

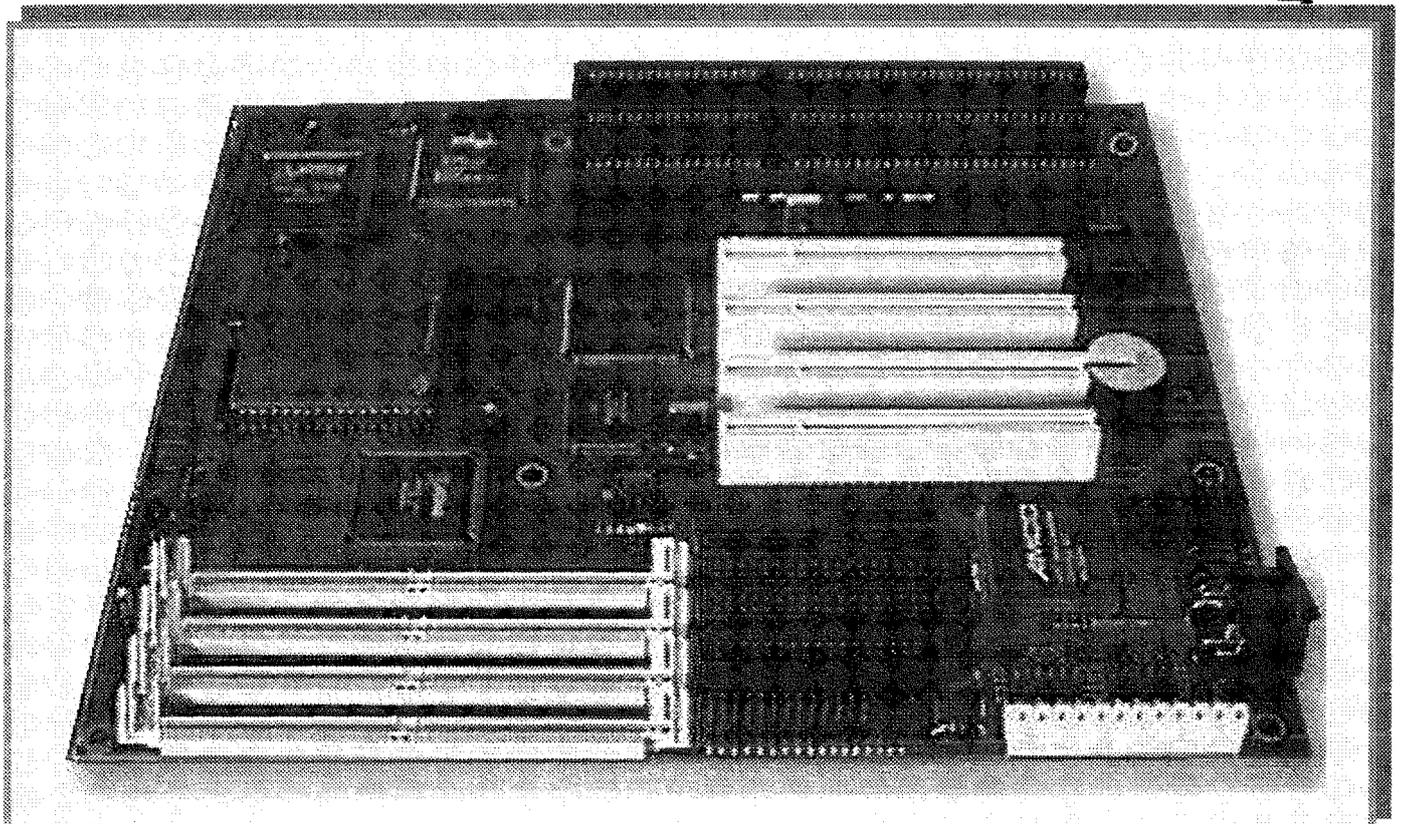
QL Today

Volume 3
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May/June
1998

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The Magazine about QL, QDOS,
Sinclair Computers, SMSQ...

**This 68040
Board can
become your
next QL:
The Milan!**



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We welcome your comments, suggestions and articles. YOU make **QL Today** possible. We are constantly changing and adjusting to meet your needs and requirements. Articles for publication should be on a 3.5" disk (DD or HD) in ASCII, Quill or text87 format. Pictures may be in _SCR format, we can also handle GIF or TIF. To enhance your article you may wish to include Saved Screen dumps. PLEASE send a hardcopy of all screens to be included. Don't forget to specify where in the text you would like the screen placed.

Article and Advertising deadlines are as follows:

- Issue 1: 15 April
- Issue 2: 15 June
- Issue 3: 15 August
- Issue 4: 15 October
- Issue 5: 15 December
- Issue 6: 15 February

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Welcome to the third volume of QL Today. We have changed the layout again, and we hope you'll agree that this is the best so far. Let us know what you think of it!

I now have another email address, used from home - see page 2.

The QL hardware scene is getting red hot at the moment. I saw a lot of people at the Quanta AGM in Selston asking

about all the new hardware platforms soon to be available - the Q40 board, the Milan computer, the Goldfire and the MinisQL prototype (an Aurora built into a laptop case). The

"The hardware scene is getting red hot at the moment."

many QL emulators also allow us to use other computer platforms such as cheap PCs or Apple Macs while retaining the use of our favourite QDOS/SMSQE. It's not so long ago that some were asking 'where do we go from here?' in view of the age of the original QL. The question now is more like 'which of all these upgrade paths do I follow?' That's progress! To help you, we've tried to include articles in this issue about some of the new hardware, and we'll do our best to keep you informed in the future.

The software scene isn't yet quite as 'hot' as the hardware front, though there are indications of exciting developments to come. Progress is being made in several areas - the colour drivers, Prowess, the long awaited new word processors Paragraph and Proverb, and the software based new QL emulator for the PC (QemuLator), for example. I generally sense a renewed enthusiasm for software development, though I also sense that some authors are holding back on graphical applications especially, as they fear major work rewriting their software once the colour drivers and new window manager systems become available. Happily, it does really seem that it will be a case of 'when' and not 'if' the colour drivers will become available, and enough software authors seem to be enthusiastic and ready to jump when the gun eventually fires.

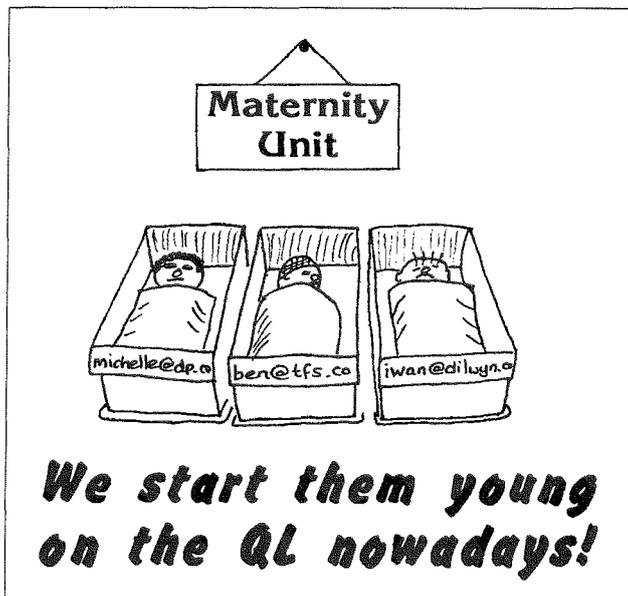
Can I appeal to the various developers of hardware and software to let us have news of what they are doing? I

occasionally have to gently twist arms a little to get at the news, but news is what you the readers keep asking us for. Please help me in this respect, I'm afraid I sometimes get the feeling that many developers are remarkably coy about their work!

Equally, with the traditionally quiet summer period ahead of us, can I appeal for articles for the summer issues? And if you feel you can contribute on QL-related subjects which we don't cover in these pages, great, get in touch, details of how to contribute are on page 2. RWAP Software have asked us to find reviewers for their range of software - in particular for their

wargames D-Day and War In The East, and the text adventures Nemesis, The Prawn and Horrorday. We'd also like a reviewer for the SToQL Atari to QL graphics conversion program. If you'd like to help, get in touch, and we'll arrange to send you review copies.

Finally, I was most pleased to hear at this year's Quanta AGM that Quanta have significantly improved their financial position this year. Starting the year with a projected deficit of around £4,000 they eventually ended up with only a very modest deficit of around £200, thanks to tough cost control, and all this without raising their membership fees despite there having been no change for years. A strong and healthy user group is absolutely vital to the QL community.



Cartoon

RWAP QL Software

I have now released v1.11 of the public domain BasConfig program which allows you to add Qjump configuration blocks to a Super-BASIC program. This version incorporates several bug fixes and also implements the Long Word Config Type which has been implemented in some versions of this program but not others. You can also specify a string to be a filename/directory or extension for MenuConfig.

I have now received the OK to publish three adventures formerly sold by Talent Software: Nemesis, The Prawn and Horrorday. I had updated Nemesis some time ago to eradicate certain bugs, but it had only previously been available as an upgrade to the original. I have now amended Horrorday to make this easier to run from hard-disks as well as having fixed a couple of bugs in this program and ensuring that it is compatible with SMSQ/E. The adventures are available from me for £10 each or £25 for all three.

I am trying to also trace another adventure from the same author as Horrorday - it is the follow-up adventure called 'Fun-Fear' - if anyone has a copy of this adventure, then could they please get in contact with me.

Just Words!

SOLVIT-PLUS 3 is the first major revision of the popular program for solvers and compilers of word games. Although restricted to the four main search routines, WILD CARD, ANAGRAM, IN WORD and SCRABBLE, SOLVIT-PLUS 3 offers extra facilities in these modes. These include:

- Pointer driven and fully mouse compatible
- Backwards movement through word lists
- Repositioning on high resolution screens

- User configurable ink and paper colours
- Fewer key presses on some operations
- Optional use of forward slash in wild card searches
- Word list detokenisation utility

Non-English word lists will no longer be supplied automatically with SOLVIT-PLUS, but these will be available free of charge to purchasers on request.

QL-THESAURUS is now version 4.01. This contains improvements to error trapping and the configuration block and some minor corrections to the data base.

Upgrades from version 2.xx of SOLVIT-PLUS and from 2.xx and 3.xx of QL-THESAURUS are £2.50 plus proof of purchase. UK users may pay by 10 first class stamps, and non UK users by 3 I.R.C.s

JUST WORDS! has plans for a major revision of STYLE-CHECK, which will be pointer driven, high resolution compatible and have extra features and checks. A

<http://www.fortunecity.com/skyscraper/perl/357>

Info, links and download. iorgio Garabello can be contacted by email on ql_torino@hotmail.com

Steve Johnson

After suffering the burglary at his house, Steve spent a month installing a new kitchen, losing his computer space and aggravating his back problems once again. His service should now be back to normal. He has a new email address:

qlpd@johnson.softnet.co.uk

Steve can now offer a CD duplication service for his customers, costing 10 pounds per CD inclusive of media and return postage. Steve requests that customers contact him to make arrangements before ordering this service. He also has a flat bed colour scanner and a 35mm slide scanner and would be willing to scan photographs and slides at 50p each.

Steve's three new PD disks (SJPD74 to 76) include programs such as Winds of Change, VAT Calculator, File Info II, Mines game, a German text editor, V3.4 of Archivers Control Panel, Text File Viewer v1.15, Display Extensions, National Lottery Master, Code-Breaker, a list of QL users email addresses, PROCMAN, Scratch (drag and drop active scrap icon for the button frame), C68 Tools (German), Computer 1 Monitor, a module for SMSQ/E providing a soft reset facility, Basconfig

v1.12, and a demo of the 350+ basic extensions in the IO2 toolkit. The specials section of his library adds SJS192 - the Crossword Utilities package, SJS193 is v1.63 of QTPI, while disk 194 is QL Toolbox 98, a collection of pointer environment utility programs by Adrian Ives.

In the classic books section, CB196 contains a package called The Life Of Horatio Nelson, by Robert Southey. CB197 holds The

Hot Tips & Odd Procedures

OK so how clever are you then? Do you have a short piece of code, procedure or function that you are proud of? Do you have a method of doing something with a program that you think no one else has ever thought of? If so we want to hear from you now. Send us your ideas, code, hints, tips or digital diagnoses and we will put them on this new page from the next issue on. We will print the best of the previous two month's crop and give a voucher for £10 off a piece of software or hardware from JMS or Q Branch. You can even put it toward your next subscription! Come on then - impress us! (but keep it short).

Dutch language thesaurus is also in preparation. These are long term projects, and, as yet, no firm release dates can be given.

JUST WORDS!

Geoff Wicks, 28 Ravensdale, Basildon, Essex, SS16 5HU, United Kingdom. Tel: 01268 281826

NEW QL WEB SITE

by Giorgio Garabello

There is a new web page about the QL (italian only, at the moment). The address is:

Tenant of Wildfell Hall by Anne Bronte, and finally CB198 contains the Project Gutenberg editions of the four volume colour fairy books, fairy tales for young children.

A comprehensive catalogue disk is available from Steve Johnson with full details of all the disks of this massive collection of low cost QL software.

S. Johnson.

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QXLTOOL NEWS

QXL Tool is a new utility from Jonathan Hudson. The beta software previously known as 'rxl' is now released as qxltool v1.02. This allows you to read, write, format, make/delete directories in your QXLWIN file from Linux, Windows, OS2, DOS etc. An archive containing binary, source and documentation is available from

www.jrhudson.demon.co.uk

This is free and freely distributable.

"Honestly, it seems to me one of the most useful utilities for the Q(X)L/QPC ever done." ---- a beta tester.

François Lanciault writes about "Paragraph", a new word processor for the QL (based on a QL Users Mailing List announcement)

This is an update on my (slow...) progress creating a WordProcessor for QDOS/SMSQ that runs under the ProWess window manager.

Paragraph has evolved quite a bit since my first announcement in January. At first I only wanted to produce a WP for writing simple letters but the project has shifted to something much bigger. I won't

Cover Disk Vol. 2 Issue 6

There were some problems with the last cover disk for which we would like to apologise to our readers.

- o The program IBMDisk was included in error. Jonathan Hudson says this program is obsolete, buggy and potentially dangerous. Please delete it.
- o An obsolete version of ENV_BIN and associated files was included. This version is unfortunately too old to work with Qascade and other modern c68 programs, and with some modern operating system versions.
- o The Qascade archive had been repacked in a way that lost important version information and destroyed the author's intended cross-platform portability.
- o The version of unzip was obsolete, arguably illegal and distributed contrary to the current InfoZip license.

We recommend that readers obtain later versions of ENV_BIN, Qascade and Unzip from the internet. All the programs are on Jonathan Hudson's web page

www.jrhudson.demon.co.uk

from BBS, or from PD libraries. InfoZip is also available from the InfoZip group's web site

**<http://www.cdrom.com/pub/infozip>
<ftp://www.cdrom.com/pub/infozip/>**

bore you with a long list of features (unless someone asked for it, anyway it is not THAT long.) but for those who have no clue what Paragraph is, here is a short resume.

Paragraph is a fully WYSIWYG wordprocessor (you actually see the piece of paper you're writing on). It can be used as any other WP to create text documents where you can change margins, font, font size, justification etc. It also has more advanced features like tables, pictures & drawing tools (yes, the first release will have tables and drawing tools). Also, you can create layouts where you can have more than one text region on the same page like for multi-column output. In fact you can have just about anything: three columns on top of the page, one column in the middle and two columns at the bottom with a few pictures scattered around. Layouts

can be saved and re-used, and in fact I plan to include a few useful layouts with the program (like FAX, reports, memos etc.) Many people asked me if Paragraph will be commercial or not - it will be commercial at a price of about 30 pounds. I don't know yet which distribution channel I will use.

The program will reach the alpha release sometime in mid April. Eventually I will put a demo version on the net. But until the demo is available, feel free to ask any questions you might have.

Finally, for those who don't mind travelling a bit, I will be demonstrating (selling??) Paragraph at the U.S. show in May. Come have a look!

Crossword Utilities:

A PD Package Announcement

By Timothy Swenson

This past summer my wife, Catherine, decided to take up solving the "Bonus" crossword puzzle published in the local paper. She tried the New York Times puzzle, but it turned out to be harder than she liked. To help her solve the puzzle, she started typing in past crossword clues and answers into Archive. She then sorted them and printed them out and used them to solve the future puzzles. She started to notice that "Bonus" reused the same clues over and over, making the puzzle easier and easier to solve. Soon she had over 4,600 entries in the database.

Once she had built a fairly big database, I realized that this database might be useful to other QL users that solve crossword puzzles. I started to think what else would be useful to solve crossword puzzles.

I like to solve them by trying to fill in as many answers as I can and then use these answers to help with the other words. I find myself constantly saying something like, "What is a 3 letter word for _____ that ends with D." Having a book like "20,000 Words" or a dictionary is useful, only if you know what the word starts with. I wanted a way to search a dictionary without knowing the beginning of the word. First, I had to create a dictionary. Using the answers stored in the "Bonus" crossword database, I added the /usr/dict/words dictionary file available on most Unix systems. After some massaging, I had the dictionary I needed. The dictionary file has about 25,000 words.

Next came the search engine to work on the database. I started thinking about how I would write a search engine, when I realized that one, this is going to be harder than I thought, and second, why reinvent the wheel. A version of 'grep' had been ported over to the QL and came with the C68 distribution. Grep is a pattern-matching program from Unix that is very useful for searching large files for occurrences of a word or phrase. Grep is not easy to use, so I decided to come up with a SuperBasic program to work as a front-end to Grep, plus I figured out how to get Grep to search for words of a certain length. Searching the database is as simple of this:

"What 5 letters words have the 2nd letter as R and end in T." You would use the string ".R.T" in the search. Use periods (.) as unknown letters.

Searching the Archive database of clues can be done using the Archive commands SEARCH and FIND. Refer to your Archive manual for the details on these commands.

Now that all of this is complete, I am making the database, dictionary file, Grep, and the front-end programs available as a Public Domain distribution as the file Xword.zip. Look for it on a BBS server or Internet FTP server near you.

PROGS

Please note that the PROGS web site has moved (as has my personal site). The addresses are now:

www.triathlon98.com/PROGS

for the PROGS site and

www.triathlon98.com/Joachim

for my personal site. The new PROGS site finally contains proper product information about all our software, and version reports etc (wasn't allowed to put commercial info on the old site). I now also have an alternate email address: PROGS@triathlon98.com or Joachim@triathlon98.com

Hope you will pay the new site a visit, and let me know your comments.

Mark Knight

Turbo and Perfection Updates and new software on the way.

I have been working ridiculously hard lately on my QL, including one 14-hour session (I kid you not) on a recent Saturday to finish (I hope) The Knight Safe 2. This is the version that does compressed hard disk backup, with some neat features to make it even easier to use than the previous version. My own recent backup, which took 13 HD floppy disks uncompressed, took just 6 HD disks with this version. The program works with older QUBIDE ROMs that still have the file backup dates bug as well as working properly with later versions that don't have this bug.

I am putting the finishing touches to the fractal program mentioned elsewhere and working hard on more fractal programs to build up a collection. This should soon enable me to supply Q-Branch with a massive package that will fill at least one HD disk and possibly more. Most of the programs in this collection will use any Q-DOS or SMSQ/E screen from 512x256 pixels up to the silly 1600x1200 QPC resolutions and even beyond if you have got it, so those with Aurora or other enhanced graphics options will be able to see fractals in amazing detail. The programs will even use the monochrome modes on some of the Atari systems if you want

monochrome fractals in absurd levels of detail, though you might have to wait a while for some of them.

To add to this collection I am currently working in cooperation with an extremely skilled QL programmer to put together the ultimate QL Mandelbrot program. This too will use my new screen driver code to fill the screen however big it is. It is being designed with 256 colours and 16 bit colour (i.e. Q-40 mother board, 65,536 colours!) in mind from the start. Obviously I can't promise that I can debug the 256 colour option before the 256 colour modes are available, but the program is designed so that it will take minutes to add this facility once I have access to a system with the new drivers.

The new fractal package will also include a few 3d fractals, animated by rotating them in perspective 3d so you can see the shapes properly. The idea is to put together an educational package that will teach people something about how fractal geometry and chaos theory works. Of course if you don't care about how it works the advantage with fractals is you can always ignore the technical stuff and just enjoy looking at them. Wait for an announcement in the Q-Branch advertising.

Work is almost complete on the Turbo Toolkit update and we are awaiting source code for the code generator and parser. Digital Precision are not involved in this project now in any way, as their agreement with the copyright holders expired some time ago. The copyright on Turbo is owned by Simon N Goodwin, Charles Dillon and Gerry Jackson, and they have given their blessing in principle to the work. Once the new update is finished Turbo will become free-ware and will be submitted to QL public domain libraries.

As Chas Dillon's wife died recently and he is the holder of the source code, it is understandable that family matters are occupying his time and he is not giving priority to this. As his Thor XVI hard disk crashed some time ago and has not been restored from

the 50 floppy disk set of backups, we will have to wait. He has said it will be done, but it is not a priority and will be done when he gets around to it. Although I am eager to do more work on this project, in the circumstances I have no complaints about waiting.

In the meantime I am looking for bug reports from existing users OF THE LATEST VERSION ONLY of Turbo. This reports 3.24 as the version number as the parser is running, and provides Turbo Toolkit version 3.22 and Runtime version 3.20. I am NOT LOOKING FOR INCOMPATIBILITY REPORTS - I know that Turbo won't compile SBASIC yet, and the problems Turbo tasks have running on Amiga emulators and some other systems are already on the list of things to fix. We are looking for proper bugs now, not incompatibilities. I find it interesting that I know of just three, which is pretty good for a compiler I have been using for over ten years.

Investigation revealed just eight bugs in Turbo Toolkit, only four of them at all serious, and some incompatibilities with Minerva and SMSQ/E etc. This wasn't bad considering the complexity of Turbo Toolkit and the fact that when it was designed Minerva and SMSQ/E weren't even thought of. The version of Turbo Toolkit now being tested includes a means of detecting and supporting higher resolution screens and can even be installed as an SMSQ/E module it is so compatible... Some improvement eh?

In addition to Turbo bug reports please let me know of any bugs you are aware of in Perfection, as it is hoped to update this program soon as well. Things have gone a bit quiet from the Freddy Vaccha direction recently but he did say he would supply the source code as soon as he could organise it, other activities permitting. The Perfection update should be a lot less work, as there are very few bugs considering the complexity of the program. We plan to provide handling of the new large screens, improved cursor handling and improved configuration options. There may be some improve-

ments to the spellchecking too, though this can't be guaranteed until we see the source code and our Mad Chief Programmer decides if he has the time to do it.

If all this sounds like a heavy workload it is nothing to the drawing and painting I am supposed to do before May or June, when I am hoping to have my first one-man exhibition: plus my work for a London cancer charity and for Oxfam, redrafting my novel so it's fit to submit to a publisher and teaching two Canadians to use a PC equipped with Windows 95 (Yeeeeuck!) Have fun everybody...

Mark Knight

304 Portobello Road, North Kensington, London, W10 5TA, England. (0181) 932 6987.

Ergon Development

Davide Santachiara in Italy writes: Please take note of my new Email address which replaces the old one:

ergon@geocities.com

J-M-S

Rich Mellor has now created Qshang version 1.3 that will work on Minerva v1.97 (and presumably earlier versions), and also allows you to configure where the high score table is stored. Users of higher resolution displays will also be pleased to note that the program now works on screens larger than 512x256 pixels.

This version is available from Jochen now - keep your eye on his adverts.

Jochen has also updated the game Diamonds so that it works in any display resolution, an update is available too.

W.N.Richardson

Finally, Bill is available via email:

WNC@COMPUSERVE.COM

This means, that the majority of the QL dealers can now be contacted via email.



The HTML Machine

A Review By Timothy Swenson

If you want to create HTML documents with your favourite editor, then read on: The HTML Machine allows you to do this easily, and can be found on most BBSs. You do not need to learn how to use a new editor, which makes it extremely handy.

The outside world is slowly creeping into the QDOS community. More and more of the computing capability that we think we can't do with QL's is coming into our environment. HyperText Meta Language (HTML) is one such example. There have been past articles on HTML creating and viewing on the QL. In spite of the ProWess HTML viewer and the ill-fated, and not working, QMOSAIC viewer, there is no HTML viewer for the average QDOS user. Despite this, creating HTML documents under QDOS still goes on. The primary reason being that these documents can easily be read by other computers and be used to create QL web pages.

In working on some HTML files for ProWess, Roy Wood has created a neat little utility that extends all QDOS text editors for the writing of HTML documents. HTML is a text description language that adds "tags" to documents that mean something special to HTML viewers. Such examples are:

```
<TITLE>My Title</TITLE>
```

```
<A HREF="file.name">
```

```
Description </A>
```

Remembering all of the various tags can be rather daunting. Roy Wood's "The HTML Machine" (such an interesting name) is a pop-up utility that saves you the trouble of remembering the tags by presenting a menu to pick out the tag you need.

Briefly, here is how it works. You are in your favorite editor, say QED, and you need a tag. Hit ALT-H and the menu pops up. You have three choices; Entities, Tag, Accents. You choose Tag. You are then presented with a whole list of the various tags. You select "Title" because you need to put a title on the document. The pop-up window now goes away and you are back in QED. Hit ALT-SPACE and the

```
<TITLE> </TITLE>
```

tag appears where your cursor was. You can not go on editing your document, calling "The HTML Machine" when ever you need to.

I have tried "The HTML Machine" (Man, Roy needs to come up with a better name. "The HTML Machine" is a mouth full) with QED, Metacomco's ED, and Quill. It works with all three perfectly well. It should work with the other text editors.

"The HTML Machine" does require three things:

- The Pointer Environment
- Qmenu (menu_rext)
- Qliberator Runtimes (qlib_run)

The program is freeware and should be available on most QL BBS's.

The program is installed by adding a ERT HOT_LOAD to your boot file. Since the program is executed each time it is needed, I would recommend moving the executable to RAM disk. This will speed up its execution.

The other two options that I did not mention, Entities & Accents, really seem the same to me, but there are some subtle differences. Essentially, there are characters that are either reserved by HTML (.,\$, etc.) or international characters not normally represented by ASCII. Both Entities and Accents are markings that start off with the ampersand symbol (&). This tells HTML to interpret them and translate them to something else. Unless you are doing non-English HTML documents, I

don't think you will use them too much. It is the Tags that will be the most useful.

