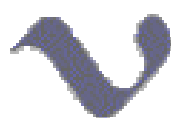


The magazine for members of

The **ARM** *Club*



**antage shows its
true colours**

Putting up with a PC

**Data plotting
with Gnuplot**

**What women want
on the Internet**

**Four new RISC OS
magazines to read**



Issue 34 — Summer 2000

Living With An Unloved PC

Just as the exciting new hardware and software which brings fresh hope for the future for RISC OS machines is coming onto the market it may seem strange to write in Eureka about the use of *Wintel* PCs.

However, many enthusiastic Acorn owners do have to use PCs as well, particularly when their work demands it, and in the past few months four members have urged that we should have some articles in the magazine to help them use their Acorn and PC together.

The Club does not support PCs as such but an article or two in Eureka — and it will never be more than that in any issue — would obviously be of value to many of our members.

As a diehard Acorn user who has just reluctantly bought my first PC, I am recounting my experience of linking it to my Risc PC and learning how to use them together in the first article of a series starting in this issue.

The experience of using both computers has taught me one thing: those who say that using a PC is a pain are absolutely right! It has certainly made me appreciate the ease and reliability of StrongARM and RISC OS 4 even more.

Anyway, if you can contribute anything on the subject of using Acorns and PCs together please let me know.

In the meantime, returning thankfully to more familiar ground, Cerilica's powerful new graphics program, Vantage, is in its final stages of preparation and we take a first look at what it offers.

Also, a host of new magazines for RISC OS users are now making their welcome appearance on the scene. We have a review of two and, no doubt, much more will be heard of all of them in future issues of Eureka.

Peter Jennings

All opinions expressed in Eureka are those of the authors and not necessarily those of the Club or its Committee members and officers.

CONTENTS

4 Vantage

The long awaited graphics program offers a powerful new package of design and publishing tools.

8 Sed and Awk

Is is a bird, is it a plane is it a text processor? Find out in the first part of our new series.

13 Now read on...

We look at two of the four new magazines for RISC OS users.

16 Talking Stories

Six more adventures to help children explore the world of words.

20 Living with a PC: linking up

In the first of a new series, requested by members, we look at how a PC can be added to your main computer.

24 ARM Arena

Prepare to do battle with some of the new and revived games now appearing on the scene.

31 Beginner's guide to TeX: Part 4

Our series ends with advice on pictures and tables using LaTeX and looks ahead to some coming developments.

42 China CDs

Two CDs at a bargain price and your money goes to help people in need. See how much you get when you give.

46 Site Seeing

Where to find info and advice on the Web, if you're interested in graphics or scanning.

49 DoubleCross puzzle

No clues but just the letters, and the answers are all part filled in. Easy isn't it? Or is it?

50 DoIT

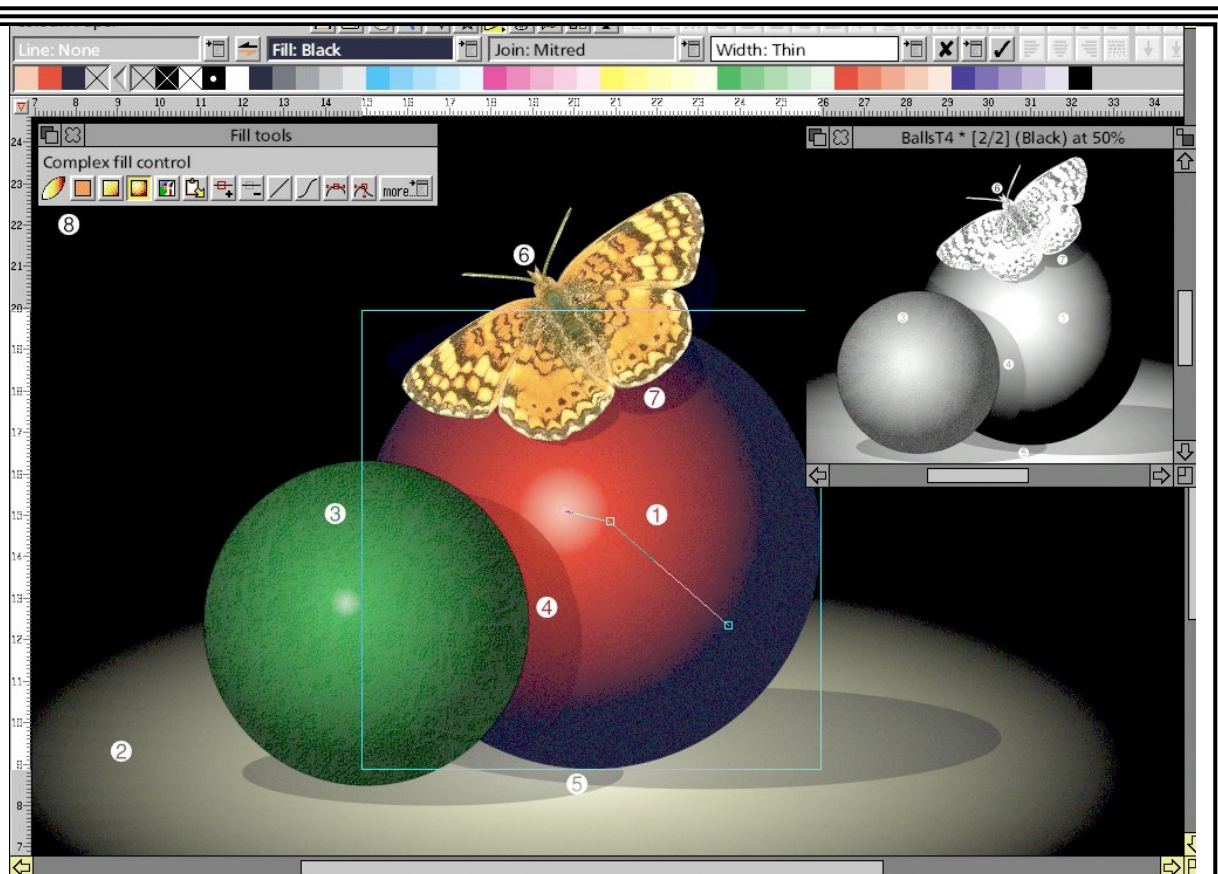
New educational packages with words and number games.

57 Gill's Journal: Surfing sisters

What women really, really want on the Web.

62 Gnuplot

How you can plot data without a spreadsheet.



Vantage previewed as the first release version nears completion (page 4)

69 Acorn Southeast Show

Where and when to see and buy all the latest on offer for your computer.

70 Number Train

Join the passengers for some number play.

77 DoubleCross solution

The answers you may have missing from the word teaser on page 49.

78 Notices

An opportunity to join the elite band of Eureka contributors, feedback on BT itemised calls and the best of BEEBUG on CD-ROM.

79

Shows Diary

See you at the Shows in Wakefield, Holland, St Albans and Epsom.

80

Club contacts

Who does what and how to contact them.

Vantage

The most eagerly awaited RISC OS software for years: Vantage, the momentous 'artwork and design' graphics program from Cerilica, seems finally to be reaching its completed form. Even in its pre-release version, it is clear that the long

with an additional floppy disc containing a *key* application, personalised for the registered owner, which has to be seen by the computer before the program can be run. This can be put in the Boot Resources directory if Vantage is to be installed

As Vantage approaches completion, Peter Jennings finds the pre-release version already fulfils its promise to be an innovative, major, new graphics package.

months of development have produced an impressive package packed with innovative features which start to become apparent from the first window opened. This contains a large pasteboard surrounding the work area as well as the expected toolbar, colourbar and rulers.

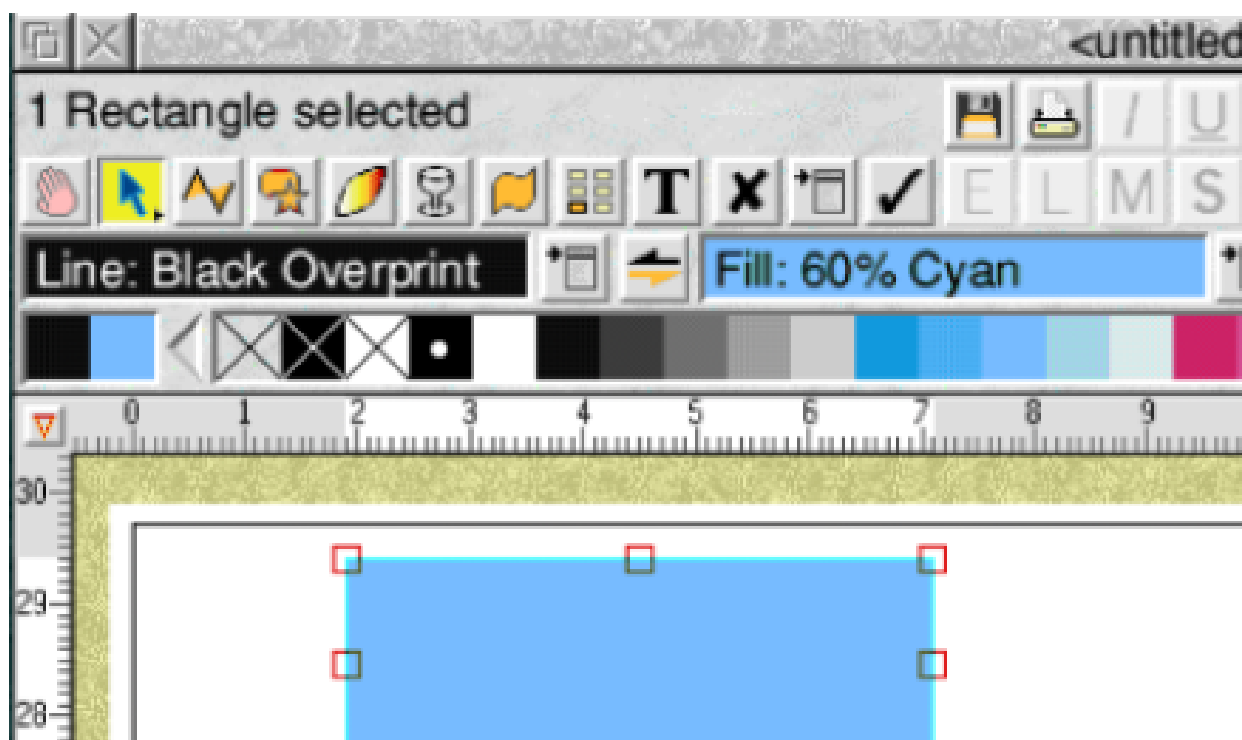
Selecting a tool or just putting the mouse pointer on its icon identifies it by showing its name in a box at the top left of the window. The Acorn *Help* application can also be used and this can offer more detailed information for some of the tools.

The software comes on CD-ROM

on the hard disc. Finally there is a lengthy wire bound manual, running to more than 130 pages in the pre-release version which forms the basis of this review.

The work area, referred to as the *paper*, is of course adjustable for size and format and shows paper limits and a *bleed* area outside them for professional printers using oversize sheets so as to print right to the edge of the page. This can be changed to show the unprintable area when using a desktop printer.

Objects can be put on the pasteboard while making up a page and, if left



Colours can be selected by dragging them from the colour bar.

there, will be included when the page is saved.

There is a big emphasis on the value of Cerilica for professional use in publishing, from concept through to the final results. But this doesn't mean that it is all above the abilities or interests of anyone else with a use for graphics. Anyone of any ability will find it a delight to use.

For example, I was captivated by the ease and simplicity of colouring an object. A simple outline, such as a rectangle or circle can be dragged to size with the mouse, as in Draw and

other graphics programs. By default, it has a black line and no fill colour. There is a row of small colour squares along the button bar. Drag one of them to a box at the end of the row and it immediately makes that the line colour. Another colour dragged to a box next to the line one immediately provides that as the colour fill. The line colour can, if you wish, be changed to any thickness to provide a coloured outline to the shape—all done by clicks to the button bar.

Graduated fills will follow any curve and radial fills are not restricted to concentric circle shapes.

Professional users will probably be more impressed that the colours can be accurately represented on screen as they will appear when printed, due to some advanced ink simulation.

Usually the colour seen on the monitor screen will bear little relationship to the colour of the same name produced by the printer. Monitors emit light in three colours, red, green and blue (RGB) while print relies on reflected light and commonly uses cyan, magenta, yellow and key/black (CMYK).

The first step towards correcting this is the use of a monitor calibration tool, included in the package, which works with RISC OS 3.5 and later and gives a much better representation of RGB colours on screen.

But the big advance, and probably the package's strongest feature, has been the development of TRUISM II specially for Vantage.

This will display on screen an accurate representation of the ink colours used by almost any commercial or desktop printing method. This has previously been

possible only by using expensive, specialised, systems and only with bitmap images. Vantage will, uniquely, also do the same for vector graphics.

There are three rendering modes: the default *simple* one, an *everything* mode, needing longer processing time but with real-time on-screen anti-aliasing for more accurate representation, and *outlines* mode which, as its name suggests, renders just the object outlines (except for sprites) for a minimal display but rapid redraw.

When using Vantage, the first tool you probably need to get to grips with is the line tool and this is a very good example of the thought that has gone into the package to make it easy to use. The line tool has four modes: line, curve, freehand and edit. When it is first selected the mouse pointer changes to a star-like mini crosshair with a straight line beside it. Adjust-click with the mouse and the straight line changes to a curve. Another click and the pointer becomes a pencil shape to indicate the freehand mode and a further click toggles it into an arrow for *edit*.

The same system can also be used to toggle through the selection offered by the *regular shape* tool, which allows you to drag standard shapes into the required size and position. Any of them can also be given internally or externally rounded corners.

Objects can be copied in the normal way, using a clipboard or the pasteboard, but a copy can also be made by dragging an object using the *select* mouse button and the *shift* key. It is even possible to drag-select objects out of a Vantage window and into another application.

Families

Objects can be grouped, as normal, and there is a more advanced form of *layers* called *families*. This allows objects to be linked into a group even if some of them are on a different layer, above or below the others.

As expected, a grid is available to help with layouts but here there is a choice of square, rectangular, triangular or (still to be implemented in the review version) circular divisions.

Yet another unusual feature is that a Vantage document can be multi-paged and have master pages just like a word processor or DTP program. The pages can even be defined as left or right to form double page spreads.

Extra feature

Vantage is a complex and detailed application which has taken a long time to construct. Cerilica's system is to get new elements of the software working outside the package before they are incorporated. So the full, released, package will have some extra features which have not been included in the pre-release review versions. This means that you are likely to find some worthwhile enhancements in the copy you are able to buy.

Vantage

Price: £241.50 inclusive (UK)

Supplier: Cerilica

PO Box 40

Ross-on-Wye

HR9 7WH

Tel: 0870 2411731

Email: cerilica@cerilica.com

Web: www.cerilica.com

Sed And Awk

OK, I admit it. I am a somewhat naive computer user (spod score ninety) who was, until recently, under the impression that the awk was a flightless bird that used to live in and around the Arctic. I have however, recently seen the light and now realise

subdirectory if you intend to use them regularly.

Sed parallels conventional editors in many ways by offering global search-and-replace facilities. Sed can also be used to achieve consistency

If you think GNU, awk and sed are of more interest to zoologists than spods, Paul Webb will explain their true value he found for computer users processing text.

that awk and its cousin sed are very useful utilities for processing text.

This article looks at GNU sed which has been ported to RISC OS by John Kortink of !Translator fame. An additional article will examine GNU awk. Both articles will give the reader some idea of the uses to which sed and awk can be put. I have provided a list of references for readers who think that these utilities might be worth investigating in a bit more depth.

Sed and awk can be obtained from www.inter.nl.net/users/J.Kortink/ and can be placed in the !Boot.Library

throughout a document and to write conversion utilities. Sed could for example be used to write a latex2ascii utility which strips out latex commands and leaves the user with a plain text file.

This would be useful in situations where the user wanted to work with a word processor rather than to continue with latex.

Sed is therefore preferable to a conventional editor in situations where many edits need to be performed on a range of files. It is also remarkably flexible once the user has become acclimatised to its syntax.

Familiarising yourself with sed can additionally be recommended as a prelude to the study of awk as both utilities share a similar syntax, are stream oriented and use regular expressions for pattern-matching.

As with most utilities of UNIX origin, sed runs from the command line. The user can either issue a number of commands from the command line or place those commands in a script file. The latter method is perhaps preferable where your sed script does anything more than the most trivial of tasks.

Syntax

Coincidentally, sed and awk can both be invoked in similar ways. The sed/awk syntax is as follows:

`command [options] script filename`

A sed instruction has two parts: a pattern which is usually a regular expression delimited by slashes (/) and a procedure which specifies a number of actions which are to be performed on a chosen file.

Let's look at a simple example.

Suppose that you had written a social history of labouring men and women in the nineteenth century. The word 'labour' would appear frequently throughout such a document. The UK-English spelling would be suitable for the UK market but would be unsuitable for the North American market.

With sed it would be a simple matter of substituting 'labour' for 'labor' by issuing the following command:

`sed s/labour/labor/g filename`

The effect of this command is to replace or [s]ubstitute the UK-English spelling of 'labour' for its North American counterpart.

It would also be possible to apply this command to many files in situations where the document had been divided up by chapter or by section. Thus one can see the power of sed when it is appreciated that edits can be performed without even opening any of the target files!

The fact that the substitution command is applied to the entire document is an important feature of

sed which shows that all sed commands are implicitly global unless the user gives instructions to the contrary. Therefore, an address has to be specified to localise a command.

```
sed /market/s/labour/labor/g filename
```

This command replaces 'labour' with its American counterpart on any line that contains the word 'market.' The 'g' command is used so that all occurrences of 'labour' on the line are substituted for its American equivalent.

It is also possible to perform multiple substitutions on a file without writing a script file. This can be accomplished by placing the 'e' switch before each instruction or by separating each instruction with a semi-colon.

```
sed -e s/labour/labor/g -e s/worker  
/artisan/g filename
```

```
sed s/labour/labor/g; s/worker/artisan  
/g filename
```

Sed is also noteworthy because it is stream oriented which means that the input file remains unaltered because it passes through the program and is

directed to standard output. Any changes which the user wishes to save must therefore be redirected to an output file. Redirection is accomplished with the aid of the '>' operator:

```
sed -f scriptfilename inputfilename >  
outputfilename
```

The 'f' switch is used to apply the contents of the scriptfile to the input file with the result that any output is redirected to an output file. It is important to give the output file a different name from the input file if you wish to avoid the possibility of overwriting your original document.

