QL THE HARD FACTS

Dongle-free QLs are poised to arrive on the streets: the hardware, the software and the SuperBasic got a long cool look from *PCN*.

By Stuart Cooke

At long last the Sinclair QL computer is becoming available. Everyone who ordered the computer just after the launch should have received it. According to Sinclair things are going so well that you should be able to buy the QL in high street shops from next month. Since the QL first made an appearance there have been a few changes in both the software and the hardware. How good is this so-called finished version of Sir Clive's brainchild?

Due to a problem of fitting the ROMs inside the QL computer, early versions of the machine were sent out with some of the operating software in a 'dongle' which was fitted into the cartridge slot on the rear of the machine. Probably the first thing you'll notice about the new machine, once you get it out of its polystyrene box, is the total lack of any form of dongle. Yes, the ROM is now inside the machine.

In use

With the external power supply plugged in and the micro connected to your TV or monitor, you can start to use the QL.

Before you can do any work you are asked if you are using a TV or monitor. If you have a monitor the QL switches into 80 column mode, if you have a TV it uses 40. It is possible to have 80 columns on a TV, but you lose characters off the edges of the screen and they are difficult to read.

The display is not the best by any means but it is adequate. With a TV the colours tend to be a little wavy. Even with a monitor that gives sharp pictures when used with other machines the picture may not be great.

Once you start to use the computer you find what is probably the most disappointing feature of the QL: the keyboard. Most computers today have a stepped keyboard and real keys. The keys on the QL are totally flat, rather like a calculator keyboard. When given to a touch typist to try out the reaction was definitely not favourable.

Because the keyboard is flat, Sinclair has included three feet that push into holes at the rear of the machine. This does tilt the keyboard towards you but doesn't step it.

Storage

Everyone interested in computers probably knows that Sinclair has provided two Microdrives rather than disk drives with the QL. Unfortunately these drives, and the small tape cartridges associated with them, are nowhere near 100 per cent reliable. If you have a Spectrum with an Interface 1 and Microdrives you can save your programs onto cassette for security. Unfortunately, the QL has no cassette interface and so you have to put all your faith in the Microdrives.

The main problem with the drives appears after the machine has been switched on for a while. The power socket is just behind the two drives and the QL gets very warm, especially towards the rear of drive two. When the QL failed to back up the software supplied with the machine, a spokesman for Psion said that this could be caused by the drives getting too hot. Turning the machine off and trying again later was his suggestion. If you had a long program in memory it seems rather silly to have to turn the machine off and let it cool down before you can save it. Fortunately, it appears that drive 1 can normally be trusted as it doesn't get as warm as number 2 — always verify any programs though as you can't be too careful.

Interfaces

The rear of the machine supports a vast array of sockets. These are the cartridge/ROM port, two joystick ports, two serial ports, TV, monitor, power and network connectors. The most important thing to notice about these sockets is that they are nothing like those found on other machines. If you happen to have a fairly new telephone examine the socket it plugs into. This could be the same type used on the QL for the joystick and serial ports.

If you want to make your own leads for the machine you're going to have problems. An hour spent going around the local hardware shops led me to believe that you simply can't buy them. The first company to produce an add-on that converts the serial sockets to standard 25-way D-type sockets and the joystick ports to 9-way could well be set to make a fortune.

Verdict

It's a real pity that the QL doesn't live up to what was expected of it. There are too many points which show a lack of thought — for example the type of socket on the rear.

In another six months, when there are lots of add-ons and the bugs in the machine are fixed, the QL will probably be a good buy. At the moment I think my money will go elsewhere.

SOFT SPOT FOR THE QL

By David Janda

Four application packages are supplied with the Sinclair QL computer. Psion, who until now has produced software mainly for the Spectrum and ZX 81, has produced the packages, called Quill, Archive, Abacus and Easel. The packages offer word processing, database, spreadsheet and charting facilities. According to Psion, each of these packages should be able to produce data which can be moved from one package to the other, creating a full business system.