Instead of writing a "true" HTML editor, "The HTML Machine" allows you to do a fair job of creating HTML files in your favorite editor. It saves you the time of memorizing all of the different tags and the time it

takes to type them in. If you only need part of a tag, it does not take much effort to delete the part you don't need. If you place the tag in the wrong place, it too can be easily corrected. This simple program makes it a lot easier for the novice to start writing HTML documents. ■

Q40 - The 32 Bit Highcolor Graphics

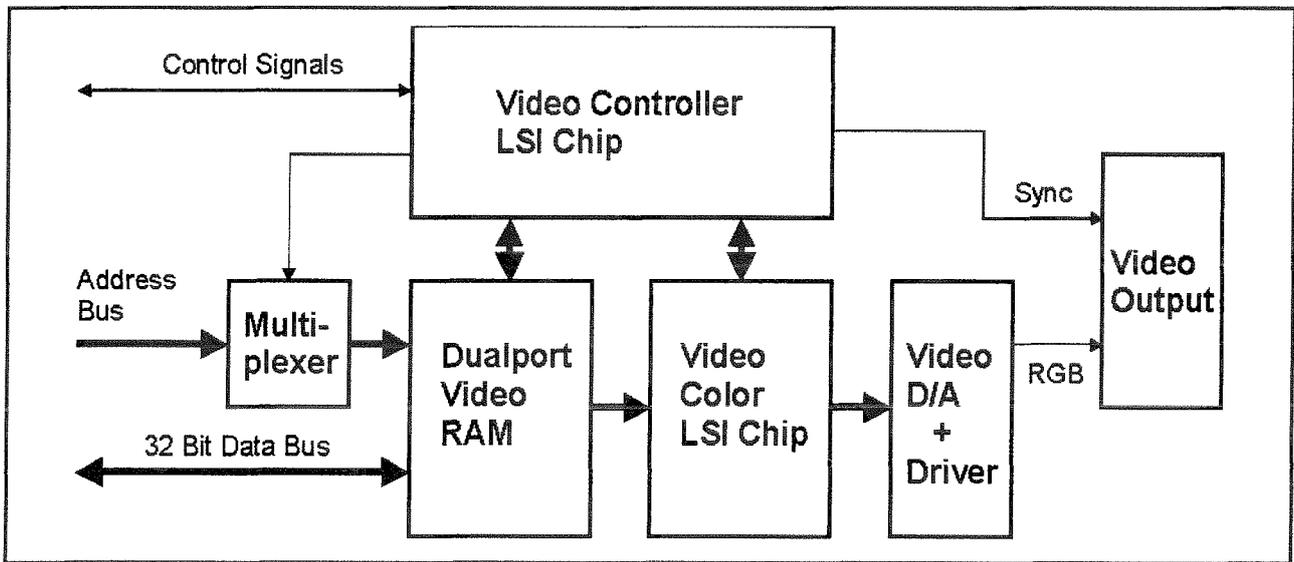
Peter Graf

Most of the hardware development for the new QL-successor "Q40" has been completed and the first prototypes are in production now. While the adaption of SMSQ/E starts, I would like to give some insight into the new Q40 system. Especially the graphics of the Q40 seem to be interesting for many users.

The original QL had some well known restrictions: The maximum number of colors is 8, the highest resolution is 512x256 pixels. The CPU must often wait for the video signal generation, the data bus is only 8 bits wide, and the bus timings are slow, from the present point of view. Some of these restrictions have left their vestige in today's QL scene. The Q40 mainboard will offer 65536 colors at a resolution of 1024x512 pixels. This amount of colors is often called "Highcolor". The Q40 can display each pixel independently with any desired color. There is no restriction by a palette, into which some colors must be pre-selected for use in the current display. To represent 65536 colors, you need 16 bits, which is two bytes or one word. If each pixel needs two bytes, a picture of the size 1024x512 will use 1048576 bytes of memory. This is 32 times more than the QL screen. You will need a very fast video hardware, so that displaying many colors while using a high resolution doesn't get too slow. For this reason the Q40 has a 32 bit wide data bus to the video memory, which can be accessed by the CPU with high speed. Additionally a special kind of memory is used, that

allows a real parallel access of the CPU and the video signal generation (dual-ported video RAM). It should be noticed that taking full advantage of the graphics speed also depends on the software. If accesses are only word- or byte-wide, instead of using longword instructions, then a 32 bit wide bus can not give much benefit.

The principal structure of the Q40 graphics hardware can be seen in the figure at the top of the following page. The CPU accesses take place on the 32 bit data bus, the address bus and some control signals. The second port of the dual-ported video RAM is read by the Video Color Chip, which generates the digital colors. This information is then converted to analogue signals for Red, Green and Blue, filtered and put on the output connector. The Video Controller Chip controls all the processes and generates the synchronisation signals. On the Q40 mainboard both QL screen modes are implemented in hardware. They are available at their original address space between \$20000 and \$27FFF. This allows for direct access to the screen memory, which is used by some older QL programs. The Flash bit in MODE8 can be written to and



read from, but it will be ignored on the display. The Q40 offers two Highcolor modes, one with 512x256 and one with 1024x512 pixels. Because of its many colors, the lower resolution is already sufficient for many applications. The memory usage is four times less than the maximum resolution, which makes it interesting e.g. for games. In both cases the screen memory starts at \$FE800000, near to the upper end of address space. There is always one 16 bit word for one pixel, beginning at the upper left corner. It goes on from left to right and from up to down. Each color word consists of the following bit sequence:

G5, G4, G3, G2, G1, R5, R4, R3, R2, R1, B5, B4, B3, B2, B1, RGB0

The bits G5 to G1 stand for the green, R5 to R1 for the red, and B5 to B1 for the blue portion. The lowest bit RGB0 is a common least significant bit for Red, Green and Blue. The brightness of the green portion is given by:

$$G5*(2^5) + G4*(2^4) + G3*(2^3) + G2*(2^2) + G1*(2^1) + RGB0*(2^0)$$

The brightness of the other color portions are calculated in accordance with this. With the color scheme of the Q40 it is possible to display 64 different grey levels without color error. (When displaying grey levels, you have G5=R5=B5, G4=R4=B4, ..., G1=R1=B1. Together with the common bit

RGB0 there are 6 grey bits available, which give 2⁶ levels.) The Highcolor display of the Q40 allows for nearly photo-realistic images, though the human eye can detect slightly smaller color gradations in some circumstances. A flat cable leads the video output of the Q40 to a female 9-pin SubD plug at the computer case. The monitor can be connected to it by a cable with a male 9-pin SubD plug. A 15-pin high density connector

can also be used with the help of a cheap adaptor. The Q40 has been designed for use with multisync monitors, but many fixed frequency monitors also work without problems. The Q40 uses a frame rate of 64 Hz, without interlacing, so it is free from flicker. The graphics power of the Q40 leads to new possible applications in the QL sector. I hope that it will be an inspiration for new software developments.



Solvit-Plus 3

A Review by Timothy Swenson

Geoff Wicks has upgraded Solvit-Plus 2 to a full Pointer Environment program and called it Solvit-Plus 3. This review will cover Solvit-Plus 3 and point out the differences between it and Solvit-Plus 2.

Introduction

For those that don't know what Solvit-Plus is, it's a program designed to assist in various word games, such as Scrabble, Jumble, and Crossword puzzles. It allows for 4 different types of word searches on a dictionary: Wild Card, Anagram, In Word, and Scramble (Scrabble). Each search is different in what information you have to find a specific word. The Wild Card search is great for Crossword puzzles where you know how many letters are in the word, but only a few of the letters. Anagram

search is used for solving jumbled up words that you must figure out the real word.

Besides an English dictionary, other languages are available, such as Dutch, German, Spanish, French, Italian, Welsh, Danish, Norwegian, Swedish, and American. For non-native English speakers, the only differences between English and American is a few changes in spelling (i.e. color instead of colour).

The Package

The entire package consists of

three disks (2 DD and one HD) and a 16-page A4 manual. The disks are labeled as such:

MASTER DISK 1 - Non-Pointer Version, Word List.

This disk includes a couple of example BOOT files, some extensions that need to be loaded, the Solvit-Plus 2 executable, and a medium English dictionary (64,500 words).

MASTER DISK 2 - Pointer Version, Utilities.

The disk includes the Solvit-Plus 3 executable, and two utilities, `detokenize_obj` and `unzip`.

MASTER DISK 3 - Mega-Dictionary

This disk contains a zip file of the LARGE English dictionary (253,000 words) and requires an ED drive or larger to unzip.

Disk 1 is pretty much what came with Solvit-Plus 2. Solvit-Plus 2 requires two different extensions to be loaded and comes with example BOOT files. The Solvit-Plus 3 version does not require any other extensions other than the Pointer Environment ones. This makes it simple to load from the start.

The Manual

The manual is the same that came with the Solvit-Plus 2 and has not been updated to include Solvit-Plus 3. For someone new to the program, I would recommend using the Solvit-Plus 2 first, following the manual exactly, and the move on to Solvit-Plus 3 when you become familiar with Solvit-Plus 2 and how it works.

The "Quick Start" section works as-is for the Solvit-Plus 2, but will not work for Solvit-Plus 3. There are a few items that need to be done to get Solvit-Plus 3 running.

Solvit-Plus 3 reads in a definition (or configuration) file (`solvit_def`) that defines how Solvit-Plus runs. The default file has the program looking on `FLP1_` for the dictionary file. Since the Solvit-Plus 3 is on Disk 2 and the dictionary is on Disk 1, this will not work. You need to it all setup so that the program can read the dictionary file when it executes. One way to do this is to copy the executable and dictionary onto a working disk and run it

from there. It looks like they both should be able to fit on one 720K disk. Another option is to put the dictionary file someplace else and change the `solvit_def` file to point to where the dictionary now is.

This is basically what I did. I copied the `english_dic` file to `RAM1_`. I then used a text editor, such as QED or QD, and changed the one line to point to `RAM1_english_dic`. I then put in Disk 2 and executed Solvit-Plus 3. The program read the definition file, went to `RAM1_` to read the dictionary file and was off and running. I believe the program reads the dictionary file into memory, so I really had two copies of the dictionary in memory. With a 2 Meg Gold Card system, this was not much of a problem.

Differences between Solvit-Plus 2 & 3

Before going too far I wanted to point out the key differences between Solvit-Plus 2 & 3. There are a lot of features in version 2 that are not in version 3. Since both version 2 and 3 come in the same package, I don't see it as a major problem, I just wanted to point them out.

Solvit-Plus 2 supports six different ways to search to dictionary. Solvit-Plus 3 only supports 4 and leaves out Backward and Palindrome. It does not allow you to check a text file for spelling errors. It also does not allow you to import a text file as a dictionary or to generate a number of statical figures on a dictionary.

To keep the development time down, it looks as if Geoff Wicks took the core part of Solvit-Plus and moved that part to the Pointer Environment version. A decision was made that balanced features versus effort to provide in version 3. Since version 2 is included in the whole package, there is no loss of functionality to the user. Any one wishing the older features can still use them.

Running the Solvit-Plus 3

Once the program comes up it pretty much takes up the whole

screen. The obvious PE options are there; the move item and the sleep/button item. I've seen a number of PE programs that do not support being a button, so it is nice to see this feature. The four main search options are to the left of the screen. Below that is the Help and Paramaters items. Parameters is what Defaults used to be in version 2. The bottom of the screen has an item for selecting the Word List (dictionary). There are also some greyed out items for Main Menu, New Search, Page Up and Page Down. Any items that are not selectable are greyed out and do not function. The rest of the screen is a window to display the results of searches.

Starting a dictionary search is as easy as selecting the item of the search you want. My first try was a Wild Card search. I moved the mouse to that item and hit the Hit/Left button (the Do/Right button will also work). A small window pops up asking for the query string. If you selected this item by mistake, just hitting return will take you back to the main menu.

To test out Solvit-Plus 3 I grabbed the Bonus Crossword puzzle from my local paper and started working on it. I found one word that gave me trouble, so I decided it would be a good test for Solvit-Plus 3. The clue was "Theater Feature" and was a 6 letter word. I knew that the 2nd letter was C, the 3rd was R, the 5th was E and the 6th was N. The query string I entered was `"?cr?en"`.

The small query window went away and the main window on the screen went black (from being grey) and the words that matched the query were displayed. In this case it was the one word "screen", which seemed to be the answer I was looking for.

I next tried the query string `"??i?id"`. To do another search, I just selected the New Search item. I could have selected Main Menu and WildCard, but one click is better than two. This query brought up three words, but I did not know if they were the ones I wanted. My next search was for the query string `"?ig??"`. This

search brought up a bunch of words, so many that Solvit-Plus 3 had to stop finding them and display what it had already found. When I was done reading that list, I just select Page Down to get the rest of the results. When I was done with all of my searches, I selected the Main Menu item.

When I did these tests, I also timed them with my watch. Each search took about 7 seconds. The third search took about 6 seconds to return a screen full of words and then a few seconds more after I selected Page Down. I ran the same tests using Solvit-Plus 2 and came up with about the same timing, just about 7 seconds. Since I am using a Gold Card, your timings will vary depending on your platform.

gram and not on a file on disk. This is helpful as I turn off my disk drive often. Since the disk drive has it's own power supply and fan, I turn it off to keep down the noise.

The Parameter item is used to change the program defaults. Things that can be changed are: Sound On/Off, Word Length, Colors, Printer, Device, and Word List. These options are changed in the program instead of in a Config Block. When you save the Parameters they are saved in the "solvit3_def" file. Since this configuration file is just a text file, you could edit it, but I would only edit it for something like the Word List. Some of the other options are just numbers and its hard to tell what you might be changing. So, edit it at your own risk.

Summary

It's pretty obvious that the main point behind Solvit-Plus 3 was to take the main features of the version 2 and adapt them to the Pointer Environment. No new features were added. Actually, quite the opposite, some features were removed.

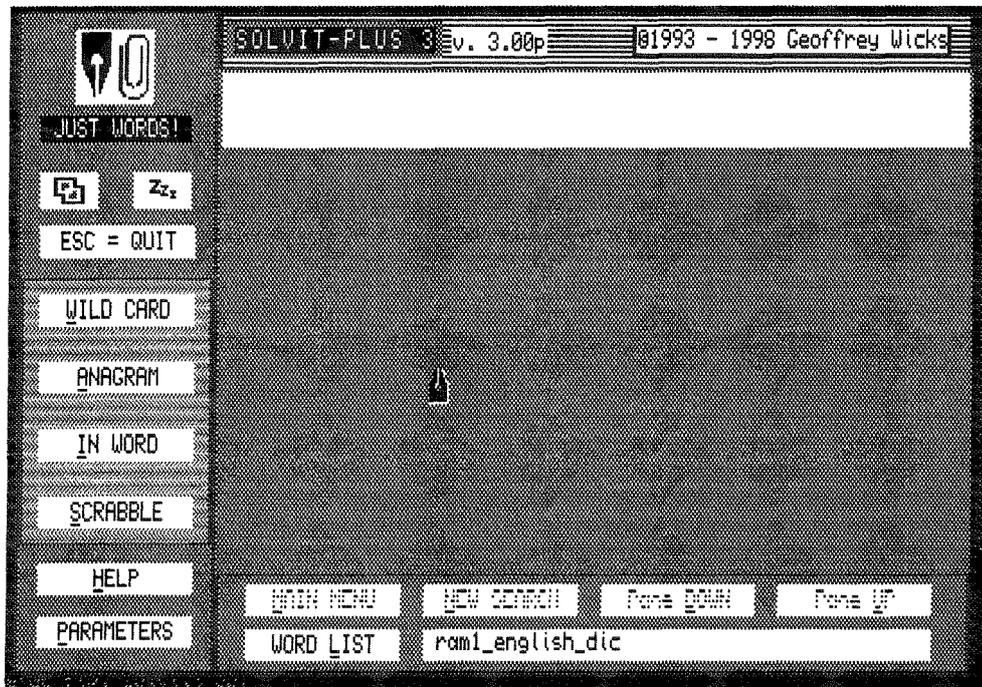
The program ran well. The only "crash" was an "out of memory" error. I was running Solvit-Plus 3, Xchange, and had the dictionary file in memory. When I selected the Parameters item I ran out of memory. I think this is one of the few times I've ever used up all of my 2 Meg. Obviously I did not really put the program to a thorough test. I'm sure that are bound to be a few bugs found, but as the core part of

the program probably has not changed between the versions, the only bugs that should appear will be related to the Pointer Environment screens.

Since Solvit-Plus 3 includes Solvit-Plus 2, I don't know if there is any increase in the price, nor do I know what the policy is for owners of Solvit-Plus 2 (they don't tell things like that to us reviews). If you are a current user of Solvit-Plus and use the Pointer Environment, I would recommend getting version 3. Using the same consistant PE interface speeds up the program. If you do not use the PE

then you really are not missing out on any new features. As for non-owners of Solvit-Plus, base any purchase on your need. Its all a matter of having or not having the patience to wait the next day for the answers.

Editor's note: Solvit Plus 3 costs £15.00 from Geoff Wicks (Just Words) or from QBranch. Upgrade from earlier versions costs £2.50



The other searches are: Anagram, In Word, and Scramble. In Word is used to find words that can be formed from the query word. Scramble another name for Scramble, and finds all words that contain all the letters of the query word.

The Help item brings up a 4 screen help display. Moving though the Help screens is done by the Page Down item. The screens give a brief explanation of each search, the Paramater options, and the Word List. The Help information is stored in the pro-

Things I'd like see

The biggest failing I saw was the lack of any update to the manual. Granted that once a user knows how to use version 2, version 3 is pretty easy. Some coverage of the configuration file and how it affects start up could be covered. An UPDATE_DOC file could be created or a short version 3 printed manual could be included. Once the user is past the initial installation then any questions can be answered in the version 2 manual.

Sinclair Archeology

Review by Dilwyn Jones

Enrico Tedeschi is the author of this illustrated guide to collectable Sinclair bits and pieces. Many QL users like me will have been fans of (or at least users of) the various electronic bits of kit produced by Sir Clive's various companies over the years. This book is an illustrated history of all those various bits and pieces Sir Clive has produced right from his early days selling Micro Alloy Transistors.

The book itself is a little unusual in that it has a home-produced look and feel to it, being A4 format with a plastic comb binding. It is photocopied from part dot matrix printouts, and part manually pasted replicas of original adverts and other paperwork. It cannot hope to compete with more professionally produced books in terms of glossiness and appearance, but at least the comb binding means it will open and lie flat for you, and the appearance in no way detracts from the comprehensive contents. I initially thought the spelling of Archeology to be an error, but my dictionary lists two different spellings of this word, so I shouldn't complain that it doesn't use the spelling I am accustomed to.

The book consists of sections detailing the various stages in the Sinclair manufacturing era, from the very early miniature radios and books of circuits to build using the infamous cheap Micro Alloy Transistors (MATs), through the hi-fi amplifiers and ICs, the calculators (I still have an Oxford 300 which I bought while I was at school), the wrist calculator, the black watch, test instruments, miniature TVs, the computers (excluding the Z88), and on up to the electric transport era. There is no coverage of the more recent involvements such as the satellite dishes, water scale integration projects, the in-ear miniature radio and so on.

It is in effect an anthology or collection of various printed information about the products - adverts, copies of instructions, pictures of Sinclair premises and so on.

Reading this book, it became clear to me that Sir Clive has been

responsible for a lot more than I ever knew about. Sir Clive was a boyhood hero to me, at a time when I had bought the calculators, the black watch and other products of that era. If you are interested in reading about the products and background information generally, you will enjoy this book. If you are looking for an in depth history of Sir Clive the person, you will be disappointed.

The printing quality leaves a bit to be desired. Some of the reproduced adverts have small text which has not reproduced well enough to be readable, but on the whole the quality is adequate without being exciting. The depth of research gone into for this book is obvious, and I learned a lot about Sir Clive and his projects from this book. I thought I knew most of what there was to be known about Sir Clive from my long association with his products, but this book has shown me exactly how little I really knew.

While I was aware that Sir Clive Sinclair had produced various hi-fi products, I didn't know exactly how many he had produced and I certainly wasn't aware he had released

some power amplifier ICs with huge heatsinks attached. And while I vaguely remember that he had produced a wrist calculator, I couldn't remember what it looked like until I saw its picture in this book.

I can recommend the book from a content point of view, but feel that a more professional looking product would have done more justice to such a comprehensive collection of Sinclair information.

The author is not a QL user, but rather a collector of all things Sinclair. His enthusiasm and fascination with the products clearly shines through. He has held exhibitions of his Sinclair collection, with one apparently attended by Sir Clive himself.

Sinclair Archeology costs £10 plus £2 postage and is available from the author at

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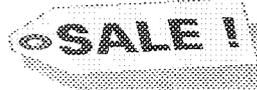
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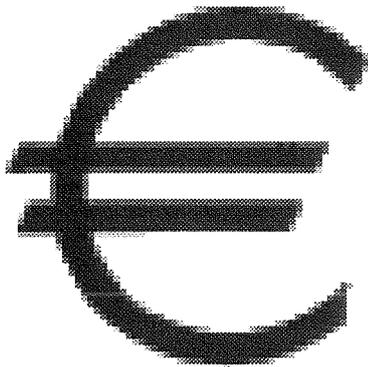
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If you wish to pay by Credit Card all of the above is also available from QBranch.

The Euro is coming

Jochen Merz

Politicians say it is definite that the Euro will come. Microsoft and other companies have changed the character sets to allow the Euro symbol to be used. This means we have to do something in the QL scene as well.

First, we have to pick a screen character which can be replaced by the Euro. It should be one which is not used at all, or most likely not used by many people. The Lambda



(CHR\$(175)) seems to be the best candidate, as ordinary printer character sets do not contain this character.

Next is the appearance on the printer. Clearly, the Euro symbol has to be constructed.

```
IF $ → $
   ¥ → ¥
THEN € → €
```

If you have not seen it yet, it looks like a large, upper-cased C with two horizontal lines (similar to the Yen, which is a Y with two horizontal lines), forming a round, large E. I have tried constructing this symbol on various printers with various fonts. I figured out four possibilities: C, Backspace, = or (, Backspace, = and C, Backspace, - or (, Backspace, -. The first combination looked bad in

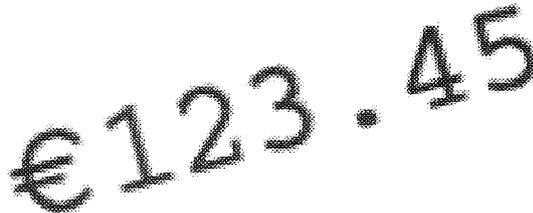
all fonts, hardly distinguishable from an O with two lines. The (is just not round enough. To be honest, the C with - looked best. It is just one line, but considering that most Yen, Dollar or Cent or Pound symbols show one line only this is no problem.

If you want to try it yourself, use

```
OPEN #3,par
(or SER, of course)
PRINT #3,"C"&CHR$(8)&'-'
PRINT #3\#####
CLOSE #3
```

and check the result.

We would like to get your opinion on this matter: write us and tell us which character of



the QL font can be replaced by the Euro symbol, and try to construct the symbol on your printer. Consider that all characters with Umlaut-dots or accents are being used in some language, so that they can be ruled out.

We will change the screen font in the future and modify the translation tables of the QL so that the character will be printed as well.

After having written these lines, I

thought it may be a good idea to see if I can find out a bit more about the Euro symbol.

€23

€26

€25

Not everybody may have seen it yet, and maybe there's some history behind it too. I found some pictures which point into the

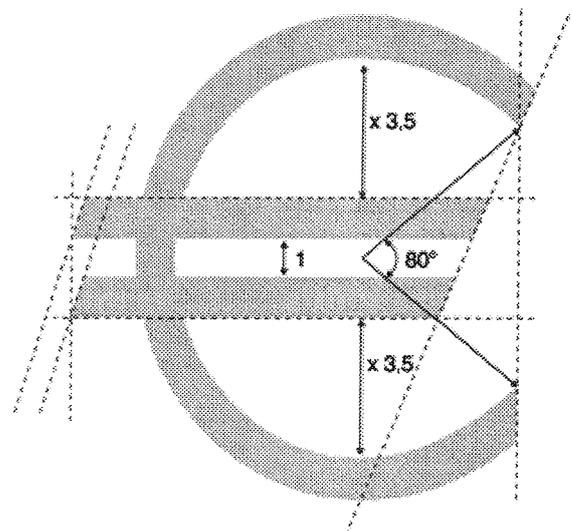
same direction which I suggested - you will see them floating round in this article.

It seems that new fonts will have the Euro-symbol at the

```
IF E → e
THEN € → €
```

position which the 1/4 symbol occupied (probably, as 5 1/4 inch disk drives disappeared and they think it is not required anymore). However, this does not help current owners of printers, as we are not going to replace all our printers just for one new character, are we?

While talking about the Euro, what are we going to do about the Euro-cent?



Hove Quanta Workshop Review

Ian Pizer

A visual impression of The Hove Workshop, Sunday 22 February 1998 in words and pictures.

You may well wonder why I came over from Switzerland to this QL Workshop. I persuaded my wife that we should visit her God-Child in Eastbourne and that ruse worked! Of course I wanted to find out what was going on in the QL/AURORA/whatever world and of course pick up ideas, solve some minor irritating problems, and maybe spend some pounds, dollars, deutchmarks.

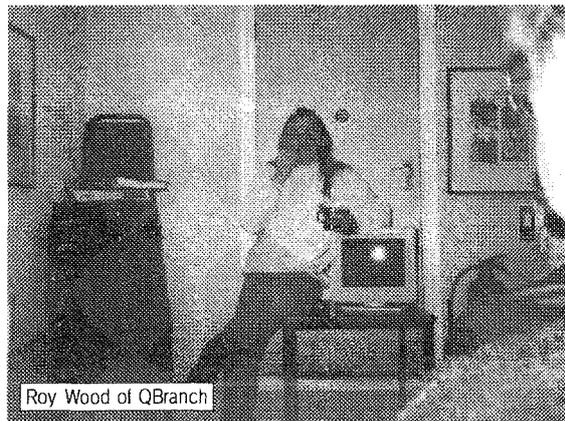
Roy Wood had chosen a convenient hotel for the workshop and even managed to have a Jazz Band operating at lunch-time in case one's nerves needed soothing.

I have been to several workshops but this one was really buzzing with activity and few notables were missing, in other words most were present. Jochen Merz was busy as usual updating programs and consulting; he should introduce a ticket system to simplify the queuing problem! I hesitantly bought QPC which forced me, when I got home, to invest in a PC (code name for a monster) and to stretch my brain power to the maximum. That is not a criticism of QPC which is now well installed, but mostly fear to ruin a complex unknown device (the PC W95 part). I in-



Jochen Merz and Marcel Kilgus

stalled a monitor switch so I can use either AURORA or PC provided I remember which mouse and keyboard is appropriate. Marcel Kilgus, the author of QPC was busy moving between Jochen and Albin Hess-



Roy Wood of QBranch

ler's laptop (Hessler of Cueshell fame, a great program). Albin solved my problem of how to copy all sub-directories from one drive to another using Cueshell. Marcel was 16 when he got going on QPC, is this a record or do you have kids (perhaps grand-children) even younger preparing wizard programs for QDOS? If not, why not?

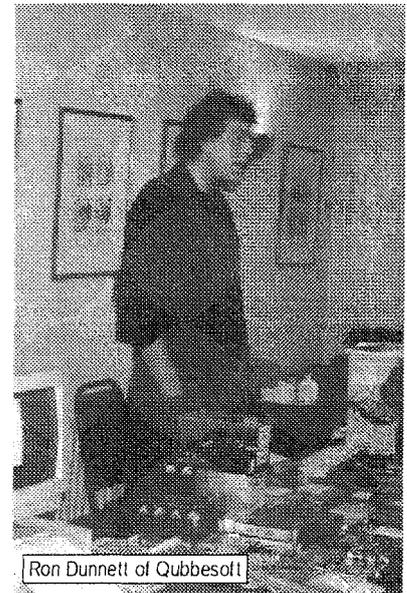
QBRANCH was well setup next to the room entrance with all their goodies displayed. I was glad to see and hold the "Braquet" and a pre-punched-out back panel, called M-C Panel, for your connectors at the back of your tower (wish I had that when I was mounting AURORA in a tower!). There was also a neat new flattish box to mount your computer into instead of a tower. Roy was also showing a comprehensive Reference Manual (A4x2"), prepared by Rich Mellor, containing ALL key-

words and more. Roy was looking for a way of making it available at a reasonable cost. He also gave a talk about his various activities which was well attended. Roy's pilot friend Peter Fox was also seen hovering around.

In the middle of the room was the QTPI island governed by none other than Jonathan Hudson himself and a colleague. I had recently informed him by e-mail that the "one-liner" facility in QTPI did not work but later found it did and was glad to be able to tell him that. (one-liner saves time because all data is rapidly spat out on one line while it is being recorded in QTPI_LOG file). Jonathan is not only known for QTPI but

also QFAX, QASCADE (newish and clever and easy to install and free as usual) and many others. Pity he did not have a phone line handy so he could give demonstrations. Jonathan was to give a talk but I was unable to be present.

