



# Apple *User*

A Database Publication

Vol. 6 No.12 December 1986 £1.25

## ***Apple World:*** Full reports

Desktop  
Publishing  
takes off

Apple's role  
in Education

Exploring CP/M  
memory maps

Calendar  
routine

MacServe put  
to the test

Create your  
own commands

## *Review:*

A new look at  
AppleWriter 2.0



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- Printers

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386-486 normal CP/M power pack	£ 32.00
386-486 normal CP/M power pack	£ 31.00
386-486 normal CP/M power pack	£ 28.50
386-486 normal CP/M power pack	£ 42.00
386-486 normal CP/M power pack	£ 47.00
386-486 normal CP/M power pack	£ 87.00
386-486 normal CP/M power pack	£ 95.00
386-486 normal CP/M power pack	£ 99.00
386-486 normal CP/M power pack	£ 119.00
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# MCT

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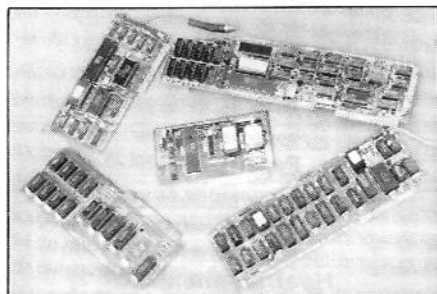


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Price includes fitting charge

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P&P Printers	£10.00
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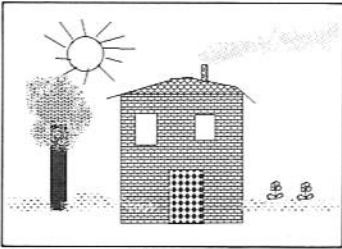
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## Apple kids on TV

TWO little girls from Burton on the Wolds had their Macintosh-produced artwork shown on one of Britain's most popular children's TV shows last month.

Although Janet and Lorna McKnight are only eight and four

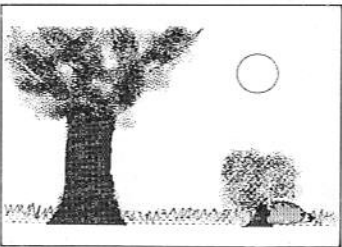


By Lora, aged 4

respectively, they are already expert at using MacPaint.

The daughters of former *Apple User* editor Cliff McKnight have been creating designs on their father's Macintosh for two years.

They sent their latest work to TV creative artist Tony Hart and to



By Janet, aged 8

their delight had it featured on his *Hartbeat* series during November.

And, as a further reward for their efforts, they got a personal letter of congratulation from Tony Hart and a book token each.

## Apple — with care

A MAJOR new development in after-sales service for its machines has been announced by Apple UK.

AppleCare, available through authorised dealers, is an extension of the normal one year warranty and allows customers to cover their system for a further 12 months on payment of a small fee.

Cover can be applied to all the main Apple products and taken out at any stage of the product's life.

# IIGS production is assured — official

EVEN though production of the new Apple IIGS has been temporarily interrupted the UK supply situation has never been in danger, the company says.

Reports circulating in the computer press have claimed that a major engineering bug means only 5,000 machines can be produced before Christmas instead of the expected 20,000 to 30,000.

But a statement from Apple headquarters in Cupertino strongly denies that the production

schedule has been drastically downgraded as was reported in several US publications.

One, the California Technology Stock Letter, even went so far as to advise its readers to sell Apple stock.

And Computer Reseller News quoted a source as saying Apple chief executive John Sculley himself admitted that "IIGS production would not be efficient until March".

But Apple now says the engineering bug has been elimi-

nated, the production schedule is back on track, and up to 30,000 units will be shipped by Christmas.

An Apple UK spokeswoman told *Apple User*: "There were some production problems initially, but everything is sorted out now."

"There was never any danger of the situation affecting the UK market. We are still expecting demonstration units this month and retail supplies in quantity starting in January".

# Support for a ban on South Africa

A SUGGESTION that British suppliers of Apple computer support products should introduce a voluntary ban on exports to South Africa has met with a generally sympathetic, if muted, reaction.

Robert Sather, director of DarkStar Systems, wants UK firms to cut their South African ties as a protest against apartheid.

"A concerted boycott by a large portion of the computer goods community would have an immediate and serious impact on South African industry, which like our own depends on computers to keep its books", he told *Apple User*.

"The staff of DarkStar have unanimously decided to refuse all orders originating in South Africa until the present state of emergency is ended and concrete steps are taken toward political equality for blacks.

"We invite other computer goods suppliers to join us.

"DarkStar's exports to South Africa are not large, and we are aware that their suspension will be at most a minor irritant to some South Africans.

"But South Africa has no home grown computer industry and is completely dependent on imports of hardware and software, mainly from the UK and America".

Apple Computer itself pulled

away from its South African connections last year.

"We never had a wholly owned subsidiary in that country", a spokeswoman told *Apple User*. "Instead we dealt through a distributorship and we stopped shipping to them in 1985".

Another forerunner of DarkStar was Apple business software specialist Microsoft. Spokesman Mark Plant said: "We pulled out of South Africa two years ago because of apartheid so we naturally support similar actions by other firms following our lead".

David Southward, of P & P Micro Distributors, said: "Our policy is not to export goods to South Africa because we do not support apartheid".

Paul Sloane of database man-

agement specialist Ashton Tate said: "We have no direct presence in South Africa and we do not intend to have one. Our products are available there through distributors, and we don't believe steps of a political nature are ours to take".

Martin Stead of Apple dealers Thames Valley Systems said: "We never have sold our products in South Africa and probably never will. I'm in two minds as to what is the best way of ending the apartheid situation — I'm concerned that pulling out may make things worse".

And Brian Nurthen of Apple systems supplier Deverill commented: "As a South African myself I feel very badly about the whole situation".

## BIGGER MAC NETS

LATEST product of the Apple Computer/3 Com Corporation relationship is a jointly-developed dedicated network server and new software which offers Macintosh users expanded networking capabilities.

EtherSeries Enhanced enables Macintosh users to install and administer their networks, and allows full functionality for an all-Macintosh network when combined with 3Server3 which

has built-in AppleTalk capabilities.

Previously such networks required an IBM PC-compatible for loading software and network administration.

The 3Server3 basic unit costs £5,995. A tape back-up unit costs £1,995 and 2Mb optional memory cache card £1,495.

A 70Mb disc expansion unit costs £3,995 and a 70Mb supplemental hard disc option for the expansion unit £2,495.

new... new... new...

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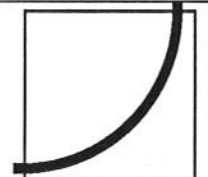
File... Edit... Goodies!

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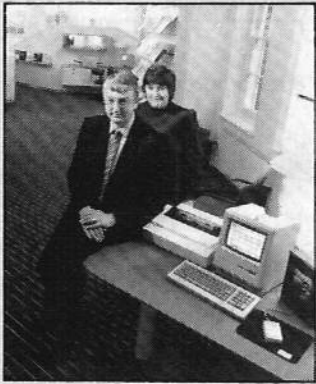
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Bob and Linda Harris

## Centre No 9

The ninth AppleCentre in an eventual chain of 50 has opened in West London. It is a partnership between Apple UK and local dealership Hexagon Services.

Joint managing directors Bob and Linda Harris, pictured here in the new AppleCentre, set up Hexagon Services in 1979 as an Apple dealership and consultancy in operational research and computer applications.

They later formed Hexagon Systems to provide individually tailored multi-user systems and software packages.

## Portable Mac

AMERICAN developer Colby Systems has announced a portable Macintosh for sale around the end of this year.

The firm won a US government contract for 120 portables and has now decided to offer the model to the general public.

It is negotiating with Apple to obtain components directly, rather than cannibalise Macintosh Plus machines for parts.

The Colby Lap-Mac will be configured with a Macintosh Plus CPU with 1Mb of ram, a 20Mb hard disc drive and internal modem.

It is also expected to come with optional power supply and internal battery and be priced between \$5,000 and \$7,000 initially.

# Kilimanjaro bound

A GROUP of Apple UK employees, led by managing director David Hancock, has gone mountaineering for charity.

Their intention is to climb 19,455ft Mount Kilimanjaro in Tanzania to raise money for the National Spinal Injuries Centre at Stoke Mandeville Hospital.

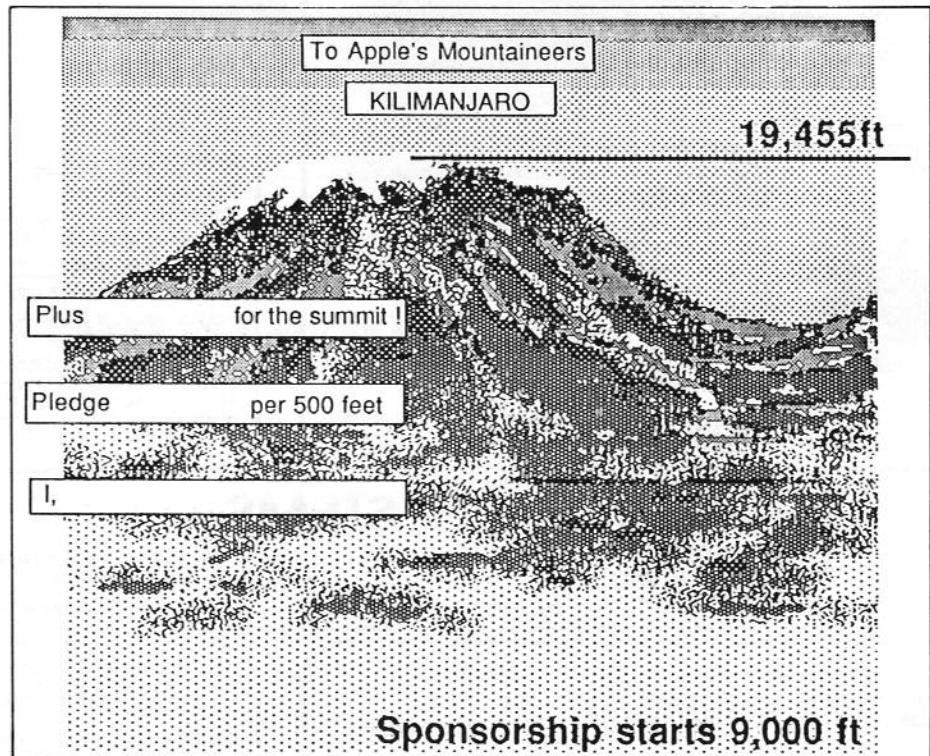
The actual climb should take

them three days and the descent about half that time, depending on just how testing they find the rocky terrain and altitude.

Sponsorship money – increasing for each 500ft they climb above 9,000ft – will enable the computer workshop at Stoke Mandeville to buy more Macintosh computers.

Climbing with David Hancock will be Harold Beirne, Peter Cossins, John Floisand, Sonja Garsvo, Hugh Nicklin, Keith Phillips and Bob Taylor.

Before leaving for Africa, Hancock described the climb as "a metaphor for the demanding set of business objectives we at Apple UK have set ourselves".



Kilimanjaro sponsor form

## Apple doubles its profits

APPLE Computer's latest balance sheet shows the company more than doubled its profits during the 1986 financial year.

