Benefits of membership

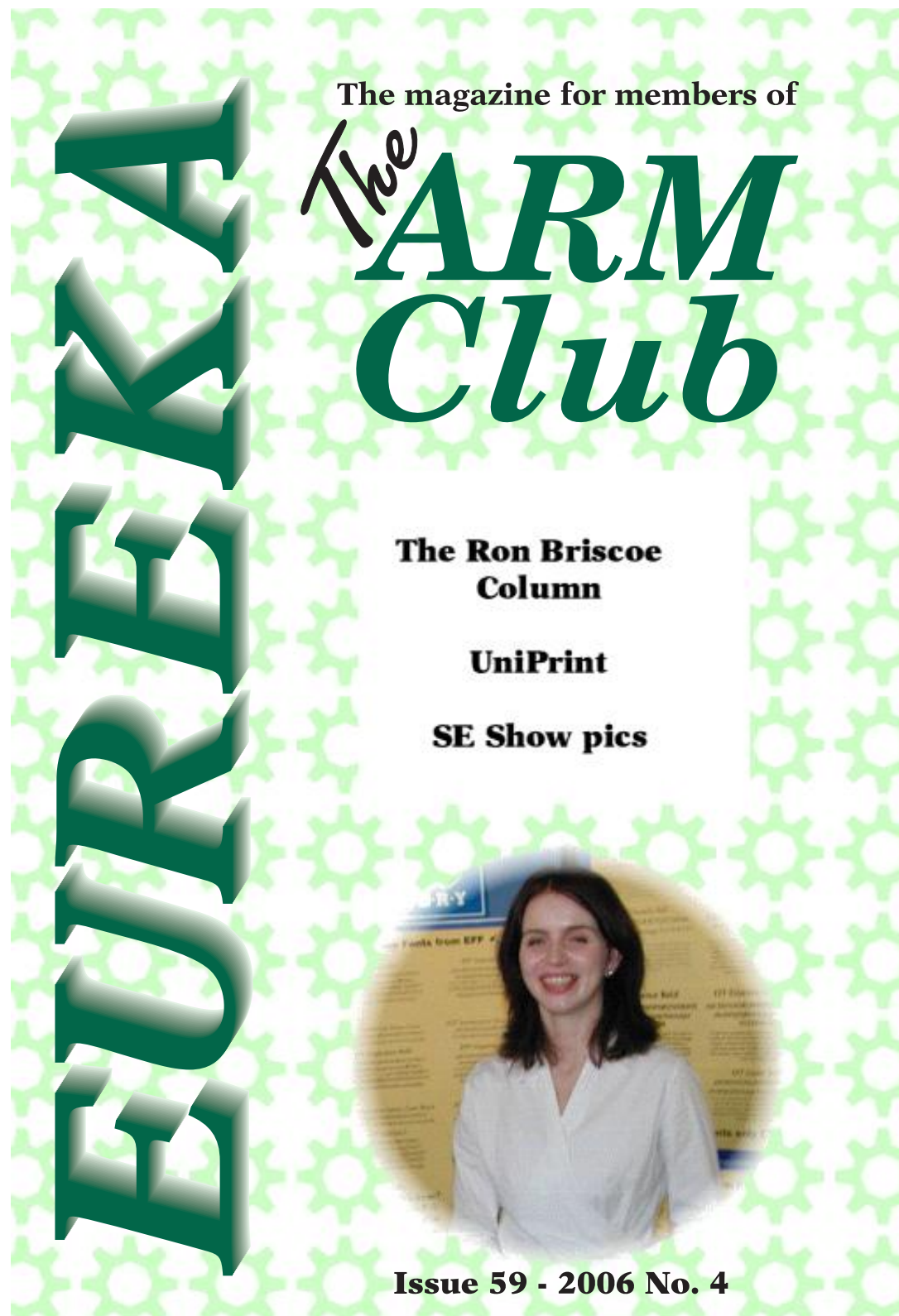## *The national club for all users of 32 bit Acorn computers and Pocket Books*

- The Club's magazine, 'Eureka', written by members, is published and sent free of charge four times a year.

- Free software to accompany articles in Eureka is available on the Club's FTP site or can be sent to members on disc.

- Free Technical Help Service. We will do our best to solve any problems which you may have, by email, letter, telephone or fax.

- Special discounts for Club members from well–known companies.

- Regional open days and shows are regularly organised by the Club. Other events can be arranged on request.

- Special offers at shows and open days.

- Regional contact lists of other members, available on request.

- Opportunities to get involved in the running of the Club itself.

- School and Affiliate Membership available on request.

- Joining pack includes an extra copy of a recent issue of the magazine and software.

Annual membership £15
Europe £19 and rest of the world £22
The ARM Club, Merton Court, 38 Knoll Road, Sidcup, Kent DA14 4QU
Email: info@armclub.org.uk   Tel: 07010 709849 (Flextel)

EUREKA

The magazine for members of

The **ARM Club**

The Ron Briscoe Column

UniPrint

SE Show pics

Issue 59 - 2006 No. 4

Editorial

The editor's comments on the world of RISC OS

Well, it has been a good month for RISC OS magazines with **Qercus** being resurrected and a new publication, **RISC OS *Now***. Perhaps the threat from a new magazine has prompted John Cartmell to get his act together. On the News Groups there appeared to be a bit of a spat between John Cartmell and Louie Smith (the editor of **RISC OS *Now***) with John saying that there was only room in the RISC OS world for one of them. Gunfights at dawn? However, a bit of competition should help keep standards up, especially as there have been slanging matches on the News Groups about which contains the most printing errors. As the editor of the ARM Club's illustrious magazine well knows proof reading can be a nightmare, and only too often one gets the latest issue, opens it up and sees a howler in the first paragraph that one reads - even after two other people have proof read it. See if you can spot the deliberate mistake in this editorial!

However can the shrinking RISC OS market place support two glossy commercial magazines? I think it unlikely. The only way they can both survive is for the remaining RISC OS enthusiasts to buy both. For this to happen the content of each must be sufficiently different to justify it. In the ever diminishing world of RISC OS this is going to be difficult. About all one can do is to have articles of the 'How to do' nature. New hardware and software being a bit thin on the ground makes doing reviews of these rather difficult.

Still it's good to know that some people have faith in the RISC OS scene and are prepared to make a financial gamble on it. So I wish both John Cartmell and Louie Smith the best of luck and hope they both succeed in helping to keep RISC OS up and running.

Contents

ARM Club contest No. 235698. Spot the Druck Competition. Please place two crosses - one where Dave actually is and one where you'd like him to be. Answers on a post card, no rude ones please. £1.00 per entry. All proceeds to the ARM Club's benevolent fund for overworked editors

RISC Bytes

Qercus back from the dead

Reported sightings of a new **Qercus** have now been confirmed. After a year in limbo magazine number 277 has finally arrived through subscribers' letter boxes. John apologised for the delays in getting this issue produced which he said were due to illness and publication problems at the printers. However the problems were all behind him and new magazines should now be out every six weeks or so. The latest issue is 50 pages of RISC OS related articles usually with full colour pictures.

RISC OS *Now* launched

A new RISC OS publication called **RISC OS *Now*** was launched at the SE Show. The new magazine, edited and published by Louie Smith (for Louie's picture see centre pages), got off to a slightly shaky start with a large number of errors including wrong page numbers and the cover printed incorrectly. Louie hopes these all be solved for the next issue. The new magazine will be bi-monthly and is aimed at both users and programmers. If you would like to subscribe to **RISC OS *Now*** go to **http://www.riscosnow.co.uk/subscriptions/**

!BgrndCtrl

A significant new version of the background control program !BgrndCtrl has been released. Except for a select few users, version 2.XX has not been seen in public and there are several refinements since the last publicly available version.

!BgrndCtrl has always been a little project but it has grown through both the programmer's own thoughts and valuable feedback from a number of people. If anyone does regularly use version 1.XX you'll probably appreciate some of the changes in this new version.

For those who've not used it, !BgrndCtrl allows the user to configure a pool of picture files to be used as Pinboard Backdrops and will randomly select one of these at a configurable interval. Backdrops can be configured to be Centred, Scaled or Tiled, utilising the features of the Pinboard itself and !BgrndCtrl can even be run just once to change a backdrop and then automatically quit if required (for use at Boot, for example).

New features include:
* Support for dynamically reading directories with pictures
* Configuration of appropriate text colour for a given backdrop so that you
  can still read the icon text of pinned icons.
* Improved user interface
* Several bug fixes and stability improvements
* Updated documentation.

StevePotts@blastzone.demon.co.uk
http://www.blastzone.demon.co.uk

ELF GCC runtime update

Version 1.03 of the runtime system for RISC OS ELF GCC is available from the URL below. This version fixes a bug in the support module that caused a crash on RISC OS 5 and later versions of RISC OS 4 due to a SWI handler corrupting r9. RISC OS ELF GCC is an experimental version of GCC that supports the creation of dynamically linked executables and shared libraries in much the same way as Linux systems. Also available is the required runtime system (support module, dynamic linker,static loader) and standard shared libraries (libUnixlib.so, libgcc.so and libstdc++.so).

http://homepage.ntlworld.com/les.noar/lee/gcc/

CashBook: new home accounts software

Steve Fratt writes:-

In the light of the thread about re-inventing the development wheel over in comp.sys.acorn.apps, it is with some trepidation that I announce that I have just released CashBook 0.98 on my website...

CashBook is a home accounts application. Originally written for my own use four years ago, it has been gathering dust on my hard disc ever since as I did not wish to release it in direct competition to any commercial titles.

In its present beta form, CashBook is capable of keeping track of income and expenditure across multiple accounts. Analysis headings allow income and expenditure to be grouped and analysed. It has the following features:

* Support for multiple accounts and analysis headings, limited only by the available memory.

* Real-time statement views are available for all accounts and analysis headings, making it much easier to track receipts and payments.

* All transactions can be reconciled against bank statements, either from the main transaction list or by using the appropriate statement view.

* Budgeting can be carried out using the analysis headings, and can be restricted to any time window required.

* Accounts, incoming and outgoing analysis headings are viewed in three single lists, and can be grouped together to provide summaries of related categories.

* Support for unlimited repeating transactions (standing orders, direct debits and regular payments or receipts). A look-ahead facility allows the effect of regular payments and post-dated transactions to be seen quickly.

* Integral report system, allowing data to be analaysed and viewed on

screen, printed out or exported to spreadsheets, graphing packages or wordprocessors for further manipulation.

* Support for multiple files to be edited at once.

* Can import transaction data from Personal Accounts, initialising the necessary accounts and analysis headings in the process. Full instructions are given in the documentation.

CashBook is freeware; more details, and a download, can be found at:

http://www.stevefryatt.org.uk/software/cashbook/

As noted above, the application is currently released in a beta form. The documentation and icons could do with some improvements; if anyone would like to assist with this, drop me a line.

GCCSDK GCC 3.4.6 Release 2

GNU Compiler Collection (GCC) is a free collection of compilers that provide the user with a powerful tool for translating C, C++ and Fortran source into fast ARM code that is suitable for execution on RISC OS as application or module.