QUANTA of course was well present and ready to answer your questions. I recognised John Taylor and John Mason but



Ron Durnett of Qubbesoft

there were probably others. Why do people not wear name tags?

Peter Graf and brother were displaying their Q40 printed circuit board in operation. This is an activity to support and admire and enthuse about. He has ideas for future developments including a Q60 using a 68060 chip.

Tony Firshman, assisted by his clever son, had his robot system working (operated by son). He was offering his Rom-Disq and a talk was given about it by Stuart Honeywell of Miracle Systems who also spoke of the ZX-8301 replacement which will allow a QL to address modern monitors. In the background was Laurence Reeves, one of the important old-timer QL programmers. I do not know what was his activity at the workshop.

I was pleased to find that Ron Dunnett of QUBBESoft was present. I had never met him but had spoken many times with him by phone and got invaluable advice and kind words. He did not at all look like his phone voice or should I say, the vision I had made in my mind.

I apologise to those whom I have not mentioned, either because I did not recognise them or did not interact with them, including more than a few ladies, perhaps wives or actual QLers. But this was a very exciting and busy workshop. Those of you who read this and who have never been to a workshop or not been recently, do not realise what you miss. If you have queries, difficulties, want to update or learn about new goodies, there is no better way than to visit a QL workshop. Roy did a great job to gather together so many QL traders, programmers and enthusiasts. QL and derivatives forever!

■

Gold Fire - Questions and Answers

Ron Dunnett

A lot of people have been asking what is Gold Fire? What facilities will it have? When will it be available? How much? What's required to use it? In the following article I will try and answer all of these questions.

Q. What is Gold Fire ?

A. Gold Fire is the replacement to the Super Gold Card for QL/Aurora systems. Hopefully everybody knows what a Super Gold Card is.

Q. What facilities will Gold Fire have?

A. This is a very big question so here goes.

1. Gold Fire will be introducing a new CPU in the shape of Motorola's COLDFIRE processor (MCF5102). Although it is architecturally different this CPU behaves like a 68EC040, similar to the one used on the QXL, but it is in a more compact package and will operate at a much faster speed, 33 or 40 MHz compared with 25 MHz for standard QXL. Because of its low power consumption it is possible to operate the Gold Fire even with a standard QL. We will also be introducing, at a later stage, the ability to use more than one processor. The second processor will undertake the normal processing stuff and the in-situ processor will be used for dealing with I/O (input/output) and graphics. Before this can happen the existing drivers will have to be re-written. The in-situ CPU can also be completely disabled, should the need arise to only upgrade the CPU, if such a CPU becomes available but using it alongside the in-situ is not possible for some reason. Motorola has been known to do things like that.

2. Gold Fire will have two 72 pin SIMM slots. They accept one or two single sided SIMM's or one double sided SIMM. Single sided, meaning chips on only one side, double-sided meaning chips on both sides. A double sided SIMM actually emulates two single sided SIMM's anyway. The SIMM slots can take standard or EDO,

Parity and Non-Parity SIMM's with a minimum capacity of 4mb and a maximum capacity of 128mb. This will introduce a large amount of memory flexibility previously unheard of in the QL's history.

3. Gold Fire will be using an I/O chip that is found on all modern PC Motherboards and I/O cards which will introduce the following:

3.1 Floppy Disk Drive port - DS/ED, DS/HD and DS/DD compatible. Hardware is constructed so that full background operation is possible, i.e. disk operations do not stop programs, driver permitting.

3.2 Bi-directional Parallel port - Providing the facility of future connection of Scanners, ZIP Drives etc., etc., (Software permitting)

The following do not fit directly onto the Gold Fire board, but provision is made to add the necessary connectors and RS232 buffers off the board.

3.3 PC Keyboard port - No excuse for using the standard quirky keyboard.

3.4 PS/2 mouse port - No excuse not to use a mouse.

3.5 Two fast Serial ports - Enabling use of modern hi-speed modems. Whether these will actually be 2 ports is debatable, but it is certainly possible to make one decent port from the two of them in order to ensure decent handshaking at very high speeds - the ports can go as high as 930600. It is conceivable that both ports could be used in a double CPU configuration, the other CPU could then have time for the CPU intensive nature of these ports.

4. Gold Fire will include an on-board Switch Mode Power Supply Unit negating the need for an enormous heatsink and fiddling about with loops of wire when being used in a 5V system. The SMPSU will auto-

matically produce the required supply voltages from a wide range of input voltages.

5. Gold Fire will be using a Flash ROM, similar to the new Rom-Disq from TF Services, which will be big enough to include SMSQ/E operating system and all the necessary drivers. Thus doing away with the double booting we have to contend with at present.
6. Gold Fire will have extensive expansion capability, because we intend to continue producing QL specific add-ons. Also, some of these expansion capabilities will provide speed-up for existing hardware, such as the Aurora.

Q. When will it be available ?

A. This is a difficult question to answer. We are working as hard as we can to introduce Gold Fire but like all good things they take time. Nasta, the designer, has to hold down a full time job so the time spent on Gold Fire is limited to his spare time. Manufacturers of the chips we are using keep moving the goal posts and this causes anxiety as well as delays. The Gold Fire will be produced using surface-mount components which is new for us and also takes arranging. An awful lot of time has been consumed trying to get around the terrible Plug and Play facility of the I/O chip. But after all the above and more we are well on the way to completing a prototype of Gold Fire. Once this is complete the biggest hurdle will be Software and this is where hopefully Tony Tebby and Jochen Merz come in to play. We are aiming to be in production by the middle of 1998, this is all I can really say.

Q. How much?

A. Another difficult question to definitively answer. Put in simple terms we honestly don't know how much Gold Fire will be selling for, but we have got a target price we are aiming at. A 4mb version being no dearer than the current price of a SuperGoldCard. The crunch comes when we get to the point of production and then we can scour the chip distribu-

tors for the best prices, start wheeling and dealing (this is where my barrow boy mentality comes in handy). This may sound very iffy but this is the only way we can do it as we cannot buy components in huge quantities, it's worked in the past so I can't see it not working this time.

Q. What's required to use it ?

A. In short a QL or an Aurora. It will plug into the same place you would plug in a TrumpCard, GoldCard or SuperGoldCard. Obviously you would need to plug the SIMM you are going to

use into GoldFire first, then simply plug it into your QL/Aurora system. We will be selling Gold Fire with or without SIMM memory so if you already have a spare SIMM this can be utilised.

That's all for now folks. If you have any more questions regarding Gold Fire or any other product we manufacture or sell please let me know, either through the magazine or directly to me, and I will compile another Question and Answer article.

QEMULATOR for PC (Alpha Version) Report

Bill Waugh

Q-EmuLator is a software emulator of the QL that runs in Windows 95 for the PC. It has been developed for Windows 95 from the original version of Q-emuLator for the Apple Mac.

I found the Emulator on the World Wide Web at:

www.geocities.com/siliconValley/Heights/1296/q-emulator.html

It is an alpha test version and its use is limited to 30th of April 98 so if you want it you might have to wait until another version is made available. It will eventually be shareware.

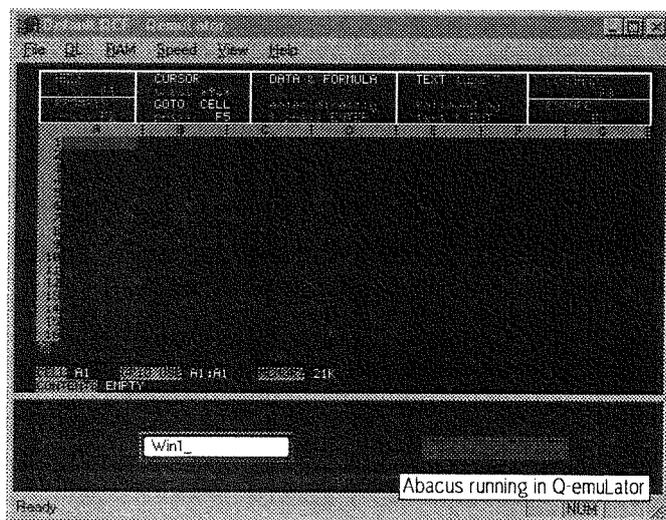
Q-emulator is written by Daniele Terdina, and given that the version I have tried is not the finished article, I was pleased with the way it ran on my 120MHz 486.

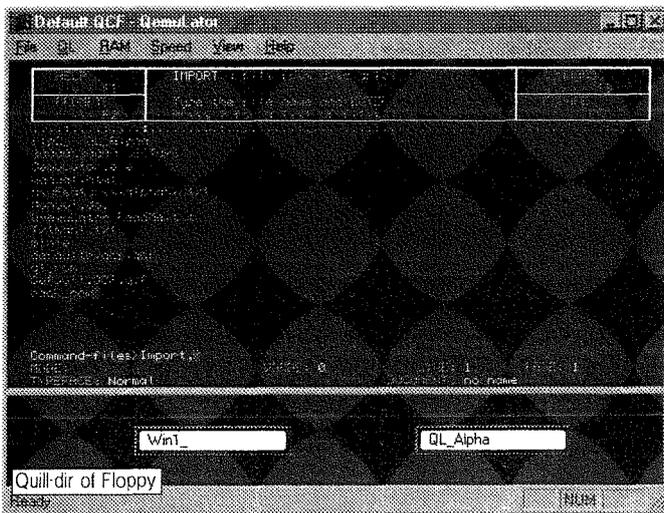
There is a demo program that you can download which features

various programs that demonstrate the graphics capability of the emulator. Two of these, a wire frame manipulation program and the Amiga bouncing ball, are fairly impressive, (courtesy of the QL second screen).

Another plus is the fact that you can attach up to eight PC drives or directories to the emulator. I managed to read floppy drives, directories on the PC hard drives and also cartridges in a Zip drive; of course you will not be able to read PC files unless you use some software to allow this.

Keeping QL files and PC files apart is no problem, just create a directory in Win95's Explorer and call it Win1_ (or what ever), you can then ATTACH it to a Micro-drive slot.



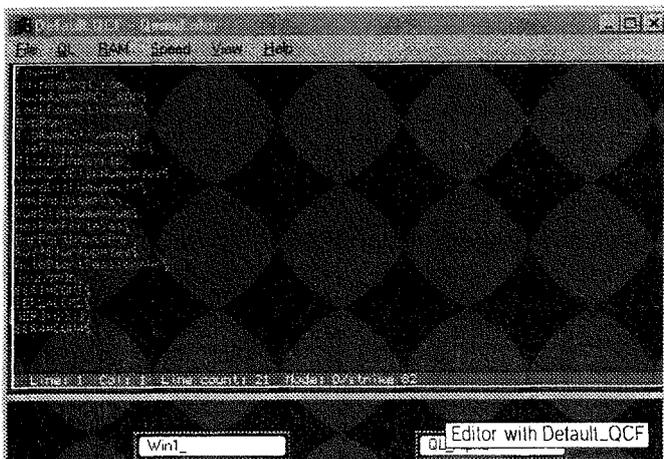


Reading the drives is easy, you just call them Mdvx_ or Flpx_ where x is a number between one and eight that corresponds to the microdrive slot it is attached to. Before you can use the emulator you need to have a QL rom image. You can take this from your own QL with the SBYTES command and copy the resulting file to the directory that holds Q-emulator (default is Q-emulator Alpha) and call it QL_Rom, I also copied Toolkit2; to do this you copy the file into the directory as Back_rom.

To use Toolkit2 you need to alter Q-emulators configuration file (Default.qcf), which is a text file that can be edited easily. It features the following options.

Default.QCF:

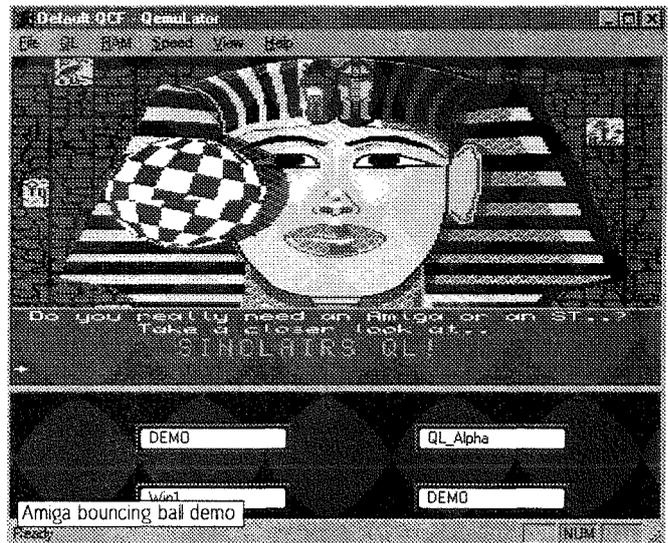
Ram	the amount of ram Q-emulator will have (128k to 4Mb)
MainRom	name of Rom image (QL_Rom)
BackRom	name of Back Rom image (Back_Rom)
BackRom Active	Enable Backrom (Yes/ No)
ExpRom	name of External Rom
ExpRom Active	Enable External Rom
Use FloppyName	Access Mdv slots as floppy alias (yes/no)
FloppyName	Floppy alias name (Flp)
UseHarddiskName	Access Mdv slots as hardisk alias (yes/no)
HardDiskName	HardDisk alias name (Win)
HasRamDisk	Enable buit-in ram disk (yes/no)



RamDiskName	Name of ramdisk (Ram)
HasParPort	Enable parallel port (yes)
ParPortName	Name of parallel port (Par)
FastStartup	Skip QL memory test (yes/no)
AutoStartSession	Launch emulation session when Q-emulator starts (yes/no)
Sound	Enable/Disable sound Emulation (yes/no)
SER1	Select which pc COM port to assign to each QL Ser device (yes/no/none) COM1
SER2	COM2
SER3	COM3
SER4	COM4

Configuring the file was easy enough, but I could not get the emulator to work if I specified 4MB of Ram, although selecting 4MB from the Memory menu and then starting the emulator worked ok. This is something I will report to Daniele at his Email address.

The Autostart feature is a really fast way to start the emulation. It offers you a selection of the configuration files you (may) have written and fires Q-emulator up with the selected file loaded and is almost immediate.



What works?

Well, everything I have had time to try, Minerva, Qpac2. (free) The Psion4, The Editor (an old friend revisited), mouse - if you load the supplied Mac-mouse drivers.

Baud rates can be set to most of the usual QL rates plus many PC values up to 256000 if your serial ports support it.

What doesn't work?

Sound unless you have PC DirectX drivers.

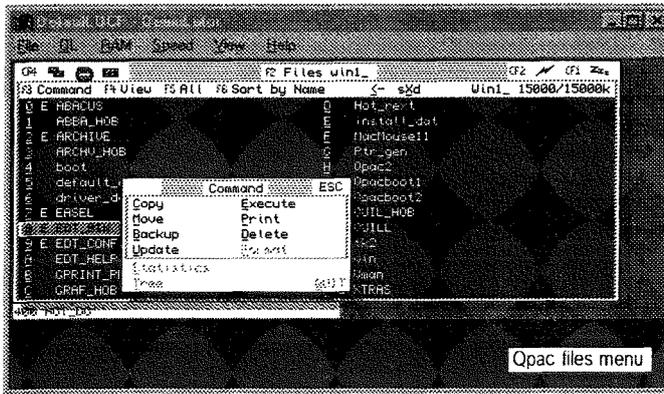
No format of QL disks.

The TRA command in JS and later roms are not supported.

Minerva and SMSQ extensions to the serial ports are not supported.

What next?

Daniele lists the following as improvements for the



next release due later this year:
 Format of Qdos floppies.
 MDV directory settings saved to disc.
 Faster graphics.
 Faster emulation.

The emulator comes with two manuals one as a text file and one as a Html file. The manual is very informative and easy to understand.

If you want to be notified of the release of the next version you can contact Daniele by e-mail at sistest@ictp.trieste.it

EMAIL HINT

Dilwyn Jones

Those like me who have email access at work, but not full internet access, may be interested to learn of a tip passed to me by a colleague, Gareth Morlais. Using the automated Agora server in Japan, you can tell it to send just about any World Wide Web page just by specifying which page you want. There are a few restrictions - it only allows up to 5,000 lines to be sent at a time, it has some problems with Netnews, has limited binary file handling (graphics etc) and you cannot post material to newsgroups. You can access Search Engines through the MetaCrawler system, which queries the other search engines such as Lycos, Yahoo, Alta Vista etc, and returns the HTML version of the search result.

For example, if you want to read some old "how many ... does it take to change a light bulb" jokes, you can find some at

<http://comedy.clari.net/rhf/jokes/88old/bulb.html>

Send an email to

agora@dna.afrc.go.jp

with no Subject and the following in the message body:

Send <http://comedy.clari.net/rhf/jokes/88old/bulb.html>

You'll eventually get an email back from the automated Agora program on the server in Japan with the page you requested. It's one thing asking for lists of jokes, but once you have a list of QL-related sites you can recover the contents of these too!

The first time you use the service, it sends a Help file about 8 pages long with instructions how to make use of the facilities provided, and warns you that your requests are logged by the agora server and watched "for the maintenance of the agora server".

The Sinclair X1 Radio

Darren D. Branagh

This review will give you an idea about the current activities of Sir Clive Sinclair. We all know he's quite clever in inventing things, but the marketing was not always what we expected.

Back in November 1997, I was doing what I normally do [*playing with his QXL in case you wondered!* - Editor] when the new copy of the Sky TV Guide arrives on the doorstep - scan through it, and circle all the decent movies with a felt pen. However, somewhere around the middle I saw a familiar face - that of the red beard and glasses of Sir Clive Sinclair!! Needless to say, it was an advert - not for the new Sinclair computer as I had hoped, but for a much cheaper and different alternative - a micro-sized in-the-ear radio!!

The caption boasted of "THE WORLDS SMALLEST RADIO" - something I doubt, as a few Japanese manufacturers might contest that claim - however small it was, and is - as I am now the proud owner of one. It's not bad either.

I quickly sent off my £10 sterling (actually £9.50 for the radio and 50p for postage) to the Vector Services division of Sinclair Research - Which struck me as curious, as I thought Sir Clive had lost all rights to use his name and had sold "Sinclair Research" to Amstrad Plc, but there you go - shows what I know!! The Advert said I must wait 28 days for delivery - the standard wait for most mail order services, and unlike Sir Clive's style of the past, the Radio turned up in only 3 weeks - remember the delays with the QL? Ah, those where the days....

First Encounter

I quickly unwrapped the packaging and took a look at my tenners worth - not much of it, but then that's the idea - it's roughly the size of a new 10p piece - circular, and ear-plug shaped and fits into the ear quite well. The X1 radio (to use its proper name) is solely FM, so has no switch to change bands. Tuning is done by pressing a small button on the back of the earpiece - which sets the X1 to "scan" up the frequency range until the next FM station can be found. If you reach the top of the frequency range without finding your desired channel, the X1 will reset to the bottom of the FM bandwidth and resume scanning upwards from there. Switching off/on is via a small slide switch on the edge of the radio.

Finding Your Station

Also on the back of the X1 is a small "map" if you like of the whereabouts of various UK stations - useless to me over here in Ireland, but quite useful I'm sure in the UK - all the major

stations such as Radio 1, Kiss FM, and Capital Radio are listed in order of how you will find them starting from the bottom of the FM range upwards - useful as the radio doesn't have a visual display of any kind to tell you what frequency you are listening to - either digital or analogue.

The Reception

Overall, the reception is quite good, considering its size. I can pick up the two Irish national radio stations Radio 1 and 2FM without two much difficulty, with differing clarity - and I live 1500ft up in the

Wicklow Mountains. When in Dublin city however, the choice grows to a dozen or so stations - all local, and all of them crystal clear. I found it useful too when commuting on the train to work in the bank - and a lot less bulky than the Panasonic Walkman I have.

In Conclusion

The Sir Clive Radio is well worth 10 of anyone's money - especially if you have at one time or another owned everything Sir Clive ever made - like myself. I still use it regularly, and although the batteries are expensive lithium

jobs, they last well. It's small, and it works - what more can I say!!

For anyone that is interested the Address for orders is :-
 SINCLAIR RESEARCH LIMITED,
 VECTOR SERVICES DIVISION,
 13 DENNINGTON ROAD,
 WELLINGBOROUGH,
 NORTHANTS.,
 NN8 2RL,
 ENGLAND

If you decide to order one, I hope you enjoy using it as much as I did.

PWFile: A ProWesS File Manager

Jim Hunkins

The latest file manager, called PWFile, competes with other file managers like QPAC 2, CueShell or DiskMate. This review tells you all about the pros and cons.

Certain types of programs tend to gather fanatically loyal followings. Other types of programs tend to be just part of things, something that you use everyday but don't think much about. A file manager can fit both categories. To me, a file manager is something that I use but don't think much about.

Upon admitting this, approaching this review of PWfile, a file manager which uses the ProWesS windowing system, was a bit difficult. I wanted to provide useful information to the reader but also keep it unbiased. What you, the reader, will hopefully gain from this is an idea of some of the pros and cons to PWFile (figure #1), how it compares to two other commonly used file managers, and unfortunately a bit of my own

opinion. Hopefully there will be enough information for you to form your own opinion and/or to warrant looking further.

I will use two other file managers for a comparison in this review. The file manager that I have previously used the most is Filer which is included in QPAC II. This is partly because it was integrated well into my pointer environment through the use of QPAC II and also due to its general ease of operation. Another file manager commonly used is Disk Mate 5, which is a stand alone pointer based file manager. Like DiskMate 5, PWFile is also purchased as a stand alone disk manager and is the first one that runs under the ProWesS windowing environment.

Ignoring for now the file manager's specific features, the ProWesS environment brings scalable fonts, among other things and allows the user to fit the program to his screen size/resolution automatically. I like to put as much information that I can into a window so I use the smaller fonts with a higher resolution screen. Others may prefer larger fonts for easier viewing. As with all ProWesS programs, once the user sets up their ProWesS environment all ProWesS programs will match their preferences, including of course PWFile. Keep in mind that, as with any other ProWesS based program, you must own ProWesS if you want to run PWFile.

Method of Operation

There are two major functions that people use file managers for. The first is to view what files exist on a disk in different directories and certain statistics about them. The other is to perform different functions ('actions') on a single or group of files.

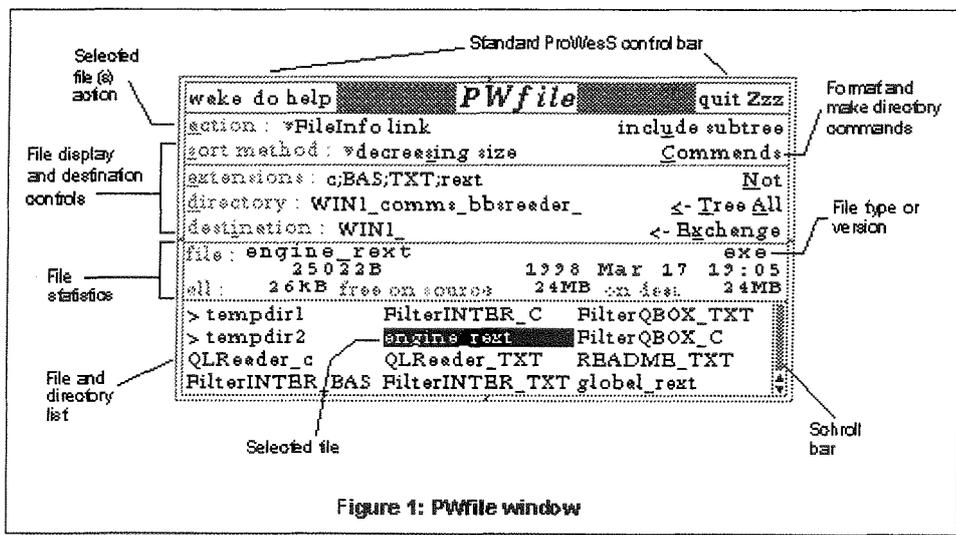


Figure 1: PWfile window

Display: to display files in PWfile, you set the drive and directory to be inspected. Setting them can be done either by directly editing the directory entry (LMB 'Left Mouse Button') or by using the 'Dir Select' window (figure 2) to choose the drive and directory to

chosen action. In addition to choosing an action, the user needs to choose the destination. To perform the action, the user simply chooses a single file or group of files and hits (RMB) them or selects the 'do' option. The action is then performed on all of the selected files automatically. If the action requires a specific user input, such as the rename action, then for each file selected, the user will be prompted for the appropriate response (figure 5).

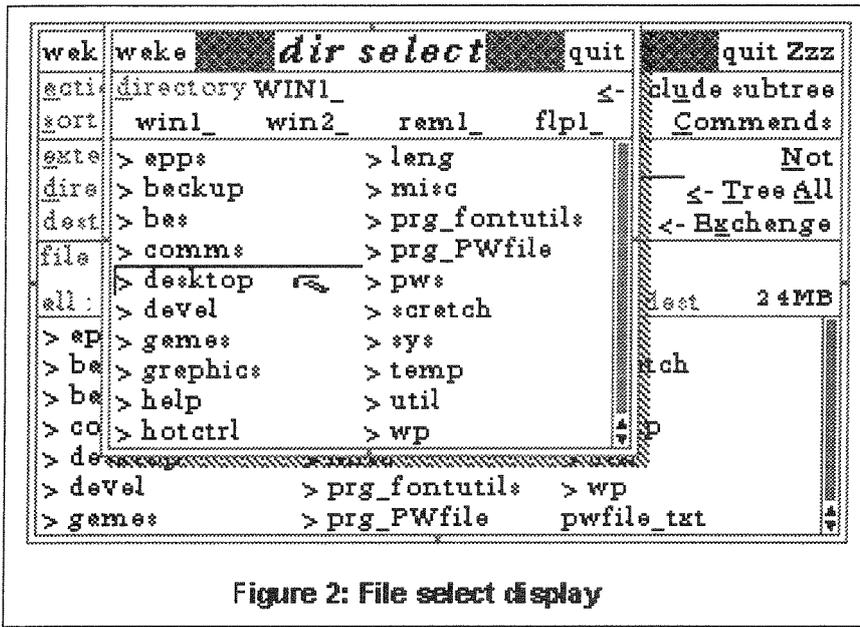


Figure 2: File select display

requires a specific user input, such as the rename action, then for each file selected, the user will be prompted for the appropriate response (figure 5).

One of the most powerful actions offered is the FileInfo Link action. This requires that you have FileInfo (V3 or higher) loaded and running. This program is freeware and allows your system to 'execute' some action on a file depending on the file's extension. For example, if you have a '.doc' file, it is most likely a QL Word Processor type file. If FWfile is set to FileInfo Link for the action, then when such a file is hit, FWfile will tell FileInfo to handle that file. If you have FileInfo set up right, the QL word processor is automatically started and the

selected file is loaded into it, ready to read or edit. All this by simply clicking on the file name.

For files with extensions that FileInfo is not set to recognize, one of two things can happen. If it is executable, the file can be loaded and run, as if you typed on the command line 'EXEC <filepath_filename>'. If it is neither executable or recognized by FileInfo then it is assumed to be an 'other' file type. In my FileInfo configuration, I have FileInfo set, with unknown file types, to either load the file into the editor QD5, the pointer viewer, or to learn its configuration block, all at my choice (figure 6). This, by the way, is a good example of how well ProWesS and pointer programs work together.

To assist in the actions to be taken, some other useful information is displayed (figure 1). In the line just above the file list three items are shown; 'all' indicates

selected file is loaded into it, ready to read or edit. All this by simply clicking on the file name.