There are a couple of points relating to the packages that I would like to dismiss. First, it was previously thought that the packages would be able to run in multitasking mode; this is not so. Second, the QL has a fair amount of RAM, but don't expect to use a lot of data — this is because the packages are very large.

Common features

The screen layout of each package is divided into three main areas. The top section is for the control area; the centre being used to display commands. Common prompts are shown at either side. This area is updated as different commands are used.

The main work area is used as the main display, and it may be split into more sections depending on what package is being used. The lower part of the display is used for the display area. Its purpose is to show information relating to options chosen, program status, user input etc.

Each package uses the function keys on the QL. F1 calls up the help file, which is organised in levels, and you return to the main display by pressing Return or the Escape key. F2 switches off the control area, thus giving more room for the work area, and F3 will toggle in the control area commands. Finally, pressing Escape will return you to the last command.

The user can select a 40, 64 or 80 screen width to suit the TV or monitor being used. Also printer configuration programs will allow fancy features such as underlining to be used.

Quill — word processor

The Quill's control area displays information on cursor movements as well as deletions and paragraphing. Information on what file is in use, page number, word count and others is shown in the display area.

Cursor movement is by letter, word or paragraph. Deleting text is achieved by letter, word or line. Both tabs and margins can be set as desired and will remain in effect until reset.

Different visible typefaces can be incorporated within the text, and provided the printer driver is used, these effects should appear on the final copy. Typefaces include superscript, subscript, bold, underline and 'paint'. Paint simply allows existing text to be changed to a particular typeface.

Headers and footers can be incorporated as well as pageing. Options allow line spacing to be changed as well as details relating to the format of the document.

The screen I/O on the QL is atrociously slow, and this is evident when using different features of the package. Things grind to a halt when the package is accessing the Microdrives, and Quill uses them a lot.

The latest copy of the Quill which I used had some oddities. It didn't allow more than one paragraph to be copied if there were spaces between them. Also, running out of memory sometimes resulted in the machine hanging up, or in some cases giving weird line numbers with minus values.

As far as features are concerned, the Quill offers a lot. However, it lacks in some respects, flexibility being one. The fact that existing Quill files cannot be merged is just one example.

Archive — database

Archive's real power lies in the fact that it can be used as a simple index system, or as a complex data management system.

26►

This is because it offers two modes of operation. It can be used in command mode, where the user enters commands that are directly executed on a data file. Using the Archive program editor, it's also possible to define whole procedure orientated programs that can do tasks from creating a new database to maintaining an old one.

There is no fixed limit on the number or fields there are in a record or the length of each field. Records can therefore be of varying length and can be added or deleted at will.

Two types of data are permitted: numeric and alphanumeric. Records can be sorted in ascending or descending order and multiple key fields are allowed. No immediate commands are provided to change the type or number of fields in a record, but under program control this operation would be very easy.

Data within a file can be interrogated in a number of ways. Jumps through a file can be made to the first or last record, or forwards and backwards by one record. FIND will perform a global search through all records and fields while SEARCH will do just that, but by using expressions such as IF NAME$= "David" . . .

Sub-files can be created by using the SELECT command which will 'group' together records that match a specified criterion.

With a package as flexible as Archive's, its many other capabilities can only be matched by the imagination of those who use it. I found that the only item to hold up the operation of the package was the Microdrives.

Abacus — Spreadsheet

Abacus incorporates all the normal features that you would expect from a spreadsheet. The difference between it and others is that it has very flexible text and labelling features as well as an excellent user-interface.

Up to 64 columns by 256 rows can be used to make up the spreadsheet. Moving about within it is achieved using the cursor keys, and the row/column position is always indicated. Larger movements use the GOTO command followed by the cell reference.

All calculations are performed to 16 digits, and as most don't require that many digits to be displayed, a host of formatting options are available. These will allow text and numbers to be displayed left, centre or right justified.

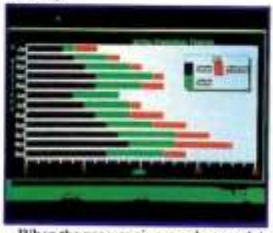
One of the main features of Abacus is that rows and columns of cells can be referenced by sensible names. That is, any text in a cell can be used as a label and can be used in calculations. The label can mean a reference to a whole column or row, and this method of identifying whole sections of the sheet is very easy to use.