Minimal knowledge

At this point, we have looked at the substitution command and the various ways of issuing a sed command. As an example of a useful utility which can be written with a minimal knowledge of sed think of a script which extracts the section headings from a latex document and labels each section on the basis of its overall position in the structure of the document.

Thus a section heading might be denoted by the letter 'A' whilst a

subsection heading might be represented by the letter ‘B.’ I have found just such a utility useful when writing long documents because extracting the subheadings gives me a sense of the topics that I have covered.

Look for example at the following simple latex document which contains a number of sections and subsections:

```
\documentclass{article}
```

```
\begin{document}
```

This is an example of a document which has been marked up with latex.

```
\section{Aide-Mémoire}
```

This document is short with the result that it is easy to remain focused on the message in hand.

```
\subsection{Loosing the Plot}
```

It is however, very easy to omit important details when a document contains a large amount of information.

```
\section{Solution}
```

Our simple script provides a way for the writer of large documents to retain his or her focus.

```
\end{document}
```

The following script could for example be used to extract each heading from the rest of the document.

```
s/{//g
```

```
s}/{//g
```

```
s/^\documentclass/Doc Type: /p
```

```
s/^\section/A. /p
```

```
s/^\subsection/B. /p
```

```
s/^\subsubsection/C. /p
```

This script works by removing the parentheses from latex control words. It then extracts each section heading with appropriate labels.

The ‘^’ symbol is the first character of a regular expression and is intended to match a range of symbols at the beginning of the line. Thus, the fourth line of our script looks for the control sequence ‘\section’ at the beginning of a line and substitutes that sequence

for the letter 'A.' followed by a space. The 'p' command is necessary because sed outputs every line by default whereas we will invoke this script by using the 'n' switch which suppresses all output. In this context, the 'p' command is needed in order to print specific lines.

Assuming that our script was called lat2out, the script could be invoked with the following command:

```
sed -nf lat2out testfile > outline
```

We have therefore written a useful sed script with the minimum of knowledge. There is however a lot more to learn about the sed command set so if you are interested please take a look at the list of references.

The beauty of sed is that non-programmers like myself can write useful programs with the minimum of code. I hope that you are now persuaded by this view and will experiment for yourself.

In the next article I'll look at awk and have a go at writing a simple but useful awk script.

Sources

Supplier: J. Kortink

Price: download time

www.inter.nl.net/users/J.Kortink/

References

- Pizzini, K. (1998) Sed, a stream editor v3.02 Free Software Foundation.

This short manual is available for download in HTML, tex and texinfo formats from:
www.gnu.org/manual/sed-3.02/sed.html

- Dougherty, D., Robbins, A. (1997) Sed and Awk. CA: O'Reilly & Associates.

This book introduces both the basic and advanced features of sed. It is very easy to read although its example scripts assume a knowledge of UNIX.

- Friedl, Jeffrey. (1997) Mastering Regular Expressions. CA: O'Reilly and Associates.

A good read for anyone who wants to feel comfortable with regular expressions.

Now Read On...

With four new RISC OS magazines to read, where do you start? Probably all of them will have brought out two issues by the time you read this and three out of the four have been very concerned that



Acorn Computing, Archimedes World and RISC User have gone but four other magazines have arisen to take their place. Peter Jennings looks at two of them.

they should not be judged by their first issue, which I suspect has been rushed out so as not to be left behind the others.

The exception is the CD-ROM, Foundation RISC User, being sent quarterly to RISC OS Foundation members. This is being edited by the very experienced Richard Hallas and the first issue can well stand up to critical scrutiny.

As none of the second issues were complete at the time of writing we have been unable to review all four magazines but will look at two of them in the next issue.

Foundation RISC User shows why its Editor, Richard Hallas, received the RISC OS '99 award for Editorial Excellence when he edited RISC User for Beebug. It is a smart, professional looking, publication on CD-ROM produced in HTML which can be run on RISC OS or IBM type PCs.

The CD opens with a title page which leads on to a *Welcome!* section containing an Introduction and an Editorial. There are buttons offering: *News* with sub-sections on RISCOS Ltd, Partners, Developers and Events. *Features* is the biggest section with stories on how the front cover graphic was designed, an overview of printer drivers, an introduction to RISC OS 4,

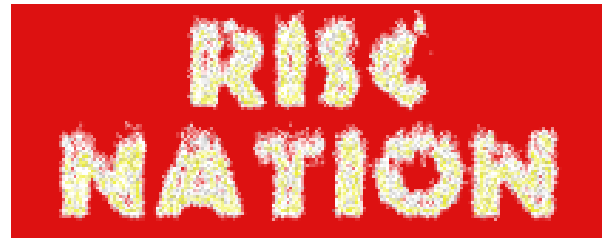
how to use MP3, a Basic Wimp programming library, writing screen savers, Internet searching, HTML forms, The ARM Club, the AAUG, RISC OS 4 roadshows and games.

Some of these have accompanying software which can be copied off the CD.

There is a *Forum* section comprising Feedback, Hints and Help; *Database* with information on Products, Developers, User groups and Installers, an *A-to-Z Index*, *Help* on navigating the CD and *Credits* with the background and credentials of the various contributors.

This is a substantial editorial content, with plenty of useful information, and the CD is topped up with more than 195MB of free software plus submissions from Foundation members and directories of downloads from the RISCOS Ltd Web site, including files from the members' 'private' section.

The Foundation has long been promising a regular magazine. This was well worth the wait.



The first impression of the monthly disc magazine RISC Nation is that it is rather short on instructions. Clicking on the first of the two discs for issue one reveals five files: a read-only version of *ArcFS*, *!Fonts*, a *Disk1* archive, *RISCNation* (with a blank icon on my computer) and a *ReadMe* which just asks for *!Fonts* to be run.

In fact, you need to open the *Disk1* archive to find a copy of *StrongHelp* to run the *RISCNation* file. This then opens a narrow window with black text on dark red background, which is not too easy to read. This has underlined lists of *Regulars*, *One offs* and *Reviews* and *Where you can contact RISC Nation*. There are again no instructions to help the inexperience although seasoned Web browsers will guess that the underlined words are links, even though the pointer does not change to a hand when over them.

An index includes three items which were not present and omits four games which are there.

The magazine contents include a brief introduction promising that there is a lot planned for the next twelve months. There are three items of 'news', a request for contributions (unpaid), an offer of free advertising, some links to Internet sites, a list of smilies and some reviews and previews of games and other software.

The two double-density discs are topped up with PD software, most of it rather old. This comprises: Apps 12, Games 6 + 1 designer, Games maps 2, Cheats 10, Emulations 2, Fonts 1 (not complete) and Sillies 2.

The second issue (seen only as an incomplete preview version) has more editorial content, including a brief tutorial on using directories, an interview with Robert Kerr about the development of EasyWimp and a reciprocating review of Eureka!

Both issues have a selection of games reviews, awarding points for game play, sound and life span.

The subscription price is attractively low at £1.25 for a two-disc issue so it now remains to see how the contents develop in the coming months.

The RISC OS Foundation
Annual Sub: £30 + £5.25 VAT
3 Clarendon Road
Cardiff CF23 9JD
Tel: 02920 492324
Fax: 02920 440071
Email: foundation@riscos.com

RISC Nation
Annual sub (12 issues): £15
(cheques payable to V A Evans)
72a Botley Road, Park Gate
Southampton SO31 1BA
Email: kezs@ukgateway.net

RiscAction
Issue 2 (one copy) £4.50 (UK)
Europe £5.50, Others £6.50
(cheques payable to ProcAction)
40 Honiton Road, Romford
Essex RM7 9AJ
Email: raeditor@hotmail.com

RISC World
Annual sub (6 issues) £17.90 (UK)
Overseas £19.90
39 Knighton Park Road
Sydenham, London SE26 5RN
Phone: 020 8778 2659
Fax: 020 8488 0487
Email: subscriptions@riscworld.com
Web: www.riscworld.com

ORT Talking Stories Stage 4

This CD is one of the series supporting the popular Oxford Reading Tree Scheme used in many schools with Key Stage 1 pupils. As such the format will be familiar to those who have used other Sherston programs based on their Playbook

network pack for use on five stations costing twice the single cost of £40. This will be particularly useful to many primary schools who have networked their computers. Those using RISC OS will thus be able to use the software on older machines

Di Hillage listens to the latest talking stories from Sherston's Oxford Reading Tree series and finds it really can be used for 'supported self study'.

application. These include the Naughty Stories, Nursery Rhyme Time and Ridiculous Rhymes.

This CD covers six Roderick Hunt stories from Stage 4 with their illustrations by Alex Brychta: House for Sale, The New House, Come In!, The Secret Room, The Play and The Storm.

The CD is triple format enabling it to be used on all three of the common platforms found in schools. Like other titles in Sherston's excellent range of products, it is available as a single CD pack or as Multi CD or Network packs with, for example, a

such as A3000s which may not have CD ROM drives attached.

The software can be run from the CD or installed to a hard disc so that records can be kept. The CD is still needed to run the software under a single licence. I assume that network versions allow the whole application to be copied to a server's hard drive and that instructions to do this are included with such packs.

On running the application a menu screen appears showing the six titles. A small icon in the corner of the screen gives access to the teacher's menu via which various parameters



Six new stories with word, sentence and text level activities

can be set including short-cut access to and exit from the activities that follow each book. After returning to the main menu and saving the chosen settings, clicking on a title 'opens' the book giving the familiar page format from other Talking Story titles.

For each page the illustration and text are shown with icons, albeit different ones from earlier titles, to allow the text to be read and to run associated

animations and sound effects. Clicking on single words allows them to be read.

After each book there are word, sentence and text level activities. A phonological exercise asking the user to pick out words that include a particular phoneme or blend forms the word level task in each case. Visual discrimination is needed to pick out the correct sentence in the



Over the rainbow for the school play

next tasks and sequencing of sentences to summarise the story follows next. Clear instructions are given at every stage —although perhaps there might be an option to turn off the instructions once pupils have used the software once and particularly if they are using it in a small group.

The User Guide contains clear and comprehensive instructions and includes sections giving advice on

how the software might be used and the role of Talking Stories in the development of children's reading. The phrase 'supported self study' is becoming familiar to teachers as they approach the NOF ICT training and it seems an appropriate one to apply to the Talking Story software, whether it is used in school or at home.

The range of literacy software for this age range from Sherston is large and impressive. It includes the award



winning Rhyme and Analogy CDs together with new titles such as Sound Activities, Sound Stories and the earlier stages of the ORT stories. Those schools who have not decided to discard their Acorn computers and have benefitted from the cast offs of those who have done so, will be particularly interested in installing these titles on a network, thus giving greater pupil access to the titles.

ORT Talking Stories Stage 4

Price: £40 +VAT

Multi packs: 3 at £60, 5 at £80
(others available) all +VAT

Supplier: Sherston Software Ltd

Angel House, Sherston

Malmesbury, Wilts SN16 0LH

Tel: 01666 843200

Fax: 01666 843216

Email: sales@sherston.co.uk

Web: www.sherston.com

Finding the secret room

RISC OS 4 Users

If you are using RISC OS 4 you may get an error message when you run a Sherston CD-ROM.

If so, use !Install on the CD to put the program on your hard disc.

Then open the the installed program and its !Run file (by clicking *Select* while holding down the *Shift* key) and delete the line:

```
rmensure cdfast 0.54      run
<Playbook$Dir>.LCDFast
```

Resave !Run and you can then run the installed program in the usual way.

Living With A PC: Linking Up

A large proportion of Acorn users now find that they have to use a PC as well as their favoured machine—usually through the demands of work. It is a tribute to the quality and ease of use of Acorns that so many computer users do still prefer them

necessary technical information, there is no RISC OS driver available for it.

So much for excuses. The decision made, I spent some time looking at PC specifications to decide what I

In response to requests that Eureka should include some articles on using a PC with an Acorn, Peter Jennings explains how he has just linked two together.

and that even the ageing machines due to have been replaced by Phoebe can still do almost everything that the latest PCs offer.

However, that *almost* has now caused me, very reluctantly, to add one of the dreaded Wintels to my (physical) desk top. The reason is that I want to move into digital photography now that photographic quality cameras are at last coming onto the market at affordable prices and I need an equally affordable scanner which can handle my existing 6x9cm transparencies. There is only one of these on the market and, because the manufacturer will not release the

needed. Then I found a company which would supply me with the bare minimum of a mini tower, which would fit onto my crowded desk, a keyboard and a mouse and with Windows 98 as the only software.

My first reaction was how outdated my Risc PC seemed when I compared the speed of the processor, the amount of memory, the size of the hard disc and the speed of the fitted CD-ROM drive. As you will see, I later revised that opinion.

A lot of cable unplugging and replugging later I was able to switch on and see how near to the Acorn

desktop Windows 98 had become and wonder why, being a later development from a bigger, richer, company, there were still so many irritating shortcomings in it.

I had been warned that the PC was liable to crash often for no obvious reason and —even with no added software or hardware—it soon froze and had to be switched off and powered up again, producing an irritating notice reproving me for not shutting the system down.

All the cable swapping between computers soon confirmed my belief that, to use both machines, it would be necessary to link them together. I had already noted that Stuart Tyrrell's STD Developments could supply the necessary connections and had seen some enthusiastic recommendations in a discussion on one of the Acorn newsgroups. So the first step was to telephone him for a long and helpful discussion, ending in an order for the switch box and cables I needed.

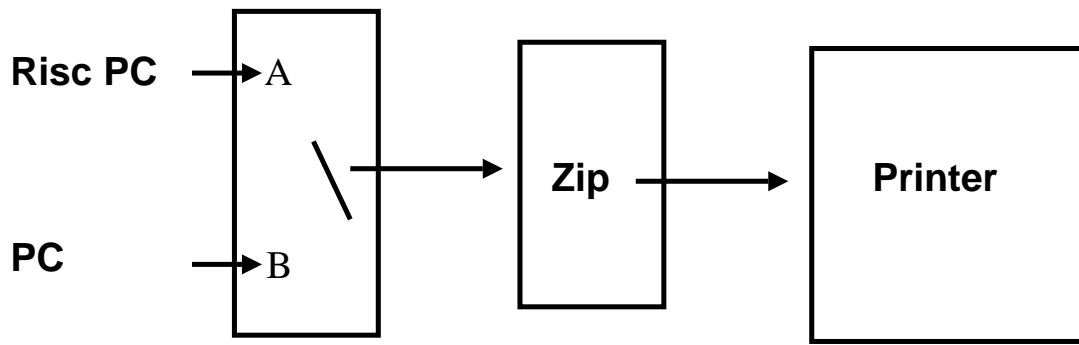
The monitor was no problem. My Acorn AKF80 (as supplied with the Risc PC) had two lots of sockets on the rear and a switch on the front to

toggle between them. A new cable connected the PC with a row of five small plugs to the monitor's BNC sockets. This looked incredibly primitive after using multi-wired plugs for so long, but it worked!

The PC keyboard and mouse (which has a central scroll wheel on top which can be used as the Acorn's menu button) could both be made to work with the Risc PC.

A new switch box connected the keyboard, mouse and modem to both machines, with an adaptor to enable the PC's PS2 mouse to be used for the Risc PC. Everything from STD was clearly labelled and easy to connect.

At first, all seemed well using the PC keyboard, even though there were a few differences in the position of some of the characters and two additional Windows keys. Then I had occasion to type a colon and found that the colon key was producing a '>' instead of ':' (no quote marks). A PC owning friend was also surprised. It appeared that the key labelling really was non-standard! So back came the trusty Acorn keyboard and all was well on both machines. Later I



Linking a Zip and drive and printer through a switch box

discovered that the PC keyboard did produce the correct characters and could be used, if I wanted, by relabelling about 20 of the keys or (better) replacing their caps from an old, discarded, keyboard .

I already had a switch box combining my printer and Zip drive and which had an empty socket to take a second printer lead to the PC. I included an extra lead in my order to Stuart Tyrrell but found on receipt that my switch box had different sockets from what appears to be the normal.

I phoned Stuart, who was on the point of closing for a few weeks' holiday, and he immediately said he would post a replacement and send me an additional lead, which I was ordering, and I could send payment and return the unsuitable lead when he came back.

Apart from the odd keyboard, my old switch box caused me the only other problems and I made use of my benefits of membership to email the Club's Technical Help Service. David Ruck emailed back by return and a rearrangement of cables got the printer and Zip drive working on both machines (*see diagram above*).

Unfortunately this meant buying two new cables to fit the switch box and, as Stuart Tyrrell was now away, I had to go to two local PC shops to find them. I thought Stuart's prices had seemed very reasonable and this was confirmed when I was charged £8 across the counter for a cable which Stuart had sold me for £4.95, with post and packing free.

Even so, the cost of it all came to nearly £100 (no, that doesn't include the PC!). I could have economised

and saved £25 for the mouse adaptor and used a separate mouse for each machine but there would have been the nuisance of having an extra one further cluttering up a crowded desk and, inevitably, the frequent irritation of picking up the wrong mouse for the computer I wanted to use.

I have both computers connected to the mains through a surge-protected box and I select the one I wish to use on the switch boxes before turning on the power. I also have to switch between inputs on the front of the monitor but it all takes just a few seconds.

If I have not changed the setting on the switch box before turning on the PC I soon get a reminder of why I prefer the Acorn. The PC tells me it cannot detect the presence of a mouse and the pointer is frozen!

Another cause of irritation was the need to have all the hardware installed on the PC. There is an element of plug and play as the PC can recognise some items and do a self install but this does not include the Zip drive.

No problem, I thought, I just have to find it listed under its manufacturer's

Installing a Zip drive

- Go to Control Panel
- Select *Add New Hardware*
- Choose type SCSI controller
- Insert the Zip tools disc
- Choose *Have Disk*
- Select *Iomega parallel port driver*
- Finish and reboot
- Install the Zip tools by running *setup.exe*

name and do a manual installation. However, despite a long list of Iomega equipment the Zip drive did not appear. Another email to our Technical Help Service and David Ruck again provided the answer with a list of commands (*see above*) which included specifying a SCSI controller even though the Zip drive is an IDE model!