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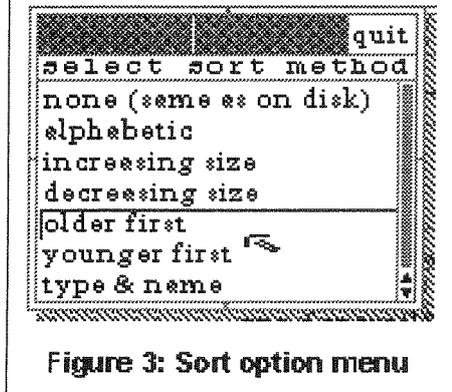


Figure 3: Sort option menu

filter option is also available for using suffixes. Multiple file suffixes can be included (use ':' to separate them). PWfile will consider suffixes which use either the original

DOS like '.' separator. You can also tell PWfile to list all files not using the listed extensions (the 'NOT' option).

File information is displayed on the currently highlighted file. The information includes the file size, the date, and version number. If the file is of known type, then that type is displayed, instead of the version number.

Figure 1 shows PWfile with extensions set to 'c:;BAS;TXT;rext', directory set to 'win1_comms_bbsreader_', and sort set to decreasing size. The display shows all the directories first and then the sorted files with the listed extensions. The highlighted file has its information displayed just above the file list.

Action: PWfile offers multiple actions that it can perform (figure 4). Figure 5 shows 'Rename' as the

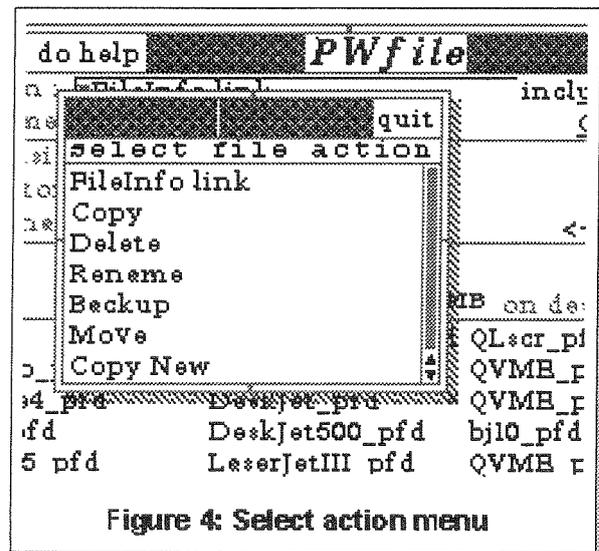


Figure 4: Select action menu

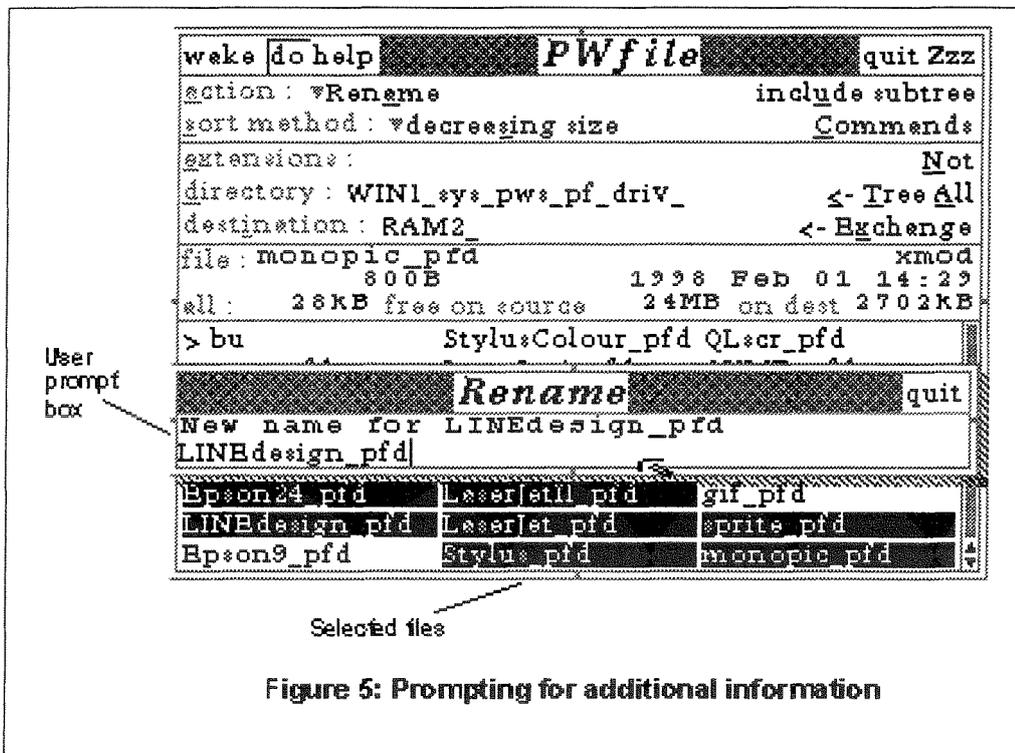


Figure 5: Prompting for additional information

the total space that all the selected files occupy, 'free on source' shows how much space is free on the drive shown in the directory source, the 'on dest' display indicates how much space is available on the destination drive. These items are useful in tracking your drive usage and to make sure that there is enough room on the destination drive for the files you have selected if you plan to move or copy them.

A few other short cut options allow you to 'Exchange' the source directory and the destination directories. The 'All' option chooses or unchooses all the files. The Tree option lists all files and sub-directories under the current directory (caution, if you have a disk with a large number of subdirectories and files, this option may take a while before it redisplay the updated file list).

One other and somewhat unique option is the 'include subtree'. If you choose to copy a directory with subdirectories, this will include all subdirectories and their files in the copy action. This I have found invaluable for floppy copies and backups.

Major Pluses

In addition to many of the things I have already discussed, I have found several other features to be solid additions to this program.

PWFile follows the ProWesS standard and supplies online help using the ProWesS HTML reader (figure 7). The manual is short and concise but useful. It even includes a few tips for installing the FileInfo program that PWfile can link to.

The final (but not exhaustive) item that I want to point out is the option to use command line parameters to configure PWFile.

This allows the user to have different versions with different options set up according to need. For example, you might have one to copy floppy disks to ram disks with the source, destination, copy action, and include submenu options all preset.

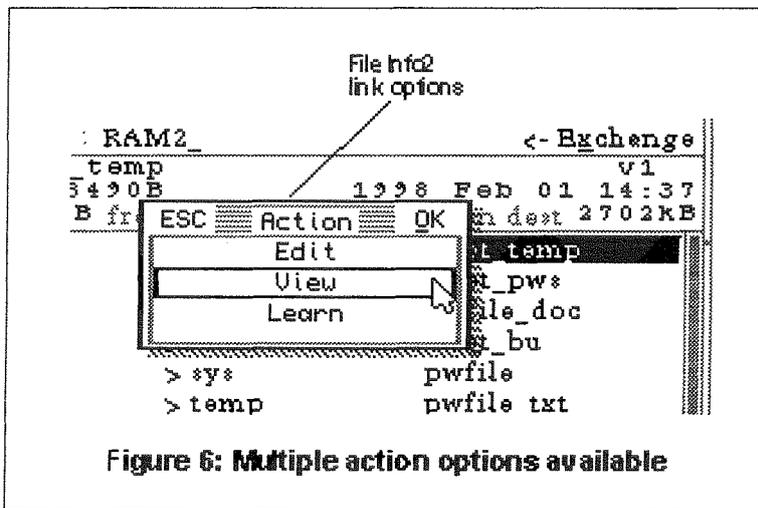


Figure 6: Multiple action options available

In addition to the obvious difference resulting from PWfile running under the ProWesS windowing environment and inheriting the benefits and limitations of the environment, there are several other differences between the file managers.

I have included at the end of this article a feature comparison between the three file managers discussed in this article (table 1). A few explanations might be useful. A 'G' means that the feature is globally applied versus 'F' which indicates that the feature can be applied on a file by file basis. For example, both

The first is the realization that DOS formatted floppy disks have size limits on their names. When copying to a DOS floppy, PWfile will adjust the name to fit the required format. This includes truncation and adjustment of final '_' to '.' which DOS uses as an extension separator.

I am also using the 'backup' action option to backup my data files from one hard drive to my backup drive. While this is not exclusive to PWfile, I list it as one of my personal must features. Backup only overwrites files with newer ones.

Some Differences

TF Services

superHermes

A major hardware upgrade for the QL

- All Hermes features (see below for list) PLUS full 19200 throughput on ser1/ser2 not affected by sound
- IBM AT keyboard interface (plus foreign drivers)
- HIGH SPEED RS232 industry standard two-way serial port. 4800cps throughput (supergoldcard - qtpi - zmodem) at 57600bps
- THREE low speed RS232 inputs (1200 to 30bps) Driver for SERIAL MOUSE supplied. Other uses include RTTY/graphics tablet etc
- THREE spare I/O lines (logic) with GND/+5V
- Capslock/scrolllock LED connector
- Turbo/keylock connectors
- 1.5k user data permanently storeable in EEPROM

All this on a professional board about twice the size of the 8049 co-processor it replaces

Cost (including manual/software) £90 (£92/£87/£90)
 IBM AT UK layout Keyboard..... £22 (£24/£23/£27)
 Serial mouse..... £11 (£13/£12/£14)
 Capslock/scrolllock LED..... £1 (£1.50/£1/£1.50)
 Keyboard or mouse lead..... £3 (£3.50/£3/£3.50)
 High speed serial (ser3) lead..... £4 (£4.50/£4/£4.50)

Hermes available for £25 (£26/£24/£27) Working ser1/2 and independent input, debounced keyboard & keyclick.

superHermes LITE

All Hermes features (see above) + an IBM AT keyboard interface only. Entry level superHermes.
 Cost (incl keyboard lead)...£53 (£55.50/£51/£53.50)

Minerva

MINERVA RTC (MKII) + battery for 256 bytes ram. CRASHPROOF clock & I²C bus for interfacing. Can autoboot from battery backed ram. Quick start-up.

The ORIGINAL system operating system upgrade
OTHER FEATURES COMMON TO ALL VERSIONS
 DEBUGGED operating system/ autoboot on reset of power failure/ Multiple Basic/ faster scheduler- graphics (within 10% of lightning) - string handling/ WHEN ERROR/ 2nd screen/ TRACE/ non-English keyboard drivers/ "warm" fast reset. V1.97 with split OUTPUT baud rates (+Hermes) & built in Multibasic.
 First upgrade free. Otherwise send £3 (+£5 for manual if reqd).
 Send disk plus SAE or two IRCs
 MKL...£40 (£41/£40/£43) MKIL...£65 (£66/£63/£67)

QL REPAIRS (UK only)

Fixed price for unmodified QLs, excl microdrives. QLs tested with Thorn-EMI rig and ROM software.
£27 including 6 month guarantee

QL RomDisq

Up to 8 mbyte of flash memory for the Sinclair QL
NOW BEING SHIPPED

A small plug in circuit for the QL's ROM port (or Aurora) giving 2, 4 or 8 mbytes of permanent FLASH memory (ie there when the QL is switched off) which can be written to by the QL.

The software to access it is loaded automatically at power up/reset. It uses a directory driver written by Tony Tebby, and logic code from Stuart Honeyball. You can even load ROM images.

Think of it - you could fully boot an expanded QL, including all drivers/SMSQ etc off RomDisq at hard disk speed (reading at over 1mbyte per second).

It is an extremely small and compact circuit board, and has hard gold edge connectors, eliminating contact problems and corrosion.

2 mbytes RomDisq.....£39 (£41/£37/£40)
 4mbytes RomDisq.....£65 (£66/£63/£67)
 8 mbytes RomDisq.....£98 (£100/£95/£99)
 Aurora adaptor.....£3 (£3.50/£3/£4)

I2C INTERFACES

Connects to Minerva MKII and any Philips I²C bus

Power Driver Interface 16 I/O lines with 12 of these used to control 8 current carrying outputs (source and sink capable)
 2 amp (for 8 relays, small motors)..... £40 (£43/£38/£44)
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PWfile and Filer allow you to set an action such as copy to apply to any files you select. But in the case of Filer if you don't select a global action, the program will prompt you each time you hit a file (or group of files) for the proper action. In PWfile a global action is always selected, so individual file action prompting is not included.

Statistics in PWfile are only displayed for an individually selected file. In Filer and DiskMate 5 file statistics are shown for all files. In Filer you can also turn off the statistics to show more files (but in that case you can't see the statistics even on selected files). PWfile does on the other hand offer the additional information of total space required by all selected files and space available on the destination drive. DiskMate 5 also gives the space of all selected files but does not include destination drive space available.

Both PWfile and DiskMate 5 show only the file name, leaving the full path as a separate part of the display. Filer gives the full path name with every file name, taking up much more display room per file name in many cases.

All three programs show you when an entry is a directory. For executable files, Filer and DiskMate 5 always indicate this on each file name with an 'E'. PWfile only shows you this if the file has been selected. On the other hand PWfile does recognize a few more types of files and will indicate the type when the file is selected. If the type is not known PWfile displays the file version number. The other two programs always show the versions number (with Filer, the statistics option must be selected).

PWfile offers a limited file name display filter capability by allowing the user to select suffixes to either show or to block from the display. DiskMate 5 offers full wild card filtering while Filer offers no filtering at all.

For display order, DiskMate 5 seems to be the most versatile by allowing you to mix any number of different parameters to sort by. Filer allows you to choose up to 2 different parameters. PWfile is the most limited here but still gives a good selection of display order options. The only combined option under PWfile is 'type & name'.

Another difference is the way the destination location for an action is selected. Both PWfile and DiskMate 5 have the user set the destination globally. Filer

has the user select the destination the first time an action requires it and retains it for future use, similarly to the global setting of the other two file managers. Filer also allows editing of the destination on a file by file basis when an action on a group of files requires a destination.

Would be Nice

As with just about anything, there is always room for improvement. To quote from the PWfile manual 'PROGS

will continue to develop this manual and software. Therefore, we would appreciate any comments about our software and manual'. So here are a few suggestions that I personally believe would make this program even more useful. Many of the suggestions are borrowed

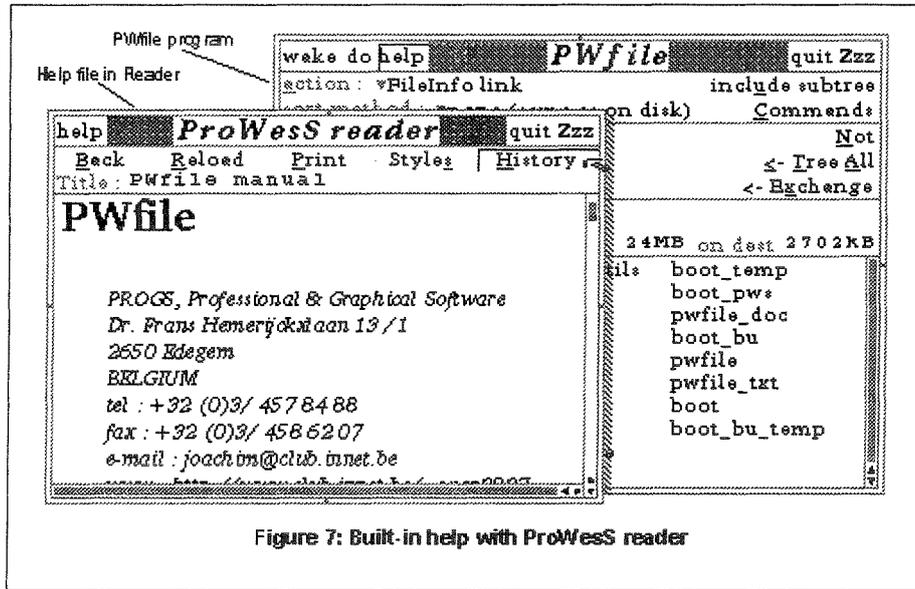


Figure 7: Built-in help with ProWesS reader

from other programs and all are definitely my own personal opinion. You, the reader, will likely have other preferences and perhaps some other ideas for improvement. Be my guest and pass them on.

Please keep in mind that these are only suggestions and by no means say that PWfile is not useful. They are just ideas for even more functionality. So here we go...

- › resizing and redraw: currently PWfile resizes and redraws its entire window whenever it needs to update its file list. It would be nice if there was an option to tell it to not resize everytime, letting the user to manually do it when required. As for the entire redraw, it is 'distracting' when the entire window redraws. By restricting the redraw to just the file list section, the redraw should be faster and less visually distracting.

- › statistics: currently PWfile only displays the stats for the most recently highlighted file. It would be nice to have the option to list stats for all files shown (as is available in Filer).

- › types: the idea of types in PWfile is excellent. However, the number of types is too limited to make it much use for most people. Other graphics types (such as graphic formats, data base and word processor formats, etc) would make this much more useful. In this way types would expand on the suffixes method used by the FileInfo link. While we are at it, displaying both type and version number together would be good. Currently only one or the other is displayed.

- › actions: the global settings is fine most of the time. By adding a 'Local' option to the action list and with

this set, bringing up an action menu whenever a file or group of files is hit would make the action options very versatile.

> print: there is not currently a Print option available. This could be added for directory lists, text prints, and even a link ability to PROGS PList. For now the user with FileInfo can set its configuration to offer printing options.

> filters: currently PWfile supports using extensions for filtering. This could be extended to include wild cards on the full file name as in DiskMate 5.

> tree option: if the Tree option is accidentally hit and the disk has a large number of sub-directories and files, the response by PWfile can be slow. This routine can probably be sped up. Either way, an ESC option could be added to cancel it.

Summary

By now, you probably don't have a clear answer as to whether PWfile is a must buy or not. That is because I feel that you are the authority on this, not myself. So I have tried to give you a picture of the program and a rough comparison between it and two other major file managers. I few final comments may help.

First, you must have the ProWesS environment to run this program. If you don't have it and don't plan to buy it for another ProWesS program, PWfile may be too expensive of an option.

If you already have ProWesS or are planning to buy it, PWfile works as well and sometimes better than the other file managers. While there are a few improvements that would make it a nearly 'perfect' program, it does what it is intended to do well.

I find myself using it in conjunction with Filer, depending on what I am doing. If I am doing backups, disk copies, etc., ProWesS definitely is my top choice. But for simple fast file manipulations, I

Feature Table	PWfile	Filer (in QPAC II)	DiskMate 5
App cost (DM)	64.00	110.00	69.00
Actions			
Execute	x	G/F	x
FileInfo	G	G	
View	x	G/F	x
Copy (same date)	G	G/F	F
Copy (New date)	G	G/F	F
Move	G	G/F	F
Backup	G	G/F	
Rename	G	(use move)	F
Delete	G		F
Print			
Directory		G/F	x
File		G/F	
New Directory	x		x
Format	x	x	x
Change Data Space			x
Convert			F
Action Option			
Include Subtree	G		
Display			
Statistics	by file	All	All
Size	x	x	x
Date	x	x	x
Type			
Directory	x	x	x
Exec	x	x	x
Relocatable	x		
Xmod (syslib)	x		
Painter 4/8	x		
Painter pat	x		
Pointer font	x		
Data Space			x
Version	if ? type	x	x
filename display	name only	with path	name only

Table 1: File Manager Feature Comparison

often still use Filer. And for a final admission, I still use the command line for lots of file work (sigh, I am working on that bad habit; don't old habits die slowly..).

If some of the above suggestions get implemented, I will probably retire Filer entirely and use just PWfile. And knowing PROGS, that might just happen.

What are all these addresses? - Part 1

by Nasta (Zeljko Nastasic)

An Address Map Primer

As with any other computer, the QL has its 'address map'. Behind this mysterious name which has been so often used to justify why some piece of hardware can or cannot be added to the QL, hides a very simple concept.

Every computer consists of a CPU, memory, and some input-output circuits. For the sake of simplicity, and to vastly reduce the number of signals needed in the system, a concept of addressability was invented. In short, every device connected to the CPU has one or more addresses, which the CPU outputs on a collection of lines called the address bus. Using still more lines, the CPU signals what it wants to do with a

device which has this address (read or write), these lines are collectively called the control bus. The device, upon recognising its address then responds appropriately, which in the vast majority of cases involves either taking data from, or putting data to a third collection of lines called the data bus.

In such a system, it is said that all its devices are 'addressable', i.e. when the CPU reads or writes a location in memory, or communicates with the IO circuits, it refers to an 'address', i.e. writes data to an address or reads data from an address. The computer designer decides which device has what address. This 'what-is-where' is usually called the address map.

Much like a long industrial district street, the address map can have small devices, which have only one address, and then it can also have whole 'complexes' which implement many addresses in the same physical device, and also, it can have unpopulated addresses, in our street analogy these would be vacant lots. Those are usually intended for future expansion. However, unlike a street, an address map may have several

addresses or groups of addresses that actually represent a single device (this is called 'aliasing' and is a product of 'partial decoding' both of which will be explained later).

An address map of a computer is a part of a larger entity, called a programming model - everything which a programmer needs to know about the hardware to be able to program it.

Everyone does it a little differently

There are several basic things to know about an address map of a system, which are usually dependent on the CPU employed - in time, manufacturers of CPUs have added slight refinements to the simplistic concept of addressing as explained above:

1. Addressing capability. This refers to how many addresses a CPU can address. In general, this depends on how many bits the CPU address bus has. A CPU can use $2^{\text{number of address bits}}$ addresses. This is also called the 'address space'. It should be noted that some CPUs employ ways of reducing the number of external lines needed to hold all the address bits, but here we are referring to the actual address bus as it would be if none of these methods were employed. In this case, for each address, the address bus lines will literally hold a high or low signal corresponding to a 1 or 0 in the binary representation of the address.

2. Multiple address spaces. Some CPUs can address different device groups separately. This means that signals in the control bus additionally qualify which group of devices the address on the address bus is intended for. A common implementation of this is having two separate address spaces, one for memory and one for IO devices. The 68xxx series CPUs used in the QL don't have this distinction, and they treat IO devices in the same way as memory. This means that all devices are 'mapped' into the same address space. 68xxx series CPUs do however implement multiple address spaces but for different reasons, which are not very important at this point, since in the QL this feature is not utilised.

3. Address mapping. Every device, be it memory or IO has its own internal address map. This is because a device also has its own address bus, which in general connects to the CPU address bus. Usually the CPU bus is output, and the device address bus is input. The purpose of this address bus on a device is to tell the device which one of the multiple memory locations, or control registers, implemented within the device is to be addressed by the CPU. For instance, a 32k byte memory chip will have 15 address lines, to tell it which one of $2^{15}=32768=32k$ locations is to be accessed. Similarly, an IO device may have several control registers which are used to determine the IO device's operation, so these have to be addressed as well.

The piece of hardware that decides which address on the address bus corresponds to which device is usually called an 'address decoder'. Devices will, in addition to an address bus also have a 'select' signal (also known as 'chip select', sometimes there are even multiple chip selects on a single chip). its function is to

signal the device that the address on the bus is intended for it, in effect, when the chip select is NOT active, the device is 'deaf' and will not respond to the CPU's requests. The function of the address decoder is to monitor the address bits on the address bus, and generate chip select signals. Sophisticated decoders can also use control bus signals to cleverly manipulate addresses for certain purposes.

Normally, one CPU address corresponds to one address in one device. This is called 'full decoding' and is normally employed only when it is expected that the whole address map of the computer will be populated by devices.

Several addresses can also correspond to one device, it is said then that the device is 'aliased' to several addresses, or that the addresses are 'aliases' or 'copies' of a single device. If this is the case, partial decoding is employed. This usually means that in some cases the decoder ignores certain address lines so changes in the bit values on them corresponding to multiple addresses still look the same to the decoder, hence all those multiple addresses end up being decoded as one and the same address in a device for which the decoder generates a chip select signal. This approach is used very often, mostly for the sake of simplicity. Because modern CPUs have huge addressing capability, mapping devices with only a few addresses would mean that a lot of combinations on the bus would have to be taken care of, which can make the decoder logic very complicated, and hence slow, costly or both. Designers, however, often employ a 'middle way' - the decoder has special expansion lines which actually allow the decoder to be expanded to offer more sophisticated decoding.

Sometimes, for special purposes, one address can correspond to more than one device. At first glance, this seems strange as in the case of reading data there would be contention if the data from the multiple devices corresponding to a single address was different. This is why this case must never occur, and if this concept, called 'shadowing' is used, data can be either written to a multitude of devices, or read from one and written to a multitude of devices by a single access. In any case, what actually happens is transparent to the CPU - it always expects one address to be one device.

Finally, when the address capability is smaller than the sum of addresses of all devices, the decoder might be constructed so that data written to one device 'programs' the decoder to map out a currently un-needed device, and map another, currently needed device into the same address or set of addresses. This is called 'page switching' or 'bank switching' or simply 'pageing', and is a form of extended addressing using software control.

All of these cases are used in a typical QL. Also of note is the fact that the decoder need not be centralised - for instance, in a system with multiple expansion boards, each board can have its own decoder that caters for mapping for that board. Of course, measures must be taken so that the decoders don't overlap in their addresses inadvertently causing the above mentioned case where multiple devices end

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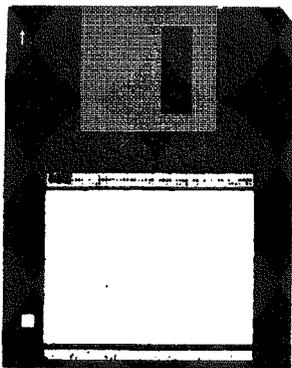
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up being mapped to one address, and contention occurs. Because of this, such systems often employ methods to set up the decoder on the board by some means, such as jumpers, or special lines on the bus, or even by programming certain other addresses.

The 'Where-is-what' of a QL

Although the QL is basically a fairly simple computer in hardware terms, it's not to be underestimated in matters of address maps. The reason for this is its relative longevity and some forethought of the original designers which offered reasonable expansion capabilities.

The original QL used a 68008 CPU, which had 1M byte of address space. The QL internal devices occupy 256k bytes of address space in a partially decoded manner - 256k is one quarter of the maximum available, and it repeated 4 times within the 1M byte of CPU space. A special signal was provided

which could be used to disable the QL's internal decoder which switches off all the QL's

internal devices. The bus signal name is DSMCL, and it has to be pulled high (never low) if an address of interest appears on the bus. Usually this is done to disable aliased copies of the internal devices and map in an add-on device by means of an external decoder (usually situated on a board with this add-on device). In general, this would happen whenever an address referring to the last 3 quarters of the address map appears on the address bus. The QL's designers intended this part of the map for RAM and IO/peripheral expansion. The expansion bus holds all the necessary signals to handle all the decoding within the 1M byte address space available, which means that there are 20 ($2^{20}=1048576=1M$) address lines on the expansion bus, named A0 to A19. A19 is the most significant bit, A0 is the least significant bit of the binary address.

Table 1: Original QL address map

0000h...0BFFFh	QL internal ROM, 48k	2 chips, 32k and 16k
0C000h...0FFFFh	ROM slot, 16k	
10000h...17FFFh	Unused, 32k	
18000h...1BFFFh	QL internal IO devices, 16k	Partial decode
1C000h...1FFFFh	Unused, 16k	
20000h...3FFFFh	RAM, 128k	2 banks of 64k, screen areas in first
40000h...FFFFh	3 repeats of above, 768k	Should be externally disabled

As various peripherals became available, the numerous 'unused' or 'aliased' parts were being plugged up. Expansion RAM, up to 512k bytes, was mapped into addresses 40000h...BFFFFh, and the peripherals, like floppy controller boards, went into the 'IO area' starting at C0000h, usually occupying addresses C0000h to C3FFFh. The IO area was

intended to be used by up to 16 IO boards, occupying 16k bytes each, or 8 IO boards and 128k of ROM (It seems that the original specs provided for the Xchange to be held in this ROM) It was up to the IO boards to decode the 16k bytes of interest within the IO area, and also decode the 16k further for whatever devices were contained on the board. The specs called for a small amount of ROM at the start of each of these 16k blocks which the OS would read on power up and look for a special value, this being 4AFB0001h. If this was found, it signified that the ROM contained software to be linked into the OS to handle the expansion devices.