Profit before tax was \$309 million compared to \$120 million a year ago, an increase of 158 per cent. Earnings per share increased 141 per cent to \$2.39 from 99 cents in 1985.

Sales actually decreased slightly – to just over \$1.9 billion – and the increased profits are due mainly to the re-organisation and overhead-cutting operations instituted by chief executive John Sculley.

Apple now generates the highest sales and assets per

employee of any office equipment company in the world.

Net sales in the fourth quarter of 1986 were \$510 million, an increase of 25 per cent over a year ago. Profits before tax for the quarter were up 51 per cent at \$65 million.

"Apple has made substantial progress throughout 1986, as our second half revenue gains and significant earnings improvement indicate", said Sculley.

"During the fourth quarter we saw continued momentum of Macintosh products in the business market and strong performance of Apple II products in the education market".

## Sales forecast

APPLE executives have told US financial analysts they expect a 20 per cent jump in sales next year – but no increase in profits.

This is in complete contrast to 1986 when profits more than doubled and sales actually declined minimally.

The static profits situation will arise because Apple intends to spend heavily on a number of – as yet unspecified – new product launches.

One of them is expected to be a powerful addition to the Macintosh family in March.

Industry observers say this will be a technical workstation featuring enhanced graphics and desktop publishing facilities – and a step toward MSdos standard.

It is also expected to be IBM-compatible via a plug-in card, the first Apple Computer move in this direction.

# the Toy Shop™

creates marvellous mechanical models that really work!

How does a computer create a working steam engine, a mechanical bank, and the Spirit of St. Louis?

**WITH YOUR HELP...** A balloon-powered steam-engine, a clockwork bank that runs on pennies, a scale model of the Spirit of St. Louis; these are just three of the 20 mechanical models you can create with the Toy Shop. Each one is a 3-dimensional marvel that starts with your computer.

**TAP YOUR CREATIVITY...** The Toy Shop's easy-to-use software contains all the detailed designs. Simply choose one from the on-screen menu, then give it personality by adding custom patterns, text, & graphics. (Print Shop's myriad graphics are compatible). Once you've customised your model, send it to print. Precision parts roll out of your printer, ready to mount on special adhesive cardstock included in the package. Then you're ready to roll up your sleeves, cut out the pieces and start building. Toy Shop includes a supply of model-maker's adhesive cardstock, wire, wooden dowels, rubber stripping, and balloons to help you get started.

**BUILD ONE OR A HUNDRED...** The supply of models and toys is endless. Each of the 20 projects can be customised and coloured offering no end of variation and giving hours of family or educational enjoyment.



**Designs include:** Antique Truck \* Balancing Jet \* Carousel \* Equatorial Sundial \* Experimental Glider \* Flying Propeller \* Hellcraft \* Jet Dragster \* Medieval Catapult \* Mechanical Bank \* Mercer Raceabout \* The Oracle \* PennyPower Scale \* Spirit of St. Louis \* StarShip \* Steam Engine \* Steam Oil Pump \* Steam Table Saw \* Tractor Crane \* Zoetrope

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**PRINT SHOP LIBRARY DISKS H13/14/15/16 (MGA)** £4.99

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Epson LX/GX-80	£4.19	£3.49	£2.59
Epson MX/RX/FX-100	£7.99	£6.99	£3.99
Panasonic 1080/1091/1092/1592/1595	£6.99	£6.49	£5.75
Shinwa CP-80/Epson LQ-800	£5.99	£4.99	£3.99
Star/Oki Twinspool	£2.39	£1.99	£1.36
Taxan/Kaga/Canon	£4.99	£4.69	£3.39

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Star/Oki Twinspool	£9.95	£8.95

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Overseas just add £5.00 for air mail postage any size order: but please note that this does not apply to paper which we do not ship overseas.





## Paper trains

A MODEL making package aimed at the 12-year-old plus market has been released by Broderbund for the Apple II and Macintosh.

Up to 20 mechanical models, including a steam engine, clock-work bank and antique carousel, can be made from paper by following the designs contained in the software.

Once the precision parts are printed they are mounted on adhesive cardboard. The model is then cut out and assembled using the wire, wooden dowels, rubber stripping and balloons included in the package.

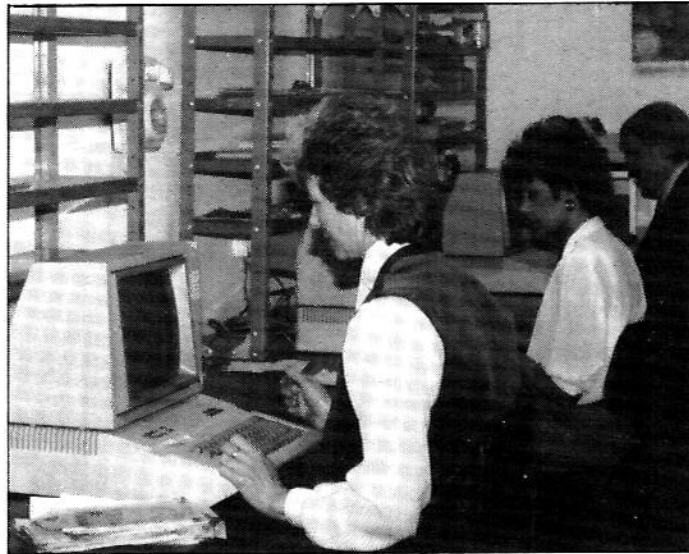
Models range from easy to challenging, with no previous model making experience necessary. The Toy Shop comes with a 200 page manual at £49.99 for the Apple II range, and £54.99 for the Macintosh, MacPlus and MacXL.

## Ultraterm

TWO lines were missed out of the article on page 25 of the November 1986 *Apple User*.

The missing lines, in the third paragraph from the end are printed here in italic:

with the exception of the contact fingers for pins 1 and 41. The LC will now have only two live contact fingers. The finger for pin 1 is connected to *toggle switch as shown in Figure I, the finger for pin 41 is connected to the printed circuit track on the Ultraterm card as shown in Figure II.*



## Guide to CD rom standards

THE definitive guide to CD rom standards – on which Apple had a major influence – has been published.

Apple is one of more than 100 firms with direct investments in CD rom products which make up the High Sierra Group.

These leading computer companies, compact disc manufacturers and software publishers have spent more than two years developing a CD rom volume and file format standard.

"Without internationally accepted standards, the compact disc for digital audio recordings could not have achieved its rapid success as a consumer product", says the guide's principal author Julie Schwerin.

"As an extension of CD audio for professional publishing products, standards are critical to CD rom's success in the computer and information industries".

Parke Lightbown, another of the authors, said: "Completion of the High Sierra Group proposed standard is a major milestone.

"The majority of discs produced over the next two years and long after will use the standard, but it will take time to develop a consensus as to the preferable implementation of standards and to align various system elements to that consensus".

The guide, *CD rom Standards: The Book*, is available from Learned Information, price £50.

## Improve standards, call

A CALL has gone out to entertainment software houses to improve their standards to cater for the sophisticated Apple computer market.

It comes from Stewart Bell, managing director of the recently formed UK subsidiary of MicroProse, the number one developer of simulation software in the United States.

"There are too many software houses around who are apparently working on the assumption that end users have IQs less than orangutans", he told *Apple User*.

"However they couldn't be more wrong. For just as machines are becoming more sophisticated,

so too are the users. And none more so than Apple enthusiasts".

As UK boss of a company renowned for its award-winning simulation software, Bell is unhappy that the Apple computer entertainment sector is not realising its full potential.

For MicroProse claims its programs are in the Rolls Royce category of software.

Producing only a handful of titles each year, the company spends up to \$1 million on the development of each, in order to guarantee its success.

Now Bell's job is to hammer home the message to Apple users not to be put off purchasing entertainment software just

because they may have bought shoddy products in the past.

"Thanks to the authenticity and accuracy of our simulations, users get literally hundreds of hours of pleasure", he said.

"So you can understand why we become a little irritated when our software occasionally turns up on shelves next to the cheap and nasties".

MicroProse has a number of titles for the Apple II range – Solo Flight, priced £19.95, F-15 Strike Eagle £21.95, Nato Commander £24.95, Decision in the Desert £24.95, Crusade in Europe £24.95, Conflict in Vietnam £24.95, and Silent Service £24.95.

## It's a gift – with an Apple

CHRISTMAS comes but once a year and when it does it brings a flood of orders for Personal Gifts, a mail order company which specialises in personalising items with names and initials.

During the run up to Christmas the firm handles up to 12,000 orders a week – which means plenty of work for its Apple II local area network.

Managing director John Bower told *Apple User* his photocopying bills used to be colossal due to the number of different departments which needed a copy of each order.

With an annual average of 100,000 orders it meant a paper mountain costing more than £5,000 a year.

The solution was found in a Nestar Systems LAN using Apple IIs as terminals. It involves a Nestar Plan 4000 file server with 137Mb of central memory and 16 Apple IIs.

The system contains two databases, one carrying all the details about each type of product and the other holding more than 250,000 customer names and addresses.

Each incoming order is processed twice, the computer records and validates the details then generates work orders for the various operations involved such as engraving and embossing.

At the end of each day the system prints out a breakdown of the total orders so that a quick accounting check can be made – a 15 minute job that used to take a full day's work before computerisation.

The customer database is continuously updated – much of the work being done automatically by an Apple II – to save wastage on catalogues and postage.

"It also gives me peace of mind", said John Bower.

"I used to worry about the possibility of a fire wiping out the paperwork with all the customers' names and addresses – now I simply keep a backup in a safe place".



## Yes - the II GS is great - but don't forget the IIc!

Rumour has it that this extremely compact, but powerful computer may eventually be 'phased out'. which, if true, seems a great pity.

Consider it's specification -128K with built in disk drive, 40 or 80 columns as standard, supplied complete with power supply, now only **£449.00**

- or better still, the **Apple IIc Bundle**, comprising Apple IIc Computer, External disk drive, Monitor and stand, Mouse and Mousepaint, carrying case and colour modulator all for **£649.00**

## Hard Disk Times

*There has never been a better time to purchase a hard disk to go with your Macintosh. The cost of mass data storage has never been lower. Our price for Apple's HD20 SCSI with 20 megabytes capacity is now only £845.00 and to make it even easier we are prepared to make a generous allowance on your 400K or 800K Apple external drives. Make the change now and experience the tremendous difference in operating your system.*

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The **Pyramid** holds up to 24 5.25" floppy disks with a storage design that allows the user to quickly read each disk label at a glance. Designed for the executive, professional or student who is on the move. Available in a variety of colours at

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### Pascal Utilities - MouseStuff

For Apple IIc or IIe with 80 column. Written in assembler and allowing Pascal programmers to use pull down menus in their own programs. These utilities also allow saving or clearing, part or all of the screen and also incorporate a speedy routine for writing to the screen. Full use of the mouse is possible, but menus may also be opened from the keyboard. Assembler knowledge not necessary.

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Fact sheet available.