GCC Software Development Kit (GCCSDK) is a portable build environment for creating ARM executables to be run natively on RISC OS. The build environment is designed to be hosted on a Unix-like system, such as GNU/Linux, FreeBSD, Solaris, MacOS X or even Windows (under Cygwin). GCCSDK releases are tied-in with the corresponding GCC releases.

GCCSDK GCC 3.4.6 Release 2 is an interim bug fix release for the 3.4.6 Release 1 we did 3 months ago. We strongly recommend all GCCSDK users to update to this version. More information what those fixes are and how to download this release can be found at:

http://www.riscos.info/index.php/GCCSDK_Releases#GCCSDK_GCC_3.4 .6_Release_2

Dr Wimp Version 4.60

Version 4.60 of the freeware Dr Wimp package is now on my web-site at:
http://www.rayfavre.me.uk/drwimp.html

Upgrading of existing applications is very simple.

This release formally launches comprehensive OLE (Object Linking & Embedding) facilities via a new Dr Wimp Elixir_08 - and I am indebted to Pete Miller for offering the coding and seeing it through to launch.

(OLE is the means to permit one application to be used by another e.g. if your application displays drawfiles, you can - from your application - open and load a drawfile into !Draw, edit the drawfile and recover the changed file back to your application. In this case, your application is an OLE 'client'. Conversely, if your application edits files of a certain type then you can now easily arrange for it to become an OLE 'server' to other OLE 'client' applications.)

OLE in both 'client' and 'server' modes are supported, with multiple OLE sessions open simultaneously, if required. Two example OLE applications are included (one basic and the other fully-featured). Comprehensive documentation is included.

In the Dr Wimp tradition, this new facility makes it very simple to implement OLE.

In addition to the above, the new Dr Wimp version adds a small suite of functions which allowing indexed strings and integers to be stored in memory blocks instead of arrays. The memory blocks can be set up as dynamic areas if required, which can sometimes offer advantages over the use of arrays.

There is also a minor extension of existing functions to add the RISCOS option of opening windows 'behind the backdrop' i.e. hiding an open window.

Finally, there is an extension to 'Elixir_07' facilitating single operations on multiple windows/icons/menu items.

The Manual (Text & Impression Publisher formats) has been updated accordingly - and OvationPro and HTML versions are also on the web-site.

SuperDoku 1.07

Sine Nomine Software are pleased to announce a new version of the popular Sudoku program SuperDoku. The latest version (1.06) incorporates "hidden word" puzzles.

You can download it from **http://www.sinenomine.freeserve.co.uk/software/**

For our Dutch users there is now also a Dutch version available – thanks to Machiel Jansen for his translations.

Hidden word puzzles are just like standard Sudoku puzzles only with letters instead of numbers, and when the puzzle is finished a word will be found reading across a row or down a column. Version 1.06 comes complete with a general English word list for puzzle generation; other lists (including French, German and Dutch) are also available from our website.

SuperDoku can generate, give hints on, and solve for you:

* Standard Sudoku puzzles in 4x4, 6x6, 9x9, 16x16 and 25x25 sizes
* Samurai puzzles (5 overlapping 9x9 grids)
* Killer puzzles in 4x4, 6x6 and 9x9 sizes
* Hidden word puzzles in 4x4, 6x6 and 9x9 sizes

You can save and load puzzles, print them out to solve in your tea–break or export them as Draw files for inclusion in other documents.

The demo version of SuperDoku offers you 600 different puzzles (10 of each sort at different difficulty levels) but has some additional limitations.

However, the full version costs a mere 5 pounds – see our website or SuperDoku's help file for details on how to register. Once you have registered, SuperDoku will create a huge variety of puzzles to keep you entertained for many years to come. All upgrades are free to registered users.

Castle and RISC OS Open Announce a Shared Source Initiative for RISC OS

RISC OS shared source initiative underpins future growth for the proven software technology.

On the 29th September Castle Technology (Castle) and RISC OS Open Ltd (ROOL) announced plans for the opening-up of RISC OS sourcecode. This step is a further major landmark in the development of the highly respected software platform. A primary objective is to bring RISC OS software to a wider community and to encourage growth in both the RISC OS user base and the developer community. This will be augmented by more rapid development of the software base and removal of critical barriers to use, normally associated with proprietary platforms.

RISC OS was designed in Cambridge by Acorn for their 32-bit ARM based Archimedes computer and was first released in 1987. RISC OS was specifically developed for the ARM core and its origins can be traced back to the original team that developed ARM (a major advantage for RISC OS). In 1999 the rights to RISC OS were acquired by Pace and then, in 2003, by the present owner Castle.

The RISC OS platform has been deployed in over a million Consumer Electronics products. Product solutions based on RISC OS are sophisticated, proven, reliable, and mature having had over 600 man years of development to date. RISC OS products are universally recognised as faster, more reliable and more efficient than many comparable competitive products. However one consistent objection to the use of RISC OS has been the fact that it is proprietary. With today's announcement, the parties believe that such an issue will no longer be a hindrance to its use.

Licensing Mechanisms: RISC OS software will be made available to third parties via a dual licensing mechanism. The first will be a free of charge (FOC) Source Code License which will give an individual/company the right to download, modify and publish RISC OS source code providing that the code is not used for any commercial purpose. The second Product Code Licence will give the right (for a small fee) for an individual/company to distribute product code to third parties for commercial use. Full details of both licences will be available soon

from the ROOL website.

Structure of release: ROOL will manage access to 'the official' RISC OS shared source repository at Castle via the <www.riscosopen.org> web site. Official releases will be available, maintained and licensed from the ROOL site.

Administration by ROOL will be performed on a not-for-profit basis and will therefore be dependent upon contributions from the community to help support the operating costs. Users will be given the opportunity to contribute via a donation mechanism. Developers will be encouraged to feed back modified code to the source repository where it can be merged back into the source tree and released to all.

Steve Revill, Director of ROOL, commented, "This move by Castle is great news for the RISC OS community. It's the first time that the public have been able to access these components at a source level. We believe that it's an exciting opportunity for developers to submit their improvements for all to use. They can also release software based upon these components free of charge or commercially (subject to a small royalty payment)." Steve added, "At ROOL, we are very pleased to be a part of the process of opening-up access to the sources for many key RISC OS components. With the help and support of the RISC OS community, I am sure that there will be even more to follow. It is our sincere hope that this will stimulate the growth of our community and introduce a new era of development."

Jack Lillingston, Managing Director of Castle, said, "In today's era of fast moving technological developments, both users and developers should have worldwide and easy access to an operating system. For too long RISC OS has been regarded as a closed proprietary OS and this has hampered wide scale take-up." Jack added, "We are delighted to be supporting the creation of an international RISC OS community with the team at ROOL. Their activities will further the use of RISC OS in a structured way, promoting the take-up of RISC OS."

About RISC OS Open (ROOL)

In addition to managing the source opening activity, ROOL will provide services for customers wishing to deploy RISC OS commercially. ROOL will deliver value to its clients by being an expert in the design, development and integration of products built around ARM compatible processors. The core team of ROOL's engineers originally formed the nucleus of Pace's Cambridge Internet Protocol Television (IPTV) development team and previously worked for Acorn Computers. The experienced team is able to help partners and

customers to quickly integrate, optimise and deploy efficient RISC OS based solutions in order to take advantage of the market leading MIPS per watt performance from the ARM architecture. ROOL are able to author software for an existing hardware design or develop a complete hardware and software solution. The engineering team has already developed and deployed RISC OS based products including IP set-top boxes and desktop computers, such as the IYONIX PC.

New RISC OS Application WebWorkz

WebWorkz will be an invaluable tool to anyone creating spreadsheets using the popular FireWorkz application, who wishes to share with non RISC OS users or publish on the web.

WebWorkz will take a standard FireWorkz file and convert it into HTML format, producing a table for you, complete with relevant CSS file so as to keep the web version as close as possible to the original FireWorkz file.

The initial version (v1.00) of WebWorkz is under development, so suggestions are welcome, as are notications of files which don't convert correctly - as I've only implemented a subset of FireWorkz features so far, comprising fonts, colours, borders, bold, italic, underline, justify and column widths.

However, this initial version still produces a reasonably accurate rendering of the original file, with the minimum of fuss.

Depending upon feedback, I shall probably develop it into a multi-purpose web table generator and already have plans to add CSV file conversion as well.

If you find WebWorkz useful, it's only £15 to register it - which will give you that warm fuzzy feeling of supporting RISC OS software development.

Unregistered versions are restricted to a maximum table size of 10x10.

WebWorkz can be downloaded from **http://www.vigay.com/software/**

NEW IYONIX ROM UPGRADE AVAILABLE

IYONIX Ltd today announces the availability of a new ROM Upgrade (RISC OS v5.12) for all IYONIX pcs.

This will be the first 'charged for' ROM upgrade since the launch of the IYONIX pc in 2002 and the new ROM will form the basis for all further ROM upgrades. This ROM has been shipped for several months in new IYONIX pcs.

The cost is just ukp 69 and can be paid for by credit or debit card and immediately downloaded from the IYONIX pc web site at:**www.iyonix.com/ROM/**

The ROM Upgrade includes (among other improvements) support for a wide range ofnVidia Graphics processors and USB2 is now available in ROM. In addition IYONIX Ltd have made available a special offer for those wishing to upgrade to the nVidia FX5200 graphics card at the same time. The cost for the Graphics card and the ROM Upgrade is just ukp 139.

For further details please contact the sales office:
Tel: 0870 383 4543
Fax: 0870 705 8879
web: http://www.iyonix.com
email: sales@iyonix.com

VirtualAcorn upgrades

for all versions of VirtualRPC are now available from the downloads section of the VirtualAcorn website.

Upgrades for VirtualRPC-SE and VirtualRPC-Adjust replace the existing single tasking

HostFS::HardDisc4.$.Printing.ShowPrinters file with a multi-tasking version, which makes it much easier to set up a RISC OS printer definition file. These upgrades also include an updated HostFS extensions file which allows RISC OS to open PDF files with a .PDF extension. In addition .zip files are now correctly mapped so that they will be opened by SparkPlug.

The upgrades for VirtualRPC-SA and VirtualRPC-AdjustSA also include the multi-tasking ShowPrinters file as well as a new version of HostFS2. This new HostFS2 is recommended for all users and resolves an intermittent problem on multi-core processors and on some single core processors. The symptoms reported by some users include a failure on running the RISC OS Boot sequence as well as occasional random "Data Abort" errors. Users who have not experienced these problems should still download and install this upgrade. All copies of VirtualRPC-SA and VirtualRPC-AdjustSA manufactured after the 6th of September 2006 will include the new HostFS2 automatically.

VirtualAcorn supply a range of products that allow users to run RISC OS 4, or RISC OS Adjust, on Desktop and Laptop PCs with Windows 2000 or WindowsXP.