Note the unused areas at 10000h and 1C000h. Also, the internal IO devices were mapped into 16k of address space, using partial decoding. In fact, only 9 addresses were used, which were aliased many times amongst small unused areas, to fill the 16k available. Now this is where things become interesting.

Table 2: Typical expanded QL address map

00000h...0BFFFh	QL internal ROM, 48k	2 chips, 32k and 16k
0C000h...0FFFFh	ROM slot, 16k	
10000h...17FFFh	Unused, 32k	
18000h...1BFFFh	QL internal IO devices, 16k	Partial decode
1C000h...1FFFFh	Unused, 16k	
20000h...3FFFFh	RAM, 128k	2 banks of 64k, screen areas in first
40000h...BFFFFh	Expansion RAM, 512k	
C0000h...C3FFFh	Disc interface, 16k	
C4000h...FFFFh	Unused, 240k	

In the ongoing quest for more RAM, the people at Miracle Systems realised that a whole lot of the address map that could be used for RAM is left unused. So, utilising a clever foresight in the operating system, they mapped an additional 256k of RAM into the addresses originally designated as the IO area, yielding 768k of expansion RAM. The reasoning behind this was that as long as the usual peripherals were already provided, sacrificing the IO area would be justified. So, a disc controller was added, and a ROM containing Toolkit II, which was already something not to switch on the QL without. These peripherals were put into the previously unused area, 32k in size, at address 10000h. It was christened the 'Trumpcard' and was an instant success. The resulting memory map is

given in table 3 at the next page. On the other hand, the 'standard' QL

expansion ROM size being 16k, people at Qview thought it nice to make the unused portions at 10000h and 1C000h become potentially usefull by making the operating system search for a characteristic 4AFB0001h signature in the first 4 bytes at 10000h, 14000h and 1C000h. If a QL ROM was mapped there,

Table 3: Address map of QL with Trumpcard attached

00000h...0BFFFh	QL internal ROM, 48k	2 chips, 32k and 16k
0C000h...0FFFFh	ROM slot, 16k	
10000h...17FFFh	Trumpcard ROM and IO, 32k	
18000h...1BFFFh	QL internal IO devices, 16k	Partial decode
1C000h...1FFFFh	Unused, 16k	
20000h...3FFFFh	RAM, 128k	2 banks of 64k, screen areas in first
40000h...FFFFFh	Expansion RAM, 768k	

But of course, with the advent of the Goldcard, things changed once

the operating system would recognise it and link it into the system automatically. This was implemented in all Minerva versions.

In a similar manner, the fact that the QL internal IO device area at 18000h is partially decoded, was used by Qjump to introduce the equally partially decoded QIMI internal mouse interface. In essence, even then, the QL's address map became very much filled. If anyone wanted additional peripherals, they would have to map into the area at 1C000h, or reside in the ROM slot. Fortunately, by the use of the already mentioned disable signal, any part of the internal memory map of the QL could be disabled and used differently by an external device. This was for instance done on the Qubide. When it is set to operate at address 0C000h, which is that originally occupied by the ROM slot, it will disable the ROM slot. In a desperate attempt to keep at least some part of the memory map free for future peripherals, the Qubide has an option to work at any of the previously unused locations at 10000h, 14000h or 1C000h in case the user had a Minerva ROM installed.

again. It was soon recognised that 896k of RAM wasn't enough. Adding any more wouldn't be possible if it was to be added as an expansion board, since the QL's expansion bus had 20 address lines, i.e. could address 1M byte, and that was already largely taken by RAM. Obviously you couldn't disable the ROM and similar parts of the internal QL map if you wanted it to work in the first place. So was this a dead end? The 68008 used in the QL had 20 address lines, and that's why the expansion bus had the same. Even though versions of the 68008 existed with 2 more address lines, and other compatible CPUs were available as well with even more address lines, they couldn't be made to appear at the expansion slot without great difficulty (like redesigning the motherboard), simply because there were no wires to get them to the expansion bus, even if there were free lines on the bus itself.

This produced a brief flirt with one of the mentioned 68008 versions with a suffix FN, because it was packaged in a package with 4 more pins, it had two

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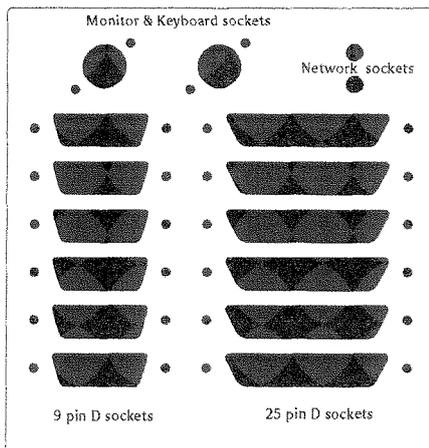
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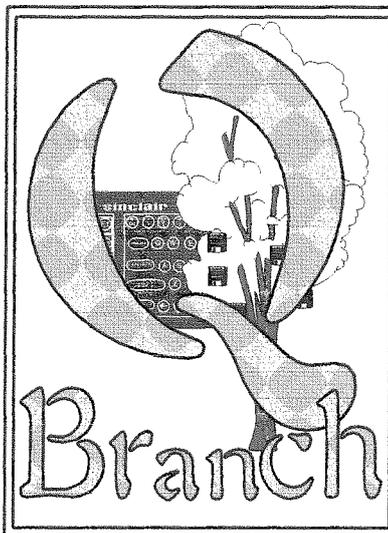
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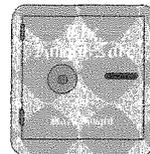
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more address lines. I recall a project by ABC Electronic (now long gone from the QL scene) called the Mega-RAM which was an internal board that replaced the original CPU by a circuit with the 68008FN and 2 Mb of RAM. I must confess I have yet to see one of those. I must also confess that I made a similar device which used classic PC RAM modules, 3 pieces of 1Mb each. But of course, the GoldCard was on the market then, so this attempt, though it worked, was somewhat futile.

The GoldCard capitalised on an ingenious idea: It is true that it's very difficult to add lines to the bus, but

expansion bus. Even if it could, accessing any device on the QL bus side would hamper speed greatly. Because of that, an interface circuit was developed, and accesses to the expansion bus limited only to the most essential. In this manner, for the first time, the concept of 'bus address' was introduced. Some addresses generated by the CPU do not appear on the bus at all, and are visible only by devices located on the GC itself. In addition, the address map changes - it is different on power up and in normal operation, and finally, shadowing is used with RAM areas which are used for the screen image.

Table 4: GC address map as viewed on the expansion bus, i.e. GC bus address map

00000h...0BFFFh	QL ROM, partially available	Read only during initialisation
0C000h...0FFFFh	ROM slot	
18000h...1BFFFh	QL internal IO devices	
20000h...2FFFFh	QL RAM, screen 0&1	Write only

Table 5: GC internal address map

000000h...00BFFFh	QL ROM image in GC RAM	write protected during operation
00C000h...00FFFFh	ROM slot	uses 16 to 8 bit conversion
010000h...017FFFh	GC RAM	Toolkit II and GC software image
018000h...01BFFFh	QL internal IO and GC IO	uses 16 to 8 bit conversion
01C000h...01FFFFh	GC RAM	
020000h...02FFFFh	GC RAM R/W, QL RAM write	Anything written copied to QL RAM
030000h...1FFFFFh	GC RAM	
200000h...FFFFFFh	Not used	

hold on, what if the CPU was OUTSIDE the QL? Obviously, the 20 address lines are enough (actually, 18 are enough) to address the internal QL circuitry, and as long as the CPU was outside the QL, with the RAM coupled directly to it, there wouldn't be a need to put any more address lines onto the expansion bus - simply because the RAM is not connected there and nothing else would need them. This was all the more enticing, since there were lines on the expansion bus that used correctly, disabled the CPU inside the QL, as well as if it had actually been pulled out from its socket, except for the fact that it would still be using up some power (after all, it was actually still there). This is how the Goldcard was born, and with it, a host of new concepts were introduced to the matter of address mapping on the QL.

The major difference of the GC compared to previous designs is its speed. So far no one dared replace the CPU, so everything added to the QL ultimately worked at best as fast as the CPU could manage. But, the CPU on the GC worked at over twice the clock frequency compared to the original QL CPU, and could access twice the amount of data in a single cycle to boot - its data bus was twice the size of the original QL's, 16 instead of 8 bits. From the start it was obvious that it couldn't be directly coupled to the QL's

Whereas the TC had several potentially usable address areas, the GC does not - simply because no other addresses except the ones given above appear on the expansion bus, so no decoder can ever be used to recognise them. There are unused addresses local to the GC but since the GC doesn't have a 'local' expansion bus, short of a heavy modification on the GC board, they cannot be used. Only the ROM slot and possibly parts of the QL internal IO area can be used for peripherals on the QL expansion bus or mounted inside the QL itself. This is why it is impossible to use Aurora extended resolutions with a GC, there just isn't a place where the necessary RAM would be located. In fact, the GC is so ascetic in its addressing of the QL that if you could remove the ROM during operation, it wouldn't complain at all - on power up, the GC will copy the ROM into its, much faster RAM, patch it, and add to it as needed by taking parts from the GC ROM, and then it will 'unmap' both the QL and the GC ROM, and only use the RAM copies! The actual contents of the QL and GC ROM are not available once the GC has fully initialised.

Next time, the address maps of the SuperGoldCard and GoldFire will be explained.



WE HAVE JUST RECEIVED A REPLY FROM DAVID BUNBURY ON THE PROPASCAL PROFORTRAN EPROM HELP REQUEST PRINTED IN VOL. 2 ISSUE 5, WHICH WE COULD NOT QUITE FIT INTO THIS ISSUE, SO WE WILL PRINT THE REPLY IN THE NEXT ISSUE.

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Letter-Box



P.H. Tanner writes:

May I be permitted to add my ha'p'orth to the contributions of Messrs Huyg and Wood (Byts of Wood: Netted, I fear, is best forgotten) to the latest, March/April, issue of QL Today?

On the DOS command SUBST. My edition of the "MS-DOS Bible" contains the warning: "Consider staying away from SUBST until IBM and Microsoft rid it of it's bugs". And in "Using MS-DOS" Michael Allen says: "The letters A to E should never be used even if you only have two drives fitted". It could be that the version of DOS used by Mr. Wood has now got it right. But us peasants out here in the sticks with earlier models should be very careful. If SUBST is to be used, then a check must first be made that the particular user's preferred disk maintenance utilities for, e.g., back up, or defragmentation, can cope with it. Not forgetting the possibility that, even if the back up is o.k., the restore might have other ideas.

It is precisely because of this problem that I use the system of interlocking RENAME commands described by me in the March/April 1997 issue. A possible long term solution is suggested by a consideration of the original purpose for which SUBST was designed: to assist idiot programs like Wordstar which could not process PATHs. Perhaps Mr. Wood might consider using his "inner circle" status to lean on the authors of SMSQ, and get them to lift their program above Wordstar level, and specify a full DOS PATH for each QXLWIN [*Editor's note: you can do this in QPC for a long time!*].

Meanwhile, if he must play russian roulette with his hard disc, he might consider rebooting from a volume whose autoexec file was free of funny reassignments before attempting any global operations. Which, in any

case, is not bad practice. Always remember: DOS BITES. And when it bites, it bites deep. So don't put your fingers through the bars.

Of course where ram disks are concerned, and there is no maintenance requirement, SUBST comes into its own. Yes indeed: as many QXL.WINs for which room is available can be opened in memory using this command. And it could be that there is mileage to be had in opening them on floppies, although I have never tried this myself since I cannot see the point.

I have been a user of QLs since 1986, and of a QXL since 1993. It has always appeared to me that the decision to merge into one language the functions of programming and job control was a perverse one. I have some experience as a user of a fair number of mainframes, minis, and micros from assorted manufacturers, and I just cannot recollect anything quite so determinedly rabbit-hostile at the user interface. Not even from ICL at their most awful worst. And TK2 was/is a classic case of the hole-bound insisting on digging deeper. (But then I have never used WINDOWS which my descendants tell me is in a class of its own where sheer wanton malevolence towards its users is concerned).

There never seemed to be any need for TK2 in my QLs. In any case, I had better things to do with their memories - and ROM sockets. The last line in the boot file of my first QXL contained the one word: "PAUSE". So that TK2 had no relevance there either. In fact I included the area occupied by its code among others such as the slave block tables which I could overwrite without bringing everything to a juddering halt. Last year I acquired my second QXL, which means that I now have one which operates in the standard mode, as well as the free running machine.

Since TK2 is there whether I like it or not I have installed it. I can't

claim to have been impressed.

The _USE procedures in TK2 may have looked clever when they first appeared, but as they have been applied by programmers the results are dire. I find that PROG_USE's gas can be set at a peep quite simply by setting "PROG_USE NUL" in my boot program, and leaving it that way. It is wholly infuriating, and unacceptable, to have fired up a regularly used program with once-off input parameters other than one's standard defaults, and then to come back later to find that those defaults have been "updated". My word for it is "corrupted".

DEST_USE is best ignored. DEV_USE? Never heard of it: I'm probably safer that way. (Ah! I've found it: it's SMSQ not TK2: equally useless)

I agree entirely with all that Mr. Wood has to say about DATA_USE, which I have so far found to be unfixable. If a prog uses it then the first option is to find another that don't. Usually this means going back to an earlier version, which may not always be a disadvantage. It is always very sad when such a marvellous utility as Mr. Gwilt's GWASSEMBLER goes and constricts the user's options in this way.

Mr. Huyg has the identical problem with DATA_USE and these ineffable filter strings. Another "good" idea that should have been put on the top shelf and left there.

He refers to CONFIG. As Mr. Wood could tell you, I have had my own recent problems with this item. It is very good... at helping the user make mistakes. But I don't need assistance in that department. I am perfectly capable of making my own blunders, thank you very much. Where CONFIG is wholly useless is in supporting recovery from error. It is not even any use with the detection of such errors as have been made in the first place. What is needed in CONFIG is a facility to list the configurable

parameters, and their current values, to channel, whether file or printer, and then mistakes could easily be seen and rectified.

Better still, CONFIG could be junked. ARK had the right idea when they produced Master Spy. (What a pity ARK never completed their projected word processor) The defaults for this most excellent of utilities are listed as part of the documentation, along with their relative addresses in the code. It is then a simple matter to go in with an editor and replace existing values with one's own. How much easier it would be if all other software did the same. CONFIG is not even easy to use. Trying to reCONFIGure a program resembles the task with which I was once faced: introducing medication into the eye of a very uncooperative eighteen month old. Except in the matter of the language used. She had the edge over the authors of CONFIG there.

In the matter of transferring files between DOS and SMSQ, Mr. Huyg has not only identified the problem, but has himself devised a solution, which I hope he will be enabled to make available to the rest of us one of these days. It is indeed a nonsense to have to send bytes "round the outside", when the ISA bus is there ready to be used.

I have my own answer, which is in no way competitive with his. However, the very fact that mine has been functioning for the past six months, and has completely supplanted the floppies as a means of transferring data, may give him or others the spur to fill what is a real operational need.

In the piece to which I have already referred I described among other things how it is possible to open a file d:\QXLWIN where d: is a virtual, and not a hard device. This can be accessed as a DOS file by the PC, and as a SMSQ file-structured device by the QXL. So memory to memory commu-

nication between the two systems should be possible.

Transfers up from QXL to PC are easy. By convention the last file in the win2_ directory is called win2_list, and, as described in that article, QXLWIN is truncated to this point, so that when SMSQ comes to populate the file, DOS adds the necessary blocks. I have placed the offset to the first data byte of the file in the SMSQ volume label where the PASCAL program that I have written can read it when it opens QXLWIN.

This program also needs to know the byte content of the file. SMSQ puts this into the file header in the directory. Since this header is always in the same place for any given version of QXLWIN (I have several, all different), the offset to the length word is also placed in the volume label.

So that when the QXL wishes to send bytes up it COPY_Os them to win2_list, and I can then come along and extract them with my PASCAL program. I have been surprised at how easy this has proved to be.

Passing bytes down is another matter. Mainly because I am not prepared to spare the necessary programming effort to hack into the SMSQ file allocation table.

What I have done is to make sure that the file QXLWIN is and remains contiguous. This is done by instructing AUTOEXEC.BAT to COPY it up to d:\ right at the start, and then to make it read only so that I cannot delete it except on purpose. If I want to use other versions of QXLWIN on the virtual disk, then they are opened in sub-directories assigned to phantom devices by SUBST.

The batch command file which controls the invocation of the QXL reattributes QXLWIN to read/write while SMSQ is active, and then restores it to read only when control is returned to the PC. And my PASCAL program does likewise.

The first file in the directory of d:\QXLWIN is win2_test, 128 kb in

length, which is never varied. It is initially full of spaces, and is always treated by SMSQ as read only. Well, almost always.

When I wish to send information down to the QXL, my PASCAL program searches extended memory until it comes to a block which starts with 'QLWA', which it then assumes to be the first data block of QXLWIN. (I like living dangerously). It "knows" the offset from this point to the first data byte of win2_test. So it just opens my DOS file, extracts its bytes, and writes them directly into memory starting from that displaced address.

The resulting win2_test can be read by any SMSQ utility. Its length does not greatly matter at the moment since the most frequent content is an assembly file for the GWASSEMBLER. So long as I remember to include the END directive then the rest of the file is ignored. The only other regular use is to pass down binary files created in the PC by the Teesside cross assembler. In this case the last byte is followed by "l: nnnnn", where nnnnn is the byte count. Currently Master Spy is used to process these, but eventually they will be automated. Eventually.

Handling win2_test comes up against these damnable slave blocks, which are the curse of SMSQ. If only I could see a way round DEL_DEFEB. Another matter raised by Mr. Huyg. Although I differ from him on one point. It is not my experience that DEL_DEFEB zaps the ramdisks.

I had trouble with slave blocks in my QLS years ago, when I worked from within the QFLASH environment, which was the only sensible way of coping with microdrives. I was prevented from doing multiple backups of the same volume, because QDOS "knew" that the content of the slaves was the same as that of the microdrive after the first backup. I had to trash the mdv identity as held by QDOS (I forget how I did it now, I'd have to go back and look). I see no way

of doing this with winN_.

But despite this my weird system works fine. It also confers uncovenanted advantages. For instance, I recently wanted to produce a screen dump. So I tried the TK2 facility. Oh dear. I could accept that it should be belt driven via a line shaft from a little donkey engine in the corner of the shop. But having to wait while some one went out to chop down a tree and get wood to fire up the boiler was just too much.

In future, screen dumps on my machine will be effected by SBYTEsing the screen to win2_list, and then a little PASCAL program that I have run up for the purpose in the PC will print it out. It's much more easily set up than TK2, and as fast as the printer, whose head does not pause between passes: it's always a bad sign when you see a printer waiting for input. And it surely waits for TK2.

There is a clear requirement here for a proper utility to replace my strange spatchcocked arrangement. If it is not, as I hope, authored by Mr. Huyg, would anyone else like to have a go? I've done my bit - to show that something of this nature works, and fills a need. My floppies are now unused except for export/import to/from outside the system.

Which may all seem to be a little hard on TK2. But then I am speaking of it as an extension to an already fatally flawed job controller. Where it acts as a supplement to the BASIC programming language then yes, I use it all the time, with gratitude. But that is another matter.

And before I forget. What a splendid device is the RomDisq. A credit to all concerned. Not least because I just had to plug mine in, and it flew. And everything that I had prepared in advance to run from it did likewise. No compromises anywhere that I can see. A winner.



Geoff Wicks writes:

Is it possible for one of the experts to write a few words about the ATARI TT. From conversations with clients I have the impression that the compatibility problems with this system are greater than with other Atari systems, QXL, QPC etc. In particular I understand the Atari TT has problems with Turbo compiled programs. If so, can any advice be given to programmers and users to help overcome these?

On a slightly different subject are there any TT users who have attempted to run the SUGGEST spell checker on their machine? I have been trying to help a TT user to get this running on his machine, but so far have been unsuccessful. I would also like to hear from other users who have or have had compatibility problems with SUGGEST. It runs perfectly on my QXL and Minerva QLs, but not on my JM rom.

Jochen Merz replies: I will try to clarify the situation. The TT runs any programs as well as any other SMSQ/E or QDOS system, provided, they do not contain SERIOUS programming faults.

The TT is the only machine which traps these programming faults, which I will explain in detail in a moment. I guess that Turbo programs do some very funny things. When I visited Tony some time ago we had a look at the initialisation code of Turbo compiled programs. The code did some very bizarre things so we decided not much can be done about it from the SMSQ/E side, except from correcting Turbo.

The TT shows up problems which are not shown on most other systems. However, these problems exist, and they may show up in other systems in unpredictable ways. Good indicators are corrupted harddisk maps, system crashes for no reason (of course, there always IS a reason) etc.

As the TT has a fully implemented 68030 with Memory Management Unit, and SMSQ/E makes use of the features of the MMU, it helps trapping problems in faulty software which can lead to data damage or crashes.

The MMU checks every memory access and generates a bus error if the system tries read from memory which does not exist or, even worse, tries to write to memory which does not exist. In this case, the program is put into an endless loop so that a debugger can be invoked on that program to diagnose what is going wrong. For the user, it seems that the program has crashed.

An example: a program writes to the address \$34020504. On a QL, which has only 20 valid address bits, the top of the address will be ignored, therefore it will write to the address \$00020504. It is a programming fault, but it will not be noticed. In this example, the wrong address was an address in the display, so it did not do much harm. Imagine, if the wrong address points to an address in your hard-disk map or a directory in the slave blocks. On the GoldCard or SuperGoldCard, the situation is similar. The top bits of an address are ignored, therefore wrong addresses can be overwritten. Reading from wrong places, getting wrong results which lead to wrong address calculations (which can lead to wrong addresses being overwritten) can be dangerous too.

The MMU also checks if the programs attempt to overwrite system vectors. On a QL, it does not matter because these vectors are stored in ROM and cannot be trashed. On a GoldCard, SuperGoldCard, the RAM in this area is write-protected, therefore the user does not notice the attempt to write (illegally) to wrong areas of memory. Reading from such an area makes no sense either, because the value is unpredictable, it purely depends on the ROM and hardware used and has no useful meaning to any software. On the TT, the MMU traps write accesses to the system vectors. They are held in RAM, therefore the whole system would crash if overwritten by something.

You see, the TT is not incompatible, it just reveals serious programming mistakes which can lead to data corruption or crashes on other QL systems. However, to allow some of the faulty software

to work, the new procedure PROT_MEM was implemented on the TT. Here an extract from the manual:

The PROT_MEM (level) procedure sets the level of the memory protection. All legitimate accesses to the vector area are always allowed. Other access faults may be trapped or ignored depending on the level. The default level is 3 which will trap common faults in C programs, but allows certain famous system extensions to be LRESPRed. Cautious users should change this to level 7. Devil-may-care users should change it to level 0.

There are five levels: 0, 1, 2, 3, 7.

- Level 0 does not trap any memory access faults (almost like the QL).

- Level 1 traps write access faults in all jobs except Job 0. Read operations from a protected area read 0.

- Level 2 traps read access faults in all jobs except Job 0. Write operations to a protected area are ignored.

- Level 3 traps both read and write access faults in all Jobs except Job 0.

- Level 7 traps access faults in all Jobs.



Rich Mellor writes:

H.L. Schaaf's request for info (Vol 2 Iss 6 p50) Unfortunately, I do not know how the aspect ratio is really calculated for the horizontal scale either, except that I had worked out a while ago that the maximum horizontal line is calculated by taking the maximum horizontal line (set with SCALE) and multiplying this by the value '1.355041505' (note the need to place this in quotes so that it can be stored in full within a program).

JM ROMs use the same value as Minerva and SMSQ/E (this equates to the Graspix factor referred to - namely 0.737984775).

However, I can only presume JSU ROMs use a different factor because they were originally intended for use on American TVs, which have a scan rate of only 425 lines compared to the UK's 625

lines - they thus must have a much different aspect ratio to UK TV's (and Monitors). After all, everyone wants the CIRCLE command to draw a circle on the Monitor, TV etc don't they??

Ideally, we should be able to configure the screen aspect ratio for the actual monitor / TV in use.... I have no idea how SMSQ/E's / Minerva's circles look when drawn (or viewed) via an American TV - I can only presume that they are somewhat squashed.

As to how these figures are calculated, can only be answered by Tony Tebby and/or Lawrence Reeves....



Ralf Reköndt writes:

Some words about Service:

In these days, it is more often the suppliers intention to sell than to give you a reasonable service. The supplier does not get tired to tell you the advantages of this or that piece of hardware.

Be very hopeful that he also does not get tired in doing his best, if your hardware ever develops a fault.

On the 2nd hand hardware, it is much more complicated. Especially, if you have some kind of old hardware and you need someone to repair it.

Here is a real example of service. I am known by a lot of people as a collector of old Sinclair made things. I started in 1986, when I have bought my QL and a few 'Sinclair' branded games. From this time, I started to collect the whole series, it is nearly 99% complete.

I also found this very nice TV device, the Sinclair pocket TV set. It works good for me for a lot of years, but develops a fault this year, just as the Olympic Games have started.

Very bad, as this piece of hardware is out of date now and it seemed to be the worst case to get it repaired.

My first choice was Bill Richardson. He knows a lot of people, and I thought that the chances are better than nothing, so I asked him, if he knows someone to repair the device. He offered me

to send the tv set to him and that he will try to look for it.

After a few days, he has sent a fax to me that the tube is faulty (worst case) and that he is not able to lay his hand on any spares, but will try to get another 2nd hand device for me.

After three weeks, he called me and was very happy to get in contact with someone, who does have spares for the tv set and that it is repaired.

I was very impressed, that Bill has looked on and on to find a solution for my problem. That is what I call a good service and I can recommend WN.Richardson to everyone.



Dr J. Slechta writes:

Superbasic fails beyond a certain complexity of programming, because of the 'shortend' **begin** and **end** bracketing. From my own experience of really complex programs, one can progress only by the rule that each **begin** must have its own **end** (Superbasic compilers do not check this comprehensively)

Really complex programs need a full Pascal, and even more complex programs need ALGOL60.

Because Pascal does not have a dynamic declaration, it doesn't guarantee that procedures don't interfere, that is, they can be put into any part of a program without any further additional check, beyond the syntax one by the related ALGOL compiler.

Moreover, the interpreted languages cannot have two ways of compiling, for debugging, and for run.

I have been very fond of Superbasic, but I have experience of getting to such complexity that I need to search for something closer to ALGOL60, of which the only alternative has been Pascal. Does anyone know where I might obtain a copy for the QL (of Prospero, Computer One, or Hisoft Pascal)? Please contact me at the address below:

Dr J. Slechta CPhys, MNYAcad of Sciences, 5 Beckhill Chase, Leeds 7, LS7 2RQ, UK. Tel/Fax 0113-216 5654

Quanta AGM, Selston, England

Dilwyn Jones

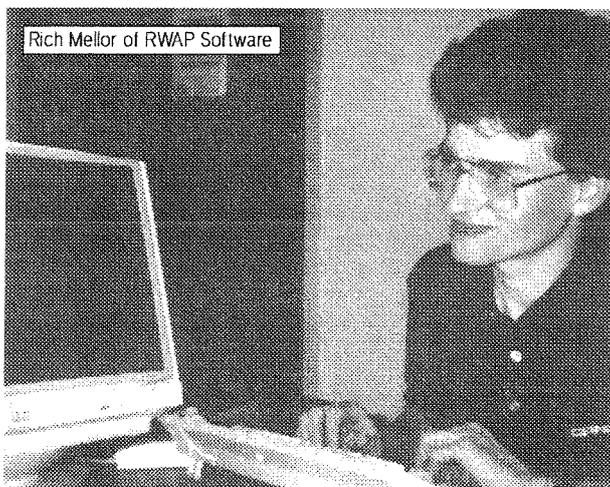
This year, the Annual General Meeting of Quanta was held in the Parish Hall, Selston, Nottinghamshire on 25th of April. The local sub-group, SeQueL, organised the event.