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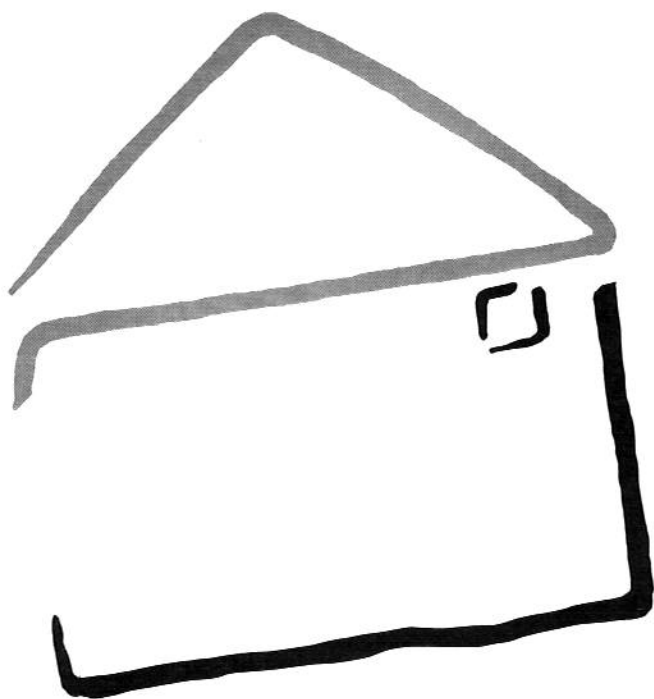
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## Music to your ears

I WAS amazed to read in your June 1986 issue a reader's question about sampling for the Apple II. Not only does such a music package exist, but it is one of the finest in the world of sound sampling, reaching pro resolution and response and performing much better than similar programs for the Mac – and better than “black boxes” too.

The producers of this card/software set are Greengate Productions of Great Britain, Tel: 09-277 69149. They have moved recently, so I don't know their address at the moment. Tell them I do from Israel sent you.

I have been using their DS:3 system for the II for a year and am totally satisfied. It's cheap, it's modular, and it's being developed all the time. I'm using it in a home studio set-up and am able to produce high quality pieces for fun and profit.

The only trouble with these Greengate people is that they are a little weak on the promotion side, as the letter of C.J. Cowap proves. – **Ido Amin, Tel Aviv, Israel.**

● For interested readers the address is Greengate Productions, Unit 4, Happy Valley Trading Est., Kings Langley, Hertfordshire. Tel: 09-277 69149.

## Hi-res problems

I SENT you a blank disc for the hi-res screen editor to be copied on to it. I duly received it back, but have one problem. I can move the “inner” screen around, but cannot see how to go from that stage to the actual editing of the picture.

In part two of the article an example is given of how to amend the picture of the brain by changing the position of the words “vertebra” and “the brain”, and by adding an underlining to the latter pair of

words. However, it does not show what actual instructions are given to achieve this.

Can you help me by letting me know how to deal with the actual changes to the screen? – **J.A. Lane, Wallasey.**

● The full instructions for the editor were given in the first article (*Apple User*, June 1986) but to help you and others here is a summary.

When you have loaded your picture and entered edit mode the whole picture will be inverted in colour, as this inversion shows the editing window which happens to fill the screen at switch on. Shrink the window using L & P.

Now the window may be moved using the “diamond” I, J, K, M and its right edge may be moved left with L and right with ;, its bottom edge is moved up with P and down with . (full stop).

The contents of the window are moved left one bit by A and by one byte by Z, right one bit by S and by one byte by X. Up one line by D and down by C. I shows page 1, 2 shows page 2. Q quits and / enters the Ent bits mode.

The contents of the window are put into data by F and swapped with data by G. Data is put into the window by V.

In Edit bits mode the commands are the same but the P, L, ;, M diamond moves the cursor and H inverts the pixel, Q exits to the full picture and O displays the lo-res screen.

Use of the window and data allows copying of parts of the picture to within itself or to another picture by means of a disc save at the menu level.

## Flipper and WordStar

IN your Feedback column of September 1986 Max Parrott replied to a question by Malcolm Taylor re Wordstar on the Flipper.

I assume that they are referring to the use of the Flipper as a pseudo floppy or ram

disc to store the Wordstar program and overlay/message files. The simple solution to the problem posed by Mr. Taylor is to modify his Wordstar during install to change location 02DC to 04 (for drive D:) or DEFDSK: to 04. This will tell WS.COM where to look for the .OVR files.

There is only one complication to this system. The disc in drive A: must have the CP/M system on it at all times. As this occupies tracks which are not usable by any other information, this is not too large a handicap. To do this put the CP/M Master in A: the file disc for A: in B: and type COPY B:=A:/S and press Return. Now the disc in B: is bootable.

To save time at startup use the Submit function described in the Microsoft manual to activate a series of CP/M commands. I actually have an AUTO.COM file which allows me to turn the computer on and have all the Wordstar files from A: and all the Spellstar files from B: copied to D: using PIP. – **P.G. Gilvarry, Hong Kong.**

## Micro money book

IN the October 1986 *Apple User* in an article on the lowdown on high finance the author referred to the book *Your Best Interest* by Tom Weishaar. I would like to know who publishes and where I could obtain a copy. – **J.V. Bloomfield, London.**

● *Your Best Interest: A Money Book for the Computer Age*, by Tom Weishaar, is published by Info Books of Santa Monica, California, price \$9.95.

## Epson troubles

I HAVE been using AppleWorks on a IIe computer for 12 months. In that time I have had no problem with printer compatibility when using a Ricoh 1600, Epson RX-80 and Anadex.

Currently the only printer available to me is an Epson FX-80 or an MX-80. The AppleWorks program does not appear to address these printers. I am using a parallel interface board 8132W which is designed for the Apple IIe.

Both Apple and Epson have been unable to sort out this problem for me and I would appreciate any suggestions you may be able to offer. I understand there was a letter addressing this very problem in *Apple User* May 1986 but unfortunately I do not have a copy. – **M.G. Lombard, London.**

● I do not think that the problem actually lies with the printers themselves, in fact I am using an Epson FX-80 (the MX-80 is equally good) with AppleWorks to prepare this – the difference being that I am using a Blackboard parallel printer interface rather than an Epson one.

Ever since their first printers appeared Epson has produced a card called the 8132 (appendixed with letters A, B, C etc) to use with the Apple II computers. Each of these cards has had a more or less serious fault. The first would not work with Visicalc, the second corrected this but would not work ▶

Pascal, the third corrected this but would not work CP/M and so on.

Generally the changes between cards has been a rom update. I thought that they had probably got it right at last since the letter in the May issue of *Apple User* to which you refer said that Epson had updated the reader's card with a new rom (and a slight modification to the card) which made his printer talk to AppleWorks correctly, as in fact yours does with the RX-80. Clearly, with the older printers the card still does not work.

Frankly, given their past history, I would forget Epson printer interfaces and buy a new one. As I said, I use a Blackboard, but many others work equally well. — **Max Parrott.**

## Setting up for A4

AS an enthusiastic user of AppleWorks, I was most interested in the letter published in your August issue regarding the setting up of printer paper for A4 size.

I use my IIc for commercial purposes in a small business and do not have the necessary computer knowledge or time to delve too deeply into the niceties of programming. I was delighted to find an answer to one of my niggling problems.

I followed the instructions in the letter and looked up the reference in the AppleWorks manual on page 265. Following the option 5 and sub-option 7, I came to another level where pressing Return merely brought me back to the first set of options.

Where have I gone wrong and how do I get into the other printer control options to alter the page length to 11.7 inches? — **Michael Hughes, Melton Mowbray.**

●When within a document try the OPEN-APPLE-0 option and select PL followed by Return, then 11.7 and Return again. Leave with an Escape. You have an earlier version of AppleWorks and really you need version 1.3. Take your disc to your dealer.

## Monitor link-up

REGARDING the problem of linking monitors in August's Feedback, I too recall the link-up system at the Manchester Business to Business exhibition, but do not remember the name. I remember that the cost was over £1,000 so it would perhaps be too expensive for John Robertson-James.

However I have solved the same problem in my seminars by using 12in black and white Hitachi monitors model VM 129 E/K and 12in black and green NEC monitors model JB1202M(E).

Both have two video connectors and a switched 75 ohm resistor. With the resistor switched out the monitors can be connected in series.

I normally have six monitors in a chain, but you can have more. The last one in the chain should have the resistor switched on, or you can use a monitor with only one

connector.

Neither of these monitors offer the quality of display of an Apple IIe monitor but the display is adequate for demonstrations. I am not sure whether the NEC monitors are still available but I saw them advertised about a year ago for £90 compared with the original £180.

The Hitachi monitors are widely used in industry and there is a 9in version, VM 906 E/K, which is often used for security monitoring with a video camera.

I had an Apple III monitor which I modified by fitting another video inlet and a switch for the 75 ohm resistor. Unfortunately, it was broken in an accident but I am trying to buy a secondhand replacement.

You cannot chain Apple IIe monitors because there is only one video connector and it is difficult to get at the 75 ohm resistor in order to fit a switch.

An alternative with only four students would be to use a large display monitor facing the students and linked to the tutor's machine and in turn chained to an ordinary monitor facing the tutor.

However large monochrome monitors are expensive and you might just as well buy a large colour monitor with the facility to switch on only the green colour. — **Geoff Wood, Stockport.**

## Reader snag

I NEED some assistance with a recently purchased piece of equipment and I hope that one of your readers might be willing to help out.

I have purchased an Omnireader by Oberon International for use on my Apple II+. When I arrived home (Saudi Arabia) I discovered that the company had gone out of business in the US and that both the operations manual and typeface disc had been left out of the box and the software provided was for the IBM, not an Apple II+.

Although the reader works and I have been able to write some software for reading with it, I am limited to reading the test card so far and that is not all that interesting a thing to do.

Any help your readers might offer would be greatly appreciated. I will answer all correspondence so if nothing else they will receive some Saudi stamps for their trouble.

— **Marshall P. Brown, c/o ARAMCO Box 1039, Dhahran 31311, Saudi Arabia.**

## Help needed

AS you have reviewed the adventures *The Blade of Blackpoole* and *Escape from Rungistan* in past issues, I wonder if you could help me? I do not know what to do to get started in *Blade of Blackpoole* and I would like to know the combination number of the locked cabinet in *Escape from Rungistan*.

Is it possible to use utilities and play

games which require 64k on my Apple II+ by adding a 16k ram card? — **Alan Hoyle, Carshalton, Surrey.**

●The answer to your question is easy — yes! To answer the first two questions we enlisted the help of Cliff and Denise McKnight:

If you can't get started in *Blade of Blackpoole* you're probably having trouble with the plant and the quicksand. You need to get past the latter in order to get what the plant demands. This is one of those nasty bits that isn't all that logical, so we'll just tell you — try swimming through the quicksand. Rotten, isn't it?

In *Escape from Rungistan* the combination is scattered about. The easy bits to find are all in the saloon, but, as you may have discovered, "The last number is East of the rebel" . . . which leaves the problem of getting past the rebel. You need to dampen down his explosive tendencies. The four bits should be put together to give a three-part left-right-left sequence.

It's good to see these two Sirius games are still around, long after the demise of the company — show's how good they are if they can still command a second-hand price. — **Cliff and Denise McKnight.**

## Thanks!

IN the July issue of *Apple User* a letter from me was published concerning the difficulties I was experiencing with printing graphics on a Mannesmann Tally Spirit 80.