You can obtain more details from the website at:
 http://www.virtualacorn.co.uk

!CSVamp Version 3

 Version 3.00 of !CSVamp is now on the web-site at:

http://www.rayfavre.me.uk/dwapps.html

The main visible changes are:
- an initial banner window shows the current configuration;

- there is a new option to enable any field to be split into two fields, with 10 different ways of doing this being offered initially. E.g. split at specified character, split after/before leading/trailing digits, split after/before leading/trailing letters etc. etc.

This opens up a vast new area of flexibility for changing CSV/TSV files and there is now, truly, very little you can't do to get from what you've got to what you'ld really like. Behind the scenes there has been a major change in the way the input files are handled, so as to much reduce the WimpSlot size needed and to make this almost totally insensitive to changes in user-file size.

A bug affecting the re-loading of 'Settings' files has also been fixed.

The Manual, in all its available formats, has been updated.

!CSVamp is a freeware application allowing users to produce new, modified CSV/TSV files from existing CSV/TSV files.

Some of the things that can be done are:

Re-order fields.
Extract fields.
Add additional fields
Split any field in two (in different ways)
Sort on any field (with options to report duplicates and/or to retain but ignore 1st record).
Concatenate fields, with or without intervening added text.
Add text before and/or after any field.
Extract selected records.
Change field separator i.e. comma or Tab
Change record terminator i.e. LF, CR, LF+CR or CR+LF

Apart from the text-only !Help file in the application, there is
also a 'proper' Manual available for down-loading in Impression, OvationPro and HTML formats

DScript 0.20

An update of DScript is available for download from my website now: http://www.zpages.de

Bug fixes and improvements:

    * example script added
    * padding argument for NTString instruction added
    * verify instructions added (?True, ?False, ?Align, ?HAlign, ?Full)
    * Report instruction added
    * line counting problem fixed (bug in foundation library)
    * Type instruction added
    * include problem fixed (another bug in foundation library)
    * general path handling problem fixed

MOAN

7th software has slashed the price of its desktop card game, Moan, from 14.99 to 9.99 UKP. The free demo version now has the first five levels from the total ten levels which are available in the full version.

http://www.7thsoftware.com/moan/

There has also been a small update to the application which should mean that it now works correctly on all current platforms: RiscPC, IYONIX PC and A9home.

About Moan:

Moan is a Canadian card game for one to four players. It is played with two packs of cards, including the jokers, giving 108 cards in the deck. The deck is placed face-down in the middle of the table with the players distributed around it.

Each player is dealt eleven cards. The top card in the pack is placed next to the pack, face-up. The players take turns taking a card from the middle, making their move(s) and then dropping a card into the middle. The winner is the first person to complete the round for level ten.

For more information on the rules of Moan, have a look at:
http://www.7thsoftware.com/moan/help.html

PicoDrive: New Mega Drive Emulator

The first release of PicoDrive is now available from the new PicoDrive web site.
http://picodrive.acornarcade.com

(NetSurf or RISC OS Firefox recommended)

PicoDrive is a SEGA Mega Drive emulator for RISC OS. It can play games in the desktop or in full screen mode. It has been tested on an Iyonix, A9Home and SA RiscPC.

PicoDrive was originally written for the PocketPC by Dave of finalburn.com. It has been ported to RISC OS by Adrian Lees and Jeffrey Lee.

Speak v3.13 update (free TTS software)

An update to the Speak open source text to speech synthesizer isavailable at:
   http://espeak.sourceforge.net/

Downloads include a ready–to–run RISC OS version, and a also source code package.

Pluto users will need to reallocate the voice names in Preferences–>Speech.

Zure Open

Zure Open is a new community site based around Open Source projects for RISC OS.

It is currently in its early stages, so please bear with us.

Zure Open has been set up by Andrew Kulik and Michael Carter.

Please take the time to come and visit us at: http://www.zurenet.co.uk

If you are interested in contributing too Zure Open please contact us using the following email: info@zurenet.co.uk

For up to the minute RISC OS news visit

DROBE

www.drobe.co.uk

Free for All

Andy Burgess

PHP and !WebJames

I am interested in using PHP - PHP Hypertext Preprocessor as a substitute for JavaScript to enhance web pages. I've seen a lot of PC based web pages using it, and found out that Orpheus actually provide for PHP encoded webpages on their servers.

As you know, I do a lot of work on horrible PCs! I couldn't get PHP to run locally on my PC, so looked in the hope of finding an installation of PHP that would work on RISC OS.

To my joy, I discovered the site : **http://www.cp15.org/php/** which told me that I could run PHP on my RISC OS machine! It gives a very simple PHP example, and told me that facilities for PHP were included in Henrik Pedersen's excellent *!Web James* (see link for *!WriteFlash* (it's on the same page) I use *!WebJames* on my RISC OS systems to develop Perl webpages. Not only did I not have to install or download anything else, I already had it set up!

I ran *!WebJames* and ran my first PHP program - I tried the one on the webpage quoted above - Bingo! Yes! Hoorah - a Pretty Happy Person! I chalked up another RISC OS victory against the PC, and knew that I now could use the w3schools tutorial on PHP to write webpages! That's at **www.w2schools.com/php/default.asp** and free!

I've enclosed an example of my enhanced PHP script from the above website, called time/php (PC name time.php) which displays the day, date, month, year and time. As you can see it's a tiny amount of code to display something so useful, and it works on old *!Fresco* 2.13 (from RISC OS 3 days), so should work on pretty much any new Acorn web browser! I've also

```
<html>
<head>
<title>PHP Example</title>
</head>
<body>
This is standard <b>HTML</b>

<? printf("This is PHP, It is now %s",date("D dS F Y @ G:i")); ?>

</body>
</html>
```
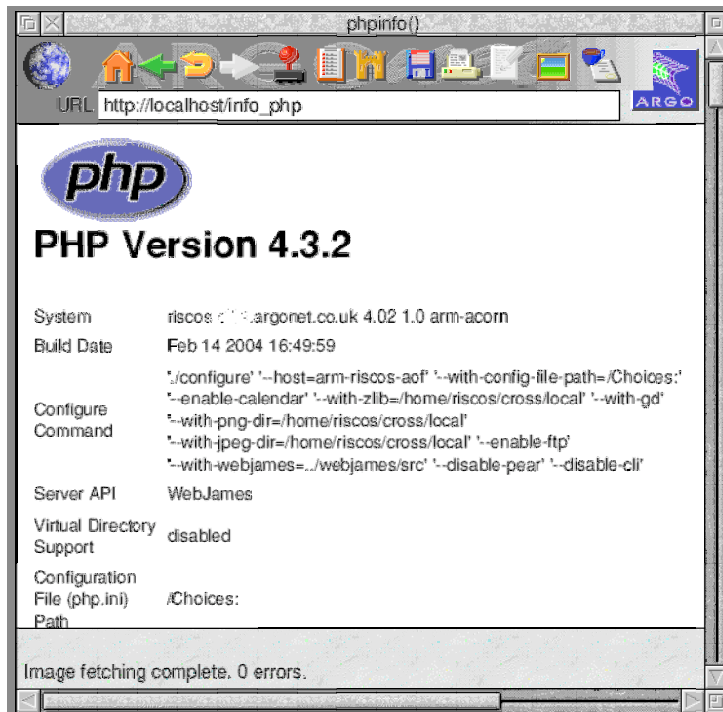
PHP script example

shown the simple test PHP page "info_php" (should really be info.php, you should know my spark problem by now!), but the general idea is there - I've airbrushed out my username. This whole page comes from a *one line* PHP command (this file is included in the installation of *!WebJames)*:

<?phpinfo();?>

I then tried to set up my PC's Apache2 to use PHP. It was no

Simple test page
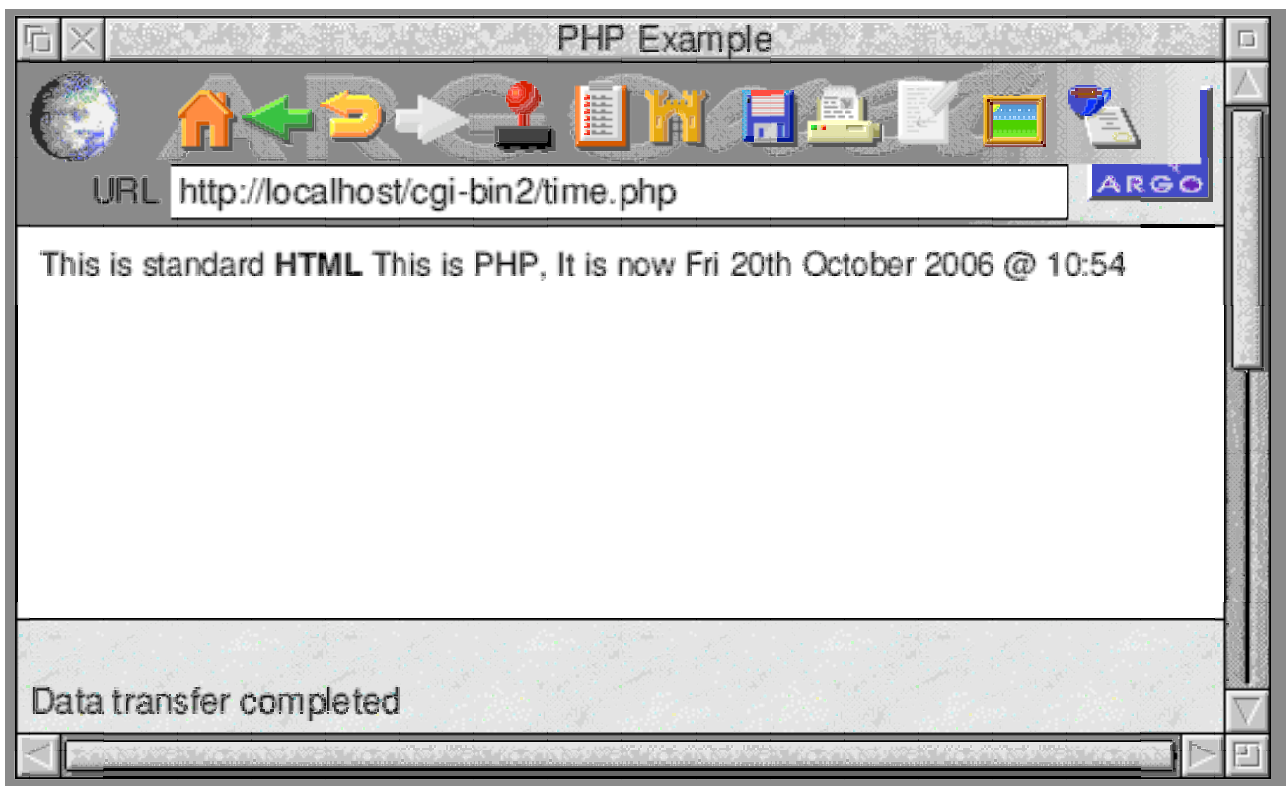
PHP showing the date and time in a browser

way as simple as on RISC OS! What a lovely system RISC OS is, despite my machines having an elderly version! On RISC OS, programmers provide more ready-to-run software, unlike on the PC or worse still, installing on Unix! I found some instructions on the internet that I followed, but couldn't get it to work, so I abandoned the PC (which I'm always willing to do if I can) in preference to RISC OS!
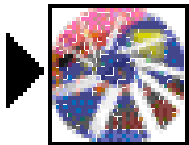
WriteFlash

I have been interested in Flash animations on the PC, though have not had much success getting them to work on my RISC OS equipment! Perhaps it's cos I'm using old technology (A7000 and non-StrongArm Risc PC). I have yet to get a new generation Acorn clone!

