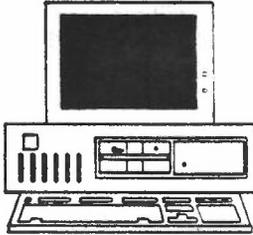


Question to 'DD' on language s/w  
2) Pocket PCs.

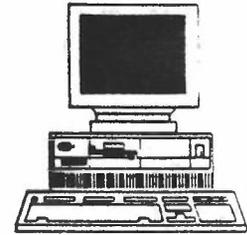
Dr R W Witty  
R 1



# RAL PC NEWSLETTER

Number 7

8 Nov 1989



## Introduction

The financial restraints currently in place have put a squeeze on ordering of PCs with some orders being held or cancelled. Once (if) the restraints are removed there could be a large rush to buy equipment resulting in bottlenecks in the ordering system. Therefore, if you have plans to buy PC equipment do it as soon as possible, as orders placed after Christmas risk being delivered too late for payment in this financial year.

## PC Support Policy

Since the start of this financial year each RAL Department has contributed towards the manpower costs of PC Support. This has been based on the number of PC's registered with PC Support and as these are now paying customers we must reserve the right to refuse to support unregistered machines.

All machines purchased through PC Support are automatically registered. Other eligible machines must be registered with PC Support by 1 January in order to receive support the following financial year. In both cases support is subject to the Department agreeing to its manpower contribution. The amount charged is 0.1 man years per ten machines which at one person per 100 machines is half the level that industry and other SERC sites charge. Eligible machines are those that are, or have been, recommended by PC Support. Other machines can be included but support will exclude any incompatibilities in hardware or software with the equivalent IBM machines.

Where Divisions have a mixture of registered and unregistered machines we expect them to "play fair". For example a question regarding problems with a 386 machine will not receive an enthusiastic response when only a few XTs are registered! Similarly we would be very reluctant to recover files or remove a virus from any unregistered machine since we would expect such support to be provided in house or bought from a PC supplier.

The latest virus on a RAL PC occurred in a Division with very few registered PCs. Fortunately it was on a registered PC so the two days effort involved in sorting it out and providing them with a program to check all their floppy discs and other (including unregistered) machines was covered. They thus got very good value for their PC Support contribution. Next time they may not be so lucky.

## PC Market - latest changes

In the past six months there has been a general rise in the price of PC hardware leading to some changes in PC Support recommendations:

IBM PS/2 50z - price dropped and then increased. Has not been dropped from the IBM range yet but the new PS/2 55 is intended to replace it and is recommended in place of the 50z.

Tandon PCA Plus series - replaced by PCA/12, same box but faster clock speed. Prices much higher, eg 40MB model with VGA colour £1853. New Tandon PCA SL generally recommended though less expandable (see review later).

Tandon 386/16 - dropped from range, Compaq 386s or IBM PS/2 55 recommended in its place (see review later).

Tandon 386/20 - prices increased eg 40MB model with VGA colour £2825, 110MB model with VGA colour £3113. The Tandon is still recommended though an IBM PS/2 70 (with 120MB hard disc £3157) or a Compaq 386/20e (with 40MB hard disk £2888, with 110MB hard disk £3558) is worth considering.

## Software Reviews

All prices ex VAT, details from the editor.

### Mathematica 386

This is a package from Wolfram Research which has amazing abilities to carry out numerical and analytical solutions of a vast range of equations eg quartics, simultaneous equations, integration, differentiation. For example inputting  $x^4 + 4ax^2 - 1 == 0$  followed by `Solve[%,x]` produces the four roots of the equation in terms of *a*, including complex roots. It also has excellent graphical abilities including 3D plots where lighting points and viewpoints can be adjusted, contour plots, density plots, parametric plots and simple x/y plots.

Of course like any good thing there is a catch or two. Number one is that, as the name implies, the product requires a 386 based machine with at least 2MB memory. Number two is the cost - £795 for the normal version and an extortionate £1195 for a faster version which utilises the 80387 maths coprocessor.

### Lotus 123 release 3

The much heralded and much delayed latest version of Lotus 123 has finally arrived. The main new feature is the ability to produce 3 dimensional spreadsheets which effectively means multiple spreadsheets accessed as one. For example sheet A could contain CCD finances, sheet B SPA finances, sheet C SCI finances and sheet D the totals of the previous three. In all of the sheets the cost of coffee cups would be in the same place (eg A1) and the CCD coffee cups would be accessed as A:A1 with the total being the formula `@sum(A:A1..C:A1)` stored in D:A1. To carry out a similar calculation in Release 2.01 would require the repeated use of File Combine to add the three separate spreadsheets together. Other improvements include the graphics which are neater and can be printed from within 123 (Printgraph no longer exists) plus various extras such as search and replace in a range of cells.