Finally, my PC has a fast 500Mhz processor, a large 128MB of memory, an enormous 13GB hard disc and a 32x CD-ROM drive (which is 16 times faster than the one on my Risc PC). That's a considerably superior specification to my ageing Acorn. So why is everything I do on the PC so laboriously slow in comparison?

ARM Arena

Welcome to this second edition of Eureka's games column.

Several months have passed since I last wrote about the RISC OS games scene. The main news is that regarding the 'major' projects (Iron

RComp Interactive

RComp have recently announced that they have had the permission to convert the PC strategy game Total Annihilation for several months. Reportedly though, RCI main man's other work (RISCOS Ltd) has kept

Andrew Weston reports on the latest development on the games scene, where some old favourites may be re-emerging along with the new contenders.

Dignity et al.) we're still waiting but nonetheless there have been several developments in other areas and I would like to mention these this time.

Some of these projects may be more likely than the others to reach completion but hopefully you'll agree most of them are promising!

As usual, for up-to-the-minute news please see my recommended website list at the end of this article and the comp.sys.acorn.games newsgroup. For those without internet access, keep an eye on this column or other RISC OS magazine games columns.

him engaged most of this time. However, with the aforementioned Andrew Rawnsley well and truly back in the RCI-fold, things will hopefully get moving.

Further information on Total Annihilation is available from the PC developers Cavedog: www.cavedog.com/totala/index.html

Fresh news on the proposed conversion of F16: Fighting Falcon has not emerged but at least one person on the comp.sys.acorn newsgroup has speculated that RCI are waiting for faster hardware! Bearing in mind RCI's previous

successes in getting the most from existing hardware, it is perhaps not inconceivable that this popular PC flight-sim. will appear for RISC OS machines.

Acorn User Games CD

One exciting recent development is the news that Paul F. Johnson is working on a cover CD for Acorn User magazine which is dedicated to games. Paul has been seeking contact details for companies who have released games commercially in the past for Acorn machines so that he can ask whether they can be released into the public-domain (NB not as public domain!)

At the time of writing an official list of games cannot be given but a look at some of the games Paul proposed on the csag newsgroup suggests this could be something special. I don't know whether the CD will include commercial or other games that have already been released on the cover discs in the past (such as Apocalypse, Iron Lord, Elite, Twin World) but it would be very convenient to have these all in one place together with games previously unreleased in this way.

Skullsoft

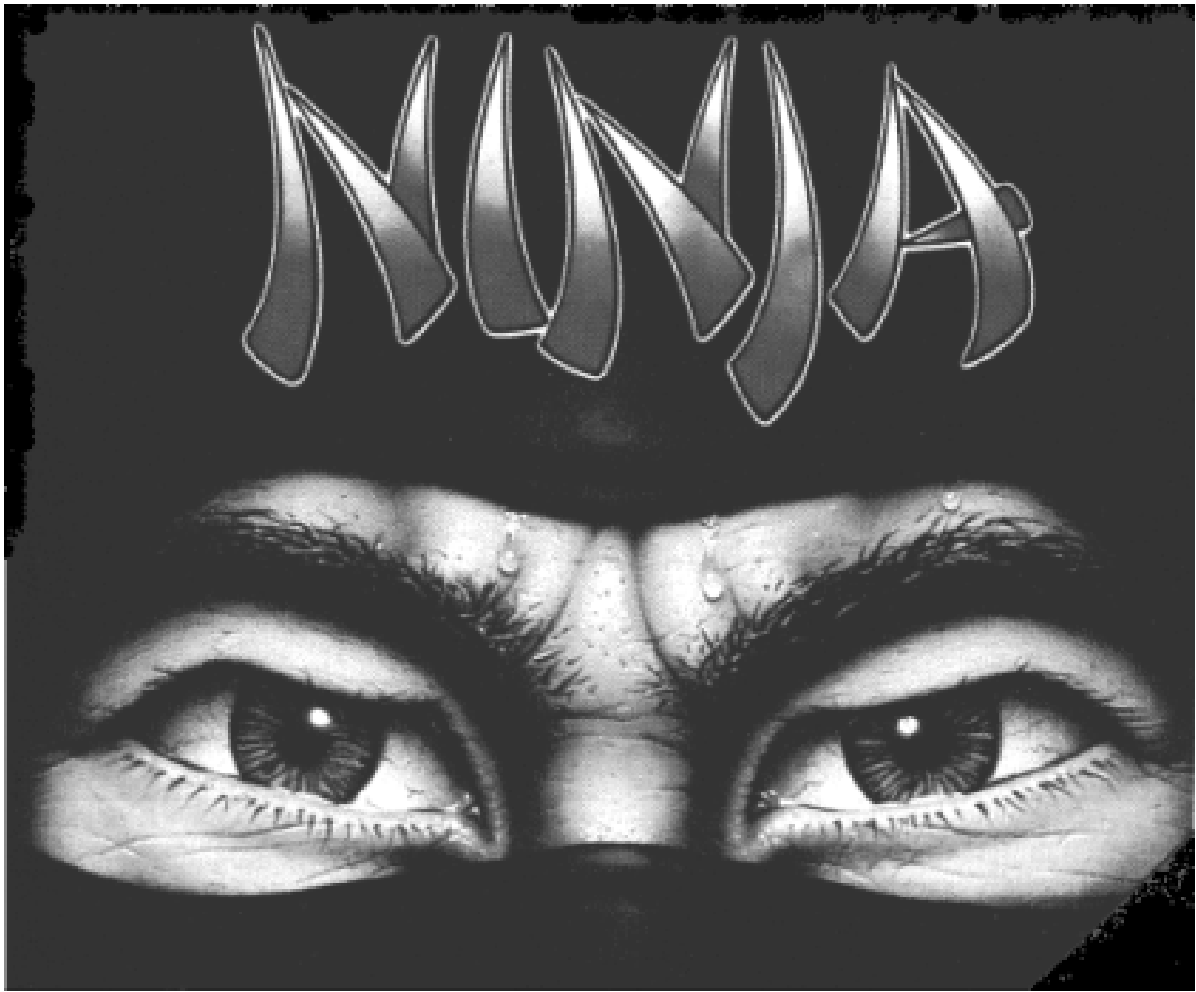
Skullsoft, the creators of the enjoyable and atmospheric (not to mention difficult) adventure game Arya and the shoot-'em-up Xenocide have recently announced their intentions to release a sequel to another of their games Plig.

Plig2 follows the same style as Plig, being a graphical puzzle game set in a maze with cartoon-like graphics, as opposed to being a graphical exploration game say. Plig was acclaimed by both Acorn Gaming and Acorn Arcade for its gameplay and nice visual appearance and Plig2 is set to offer better graphics, more puzzles and a level editor amongst other features. Plig2 is set for a Summer 2000 release and details of both Plig2 and Plig, together with screenshots, are available from Skullsoft's website which is stated below.

So why not treat yourself to downloading one or more of Skullsoft's games or demonstrations?

Beebit

The freeware BBC emulator has experienced another update (to version 0.12) and was released on the



Perhaps we didn't see the last of an old favourite

16th February. Details of its features are given on Michael Foot's website (see below) but a large range of BBC software will run on it apparently including the classic Exile.

This makes for at least a cheaper alternative to !6502em from Warm Silence Software (I have included the website for Warm Silence to enable you to make a decision as to which you would prefer). Beebit is available

for download from Michael's website or from Acorn Gaming.

ProAction

RISC User magazine's penultimate issue featured an advert for ProAction Software. According to this advert, several classic BBC titles are available for RISC OS machines such as Ravenskull, Frak and the Repton series. In addition, ProAction have worked with Superior Software to

rejuvenate, to an extent, some of their titles. These include the Play it Again Sam's 1-4 (compilations), The Last Ninja and Technodream. Many of these games are quite old and you are referred to the Acorn Gaming website database for mini-reviews of these. There is a good deal of enjoyment in many of the titles so have a look and decide if you think they will be value for money.

Please contact RComp Interactive for details of availability.

David Bradforth, the man behind ProAction has recently launched a new magazine which, it is stated, will be quarterly. The first edition comes with the games Superior Golf and Masterbreak (again, old Superior Software titles) on disc and the magazine will include games reviews amongst other computer-related items.

Quoting David's advert:

'RiscAction is available from:
RiscAction
40 Honiton Road
Romford
Essex, RM7 9AJ

Please make payment of £4.50 to ProAction, and allow ten days for delivery.

Payment will not be banked before despatch.'

A new games column?

RISC OS Ltd have begun to send out copies of their new CD-based magazine Foundation RISC User to members of the RISC OS foundation. Amongst a very large amount of interesting material and software on this disc is a games column by Acorn Arcade's Tim Fountain. The column, like the rest of the magazine, is in HTML format for ease of navigation and presentation. Indeed, the magazine is well presented and the games section features a brief round-up of the major proposed releases. The bonus is that screenshots are included in colour and can be viewed in full and extracted as sprites!

'Don't hold your breath!'

I have recently been reflecting on and looking for news on certain projects which have been promised, rumoured, suspended or possibly even abandoned.

One such project was revealed by an announcement in RISC User that Eddie Edwards (RISC OS Wolfenstein, DOOM) was working on a 2D shoot-'em-up called Nigri. The latest news though is that Eddie has moved to the USA and any RISC OS projects will have to wait for the moment (his Risc PC is on this side of the Atlantic).

Nathan Atkinson of Visions of the Impossible has announced that the group's website is undergoing a revamp to accommodate new projects which sounds promising.

On their website you will also find details of games acquired from the now defunct GEK programming groups, which are to be finished off now that a new coder has been recruited by VOTI.

Whatever they have in store for us, we can be pretty sure the emphasis will be on fun!

The latest website address I have for VOTI is: also.as/voti

I have been alerted recently to the existence of a project to re-develop

the classic 3D shooter Starfighter 3000. Details can be found on the web-pages of Chris Bazley (see below). His ideas include a project to give SF3000 some features which the latest hardware allows and which conversions of the game to other platforms included. Given that the authors, I understand, no longer develop for RISC OS machines, this is perhaps the only hope we have that this hugely enjoyable game will be improved.

Chris evidently is also working on an editor for the SF3000 maps. The editor will work in the RISC OS desktop and so should be quite easy to use for most people.

As much of his work will involve 'reverse-engineering' (that is deciphering) the original code, the feasibility and therefore likelihood of completion are not certain but let's wish him luck.

On the subject of reverse-engineering, a project is under way to process the code to the original disc version of Elite (that is the BBC 5.25" disc version) in this way and recompile it maybe, I understand,

What is your favourite RISC OS game ever?

I would like to run a simple poll of the readers of this column with the above question. Maybe then, in the next issue I can publish the result if a significant number of people are able to reply. Hopefully this will be interesting to everybody and useful to myself.

So, please could you send me an email with a title in the fashion:

“Poll: {favourite game}”

and leave the rest of the mail blank.

Please send to the following address:

awestern@argonet.co.uk

Remember, the game must have been released for RISC OS / Acorn 32-bit machines at any point in their existence whether it be an original or a conversion from another platform (even 8-bit). The game can be commercial, shareware or freeware although I suspect commercial will be most the popular (and so most likely to be mentioned here). So, please take the trouble to send me an email and I'll hopefully mention this briefly next time!

Bye for now

Until next time, if you can, keep an eye on the gaming websites and newsgroup and feel free to offer encouragement to the games' developers out there. I'm sure it will be gladly received!

Contacts and Websites

Skullsoft:

www.eganc.demon.co.uk

Acorn Arcade:

www.acornarcade.com

Acorn Gaming:

www.acorn-gaming.org.uk

Chris Bazley:

www.bigfoot.com/~chrisbazley/

Beebit (Michael Foot's website):

www.voyager.co.nz/~mikef/

Warm Silence Software:

www.wss.co.uk

RComp Interactive:

www.rcomp.co.uk

ProAction:

proaction@rcomp.co.uk

A Beginner's Guide To TeX

This article is the last in the series and builds on the knowledge of TeX and LaTeX that you have already acquired. I therefore hope to explain how to use some of the LaTeX environments to draw pictures and produce tables as well as introducing

Such a picture object's size is determined by the value of the `\unitlength` command. The default value is 1pt or 0.35mm but this can be changed with the `\setlength` command. Changing the value of `\unitlength` has the effect of enlarging

In the last instalment of his comprehensive series, Paul Webb, explains how to include pictures and tables in your documents and looks at future developments.

you to a number of useful LaTeX packages which may be used for similar purposes.

The article will then end with a discussion of some interesting developments in the TeX community.

Many new LaTeX users will, at some stage, wish to include a picture in their document. Well, the base LaTeX system comes with a special environment — the Picture Environment — which can be used to draw pictures and which may be made up of text, straight lines, arrows, circles and curves.

or reducing the size of the picture although it is important to bear in mind that altering this parameter has no effect on line width and text size.

There are only a certain number of commands that can appear in the LaTeX picture mode. These include `\put`, `\multiput`, `\qbezier`, `\graphpaper` and declarations like `\em`, `\thicklines` and `\setlength`.

The LaTeX code which follows provides an illustration of the use of many of these commands while Figure One shows what sort of diagram is generated.

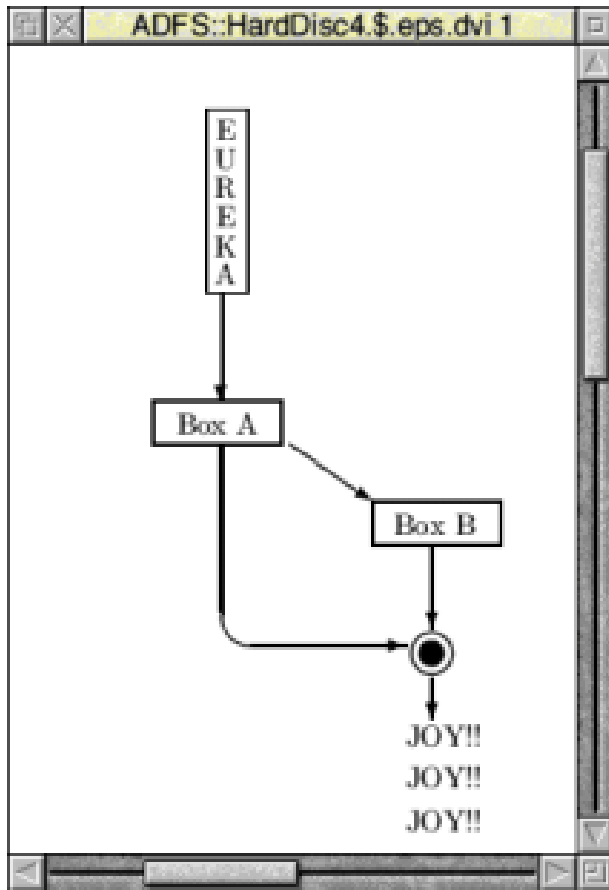


Figure One — Diagram produced with the Picture Environment

```

\put(18,-10){\oval(8,8)[bl]}
\put(18,-14){\vector(1,0){18}}
\put(32,-2){\framebox(15,5){Box
B}}
\put(22,10){\vector(3,-2){10}}
\put{39,-2}{\vector(0,-1){10}}
\put(39,-15){\circle{5}}
\put(39,-15){\circle*{3}}
\put(39,-18){\vector(0,-1){5}}
\multiput(36,-36)(0,5){3}{JOY!!}

\end{picture}

end{document}

```

Text for example may be placed by using the `\put` command together with the desired x and y coordinates which are used to place the picture.

```

\documentclass{article}

\begin{document}

\setlength{\unitlength}{1mm}
\thicklines
\begin{picture}(50,39)

\put(12,29){\fbox{\shortstack{E\\U\\R\\
E\\K\\A}}}
\put(14,28){\vector(0,-1){13}}
\put(6,10){\framebox(15,5){Box A}}
\put(13.89,10){\line(0,-1){20}}

```

```

\put(12,29){Eureka}

```

Alternatively, text can be typeset within a column by using the `\shortstack` command which produces a box containing a text column.

```

\put(12,29){\fbox{\shortstack{E\\U\\R\\
\\E\\K\\A}}}

```

Observe that the double backslash command ‘`\\`’ is used to terminate a row whilst the `\fbox` command puts additional space around ‘Eureka.’

