central, then by bus (routes 200 and 207) or taxi about £2. East Worthing, on foot. Turn right, out of the station. Follow Ham Road to the lights. Right again and then first left.

By car; North & West. Follow the signs for the sea front (Pier). Then east for Brighton (A274). Windsor Road is a left turn after the swimming pool. East. A27 through Lancing. At Hill barn garage, traffic lights, left to the sea. At the A274 right and continue past the Half Brick Pub. Windsor Road is on the right shortly after.

SEE YOU THERE ...

PROGS

Professional & Graphical Software

Van der Auwera Joachim & Nathan
Haachtstraat 92
B-3008 Veltem
BELGIUM

+32 16 488952

********** The PAINTER **********
a very userfriendly and powerful drawing-program, usable with QIMI, SQB-mouse and Atari-QL-emulator.

"The PAINTER text editing features make the program worth having for this one application alone. [..] ..overall my vote goes to PAINTER .." -QL World July 1989

BEF 2000 GBP 30

********** The ClipART **********
150 screens on three disks, covering varying subjects / saved compressed - decompression routine supplied (so can be used for any graphics program) - also six fonts supplied for 'The Painter'

BEF 2000 GBP 30

********** DATAdesign **********
NEW NEW NEW !!!! a very fast and flexible database

variable fieldlength - records are kept in the most economical way, no loss of memory - automatically keeps multiple lines if required
numerical and alphanumerical sort - sorting on two levels (degrees) - fast Find options, find by record or by field
powerful printercontrol with form-string - thus printer-independant printer driver

filehandling with directories using Menu-Extensions
completely diskindependant thus very fast !

BEF 3000 GBP 45

The Painter and DATAdesign are 100% MC, multitasking and work under QJUMP's Pointer Environment.

The Painter and DATAdesign need a memory-expansion of at least 256k, and are only supplied on 3½" disks. Both are supplied with comprehensive manual in English.
The ClipART is supplied with an extensive index, describing all the screens, in English.

Dutch manuals can be provided (for Dutch readers).

Payment Terms : You can pay cash or by cheque, but we prefer eurocheque (so you can write it out in BEF).
If you pay with a cheque in pounds, you have to add 10 pound bankcosts (sorry, we can't help it).

If you order The Painter and The ClipART together, you only have to pay BEF 3500 or GBP 53 .

☆ sinclair QL ☆

EEC LTD MAIN SUPPLIERS OF Sinclair QL COMPUTERS & LOW COST PRINTERS. QLs FROM £90. PRINTERS FROM £80.

THE EXPANDABLE SYSTEM FOR SMALL BUSINESSES, BEGINNERS, AND EXPERTS.
QLs COMPLETE. FULLY TESTED AND WITH 3 MONTHS WARRANTY.

TV LEAD. QL SOFTWARE 2.35. ALSO COMPLETE BOUND
USER GUIDE FOR THE QL, SUPERBASIC, & FOR THE JM ROM **£120**
SOFTWARE; QUILL- WORD PROCESSOR, ABACUS- SPREAD
SHEET, ARCHIVE- RECORDS, EASEL- BUSINESS GRAPHICS. JS ROM **£135**

CUSTOMERS BUYING ONE OF THE COMPLETE UNITS ARE GIVEN ONE YEAR'S FREE MEMBERSHIP TO QUANTA (Help, Newsletters, & 400+ Library Programs- most Free). QUANTA MEMBERS CAN OBTAIN A £5 DISCOUNT

BACKUP QL. THE QL WITH POWER SUPPLY UNIT, & TV LEAD JM ROM **£90**
KEEP IT AS INSURANCE, OR FOR NETWORKING.
CHEAPER THAN CHANGING TO ANOTHER SYSTEM. JS ROM **£100**

* SPECIAL ITEMS *

1MB 3.5" DISK DRIVE UNIT. NEC FD1036A WITH BLACK FRONT BEZEL **£49**
TANDATA MODEMS. Q-MOD, Q-CONNECT, £15ea. Q-CALL. £25, or the SET **£40**
EASY-TO-USE RANGE OF BUSINESS SOFTWARE ALSO UTILITIES SEE BELOW

ACCESSORIES & SPARES

QL PSION SOFTWARE 2.35 PACK	£20,	or SEPARATE PROGRAMS each	£10.
COMPLETE BOUND USER GUIDE	£7.	QL POWER SUPPLY UNIT	£12.
JOYSTICKS	£9.	CENTRONICS INTERFACE	£24
MC 68008 MICROPROCESSOR	£8.	SERIAL PRINTER LEAD	£12.
KEYBOARD MEMBRANE	£9.50.	ZX 8301 or ZX8302 each	£9.
CARTRIDGES, WALLETS OF 4, NEW	£12.	4 UNUSED PROG CARTRIDGES	£9.

20 NEW CARTRIDGES IN PLASTIC STORAGE BOX £55.

SOFTWARE QL CASH TRADER. DECISION MAKER. £18 ea. TOUCH & GO (Typing Tutor). QL GAMES CARTRIDGE. £9 ea. Q_LIBERATOR SuperBASIC COMPILER (Disk) £60. Q_LIBERATOR BUDGET VERSION (For MDV) £30. QLOAD SuperBASIC QUICKLOADER with QREF PROGRAMMING UTILITY £15.
BUSINESS SOFTWARE (Suitable for standard QLs) SMALL TRADERS PACK £24.95. INVOICER £19.95. GENERAL LEDGER £19.95. SET OF THREE £50. MAIL MERGER £14.95. FILER PACK £14.95. Also STOCK ACCOUNTING £39.95 (For Expanded QLs) Send S.A.E for Software leaflets, or phone.

SEIKOSHA GP100A PRINTER. DOT-MATRIX. CENTRONICS. 50 CPS. GRAPHICS. TRACTOR FEED. CENTRONICS INTERFACE £20, IF BOUGHT WITH PRINTER **£80**
C.ITOH DAISYWHEEL PRINTER SERIAL. PRINTS AT 20 CPS. CAN PRINT 1+3 COPIES. PAPER WIDTH 13 INS. CHARS PER LINE; 115, 136, OR 172: SELECTABLE ON TOP PANEL. BUFFER 256 BYTES. OBTAINABLE EXTRAS; CENTRONICS MODULE, 2-COL RIBBON, TRACTOR, & AUTO SHEET FEEDER. **£140**

INTERCHANGEABLE PLUG-IN INTERFACE MODULES FOR STAR NL-10 PRINTER. SERIAL, PARALLEL/CENTRONICS, IBM/PC, OR COMMODORE. each £20.

TERMS CWO, ACCESS or VISA.
MINIMUM ORDER £9. P & P £6.00 FOR PRINTERS & QL (OVERSEAS £15.00). OTHER ITEMS £3.00 (OVERSEAS £6.00)

EEC LTD

18-21 MISBOURNE HOUSE, CHILTERN HILL, CHALFONT ST PETER, BUCKS. SL9 9UE. Tel: 0753 888866. FAX 0753 887149 (ADI)