As I have mentioned, the user interface is very good. Entering figures on a spreadsheet is not the most exciting thing to do, and any aid in error-free entry is welcome. Abacus provides the user with many (sensible) defaults, and on occasions I was surprised at how little I had to bash out commands or ranges.

Easel — business graphics

This is by far the easiest package to use. Sinclair claims that it is possible to produce a graph after seconds of using the package — and it is right.

This package will usually be used with imported data from Archive or Abacus, but it can also be used quite quickly manually.



When the program is run, a bar graph is selected as default with months displayed along one axis. The graph will be re-scaled depending on what values are entered, and if the entries go off the edge of the graph, it will be re-drawn on a smaller scale.

Different bar designs can be selected using different colours and thicknesses, and scales can be reset. Line graphs and pie charts are available as alternatives, and as with the bar charts there are plenty of ways in which they can be presented. For the final copy a photo of the screen can be taken, or the high-resolution screen dump to an Epson FX-80 can be used.

Using the package was great fun if nothing else. It was so simple to display bar graphs that I completely overlooked the more advanced editing features of the package. These allow you to create a new set of figures (and a new chart) from previous data.

Import/export

Each of the packages has its methods of saving and loading data. But this data can only be read by the package that it was saved with. Data can, however, be moved between packages, and this is referred to as importing and exporting. This is possible between Abacus, Archive and Easel, but not Quill which can only import data.

The compatibility between the different packages is achieved because the format of the data produced by the three is exactly the same. The only 'problem' in exporting data between the packages is that a few rules have to be followed. This does not restrict the user because the necessary information is well presented. I had no trouble at all.

Quill data cannot be exported because it is formatted text. Importing to the Quill is achieved by exporting data to a Microdrive ASCII file which is formatted, and thus can be handled by the Quill.

Verdict

For 'free' software, the QL packages are good. However, the 'you can't complain for the price' attitude doesn't apply. Many are going to buy the QL purely because four pieces of software are thrown in, and many are no doubt intending to use these packages in their businesses.

I would strongly suggest to anyone who intends to use the packages for 'serious' work to think again. There is nothing more precious than your data, so the software that you use and the system that you use it on has to be of very high quality.

In the packages I received, bugs (or oddities if you wish) need to be sorted out. Also note that the packages are quite large, and in the case of using the Quill, don't expect to write a chapter or two and hope to have memory spare — there won't be.

But by far the biggest setback are the Microdrives. As a form of mass storage they are a joke. Not so funny when data files can't be read back into one of the application packages, though. To summarise their performance — they are slow and unreliable.