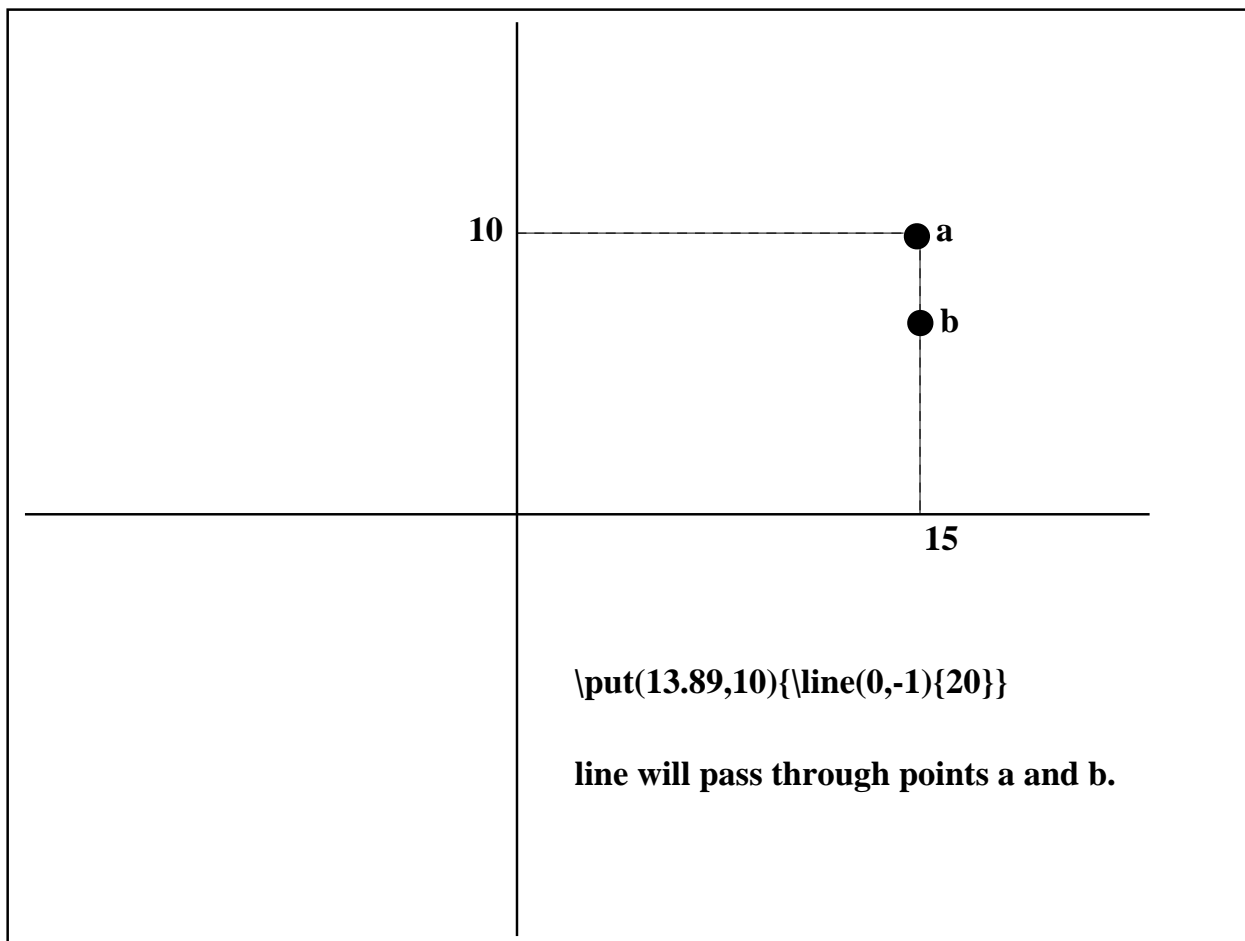


Figure Two — Placing a line in the Picture Environment

Drawing lines within the picture environment takes a little longer to understand but is quite simple once a number of concepts are grasped. Lines are constructed by specifying the slope and length of a line. It is not possible to record the endpoints of a line because LaTeX is only able to produce a restricted number of lines. Thus, a coordinate pair is used to denote a slope whilst 'len' specifies the length.

```
\line(x,y){len}
\put(13.89,10){\line(0,-1){20}}
```

Refer to Figure Two and to the code snippet above which is used to explain the relationship between slope and length. Point 'a' marks the reference point at (13.89,10). To find the point 'b', move the appropriate number of x and y units which in our case is 0 units for x and -1 units for y. The line therefore lies along points a and b and may pass beyond b

depending on the value of `len`. A vertical line will occur where `x=0` whilst a horizontal line occurs where `x` is not equal to 0. Where the line is vertical, it will extend so many units above or below `b` depending on whether the `y` coordinate is positive or negative. Where the line is horizontal, it will extend so many units to the left or right of `b` depending on the positive or negative value of `x`. Also, remember that values of `len` must be non-negative and values of `x` and `y` must be integers between -6 and +6 and with no common divisors greater than one. Our example code for a line therefore produces a vertical line which is connected to a rounded corner which then joins with an arrow.

```
\put(18,-10){\oval(8,8)[bl]}
\put(18,-14){\vector(1,0){18}}
```

An oval is a rectangle with rounded corners. Note that the argument of the `\oval` command specifies its width and height. The user can also include an optional argument `[bl]` which instructs LaTeX to draw that part of the oval at the `[b]ottom [l]eft` of the shape. Other possible arguments include `[r]` for right and `[t]` for top.

The `\vector` command is likewise used to produce an arrow and works like the `line` command with the exception that an arrow head is produced at the opposite end to the reference point. Again, note that the slope of an arrow may only be specified by integers in the range -4 to +4.

Our sample code also includes the `\circle`, `\framebox` and `\multiput` commands.

With regard to circles, LaTeX conceives of the centre of the circle as its reference point. A circle can then be drawn according to a specified diameter and can be filled in where desired by using the `\circle*` command. The two commands below therefore draw two circles at equivalent reference points but of different diameters. One is also filled.

```
\put(39,-15){\circle{5}}
\put(39,-15){\circle*{3}}
```

The `\framebox` command is used to produce a box. The first argument of this command is the width and height of the box where the reference point is at the lower-left corner.

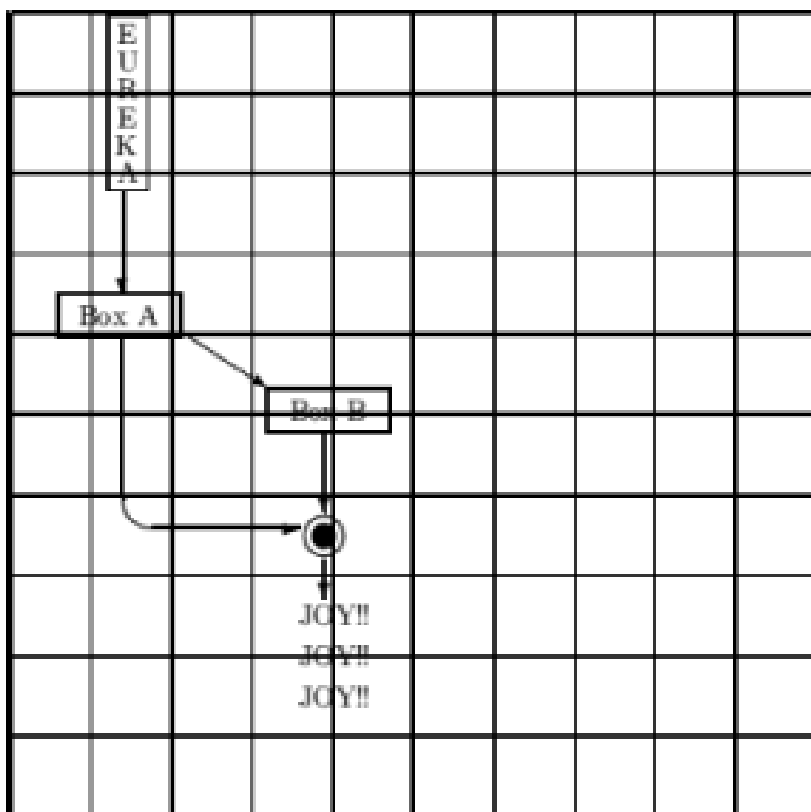


Figure Three — Using Graphpaper with the Picture Environment

```
\put(6,10){\framebox(15,5){Box A}}
```

Finally, the `\multiput` command can be used to repeat a pattern at regular intervals. The `\multiput` command in our sample code places three copies of the word ‘Joy!!’ on the page beginning at the reference point and incrementing by (0,5) units for the second and third copies.

So we’ve run through the basic commands that were used to produce the diagram in Figure One. Many

LaTeX users dislike the `picture` environment because of the complexity of the commands which are required to produce even simple diagrams. However, the main advantage of this environment is that diagrams can be included which are of a similar style to the rest of the document. Having to think constantly in terms of coordinates in order to place objects can be a little fiddly but the

‘`graphpap`’ package is available to help users who find this aspect of the `picture` environment intimidating. This package defines a `\graphpaper` command and makes a coordinate grid. The syntax of this command is as follows:

```
\graphpaper(0,-50)(100,100)
```

The first argument of the command represents the lower-left corner of the grid whilst the second argument defines the grid’s width and height.

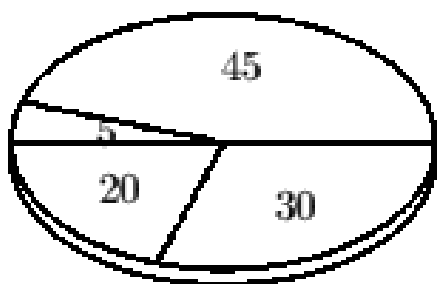


Figure Four — Dratex and Aldratex produce a Pie Chart

The default arrangement of lines is one line per ten units but different spacings can be set with an optional first argument. Remember though that the `\graphpaper` command will only be operative if the `\usepackage{graphpap}` command has been included in the preamble of your document. Figure Three shows our diagram with a grid superimposed.

If you still feel that the picture environment is too unwieldy for your needs then why not consider two packages — `dratex` and `aldratex` — which extend the picture environment? `Dratex` implements simple drawing commands whilst `aldratex` is for the more advanced user. The code below uses some of the `dratex` commands to produce the pie chart of Figure Four.

Number of Students

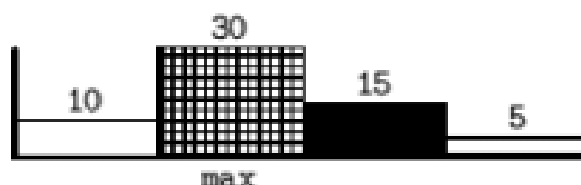


Figure Five — Bar produces a Bar Chart

`\documentclass{article}` %Source
Goossens et al The LaTeX Graphics
Companion

`\usepackage{dratex,aldratex}`

`\begin{document}`

`\Draw`

`\Scale(1,0.6)`

`\PieChartSpec(1,50,25)()`

`\PieChart(30 & 20 & 5 & 45)`

`\Move(0,-6)`

`\DrawOvalArc(50,50)(180,360)`

`\EndDraw`

`\end{document}`

Another useful package is the `bar` package which is used to produce bar charts. Look at the sample code and Figure Five for an illustration

```
\documentclass{article}
```

```
\usepackage{bar}
```

```
\begin{document}
```

```
\textbf{Number of Students}\[5mm]
```

```
\begin{bargraph}
```

```
\bar{10}{1}
```

```
\bar{30}{4}[\texttt{max}]
```

```
\bar{15}{8}
```

```
\bar{5}{3}
```

```
\end{bargraph}
```

```
\end{document}
```

A bar chart is constructed by specifying its height and its hatch index where the latter number may be between one and eight. The optional setting—in our case {max}—places a description below the chosen bar. Refer to Goossens et al The LaTeX Companion for further details.

Perhaps the easiest solution for the RISC OS user is to take advantage of Acorn specific \special commands. A Draw file can be included in your dvi document.

Consider the following code.

```
\documentclass{article}
```

```
\newcommand{\drawfile}[3]{\makebox[#1][1]{\rule[-#2]{0mm}{#2}\special{drawfile=#3}}}
```

```
\begin{document}
```

```
\special{drawfile = @.gnueg}
```

```
\end{document}
```

To place your image using this method write the \special command at that position in the document where you want the top-left of the Draw file to appear. The '@' symbol represents the directory where your dvi file is located. The macro \drawfile also allows the user to specify the size of the Draw file that you wish to include.

Please be aware however that such a command is totally non-portable and will not be understood by non-RISC OS TeX. If the portability issue is important for you then stick with the picture environment and packages which extend that environment. Another possible alternative is to use the plotting program Gnuplot which has a LaTeX driver.

You will no doubt have guessed that there are innumerable ways to include a graphic within a LaTeX document. We have only scratched the surface of what is possible but other options which you might like to explore for yourself include the inclusion of Postscript images, drawing with METAFONT and taking advantage of more common `\special` commands which are available with the emTeX distribution for MS-DOS and OS/2. If all this means nothing to you then look at CTAN. It's all there if you are willing to invest a little time.

Well, that's graphics but what about tables. The user can choose either the table or tabular environments for this purpose but we shall look at the latter environment. Consider the code below.

```
\documentclass[a4paper]{article}

\begin{document}

\begin{center}
\begin{tabular}{|c|c|c|}
\hline
\multicolumn{3}{|c|}{\textbf{Module
1 Papers 1996--1999}}\\
\hline
\textbf{Module} & \textbf{Date}

```

```
& \textbf{Level} \\
\hline
Maintenance of Life & 05-12-96 &
Higher \\
\hline
& 19-03-97 &
Higher \\
& 04-12-97 &
Higher \\
& 04-12-97 &
Foundation \\
\hline
\end{tabular}

\end{center}

\end{document}
```

We first begin with

```
\begin{tabular}{|c|c|c|}
```

The command's argument specifies three columns with text centred. The '|' character instructs LaTeX to include a vertical rule. The `\hline` command then follows and causes a horizontal rule to be drawn. Entries by column are separated by an ampersand whilst rows are terminated with a double backslash. The entire tabular environment is then placed

within a center environment which causes the table to be displayed in the centre of the page. The `\multicolumn` command effectively overrides our three column layout so that the title can be placed on one column spanning the three columns below it. This command takes three arguments: the first instructs LaTeX to span three columns, the second positions the text and the third provides the text that you want to position.

The resulting table can be seen in Figure Six.

We now come to BibTeX and MakeIndex. In the last article I looked at BibTeX and bib and bst files but didn't really say anything about the layout of the bib file. Consider the following bib entry.

```
@BOOK{lamp:guid,
  AUTHOR      = "Leslie Lamport",
  TITLE       = "\LaTeX\--A Document
Preparation System",
  PUBLISHER    = {Addison-Wesley},
  ADDRESS      = {Reading,
Massachussetts},
  YEAR        = 1994      }
```

@BOOK records the entry type of this reference. Other entry types include

article, phdthesis, inproceedings etc. 'lamp:guid' is known as the key which is the argument of the `\cite` command in the main body of your text. Our entry has five fields: author, title, publisher, address and year. Any field includes that field's name and is followed by the '=' sign and the text for that field. The entry for each field must be enclosed by either " or {}. The equals sign may have space around it as may each comma which distinguishes one field from another. BibTeX is case-insensitive but it makes sense to adopt a consistent system for using upper and lower-case letters in the interests of readability. That's the basic idea but for additional information on abbreviations, cross-referencing and inclusion of multiple bib files refer to Lamport or to Goossens et al The LaTeX Companion.

To use MakeIndex, place the command `\usepackage{makeidx}` and the command `\makeindex` in the document preamble. To insert the index at the desired position in your document, use the `\printindex` command. Now look at the code extract which follows.

Module 1 Papers 1996–1999		
Module	Date	Level
Maintenance of Life	05-12-96	Higher
	19-03-97	Higher
	04-12-97	Higher
	04-12-97	Foundation

Figure Six —Tables and the Tabular Environment

`\documentclass{article}`

`\usepackage{makeidx}`

`\makeindex`

`\begin{document}`

The following `\index{MakeIndex}` example shows how simple the MakeIndex utility is to use. `\TeX\index{typesetting}` is also pretty easy to use once you get used to its eccentricities.

`\printindex`

`\end{document}`

To process the document, run it through LaTeX. LaTeX will have generated an unprocessed index file—called `idx`—which you should

run through MakeIndex by dropping it on the MakeIndex icon. Finally, reprocess the main document again. Figure Seven shows the index that this procedure produces.

This series has covered a lot of ground. You should now have a grasp of TeX and LaTeX together with some of the add-on utilities which are available.

Index
MakeIndex, 1
typesetting, 1

Figure Seven —MakeIndex produces an Index

Future developments

But what of future developments? TeX is now available for just about every platform imaginable. EmTeX, MikTeX, fpTeX and teTeX are just some of the versions that you may come across. Development shows no signs of abating. Boundaries are for example being blurred between our understanding of what constitutes a program and its documentation as Hans Hagen shows with his ‘calculator.pdf’ production which is a PDF file which looks and behaves like a scientific calculator!

So the world of TeX is exciting—at least I think so. I hope you now think so too.

References

Goossens et al The LaTeX Companion. Addison-Wesley: Reading Massachusetts 1994

Goossens et al The LaTeX Graphics Companion. Addison-Wesley: Reading Massachusetts 1997

Lamport LaTeX User's Guide. Addison-Wesley: Reading Massachusetts 1994

CTAN references

graphpap: macros/latex/base/graph.dtx
macros/latex/base/graphpap.ins

bar: macros/latex209/contrib/barkom
/bar.sty

aldratex: graphics/dratex/aldratex.sty
dratex: graphics/dratex.dratex.sty

Electronic manual for dratex and
aldratex:
www.cis.ohio-state.edu/~gurari/systems.html

Sources

Calculator.pdf is available from:
www.ntg.nl/context.

Gnuplot is available on APDL PD-1.

APDL PD-1 CD
(includes Gnuplot)

Price: £12.50

Supplier: APDL

39 Knighton Park Road

Sydenham

London SE26 5RN

Tel: 020 81778 2659

Fax: 020 81488 0487

Web: www.apdl.co.uk

China CDs

If you are on the Internet you will already know the enjoyment of using Web sites and taking advantage of their unending supply of free or shareware programs and you will not need to be told the value of having a selection of them on CD-ROMs.

their contents and the SparkPlug unarchiver.

Disc B contains some more specialised material along with the wide-ranging collections from Acorn Users, Acorn Website, Barnet FTP,

Want to help some people in need? Send a small donation of £12.50 or more and get two packed CD-ROMs and a great glow of self satisfaction.

If you don't have access to the Web, you can find out what all the fuss is about and see some of the best sites for yourself on the latest pair of charity CDs compiled by Paul Johnson, following the success of his Kosovo Orphans Appeal CD last year'.

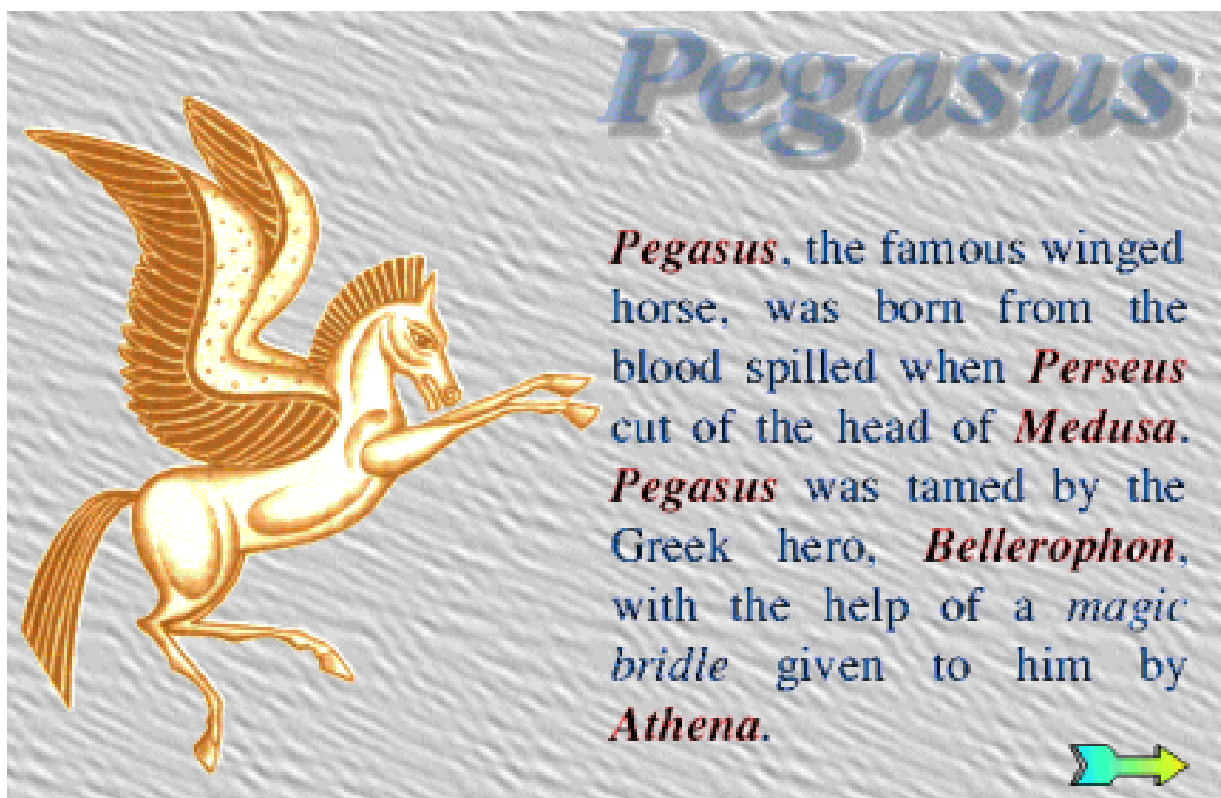
The new pair are to support Steve Turnbull's cycle ride in China, in aid of MENCAP.