I would like to express my thanks to Mannesmann Tally, AppleCentre, Knightsbridge and Cirtech (UK) who have helped me towards positive success. — **Gordon P. Owen, London.**

## Dump on MicroLink

ANY readers who have taken an interest in my Apple UCSD Pascal screendump program for the Imagewriter printer (*Apple User*, August, 86) may like to know that they can write and obtain a copy of the source code if they send a 5.25in disc and a stamped, self-addressed envelope to Max Parrott at Apple User.

The listings are also on MicroLink for those with a modem — **David Jones, Leicestershire.**



# MicroLink

in association with **TELECOM GOLD**

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19

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Signature  Date

#### C. Please invoice the company/authority.

If you select this option, which is ONLY AVAILABLE to government establishments and Public Limited Companies, we will require an OFFICIAL ORDER to accept unspecified amounts.

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# AppleWorld: Quality and style

**Mike Cowley reports  
from Apple's event  
of the year**

APPLEWORLD, the exhibition and conference held at the Business Design Centre, attracted almost 10,000 visitors.

Small by the standards of normal computer show crowds, but all the people who came had been invited.

As such, it makes it one of the best attended events in the industry of all time.

It was a calculated gamble by Apple that paid off. For the company was rumoured to have spent up to £1 million on AppleWorld to impress the right sort of people.

The superbly staged exhibition obviously did.

For while standholders demonstrated Apple's wide range of business, education, desktop and communications solutions on the main floor, the real action was taking place on the balcony.

It was there that major deals were being struck during the course of the four day event.

## Champagne celebration

Far removed from the almost back street bazaar atmosphere of many computer shows – Apple insist this was not a show – it was all handled with style.

Those with money and those with something to sell simply got together in pleasant surroundings with the relative peace only occasionally disturbed by the sounds of champagne corks popping to celebrate some extra large transaction.

Not that any actual cash changed hands – that's against house rules in the Business Design Centre – but when it comes to transactions at this level coin of the realm doesn't really figure any way.

Company officials were rather reticent to talk about the sums involved in deals but one did admit to Apple User that he did expect to eventually benefit by £1.5 million from one "arrangement".

## Information showcase

However, it wasn't all about business. For AppleWorld had also been designed as an information showcase, with conferences running simultaneously with the exhibition.

And these featured key speakers from the world of business, education and desktop publications – all three areas which figure most prominently in the plans of Apple UK.

The education conference examined the current position and future development for the Macintosh in higher education.

Packed audiences were able to listen to –

and cross-examine – key speakers such as Dr. Alan Kay, Apple's product development consultant, Dr. David Hartley of Cambridge University and David Clark of the University of London.

Desktop publishing – currently the buzz phrase at Apple – drew the biggest names in the field at the conference.

Both Paul Brainerd, president of Aldus Corporation and Dr. Charles Geschke of Adobe, whose companies currently lead the field in specialist software, flew over from the States to speak.

Not to be outdone, the business conference celebrities included Professor William Gosling, Plessey's technical director, and David Shay of Peat Marwick Mitchell & Co.

Demonstrating the importance attached to this first AppleWorld was the number of product launches witnessed at the event.

Not only did it provide the first public showing of the new IIGS, but it also revealed the strength of companies supporting Apple in the market.

Although new products were certainly weighted in favour of the Macintosh – thanks in no small part to desktop publishing – the level of interest in the IIGS showed that the Apple II family is still a force to be reckoned with.

Obviously well pleased with the event, Apple UK managing director David Hancock said:

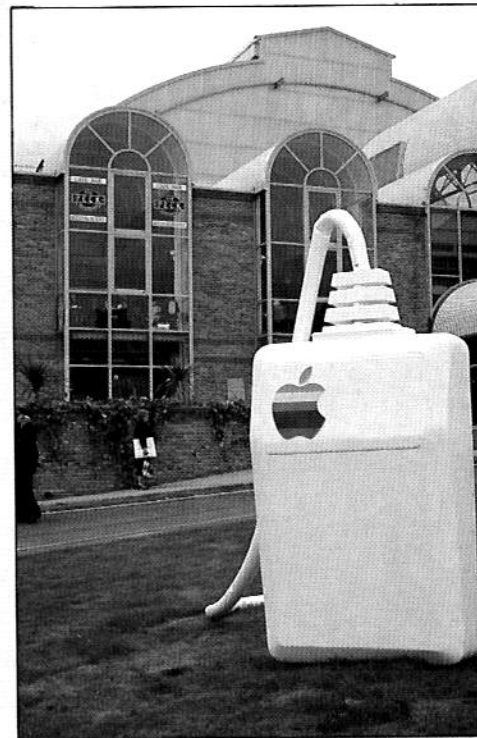
"We achieved all our goals for AppleWorld, coming very close to our target number of visitors who represented quality rather than quantity.

"A number of important deals were signed at the show and it has provided the company with a positive springboard into 1987".



**ONE of the celebrity visitors at AppleWorld was no less than Steve Wozniak, the co-founder of the corporation.**

**"Looking around here, I can't help thinking that Apple has come a long way since I worked on the first machine in a garage", he said.**



*A mighty mouse stands guard over the Business Design Centre*

## In their own words . .

*A STRAW poll of visitors to AppleWorld saw the event in terms of an "overwhelming success".*

*But what of the exhibitors – the people at the sharp end of the action.*

*They too, it seems, gave it a collective thumbs up in all areas.*

*Here are some of the comments solicited after the event by Apple User.*

*"Basically a show that no other manufacturer could have mounted as successfully" – Alex Brisbane, Micro Facilities.*

*"Extremely well managed. Very well attended with the right sort of attendees who took a great interest in our products" – Clare Winter, Ashton-Tate.*

## Scuzzy – the drive for speed

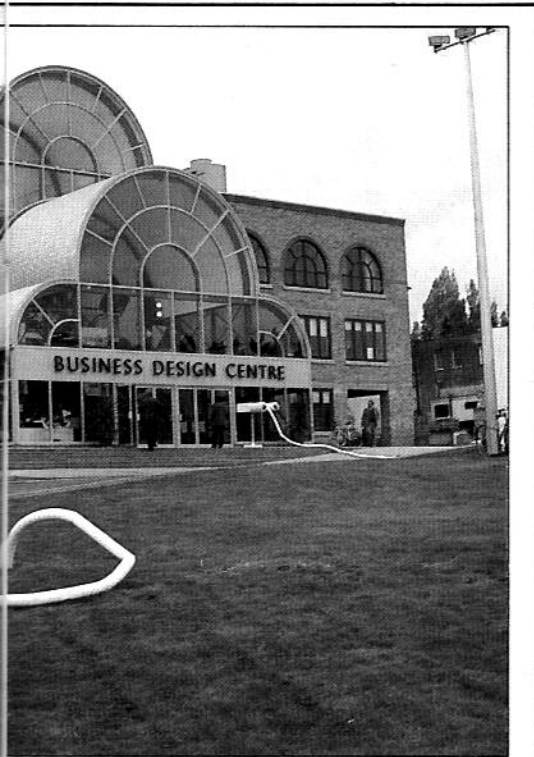
IT may sound like something an Italian would say as he pushes past.

However Scuzzy means much more to Macintosh owners.

For a new generation of SCSI (referred to as Scuzzy) compatible external hard disc drives has arrived.

This was clearly illustrated by the number on display at AppleWorld.

While all scuzzy drives use the superior speed afforded by the Macintosh Plus's



*"An excellent show. Very well arranged and very well attended. Certainly worth going to"* – Fiona Kelly, Microsoft.

*"Very positive. Very well run with a lot of interest shown in our products"* – Derek Thompson, Lotus Development.

*"The show was very well laid out and ran very smoothly and generated a lot of leads"* – Alex Duncan, Macsoft.

*"Very professional. People who came were definitely interested in both seeing and buying Apple products."*

*"The show was of a much higher quality than any other we have attended. Both the organisation and presentation were marvellous, it was an amazing success"* – Ken Woods, KRCS.

*Database Exhibitions was responsible for the setting up and day-to-day running of AppleWorld.*

SCSI port, there is a wide range of designs and prices from which to choose.

Computer Capability was offering its Qisk, a 21Mb model with an integral switching unit. And it was the only lockable drive on show.

London based Computers Unlimited had two SCSI displayed – the LoDown and Dataframe.

Both providing 20Mb of storage space, the LoDown sits underneath the Macintosh while the Dataframe is housed in a slim box designed to stand upright next to the machine.

General Computer's HyperDrive range of internal hard discs has been joined by the HyperDrive FX/20 – the company's first external 20Mb drive.

And Apple itself produced its own contender in the Scuzzy market, the HD20 SCSI.

## Flat Mac

A PORTABLE version of the Macintosh – a world first – provided a feature attraction at AppleWorld.

Priced at £4495, the machine offers one megabyte of ram, a 20Mb hard disc based around a Mac Plus board and a 640x400 electroluminescent display.

For another £2000, the luxury, stylish briefcase unit houses a 40Mb disc drive, up to 4Mb of ram and a built-in 2400-baud modem.

Manufactured in the US by Dynamac, the machine is to be distributed in the UK by MacSerious and Computers Unlimited.

Both companies believe that the "flat Mac" will be much in demand by organisations whose people out in the field need more computer power than offered by the usual laptops.

Visitors to AppleWorld were impressed by the fact that it has ports allowing it to display on to either a standard 22.5KHz PC



monitor or on to one of the new A2 screens.

Dynamac is already reported to have sold 100 of the machines to the US Department of Defence.

"Demand is extremely high in our home market and we are also hoping for great things in the UK", said a company spokesman.

## Slide making on the GS

A BERKSHIRE company has teamed up with Apple and Polaroid to produce full colour slide imaging on the IIGS.

Based on the Polaroid Palette unit, Pisa Graphics displayed it for the first time at AppleWorld.

The package will create output of any on-screen image on to 35mm slide, mini transparency or instant print in the full 4096 colours supported by the IIGS.

Even black and white IIGS monitors can generate full colour output as the grey tones generated on screen are automatically designated colour values for output.

The unique software driver for the Polaroid Apple interface has been written by Pisa, making it the first company to offer a slide making facility for the latest member of the Apple II range.



*A warm reception awaits visitors to AppleWorld 1986*



*A wealth of talent on display*

## Four times faster Mac

AN upgrade which more than quadruples the processing speed of the Macintosh was unveiled at AppleWorld.

Known as the Prodigy 4TM, it is the first enhancement for the machine to feature the new Motorola 68020 processor.

Priced at £6,500, it clips on to a 128k, 512k or Macintosh Plus motherboard.

With the 68881 floating-point math co-processor, 4 Mb of ram, and an on-board SCSI hard disc controller, the Prodigy claims to transform the Macintosh into the most powerful personal computer in the world.

Go-Mark, the UK company distributing the board for US manufacturers Levco, have been overwhelmed by the level of demand for the product.

"We expected to sell one every two months", Ben Banham of Go-Mark told Apple User, "however two were sold on word of mouth alone before we even got our first delivery. And we've taken firm orders for four during the first day of AppleWorld".

The 68020 processor used supports a 32 bit wide data path, twice as wide as the 16 bit path found in the 68000.