Overall Release 3 has a number of improvements which make it easier to use than Release 2.01. Unfortunately it will only work on machines with 80286 or 80386 processors (eg IBM PS/2 50, 70, Tandon PCA, 386) and does not work on 8088 based machines (eg IBM XT). Also spreadsheets produced on R3 will be difficult to transfer to users still on R2.01 so that upgrades to R3 should ideally be carried out en masse.

Upgrades are available and cost only £35 for people who bought R2.01 less than a year ago (offer ends 31 December) and £140 for others. Outright cost is £192.50 direct from Lotus but is due to rise to £237.50 at the end of the year.

### DBase IV

This is another new product which was somewhat late in coming. Unfortunately the product has a number of bugs/features and has been savaged by the computer press. The user interface (Assistant) is completely different from that used in DBase III Plus and whilst it does have some improvements there are other actions which are now very difficult to do. One of its most annoying features is that it sometimes forgets to use the index and presents the data out of order. Also queries produced under DBase III Plus cannot be used with DBase IV, the index is ignored, and when the data is displayed using the query it cannot be edited (it is read only).

Overall DBase IV cannot be recommended, an improved version is due out sometime (it was supposed to be out in June 1989 but probably won't be ready until 1990) and the situation will be reviewed then. For the time being the recommended database remains DBase III Plus which is available direct from Ashton Tate for £210.

### Corel Draw

This drawing package runs under Microsoft Windows and allows the production of high quality line drawings with solid or shaded filling. It is comparable to Lotus Freelance Plus but uses an interface similar to that of a Macintosh for ease of use. The resulting graphics can be impressive and are reasonably easy to produce with facilities to bend shapes, move points, smooth curves (bezier curves) and generate outlines of bit mapped images imported from other packages or from scanners. Being a Windows package it integrates quite well with Pagemaker to give a good Desktop Publishing package. The choice between Corel Draw and Freelance Plus is largely personal though I find Corel Draw easier to use. A mouse is needed to use Corel Draw. Cost is £296 from Corporate Software.

### DESQview 386

This utility program comprises two parts, DESQview which allows a 80386 based PC to multi-task DOS programs, and QEMM 386 which provides expanded memory emulation and can be used to move certain device drivers into memory between 640K and 1000K to give more room for DOS programs.

It can therefore provide some of the benefits touted by operating systems such as OS/2. The multi-tasking feature uses the virtual 8086 mode of the 80386 processor to produce a number of separate sessions each one emulating an independent computer. Unfortunately it cannot provide more than about 600K of memory to DOS programs and the number of programs which can be multi-tasked depends on the total memory available.

It was found that the IBM 3270 Emulation Program which is used to communicate with the IBM mainframe does not work very well with DESQview, and the PC may crash at unpredictable times. This somewhat discounts the package for general use. A further problem is that the memory manager, QEMM, clashes with some of the drivers that are typically used with windows, in fact the windows setup program refuses to run if it detects the QEMM driver in the CONFIG.SYS file.

Overall DESQview could be useful in certain limited conditions but cannot be recommended as a general utility to make use of the features of the 80386 processor.

### Windows/386

This version of Microsoft Windows has similar aims to DESQview, that is it allows multi-tasking of DOS programs. The main difference is that it uses the Windows graphical interface instead of the character based interface of DESQview. Unfortunately it seems to have most of the limitations described for DESQview though of course it doesn't clash with Windows (which it replaces).

To be fair to DESQview and Windows/386 it is likely that the problems with the 3270 Emulation Program are entirely due to this program breaking rules which IBM themselves have laid down for good program behaviour. Unfortunately this program is central to the use of Profs on the mainframe and will have to be lived with.

### PC Tools

This product comprises a DOS front end (PCSHHELL), designed to make use of a PC easier for novices and more productive for more expert users, and a separate program (DESKTOP) providing a notepad, database and calculator.

PCSHHELL displays the directories of a hard disk on the left side of the screen and the files in the currently selected directory on the right side of the screen. The top of the screen features a set of pull down menus providing file management facilities (copy, move, delete, display/edit etc), disk management facilities (copy etc), various options (list sorting, etc), applications (backup etc plus user installed options) and special (memory block display, disk usage etc). Using these facilities it is much easier to copy a group of files than would be possible by traditional DOS copy commands.