Quite by accident - I was looking for something else - I stumbled

upon **WriteFlash** and it's RISC OS task bar front end program **!MakeFlash**. This program promised to create Flash animations from its own script files (which are a bit like C programs in construction). To run them on a PC you need to use a browser like Internet Explorer or FireFox, and on RISC OS you need **!Flash.**

I downloaded the progam from Henrik Bjerrgaard Pedersen's Danish website at **http://www.login.dknet.dk/~henrik**. That's not the Bolton Wanderers player, but the Acorn supremo. I may have mentioned his **!WebJames** server (on which I run Perl) in an earlier article.

Under the 'Macromedia Flash' heading, I downloaded two of the three principal links 'Flash File Generator' (175K) and 'Flash Fonts' (181K). I wasn't expecting to recompile anything, so ignored "Zlib". I ignored his link for 'MacroMedia - not really very interesting'!

I unsparked the software and got an application called **!MakeFlash**. Double-clicking it gave the Flash icon (which I think looks like a hot air balloon from underneath) with an arrow next to it, and below the writing 'Make Flash'. Clicking on the icon gives nothing, but looking into the accompanying 'Examples' folder gives some source (text) files. The first one I tried from this folder, was logically called 'first'. Just drag it out to the task bar icon and save by dragging and dropping it out. If you want to use it on a PC, you'll need to give it an extension of '/swf' - eg. first/swf (first.swf on PC). The file has the bonny Flash logo on it.

I tried my examples out on the PC, rather than on the Acorn where I've experienced difficulty with **!Flash** and **!Fresco**. Most seemed to work find, but some like the interesting (not to say a bit naughty-sounding) 'snakegirl' didn't seem to display anything! The help file tells you that **!makeflash** is a simple frontend for the command-line **writeflash** - which I didn't experiment with, but may do in time!

# Viewing external hard discs connected to Mac or PC from RISC OS

Andrew Wyver

My home set-up consists of a wireless and non-wireless network connected to both PCs and Macs. As I have recently bought a new external hard disc (Maxtor 500Gb) as a backup device, for a 20 inch iMac running Mac OS 10.4.0 (Tiger) we use for photos and DVD viewing, I thought I would also enable it to be seen from my Risc PC. I already have an external hard disc connected to a Shuttle PC which I can see from the Risc PC but seeing a Mac external drive is a little more problematic.

To view external shares I use **_LanMan98_** on my Risc PC which enables me to access and copy to and from external volumes without losing the filetype data. For instance all my Risc PC folders and applications are backed up on the PC's external hard drive (an Iomega 250Gb) and if I accidentally delete a file on the Risc PC I can just copy it back over from this external hard drive. I can also run applications from this drive over the network. This makes backing up using **_!DirSync_** very straight forward. To view my Risc PC directories from other computers I use **_!Samba_** on the Risc PC. This all works very easily and I seldom have any problems.

Setting up the PC (**Windows XP**)

Once the external hard disc is connected to the PC by either a USB or Firewire cable it will show up as a drive in 'My computer' under hard disc drives with a new drive letter (mine comes up as drive F). Next right click with the mouse over the drive icon to get a menu. Go down to the bottom and click on Properties. The Properties window will come up and you click on the Sharing tab at the top. In the window that appears go down to Network sharing and security and click in the box 'Share this folder on the network'. Just below this the Share name of the drive will appear. Then you need to click in the box
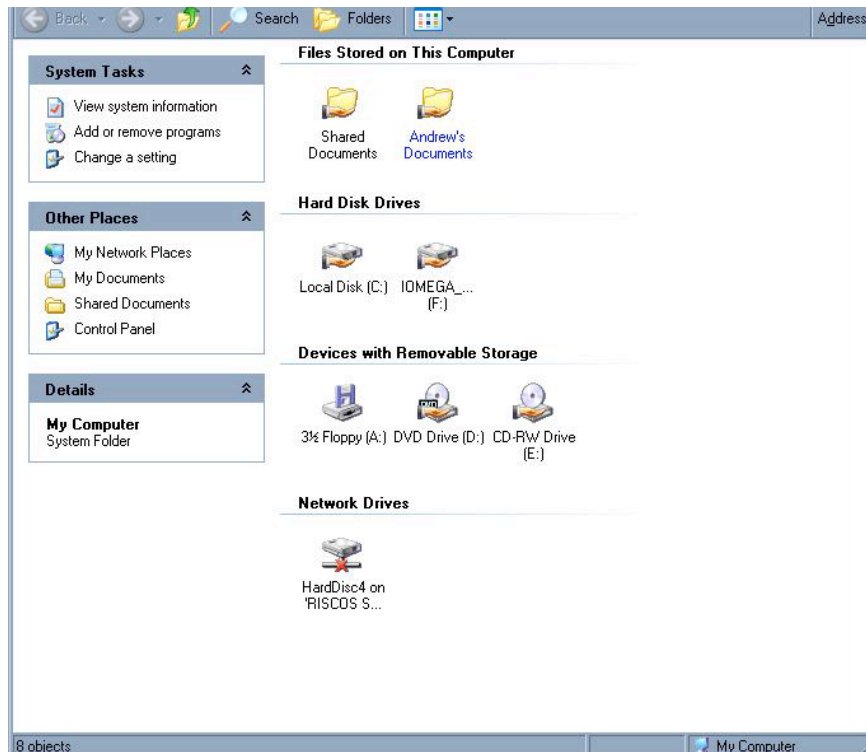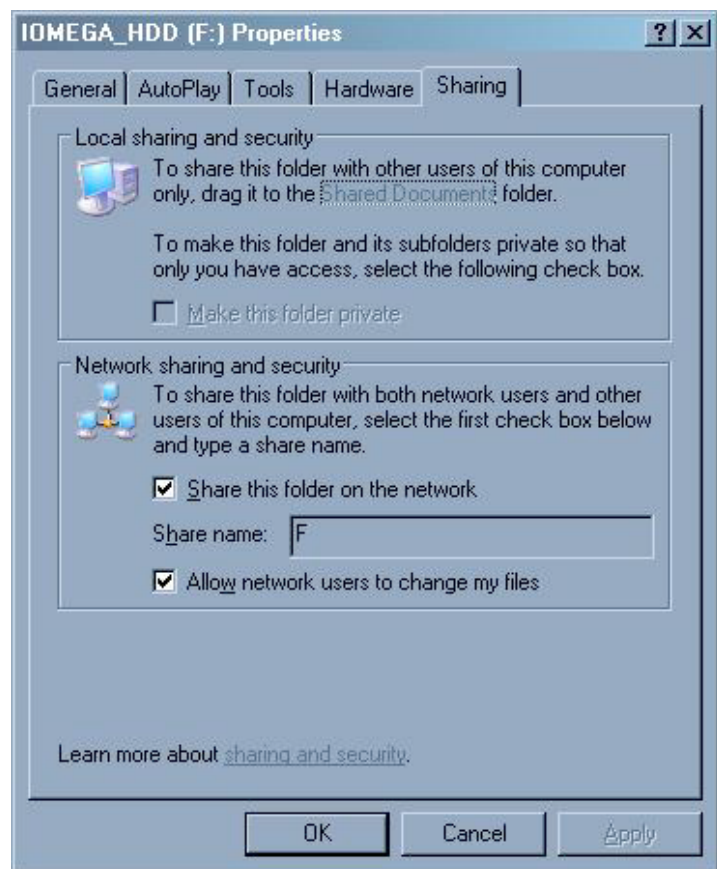
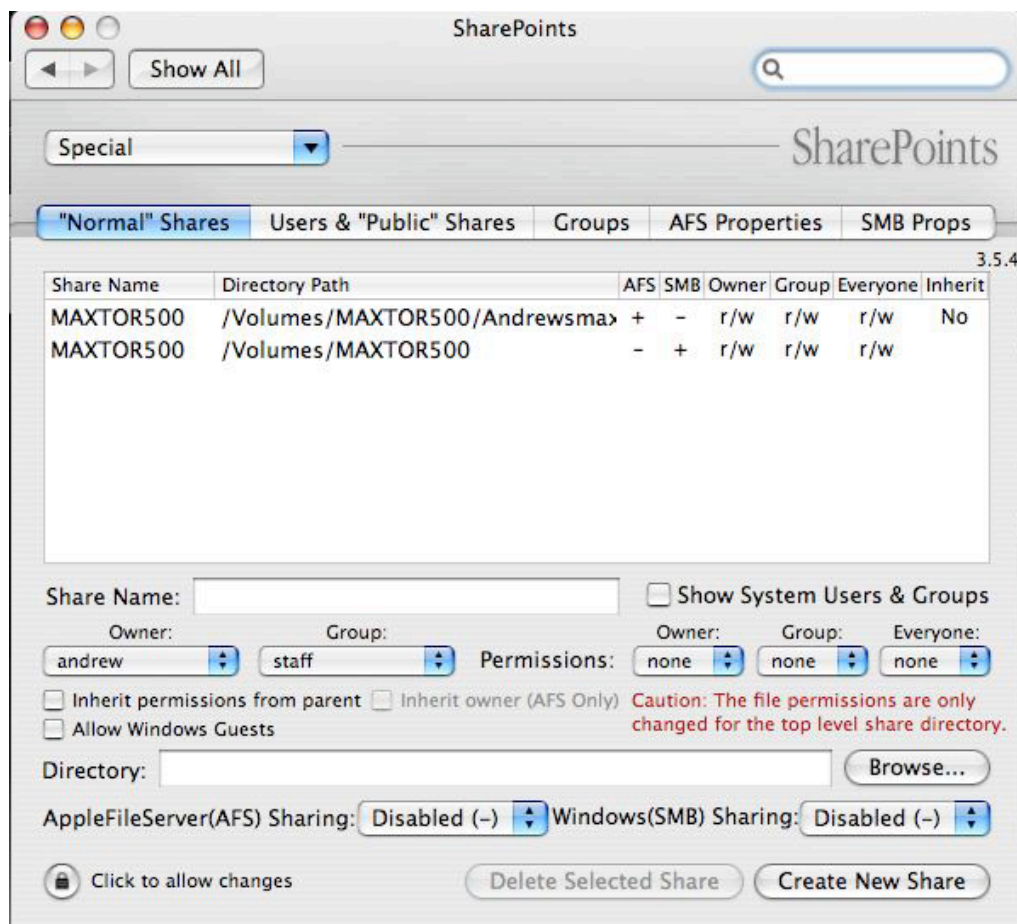*The window showing the attached external drive in Windows XP*

'Allow network users to change my files'. Then click on OK at the bottom of the window. Back in 'My computer' the drive should be shown with a little hand underneath it. You are then ready to share this drive with other computers on the network.