Disc A contains, in alphabetical order, FTP sites from Argonet, The ARM Club, Cybervillage, Demon and Hensa and a set of StrongHelp manuals. There are also file lists of

Stuttgart and a general Websites directory. The more unusual offerings include a collection of audio players, science programs and Greek history.

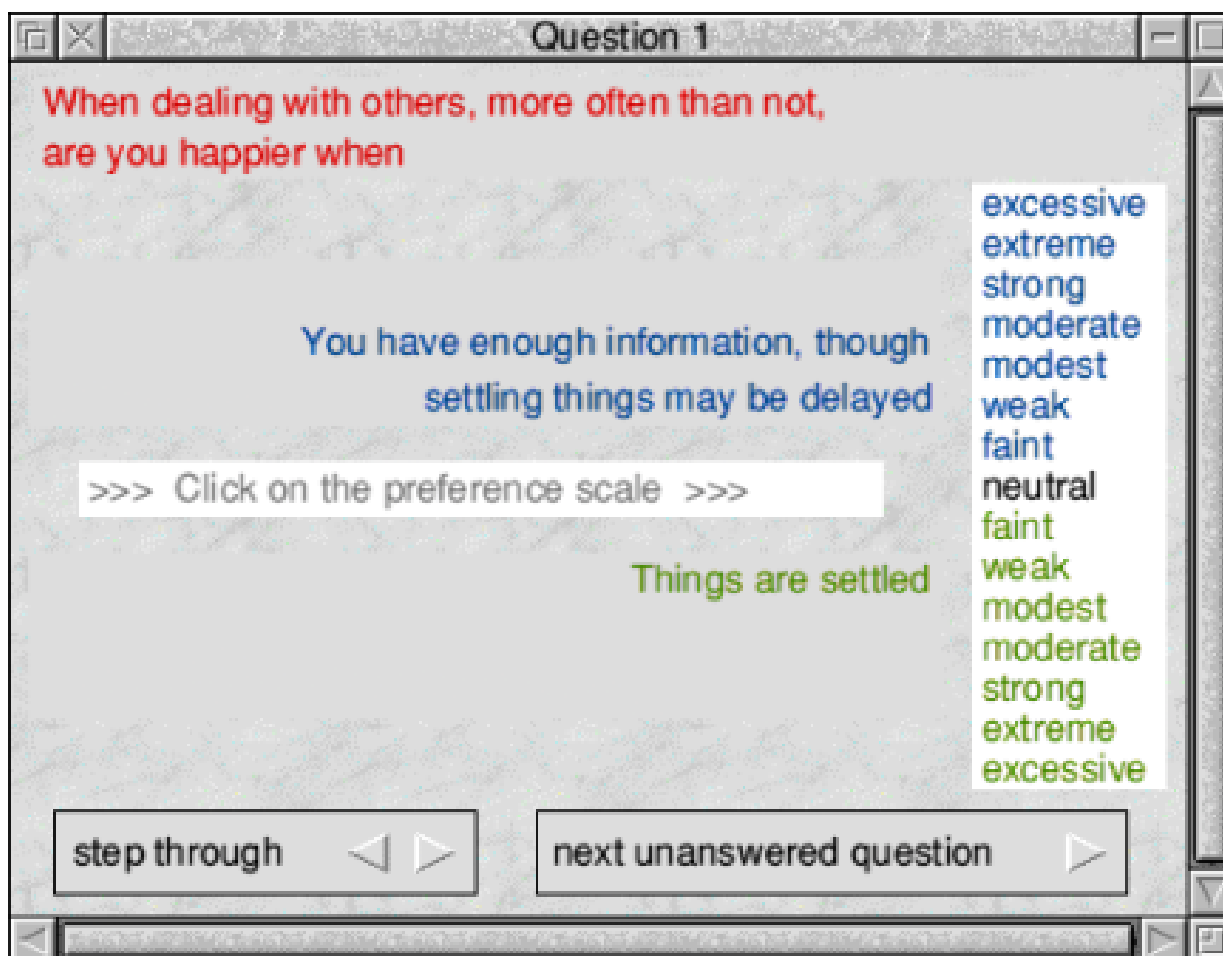
Not being completely unbiased, I looked first at one of the collections on Disc A. The ARM Club directory contains files of general software, the contents of some of the most recent Eureka discs, demo versions of Club products and a collection of original applications and utilities from David Ruck, who co-ordinates our Technical Help Service.

Club members should find much to interest them here, particular those



Something for everyone — whether your taste is for Greek history or games.





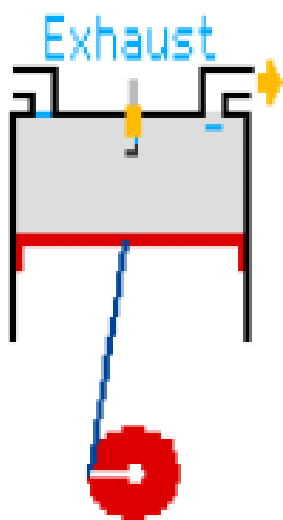
A psychological test from Hensa

who have joined recently and have little of this material. It should be noted, though, that although the Club's PD Library catalogue is included, the Library itself was closed some time ago when the popularity and growth of Web sites made it redundant.

There is obviously too much on two CDs to give details of every Web site included. Some, such as Hensa and Stuttgart have wide selections of

every type of Acorn software, although Paul Johnson has cut out as much duplication as possible. Most of the sites will be well known to regular Web browsers and will be welcomed as valuable old friends but some will come as unknown resources worth exploring.

Having enjoyed numerous holidays visiting some of the ancient sites in Greece, I found the *Greeks* directory interesting. This can be viewed in



Part of an animated sequence showing the working of a four stroke engine from Avogadro.

HTML or Textease format (a browser is provided).

This is a work, by Alan Shelton which is still in progress and selecting the index offered on the main menu or some of the subjects on the second of two sub-menus brings up an apology that it is not yet ready. However, there is plenty to explore among more than a dozen other subjects, all with their own sub-menus offering some fascinating diversions as varied as Greek coins and Cretan plumbing.

You can appreciate this work without any special knowledge of the subject but the *Avogadro* directory is likely to be of greatest value if you have some

real interest and knowledge of scientific subjects. This contains four sub-directories named: Chemistry, Graphing, New and SciDiscs all containing sub-directories of their own, mostly archived.

Useful utilities and applications seem to be in the majority but there is a sprinkling of lighter programs, such as games, clip art and sillies. There really is something for all on these two packed CDs—a great library of programs that would be very good value even as an ordinary commercial offering but which has the added incentive that the modest cost is going to benefit some people in need.

China CD-ROMs

Minimum donation: £12.50
(cheque or PO payable to RISC OS Charity Projects)

Supplier: Paul F Johnson
77 Station Road, Haydock
St Helens WA11 0JL

Or credit card payments to:

CTA 01942 797777

CJE 01903 523222

APDL 020 87782659

Archive 01603 441777

Site Seeing

This issue I am going to highlight one site and mention three others.

Where would the computer be without graphic images? Without graphics the computer would certainly not be as popular as it is

This is quite a big site, it shows as nearly 8MB on my hard drive so it would be advantageous to download the entire site to view offline.

The layout is excellent with an easy to read main page. You can either

Geoff Lane suggests some sites to visit, particularly if you are interested in graphics or want to know how to make the best use of all that clip art you have collected.

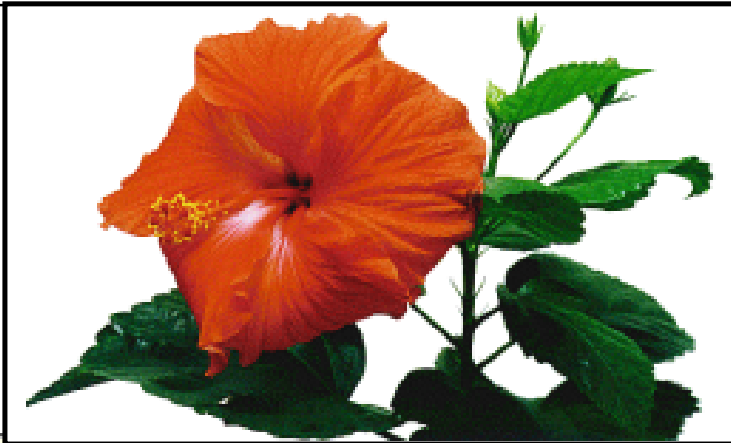
today. Practically every computer system is sold with an accompanying printer, many with a scanner and quite a few with digital cameras. Fortunately JPEGs TIFs and GIFs are normal filetypes and these are cross platform so present no problem whatever computer system is used.

The www.scantips.com site is written by Wayne Fulton, based in the States, although the title shows 'scantips' Wayne has created this site to give persons an understanding of graphic images in relation to quality of output, size of display and file size related to colour. It is, however, aimed primarily at scanner users.

navigate via this or go through the site in order by using the *next* buttons at the foot of each page.

There are superb image files that demonstrate the difference between images scanned at different resolutions as well as examples of images that have been 'blown up' to show how quality can be affected. There is also a chart that shows how easily images can eat up hard drive space.

Did you realise that a 6"x4" image in normal 24 bit colour (16 million colours) an image is about 500K if scanned at 75 dpi (dots per inch) but



A few scanning tips

by Wayne Fulton

The purpose is to offer some scanning tips and hints, help with fundamentals and other basic scanning information to help you get the most from your scanner. How it works, for those that want to know.

Included here are the general questions that we've all asked about scanning, but unfortunately, that other sources don't answer. I think the scanning tips are basic, and appropriate for the beginner to scanning. The content is not advanced, but it is certainly not superficial either, it's just simply about how it works. It describes the things we need to know to be efficient and get the most from our scanner, in the various ways that we can use it.

I hope you can enjoy these web pages without assuming that this is a Scanner Technical Support service. It is not. Please do not send **SCANNER SUPPORT** questions to me because I cannot help.

Comments and questions about the content of my material are certainly always welcome. My interest is in helping beginners to get better scans. That covers a lot, but it does not include "My scanner doesn't work" and "What scanner should I buy?" That email load is overwhelming for me and I must decline subjects not related

a massive 25 Gigabytes if scanned at 600 dpi which often appears to be the norm when scanning for photo output.

There is another page that outlines the various image formats in general use and, although this will change, currently GIFs and JPEGs are the most popular and converting to these can save loads of disc space. I have been the victim of an innocent new computer user sending me a huge

BMP image file when by merely changing it to a different file type he could have saved himself some upload time and me some download time. Ah well, such is life.

Wayne goes to great length to make his site easy to read and to give the reader an understanding of the complexities of graphics files. If you haven't got a scanner it is still worth reading and if you have got a scanner then you may well understand better



the use of varying scan resolutions.

The next site I would like to mention is my own computer club page which can be found at www.bigfoot.com/~whcc. As I am the webmaster it would be wrong of me to give an opinion as to its merits or shortcomings.

The reason I mention it is, although it does advertise our club based in Welwyn Garden City, the menu page has a link for any visitors unable to attend.

There are also links from this page to assist anyone interested in Genealogy. If they are new to this popular and interesting hobby, there is a link listing the email addresses of people using the popular PGP encryption method and there is a further link giving addresses of online email facilities. This includes an excellent address which enables your normal POP3 mailbox to be accessed via the

Web by just entering your POP mailbox address (such as pop.freemove.co.uk) then your user name and password. Once done your messages can be viewed and deleted if required online.

This is very useful if you are away from your normal computer at work, college, uni or using a friend's computer.

Also mentioned within our pages are SARC, the Suffolk Acorn Risc Club, with an address of www.welcome.to/SARC. SARC has recently changed from an Acorn club to an 'all formats' club. Its own pages are well laid out and easy to follow and are well worth a visit.

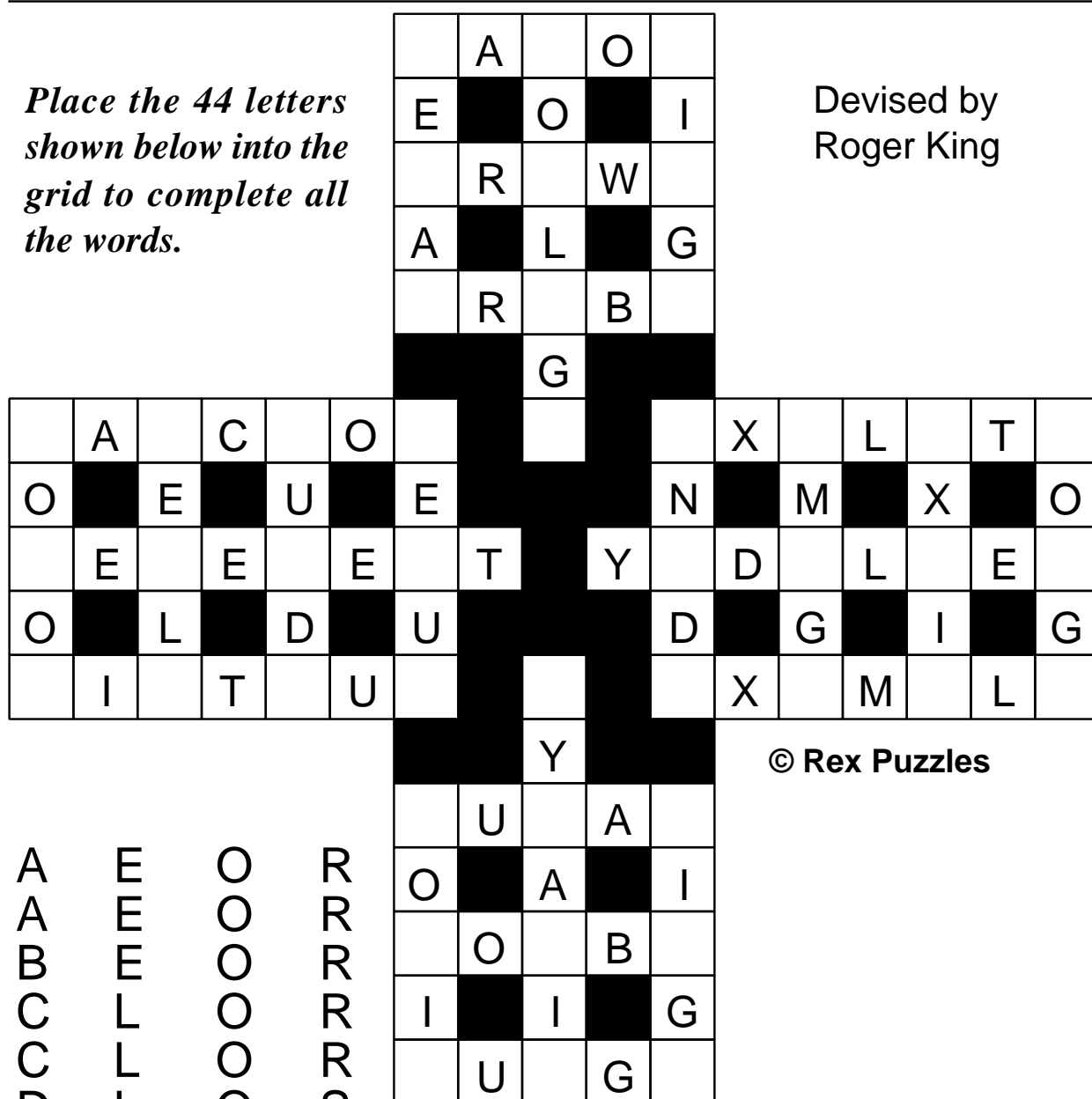
And finally, John Stonier, the previous long serving Chairman of the Welwyn Hatfield Computer Club, has recently moved to Yeovil in Somerset and wasted no time in setting up a new club. The pages are yet to take shape but there is a link from the WHCC pages or he can be found by going directly to www.argonet.co.uk/acornshow/waug.

Happy surfing.

DoubleCross Puzzle 1

Place the 44 letters shown below into the grid to complete all the words.

Devised by
Roger King



© Rex Puzzles

A	E	O	R
A	E	O	R
B	E	O	R
B	E	O	R
C	L	O	R
C	L	O	R
D	L	O	S
D	L	O	T
D	L	O	T
E	M	P	X
E	N	P	Y
E	N	P	Y
E	O	R	Z

Solution on page 77

DoIT

DoIT is a series of software packages produced by the well known firm of Topologika —now based in Cornwall. It's designed by Maureen Gooding and programmed by Matthew Atkinson —two names that are not familiar to me.

all housed in a sturdy A5 rigid plastic box (If anyone wishes to know my views on inadequate packaging then they should consult various Eureka's passim) and eight A4 softbound books. Then again, the whole thing reaches me intact —in a large Jiffy

Teacher Chris Price bursts some balloons to celebrate success as he checks out the words and number games in a pair of literacy and numeracy packs.