DESKTOP is a straightforward SIDEKICK-like product with multiple calculators (algebraic, financial, programmer's), a reasonable wordprocessor/notepad, calendar.....

The PCSHELL and DESKTOP had a couple of conflicts with the PC3270 emulation program. Specifically the highlighting in PCSHELL was turned into blinking text after toggling to the mainframe and back. More seriously DESKTOP would not allow the use of function key F10 when in a mainframe session. The only way around this problem was to exit DESKTOP.

Bearing in mind the problems noted above this is a very useful package especially when the price is considered - £52.14 + p&p from Corporate Software.

### Lotus Magellan

This new package is also a DOS front end but operates somewhat differently. It is based around an advanced fuzzy match searching program which uses an index of a hard disc to find information. It has some of the features of PCSHELL such as file/disk copying but it lacks some of the more advanced/obscure features such as memory map and disk usage and seems somewhat more difficult to use.

The screens default display is of a list of files on the left of the screen with the contents of the presently selected file on the right. This demonstrates one of Magellan's unique features - it can interpret a number of file formats eg Lotus 123 spreadsheets, Displaywrite 4 documents, DBase III databases whereas PCSHELL can only interpret/display straight text files. Unfortunately, because the program shows the content of each file as you scroll through a list of files, the scrolling is rather slow. It is possible to switch to a list of directories plus files in that directory like PCSHELL, but this is not the default mode and has to be switched back into with annoying frequency.

It is this facility together with the fuzzy matching which allows a hard disc to be searched for information, for example a search for "Computer" will not only find files containing the word "Computer" but will also find files on that subject. The search routine then gives a ranking to each file found to show how close they are to the desired area.

This facility works well if you have a hard disc with a large number of files whose contents you do not know well or where you have simply forgotten the name of the file for which you are searching. However, if this is not the case, then PCSHELL does the job just as well and is quicker and easier to use.

Magellan is £73 from Corporate Software.

### Hardware Reviews

#### Tandon PCA-SL

This recent addition to the Tandon range is a smaller version of the PCA and features a 12MHz 80286 (20%

faster than the PCA Plus), 640KB memory and 20 or 40MB hard disc. The machine has 4 horizontal PC adapter slots compared with 6 vertical on the other PCAs. One of the slots is taken by the video card leaving three free slots a la PS/2. There is internal room for one extra half height device (disk drive or tape streamer) compared with four in the PCA. The casing is 18 inches wide, 16 inches deep and 5 inches high making it a much neater machine than a PCA or AT (the PS/2 50 is only 14 inches wide).

The machine passed all of the RAL hardware and software tests bar one. This was PMTEST which tests compatibility with the Rational Systems DOS/16M DOS Extender. Combined use of a Logitech mouse and the keyboard, or rapid use of the keyboard alone, caused the machine to hang. This failure relates to switching the 80286 processor between protected and real mode. This makes the machine unsuitable for use with the XACT PCB designing system. However, it was found that Lotus 123 release 3, which also uses DOS/16M, functioned correctly.

It was found that with IBM OS/2 Standard Edition v1.0 the keyboard locked on entering the DOS compatibility mode if the machine had a total of 2688KB RAM. With an extra 512KB memory this did not happen and OS/2 ran with no problems.

The machine is very good for a user requiring a standard DOS box running standard software. For a user requiring more power, and/or more powerful software, an 80386 based machine such as a Compaq 386s, Tandon 386/20, IBM PS/2 55 or PS/2 70 would be more suitable.

For a mono machine with 20MB hard disc cost is £1063, 40MB hard disc version is £1202. Upgrade to VGA is £342 and a 3.5inch 1.44MB drive (compatible with IBM PS/2) is available for £97.

### IBM PS/2 Model 55sx

This new IBM machine is functionally half way between the PS/2 50z and the PS/2 70. It has a 60MB hard disk, a 16MHz 80386sx processor which makes it 10% slower than the model 70 and is expandable to 4MB on the motherboard compared to 6MB on the 70. Strangely the machine is not in the same casing as the 50z and 70 but instead uses the casing of the model 30 (a machine that has not been bought by RAL) which is wider but lower (16inches wide, 4 inches high). The machine can take three Micro-Channel adapters but has no internal room for extra drives so that users requiring a 5.25inch drive have to have an external drive and use one of the adapter slots at a total cost of £347. The machine has the following built in ports - vga, serial, parallel, keyboard, mouse.