On the Prodigy the data path dynamically shifts back to 16 bits when accessing the Macintosh ram and hardware to maintain absolute compatibility with the original Macintosh design.

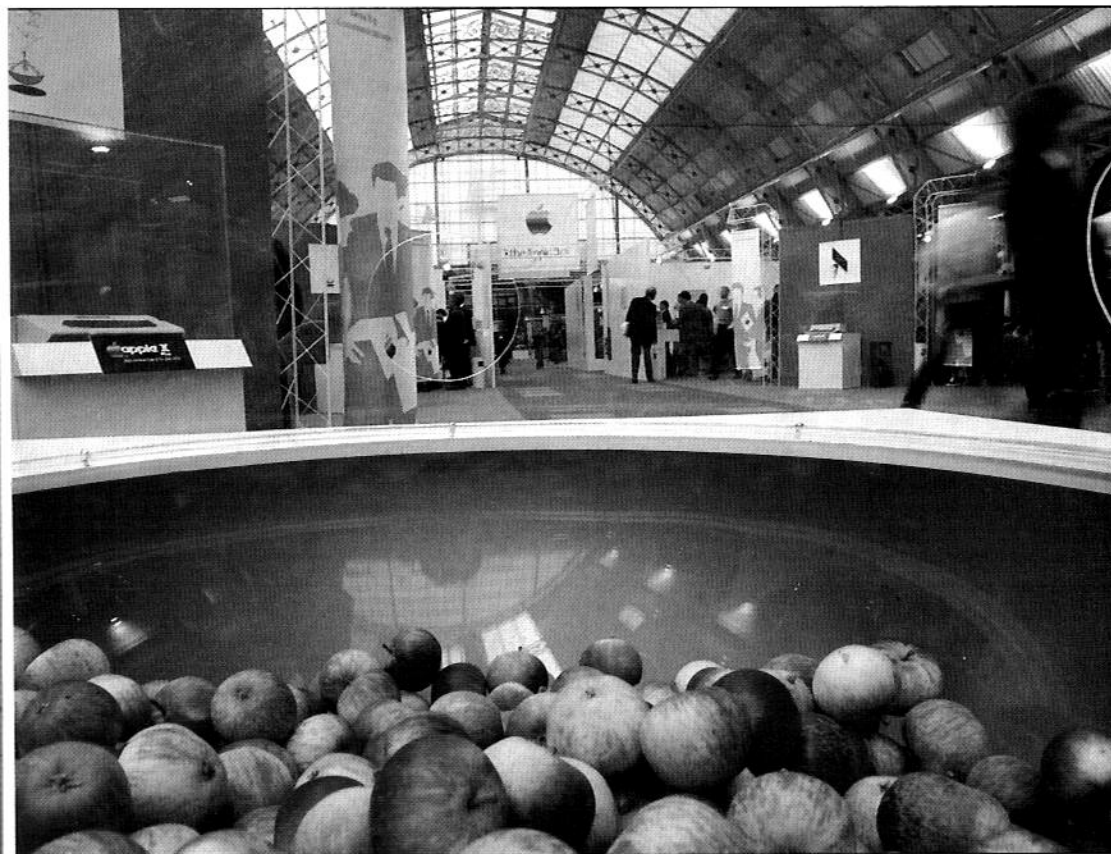
It also features a 16MHz clock, twice the speed of the one on the Macintosh. This "heartbeat" of the system governs the timing and speed for all the hardware, including the 68881 floating-point co-processor.

When accessing the original Macintosh hardware specially programmed chips force the 68020 to wait for the slower components during access.

The 68020 remembers the last few operations it has performed and if they need to be repeated the processor will not bother accessing memory.

Also if the processor determines it can perform a number of operations simultaneously without conflict, it does so.

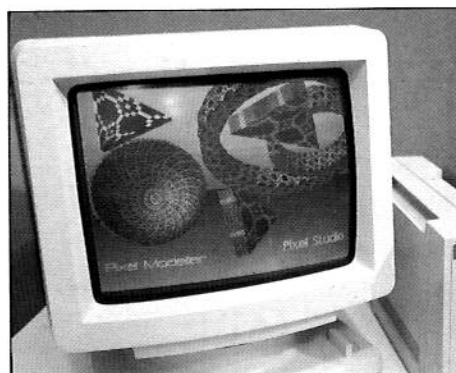
"It is all very clever", said Steve Wozniak, Apple's co-founder who happens to own two of the add-on boards.



*Plenty of apples for the taking!*



*David Hancock (left) managing director of Apple UK, entertains a group of visitors to AppleWorld*



*The glorious resolution from Pixel Studio*



## Launch pad

**TWO of the giants of the world software industry – Ashton-Tate and Microsoft – selected AppleWorld as the launching pad for new products for the Macintosh.**

**In the case of Ashton-Tate, dBase MAC is the company's first product for the machine.**

**And according to chief operating officer Ed Esber, the package represents "second generation" Macintosh software.**

**"In dBase MAC, you may well see the shape of a next generation of database management systems", he said.**

**Meanwhile Microsoft Word 3.0 was taking its bow.**

**A word processor, it incorporates an 80,000 word spelling checker, automatic hyphenation and a page preview facility.**

**Features include "smart" menus so that users can add their own functions to the menu bar, and an intelligent style sheet so it is possible to carry out automatic formatting.**

**"This is the most advanced piece of word processing software we have ever produced", says Mark Plant of Microsoft.**

## Accounting

A NEW accounting system written for the IIGS was launched at AppleWorld.

Known as Bookkeeper, it comes from Datafile Software which says that at £125 per module it is one third of the price of the company's existing titles.

It includes sales, purchase and nominal ledgers, stock control and invoicing.

## Apple network

A COMPANY that has been designing and manufacturing Apple II expansion products for more than five years unveiled its latest network at AppleWorld.

Glanmire Electronics displayed the GE UniShare which allows up to 256 Apples – the II, II+, IIe, IIc and IIGS – to share UniDisk 3.5 drives and 10 or 20 Mb hard disc drives.

The company was previously so successful with its networking systems for the Irish education market that Apple Computer now supplies them as standard with all school installations.

## GS software

ONE of the first companies off the mark to provide products for the new IIGS is Blyth Software, a company well established in



Smiles all round from Steve Wozniak (left) and Douglas Adams

## Charity to benefit

When Apple guru Steve Wozniak and bestselling author Douglas Adams met up at AppleWorld, they immediately formed a mutual appreciation society.

Adams, an Apple aficionado, decided to mark the occasion by handing Woz a signed edition of his trilogy, *A Hitch-hiker's Guide To The Galaxy*.

"What an honour", exclaimed Steve before in turn presenting Adams with a signed Apple IIGS.

But whereas Woz will be keeping the book, Adams will not be able to keep the machine – unless he decides to pay a lot of money for it.

For the IIGS is destined to be auctioned

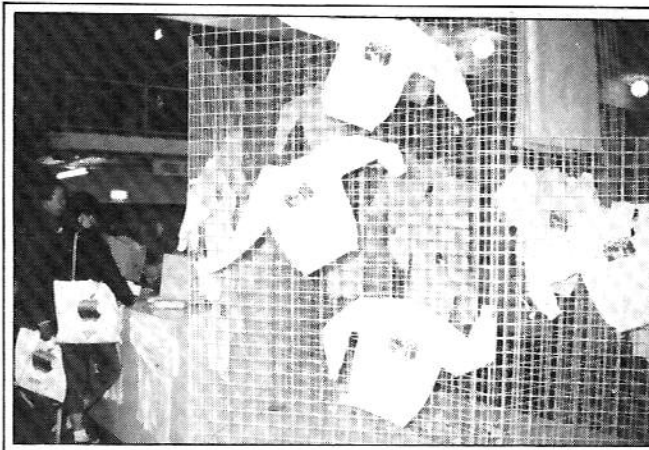
by Comic Relief to raise money for charity – 80 per cent for Ethiopia and 20 per cent for UK charities.

Comic Relief is a group of leading comedy writers and performers such as Adams, Rowan Atkinson, Billy Connolly and The Young Ones.

After the presentation Adams said: "This IIGS is very special in that it's part of a limited edition signed by Steve, so we're going for the maximum amount."

"We're going to auction it, but I'll probably end up putting in the biggest bid myself".

● Watch out next month for a fascinating interview with Steve Wozniak



"The PCs of the future will be woven into our T-shirts" – Dr. Alan Kay, Apple Computer product development consultant, speaking at AppleWorld. In the meantime, these more conventional shirts were just part of the variety of items on display.

the Apple market. It demonstrated several lines running on the machine at AppleWorld.

Omnis 2, Blyth's simple record keeping and data management program, is available for the IIGS at £145.

Omnis 3 Plus, the complete applications generator, has both single and multi-user versions. The single user price for the IIGS is £295 and for two to five users,

£590. Blyth ledgers have also been made available for the latest member of the Apple II family.

The modules are sales, purchase, nominal ledgers, invoicing and stock control, priced individually at £195.

All pre-registration for AppleWorld was handled by the multi-user version of Omnis 3 Plus on a network of seven Macintoshes and two laser printers. □

## Eye on the weather

*BELGIAN accountant Daniel Janssens wants fellow MicroLink subscribers to join him in setting up an international network of weather watchers on the system.*

*Before entering university 10 years ago he set up a simple network, corresponding with other amateur meteorologists in Europe, North America and the Middle East.*

*"Now I'm a fully qualified accountant my wish is to re-start my network with the help of modern means – computers and MicroLink", said Daniel.*

*He is looking for people in different countries who are prepared to report local weather conditions daily or monthly to his Brussels mailbox, MAG 95369.*

*Daniel is also interested in the effects of particular phenomena, such as storms, on the environment.*

## BOOST FOR EMPLOYMENT

HELPING local firms help themselves is the role of the business information office at Gateshead public library.

And helping Gateshead library to help local firms is the role of MicroLink.

The office was set up to provide free information to firms looking for customers and customers looking for suppliers.

The idea is to keep as much of Gateshead's

business as possible within Gateshead – and thereby boost employment within the area.

In other words, whether buying or selling, when a local firm is looking for something it should search locally first before going outside the area.

Business Information Office spokesman Fraser Mackay said: "Our aim is to bring local firms together and

encourage inter-trading, rather than see them go elsewhere for their components and raw materials.

"We joined MicroLink to gain access to its telex and electronic mail services and its overseas databases.

As we average 300 enquiries a month – half of them requiring in-depth research – it will help us to have a system that moves information quickly and reliably".

## Telex service gets a boost

**A FASTER telex service has been announced by MicroLink. It offers instant despatch of telexes to 150,000 users in Britain and more than two million worldwide.**

Subscribers can send a telex from home or office in seconds, leaving the powerful MicroLink computer to deal with the drudgery of system bottlenecks.

The MicroLink com-

puter has been chosen as the first in Britain to be modified because it handles such a large amount of telex traffic.

Head of MicroLink, Derek Meakin, said: "The improved telex facility is one that will save MicroLink subscribers time and money, certain in the knowledge their telexes are speeding on their way even faster than before".

## Watchdog savages postmen

THE Post Office has been hammered yet again by its consumer watchdog organisation for failing to deliver the goods on time.

"Quality of service still falls below set targets, and overall services still fall short of customers' reasonable needs and expectations", says the Post Office Users National Council in its Customer Audit and Review for 1986.