Setting up the Mac. (**Mac OS 10.4.x**)

This is slightly more problematic as the OS does not directly allow you share external drives. You would normally have to delve into the equivalent of the command line on the Mac to set this up. However there is a shareware program called ***SharePoints*** available from

The Sharing window in Windows XP

SharePoints set-up window

www.hornware.com that will allow you to share any drive or folder on your network. Install the program on your Mac and up will come a window allowing you to set up shares (as well as many other items). Click on 'Normal Shares'. You then need to put a share name in the 'Share name' icon box. This can be anything you would like to know your drive by (eg Fred) Then enter the owner and the group it belongs to and the read/write permissions you require. Next tick the box 'Allow Windows Guests'. Next enter the Directory/Volume path of your drive. Do this by clicking on the browse icon. Click on the drive icon in the finder window that appears and then the 'open' icon in the bottom right of the window and the path name should be entered in the **SharePoints** window. Then chose Windows (SMB [Samba]) Sharing so that Shared (+) is shown. Then click 'Add new share' at the bottom of the **SharePoints** window and the share will appear in the 'shares' part of the **SharePoints** window. Reboot the computer and the external hard drive should now be shared.

Setting up the Risc PC (RISC OS 4.xx)

On the Risc PC I use **LanMan98** and **OmniClient** to view files on my other computers and Samba so that my other computers can see my Risc PC files. Once this is set up correctly then file sharing is very straightforward. The trouble is that documentation on both these applications leaves much to be

desired. I boot these in the order **!smbserver, !LanMan98** and then **!Omni.** The **Lanman98** icon appears on the icon bar showing a computer with a little Windows flag on it. You now have to set up your share.

Click menu over the icon bar icon. Go up to mounts, and across to protocols and click on **Lanman98.** A dialog box will appear. First enter the mount name. This can be anything but it should be something to identify the drive you are going to access. Next the server name. This will be the name of the computer that the external drive is connected to. The directory path is next. For Windows just put in the drive letter (eg F). For the Mac the drive name (eg Macexternal). Then your user name (previously set up on the Windows/Mac computers) and finally your password. (This item is optional for Windows). Finally save the mount. The LanMan icon should now display underneath it the name of the drive you wish to access. Click on this and if your net work is up and running a directory window should appear showing the contents, if any, of the drive.
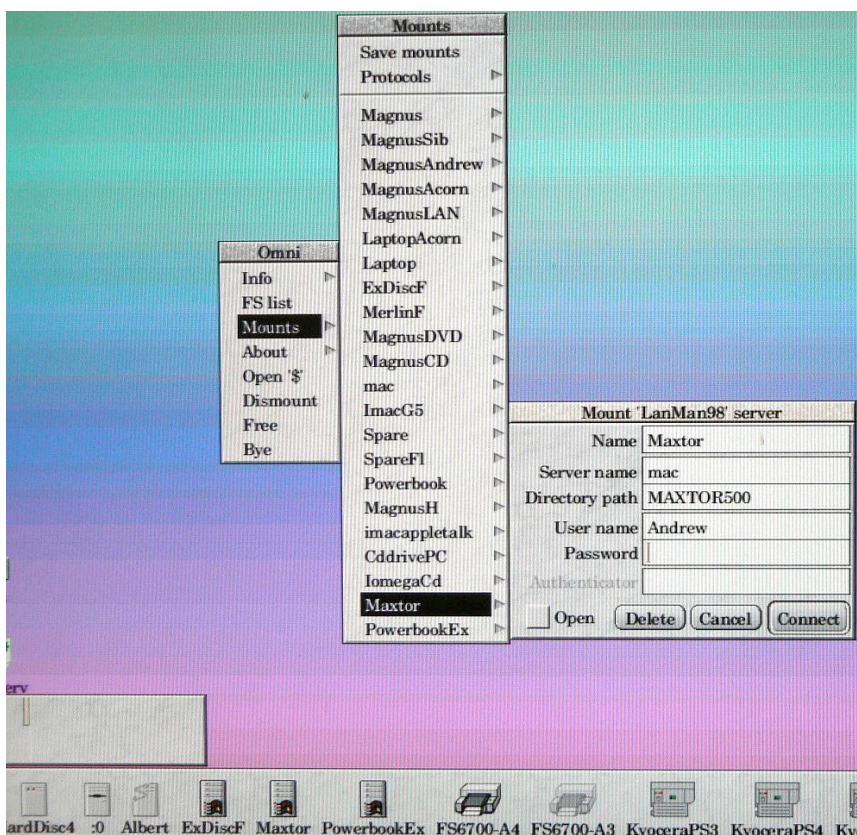
LanMan98 menus with three mount points shown on the icon bar
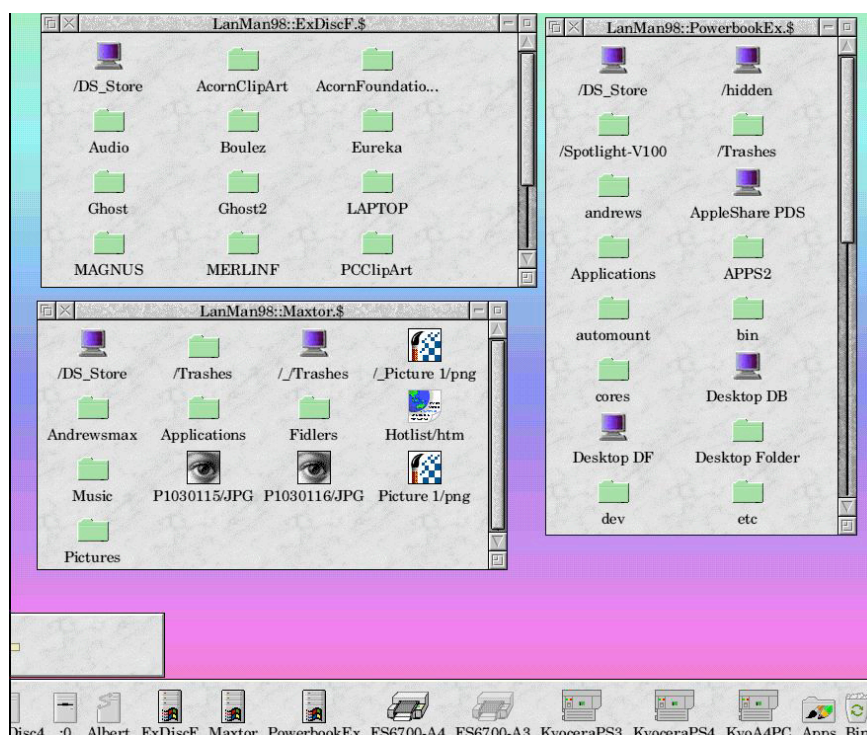
Screen shot showing the directories of three external hard drives

The ARM Club stand

R Comp stand

SE Show Pics
Photos by David Ruck

Virtual Acorn stand

APDL's stand

CJE Micro's stand

Louie Smith of RISC OS Now

Monica of EFF

The Castle Stand

The Ron Briscoe Column

Masochists!

You lot are gluttons for punishment or else you have upset our esteemed editor in some way. Nevertheless here is the latest execrable episode in my adventures on life's highway.

I sit here tippy-typing this latest episode on my new wireless keyboard, bought because the old one suffered a fatal injury due to me dropping several reams of paper on it at once. I shudder to think what would have happened if the Iyonix had been switched on at the time. The god of the terminally stupid is still looking after me as usual.

As penance for writing ill advised comments about the WROCC newsletter I was invited to write a short article for said newsletter. Well I was asked to write an article, length not being mentioned, but I thought that a small dose of my drivel would be much better received. Sure enough it was printed in the one after next issue. It proves just how many desperate editors there are out there.

After my letter from afar was printed I received a very nice email from none other than Ian Macfarlane, he of Brain Games fame. Now I have spent many happy/frustrating (strike out that which does not apply) hours playing said games and my cup raneth over... I must remember not to pour tea whilst reading emails.

Whilst Ian was composing his email we were up in Edinburgh visiting the organic environmentalist 2 and I had to use my normal brand of low cunning to escape to Berts Sports Bar for necessary sustenance, bitter and twisted if

you must know. We had to go as the aforementioned pair had moved and Christine wanted to see the new flat in all of its glory.

All went well until the Wednesday evening when after hearing the sound of the table being set I left and wandered down the road towards Berts. There was a crowd of people outside. Was the pub shut? It was even worse than that. I had forgotten that Manchester United were playing Celtic. The crowd were half time smokers and Berts was packed out.

Now over the road from Berts is another bar called Hectors, which I had never tried before, being happy with Berts offerings. Anyway, necessity being a virtue, I decided to give Hectors the once over. Entering the door and walking into a dimly lit room populated with low leather couches my suspicions were aroused and I was right. The brown nectar was fifty p dearer than at Berts.

I stumbled out wondering whether I would get any nourishment at all when a thought struck me. Berts has a small serving hatch opposite the main bar and a man of my abilities should be able to get served there or my name wasn't Fred.

Now it must be understood that Berts is an old pub with one large bar and some smaller rooms served by the small serving hatch and each of these rooms has a screen so that people can watch the match. However none of the screens can be seen from the hatch.

Filtering my way to the queue waiting to be served I bide my time. Sure enough there are cries of excitement and the queue, except me of course, goes to see what is happening. Seizing my moment I order three pints of bitter and twisted and take them to the now almost deserted tables outside. Why three you ask? Well I have always found the Scots to be a most perspicacious race and I didn't think that I would get away with that plan twice.

My solitary drinking does not last long for I am soon joined by several people whose desire for nicotine means that they

have to leave the pub and watch the match through the window. In one of the quieter interludes a theory is propounded that the new smoking laws are a good thing as it allows people to meet more new friends. Why is this? I ask.

"Before the new law people just mixed with known friends and rarely spoke to strangers. Now we have to smoke outside we know that the other people are fellow smokers and so we speak to them. If we like the look of the fellow then a new friendship may evolve. If we don't then we won't bother to talk to them again. Is this good?" I am informed.

The small group is suddenly transformed into a seething mass of bodies as the match ends and shortly after I return to the arms of my family. Well no, I return to accusing stares and a lecture about the difference between half an hour and all evening. Shaking my watch and saying that I think the battery has gone has no effect and I know yet again that pleasures exact a price.

The first day after returning from Edinburgh is the MUG Club meeting and I set off early so as not to be late. Some hope! Railtrack have decided to do some work on the line and I have to get off the train at Bournville and get a coach, which gets stuck in traffic most of the way to Barnt Green Station where the view is of heaps of gravel instead of railway lines. I arrive at the meeting late but the guys, nice as ever, have not started till I get there.

The theme concerning this meet was 'Favourite PD applications' and we were limited to no more than five each. John Rickman had brought his, I'm sorry, his wife's A9 to run them on viewed via a projector. Naturally John went first, followed by Doug Webb and Mark Rowan. These offerings were so debated that time ran out before I had a chance to astound the masses with my selection.