On the TF Services stand, attention focused on the flash memory card, RomDisq. Tony Firshman was assessing reaction to the idea of a second version which would fit onto the expansion bus connector rather than the EPROM slot, which could potentially be up to 20 times faster than the existing model working via the expansion connector, allowing data transfer rates of up to 20Mb per second on some operations, with up to 32 or 64Mb capacity in total. Tony stressed that "it was only 'vapourware'" (his words) at the time of the show. There have also been some discussions relating to the idea of supplying RomDisqs with SMSQ/E pre-installed.

Over at the NEMQLUG (North East Manchester QL User Group) stand, Sarah Gilpin demonstrated and sold stock of the rather unique Pandora custom case for the QL. Especially designed to house an Aurora or QL, this black metal case contains several drive bays, recessed carrying handle, power supply space and a variety of QL-specific connector holes pre-drilled. Sarah said that over half the original production run of this case had been sold with little or no advertising and publicity and if remaining stocks were cleared, they would give consideration to producing a second batch. At £68.50 some may see the case as rather expensive compared to the cheaper tower cases available, but the quality is good and it's heavily customised for the QL and Aurora. Various accessories such as a power supply and QL board adaptor kit are available, and a complete build service can be arranged. Sarah Gilpin says she can be contacted on the 'Pandora Hotline' on 01204-305157, extension 177. Sarah and husband John were also canvassing opinion on their local

group's interest in bidding to host next year's AGM in the Manchester area.

An alternative Aurora casing system was demonstrated by Keith Mitchell of the Brighton & Hove group, who is designing and building the prototypes for a system called MinisQL (pronounced 'miniscule') which will eventually be available through QBranch.



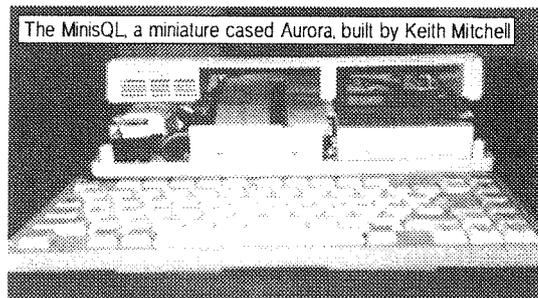
These systems are built into a very small case about the size of a typical laptop computer, with separate keyboard and monitor connections. Inside the case, the Aurora, a mini backplane smaller than a QPlane, a Qubide, 3.5 inch floppy drive, 2.5 inch hard drive and power supply were tightly packed within the metal internal frame of the prototype I saw. Keith said there was still some work to be done to interface the keyboards to the Aurora board, for example, but that early indications were rather promising that this could become a portable Aurora system. The expansion connector of the Aurora emerges at the back of the case, and the various serial and parallel ports are available at various points around the edges of the case, but perhaps more importantly, the whole unit can be bat-

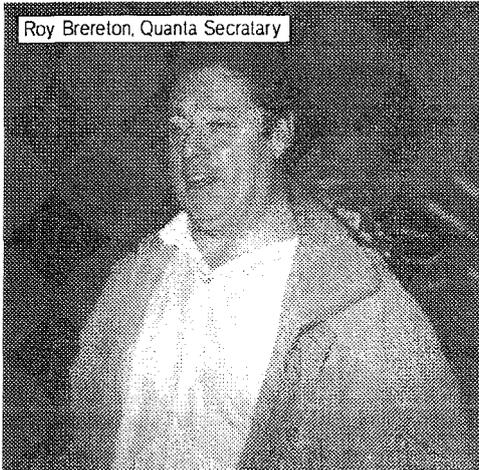
tery powered, as there is room in the case for a rechargeable battery which can be useful in the event of a power failure, or for truly portable use if a suitable battery powered display device is available.

Jochen Merz and Bernd Reinhardt manned the JMS stand. Back issues of that fine magazine called QL Today were available, and Jochen always seemed to be so busy that it was rather hard to get near him to talk to him in any great detail. News of the forthcoming super Atari/QL called Milan had leaked out via the QL Users Email Mailing List and several customers wanted to know more, especially

to compare it against the recently announced Q40 board. Although Jochen was very forthcoming on the subject of the Milan, he was not quite as forthcoming on the subject of the colour drivers for SMSQ/E (see also Joachim van der Auwera's Prowess article elsewhere in this issue), although he did let slip that an intermediate version may possibly permit the use of enhanced colour displays without the full window manager and system extensions while we wait for the full and complete system

from Tony Tebby in due course. Bernd Reinhardt, meanwhile, has written a piece of software allowing an EPROM programmer to be used via a serial port, and is considering writing a Print Manager system for the QL, making handling printers and printer drivers a lot easier, as it will allow simpler printer drivers and possibly mean that authors of software don't have to laboriously write separate printer drivers for all new software, as this should take a standard output from most software and the destination printer is simply selected from a list of printers, so if





Roy Brereton, Quanta Secretary

new company run by long time QL user, Rich Mellor. RWAP is pronounced 'Rap', and is apparently a pseudonym Rich had when he was in sixth form at school. Rich is probably best known as author of the QRoute routefinder software and the SBASIC/SuperBASIC Reference Manual from QBranch. Thanks to managing to contact Talent Computer Systems and TK Computerware, he has recently managed to re-release three early QL text adventure games, Nemesis Mk2, The Prawn, and

Horrorday, the latter one having had extensive work done on it to ensure it can run from devices other than microdrive and will work on SMSQ/E. Rich said he has also been working on an utility to allow BASIC programmers to create and use Level 2 Config blocks in their programs, but this is currently undergoing evaluation and awaiting approval before release.

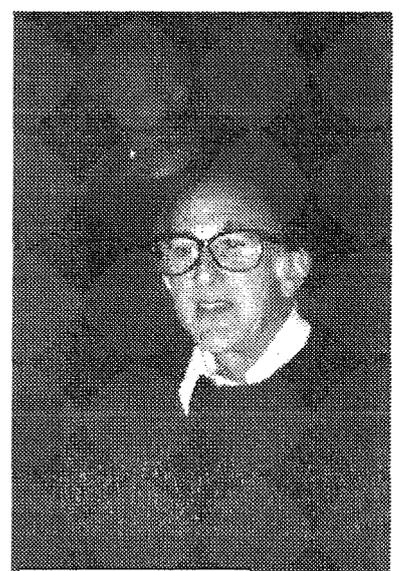
Qubbesoft P/D had a stand at the show and offered the usual selection of PD software, second user items and of course the Aurora (available recently at a reduced price to promote sales), Qplane and Qubide boards. Where would we be without these now? One item I took particular note of was a hard drive formatted for use with Qubide with a capacity of 850Mb - was there really a demand for such a huge capacity drive for use with a QL? Ron Dunnett explained the situation as regards the delayed Goldfire add-on. Ron was also asked questions about subjects such as the development of suitable drivers to allow the connection of low cost ATAPI devices to the Qubide.

you change printers or have more than one in use, all you have to do is change a Print Manager printer driver rather than having to go through all your software to change their drivers. This project is very much in the early stages at the moment. More on this from Roy Wood in 'Byts of Wood' in this issue.

Geoff Wicks of Just Words had a stand showing the latest pointer driven versions of his Solvit and Thesaurus programs. Even though he no longer advertises in his own right, preferring to let established software companies to sell his software, it's good to see Geoff still appearing at workshops working hard to promote and sell his excellent programs. I hope your QXL has got over the virus it caught from my floppy disk during the show, Geoff (sorry!)

The QBranch stand was manned as ever by Roy Wood and Steve Hall. One of their latest products is an SBASIC/SuperBASIC Reference Manual, a massive 1,000 page reference guide for users of the BASIC language on the QL and compatibles, listing just about every keyword and extension available for the QL in just about every toolkit I have ever heard of, including pointer environment extensions. The book is so large it is likely to be supplied in two very full ring binders priced at between 30 and 40 pounds, probably with some material also on disk as part of the package.

Next to the QBranch stand was that of RWAP Software, which is a fairly



Geoff Wicks, of Just Words

I had a brief chat with George Morris from Sutton Coldfield during the show. During the last couple of years, George has collected a large amount of religious software, texts (e.g. versions of the Bible including Greek and Hebrew testaments for scholars, Koran, and many other religious works) and clipart, and plans to make this available to any interested QL users. It is not yet clear if he will set up in business as a trader or not, but it seems that the QL scene is about to benefit in an area not particularly well served at the moment.

Various talks and demonstrations were given by the traders throughout the day on their products and the QL and its future in general. The SeQueL group itself held a session, and Derek Stewart talked on the subject of his Holborn View BBS.

At 4.30pm, Quanta held its AGM under the chairmanship of Robin Barker. Due to low number of nominations, the current officials were returned to their posts unopposed. Chairman Robin Barker and Treasurer John Taylor explained that although the year had started with a projected deficit in the accounts of around £4,000, thanks to drastic cost cutting measures this had been pruned to a deficit of less than £200 by the year end, a significant improvement. Dr Phil



Ben Firshman demonstrates Lego models controlled by Minerva interfaces on the TF Services stand

Jones (a previous newsletter editor) raised a number of questions about details of the accounts, which John Taylor and other committee members attempted to answer in detail, and the accounts were eventually accepted after a vote. Colin Baskett remains as newsletter editor, and he was formally thanked for his work since taking on the editorship. A proposal to change an element of the constitution concerning the calling of Special General Meetings by changing from a fixed number of proposers to a percentage of membership in view of the now reduced membership figure was accepted. The chairman further explained the

future took place in the centre room (conveniently close to the bar) before the workshop was finally drawn to a close after 10PM after a very enjoyable weekend's QL activities. The meeting did not look like the best attended ever, but was made to seem worse than it really was by virtue of the fairly large hall and

the fact that a higher number than usual of visitors seemed to call in briefly for only an hour or two before leaving again. Dennis Smith, Derek Stewart, Graham Underwood and the other organisers had done a fine job in organising this event and I thoroughly enjoyed the weekend.

IMPEX'95 - A Review

Darren D. Branagh

Way back in the mists of time (1990, to be exact) Phil Borman wrote a Program on the QL that was to become the main program used to allow a QL and a Z88 to communicate - it was called IMPEXP (Import/Export) and is Legend in QL/Z88 transfer circles. Darren takes a look at the updated version.



Sarah Gilpin demonstrates the Pandora case

The original version was very user friendly, right down to 'mimicking' the Z88's Import/Export programs style and command structure on screen - if you pressed 'S' to send a file from the Z88, you just pressed 'R' to receive the file on the other end, i.e. the QL.

However, it did have its restrictions - it would only handle text files. This was fine for the majority of files, as most Z88 users have a Z88 so they can enter data or type letters on the move. Still, it was a slight disadvantage that binary files were beyond its abilities.

Well, several years later, our prayers have been answered. Ivan

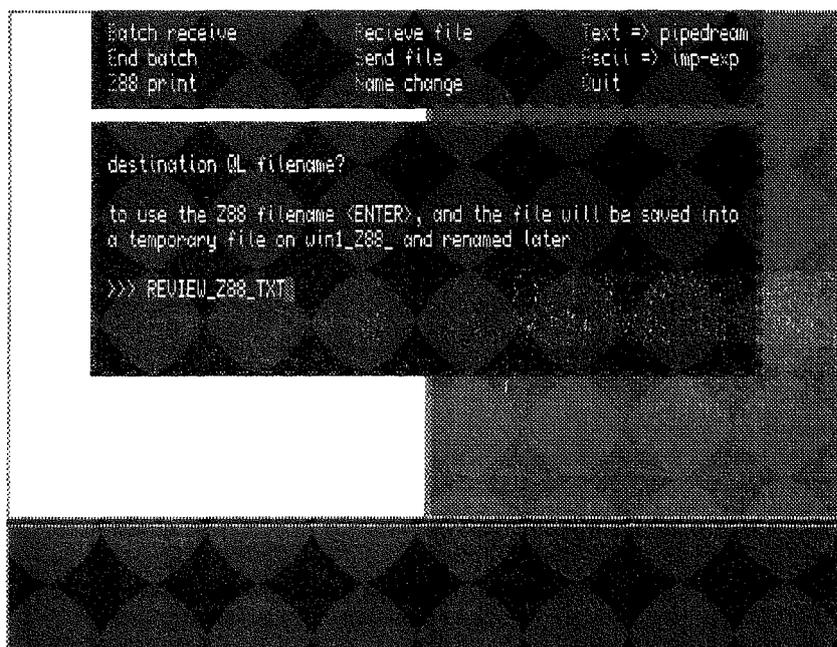
Hall took Phil's original Program and updated it, now calling it IMPEX'95 (not to be confused with Windows95, an operating system by MicroSoft).

Ivan, in his wisdom, has kept the familiar on-screen presence of Phil's original - this worked, as the screen layout was exactly the same as what took place on the Z88, making things very easy to follow. He has injected a little colour here and there, and the program looks all the better for it too.

The program is started by running its own BOOT, which loads Hans Lubs Pipe Driver (this is needed as IMPEX'95 uses a NUL

difficult situation regarding the use of credit cards to pay for membership fees thanks to increased costs and the enforced introduction of electronic payment machines, the need to persuade members in Britain for example to change to cheque payment, and how it was necessary to retain the card facilities for the benefit of members in certain countries such as the USA who could not raise UK currency cheques cheaply and easily.

After the end of the AGM, a buffet meal was served before most of those present had to leave. Some stayed on for the evening session, an informal chat on the QL in general and its



device, if you already have a NUL, then leave this out), the QLiberator Runtime Extensions, The runtime TURBO Toolkit, and then the program itself, IMPEX95_OBJ. All of this is included on the QUANTA disk CT02, along with several other programs, and the program's 'manual' in ascii-txt and quill-doc format. I am not sure if it is available from the QL PD suppliers, but it is also available from Ian Braby of the Z88 Software Library.

On Loading, you are first asked for the default 'drive' to work from, be it Win1_, flp1_, or whatever. On entering this you are then asked which serial port the Z88 is attached to. This is exactly as with Phil's original. Enter this and the Main Menu is displayed.

All the necessary commands are positioned prominently on top of the screen. These include Receive File, Send File, End Batch, Batch receive, Z88 Print, Ascii=>imp-exp, and Text=>Pipedream, among others. The first letter of each command is highlighted in Green, and you need only press this corresponding letter to select the command - it's that simple.

I won't dwell on these too long, as most of you will be familiar with these from Phil's version - other than to point out the main differences. 'Z88 Print' allows you to print a document on the Z88 via the QL to a printer. This saves the need to buy a separate centronics or serial printer cable for the Z88, as you can print via your existing QL cable and printer!!

'Ascii=>imp-exp' is the most important new command; it allows the conversion of Z88 Library files to be converted to Z88 format for use on the Z88 from a QL disk. Ian Braby can supply the ENTIRE Z88 software Library on just 5 DS/DD 720K disks for just £15 in total!! This includes over 200 wonderful programs specially for the Z88. It is specifically these disks that the 'Ascii=>imp-exp' command can be used for, and will convert a Z88 file on the supplied QL disk to Z88 format, ready for transferring to the Z88 immediately.

'Text=>Pipedream' allows you to send a Quill-doc or whatever to Pipedream, and will convert any

QL wordprocessor file to a plain Ascii-text file ready for importing on the Z88.

'Name Change' allows the altering of the Z88 embedded filename of a file when stored on a QL disk.

The only fault I found is that sometimes the transfer is unsuccessful with Binary files, the reasons why I have yet to discover - and I have yet to lose any files as a result. I also disliked the fact that Ivan has decided to delete the DIRectory option from the Main Menu, which means you can no longer get a directory of a disk from within the program, as with Phil's original. Still, it's a minor grumble, and the program does

multitask, so returning to the Superbasic command line is as easy as tapping CTRL+C.

All in all though, this program will do everything that the original IMPEXP did and more - much more, if you value the ability to hold your binary programs on your QL disks, as well as text files.

I think it is a marked improvement, and would recommend anybody to upgrade to this version. Even complete details of the wiring to make your own QL to Z88 connection cable are included in the manual (IMPEX95_DOC), so it should be worth sending a disk to your QUANTA Sub-Librarian for this alone!!



sinclair

Z88

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QL Today

41

Milan - the "QL 1998"?

Jochen Merz

It seems that 1998 will bring a lot of news to the QL scene. The RomDisq sells and is a real winner, Q40 will come, there will be a lot of news on the software side (colour drivers, for example) and now more really exciting news, which will please both QLers and ATARI users at the same time: another real high-end computer exists now!

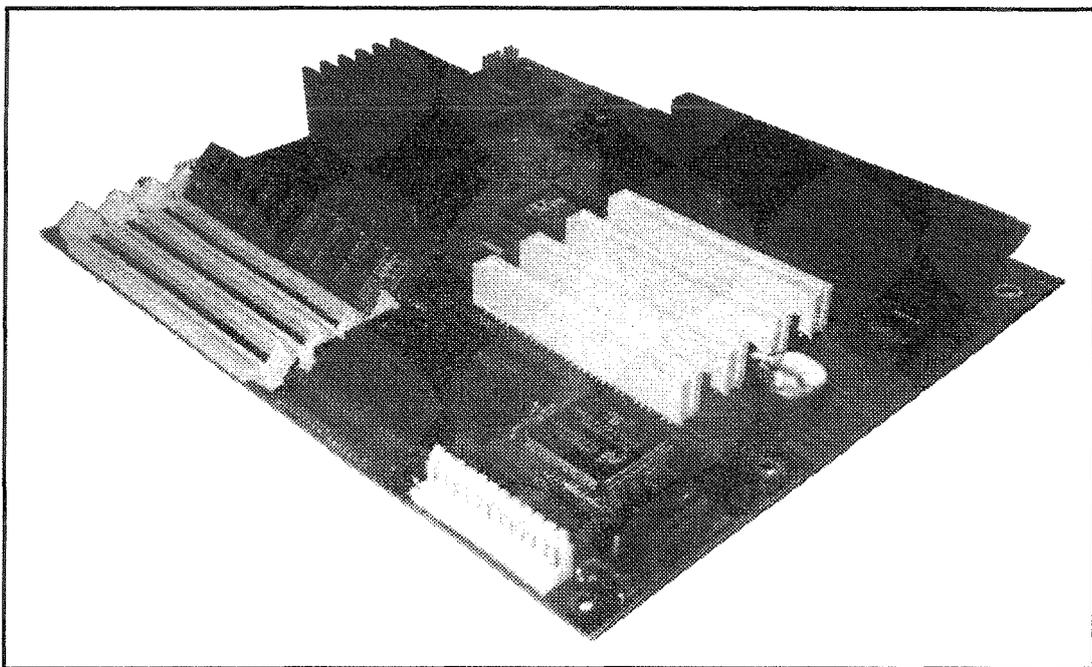
As many of you know, the ATARIs were used to run QL programs for many years, starting from the "keyboard" machine 1040 ST, Mega ST, then on to the more powerful Mega STE and the final power-machine TT. There hasn't been a new ATARI, which was a more powerful computer than the TT, because the computer company ATARI disappeared. However, there are lots of ATARI users out there, demanding a much more powerful machine. And this machine exists now! ATARIs emulating the QL lead the whole QL scene into the

future: the first higher-resolution QL screen (768x280 pixels) was implemented on an ATARI. The first 68030, with all the cache handling experiences etc., was implemented on an ATARI. Non-QL (mode 4 or 8) display modes were implemented for the ATARI. Proper SCSI device drivers were implemented for the ATARI. The first removeable harddisk was supported on the ATARI (and, therefore, on the "QL on the ATARI").

It is called Milan - and here are its specifications: the size of the mainboard is PC-standard (you can have a look at it on the cover of this magazine and on these pages) and its dimensions and the locations of the slots are built so that it

The main processor of the board is a 68040 - however, in about two or three months time you will also be able to plug a 68060 into the board. The 68040 should already provide you with enormous performance; we assume that it will run between 50 and 60 times faster than a QL.

The board also has four slots for PS/2 SIMM RAM modules. You can plug up to 512 Megabytes of EDO RAM into the board, which is more than enough. Anybody out there who needs more? The basic Milan comes with 16MB, which



fits perfectly into any standard PC case. When you get a Milan, it comes in a nicely designed mini-tower-case, ready to go. But back to the slots: you find four PCI-slots to accommodate state-of-the-art PC cards, and also three ISA-slots to take any kind of standard PC cards. One PCI slot is already used by a 2MB S3 Trio V64+ graphics card which allows you to run all the display resolutions and colours you ever dreamed of.

should be more than adequate for QL and ATARI applications.

There is half a Megabyte ROM space for the operating system onboard. Fortunately, the ROM is implemented as Flash-EPROM (just like the RomDisq), which means, you can update your operating system without having to open the box, replace EPROMs etc. - just load the new code into the Flash-EPROM.

What about the I/O? Of course, the Milan provides you

with all the standard ports: an ATARI-compatible modem port is implemented and the other ports are provided by a very modern super-IO-chip, usually used in PCs: bidirectional paral-

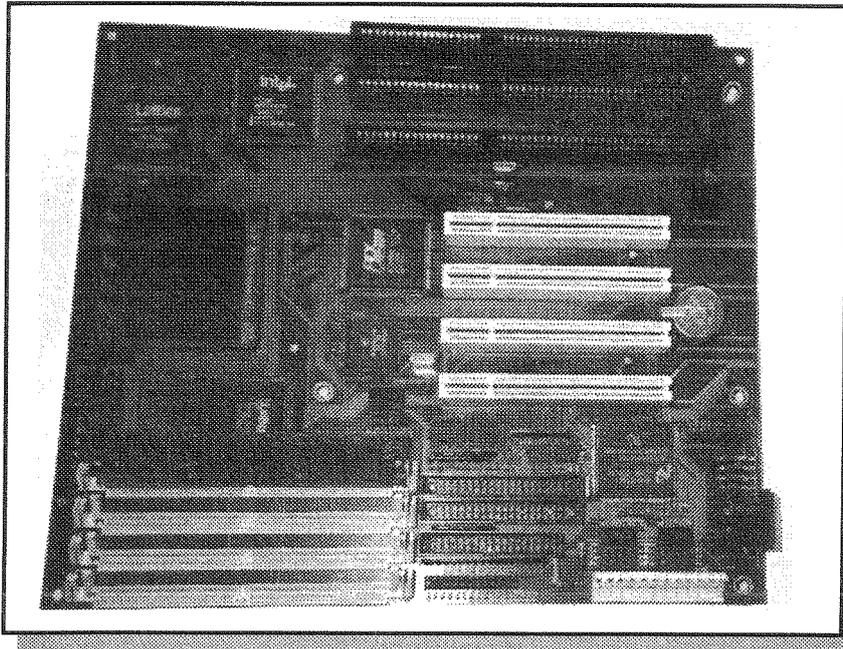
rent ways of turning an ATARI into an SMSQ/E machine, and the two most common are:

- the system is used exclusively for SMSQ/E. In this case, it will boot up straight into

You can also auto-boot from harddisk; to do this you just have to copy the SMSQ-program into a directory called the AUTO-folder, and it boots SMSQ/E automatically after power-up.

- the system starts into ATARI's operating system and shows you the desktop. SMSQ/E will be on the desktop or within a subdirectory, and all you have to do is: double-click it. No difficult installation required either, just copy the SMSQ/E program somewhere onto the harddisk. Can't be much easier, can it?

This means, we have two candidates which will both try to become the ultimate QL successor if we are looking at replacement machines. The third player in this game is the GoldFire, which should be quite fast too. The question which machine is better for which purpose will depend on the price, what you get for it and maybe how fast it is. We will provide you with more details as soon as the systems are ready for a test.



lel-port, high-speed serial ports, PS/2 mouse connector, connector for DD/HD/ED floppy disks, IDE port for harddisks and CD-ROMs. A HD floppy disk is built in as well, and the standard configuration will most likely come with an 850MB harddisk. SCSI-support will follow some weeks later.

The Milan is a complete, ready-to-go system; all you need is a monitor of your choice. The price will be about 500 Pounds, and this includes case, PSU, board, processor, graphics card, 16MB RAM, floppy disk drive, harddisk, mouse, keyboard and an ATARI software-package - this is really attractive for what you get! SMSQ/E is being adapted at the moment - Tony Tebby has a Milan at his office and is currently implementing drivers and operating system.

If you have never seen SMSQ/E (or the old QL-ATARI drivers) running on ATARIs and think, it is difficult to do, then you are wrong. There are diffe-

SMSQ/E and you do not have to worry about other operating systems. Just insert the SMSQ/E disk and reset, no installation required.

Electronics for QL Peripherals

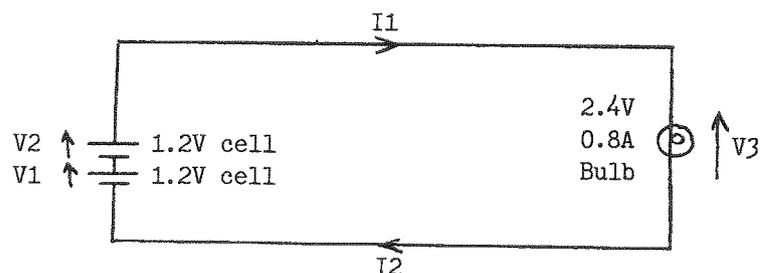
Stuart Honeyball

If you're thinking of building some hardware to add on to the QL or would just like to have an idea of how electronic gadgetry works then what follows should hopefully go some way towards explaining that. It is essentially a university degree's worth of electronics condensed into just a few pages.

Ohm's Law

This is the essence of how electronic components interact with each other. Consider the following circuit:

Here there is a battery consisting of 2 NiMH (nickel metal hydride) cells providing 2.4V (volts) and a torch bulb rated at 2.4V, 0.8A (amps). Voltage is always relative i.e. you always



measure the voltage between two points - this is also known as potential difference. Current is what flows through a conductor (e.g. wire) and can be measured by breaking the conductor and inserting an ammeter. The reason for putting arrows on both the voltage and the current is that each can be either positive or negative. In the circuit energy is transferred from the battery to the bulb and, in fact, all electronic circuits work by moving electrical energy around. Firstly, though, we must consider the concept of resistance measured in R (ohms). The bulb has a resistance which limits the current for a given voltage. Ohm's Law states:

$$V=I \cdot R$$

That is the voltage equals the current multiplied by the resistance. For our circuit to function correctly $V=2.4V$ and $I=0.8A$. (It is a bit confusing here since the first "V" is short for "voltage" whereas the second "V" is the unit of measurement.) From the above formula R must equal $2.4V/0.8A=3R$ (the first "R" is "Resistance" and the second is the unit "ohms").

Power, P, is the rate at which energy is transferred and is given by:

$$P=V \cdot I$$

So here the power is $2.4V \cdot 0.8A=1.92W$ (watts). The manufacturer designs the bulb to have a resistance of 3R and to shine brightly when 1.92W is applied.

Note that the current entering the bulb, I1, is the same as the

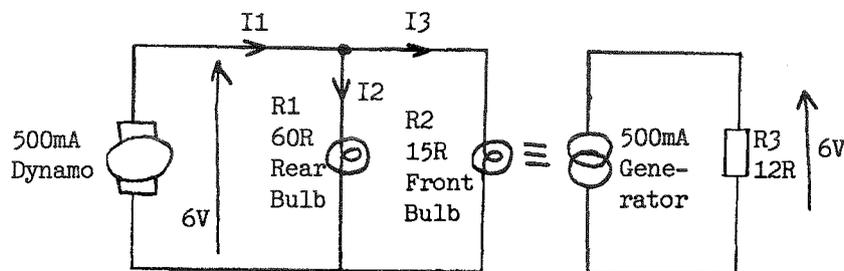
current leaving it, I2. This applies to any 2 leaded component.