The machine has been fully tested and replaces the

PS/2 50z as the recommended base Profs workstation. It is very competitively priced (at RAL discount levels) and is an excellent buy for someone requiring a machine with good long term prospects at a reasonable price. However, users requiring PC adapter slots, or extensive use of 5.25inch discs, should look at the Compaq 386s (see below). The machine is available from Compel PLC for £2194 including colour display, keyboard and DOS.

### Compaq 386s

Tandon have recently dropped their 386/16 machine leaving something of a gap between the PCA SL (£1543 for 40MB hard disc and colour screen) and the 386/20 (£2825 for 40MB hard disc and colour screen). The Compaq 386s fills this gap and is a very stylish and effective machine. It comes in the same compact box as the 386/20e (16 inches wide, 6 inches high) but has room for four PC adapter cards, a memory card which can take 16MB memory, a second floppy disk drive, a tape streamer, and a second hard disk drive ! The built in ports are the same as for the PS/2 55 (vga, serial, parallel, keyboard, mouse).

The machine has been fully tested and works very well being slightly faster than the PS/2 55 (though only if you clock watch). It is recommended for people who may wish to fit PC adapter cards or for whom use of 5.25inch floppy discs is important. The machine is available from Businessland UK and including colour display, keyboard and DOS costs £2150 for the 40MB drive version and £2418 for the 84MB drive version. An internal 3.5inch drive costs £131 and an internal 40MB tape streamer costs £432.

### Epson LX800

This is a very cheap dot matrix printer that a few users have bought. It is quiet and reasonably quick but is not compatible with the IBM Proprinter. It is therefore necessary to ensure that a driver is available for the printer. Its worst feature is the tractor feed for continuous paper which sits on top of the printer and pulls the paper through. This means that to remove a page that has just been printed the paper has to be fed through an extra 4 inches which is then wasted. If single sheet paper is to be used then the continuous paper has to be removed.

It is priced at £209 compared to £272 for the IBM Proprinter III and is therefore only suitable for users who are very short of money.

### Computer Viruses

Friday October 13th passed quietly for RAL with no reported virus attacks. It seems that viruses are not as common as press coverage implies. However, it is best not to be complacent as a second RAL PC user

has had a computer Virus. This time it was the so called Italian Virus which puts a bouncing ball on the screen and locks up the machine. Whilst this is basically harmless it could easily cause data loss if the machine is locked up whilst using a database.

To counter the threat of viruses PC Support has written an anti-virus program which is designed to detect virus infection. The program is available via a new downloading facility called PCSOFT. Documentation describing this facility is appended to this newsletter.

The anti-virus program consists of three parts, the main program (ANTIVIR.EXE, stored in C:\BIN), a data file that stores information about the machine, and a short batch file (AVINIT.BAT, stored in C:\BAT) which deletes the data file and forces ANTIVIR to reinitialise. A fourth file (ANTIVIR.DOC, stored in C:\DOC) documents the system.

The program is stored in PCSOFT as ANTIVI11 EXE and should be downloaded, run and installed using INSTALL.BAT (see attached PCSOFT instructions for more details). Then a call to ANTIVIR should be placed in the AUTOEXEC.BAT file. The call should be positioned towards the end of the batch file to pick up any problems in programs loaded earlier in AUTOEXEC but should be before the line calling the PROFS batch file.

Upon rebooting the machine, ANTIVIR will initialise itself and from then on the machine will be checked whenever it is switched on or rebooted. In order to detect viruses the program is very sensitive to any changes in the CONFIG.SYS or AUTOEXEC.BAT files, and if these are to be changed or a suspect program to be loaded then the instructions in the documentation should be followed.

If there are any problems using ANTIVIR or an error message is printed for no apparent reason then phone PC Support. In the latter case switch off the PC and do not use it.

## MOS 2.1

The next release of RAL's IBM full screen terminal emulator, MOS, will be available shortly. Version 2.1 includes amongst other things file transfer, a help system and programmable keys.

It will be sent to all users who obtained copies of the previous version (2.0) from PC Support. It will also be available on PCSOFT as MOS21.EXE with documentation in MOS2.DOC and MOS2TECH.DOC. Future release of MOS will be distributed via PCSOFT.

## Bits and PCs

A tale from PC support that you might not believe but really happened. A user phoned up with a problem on a PC. The machine emitted beeping noises when switched on. The beeping was said to come from the hard disk. I could not reproduce the problem but replacing the hard disk was considered. Some days later the problem recurred but this time the machine wasn't switched on! It turned out that a digital watch was in the users desk and this went off at 9am every day, coinciding with the user switching on the machine. So if, when you ring PC Support complaining of funny noises in your PC, we ask you if you have checked for a digital watch nearby, you will understand the reason for the question....