It has to be said that a fair proportion of the time was spent in getting the A9 to recognise the various flavours of USB devices offered to it. I think that John has been playing about with his wife's computer too much and has upset the thing. Though it must be said that John says that until he is

satisfied that the A9 is as stable as his wife's RPC then she can't use it. Of course we believe him in that there are still teething troubles and it is not that he still wants to play with it.

As Doug is taking Mark back to Birmingham University I scrounge a lift off him and find my own way home from there using my old codgers free travel pass. After waiting for ages the obligitary three buses turn up. I really think that the bus companies should be informed that 'x' amount of buses per hour actually means spread over the hour. Not all at once, sometime in the hour.

At work in the meantime a really nasty virus has laid low most of the PCs and the sad sight of stacks of said machines going away to have a severe cleanout of their innards becomes a familiar sight. I offer to lend the chap who as been lumbered with this task a large hammer to help but my offer is refused.

As I was typing out this drivel news came in about RISC OS going open source, well parts of it anyway. This has excited me so much that I have to finish off now and go and investigate further. Thus you will not have to hurt yourselves anymore by reading this, that is if you have got this far.

I am looking forward to the ARM Club show where hopefully new purchases and upgrades will be the order of the day for us all. Fond regards to you and your loved ones.

Ron.

UniPrint

Andy Burgess

I think I'm developing a hardware fault on my A7000, but am at a loss to know what it is! My digital camera will no longer talk to the machine, and I get *!Organizer* and *!Alarm* dying at one point in the day. As you may have read before I've changed my hard disc, but this didn't alleviate the problem. I've also changed my SIMM memory, but the Acorn's still touchy. Despite this, it's still my more preferred machine!

My laser printer (an ancient Brother HL-4) stopped talking to the A7000 computer through the digital camera parallel interface (on the parallel port), worked through the basic parallel interface, and then started to print grey pages!

I chatted to the friendly chap at my local Cartridge World (Basingstoke) regarding my Brother HL-4 laser printer (HP Laserjet 2 or 3 era). He checked out my laser cartridges for nothing and deduced from them that they were fine, but my laser's 'fuser unit' was probably knackered. If I wanted I could replace it for about £80, but then something else could go wrong - sounded like my failed head gasket on my Rover - gathering cobwebs on my drive!

He told me he had a Windows-only (USB port) laser printer available secondhand, and I'd be welcome to buy it from him. This got me thinking about other ways of printing from RISC OS (as I do some PC printing too), and I rediscovered my interest in *!UniPrint* from RComp. I read up the details on the web and decided it was just the thing!

I ordered it by email (for an additional £1), plus it was delivered on floppy disc with the printed documentation the next day.

The email arrived within 30 minutes!
I unsparked the archived **UniPrint Deluxe** 2.02 (270k) giving me:

!UniInst, Manual, Problems.txt, Readme.txt, **UniPrint.exe** (windows), URLLaunch

They said in their email, "It is very important that you follow the enclosed manual carefully, sentence by sentence. The installation procedure isn't difficult, but there are a quite a few steps."

Again my non-commercial **!Spark** messed up the filenames, so I changed readme_txt to readme/txt, problems_t to problems.txt and UniPrint_e to UniPrint.exe.

I opened the decompressed 'Manual' directory, and again renamed files to correct names. It wasn't immediately apparent which HTML document to load to find out how to install it - I was not upgrading (there was an 'upgrade/htm' file) but this was a new installation. I knew what FileURL/htm would tell me about - the facility to open Windows Excel, MS Word etc programs in that software *on* the PC - something, I tried later! It opened the file for editing on the PC, not on the Acorn like I'd hoped, but back to **UniPrint**.

I opened the 'UP/htm' and all became clear! 'UP' was UniPrint of course! The images from the manual didn't seem to load in my **!Fresco** or **!Oregano 1**. They displayed OK in RComp's **!Webster** though!

Windows side

(I'm using Windows XP on this PC)

I departed a little from their instructions re saving **uniprint.exe.** As I did not have a floppy at this point, I

copied the file from my A7000 across the network (using *!LanMan98)* to the destination PC. I had to remove the ',fe4' extension added by *LanMan*, and on doing so the PC displayed a pretty modified RISCOS 4 style *!Printers* icon - like the one that will be installed on *!Printers* later - indicating the PC was ready to run it!

I double-clicked it, clicked 'Allow' on my AVG Windows Firewall, and got a *UniPrint* icon on my PC's System Tray (I think that's what it's called). I will incorporate it into my Windows boot sequence later.

RISC OS side

Obviously I didn't have to copy *!UniInst* to my hard disc - it was already there having been downloaded by email - I ran it from where I'd unsparked it.

Reading ahead I saw I'd have to reboot my Acorn (not my PC)! I closed down programs like *!Pluto* and *!POPStar* before running *!UniInst*. Running it came up with a dialogue:

Eureka 59 — 2006 No. 4   *35*
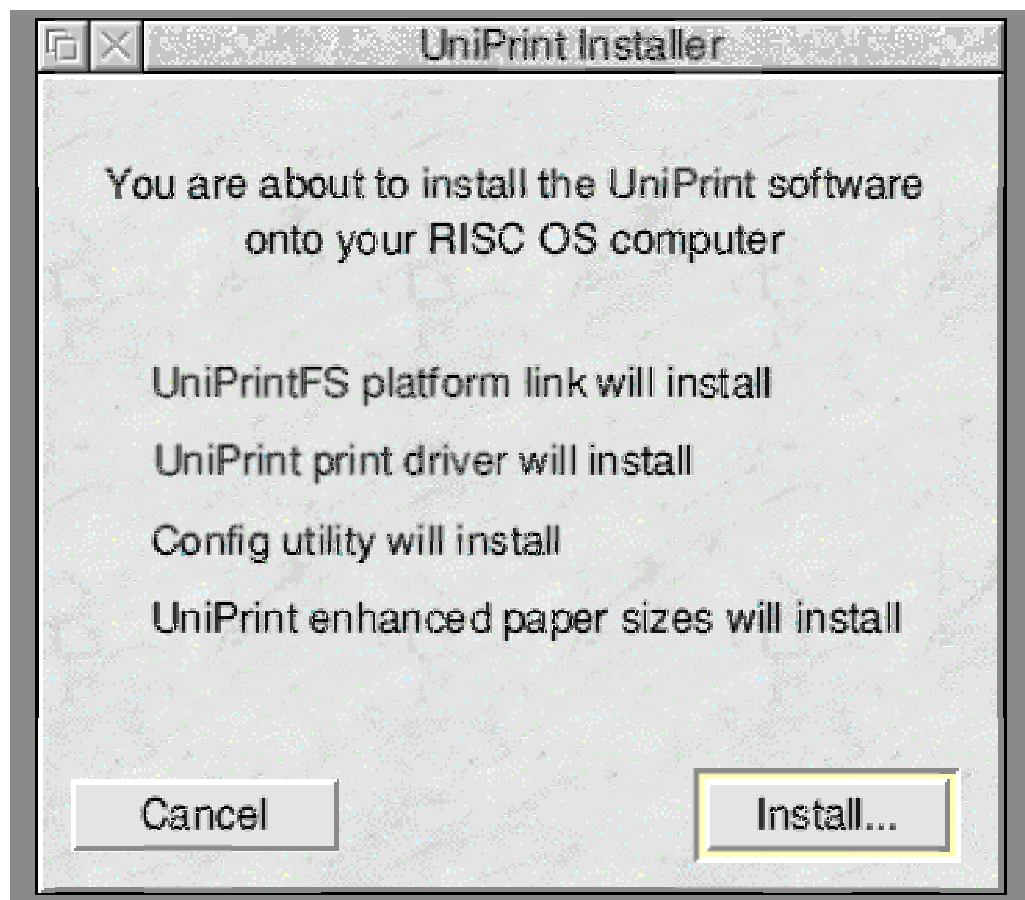
"You are about to install the UniPrint software onto your RISC OS computer

UniPrintFS platform link will install
UniPrint print driver will install
Config utility will install
UniPrint enhanced paper sizes will install"
...with cancel and Install buttons on the bottom. Clicking Install got it off working, and then I got:

"Installation of files complete. Please reset your machine before continuing"

I was glad the Acorn didn't shutdown automatically without asking, like I've seen on some poor PC software! When the message said "reset", it *meant* "reset"! I clicked "restart" on shutting down, The Acorn closed down and then didn't reboot. I was a bit perturbed then remembered some other software doing this *(LanMan98?)* previously. Can anyone tell me what it's doing? I'd like to know! I leant round the back and pressed the reset button. The Acorn rebooted normally. Phew! back to the 'UP/htm' file to find out what next.

The next step was to find the files !UniSetup and UniPrint in !Printers - I managed to find them, even though my *!Printers* is not in a standard directory or even in my *!Boot* !

I dragged the UniPrint definition file to !Printers - and I had a UniPrint "Windows Printer" definition defined. The same icon (as the windows one) appeared on my taskbar with my other printers.

Having done all that I did as bidden, selected "Save choices", quit *!Printers*, and ran *!UniSetup* - the new application in my Printers folder. I double clicked the only selectable "Windows Printer - UniPrint" option. It gave me another window with "Network connection (standard)" selected for me, which I was told but the manual to select "Details..." button from. I then had to enter the network address of the PC in. I couldn't remember it so did "local area connection - properties -

TCP/IP - Properties" in Windows on that PC to locate the IP address, and entered nothing as the printer name.