More than 12 million of the 100 million first class letters posted each week are not reaching their destination the following day – "simply not good enough",

says the report.

As much as 25 per cent of first class mail from London to the major cities of Edinburgh, Belfast, Glasgow, Manchester and Liverpool is not arriving on time.

And more than 20 per cent of first class items from Manchester, Glasgow and Belfast fails to reach London the following day. In the case of Belfast the failure rate is almost 30 per cent.

These statistics – the Post Office's own – are based only on the period between the item being timestamped and before it leaves the delivery office for its destination.

"This measurement system does not take account of delays in collection or initial handling, misdelivery or delays in actual delivery", says the report.

"Past experience has shown that letters posted at the same time in the same box can sometimes receive different timestamps or even not be cancelled until the day after posting, despite a collection being scheduled.

"In some areas the last collection of the day will be too late to connect with the despatches to remote areas of the country".

MicroLink News Editor

Mike Cowley commented: "This report is yet another gloomy indictment of the postal system.

"Despite its so-called initiatives in the area of mobile sorting offices, rail and air links, the Post Office still fails to deliver a significant proportion of mail on time.

"Businesses just can't afford not to get into electronic mail if they want to compete effectively in the marketplace.

"A company that relies solely on the Post Office to get its message across is like a boxer with one arm tied behind his back".

# Wheels for the mind

LET'S get one thing clear right from the start – the Higher Education Conference was not about Apples in education, it was about Macintoshes in education. Hence what I have to say may not be too interesting to the thousands of Apple II users in schools, colleges and university departments throughout the country.

As an aside, I felt the Apple II was generally under-represented at AppleWorld anyway. The reason I heard given for even the IIGS being played down slightly was that Apple didn't want to stimulate demand for the machine just yet since it wouldn't be in the shops for a while.

I must admit it's the first time I've come across a computer manufacturer trying not to stimulate demand, but then I've always enjoyed Apple's ability to surprise me. Even the letter inviting me to the conference managed to surprise me by beginning "Dear Brian", despite being correctly addressed. Oh well, that's the power of mail-merge, I suppose.

The introduction to the conference didn't set the scene very well either I'm afraid. Keith Foster, Professor of Mechanical Engineering at Aston University, isn't the best public speaker I've heard. Nor was I interested in the fact that he uses Macs "for reports, merging text with graphics", probably the least adventurous use of the Mac these days.

Fortunately the introduction wasn't too long and the first speaker, Professor Michael Adams of Drexel University, was both interesting and entertaining – just

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## **Cliff McKnight reports from the AppleWorld education conference**

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what was needed after the slow start.

He began with a brief look at the five print revolutions, starting with the Gutenberg press in 1452, through the invention of the Linotype typesetter in 1881, introduction of photocomposition in 1962, full page composition in 1972 and the advent of personal computer (PC) controlled composition in 1984.

The revolutionary point of the PC – in this case the Mac/LaserWriter combination – is that it puts the creator of the material rather than the publishers and printers in control of publication.

Although there was much resistance to the original revolution, Adams quoted a study by the Printing Industry of America to suggest that Desk-Top Publishing (DTP) will have little impact on traditional book publishing.

Drexel University has 10,000 Macs on campus so it was a little hard to believe Adams when he said that the aim was to make the computer invisible. However, the point he was making is that the university has tried very hard to integrate the computer into every course taught so that it is simply a tool which students use. There are no courses on the use of the Mac itself.

Drexel students buy a Mac on joining the university. All their assignments are written

on a Mac and they hand in discs rather than essays. Even the campus map comes on a disc and is an interesting document in its own right. It is hierarchically organised, much like the sort of thing you could now produce with Guide (see *Apple User*, July 1985) and comes complete with a quiz on knowledge of copyright infringements.

Adams has created the Publication Development Centre as a model of how publishing should be done. The Mac forms only one part of the available equipment, which ranges from the professional publishing level to the battered portable typewriter. The point is to demonstrate appropriate and intelligent choice of technology – the typewriter gets used for letters of complaint to the dean!

He has also been given permission to set up the Drexel Design Press which will control every aspect of publication other than distribution. For this he will be cooperating with a commercial publisher. Although Adams didn't describe it in these terms, this is a common situation in the record industry where an independent label uses the distribution machinery of a major label.

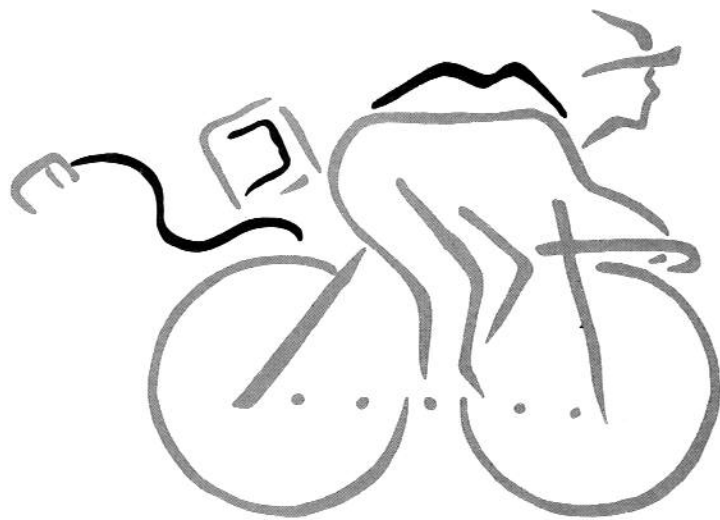
Adams finished with a delightful anecdote about the fronton, a device which was used in days of yore for inking presses. To preserve the leather the fronton was stored in cow urine. Of course, the Master Printer didn't have to clean the fronton or collect fresh urine – that was the job of the printer's devil. Not unnaturally then, it was the devil and not the Master who favoured change in the industry.

With the audience laughing at the anecdote, Adams pointed out that people in control of knowledge often resist change: Those of us in education should decide whether we are part of the change or against it.

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### **MacSnoopy**

The second presentation started off as a double act. While Professor Malcolm Atkinson told us how they intend to use Macs in teaching computer science at Glasgow University, Professor Ronald Morrison of the University of St Andrews distracted our attention by using a Mac to project pictures of Snoopy and Escher woodcuts among other things. Coming as it did after Adams' mention of the 10,000 Macs at Drexel, ▷



◁ Atkinson's 70 sounded decidedly small beer.

There are various problems which surround the introduction of the Mac into mainstream computer science teaching. For example, the Macs need to be integrated with the rest of the available equipment – a motley collection of IBM and VAX mainframes, Whitechapel and Sun workstations and so forth.

There is also a shortage of what computer scientists refer to as serious languages on the Mac and St Andrews has implemented PS-algol as a teaching resource. A more serious software problem, possibly, concerns the licensing of languages which are available.

Other problems concern poor supplies – notably security kits and LaserWriter upgrades – poor dealers, poor reliability and the poor image which the Mac has with non-users.

I was a bit surprised to hear poor reliability mentioned, but on reflection I realised that the Macs I've been involved with have had a few problems. The difference in my case is that I've had good dealer service so the reliability has never become too important an issue.

Morrison reported good initial student response to the Mac, which is not too surprising. He predicts that next year, when the Mac-taught students have to move up to the UNIX system, they will suffer withdrawal symptoms and I suspect he's right. His cure for these symptoms? Buy more Macs, of course.

No time was allowed for questioning of speakers, an unusual approach in an educational conference. Instead a two-hour lunch break was supposed to provide the opportunity to both eat and seek out the speakers.

I would have preferred brief question times following talks. I find it hard enough to chat and shovel down a plate of salad, let alone hold something approximating intelligent conversation.

### Gory demonstrations

After lunch, Dr David Clark offered us "a quick canter into the future". He is Director of the University of London Audio Visual Centre and has a major interest in interactive video. This goes some way towards explaining his rudeness about CD-rom, although I must confess I always thought the videodisc was merely the Russian implementation of the compact disc.

Unfortunately for Clark, his technology failed him at the crucial moment and he was left telling us what we might have seen while the technicians tried to get the equipment working. In fact following a coffee break he was allowed to return to the podium and show some impressive, albeit gory, demonstrations of interactive video.

Such systems could have important applications in the field of anatomy where the usual kind of interaction involves cutting people up. Being able to point-and-click at a section of the display to answer

questions or call up greater detail is very useful in anatomy and indeed many other fields of teaching.

However, I still don't think Clark made it clear what advantages the videodisc offers over the CD-rom. Although his points about the problems of graphic indexing are perfectly valid and his scathing remarks about all and sundry made me laugh at the time, I didn't feel I'd been exposed to any serious argument.

### Sketchpad 1962

Up to this point I'd been making notes, but I have to admit that when the next speaker appeared I simply sat back and listened.

Most people who have taken an interest in the Mac will know that much of the user interface was "borrowed" from work carried out at the Xerox Palo Alto Research Centre (PARC). If they know that much, they'll have certainly encountered the name of Dr Alan Kay.

Fortunately for all concerned, because Kay made more use of it than Clark had done, the technicians had done a good job of fixing the equipment in the brief time available. Without his video snippets I'm sure he would have been interesting – with them, he was fascinating.

For example, it was surprising to see the Sketchpad system in action in 1962. Driven by "the last computer in the US to have its own roof", Sketchpad featured such things as a window and rubber-banding. The "paper" behind the window was apparently a third of a mile long.

Using a light-pen, the user would indicate what he was trying to do by gesture. Following the rules it had been given Sketchpad would figure out what the user was trying to do. As Kay said, such systems showed the problem of using a light-pen as an input device – after 20 seconds all the blood has drained from your hand.

Another snippet showed Doug Engelbart, inventor of the mouse and black-on-white display. Kay suggested that Engelbart's motivation for developing the latter was to save the eyes having to constantly re-adapt as they moved from black screen to white room and back.

He didn't mention a study carried out in one of the IBM research centres which purported to show that such adaptations are no greater (and therefore no more tiring) than normal fluctuations of the pupil, but then he didn't mention the other ergonomic advantages – black-on-white.

Seymour Papert and Logo, the Rand JOSS system, the Dynabook idea, Smalltalk – the history which led to the Mac was skipped through before Kay sketched out the ideas from the psychology of learning which have been influential in his thinking.

He then went on to describe his current project with Apple and MIT, once again illustrating his talk with fascinating video bits. The Vivarium project is about a system in which children can learn about animals and animal behaviour and the ecologies in

which they live, and then build them so they can learn how animals use their brains and senses to survive.

The project is not about building environments but about building a package so that the child can build environments. It's what an Electronic Arts employee might have called the Ecology Construction Kit but what Kay refers to as "behavioural silly-putty".

The computer graphics needed for this project were demonstrated with examples from a flight simulator which could generate up to eight simultaneous different viewpoints, a tour round a forest from a rabbit's point of view, some Disney-type sharks and a clip from Star Trek II.

For Kay, learning involves two components: experience and model-building. He believes that it is the second component which causes problems for educators. I'm sure those who agree with him can't wait to get their hands on the Vivarium.

### Power tool

I didn't envy Dr David Hartley's task of following Alan Kay to the podium. He chose to push the transport metaphor of car/personal computer versus train/mainframe. Unfortunately, Kay had specifically rejected this view in favour of seeing the personal computer as a power tool which needed to become as useful as the pencil.