There has recently been a rash of hard disk failures. Two failures were on new Tandon PCA SL 40s fitted with Western Digital 40MB drives and two were on Tandon PCA40 Plus's fitted with Seagate 40MB drives. Most of the users did not have complete backups and have lost valuable data. All users should backup their own machines if they value their work. They can use the RAL backup system (documented in BACKUP.DOC in the C:\DOC directory) or simply COPY files to floppy disk. If data is being stored on floppy disk then a periodic DISKCOPY of the disk will minimise any loss if the disk gets corrupted. Note that when doing a DISKCOPY it is best to write protect the original disk to prevent accidental overwriting (to write protect a disk use a tab to cover the notch on 5.25inch disks or move the slider to reveal the hole on 3.5inch disks). If users have any problems backing up their data they should contact PC Support.

High Density 3.5inch floppy disks designed for formatting to 1.44MB are now available from Harwell stores, stores no 38-22184.

Editor Dave Drummond  
CCD, RAL. X6391, CMS id DD.

R A L I B M P C U S E R G U I D E  
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Loading files from RAL PC Support Software Distribution  
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(PCSOFT).  
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A CMS minidisk has been setup on the IBM 3090 (RL.IB) to hold the latest RAL PC software. This document contains instructions detailing the procedure for loading archived utilities from this minidisk. The minidisk is accessed from CMS with the command:

GIME PCSOFT 192

After attaching to this minidisk make a note of the file mode (usually Z but not necessarily). This may be required when transferring files.

A list of the current files on PCSOFT can be found in the text file:

PCSOFT DIR

There are two main types types of file stored on PCSOFT:

- 1) Documentation files (file extension=DOC) are stored as plain text suitable for printing on a PC connected printer. They can be printed on a mainframe connected printer but pagination will not be correct. They must be transferred as text files to ensure they are correctly converted from EBCDIC (the IBM character set) to ASCII (everyone elses character set).
- 2) Program files (file extension=EXE) are self extracting archive files. These contain a collection of files which must be extracted after being transferred to your PC. The .EXE files must be transferred in binary.

Various other files will be stored on PCSOFT for central access. For example the full table of Internet Host addresses is stored in the file HOSTS.TXT.

File Transfer.  
=====

The files can be transferred to your PC by the most convenient method available to you. This could be by use of a file transfer mechanism provided with any of the following communications packages. Refer to the relevant documentation on how to use these.

Via direct connection:

PC3270 - Binary is default FTP mode.

Via PAD:

MOS2 (V2.1) - Binary is default FTP mode.

Kermit (V2.32) - Kermit requires that Kermit-CMS (ie mainframe end) is set to binary mode. This is done by issuing the command:

```
SET FILE TYPE BINARY
```

at the KERMIT-CMS> prompt. The Kermit-MS (PC end) will automatically use binary mode.

#### Via Ethernet

Rainbow (Pink Book) - Binary is transferred using Rainbow by selecting binary file transfer from the file transfer menu. The PCSOFT minidisk is accessed by giving the userid of PCSOFT//192 with no password.

TCP - TCP file transfer (FTP) is set to binary with the IMAGE command though there may be alternative commands or aliases according to the TCP implementation. The PCSOFT minidisk is selected with the command:

```
CD PCSOFT.192
```

issued at the FTP prompt.

#### Via X.25

Coloured book FTP - this is implementation dependant. Access UK.AC.RL.IB, userid PCSOFT//192 with no password.

#### Unpacking the .EXE file on the PC

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The .EXE file should be transferred to an empty temporary directory and that directory selected. The .EXE file should then be run. For example to download ANTIVIR using PC3270 the following procedure could be used assuming the filemode of PCSOFT 192 is Z:

NB. Profs users will have to exit Profs PC Support Feature using the ESC key to enter these commands. After running INSTALL and clearing up the temporary directory they can re-enter PCSF by typing PROFS.

```
MD C:\TEMP
CD C:\TEMP
RECEIVE ANTIVI11.EXE ANTIVI11 EXE Z
```

If the file transfer is successful then running the transferred file will cause it to extract itself:

```
ANTIVI11
```

This will create a set of files in the temporary directory, one of which will be INSTALL.BAT. To install the files in their correct subdirectories (as per the standard RAL directory structure) run INSTALL.

```
INSTALL
```

Once you are satisfied that the software has been received and installed correctly the files in the temporary directory may be deleted.