DoIT? I thought it was called ICT now? Well, yes, in its infinite wisdom the DfEE changed good ol' IT a couple of years ago to ICT (and, by the way, if there is anybody out there that really *does* believe that the DfEE possesses infinite wisdom —then it's time you went back on the pills, chum! And that's *pills* with two 'l's not one!)

Well, either way, *DoIT!* is a lot catchier than *DoICT!* isn't it? So let's give them the benefit of the doubt and proceed.

The first thing that strikes me is that the pack is BIG! There are eight discs,

bag from our Editor (*as received from Topologika. Ed*) and so I'm impressed —nothing's been mangled.

So what is it all about? Well, to quote the blurb:

'The numeracy pack covers counting to 10 or 100, place value from units to hundreds, sorting plus the four rules of number to 100.'

It also mentions that it covers Venn diagrams (never did get the hang of those at school) and Carroll diagrams (I thought she was going out with a mate of mine!). It mentions that the literacy pack covers anagrams, word

endings, meanings and opposites. Each activity comes with its own 40 page book.

It's at this page that I notice there's an anomaly in the blurb.

At the top of the page there is a line which states: 'Internet: www.topolgka.demon.co.uk'. At the bottom there is a short paragraph that reminds me that 'The text of this release and screenshots are available from the Topologika website, www.topologika.com.' Confused? I was. However all was revealed two or three minutes later when I tried both sites and found, to my relief, that they were the same site under two separate names. Presumably Topologika intend to drop the Demon site in due course. Nonetheless, this is an anomaly. Only one site address should be quoted.

Given the extensive nature of this product, I am sure that, if I went into enough detail, I could fill an entire issue of Eureka and bore the pants off everyone. So I will concentrate on one or two activities. I picked out *Connect IT* at random and shoved it in the floppy drive. An *Install* icon pops

up and I double click it. Great! It's installing to the hard disc! (Well, that's what the icon looks like!)

Several minutes later I'm getting decidedly tetchy. I've encountered Topologika's programs many times before and I know they have this device for unpacking the program. I think it's an anti-counterfeit/hacking measure —but why does it take so long! I think I'll go and have 40 winks. Seriously, it's not that bad but it is decidedly irritating when there are plenty of other anti-hacking devices on the market that allow you to get straight on with the program in question. More to the point, I'm starting to get the impression that it's going to load the program to my hard disc —very useful —and it's a distinct anti-climax to find that it *hasn't* and I now have to use the thing off the floppy.

When it finally unpacks, I'm presented with three icons: the *!ConnectIT* icon, one called *!ConOpts* and *!Upgrade*. I get inside *!Upgrade* to find a notice giving me details of how to upgrade to a site licence (and, interestingly, giving the old site licence details). Can't work out



Freddy Teddy

!ConOpts so I hold down SHIFT and get inside it —just some modules — boring! Then !ConnectIT.

Nonetheless, I resort to more conventional means to drag the entire thing to the hard disc and it *does* run. OK! So let's play!

Clicking on the *C* icon on the icon bar brings up a window with four choices. I click on *Find the Word* and am presented with a non-resizeable screen (*not* very impressed with that!), numbers 1-10 across the top, an icon that informs me that my progress is being timed, a *Home* icon, a *Freddy*

Teddy icon and an instruction to click on a number.

So I click on number one. Immediately I am presented with a screen of 12 animal names (in a 4x3 matrix) and a clue at the bottom 'feathered creature that can fly'. Now, I've got a problem here. This is meant for KS1 and, with the best will in the world I'm not sure that early KS1s could cope with either the word *feathered* or the word *creature*. I refer to the blurb 'Each program uses a similar *look and feel* and is highly intuitive, so children will be able to use them unassisted.' Er...no. If children cannot read the words they will resort to the tried and tested formula of look and guess! Nonetheless, I proceed and encounter more trouble with 'carnivorous animal that mews' What? I'm meant to be six or seven for goodness sake! Will I really know what 'carnivorous' means?

What is even worse is that they've brought the dalek back! Looking back to the review I did of Topologika's *Sherlock* program, I commented then that 'Given the advanced state of voice technology today, I found this

very disappointing. The voice was very obviously computer-generated and quite off-putting.’ Given that I wrote that comment nearly two years ago, I find the use of this kind of primitive speech synthesiser even less acceptable now than I did then — and it was hovering on the bounds of acceptability then! What children need is clear, well pronounced speech in a human voice. This is a very long way from that indeed. Quite why it’s been allowed to remain I don’t know. Either somebody couldn’t be bothered to re-program, in which case shame on you, or somebody, mistakenly assumed that it was acceptable or cute. It’s neither. It’s indistinct and damned irritating.

Still, I’ll hang with it. Having completed the module, I’m invited to pop the balloons. Why? Search me? I’d imagine that most seven-year-olds would rather zap aliens but perhaps Topologika thinks this will give the poor little darlings psychotic tendencies, so I comply —though I’m at a loss to know why as it simply brings me to another screen. There’s no perceived reward involved. So I move on to the second. It’s all about fruits and I’m getting bored so I click

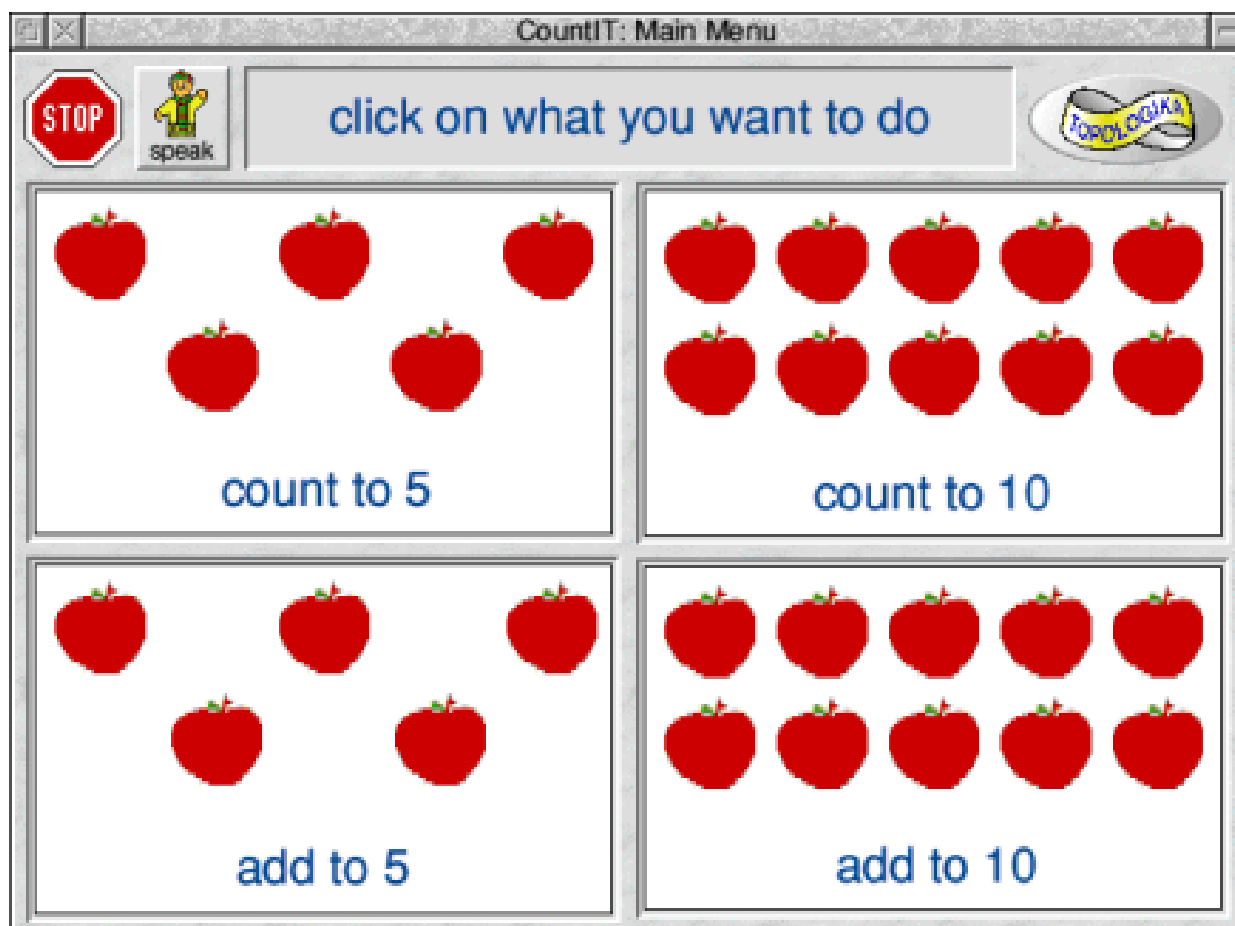


Pop the balloons — or would children prefer to zap some aliens?

on the number three. And a window pops up with *Finish the set* on it and the dalek speaks and orders me to “Finish the set” and I can’t move.

Do you remember that bit in *The Hitch-Hiker’s Guide to the Galaxy* where Zaphod Beeblebrox threatens Eddie the Computer with “if you don’t open that exit hatch this moment I shall zap straight off to your major data banks and reprogram you with a very large axe, got that?” Well, that’s how I’m feeling right now. If I find this dalek it’s a dustbin! So I click on the Home icon and the dalek asks me “Do you really want to stop?” Do I? Yes please!

The disc is accompanied by an A4 book (as previously stated each



CountIT offers the choices

activity is accompanied by a book) but I find the link between them somewhat tenuous. There appears to be no statement of intent for them and, in the case of the computer games (the clues to which appear in written game form to the end of the book) the clues are not even identical. The computer says ‘carnivorous animal that meows’, the book says ‘tiny animal that meows’. I fail to understand why.

Moving on to CountIT, I encounter the same delay in unpacking which is now beginning to hack me off severely. If people really do want this kind of protection then they should, at least, ensure that the wretched thing unpacks swiftly. On the opening screen I’m given four choices: Count to five, Count to 10, Add to five and Add to 10. I choose Count to five.

A screen appears —only it’s blank. At the top of the screen are some objects.

The manual advises me to click on one of these and then count them. All well and good but the blurb also advised me that the children could do this themselves. Eventually I do get round to finding how to do this by the simple expedient of clicking on every icon in sight until Freddy Teddy advises me to “click on the shape you want.” Ah! I see, though, frankly, again the speech is so robotic that I have doubts as to whether a youngster would understand it.

So I click on a shape and several of them appear on the screen: 1, 2, 3, 4, 5. Being awkward by nature, I click on 4. The dalek informs “Four —try again” and, again, the voice is so robotic that I doubt that a child would understand it —particularly if you place the activity in a busy, noisy classrooms.

This time I get it right. A very faint “Wow!” is heard and the shapes disappear and are replaced by another set until all the numbers have been covered. At no point is the child given any overt clue that they have got something right. Children (especially young children) need active encouragement. This program doesn’t give it.

Adding —the screen is divided (whether it’s to five or 10) vertically into two halves and the components are placed either side of the divide. At the bottom a caption reads ‘1 and 1 make’. Again the only reward for getting the sum right is a faint “Wow!” and the penalty for getting it wrong is a never ending litany of “Try again”. I’m getting into axe-murder mode now with that voice!

On the benefit side, having cleared all the icons at the top and added all the numbers up correctly, you do, at least, get a cuddly bear and a fanfare.

The book in this case is rather more relevant, and, therefore, better. Most (if not all) the activities could be completed independently of the computer, should the need arise.

The whole idea is a very good one that most primary teachers have been looking for and I can see the books being used in a wide variety of classrooms. However the execution of the software is flawed by an inattention to detail and some truly cack pieces of programming. (That voice should be axed immediately — it should never have been allowed to



see the light of day in the first place.)

Use with caution. I cannot recommend this software unreservedly. I would advise readers to send for an inspection copy and make their own minds up. (Due to school holidays and a pressing Eureka deadline, I was unable to test this on any children.)

The information sheet advises that if your school has a mixed set-up then the site licence for the other type of computer is provided at half the cost.

Find the word in SelectIt

DoIT

Price: £30 +VAT per pack

Site licence: £45 +VAT

Supplier: Topologika

1 South Harbour, Harbour Village,
Penryn, Cornwall TR10 8LR

Tel: 01326 377771

Fax: 01326 376755

Email:

sales@topolgka.demon.co.uk

Web: www.topolgka.demon.co.uk
or www.topologika.com

Gill's Journal: Surfing Sisters

An interesting phenomenon that I've noticed recently is the fashion for websites designed specially for women. Suddenly the Web is becoming all equal opportunities and we girls get sites with content specially designed for

interesting point, which is that lately, sisters are surfing it for themselves. Or at very least, the people with money to invest think so.

Statistics do back this idea up and some of these sites do manage to get

Gill Smith looks into girl power on the Web where women's interests extend further than make up, cooking, babies, the joy of ironing and even handbags.

our interests. Of course, all we women are interested in is make up, cooking, and having babies. Oh, sorry, I forgot, we all really love ironing too.

A lot of specific websites can be a little bit patronising, especially for those of us who aren't that concerned about what the very most fashionable colour of nail varnish is (yes, girls paint their nails — they aren't a different species!)

Do we really need to be treated as some sort of minority group, when women mildly out-number men in this world? However, there is an

beyond the obviously 'girlie' stuff, into something worth spending your phone bill on.

It's also been said, many times (I clearly hang around the wrong people), that on the Internet, no one can tell you're a dog. That's not an insulting term, it's supposedly referring to the canine breed. Theoretically, if your dog can type, it can log itself onto a chat room and have deep and meaningful with anyone who'll listen, without anyone knowing what gender they are, let alone species. (That might explain the phone bill!)

It is an interesting concept that chat rooms and the Web as a whole, allow close relationships to develop between people in different continents, who generally use aliases better suited to small animals. But now, all of a sudden, instead of the Internet catering for all, everyone seems to be designing web pages for specific groups —from us girls to *Silver Surfers* like Toby's gran.

Why do we need these specially targeted pages? Maybe it's simply because you have been lied to all along. That wonderful relationship you had with 'sparky' on the other side of the Atlantic was actually a 17-year-old geek, acting out his fantasies to be a girl. He knows he's too sad to meet one, so it was the next best thing...

Please, at least postpone the proposal until you've met in person. You might not want to be married to an axe-murdering cyclops and Americans are almost as good at suing as I am at generalising!

In my opinion, regular sites remain more male focused. One of the most popular competition prizes does

happen to be a DVD player. Now I crave a DVD player as much as the next person but that's only really because the next person is Toby. He regularly reassures me that he can cope without all the gadgetry of his friends and much prefers having a wife, but I know he would secretly still like to be better equipped to join in the 'My-widescreen-is-wider-than-yours' contests. If we had that bigger TV with surround sound, he might even stay awake for the whole of *Frasier*!

However, I'm sure there were some girls out there trying to win portable mini-discs, rather than the expensive shopping spree, even before the launch of *handbag.com*. (Yes, it does exist.)

So what's changed? Why do we need these sites now? Maybe because women have decided that there's really no reason why they should all pretend to care about the internal workings of their enormous digital TV, so long as it works.

Women are actually trying to be their varied, complicated selves. Even on the Internet.



It's only the 21st Century after all. We've got the vote, those career thingies and can now get nannies — women of course — to look after our children while we try to have a life.

We can even BeMe.com. Hmmm. Is this Emmeline Pankhurst's dream come true? At least these days it isn't quite so uncool to bookmark the world's largest collection of bread recipes, alongside the TV guide and The ARM Club's page.

Well, you never know when you might need to impress the in-laws!

Recently, however, we've seen that in the Internet business, age certainly doesn't come into making money, which allows gender to be less of an issue.

The making of twenty-something millionairess Martha Lane Fox, or the-blond-one-from-Lastminute.com, as you'll probably know her, hasn't been stopped by her having to take months off on maternity leave, or hitting an industry glass ceiling.

The web cash possibilities still haven't found any sort of ceiling.

Perhaps that's what means women are suddenly interested in it: money, power, freedom... yep, I'm tempted. All it seems to take is adding four characters to make your fortune. Excuse me while I launch Gill.com...

Rodney, you plonker, this time next year we'll be millionaires! In fact, this time next year, Thingumiejig.com will have spent a fortune on marketing, have never made a penny, and float on the Stock Exchange for at least a pound a share, promptly rising to silly heights, before plummeting back

again. The following year it'll announce record losses and the share value will go right back up. I don't know much about the money markets, but I have spotted something a little strange going on here.

So does this pretend money actually move into the RISC market, or is it still awaiting the female touch? Perhaps feminine intuition tells us that the market really needs something extra. How about marketing? Is it too late to turn around the industry, corner a decent market share and end up with

Our products are designed to let people daydream. To help them relax

Our bubble dot.com is a healthy investment! Relaxation is essential for health

All bubbles float

sooth nerves Rising vapours

I don't know what those Merrill Lynch People are talking about all bubbles burst

Of course our web has no solid foundation people like a bit of froth and foam in the bath

Essential oils

Full Blown

Invest
Let Your Fears and worries float away

Bubble dot Com
Web Site

people reminiscing about the days when you used a PC and could get away with doing far less work by blaming it on the machine? I'm not sure. But it will be easy for RISC systems to get lost when there's so much new technology going on.

What with WAP —the web on your mobile and all this web-through-your-TV stuff, many companies are focusing on developing web sites for those, rather than for your old A5000.

The spoddier among you could have a lot of fun emailing web-site designers with exactly what is wrong with their site and why it doesn't display correctly in your browser. Tell them how to fix it too, after all, the poor fools have probably only tested in the browser supplied by our friend Bill.

So what I'd like to do is start a competition. If *Yell* can do it, so can we. I'd like your nominations for best websites. I don't mean ones that you surf from the work PC. I mean ones that you can actually see every single bit of and where the functionality works well from your Acorn browser of choice. Please also nominate the most totally pants ones that mean you

only know what site it is because someone kindly left a URL at the top of the page. I'll have a look over them and we'll announce the winners at RISC OS 2000 at Epsom and in the subsequent magazine. We'll also announce the most rubbish, in a valiant attempt at shaming them into doing something helpful.

Please nominate Best and Worst in the following categories:

- ISP
- Web site
- Shopping site

Please state which browser(s) you used, so I can get an idea of whether a site works or fails for a lot of people on different browsers. I'll then get the ARM Club Committee to judge and when we've announced the news, at Epsom, I'll email the webmaster at each of our winners and losers and let them know. It might not do anything at all to change the way the industry looks at RISC machines, but at least we'll have fun trying!