Hartley is Director of the Computing Service at Cambridge University and has finally arrived at the view that computer centres should support the user. It's a view that many users have been trying to get across for years.

Despite the increasing use of micros, the use made of mainframes is not declining. Hence the computer centre staff are not simply fighting a rearguard action for their jobs. It's a change of attitude from "we are the experts" to "how may we help you?". It sounds more like California than Cambridge but as a user I'm all in favour of it.

### Stimulating

At the end of the day I was glad I'd accepted Apple's invitation to the conference. It seemed reasonably successful in stimulating the audience and I've no doubt Apple will repeat the event. In the belief that it will, I'd like to offer the following suggestions:

- Make sure there is at least one speaker of Alan Kay's calibre – someone who is both intrinsically interesting and a good speaker.
- Leave a small time for questions, even if it means a shorter lunch break. A good chairman will keep speakers and questioners to schedule.
- Get a good chairman, not someone who keeps mumbling about what's going on at Aston all the time.
- Either call the conference Macs in Education or recognise that the Apple II still has a role to play.
- Stop calling me Brian!

# DTP – Apple shows who's the boss

APPLE Computer is still number one in the world desktop publishing market – at least for the foreseeable future.

That's the message which came over loud and clear from AppleWorld, the major UK showcase for the company's products.

With more than one third of the exhibition space dedicated to DTP, it was an awesome display of corporate muscle designed to show would-be competitors just who is the boss.

All the big guns had been brought out to remind IBM and the 20 other manufacturers now poised to jump into the market that they will certainly not have things all their own way.

"We are going to give them all a good run for their money", says David Jones, Apple UK's supremo of desktop publishing.

The presence of the giants in the printing industry such as Linotype, Letraset and Gestetner was a constant reminder to observers that Apple has some powerful allies in this booming market area.

And to a lesser extent, the McQueen stand – McQueen being the company to the forefront of DTP in the UK – revealed Apple's strength in the middle division.

Nor was desktop publishing simply an attraction on the floor of the Business Design Centre.

The day-long desktop conference drew some of the top names in the DTP field from the States and capacity audiences.

Paul Brainerd, President of the Aldus Corporation – and the man who coined the phrase desktop publishing after his company developed PageMaker – appeared as a speaker.

So too did Dr. Charles Geschke, executive

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**Mike Cowley reports**  
**from the desktop**  
**publishing section**  
**of AppleWorld 1986**

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vice president of Adobe Systems, the company that produces the page definition standard PostScript package.

A former journalist with the Minneapolis Star, Brainerd waxed lyrical on the merits of the Macintosh as a DTP tool despite the fact that his company is on the verge of releasing an IBM PC version of PageMaker.

"The Macintosh today is providing a means of taking a craft and bringing it back to creative people", he said.

"For here is a machine with a unique advantage in that it appeared designed to know about type and fonts."

However, the Aldus boss did go on to warn that IBM will more than likely be challenging Apple for leadership in the DTP market by the end of 1987.

Following on, Adobe's Dr. Geschke praised Apple for its "thought and daring" for plunging into the DTP market.

"Apple took a high degree of risk and showed a great deal of leadership", he told the invited audience. "So it will always be to their credit".

But what of Apple's future in the market? "If they manage to maintain their momentum – and I'm sure they have every intention of doing so – I believe that the name Apple will always be synonymous with desktop publishing from here on in".

## Looking forward

WHAT does the the future hold for desktop publishing? This was a subject close to the hearts of many visitors to AppleWorld.

And some of the people prepared to make predictions could draw on more than a crystal ball as the basis of their forecasts.

Paul Brainerd, president of Aldus, believes that the four colour process via laser printers is on the way.

In fact, he is convinced that high-end colour systems capable of making colour separations – currently costing \$300,000 and up – will eventually become cheap enough to be linked to the Macintosh.

At the same time, he foresees "in the next couple of years" the use of CD roms as image storing devices linked to page make-up software.

Dr. Charles Geschke of Adobe is also convinced that four colour work based on Apple desktop systems is on the cards.

In addition, he predicts networks will become commonplace and that electronic mail will be used prominently for the transmission of high quality text and graphics.

However, almost everyone agreed that the real breakthrough in DTP will take place when the next generation of laser printers arrives.

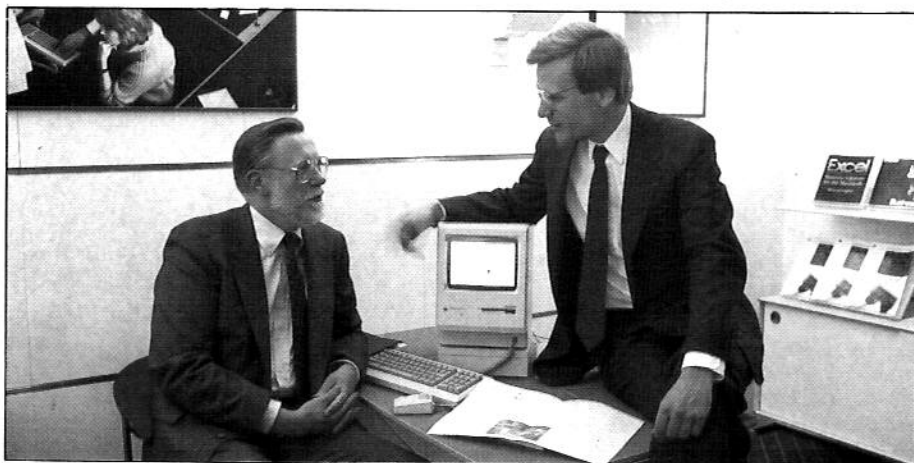
For any improvement in the 300 dots per inch standard at present will be welcomed rapturously.

But while most people would like to see this rise to 600dpi – almost traditional typeset quality – this may well be some time off.

Derek Gray, managing director of McQueen – the Scottish company with a considerable investment in DTP – is well aware that a number of manufacturers, including Apple, are working against the clock to provide an improved laser machine.

But he is convinced that the next leap forward will be to 400dpi.

"I believe the industry standard will settle at that level for the time being", he told Apple User.



Dr Charles Geschke of Adobe Systems, left, with Paul Brainerd, President of Aldus

**Mike Cowley details  
the specifications of  
the package that  
set DTP alight**

PAGEMAKER, the software package which combined with the Macintosh triggered off the explosive growth in desktop publishing, has been revamped.

Version 2.0 has been developed by Aldus in response to other products attempting to attack its position as the world market leader.

Though the finished package was not in evidence, *Apple User* was able to get hold of a copy of the specifications during AppleWorld.

While maintaining the original features which make it a highly interactive page composition program, it now boasts

decreased.

In fact, nearly every standard PageMaker function operates faster than before including Save, Go to page, Open and Close.

An elaborate mechanism for crash recovery can now be found, so publication files that are damaged by power failure or hardware problems can be reopened and restored to the state of the last page turn.

To take advantage of the arrival of large screen monitors, Pagemaker 2.0 has a built-in hardware device independence facility.

The new version has also set out to offer much improved typographic quality.

Three distinct forms of hyphenation have been added – automatic, prompted and manual.

Automatic hyphenation is available from a 90,000 word dictionary and users can add a further 1,000 of their own choosing. This serves to reduce white space in a line of text by instantly breaking words found in the built-in dictionary.

Should the word not happen to appear in the dictionary, then the prompt alerts the user so the necessary hyphen can be inserted. Discretionary hyphens can be added via the keyboard.

Kerning, a facility to adjust space between letters, is also now possible in either automatic or manual form.

Word spacing can even be specified on a story level. For fully justified text, this option controls maximum, minimum and desired word space limits.

And where ragged text is involved, the user can adjust to provide either a looser or tighter appearance.

A last resort letter space option can be used to compensate for extra white space in a line of text.

When paragraphs are involved, it is now possible to specify additional space before and after in half-point increments.

Pagemaker 2.0 supports strike thru, small caps, all cap, em-space, en-space and thin-space characters.

And if all this wasn't enough to win over

# Pagemaker's performance is boosted

enhancements to its image of the ultimate electronic paste-up board.

"We've listened to what the users have been saying and acted accordingly", Paul Brainerd, president of Aldus told *Apple User*.

As a result significant improvements have been made to the performance of PageMaker.

Editing text, handling tabs and changing type can now be executed much more swiftly.

This, combined with additional shortcuts and keyboard cursor control, means the text manipulation time will be dramatically

## Fascination on both sides



*IT seems that desktop publishing is a source of fascination for leading figures on both sides of the print and publishing industry.*

*Eddie Shah breezed in to catch up with the latest developments on display at AppleWorld.*

*The man who launched the Today newspaper with a Macintosh equipped newsroom seemed suitably impressed with what he saw.*

*Yet another surprise visitor was Brenda Dean, General Secretary of the print union SOGAT.*

*She told an enquirer that she writes all her speeches on a 512k Macintosh and was "most interested" in the Apple desktop publishing system.*



## Four simple rules from McQueens

A STEP by step guide to using PageMaker has been devised by McQueen, the old established Scottish printing company which imports the sophisticated software from the States.

It sets out to prove that users do not have to be graphic artists, typographers or computer experts to produce publications using the page lay-out program.

Whether it be for the company news-letter, data sheets, price lists or annual reports, the men from McQueen suggest you can save money and achieve credible results by following these guidelines:

In Stage One page production should begin as usual by preparing the text, illustrations and graphics.

With PageMaker you simply key text into your word processor, defining type

specifications as you go.

Later it is possible to revise and copy specifications at will with the built-in text editor.

By creating illustrations or graphics with MacPaint or MacDraw and bringing them directly into PageMaker, the delay and cost involved in camera work is avoided.

Stage Two revolves around the development of a page format to use throughout the publication.

Begin with blank pages on the screen and define the margins, the number of columns, their width and the space between them.

On-screen rulers also assist placement and work in inches, millimetres or picas and points.

In Stage Three bring the text or illu-

strations into PageMaker, move the pointer to where they need to be placed and click the button.

PageMaker fills a column with text, then allows the remaining copy to flow to another column or page. And it provides the facility to crop or proportionally scale the illustration to fit a given space.

Background tints and reversed type all add up to high quality layouts.

Stage Four sees the page printed out on a LaserPrinter. If necessary, it can then be used as camera ready art-work and sent to a commercial printer.

"In most cases where people follow these simple rules, PageMaker will not only create what you want but it will pay for itself in no time at all", says a spokesman for McQueen.

the most suspicious typographer reared on hot metal, the program offers leader tabs.

Controls for leader-filled tabs are located within the Tabs dialog box. These feature three pre-set fill styles of thin-space periods, dashes and underlines, as well as user definable leaders of up to two different characters.

### Major advances in composition

Major advances have also been made on the page composition front.

PageMaker 2.0 offers files of up to 128 pages. So with the program's four-digit numbering capacity, it becomes possible to create publications of up to 9,999 pages.

Interactive facing pages means that users can now work on both pages of a double-page spread at the same time.

And new line styles include half-point and reversed lines.

The half-point line provides a plus for form work in the fact that it fills the gap between the hairline and one-point line, while the reverse line command creates white lines and negative dash patterns on supporting printers.