I clicked OK twice (though this was only mentioned once in the manual), I then clicked Save.
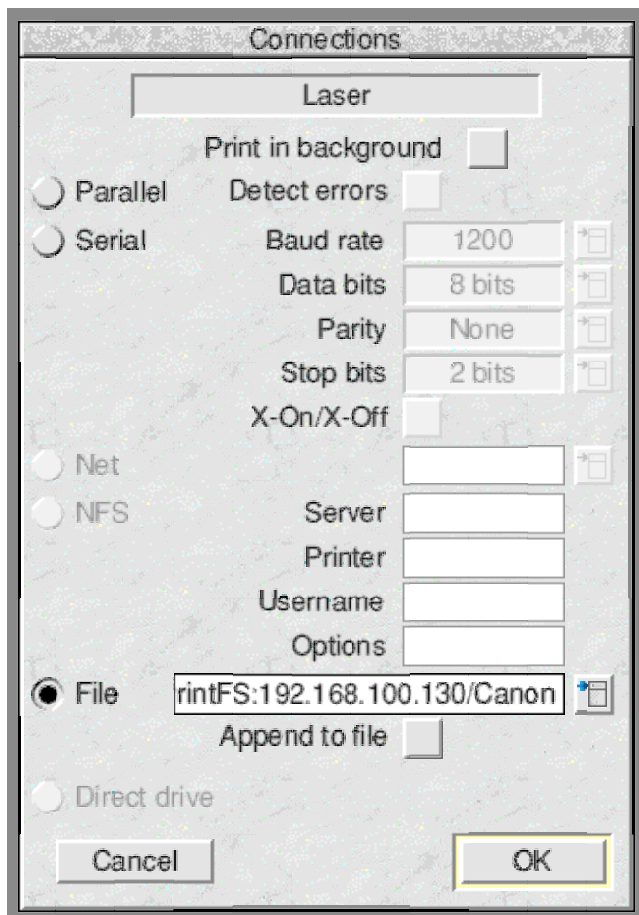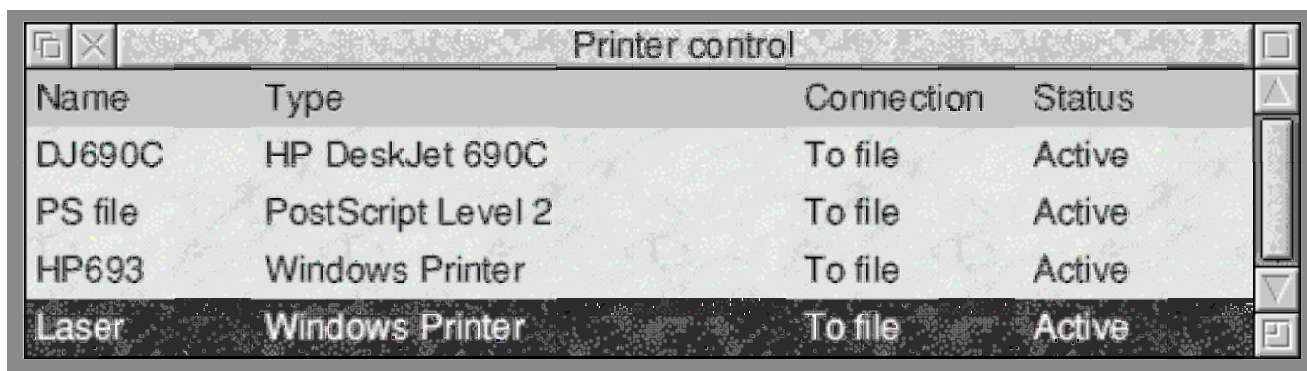
Canon options
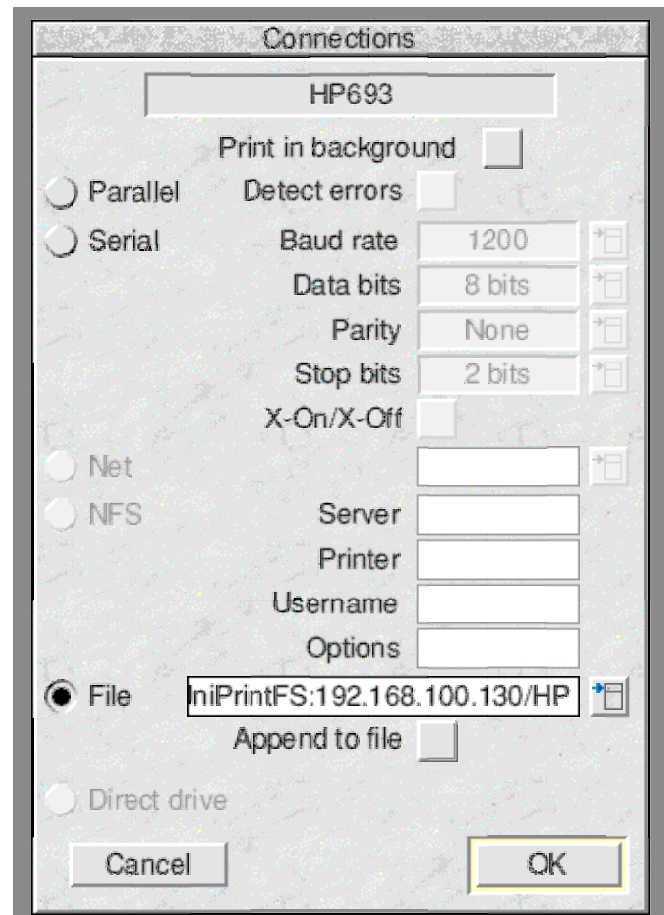
HP options

Windows again

I knew about setting the default printer on Windows, but Rcomp's instructions looked simple enough. I'd already done this, so ignored this step.

I reran *!Printers*, and the *UniPrint* icon was there still. I was also running *!FastSpool+*, so I quit that. I loaded the print queue listing on Windows (double click Printers and

Printer control window

The Icon bar icons

Faxes-relevent printer) I loaded up an **!Impression** document and asked it to print.

preparing printer "stop pause continue"

Bum! got "Either the Windows PC is not connected or the **UniPrint.exe** server application is not running".

Checked my firewall settings on the PC **UniPrint** was allowed, so what was wrong?

The PC which is attached to the printer I use extensively to attach to the Internet. It drives a great deal of my software! As an experiment I did a ping to the A7000 - destination host unreachable. I tried a quick test to the internet on google - told me it couldn't reach the site. Sh**! I need this machine to be online. I eventually twigged, somehow, I'd disabled the network connection (or the wire was loose).

Tried again - my Impression document printed perfectly! I got the helpful message:
"The RISC OS print job has finished. Your document should appear shortly"

and the Deskjet did its business. I've now got to sort out the yellow on the colour cartridge in the printer itself!

I printed off a two-page document to the HP693 colour printer. It truncated the last line and a half, so I'd probably have to tweak the margins somewhere for the printer in **!Printers**. There's probably something in RComp's notes, or I bet they would help me out if I phoned them. I tried setting the default page size from UniPrint (A4) to A4 (Generic Deskjet) which I presume worked with the printer attached physically to the Acorn, but no joy on UniPrint.

Now, I then bought a brand new 'budget' Canon Laser Shot LBP 3000 printer to attach to the same PC (so one parallel port printer, and one USB printer on this box). It wasn't exactly brand new. The chap in the shop I bought it off had had it returned from a Mac user who'd bought it to connect to his Mac, then found he couldn't. I set up my new laser printer in the position of the old laser printer, a bit of a way from the serving PC. I ran my new 2 metre USB cable from the PC to the printer. I knew that I'd have to buy a USB cable from reading a review of the printer - most new printers these days don't have the cables supplied! I ran the cable behind my Acorn machines and up to the back of the printer. Problem! I needed a 2.1 or 2.2 metre cable to put the printer where I wanted it!

I moved it next to the existing HP colour DeskJet 693C, and pinched that printer's mains socket. I dived into the **!Printers** setup on my icon bar and changed the setting on Printer Control-Connection to change the File dialogue box to be "UniPrintFS:<ip address>/HP" (instead of just "UniPrintFS:<ip address>") as mentioned in the R-Comp set up notes. I further changed the printer name in Printer Control-Configure to be "HP693".

I dragged and dropped the standard UniPrint printer

definition onto the Printer Control window to give me a new printer definition, and changed the settings as per above:

Printer Control-Configure-Name to be 'Laser'.

Printer Control-Connection to turn off "Parallel" and put back active "File", but with "UniPrintFS:<ip address>/Canon", changing the "HP" for "Canon" at the end. The UniPrint manual advises changing the name to match the first few chars of the actual printer name on Windows.

I closed down *!Printers*, then went back in and repeated the process, but this time, saved the settings! Doh! I printed the same document I'd printed on the HP Deskjet; this time, I got the full page printed - and in very high laser quality print! Something impossible from an Acorn without *!UniPrint !*

With non-existent RISC OS support for any new printing equipment, *!UniPrint* enables RISC OS to print on *probably* any new printer. To my mind it makes this a brilliantly useful piece of software, the only slight downside being having to use a PC and have that up and running on a network to print. I know I'll be making greater use of this! If it wasn't for *!UniPrint*, I would not have bought or been able to use the new Laser printer at all, and it works on RISC OS where it doesn't work on a Mac!

The only issue or real problem I had with the UniPrint/Canon laser combination was in printing a high-graphical content business card from *!Draw* (3.8MB) - it printed a double-width image, but a subsequent print of a smaller *!Draw* image was fine.

An ARM Club event

ACORN MIDLANDS SHOW

Following our previous successful shows near Birmingham, The ARM Club will be running a show at Featherstone and Hilton Community Centre near Wolverhampton on 25th November 2006. The full address is:

Featherstone and Hilton Community Centre
Baneberry Drive
Featherstone
Wolverhampton
West Midlands
WV10 7TR

This is a couple of miles from the M6. From the North leave the M6 at junction 11 and take the A460 towards Featherstone. From the south leave the M6 at junction 10A and follow the M54 to junction 1 then leave on the A460 north towards Featherstone. From the A460 turn into New Road and then left into Baneberry Drive where you will find the community centre.

Anybody wishing to exhibit at the show should contact the organiser, Ralph Sillett, at ralph@armclub.org.uk.

The show will be open from 10am to 4pm and there will be an entrance fee of £3 (£2 for club members) with accompanied children under the age of 12 admitted free.

Winning games with logic part 15

Barry Aulton

Oranges are the only fruit.

So you have this bowl of oranges, and you say, "my dog's got no nose", no! that's not right. Zadeh's the name, Lotfi Zadeh. Great idea that; whose going to forget a name like that; it stands out like the name Mao Tse Tung. In 1965 Professor Zadeh presented the concept of 'Fuzzy Logic' - to deal with notions that cannot be defined precisely - to a sceptical audience. Blame Aristotle for its slow acceptance in the west. He perceived the universe in absolute terms, TRUE and FALSE, BLACK and WHITE, if it wasn't TRUE, it must be FALSE. Fuzzy logic is a superset of Boolean (TRUE, FALSE) logic, that has been extended to cope with partial truths , i.e. truth values between completely true and completely false. Faced with millennia of Aristotelian thinking and George Boole to boot, the west did not want to give up its dependence on such a clear cut 2 valued logic and set about trying to debunk it or ignore it completely. It got criticised from day one as being non - mathematical, confusing and based on unsound reasoning. He thus had to subject his logic to intense mathematical scrutiny.

Of course the word FUZZY - fluffy - blurred - did not help.

However the oriental mind was not constricted to black and white, true or false - Boolean logic; mainly since they finally decided that Aristotle was not born in the land of the rising sun. They thus had no reason to dismiss a new concept if it would prove useful and put Fuzzy Logic to use in consumer electronics - washing machines, microwave ovens and cameras (to cancel out jittering).

But why FUZZY - blurred, elastic, unsharp? Because we humans do not think in precise terms. Take the case of a human trying to explain how you parallel park your car:-

First you line up your car to the next one in front of your space. Then you angle the car back into the space, turning the steering wheel slightly to adjust your angles as you get closer to the kerb. Now turn the wheel to back up straight and -- nothing. Your rear tyre's wedged against the kerb.

Go forward slowly, steering toward the kerb until the rear tyre straightens out. Now you are too far from the kerb. Drive back and forth, using shallower angles. Now straight forward. Now you are a little too close to the car in front.

Back up a few inches. BUMP, that's the car at the back. Forward a few inches and 'voila' - you have just parked your car. If you were asked to park your car by being given precise measurements you would not be able to do it!