Email your entry to:
gill@armclub.org.uk

Cartoons by Jan Pearce

Gnuplot

If you want to plot data but don't have access to a spreadsheet like *Schema* or to a data analysis package like *First* then help is at hand.

Gnuplot for RISC OS is a port of the famous command-line based plotting

terminal drivers including LaTeX, MetaFont, Postscript, HPGL, DXF and PCL. This feature is particularly useful for those users who need to integrate their plots with the output from other programs. I personally use LaTeX for my text processing needs

Data plotting in 2D curves and 3D plots can be done with the RISC OS port of Gnuplot, as Paul Webb explains.

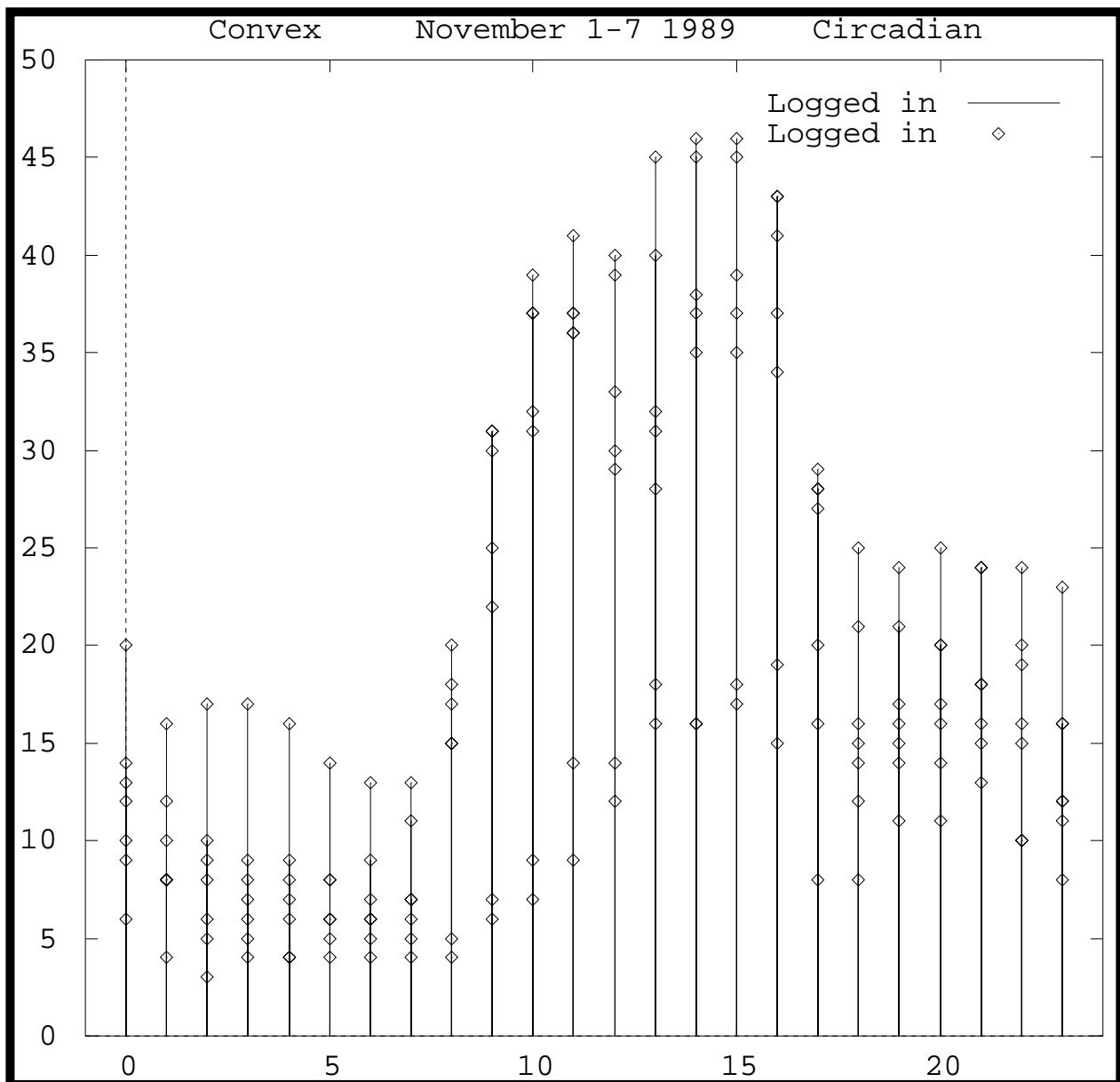
program which can be used to plot 2D curves or 3D surfaces. Sample 2D and 3D plots which are bundled with the package can be seen in Insert One and Two respectively.

Interestingly, the 'Gnu' in the program's title has no connection with the 'GNU' of the Free Software Foundation although Gnuplot is also freely distributable.

The RISC OS implementation of Gnuplot runs in a nice Acorn-style window of its own which is reassuring for those with command line phobia! This version of Gnuplot also provides support for a number of

and also need to include plots in my documents. Gnuplot's LaTeX driver facility works admirably by generating plots which are stylistically in keeping with the rest of the document.

To load Gnuplot simply select click on its icon on your hard disc. Clicking again on its icon on the icon bar reveals the Gnuplot window which is illustrated in Insert Three. The user will notice that the 'terminal has been set to arcsprite.' This means that your plots will be saved as sprites. You can also save your plots as draw files by typing 'set term arcdraw' at the prompt.

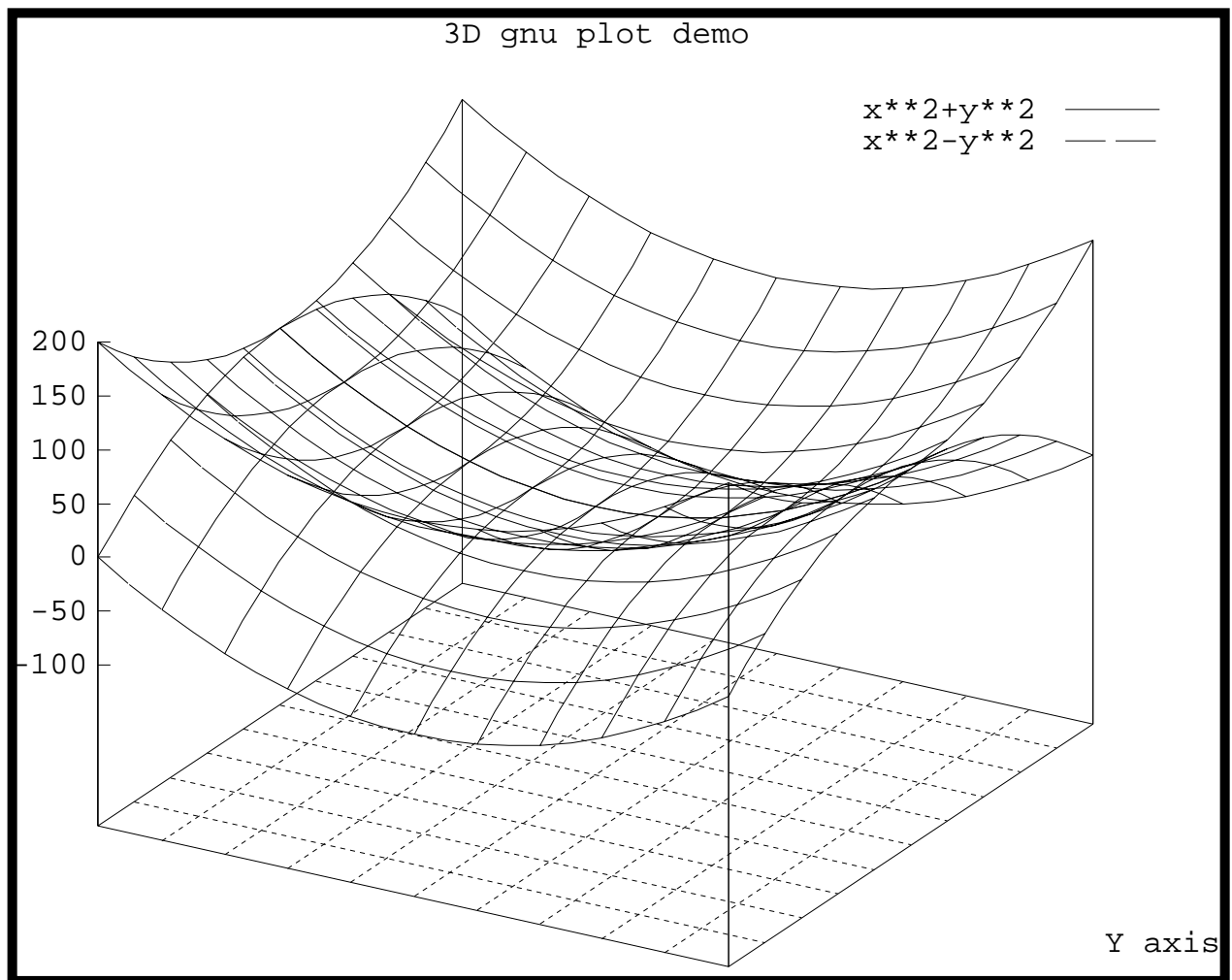


Insert One: 2D Plot with Point and Impulse Plotting Styles

A plot may be produced by two methods. The user can either type in a succession of commands at the command line or save the commands in a text file which can be loaded by the program. The former method is perhaps preferable for simple plots whereas the latter method is more

suitable for plots of any complexity.

It is possible to produce plots of remarkable richness because Gnuplot has a comprehensive set of commands. The table in Insert Four provides a selection of some of the basic commands. The reader will



Insert Two: 3D Plot Example

notice that there are two commands which are similar: ‘plot’ and ‘splot.’ ‘plot’ produces 2D plots whilst ‘splot’ is suitable for 3D plotting. A discussion of 3D plotting would be outside the scope of this article but readers should note that Gnuplot is able to plot a surface as a mesh to fit a function or as a contour plot on the x-y plane. The user can also choose from eight plotting styles which include lines, points, linespoints,

impulses, dots, errorbars, steps and boxes/boxerrorbars. Experiment with the sample datafile below if you want to find out what these plotting styles look like.

Let’s introduce our example to give you the idea. Suppose that we need to generate a 2D graph of ‘The Number of Births in ToyTown 1800-1805.’ We would first write a textfile which contains the data to be plotted.

```

G N U P L O T
RISC OS version 3.4
patchlevel 38.2.134, 04 Jun 93
last modified Fri Jun 04 01:03:20 PDT 1993

```

Copyright(C) 1986 - 1993 Colin Kelley, Thomas Williams

RISC OS port and enhancements by FKW and ETJ van de Pol
release 1.45 (14 Jul 1993)

Send bugs and comments to bug-gnuplot@dartmouth.edu

Terminal type set to 'arcsprite'
gnuplot>

ZZZ 0 > This is the command line

Insert Three: The Gnuplot Command Line

Basic Gnuplot Commands		
Command	Purpose	Example
plot	2D plotting	plot sin(x)
splot	3D plotting	splot x * y
load	load file	load "P.dem"
title	include title	set title "Hi!"
xlabel	x axis label	set xlabel "Gen X"
autoscale	axes auto scaling	set autoscale
set	sets options	set contour set xtics set term set arrow set time
with	plot styles	with boxes with dots

Insert Four: Common Gnuplot Commands

```
# The number of Births in ToyTown
1800-1805
1800 15
1801 17
1802 20
1803 17
1804 21
1805 26
```

The file would then be saved as *POP_dat* and placed where Gnuplot could read it which in my case would be in the *Demo* directory which is accessed by shift double-clicking on the Gnuplot icon. Note that the hash symbol denotes a comment.

To produce a plot of the data which includes a title and axis labels, the following commands would be typed at the command line.

```
set title "The number of Births in
Toytown 1800-1805"
set ylabel "Births"
set xlabel "Years"
set tics out
set nokey
plot "POP_dat" with linespoints
```

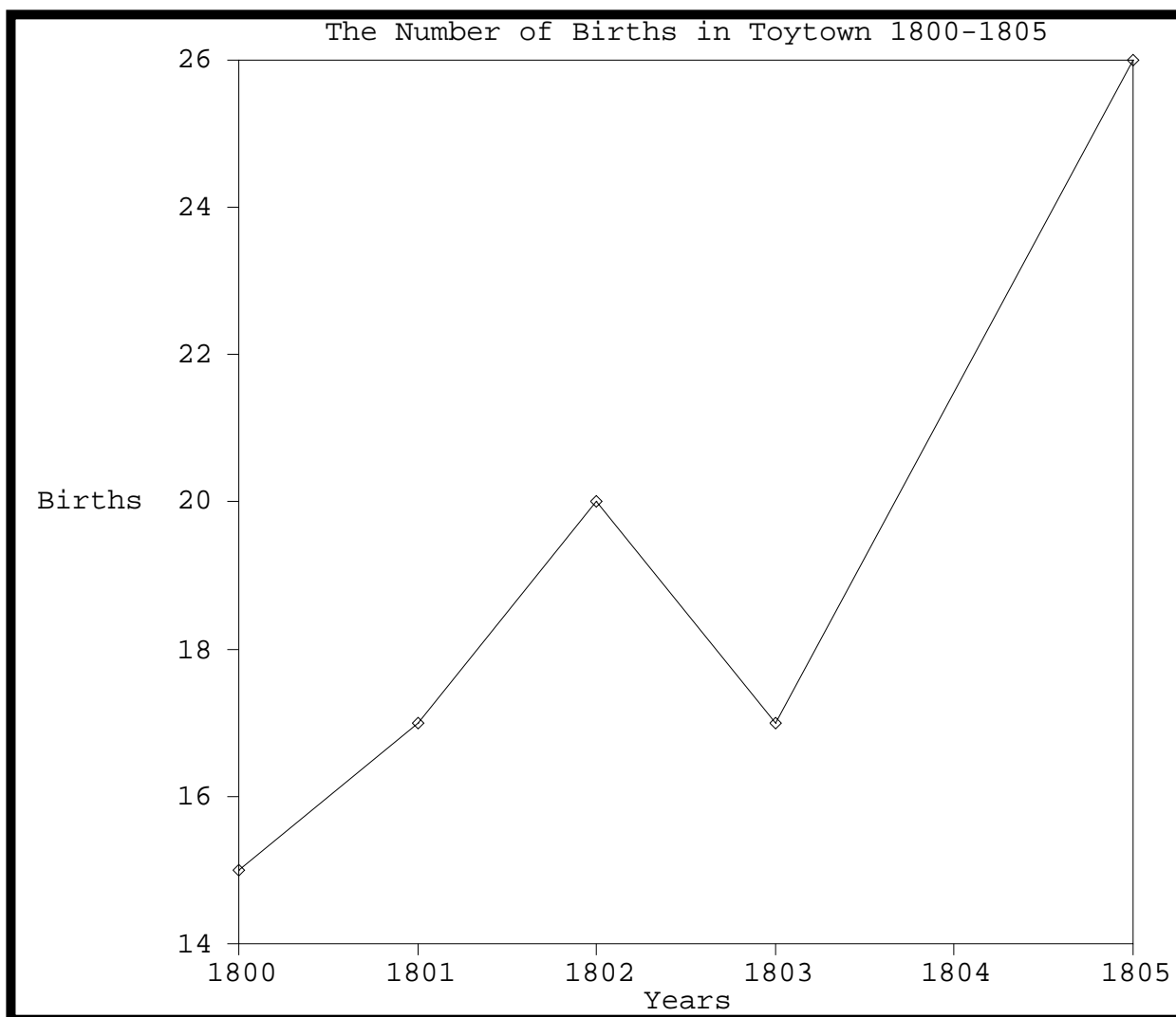
Alternatively, create a text file which contains your Gnuplot commands, save the file and then load it into

Gnuplot by either typing *load <file_name>* at the command line or dropping the text file's icon on the Gnuplot icon on the icon bar. Insert Five shows the output which our very simple example generates. Such a graphic can then be saved as a sprite or a drawfile by clicking with the middle mouse button over the graphic and dragging the sprite/draw file icon to the desired directory.

It is not always necessary to save a plot as a sprite or draw file if you use one of the terminal drivers which are provided with Gnuplot. If we wanted to insert our plot in a LaTeX document then we would could issue the following commands.

```
set term latex
set title "The Number of Births in
Toytown 1800-1805"
set xlabel "Years"
set ylabel "Births\\000s"
set nokey
set size 0.5,0.5
set output "births"
plot "POP_dat" with linespoints
```

There are a number of points to bear in mind when using the *set term latex* facility. This driver allows the user to



Insert Five: A 2D Plot with the Linespoints Plotting Style

specify a font type and font size for your graph's labels. If a font size is not specified then the default is Roman 10 point.

The LaTeX driver will also produce a plot with a width of five inches and a height of three inches which Gnuplot understands to be scaled by a factor of 1 to 1. Our example sets the size to 0.5, 0.5 which reduces the size of the

plot by one half of the default size. The user can also specify a newline for the ylabel by typing '\\.' Finally, the *set output birth* command is used to redirect the output to a file called *birth* which can be included in a LaTeX document with the `\input{name_of_file}` control word. This method of including plots within a LaTeX document works because Gnuplot 'translates' your Gnuplot

commands into LaTeX picture environment commands. The basic structure of such a LaTeX document might appear as follows:

```
\documentclass{article}
```

```
\begin{document}
```

Some text here.

```
\begin{center}
```

```
\input{birth}
```

```
\end{center}
```

Some more text here.

```
\end{document}
```

This article has only touched on the power of Gnuplot but you should now be able to produce a simple plot and include it in a LaTeX document.

Gnuplot also comes with a very detailed tutorial which may be accessed by typing 'help' at the command line. The Gnuplot website contains valuable information on the programs's capabilities which may be accessed at

www.cs.dartmouth.edu/gnuplot_info.html.

This site includes a Frequently Asked Questions document, a general tutorial and a Gnuplot and LaTeX tutorial as well as sample plots which range from the simple to the sophisticated.

A Gnuplot news group — comp.graphics.gnuplot — is in existence for those with needs which are not addressed by the available documentation. Gnuplot is also supplied with a Reference Card in plain TeX format.

Gnuplot is available from APDL on floppy disc or CD-ROM.