Also note that the voltages around any circuit loop must add up to zero.

$$V3-V1-V2 = 2.4-1.2-1.2 = 0$$

The voltage arrows should all point the same way around the loop, either clockwise or anti-clockwise, so here the battery cell voltages are negated to compensate.

Now look at the next circuit depicting a bicycle dynamo (current generator) driving 2 bulbs. The generator provides 500mA (1000mA=1A) and unlike a battery which supplies a steady voltage, DC (direct current) it supplies alternating current (AC) which means it regularly and smoothly transitions from positive to negative and back again ad infinitum. The 500mA is a special type of average known as RMS which allows us to treat AC circuits almost like DC ones.



Note that sum of the currents into any point must be zero. Here we find that $I1-I2-I3=0$. The minus signs again compensate for the current arrows pointing away from the point. The voltage across both bulbs must be the same i.e. $I2 \cdot 60R = I3 \cdot 15R$. We know that $I1=500mA$ from the dynamo specification and combining these 3 simultaneous equations show that the voltage across the bulbs is 6V.

The two bulbs can be viewed as 2 resistors (R1 and R2) in parallel. This combination is

seen by the generator as a single resistive load which we will call R3. What is its value? We know the current through the equivalent single resistance is the $I2+I3$ and the voltage is the same so:

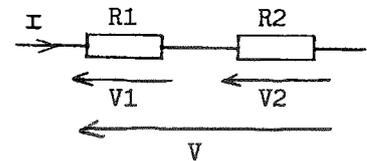
$$V = I2 \cdot R1 = I3 \cdot R2 = (I2+I3) \cdot R3$$

which simplifies to:

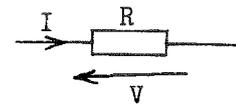
$$1/R3 = 1/R1 + 1/R2$$

In our case the equivalent resistance is 12R and using $V=I \cdot R$ we see that the voltage the generator has to produce is 6V yielding a power $V \cdot I=3W$.

What is the equivalent resistance of 2 resistors in series?



is equivalent to:



The current I through both R1 and R2 is the same which is also the same as the current through the equivalent resistance R.

The voltage V across R is the same as the sum of the voltages across R1 and R2 i.e. $V=V1+v2$. Therefore

$$I \cdot R1 + I \cdot R2 = I \cdot R$$

which simplifies to:

$$R = R1 + R2$$

We have now seen here how simple resistive elements interact and next time we'll look at how complex impedances (capacitors and inductors) interact.



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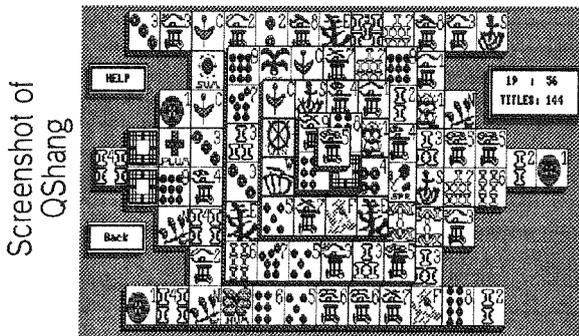
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The Future of ProWesS - Part 2

Joachim van der Auwera

The author of ProWesS goes into the remaining parts which form the new window managing system ProWesS - providing you with scaleable fonts and more colours (which will be represented on screen as soon as the new screen driver from Tony Tebby is ready).

RLL vs DLL and support of the standard C library

Just after first appearance of ProWesS, there was a vivid discussion about the use of DLL (or more precisely, comments on the fact that I didn't use RLL). In hindsight, it is good that I didn't wait for RLL to appear. However, I have to admit that the DLL system also has some limitations. In the last nine months there have been some discussions between Dave Walker (who coordinates the RLL development) and myself about the integration of RLL and DLL. The result of this is that I have some input about some supported features of the RLL system which will allow the DLL system to be replaced by RLL when it appears. According to Dave Walker's web site, the RLL system is quite close to being finished.

When the RLL system will be available, this will open up lots of new developments. ProWesS encourages (almost forces) programmers to forget about the standard c library and only use syslib. This was a bad decision on my part, which probably limited the use of ProWesS by some of the programmers who already wrote c programs before. Therefore, once RLL is available, it will be possible to combine both ProWesS (notably syslib) libraries and standard libraries in a program. I hope this will be done by building the standard libraries on top of syslib, but this has not been coordinated yet (nobody has volunteered to do it).

Another very important result of this will be that many stan-

dard libraries will easily be ported to the QL, and ready to use in ProWesS applications. This will have many useful effects. Some of the libraries which immediately spring to mind are freetype (to allow TrueType support in PROforma), zlib (a good compression library, also used in gzip etc, allows programs to write compressed files, which can make file manipulation much easier, and which a.o. is used for the PNG graphics format), wwwlib (from w3o) which is useful for internet programs.

In principle, it is not really necessary to make sure the standard C library is built on top of syslib, though it could reduce total size of often used DLL's. One thing that I really would want to see modified in the standard C library is the handling of stdin, stdout and stderr. I would prefer these files to be created only when used. This way, they exist when used (often for debugging), but do not clutter the screen when not necessary (e.g. because ProWesS is used for all windowing).

Installation of applications

The installation of programs will probably be improved when the RLL system becomes available. Most of us who have ever used a PC will have noticed that installing programs on these systems have some serious defects. There are many reasons for that, which we will try to avoid in ProWesS. The installation of programs is handled by an installation program. In theory this can do what it wants, but there are some general guidelines.

Several problems have to be addressed when installing programs. For starters it has to be easy to find a program, and installing a new program should affect as little as possible in your system. In ProWesS this means that all files which are needed for an application should be positioned in the programs directory. The programs directory normally is "win1_prg_XXX" where XXX indicates the program. The installation program is only allowed to add lines in the "mine_personal_ldr" file in the ProWesS directory. These lines normally define a global (or environment) variable so that the program can be found, and possibly create a button for the program. The installation is also allowed to add a "_mbt" file or add lines to load the program in a "_mbt" file in the "mine" subdirectory of ProWesS. The ProWesS directory itself can be found using the "PWSDIR" global variable.

In many cases the program will also rely on some RLLs. Except in some approved cases, all RLLs should be in the programs directory. The approved cases are libraries which are general, have some marshalling in the names and are controlled by one source (so the build date is not more recent because you just rebuilt an old version). RLLs will contain version and build date info which will be used to decide whether a RLL has to be replaced. An RLL will only be replaced when it is more recent and when the interface has not changed. RLLs with different interfaces can be used by different programs at the same time. This assumes that newer versions may contain extra functionality and bug fixes. It also assumes that no new bugs are introduced. I know that this last assumption may be invalid, but things would be impossible without it.

Obviously, when a program is

installed it may replace a RLL by a newer compatible version. To make sure that the program can run without resetting the system, it will be possible to flag the RLL system that a newer version of the RLL is now available, so that the new version will be used the next time the RLL is requested by a program. In theory this means that your system never has to be reset again (although of course an old version of the RLL will not be freed from memory until all users have stopped executing - which can sometimes be unlikely, for example when replacing ProWesS, PROforma or syslib, the old version will probably hang around as the old version is still used in the button programs).

The major advantage of the RLL system compared with DLLs is that RLLs are loaded on demand. The DLL system relies on the thing system and can dynamically link to routines in the thing (the thing handles that itself), but does not load the library when necessary. Though this can be solved by using a loader program, it is not ideal as the library remains available when the user has finished. In this respect RLLs are much more flexible.

The new colour screen driver and the future of PROforma

At the show in Eindhoven in November 1997, Tony Tebby discussed his plans for the new screen driver which is supposed to replace the current driver. This driver is mostly known to people as it is supposed to support much more colours than is currently the case. However, the driver contains more important changes than that.

There is not too much I can say about this except that it looks very promising and will have support for colours and

scalable fonts. The pointer interface will be completely embedded and it should provide a better framework for window managers. In essence this will mean that part of the work which is currently done by PROforma will be embedded in the screen driver (notably the bitmap drivers and its use will no longer be necessary, the other bits remain important).

It hardly has to be said that this will strongly impact the internal working of PROforma, and thus also ProWesS. Again, backward compatibility will be a major issue. Normally speaking the new screen driver should only improve capabilities and have no influence on existing programs - except that they suddenly support more colours.

The DATAdesign engine

The DATAdesign engine is an important part of ProWesS, even though it is currently not in heavy use. In fact it should be used much more. Notably some of the configuration files would better be stored in a database, but I haven't done this yet as I suspect major changes here.

Although I am not very keen to admit it, the DATAdesign engine is seriously flawed in the handling of indexes. This would not be a major issue if indexes wouldn't be so important for the efficient handling of searches etc. As you should know, the DATAdesign engine is multi-user. This means that several programs can access the same database at the same time. Records which are in use by another program which has read/write access are locked to prevent two programs changing the record at the same time. However, the indexes in DATAdesign are local to the program. This means that records which are created by a different job are not contained in the index. You could try to fix that by

regularly rebuilding the index, but even that is not fool proof, as there may be records which are in use by another job at that time, in which case they will (again) not be included in the index. There is no simple cure except redesigning at least part of the engine.

Unfortunately however, this is not an area where I can invest a lot of time at the moment, as there are other things which are more important which will get my attention first. I would hope that somebody would be willing to do some work on a better engine. In this case, compatibility is less important, as a possible new engine could live alongside the current DATAdesign engine.

Device drivers

There has been quite a bit of discussion about this recently, especially in the ql-users mailing list. So I will add my two pennies worth. My ideas are the following :

- file naming structure should change. I think it would be useful to move to Unix style directory structure. For compatibility's sake, it would be best to limit "real" file name length (name including extension, excluding path) to 36 characters. This should be sufficient for all normal use. Longer names would no longer be user friendly anyway (you don't want the filename to contain the entire text of the document - that beats the purpose of naming files). Filenames should have their extension separated by a dot (yes, this is already supported in ProWesS). The directories should be separated by a slash (/). There should be one root directory, and all the devices should be subdirectories of that (e.g. "/win1/" for what is now "win1_"). If you would ask for a directory of the root (so "dir /"), you would get all the available devices. This is a big improvement, as there is cur-

rently no clean method on the QL to know which devices are available.

- All programs need local default search path and destination directory. This can be provided by using the environment variable system which is part of c68 (and ProWesS's global variables should be replaced by that). The path can contain several directories, separated by semicolons (;) and searched from left to right.

- Device driver structure could be made more generic. You can make the distinction between block oriented devices (disks etc.) and serial devices (serial and parallel port). You can have protocols to run on top of these devices to provide specific services like talk to another computer, or use the blocks to provide a directory structure and filing system. This could be a major improvement over current systems. It would make all disk based systems behave identically, independent of whether they are interfaced by ACSI (ST/TT), SCSI (TT), Qubide, Rebel or Miracle i/f. It is currently a real problem under Qdos/SMSQ(E) that you can not rely on a specific error to be reported when a specific problem occurs. This depends on the producer, type and even version of the device driver.

- Links should be supported. For example `"/prg/"` could then be a link to the `"/win1/prg/"` directory. Alternatively the file `"/win1/prg/LINEdesign"` could be a link to the `"/win1/development/applications/LINEdesign/LINEdesign"`.

- In the resolution of filenames and paths, it always has to be possible to use environment variables. They can normally be referenced by including "\$VARNAME". The name can be terminated by a slash or dot or another dollar sign.

- I have already mentioned that each program should have a local path and destination.

These should be inherited from the calling program, but still be local. When a filename starts with a slash then the filename included the complete path. If the filename does not start with a slash then the place to search depends on the action. When you open an existing file, it should be searched on the path. If you open for writing, it should be opened on the destination.

- The file system should also support the "." and ".." conventions. Using "..", you can move a directory up in the path, so `"/win1/mine/./"` is the same as `"/win1/"`. The dot is a current directory indicator. When used at the start of the path (e.g. `"/output.txt"`) it should reference the destination, even when opening for reading. When it occurs in the middle, it should be skipped, so `"try//this.txt"` is the same as `"/try/this.txt"`.

- It would be useful if the file header includes an extra field which indicates the producer of the program. This could be used to automatically call the producer program when you "execute" a file. This is similar to the FileInfo linking of file extensions to programs, but without the problem that an extension could be used by several programs. Of course the handling of FileInfo would still be useful when the requested program is not available.

Support programs

There is also a need for extra support programs in ProWesS. Since the beginning, ProWesS relies on some (readable) files which control the loading of programs (most importantly the `"mine_personal_ldr"` file), and files which indicate what has to be displayed in the menu buttons (`"_mbt"` files). It would be useful to have some simple support programs which allow you to delete groups of lines from the `personal_ldr` file, or allow you to add actions (most importantly, definitions of global

variables and new buttons). Another useful support program would allow the creation and modification of the files which control the menu buttons.

When???

Ah well, this of course is the six million dollar question. There are many things which will influence this. For starters let me say that anything can always be delayed by demands to make some money once in a while (some of you probably know that I spend my time training and racing in triathlon and by writing software for the QL, as I don't make any money with either, any opportunity to do some paid work can not be passed on).

I have mentioned many changes above. Changes in ProWesS, the introduction of RLL, the new colour screen drivers and definitely the new device drivers (if they ever appear) will cause major changes also for the user. Therefore, I hope to lessen the amount of change which may impact the user by trying to combine the introduction of some of the new features. Obviously, as most of these changes are not in my hands, it makes it all difficult to control. I will for now concentrate on the new version of the ProWesS window manager. I expect this to take a month or two, not counting the new types which become possible in this new version. I am hoping that by that time, there will be some major advance in the RLL department, so that these improvements can be combined in the release of ProWesS v2. If by that time, the release of the new screen drivers is imminent, then that will be combined as well. The other changes are too much "dreams" to be able to consider them now.

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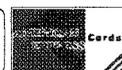
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Gee Graphics! (On the QL?) - part 4

Herb Schaaf

Geometry, Geography, Gravity and Groves. Which way is up?

As mentioned in the last part of Gee Graphics! I hope to present a few examples of unreasonable pushing of the QL to its limits as regards ARCs, CIRCLES, and in a subsequent article ELLIPSES.

Before we go into arcs, circles, and ellipses, we should try to understand the meaning of 'angle'. In 1960 Andrew S. Groves was quoted as saying that "Words like 'angle' or 'vertical' or 'horizontal' ... were foreign to me. I had to go over each day's work again at night with a dictionary at my side." Little short words can be very hard to define in simpler terms.

Gravity is a mystery that we find convenient for trying to define or explain the meaning of "up".

Geometry books use a convention where the reference line is horizontal with its origin at the left end and its termination at the right end. The direction angle of some other line in question is measured counter-clockwise from the reference line, or you could say it is how much the reference line would have to be turned about its origin so that it would be parallel to the line in question. You could also see it as the amount the line in question would have to be turned in a clockwise direction in order for it to be parallel with the reference line. Up can be thought of as 90 degrees or $\pi/2$ radians.

Geography uses another (a north er?) convention where the direction to the north is usually the reference and angles are measured in a clockwise direction to the line in question. Speaking of geography and clockwise, I suppose

that our culture developed in the north temperate zone, where the sun and its shadow would appear to revolve about a tree, sundial, etc. in a direction that came to be known as "clockwise". Up can be thought of as north or zero degrees.

Many ways have been devised to divide the circle: hours on a clock, points of the compass, degrees-minutes-seconds, grads, mils, radians, etc. The QL trigonometry functions (SIN, COS, COT, TAN, ATAN, ACOS, ACOT, and ASIN) work in radians and the QL has the convenient functions DEG and RAD to convert back and forth between radians and degrees.

In 1990 I was trying to make Escher knots and RDS on the QL and wanted a FuNction that would give me the distance between two points in the

FuNctions "dist_btwn" and "angl_frm" are from that time and still work well for me. I hope you can follow my 'logic' and will find the FuNctions of use to you. I'm used to thinking in degrees (360 to the circle) so I have written the angl_frm FuNction to give the answer in degrees.

The QL procedure ARC uses 5 arguments, the beginning point x and y, the ending point x and y, and the arc angle between them. When the arc angle gets very close to being a full circle (and the radius approaches infinity) the imprecision of the calculations can give bizarre results. Try values very close to 360 degrees (2π radians) for the arc angle and see what you get. Different VER\$ give different results. Try the little program 'Arc_quits_bas' on your QL. It seems to be fine at first, but then is pushed beyond the limit. Two small circles show the beginning and end points; at first the arc is

```
100 REMark Arc_quits_bas
110 REMark HL Schaaf April 13, 1998
120 MODE 4 : WINDOW 512,256,0,0
130 PAPER 0 : INK 4 : CSIZE 3,1
140 SCALE 100,0,0 : CLS
150 :
160 REMark s = start, f = finish, ss = step size
170 IF VER$ = "JSU" : s = 359.4 : f = 359.45 : ss = 1E-2
180 IF VER$ = "HBA" : s = 359.75 : f = 359.765 : ss = 5E-3
190 IF VER$ = "JSL1" : s = 359.75 : f = 359.765 : ss = 5E-3
200 :
210 FOR a = s TO f STEP ss
220 PRINT a;" degrees "
230 aa = -RAD(a)
240 CIRCLE 59,50,1/2
250 CIRCLE 61,50,1/2
260 ARC 59,50 TO 61,50 , aa
270 PAUSE 60
280 CLS
290 END FOR a
300 REMark end of listing Arc_quits_bas
```

Cartesian plane and the angle of the line segment from one point to the other. ATAN didn't seem to always give the right answer (this was before SMSQ/E) so I wrote a FuNction that worked using ASIN. The

drawn, but as the arc approaches a full circle the QL quits showing the end of the arc.

The QL procedure CIRCLE uses 3 arguments, the x and y values for the center and the

radius. If the center is far off the visible screen, the complete circle may not be drawn. Try the little program 'Circles_stop_bas' on your QL. Again it seems to be doing OK, but then is pushed beyond the limit. Circles drawn with centers to the far left and far right seem to be OK for a while, but then the QL will not draw them all the way.

Looking at the ARC procedure, I wondered about using the five input argument values to determine the radius and center of the matching circle, and the directions from the center to the beginning and ending points of the arc on the circle. The FuNction ARC_TO_CIRC is the result. It calls on the 'angl_frm' function which in turn calls on the 'dist_btwn' function. These FuNctions and a PROCEDURE 'show_me' are all in a program called 'Show_ARCIRCLE_bas'. Try it out with various input arguments. It is intended to display information about the ARC and parts of the matching circle. Try it out on your QL. Input the x, y values as requested, and an arc angle in

```

100 REMark Circles_stop_bas
110 REMark HL Schaaf April 13, 1998
120 WINDOW 512,256,0,0
130 PAPER 0
140 MODE 4
150 SCALE 100,0,0
160 CSIZE 3,1
170 CLS
180 REMark s1,f1 = start, finish of loop 1
190 REMark s2,f2 = start, finish of loop 2
200 REMark ss = step size
210 REMark pa = print at
220 IF VER$ = "JSU" THEN
230 s1 = 90 : f1 = 125
240 s2 = 125 : f2 = 160
250 ss = 5 : pa = 26
260 END IF
270 IF (VER$="HBA") OR (VER$="JSL1") THEN
280 s1 = 525 : f1 = 605
290 s2 = 1775 : f2 = 1895
300 ss = 10 : pa = 23
310 END IF
320 :
330 REMark k is the x offset of the circle
340 FOR k = s1 TO f1 STEP ss, s2 TO f2 STEP ss
350 INK 4
360 AT 0,pa : PRINT 'offset'
370 AT 2,pa : PRINT k
380 LINE 100, 0 TO 100,100
390 LINE 0,0 TO 0,100
400 INK 7
410 REMark r for radius
420 FOR r = (k+50) TO (k+100) STEP 5
430 CIRCLE 100+k, 50, r
440 CIRCLE -k, 50, r
450 END FOR r
460 PAUSE 50
470 CLS
480 END FOR k
490 REMark end of listing Circles_stop_bas

```

radials in white, and then plot the arc in closely spaced red points. Scaling is adjusted so the diagram will fit. The beginning and end points need to be at different locations, and the arc angle cannot be zero, nor can the ABSolute value of the arc angle be equal to or greater than 360 degrees. If you have SMSQ/E here are some input values that may surprise you with the arc it draws (in green) when unreasonable values push the QL beyond its limits:

x1 = 5, y1 = 4, x2 = 3, y2 = 2, arc angle = 359.99 (or 359.999)

degrees. It will do the arc and chord in green, the circle and

Next time I hope to noodle around with ellipses.

```

100 REMark Show_ARCcircle_bas
110 REMark HL Schaaf Apr 12, 1998
120 REMark how to take 2 points and angle
130 REMark and find center, radius, azimuths
140 MODE 4
150 WINDOW 512,256,0,0
160 PAPER 0 : INK 2 : CSIZE 0,0
170 CLS
180 :
190 REPEAT ARCcircle
200 PRINT\
210 INPUT "Beginning x ? ";beg_x
220 INPUT "Beginning y ? ";beg_y
230 INPUT "Ending x ? ";end_x
240 INPUT "Ending y ? ";end_y
250 IF (beg_x=end_x)AND(beg_y=end_y) : GO TO 210
260 INPUT "Arc angle in degrees ? ";ad
270 IF (ABS(ad) >= 360) OR (ad = 0) : GO TO 260
280 arc_angle = RAD(ad)
290 :
300 arc_radius = ARC_TO_CIRC (beg_x,beg_y,end_x,end_y,arc_angle)
310 show_me beg_x, beg_y, end_x, end_y, arc_angle
320 END REPEAT ARCcircle
330 :

```

```

340 DEFine FuNction ARC_TO_CIRC (begin_arc_x,begin_arc_y,end_arc_x,end_arc_y,arc_angle)
350 REMark errors if 0 or >= 2*PI
360 sign_of_angle = SGN(arc_angle)
370 angle$=' '
380 handedness$ = ' '
390 IF sign_of_angle = 1 :handedness$ = 'counter-clockwise'
400 IF sign_of_angle = -1 :handedness$ = 'clockwise'
410 no_angle = (ABS(arc_angle) = 0)
420 IF no_angle : angle$ = 'no angle'
430 IF ( (NOT(arc_angle) ) OR ( ABS(arc_angle) > (2*PI) ) ) : PRINT #0;'included angle
';DEG(arc_angle);' is out of
range' :STOP
440 acute_angle = (ABS(arc_angle) < PI) AND (ABS(arc_angle) > 0 )
450 IF acute_angle : angle$ = 'acute angle'
460 obtuse_angle = (ABS(arc_angle) > PI) AND (ABS(arc_angle) < 2*PI)
470 IF obtuse_angle : angle$ = 'obtuse_angle'
480 right_angle = (ABS(arc_angle) = PI/2) OR (ABS(arc_angle) = 1.5*PI)
490 IF right_angle : angle$ = 'right angle'
500 straight_angle = (ABS(arc_angle) = PI)
510 IF straight_angle : angle$ = 'straight angle'
520 reflex_angle = (ABS(arc_angle) > PI)
530 IF reflex_angle : angle$ = 'reflex angle'
540 round_angle = (ABS(arc_angle) = 2*PI)
550 IF round_angle : angle$ = 'round angle'
560 mid_chord_x = (begin_arc_x + end_arc_x)/2
570 mid_chord_y = (begin_arc_y + end_arc_y)/2
580 chord_angle = angl_frm(begin_arc_x,begin_arc_y,end_arc_x,end_arc_y)
590 radius_angle = ((chord_angle + 90) MOD 360)+(chord_angle - INT(chord_angle))
600 half_chord = dbtw/2
610 inside_half_angle = arc_angle/2
620 IF obtuse_angle : inside_half_angle = PI - inside_half_angle
630 IF straight_angle : inside_half_angle = sign_of_angle*PI/2
640 arc_radius = ABS(half_chord/SIN(ABS(inside_half_angle)))
650 mid_chord_to_center = (arc_radius*(COS(inside_half_angle)))
660 m_c_t_c_x = SGN(arc_angle)*mid_chord_to_center*COS(RAD(radius_angle))
670 m_c_t_c_y = SGN(arc_angle)*mid_chord_to_center*SIN(RAD(radius_angle))
680 arc_center_x = mid_chord_x + ((acute_angle - obtuse_angle) * m_c_t_c_x)
690 arc_center_y = mid_chord_y + ((acute_angle - obtuse_angle) * m_c_t_c_y)
700 begin_arc_angle = angl_frm (arc_center_x, arc_center_y, begin_arc_x, begin_arc_y)
710 end_arc_angle = angl_frm (arc_center_x, arc_center_y, end_arc_x, end_arc_y)
720 begin_arc = RAD(begin_arc_angle)
730 end_arc = RAD(end_arc_angle)
740 RETURN arc_radius
750 RETURN arc_center_x
760 RETURN arc_center_y
770 RETURN mid_chord_x
780 RETURN mid_chord_y
790 RETURN begin_arc_angle
800 RETURN end_arc_angle
810 RETURN sign_of_angle
820 RETURN angle$
830 RETURN handedness$
840 END DEFine ARC_TO_CIRC
850 :
860 DEFine PROCedure show_me (begin_arc_x, begin_arc_y, end_arc_x, end_arc_y, arc_angle)
870 arc_radius = ARC_TO_CIRC (begin_arc_x, begin_arc_y,end_arc_x,end_arc_y,arc_angle)
880 scr_scale = 4*arc_radius
890 SCALE scr_scale, - .66 * scr_scale + arc_center_x, -.5 * scr_scale +arc_center_y
900 INK 2 :CLS
910 PRINT '\ 'screen scale = ';scr_scale,
920 PRINT ' centered at x = ';arc_center_x;', y = ';arc_center_y
930 PRINT 'begin_arc_x';TO 16;'begin_arc_y';TO 32;'end_arc_x';TO 48;'end_arc_y'
940 PRINT begin_arc_x;TO 16;begin_arc_y;TO 32;end_arc_x;TO 48;end_arc_y
950 INK 4
960 ARC begin_arc_x, begin_arc_y TO end_arc_x, end_arc_y, arc_angle
970 PRINT 'arc_angle = ';arc_angle;" radians or ";DEG(arc_angle);' degrees
';handedness$\radius = ';arc_radius
980 LINE begin_arc_x, begin_arc_y TO end_arc_x, end_arc_y
990 INK 6
1000 LINE mid_chord_x,mid_chord_y TO arc_center_x,arc_center_y
1010 CIRCLE arc_center_x,arc_center_y,arc_radius

```

```

1020 LINE arc_center_x,arc_center_y TO begin_arc_x,begin_arc_y
1030 INK 4
1040 ARC begin_arc_x, begin_arc_y TO end_arc_x, end_arc_y, arc_angle
1050 INK 7
1060 LINE arc_center_x,arc_center_y TO end_arc_x, end_arc_y
1070 arc_length = ((2*PI*arc_radius)*(arc_angle/(2*PI)))
1080 pixel_length = scr_scale/256
1090 pixels_per_arc = ABS(arc_length/pixel_length)*1.6
1100 INK 2
1110 PRINT'from ';DEG(begin_arc);' to ';DEG(end_arc);' '
1120 FOR i = begin_arc TO (begin_arc + arc_angle) STEP (arc_angle)/pixels_per_arc
1130 ax = arc_radius*COS(i)
1140 ay = arc_radius*SIN(i)
1150 POINT arc_center_x + ax, arc_center_y + ay
1160 END FOR i
1170 PRINT angle$
1180 PRINT#0;"[ESC] to exit, [spacebar] for another"
1190 IF INKEY$(-1)=CHR$(27) : EXIT ARCcircle
1200 END DEFine show_me
1210 :
1220 REMark dist_btwn
1230 DEFine FuNction dist_btwn(xpt,ypt,x,y)
1240 REMark distance between two points xpt,ypt as point of origin
1250 xdis = (x-xpt) : ydis = (y-ypt)
1260 IF ((ABS(xdis) > 1E308) OR (ABS(ydis) > 1E308)) : PRINT #0;'overflow possible!'
1270 REMark if ABS xdis or ydis > 1E308, will have overflow error message
1280 sqdist = ((xdis*xdis)+(ydis*ydis))
1290 dbtw = 0
1300 IF (sqdist) : dbtw = Sqrt(sqdist)
1310 RETurn dbtw
1320 RETurn xdis
1330 RETurn ydis
1340 END DEFine :REMark FN dist_btwn(xpt,ypt,x,y)
1350 :
1360 REMark angl_frm
1370 DEFine FuNction angl_frm(xf,yf,xt,yt)
1380 REMark angle in degrees from origin(xf,yf) to (xt,yt)
1390 REMark --> = 0' or 360', @ = 90', <-- = 180', = 270'
1400 IF dist_btwn(xf,yf,xt,yt) = 0 : PRINT #0;"same spot!" :PAUSE
1410 qdx=1 :qdy = 2
1420 IF ydis<0 : qdy=qdy+2
1430 IF xdis<0 : qdx=qdx+2
1440 qprd = qdy*qdx : qsum =qdy+qdx+qprd
1450 quadA = ((INT((qsum+1)/3))/2)
1460 quadB = (quadA-INT(quadA))*5
1470 quad = quadB+quadA :REMark Trig quadrant I, II, III, or IV
1480 IF dbtw<>0 THEN
1490   sinrat = (ydis/dbtw)
1500   IF sinrat > 1 THEN sinrat = 1
1510   IF sinrat < -1 THEN sinrat = -1
1520   sangle = DEG(ASIN(sinrat))
1530   SElect ON quad
1540     = 1 :spolangle = sangle
1550     = 2 :spolangle = 180-sangle
1560     = 3 :spolangle = 180-sangle
1570     = 4 :spolangle = 360+sangle
1580     = REMAINDER : PRINT #0;"quad error arcsine":STOP
1590   END SElect
1600 END IF
1610 :
1620 angle_from = spolangle
1630 RETurn angle_from
1640 RETurn quad
1650 END DEFine :REMark FN angl_frm(xf,yf,xt,yt)
1660 :
1670 DEFine FuNction SGN(n)
1680 RETurn (n>0) - (n<0)
1690 END DEFine SGN
1700 :
1710 REMark end of listing Show_ARCcircle_bas

```

Harddisks - Part 1

Mark Knight

In the previous two issues, Mark explained everything about floppy disks and disk drives. Now he continues with harddisks.