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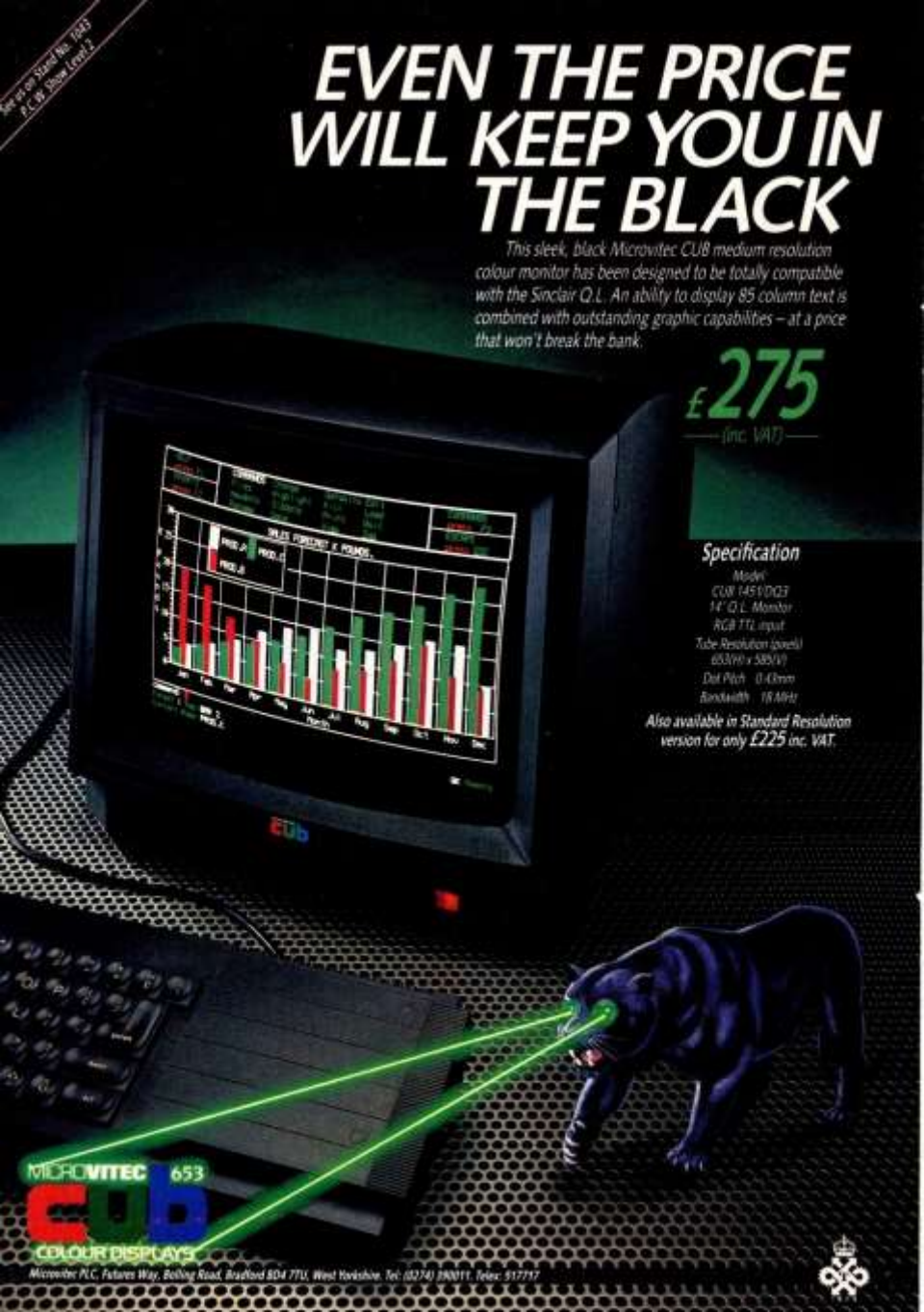

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HOW SUPER IS THE BASIC

By Kenn Garrock

The QL's SuperBasic lives up to its name in some ways, but in others it certainly does not.

First of all the pros. SuperBasic supports a wide range of useful commands that should make programming quite easy and efficient. It has a number of control structures which, though they are not really the standard implementations, do show willingness on Sinclair's part to upgrade Basic to a higher level than is normal.

Control

The control structures are unusual in that they use the command EXIT to get out of them, so instead of

```
LET T=0
REPEAT
LET T=T+1
UNTIL T=10
```

you need to use:

```
LET T=0
REPEAT loop
LET T=T+1
IF T=10 THEN EXIT loop
END REPeat
```

The FOR. . .NEXT is also rather unusual as it is possible to say, for instance:

```
FOR T=0 TO 10, 7 TO 4 STEP-1.1 TO 4
PRINT T;
NEXT T
```

and have the routine step T through all the appropriate values and print:

0123456789107654321234

Note the QL does not insert leading or trailing spaces as do most other Basics.

Other unusual commands are such things as BAUD, for setting the baud rate of the serial port, full turtle graphics, PAN to scroll the screen horizontally, and SCROLL to do it vertically. It is possible to POKE bytes (8 bits), words (16 bits) and long words (32 bits), renumber a program with RENUM, and do automatic line numbering with AUTO. A SELECT structure is provided which is similar to ON GOTO and SCALE can be used to set the size of a drawing produced by a graphics procedure.