Gnuplot

Prices: Disc B324 £1.35

CD-ROM PD Issue 4 £12.50

Supplier: APDL

39 Knighton Park Road

Sydenham, London SE26 5RN

Tel: 0181 778 2659

Email:

Web: www.apdl.co.uk/



ACORN SOUTHEAST SHOW

Supporting RISC OS users in SE England

SATURDAY 1st July 2000

**The Alban Arena
St. Albans city centre
Hertfordshire**

Doors open from 10am until 4.30pm

**Adults £3.00 / ARM Club or Foundation £2.00
Children under 16 FREE (accompanied by an adult)
[Pay on door]**

- | | |
|-----------------------|---------------------------|
| » Latest products | » Special show discounts |
| » Software to be won! | » Theatre presentations |
| » Hobbyist/Games area | » Meet fellow enthusiasts |

FREE bus shuttle from St. Albans train stations

Phone: (01935) 413170

Fax: (01935) 413170

Email: acornshow@argonet.co.uk

<http://www.argonet.co.uk/acornshow>

number train

Sherston Software and early learning often go hand in hand and I was as keen as ever to review the Number Train. But are they on the right track? For me, this journey was a bit boring and the rolling stock never quite got there. Still, there were

only to the child who has already learned the basics. Computers are all very well but I feel they should always give that extra dimension to the learning process that cannot easily be achieved in other ways. The animation should be exploited to the

Rilla Paterson gets to the station for the number train but isn't sure if it reaches its destination when it tries to make calculations interesting.

snippets of Sherston-style entertainment and many children would get something out of it. Whether it is worth the £42.95 plus VAT as a classroom addition would depend on the school's budget but a few bricks, matchsticks and oral counting games would come a lot cheaper.

This program is intended as a numeracy resource for four to six-year-olds. It claims to '*use the many features of multimedia — animation, narration, sound effects and graphics — to model, teach, practise and reinforce.*' It certainly affords plenty of practice and reinforcement but

full and here the developers have been a little half-hearted.

The Number Train comes as a triple format CD for Acorn, Mac and PC. Minimum requirements for Acorn are A3020, double speed CD-ROM drive, RGB monitor and 4MB RAM.

The program tackles seven main activities concerned with number, each graded at three levels. It claims to be 'fully narrated' and also 'displays all questions on the screen as text'. The narration is good quality and there is a repeat button to replay an instruction if required. Displaying text at the same time certainly



Murphy Mouse meets you at the station for a ride on The Number Train

enhances reading and listening skills but this particular feature is of doubtful value with this age group. The text is written in cursive style with small lettering.

Four and five-year-olds who are just at the earliest stages of learning to count and write simple numbers and letters would not benefit from this style and size of text on screen. The text phrases themselves were good — short and pertinent —so it would

have been easy to produce the letters in a printed style and five times the size. One of the exercises shows how numbers are written and this is where graphics and animation come into their own but you need a full screen with an enormous felt pen boldly marking out the shape, or a slimy snail crawling over a large grassy backdrop to show very young children how to write, not a tiny little number about 2cm high appearing as a highlighted afterthought at the

bottom. I felt that the designers rather lost sight of their audience.

Interestingly, the program comes with an excellent set of worksheets for general classroom use. These give very good practice in writing numbers and a variety of other things but you would hardly want to buy the program just to get at the worksheets.

You get the picture but enough moaning—let's see what the Number Train has to offer:

Murphy Mouse

The child is met at the Station by the usual friendly Sherston character, this time in the form of Murphy Mouse arriving by taxi and invited to travel on the Number Train. The journey begins at a main menu containing seven activities. An option button allows the teacher to set the chosen exercise at one of three levels. The program claims to explore '21 activities' but it is really only seven, at three levels, and there is sometimes not much difference between them in terms of graded achievement. For Counting in Twos, clicking on Poppy Penguin leads to a bouncing bird on a pogo stick, landing on alternate

icebergs. The child clicks on the iceberg where it is thought Poppy will land next and the exercise is repeated over and over again. If the answer is right, the narrator says "Yes" and if wrong he just says "No, try again." This response tends to be the pattern for the whole program at all levels and since there are usually only two possibilities it can get a bit boring after a while and the child is bound to get the right answer second time round. However, Poppy sometimes starts off on iceberg number 9, then 7, then 5, so the child has to be able to count backwards. The trouble is, if a turn is repeated, there is no guarantee that the same sequence won't arise again, so the child can end up having to do 1, 3, 5, 7, 9 two or three times before getting the chance to practise 12, 14, 16, 18, 20 or 9, 7, 5, 3, 1.

At level two, the task is similar but, instead of the icebergs being numbered already, they are blank and the choices appear as a grid of six possibilities. The child has to choose the next number from these six. At level three there are 20 possibilities—so it is slightly more difficult again—and a series of right answers eventually reveals a picture.



The main menu with a choice of seven activities

Occasionally, instead of just “Yes”, Murphy will say “Well done!” and make some amusing congratulatory noises which would certainly appeal to the new user.

The second activity deals with a feature which the program calls Place Value. This turns out to be an exercise in distinguishing tens from units, the tens being on the left and the units on the right. At level one, the child clicks on the basketball which has a 4 on it.

One of the basketballs has a 4 but another one has a 14. The child could be forgiven for clicking on the 14. After all, the ball does have a 4 on it. But the program is seeking to reinforce the concept of tens and units and at level two this activity is very well demonstrated with piles of bricks grouped in this way. One could, of course, use piles of bricks in the classroom and save the money but we’ve been through that before...

At level three a technical hitch interferes with the dialogue. The narrator says ‘Eight is the same as zero tens and how many ones?’ Unfortunately, there is a pause between the zero and the tens, rather like the BT lady giving you the number you want and stopping for breath in the middle. So it sounds like ‘Eight is the same as zero. Tens and how many ones?’ You and I would know that it is just a pregnant pause but how many young children would interpret this correctly? There is one rather good question at this level, though: ‘13 is the same as how many tens and three units?’ The options included 1, 3 and 13 as possible answers, so the child has to distinguish correctly.

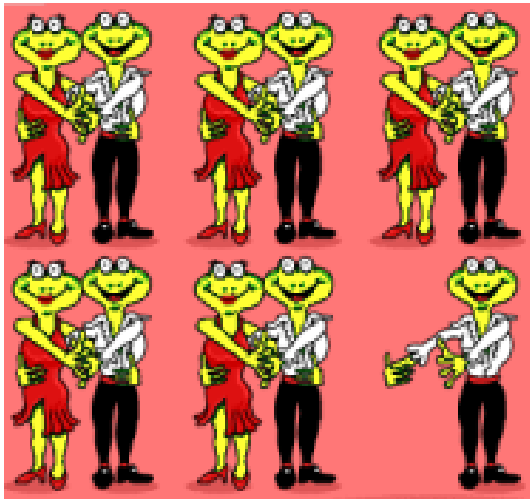
Beach Bunnies

The Ordering Numbers activity features a collection of Beach Bunnies and at level one the child just clicks on the missing number, so the sequence might be 5, 6, *something*, 8, *something*, 10. The missing numbers are in the row above numbered 1 to 10. At level two there are more blanks, so it is slightly more difficult but at level three something rather strange happens. The question is

asked: ‘Bobby Bunny has eaten between 16 and 19 icecreams. How many icecreams could he have eaten?’ Well, in my book he could have eaten 16, 17, 18 or 19 but no — 16 and 19 are wrong answers. The word ‘between’ is not adequately defined here.

Addition in Sets is demonstrated using sets of policemen. Level one is very simple, really just a basic counting exercise, but level two includes the sum written with plus and equals signs below. The third level asks the question in different ways, such as ‘What is the sum of zero and 1?’ or ‘How many are 11 and zero altogether?’ or ‘Add 11 and 4.’ This emphasises the differences in vocabulary.

Subtraction uses a row of Drippy Ducks falling into the water. At level two the numbers fly down to occupy the spaces in the subtraction sum written below, so a good link is made here to writing the sum. However, my program kept crashing at this point and returning me unexpectedly to the desktop. Perhaps the ducks made too big a splash. At level three, the vocabulary is explored, with



The Fandango Frogs: odd or even?

questions like “Taking 3 from 20 leaves?” or “4 minus 3 is?” or “Take 2 from 7”.

Esme Elephant demonstrates Addition as Counting with a game which involves rolling a die. Being a bit pedantic about English grammar, I was pleased the narrator called it a die rather than a dice. The child clicks on the square to move the counter along. At level three the questions are a little more involved, such as: ‘Esme is given 10 buns. She is given nine more. How many does she have now?’ and ‘Esme has eaten two buns. She wants to eat nine. How many more does she need?’ This forces the child to think about the concept before reaching the right answer.

Finally, the Fandango Frogs pair up for a dance and the odd one out is left standing. The child clicks on each pair and then chooses whether the total number shown is Odd or Even. At level one, the answer is ‘Odd’ every time but at other levels it can be either and at level three the child has to click on an odd or even number from 20 possibilities, so the emphasis is the other way round. This was quite well done, though I got a bit bored by the relentless repetition.

All the activities can be qualified by a number of options, which include not only the three levels of difficulty but also the volume control and whether or not the activities are switched on. If the teacher switches one off, that activity fails to appear on the main menu at the outset, so the child can be guided to the chosen subject.

There is a record-keeping facility which operates if the program is installed on the hard disc rather than being run from the CD alone. It didn’t always work for me, although I logged my name as instructed. To complete an activity at a given level often required several different tasks but I found the same task presented to

me over and over again. Even then, the completion didn't always register. If it worked, it registered the completion of each task. However, if the answers were wrong, the task still registered as having been done. Moreover, it was possible to return to a task as many times as I wished, even though the activity may have been completed. Other Sherston programs refine this record-keeping feature to a much better extent.

The records can be printed out but the printed copy emerges only after quitting the program, which could be a nuisance in a busy classroom.

A final drawback is that the train, though setting out on what is declared to be an exciting journey into the world of number, never actually arrives. Each activity just fizzles out. I have noticed this once or twice with Sherston programs. Perhaps it represents the price to be paid for a good beginning: the better the start, the higher the expectations and the greater the disappointment when they are not met. A few tarnished brownie points could have been redeemed had I seen the train steaming homeward with the results of my scores all added

up, or perhaps a procession of Scruffy Growlers, Drippy Ducks, Fandango Frogs numbered one to 100 with each endearing name, with Esme Elephant and Murphy Mouse pushing from behind: just something to show that the journey was worth while and the child reached his or her destination.

Here, then, is a program that sets out to explore some basic numeracy skills. It visits a variety of areas and gives practice in counting, adding, subtracting and ordering numbers for children who can count already. The activity worksheets are good but in my view you could achieve the same skills with a large supply of scrap paper and a few well-sharpened pencils.

Number Train

Price: £42.95 +VAT

(Multi packs are available)

Supplier: Sherston Software Ltd

Angel House, Sherston

Malmesbury, Wilts SN16 0LH

Tel: 01666 843200

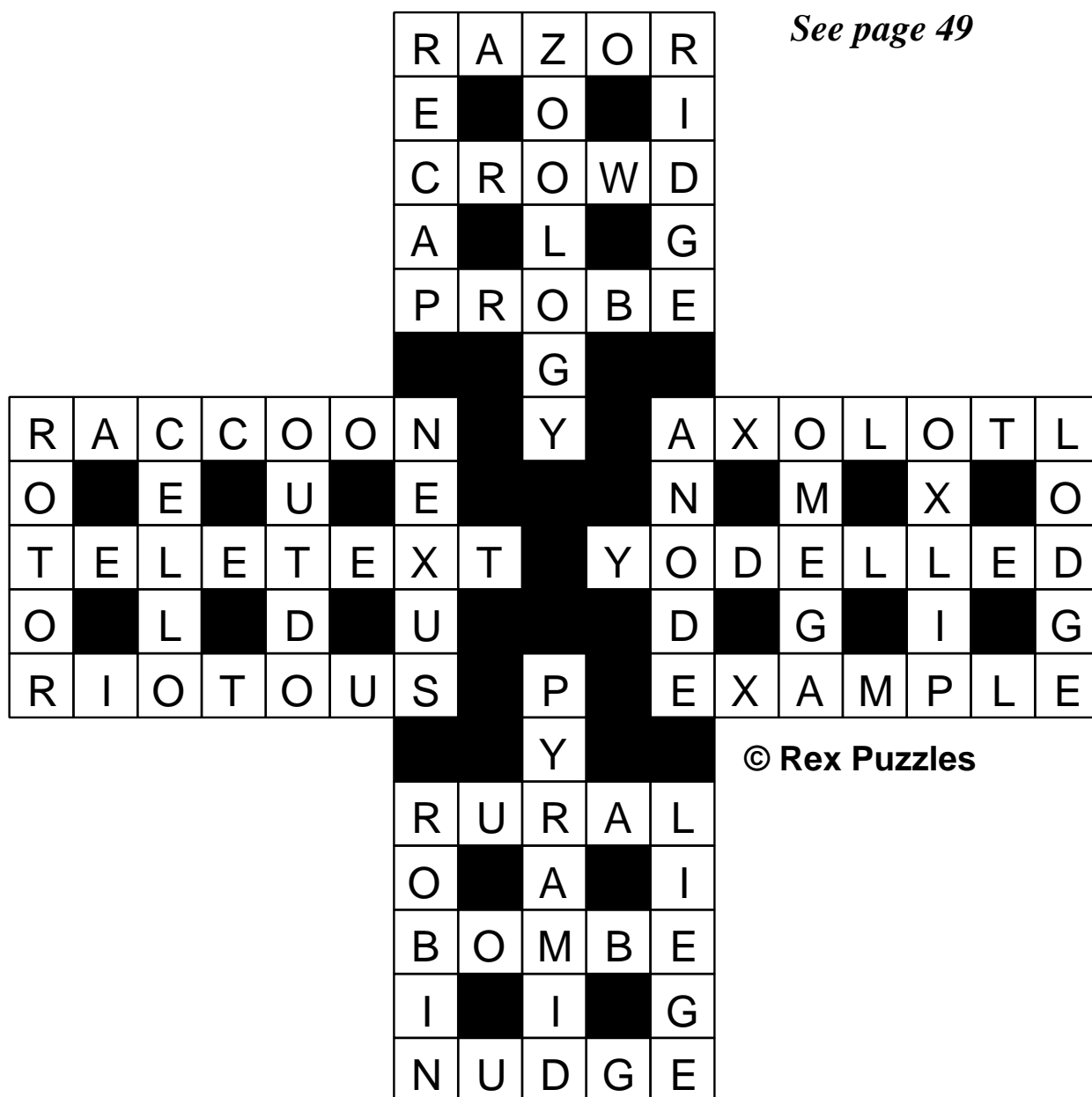
Fax: 01666 843216

Email: sales@sherston.co.uk

Web: www.sherston.com

The Solution to DoubleCross No. 1

See page 49



© Rex Puzzles

In Eureka 35 ... We look at using FTP to upload to Web sites, there's a review of a new Draw tutorial, we find a CD-ROM full of clip art featuring favourite children's characters and we see what two more new RISC OS magazines have in them. Among the usual regulars, there's more Site Seeing on the Web and we peep at the latest pages in Gill's Journal.

Columnist wanted

Do you surf the Web to find useful items of PD and shareware software to download? Would you like to pass on your finds to other Club members?

If so you could be just the person to take over our Free For All column. You can see examples of what is needed in Eureka issue 31, page 56, and issue 32, page 62.

If you are interested, please email The Editor at eureka@armclub.org.uk or write to the Club's usual address on page 80.

Feedback

In Eureka number 33, page 37, it is stated that calls on the Internet to ISPs with the 0845 prefix are not mentioned on BT's itemised bill if the calls are under 40p.

In my experience that is incorrect as the vast majority of my calls are less than a minute when downloading news and emails. These attract the minimum charge of 5p and are all listed.

Peter Paddison

As are mine. I recollect accepting fully itemised calls as a free option from BT some time ago. -Ed.

All the best from BEEBUG

RISC User may have gone but you still have the chance to get a CD-ROM containing all 120 magazine discs plus special discs and full versions of a mass of BEEBUG's commercial software, fonts, books and other publications.

The CD, ***RISC User in a Nutshell***, is available for a strictly limited time at £35 inclusive in UK (£37 abroad) from: BEEBUG Ltd

7U St Albans Enterprise Centre,
Long Spring, Porters Wood,
St Albans, Herts, AL3 6EN.

Tel: 01727 840303 Fax: 01727 840300

Email: sales@beebug.co.uk

Shows Diary

Saturday & Sunday, 20–21 May

Wakefield 2000

Thornes Park Athletics Stadium, Horbury Road, Wakefield

Saturday 10·00 to 17·30 Sunday 10·15 to 16·00

Adults £3·50; Under 16, Foundation members & OAPs £2·50; Under 5 free

www.cybervillage.co.uk/acorn/wakefield

Saturday 17 June

Big Ben Show

Hotel Mercure, Buizerdlaan 10, Nieuwegein, Near Utrecht, Holland

Saturday 1 July

Acorn SouthEast Show

The Alban Arena, St Albans, Herts

10·00 to 16·30

Adults £3; ARM Club or Foundation members £2

(Under 16, accompanied by an adult, free)

See full details on page 69

Saturday & Sunday, 21–22 October *

RISC OS 2000 Show

Epsom Downs Racecourse, Surrey

* Provisional —subject to confirmation

Club contacts

Email:

General queries	info@armclub.org.uk
Membership queries	membership@armclub.org.uk
Members' technical help	support@armclub.org.uk
Product sales	sales@armclub.org.uk
Magazine	eureka@armclub.org.uk
Disc	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/>

Published by The ARM Club

- Chairman: Toby Smith • Secretary: Chris Price
- Treasurer: Simon Burrows • Membership Secretary: Rilla Paterson
 - Technical Help Co-ordinator: David Ruck
 - Internet & Products Co-ordinator: Tom Hughes
- Open Days Advisor & Quartermaster: Ralph Sillett
 - Open Days Organisation/Support: John Stonier
- Discount Scheme Organiser: Rob Brown
- Without portfolio: Matthew Cook Martin Ebourné Mark Smith

Editor: Peter Jennings

© 2000 The ARM Club. All rights reserved

Benefits of membership

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

The **ARM
Club**

- 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 £12 (+£3 joining pack for first year)

Europe £16 and rest of the world £19

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

Email: info@armclub.org.uk Tel: 07010 709849 (Flexitel)