1. Why use hard disks?

After listening to talk about the inevitability of failures with a hard disk it is sensible to consider why we use them: the main reasons are speed and convenience. As an example my hard disk holds all the software I use most often, some I use less often and a few items I have never used but which I might want one day. Altogether there are well over a thousand files yet it is still only about 30% full as I write. The huge capacity of even a very modest hard disk (mine is a mere 40.5 Megabytes, very small indeed by modern standards) saves me having to search for the right disks when I want to load something. The speed of loading is dozens of times faster than floppies, so programs which take thirty seconds or more to boot from HD floppy disks now start in much less than a second from the hard disk.

To sum up, at the time of writing it is rare for any software I use to take more than a second to load, while the systematic way I have filled the disk means I rarely have trouble finding files when I want them. I can even run some programs without knowing where they are on my hard disk and I'll show you how to do tricks like this later in the text.

2. Why do hard disks go wrong?

A hard disk drive usually contains several highly polished disks held in a partial vacuum and read and written to by tiny and much faster versions of the heads used in a floppy drive. There are many differences between hard disks and floppy disks and many of them are in

the heads. Unlike those in a floppy drive the heads in a hard disk drive are not supposed to touch the disk surfaces, they instead ride over them on a thin cushion of air, keeping off the delicate polished magnetic coating.

The air gap may be as narrow as a few microns once the disks are up to speed but the gap is necessary to avoid damage. When the drive is not in use the heads are "parked" in an unused area of the disks close to the edge, where information is never recorded. Switching off the power will send the heads to this area automatically on modern drives because a spring system is designed to keep them there: it takes power to move the heads onto the working area of the drive.

The lack of contact between the heads and disks means much finer and higher resolution magnetic coatings can be used. The coating is so fine that even microscopic dust particles can damage it if caught under the heads as the disks are spinning. For this reason and others hard drives are manufactured in "clean room" factories where the standard of cleanliness is very much higher than that required in a surgical operating theatre.

Inevitably though, vibration or wear can mean that a head does momentarily touch the surface of one of the disks and permanently spoil a sector; this is known as a "minor head crash". Possibly wear will loosen a microscopic particle of metal from part of the disk bearing or head movement mechanism, or more likely a dust particle that made it into the clean room will finally find its way onto a disk surface. Occasionally a serious physical shock to the drive will cause a "total head crash"

where the drive heads hit the disks quite hard. Frictional heating then melts the magnetic coating and the heads stick to the disks: if this happens the drive is dead and cannot usually be repaired. Look after your hard disk and don't move the computer while it is switched on!

We can see it isn't necessary to regard the occasional failure of another sector as a sign of a poor quality hard disk because it is expected that during the life of a drive some sectors will be lost. On most drives such routine failures occur about once a year, or even less frequently (perhaps not at all) in the first five or six years of the drive's life. Towards the end of its life failures become much more frequent and this is something to watch for. The routine failures are normally rare and minor, spoiling just one or two sectors, and since it still contains thousands of good sectors we really don't want to give up using it.

3. What should we do when something goes wrong?

When one sector of a hard disk has failed we may be lucky and find only one file is damaged; if this is the case our backup procedure should have saved us. Sensible hard drive users take regular copies of the drive and if a crash loses one file it can simply be copied from the backup to replace the damaged version. If the failure is in part of the directory or map structure on the disk though the system may lose track of where lots of files are, or possibly be unable to read the disk at all. In this case our backup becomes even more important and we should format the entire hard disk and copy all the files from the backup. The lesson is obvious: **KEEP REGULAR BACKUPS.**

Professional & Graphical Software

ProWesS

ProWesS is a new user environment for the QL. ProWesS is short for "PROGS Window Manager", but it is much more than that. Apart from a new window manager, it contains all the system extensions from PROGS, and is essential if you want to run programs which need these extensions.

The ProWesS reader is a major part of the package. It is a hypertext document browser. This means that text files which include formatting commands (including pictures) and possibly links to other files can be displayed and read in this program. This is used in ProWesS to read (and possibly print) the manuals, and display the help files. The hypertext documents which are used by the ProWesS reader are in HTML format, the format which is popular on Internet to display World Wide Web pages.

Another important aspect of ProWesS is the possibility to allow programs to automatically install themselves on your system, and to be able to run them without resetting the system. This means that, when you get a new program, all you have to do is insert the disk and indicate "start the program in flp1", a menu option in the "utilities" button. To install a program, you indicate "install software", and the software can be added to your system. This way, you don't need to know how to write a boot file to use the multi-tasking capabilities of your computer.

ProWesS includes many programming libraries. These include syslib, an interface to the operating system, PROforma, a vector graphics system, allowing rendering both on screen and on paper (via a printer driver). The DATAdesign engine is also part of ProWesS. It is a relational database system with a bonus, as you don't even need a key field. You get a powerful record at a time data manipulation extension to the language you already use. Of course it also includes ProWesS itself, the new resolution independent window manager.

PfList

Easy to use program to create listings on any printer (especially inkjet and laser). This ProWesS application allows you to indicate the files which have to be printed. Each column contains a footer which can include the filename and filedate. The listings always allow perforation. PfList can create your listings in two columns and in landscape (or both).

fsearch

File search utility with many useful options, like the choice to search only files with a certain extension, and whether or not the directory tree has to be scanned. All occurrences of the searchstring will be displayed with line number or offset. You can also use special matching features, like case dependent, matching a space with a stretch of whitespace, and searching for a word delimited string.

font-utills

manage your font collection. You can preview fonts on screen, see what characters exist in a font and convert Adobe Type 1 and similar fonts for use in ProWesS.

new address !!

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ProWesS - BEF 2400

DATAdesign - BEF 1200

PWfile - BEF 900

PfList - BEF 600

Payment terms :

LINEdesign - BEF 1200

fontutills - BEF 1200

fsearch - BEF 600

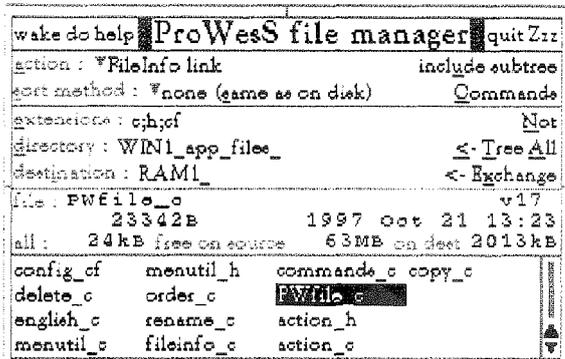
You have to run ProWesS to make LINEdesign, DATAdesign, fsearch, fontutills and PfList work (even though DATAdesign uses wman).

All our software is normally supplied on high density (HD) disks. However they can be obtained on double density (DD) disks at an extra costs of BEF 100. To use ProWesS and any of our other packages, you need a system with at least 2MB of memory. You should have a harddisk although a two disk system will also work. The use of SMSQ/E is strongly recommended for optimal use of ProWesS.

If you are VAT registered (specify registration number) or live outside the BEC, the amount to be paid is the total (including postage) divided by 1.21 (no need to pay too much).

Payment can be done by EuroCheque in BEF, or by VISA, EuroCard or MasterCard. Credit card orders can be handled by phone. For credit card, please specify name of card owner, card number and expiry date.

*New ProWesS application
a powerful and very user
friendly file manager*



LINEdesign

Create artistic drawings, technical drawings, process bitmaps (even scale and rotate them!), and any kind of vector drawings. You can use graphics objects to create the most fabulous drawings ever seen. Because LINEdesign is a vector drawing program, any part of the picture can be moved, scaled, rotated, slanted without any loss of precision or resolution. In LINEdesign, pictures are device independent, meaning that the printout will be the same on any printer (e.g. same size and position).

LINEdesign is good at handling text. You can easily put titles and full paragraphs on the page. All the fonts can be displayed at any size, rotation, etc. All the fonts which are available to ProWesS can be used in LINEdesign.

LINEdesign is a drawing program, but it can also be used by people who are not good at drawing. LINEdesign is a great program for making leaflets, posters, and any kind of printed work. Lots of clipart and extra fonts are available from public domain libraries and BBS's. You can even import Adobe Illustrator files.

DATAdesign

Never before has it been so easy to create, fill in and maintain your personal databases. To start a new file, just type the names of the fields. To add or delete a field, no problem, just do it. To change the name of a field, just indicate it. You can choose which fields are displayed and also which records. You can have a hidden comment for each record, look at the file in tabulated form and transfer data to the scrap or hotkey buffer. Files can be memory based (for speed) or disk based (for safety).

Postage : Costs of postage and packaging have to be added. You can choose the quality. Rate depends on no of programs.

copies	priority mail			ordinary mail		
	Belgium	Europe	World	Belgium	Europe	World
one	100	200	240	100	120	145
two	135	340	420	135	190	230
3 or 4	160	560	770	160	310	395
5 to 8	185	870	1250	185	550	705
more	295	1130	1610	295	800	1030

All prices are in BEF, including 21% VAT

4. Directories and subdirectories.

One feature of hard disks that puts some QL owners off using them is the capability and necessity of using subdirectories. However subdirectories exist because they make life easier and although it is possible to use a hard disk without them it is a real pain. To introduce them into your life it is only necessary to own a Gold Card or Super Gold Card and a floppy drive, so read on and experiment if you have never tried. Consider what happens when we take a directory of a floppy disk that contains no subdirectories. If we type:

```
dir flp1_
...from the SuperBASIC command line we may see something like this:
PUMPKIN 1164/1440 Sectors
BOOT
BOOT2
Runtime_EXTS
Secret_DAT
TopSecret_EXE
```

This is a directory of course, so what? Well this disk obviously contains just five files and subdirectories are not needed, but suppose we had an HD disk with the standard 2,880 sectors instead of 1,440. Now suppose instead of just the five files on our disk "PUMPKIN" we have over two hundred files belonging to three different programs. With ED disks having 6,400 sectors things can of course be even more unwieldy. It is not hard to see that it could become tedious looking through directories to find the name of a file to load, even if the program we are using will let us scroll through and pick it with the cursor keys. With microdrives the single directory structure was not a problem since we could not fit many files on a cartridge anyway. On a hard disk capable of holding two thousand or ten thousand files or more the old way of doing things becomes ridiculous. The

answer to this problem is subdirectories. To make sure the extra keywords needed are initialised enter the following into your QL:

```
tk2_ext
```

Imagine we have half a dozen document files on a disk in flp2_ and we put a blank disk in flp1_ to copy them to. If we enter the following command (note, WCOPY not COPY):

```
wcopy flp2_ to flp1_
```

...and press "A" when the "Y/N/A/Q" prompt appears; they will be copied onto the disk in flp1_ and we can then use DIR to check the list of files. If the disk in flp1_ already contains dozens of files and we want the new ones separated in some way we could try this:

```
make_dir flp1_DOCS_
wcopy flp2_ to flp1_DOCS_
```

Note: the capitals are not needed, I just happen to prefer directory names that way. Now if we press "A" when prompted the files will be copied but a DIR flp1_ will not reveal them, instead we might get something like this:

```
BICYCLES 963/1440 sectors
Archive
Orders_DBF
Stock_DBF
Repairs_DBF
Repairs_PRG
Invoice_PRG
TestPrinter_BAS
QPage_JOB
IBM_5202_DVR
Printer_DAT
DOCS ->
```

The "-" symbol after the "DOCS" filename indicates that this file is a subdirectory, so don't use the "-" sequence in filenames. To see the contents of this subdirectory we must type:

```
dir flp1_docs_
```

...which might give us:

```
BICYCLES 963/1440 sectors
DOCS_Order_DOC
DOCS_Confirm_DOC
DOCS_Prompt_DOC
DOCS_Cancel_DOC
DOCS_TooLate_DOC
```

...and we see that the files in the DOCS directory all have filenames beginning with "DOCS_". If we make another directory thus:

```
make_dir flp2_DOCS_
```

...we can copy the files from one backup directory to the other using:

```
wcopy flp1_DOCS_ to flp2_DOCS_
```

Well you might say "what's the point?" If you only have this small number of files on a disk there may be no point at all, but if you have loads of Quill documents and Abacus spreadsheets and Archive databases and raw text files and some other datafiles on one disk, then the point hopefully becomes obvious. You can put the Quill documents in a subdirectory called "DOCS", the Abacus files in "SPREADS", the raw text files in "TXT" etc.

Persuading Quill or Abacus to use these subdirectories requires a little trickery as they were written long before such things existed on the QL (and for that trick read on). Using subdirectories takes a little practice but it will simplify your work on the QL enormously if you take the trouble to learn. If you are looking for a Quill document you only need look in the "DOCS" subdirectory, for the spreadsheets only in the "SPREADS" subdirectory etc.

If you haven't met them face to face before it is helpful to know that a subdirectory is another type of file, which instead of containing a program or a Quill document or whatever, contains more files. You can also regard it as an imaginary "drive" separate from the rest of the disk and with a name of its own, so if it is on flp1_ it is called flp1_DOCS_ or flp1_TXT_ or whatever you decided when you created it.

More about subdirectories in the next issue



BYTES OF WOOD

SAW POINTS OFFCUTS AND SNIPPETS

From now on, Roy will have the last word in his column.

It has been a busy two months since I last put digit to keyboard. To begin with we had the workshop in Hove which usually fries my brain cells because I have to wear two hats, first as one of the organisers because it is my local user group and second as a trader running Q Branch. I would like to thank John Wakefield and Hugh Rooms for running the Bring and Buy stand and Peter Fox for helping me to organise the talks. Lots of people were interested in the Q40 which was shown in England for the first time. Peter and Klaus Graf flew in to demonstrate the prototype and talk about the project and I believe that they enjoyed their first UK QL show. Another focus of interest was Keith Mitchell's working prototype of the 'MinisQL'. This project grew out of an original idea by Keith who bought the first unit and installed a system into it.

Almost immediately after this it seemed I was off to Paris for the French User Group's show. I travelled there with Keith, his wife and Bill Richardson and we arrived on the evening before the show. Keith's 'MinisQL' proved to be a show draw here too and, since Tony Tebby was able to use the machine, a solution for the bug with Aurora's display size of 1024 x 576 was soon found. Yet again the worth of these meetings was amply proven.

Tony Firshman was also doing a brisk trade in RomDisqs. These little devices are proving to be a very popular product and they are exceptionally use-

ful to users without hard disks since they provide a fast permanent storage medium. My original thoughts about the possible uses of these devices have not yet been realised and Tony and I spent a while discussing the idea of putting a complete SMSQ/E and QPAC 2 system onto one of these and selling it as a working system.

Murder on the Dis-Oriented Express.

I completed the month with a journey to the show in Austria. For some inexplicable reason I accepted Stuart Honeyball's offer of arranging the travel and found myself on an east bound sleeper with the bicycling duo. This was a cross between Enid Blyton (The Famous Two Go to Salzberg) and Agatha Christie (that was the date the train was built in - early fifties - all we needed was Peter Ustinov as Hercules Parrot and a corpse). Next time I will fly there, it is cheaper, faster and more comfortable. If we had been veal calves there would have been people on the platform protesting about the lack of space and drinking water in the carriages. The show was Ok though, if a little over stretched by being a two day event.

The Trials and Tribulations of Hardware Manufacture.

If you are one of those people who thinks that hardware is overpriced and takes too long to arrive at the marketplace I would have liked to have you

sitting in either my house or Stuart Honeyball's this month.

We have a few incomplete QXL and Super Gold Card circuit boards and we decided to finish them off and make them available for sale. Last year there were problems obtaining the 8473 chip which is the floppy disk controller on the Super Gold Card but, since we found a source for these, it seemed a good idea to use up the last of the boards. I had bought all but one of the components and the printer was busy making up new manuals when we were told that ALTERA were no longer making the EP1810 eeprom that holds the QXL GLUE and Super Gold Card INGOT codes. Having already spent a small fortune on the other parts were began to trawl the internet and set various supplies searching around for these chips but with no success.

Things began to look really bleak until Stuart spoke with the ALTERA technical department. 'Oh no', he said, 'These chips are not obsolete. This is a computer error'. Big sighs of relief echoed around and we ordered some. We had to get them to do the programming for us because the eeprom programmer that we normally use could not handle the new batch but that was a small price to pay to get a the rest of the boards working.

When the chips arrived we found that they did not work. They had changed the chip slightly (but kept the same part number) and they now did not work in either the QXL or the Super Gold Card. 'Send them back', you might say but these are one-time-programmable eeproms. Once they are programmed they are no use for anyone else (and, it turns out, no use to us either). At the moment I am trying to avoid

having to pay the £400.00 it cost me to buy these and Stuart is trying to find another chip that does the same job. So now you know why hardware is such a problem

Getting it Covered.

I have had a few phone calls from users who were at a loss to know what to do with the cover disk. Some people have asked why we do not have a front end on the disk which will install programs in the same way that the PC does. There are a lot of valid reasons why we do not do this, most of which have to do with the difference between the way that the two systems operate and start programs. Automatic installation is not such a great boon as you may think it can cause you serious problems and a whole lot of hair loss as you tear great chunks of it out while trying to get the system to behave as it did before you decided to try out the new superwhizzo file manager and coffee maker.

I installed a new screen saver onto my Windows 95 laptop recently and it came with a nifty CD player as an add on. When I ran this the whole machine crashed. 'Ah, de-install the CD player', I thought so I went to the subdirectory where the program was stored and there was no de-install device there. Next I de-installed the whole package but the CD player was still there. As a last resort I deleted the CD player folder and reinstalled the screen saver. Every time I tried to play a CD it told me it could not find the CD player.

No Windoze is not like the QL. When you install a new program it transfers whole chunks of code willy-nilly across the system, modifies all sorts of files that you didn't know were there in the first place and, if

you are as foolish as I was and assume that you can just delete things you don't want, you pretty soon wind up with a system that refuses to work. I finally managed to get the CD player part working again and now it will not play .wav files but I suppose I will work that out as well at some point.

The other problem with all this installation is storage space. I know of a person who tried lots of things when he got his first PC. He bought every magazine he could get and then tried all of the programs on the cover disk. After a month or two he found that he had a 3 gig hard drive full of stuff and no more room. Of course this is a relatively stupid way to go about things but it does happen.

I do not think that we want that kind of chaos on our neat little system but, after a chat with Jochen, we have decided that a bit more explanation of what to do with the files printed in the magazine itself instead of on a README.txt file might be a better idea. All of the files on the disk had been covered in previous issues but it is understandable that some of you may have got a bit lost when confronted by a whole disk full. We will try to get it right next time.

Interactivity Centre

This interactivity between programs is where the big dilemma lies for us. For most of the QL's history we have had neat, self contained programs which have only relied on a small number of bits of code being present in order to work. First there were toolkits for extra commands and then toolkit 2 which pulled many of these together.

Pointer driven programs needed only HOT_rext, Ptr_gen and WMAN, Qliberated

programs needed only Qlib_run and Turbo compiled programs needed the Turbo toolkit. As time goes by and complexity increases we need more and more of these add ons in order to get more complex programs but, before we get too involved we should, perhaps, stand back and take a long look at the way the system is developing. SMSQ/E was a major advance in this because it put a lot of these extra programs and extensions into one package which was the one you had to load.

Driving Miss Daisy Wheel

Some of the programmers still active in the QL scene still work in the isolationist way but we should, maybe, all work in a more co-operative way to produce programs that need less code to do more. One area in which this could be advantageous is in printing. Nearly every program that we use has its own printer driver and most of these need to be configured and set up. What we really need is a standard printer device which all programs could write to to produce hard copy. As printers have got more complex over the years the code required to produce output has also grown making it more and more difficult for individual programmers to produce sophisticated drivers and good output.

A standard print device which would accept a pre-determined set of codes for most print events and then translate them into the codes needed by the individual printers would make the job of programming much easier. People have often asked me about this and I have to point out that most printers these days are made for PC users and come with a driver

written specifically for that printer by the manufacturer. This is then installed into Windows and all programs use it. We cannot use these drivers because they are written for a different system but try getting a manufacturer to supply the relevant information to enable you to write these drivers for a different system and the brick wall looms up before you.

Add all of this to the problem that it is very difficult for an individual programmer to have a range of up to date printers on which to try out his code and you can soon see why the printer driver is the most difficult part of the program to write successfully.

Redoubled Glazing.

I apologise for talking about the 'other system' so much in this issue but it is really important for people to realise what they are trading up to if they decide that they should go for a new system. Yes, it is true that there are some things that a PC will do for you that no current QL / QDOS / Minerva / SMSQ system will but there are always the kind of drawbacks mentioned above to be taken into consideration.

Microsoft's 'Word' is a very sophisticated word processor but how many people use that sophistication enough to justify the price tag? More to the point, how many of us are willing to go through the Microhell of dealing with these systems when they go wrong? I have Word but still use the QL / Aurora / QPC for all of my word processing because I know how it works and it does all I want it to do. No system is perfect and all systems are subject to change and evolution but I cannot help feeling that the complexity that many systems impose divorces the

user from the real workings of the computer in a way that makes it impossible for him to get to grips with the problems when they arise.

There is also a strong element of commitment here. QBranch sells QDOS / SMSQ systems and software and I write for a QL Magazine. If I cannot do this on the system I am promoting then I am not being either honest or fair to my customers or readers and I think that is important.

Colour Prejudice

Of course everyone is waiting for the new colour drivers to appear....except me! I know that, when they do finally arrive, I am going to have people who will buy them and then call me and say 'I've bought the new colour drivers but Quill is still red and green. They are not working'

This is not a criticism of my customers just a fact of life that most people's expectations of things usually surpasses the reality of them. Jochen Merz, Albin Hessler and Joachim van der Auwera are among those poised to rewrite some of their more popular titles to take advantage of the colours when they arrive but this will not be an overnight sensation.

More colours will make for a nicer user interface and possibly some better graphics on the screen but they will not give me any more information than the current four colours do. I am not saying this to stop you from buying them when they do surface. In fact the reverse is true. I am saying don't throw the system out because they are not here yet and because you have seen a flashy new multimedia, 'Plug'n'Pray' system in your local shop.

ACRONYMBATICS

Finally I would like to submit my list of Acronyms which I have been trying to get Jochen or Dilwyn to print for ages.

- **IBM**

I Blame Microsoft

- **MICROSOFT**

Most Intelligent Customers Realise Our Software Only Fools Teenagers

- **MACINTOSH**

Most Applications Crash And If Not The Operating System Hangs

- **ISDN**

It Still Downloads Nothing

- **COBOL**

Completely Outdated Business Oriented Language

- **LISP**

Lists In Silly Parenthesis

- **PCMCIA**

People Can't Memorise Computer Industry Acronyms

- **MIPS**

Meaningless Information about Processor Speed

- **SMSQ/E**

Some Men Still Question Everything or, Smash MicroSoft Quickly - Eh!

- **PC**

Potential Catastrophe

- **DOS**

Danger! Obscure Syntax

- **JAVA**

Just Another Verbose Application

- **AMIGA**

A Merely Insignificant games Addiction

- **WINDOWS**

Weak Idiots Need Dense Obese Windowing Systems

- **QL**

Quaint but Liberating

- **ISDN**

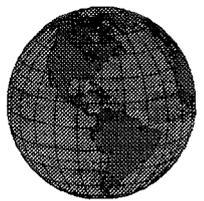
It Still Does Nothing

Some of these are mine and some are donated by other computer users - I would love some more - now there's a challenge!





The QL Show Agenda



At the moment, there are two shows confirmed for June, which happen to be on the same date: the German meeting in Solms (same venue as last two years) and a regular meeting in Eindhoven, both on Sat., 27th of June. As we just had an international show in Eindhoven two months ago, and another one is coming up this Autumn, all dealers will be at the show in Solms.

There are many meetings scheduled from September onwards, but we will start listing them in the next issue: Byfleet, another Eindhoven, maybe an Italian show, a QL meeting in Austria, Stafford and so on.

Saturday, 27th of June

Solms, Germany. Solms is located near Wetzlar if you want to find it on a German map. It is not too far away from Frankfurt, and also not too far away from Cologne (less than one hour driving each direction). From various motorways (A5, A45, A480) you should get to the Bundesstrasse B49 which brings you to Oberbiel. Follow the signs "Solms-Burgsolms", and when you're in Solms, follow the sign "Taunushalle", the hall in which the meeting takes place. All dealers will be there! See you there!

There is also one show in England:

Sunday 16th August: 9th Great Eastern Radio and Computer Rally

Doors open 10.00 am. The venue is Wallington Hall.

Located between King's Lynn & Downham Market, Norfolk. Approx 5 miles South of King's Lynn on the A 10.

Quanta, TF Services, Qubbesoft, Q Branch, W.N. Richardson attending!

The Next Issue

Although we have some articles, as you can see, please DO NOT STOP writing!

To give you an idea of what is coming up in the next issue, here a short list.

Darren D. Branagh has looked at more software packages for you.

We will have articles about printer control codes.

Tim Swenson has a look at the new MTOOLS from Jonathan Hudson. Al Feng writes about parallel printer interface plugs, and he also reviews DBeasy.

Adrian Ives leaps back from Windows to his QL.

... and of course, all the series of articles will be continued in the next issue. There will be more reviews, listings, letters...