OK back to the oranges! Suppose there are 9 oranges and an apple in the bowl and you ask someone to fetch the bowl of oranges, most people would assume you meant that bowl. However if there were only 6 oranges and 4 apples, some may look round for another bowl. Likewise if there were only 1 orange and 9 apples most people would assume you did not mean that bowl. People are inherently vague and do not normally think in precise terms such as "yes that is a bowl of oranges" or "no it's not". They may start to use terms such as "a few", "sort of" or "mostly". Given that people are vague, a form of logic designed to deal with human vagueness is required - aka Fuzzy Logic. Fuzzy logic enables you to lump complex things together to make them easier, cheaper and faster to deal with.
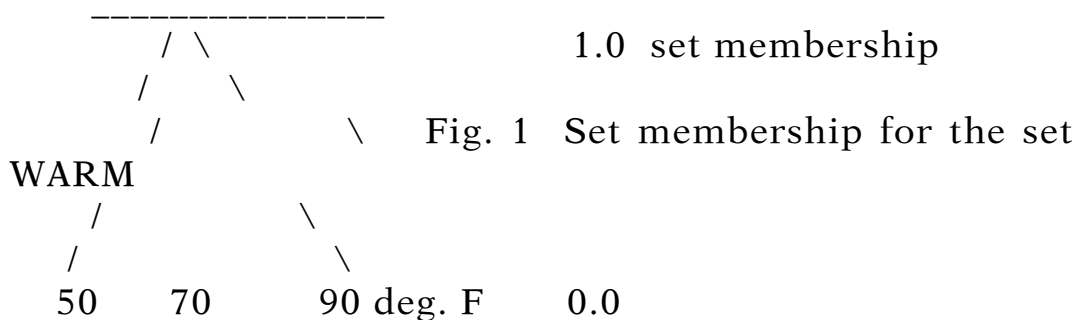
Lotfi explains - "If you had a bunch of screws and nuts and you picked up one screw at a time and took it some place, it would take a long time. Dump them in a bag and it's faster. Thats what you do with Fuzzy Logic"

Fuzzy logic can also can deal with contradictions. Why is the latter needed? Because humans are contradictory. Different people will suggest different ways of doing things which may be mutually incompatible - turn left - no right - not there you fool - let's look at the map - shall we stop and ask someone? - backseat drivers all!

Why fuzzy logic? (common sense)

Its definition time again, go and get a cup of coffee!

Fuzzy logic allows us to quantify vague concepts; ones that can be true to some degree, somewhere from 0 to 1. A proposition's truth value indicates the degree of certainty about which the proposition is true. For example some folk may declare it is raining if a single drop falls on their head, however others may not. Suppose we asked people if it is warm today. If the temperature was say 70 deg. F, nearly all Londoners would agree. At 60 deg. some may call it warm and some not. Also at 80 deg. some people may call it hot, but not all.

```
        _____
          / \                        1.0  set membership
        /     \
       /          \      Fig. 1  Set membership for the set
WARM
      /            \
     /              \
    50     70        90 deg. F      0.0
```

A membership function maps one (or more) variables ,(here the temp. in deg. fahrenheit), to a degree of membership (0 to 1). We could represent the set warm by say a triangular shape as above, in deg. Fahrenheit along the X axis and set membership 0 to 1 along the Y (see Fig. 1). Fuzzy sets can have many shapes but for a game we only need very simple ones e.g. triangles and trapezoids. (I have here somewhat arbitrarily assumed that at 70 deg. F almost everyone in London thinks the
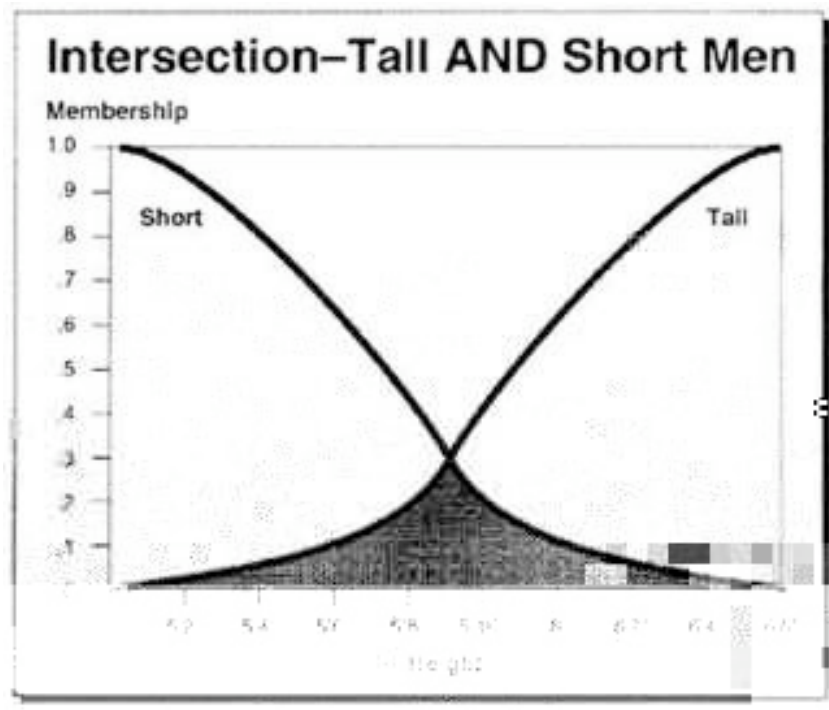
Fig.2

temperature is warm, where as at 90 deg. F no-one does because they think it's hot!)

Most things affected by human behaviour consist of this sliding scale of partial truths, whether it be truth (especially where politicians are concerned), age (especially for women), beauty, wealth or anything else. Other philosophers such as Plato, Marx and Engels indicated there was a third region (beyond 'true' and 'false'), where opposites tumbled about, but Lotfi was the first to develop a general theory starting with the question to what degree is something true or false.

Fig. 2 (By Bart Kosko) shows possible membership functions for 'Tall' and 'Short' people; but what do we mean by tall and short? In this case the set under consideration is the set of all people. The fuzzy set tall is meant to answer the question - to what degree is a person tall? We would expect this function to show increasing membership with increasing height and to be asymptotic to 1.0 - full membership - for all heights beyond a certain height (say 6' 6" aka - hows the weather up there?). (In fact people are taller since this figure was produced (in 1993), and hence

we would have expected the membership function 'Tall' for today's people to be shifted to the right). Similarly we can show another membership function 'Short', which answers the question to what degree is a person (in 1993) short. We note that there is even an overlap at ~ 5' 9" where some people think people at that height are tall and others think them short.

Of course, membership functions are all very fine and dandy, but just what can we do with them? An expert system is one which attempts to duplicate the decision process of one or more human experts. A fuzzy expert system is a collection of fuzzy membership functions and rules that link them together, (instead of Boolean logic , that is mainly used to plague science students), to reason about data.

The rules in a fuzzy expert system are of the form e.g. :-
    If x is LOW and y is HIGH then z is MEDIUM
     for example if temperature is LOW and persons height is TALL then the decision to travel by train is MEDIUM (This is a somewhat unlikely rule, but I hope you get the idea).

With this rule we are linking a whole fuzzy set LOW, another fuzzy set TALL (e.g. the set TALL as in fig 2), and are assigning it to a whole membership function, namely the fuzzy set MEDIUM - which shows how much of a good idea it is to travel by train when the decision is around 50 - 50.

In a computer game you may have rules such as:-
   if BATTLE STRENGTH is LOW and (strength of nearby reinforcements) is LOW
   then decision to retreat is HIGH

An expert system for a computer game may consist of many such rules as this, some using ad hoc functions. Fuzzy logic can cope with such sets of rules where any ad hoc function or normal rule system would fail eg due to ambiguity or contradiction.

Applications of fuzzy logic are being used to diagnose

breast cancer and rheumatoid arthritis, in recognition of handwriting and in remote sensing images from satellite images - the list is almost endless. Of course, to err is human:-

In Nov. 1993 Carl W Hoffman reported that a consortium of major software companies announced they had won the contract for developing the 'fly-by-wire' control software for the new generation of passenger planes to be developed. The section manager of the Fatal Software Defects Analysis Section of Mitsubishi Heavy Industries stated: "Winning this work proves the maturity of the Japanese software industry. We plan to leverage the expertise we gained in developing the control software for the unmanned Osaka tram system." When questioned about the recent accident where the tram crashed through its stopping point and nearly plummeted ten meters onto a road packed with rush hour traffic below, he replied, "Actually that bug was due to our being forced to use unnatural software constructs like the Western notions of TRUE and FALSE. We are now developing a new logic more suited to Japanese culture, where NOT FALSE is still FALSE. Anyway, that bug only showed up when another bug that had been cancelling out its' effect was fixed. These things happen." Queried as to why the change over from the calendar system used during the reign of the late Emperor Showa to that of the Emperor Akihito took up to three months at some Japanese companies, the manager continued, "Don't underestimate the complexity of that problem. You have to subtract 25 from the old year and add 88 or something like that, I forget, but our system analysts were able to spec it out." To err is human, but if you really want to screw things up?

Fuzzy Processing has many advantages for game programmers, eg:-
  1) They require 50-80 % fewer rules than traditional rule bases.
  2) They can deal with contradictions (in the same way an eskimo may consider 50 deg. F to be warm but not an Egyptian.)
  3) Fuzzy processing using simple triangle or trapezoid

membership
functions does not degrade profile timings.
 4) They are sound mathematically.

How might we adapt fuzzy logic to a computer game?
One can start by making some adhoc suggestions, perhaps
as a result of playing a simpler version of the game. These
suggestions for improved character behaviour can then be
embodied into a fuzzy expert system which would consist
of fairly ad hoc rules based on observation of what seems
to work,eg:-

    If character is near a building, on balance let
        him/her go in
    If   character A is doing this, maybe character B
        should do that.
    If - - - - - - - -

    If - - - - - - - -
        - - - - - -

To adapt fuzzy logic to a computer game you would
probably need to play the game (eg using a map set out
on cardboard moving the other characters like chess
pieces). In certain places in the game you may note that if
the main player is making his character(s) do one thing, it
may be a good idea to make the opposing characters do
something to counteract that. We end up with several
rough rules of thumb that ordinarily could not be used in
a computer program due to the need of quantifying them.
(eg if the main character is swimming all opposing
players should attempt to cut him off). Fuzzy logic
provides this quantification together with well established
ways of combining these rules to make them work
together.

We will look at how Fuzzy logic is used to combine these
rules next time.

Articles required for Eureka

Remember that everyone who contributes an article to the magazine will have their membership extended, free of charge, for every issue in which their work appears.

Articles can be as short or as long as you like on RISC OS related subjects eg Hardware, How to Do, Internet, Software, Reviews ect.

If you feel like writing an article or even a series then get in touch with the editor at:

eureka@wyvers.co.uk
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Copy date for next issue of Eureka is the 1st of January

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Club contacts

Email:

General queries	info@armclub.org.uk
Membership queries	membership@armclub.org.uk
Members' technical help	support@armclub.org.uk
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Magazine	eureka@armclub.org.uk
Software	products@amclub.org.uk

The ARM Club, Merton Court, 38 Knoll Road
Sidcup, Kent DA14 4QU

Telephone (higher rates):
General queries 07010 709849
Technical help line 07010 708098
Fax: 07020 954018

Web site: http://www.armclub.org.uk/

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