Multiple line procedures, and multiple line functions, with full parameter passing are available and easy to use. One nice thing about the procedures is that they can be defined somewhere at the top of the program and then used as direct commands, so instead of having to type DIR MDV1_ for a directory of drive one, the following procedure can be defined and a directory obtained by typing

```
DIR 1
DEF PROCedure DIR (d$)
DIR "MDV"&d$&"_"
END DEFine
```

Strings

All the above commands should make SuperBasic something special, but unfortunately there are a few drawbacks.

FILL$("aaaaaa",32767) has a bug in it and is capable of producing very long strings and filling them with rubbish. Trying:

```
a$=FILL$("aaaaaa",32767)
PRINT LEN(a$)
```

causes the machine to print garbage.

When the QL is printing a long string, it is not possible to stop the beast with the usual CTRL SPACE. This applies to any of the commands, such as plotting long lines, and so on. By far the best way of hanging the QL up is to press the Control ALT and T all at once. No matter what the machine is doing, this will cause it to stop. Of course it is a little difficult to press all these keys at once, but the fact remains that it causes the machine to fall over backwards and go to sleep.

When using FOR. . .NEXT loops, including anything on the same line as the start of the loop, for example

```
FOR T=0 TO 10: PRINT "here"
PRINT T*T
NEXT T
```

causes 'here' to be printed 11 times and the rest of the loop only once. This applies to placing anything after the colon, even REM.

Functions

Using a recursive function to evaluate factorials such as

```
DEF FUNCtion FACT (X)
IF X<=1 THEN RETurn 1
RETurn x*FACT(X-1)
END DEFine
```

and then trying PRINT FACT (1000) will obviously cause an out of memory error, but takes a long time to do it. When it does run out of memory, all the variables are set to zero, making program debugging very difficult, since it is not possible to find out how far the function got before crunching out.

The manual states that RENUM cannot renumber RESTORE. This has now been fixed, as have all the other obvious bugs.

There are still problems with tokenising the Basic commands and if spaces are not put into the correct positions, *eg* GOTO10, the command will not work but GOTO 10 will.

The date functions are very good and cannot be fooled by trying to feed in bogus dates such as the 32nd of Feb, etc. The problem is that DATE$ cannot be sliced, *eg* PRINT DATE$ (1 TO 4) gives an error. To slice it, it is necessary to LET A$=DATE$:PRINT A$ (1 TO 4)

The beep command is very difficult to use and in fact the manual says that the best way to find out how it works is to experiment. This is not as easy as it sounds since the documentation is not specific enough as to what the parameters do.

A problem with the Microdrives from Basic is that if the drive is full and a program is saved, the system puts the file name into the directory. Deleting another file to make room and doing a directory makes it appear as if the program has been saved. In practice this file is empty and when loaded back in, the current program is NEWed, possibly causing a total loss.

The SELECT control structure does not work with strings, which is surprising since string equality produces the same result as a numeric equality, *ie* true is 1 and false is 0 (this is not very standard). If this had worked, it would have made SELECT equivalent to CASE, and since REPEAT and a proper FOR and IF structure are included, it seems a shame not to have done things properly.

Usability

Other problems with the Basic are generally caused by its inconsistency and possibly make it a little confusing to the beginner. In some cases, spaces are needed between commands and their arguments, but not in others; similarly, procedures are defined with the arguments in parentheses and then used without them. All this adds up to a fairly confusing system, even for the non-beginner.

It would also have been nice to have had a decent full screen editor, since EDIT line number allows access to only 160 (320 in mode 4) characters of the line at any one time. This may not seem too bad, except that it is possible to have program lines of almost any length.

Verdict

All these problems make the QL's SuperBasic difficult to use at times. A little more error trapping, especially on the string handling, would have been welcome.

If Sinclair can fix all the bugs and make the system a little more usable and improve the keyboard and correct the documentation and. . . and . . .

Well, it could be such a good machine with a very good Basic. PCN

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