In addition to being able to resize the length of a block of text, PageMaker can now resize the width. With its text threading feature, the program simply ripples the text changes through the entire story.

The brand new text editing capability allows users to write and edit text from column to column and page to page. Text can even be selected across columns.

Version two has the ability to select an entire story or all the objects on a page with one command. This means users can quickly copy from one publication to another.

To move text and graphics swiftly on screen, all that is now needed is to point to an object pressing the mouse button. The

object can then be dragged to a new position while a box outline provides visual support.

And by holding the button down a little

### Bigger screens

**WITH all the impact that Cinemascope had on the movies, the big screens have entered desktop publishing.**

**Now, for in the region of £2,500, it is possible to buy products like The MegaScreen.**

**Exhibited by Thames Valley Systems at AppleWorld, this is a 20in, high definition black and white screen which allows the user to work on a full size A3 document - or two A4 pages displayed side by side.**

longer, it is possible to see the complete image as it is repositioned.

### And there's much more . . .

In the new-look PageMaker, the all-important graphics functions haven't been overlooked.

Hand scrolling of cropped graphics has been added along with improved accuracy of the WYSIWYG (What You See Is What You Get) display.

There have also been breakthroughs on the printing front.

Support for print spooling to LaserPrinters is a boon in this area as is printer specific scaling which allows the user to eliminate irregularities in bit maps with regular patterns such as screens.

"The trouble is that much of this information tends to come over as Swahili to the uninitiated", says an Aldus spokesman.

"But all people need to appreciate is that no self respecting typographer would turn up his nose at PageMaker.

"For what we have done is take his centuries old art and offered it as an easy-to-use package to the creative man on the street".

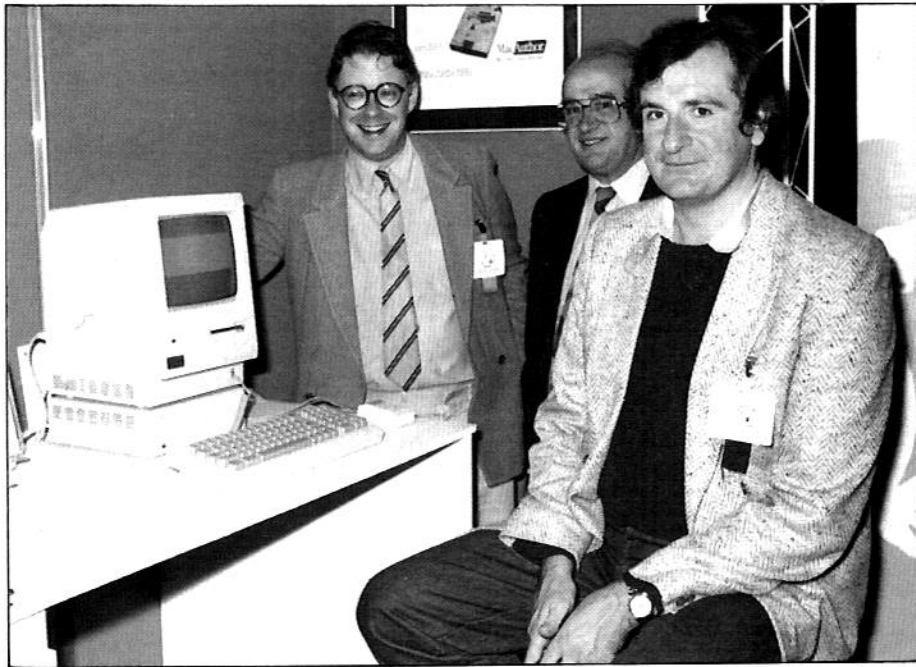
Desktop Publishing

### MICROTEK M3-300A IMAGE SCANNER



- \* Digitise drawings and graphics into your personal computer at 300 d.p.i.
- \* Scaling brightness and contrast are all available under software control.
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DTP catalogue from McQueen Ltd, 8-10 Hillside Crescent, Edinburgh EH7 5EA.  
Orders for Microtek scanners should be placed through your local Macintosh dealer.



MacAuthor's authors (left to right) Michael Bywater, Mike Glover and Douglas Adams

# DTP-dedicated word processing

## **Mike Cowley discovers the background to the creation of MacAuthor**

DOUGLAS Adams of Hitch-Hikers Guide to the Galaxy fame insists he "swears by it not at it".

The Observer's Michael Bywater describes it as the package "every professional writer has been waiting for".

And according to Chris Bidmead of The Guardian, it is "the best I have ever come across".

The "it" in question happens to be MacAuthor, claimed to be the first word processor for desktop publishing.

If nothing else it happens to be a labour of love for co-authors Mike Glover and Keith Lander.

For like a paint job on the Forth bridge, a word processing package never ends.

This is certainly the case with MacAuthor

which has not only been written with professional writers in mind – but also with their ongoing help.

"We took the attitude right from the start that if you want to learn about word processors, you talk to writers", says Mike Glover.

"But there have been occasions where we've lived to regret that decision".

The trouble is with writers – as the program's authors have discovered – is that when you ask for their advice, they never stop giving it to you.

Michael Bywater, who opted to be one of the key advisers on the project, proved this time and again.

"Every time we thought we were close, he kept moving the damn goal posts", says Mike Glover.

Similarly Douglas Adams kept adding his own particular quirky requests at regular intervals.

It was because he consistently mistypes "because" as "becuase" that the facility to swap around adjacent letters was included.

"To me that is simply magnificent", says the bestselling author.

Yet MacAuthor would probably have never seen the light of day if it had not been for *Apple User*.

The reason for this is that the co-authors both worked as freelance reviewers for the magazine and this led to their eventual meeting at an Apple Show.

A former aircraft engineer, Mike Glover caught the programming bug when he and his brother combined to write the first scoring program for the British Gliding Championships.

Meanwhile Keith Lander was making a name for himself writing software for the computerised controls of the QE2.

Despite their different backgrounds, they found they shared a mutual appreciation of

### **Technical specifications:**

MacAuthor requires an Apple Macintosh with at least 512k of ram.

Optional – external disc drive or hard disc, Imagewriter, LaserWriter or other Macintosh compatible printer, keypad (cursor control keys supported).

Compatible with MacPaint, MacDraw, Cricket Graph.

Maximum size of document – 698 pages depending upon disc capacity.

Number of documents – up to four may be open at once.

Maximum number of paragraphs – 2,246.

Size of paragraph – 32,748 characters.

Level of sub/superscript – 7.

Styles – 20 heading, 20 paragraph, 15 highlight.

Text can be displayed in sizes from 4 to 127 point.

Units of measurement available – inches, millimetres, points and picas.

Maximum number of frames – unlimited.

Maximum number of embedded frames – unlimited.

Desktop Publishing

### FULL PAINT

the only painting program you'll ever need for you Macintosh

Features include: \* full screen painting \* Open four documents; \* MouseSpot™ \* Mouse Crawl™; \* Reverse-colour text; \* Transparent text; \* Editable brush shapes; \* Skew, perspective, distort and free rotate.

DTP catalogue from McQueen Ltd, 8-10 Hillside Crescent, Edinburgh EH7 5EA.  
Orders for FullPaint should be placed through your local Macintosh dealer.



**Editing facilities:**

Text and graphics can be cut and pasted using the mouse, or from the keyboard.

Transpose characters with a single command or click of the mouse.

Text can be selected and changed to Uppercase, Lowercase or Title (lowercase with capital first letters).

Undo/redo commands for most actions.

Powerful search and replace commands allow the use of meta-characters to search for tabs, returns and selective wildcards.

Goto page. Goto selection.

Documents or just formats can be saved as Stationery pads so they can be reused.

Page appears on the screen as it will be printed, with reformatting of the document occurring automatically.

the art of programming.

So they decided to do something about it. Their first idea – The Bank Manager – has still to see the light of day. Unfortunately it had to give way to the all-embracing MacAuthor epic.

It was Mike Glover who decided they should concentrate on a program for the Macintosh.

"You see I'd been over in the States when the machine was launched and got terribly excited about it", he recalls.

The programmers originally thought that MacAuthor would take about eight months to complete. It was in fact two years before they decided they were happy enough with the product to offer it on the market for £199.

**The package in detail**

So what will it do? It combines a powerful multi-column word processor and page make-up system which makes full use of the versatile Macintosh.

The package allows the writer to by-pass the traditional setting process in that it offers a high quality typographical output.

Multi-columns of text are displayed on screen as they will be printed, so allowing the easy insertion and editing of text and graphics.

For those who want to simply produce documents, there are user-defined pull down menus and a structured approach through the use of style sheets.

It also offers features suitable for scientific texts and even the vagaries of Greek scholars thanks to overstrike and kerning – the ability to adjust space between characters.

In fact everything a professional writer could want apart from coming up with the ideas.

"No doubt our writers will eventually ask us to tackle that as well", says Mike Glover.

"Mind you, it's better than working on a spreadsheet. Can you imagine having to discuss it with accountants all the time?" □

# Layouts with a difference

TO date the problem with desktop publishing has been that you needed to be something of an expert to use it effectively.

That's why the end result so often has been like providing earliest man with a box of matches, then watching him burn his fingers.

Now Orange Micro claims to have come up with at least part of the answer.

It has produced Ragtime, an integrated desktop publishing package aimed not quite at the man on the street but almost.

According to the promotional blurb from Orange, the software "is targeted to the broad 'information worker' sector rather than the small percentage of the population with graphics arts training and publishing skills".

What it really is is a page lay-out package with a difference.

It not only has its own word processor and form generator, but also features an in-built spreadsheet which will appeal to those assigned to financial reports.

It supports documents of up to 350 pages in length and allows the screen of the Macintosh to be split into up to nine windows at any one time.

The basic Ragtime tool is a frame – essentially a box that can shrink, grow or move around on the page.

Frames work like familiar MacDraw rectangles and can contain words, graphics or spreadsheets. The frames can be accurately positioned on each page, using a grid or on-screen dimensioning numbers.

Up to 700 frames can be included in a document and in other frames, down to any level.

With conventional desktop publishing programs, threading of text between columns and from page to page is a complex, time-consuming procedure requiring graphic arts lay-out skills beyond the ability – and patience – of most people.

Ragtime claims to have a unique

"pipeline function" that makes this easy. Click on the first frame then click on the second – when the text reaches the bottom of the first frame, it automatically flows to the second.

The built-in word processor allows global change of not just words but text, including text font, style, size and even justification and leading (interline spacing).

To create a spreadsheet with Ragtime, simply choose a "spreadsheet" frame. A

**Take 3 for RSG**

*READYSETGO is off and running once again in its third version.*

*The desktop publishing package from Heyden & Co now includes a built-in word processor with search and replace facilities – and a 50,000 word spelling checker.*

*Other features of the enhanced software are real-time hyphenation, kerning and a redesigned user interface with graphics toolbox and snap-to-design grid.*

blank will then appear ready for entering numbers and performing different computational functions.

Relatively simple as Ragtime is, it still may well fall somewhere short of the final claim in the accompanying promotional literature:

"With its unparalleled ease of use, its powerful word processing and spreadsheet functions, and its ability to create standard formats, Ragtime is capable of bringing desktop publishing out of the publication department and into offices, the shop floor, the executive suite and beyond".

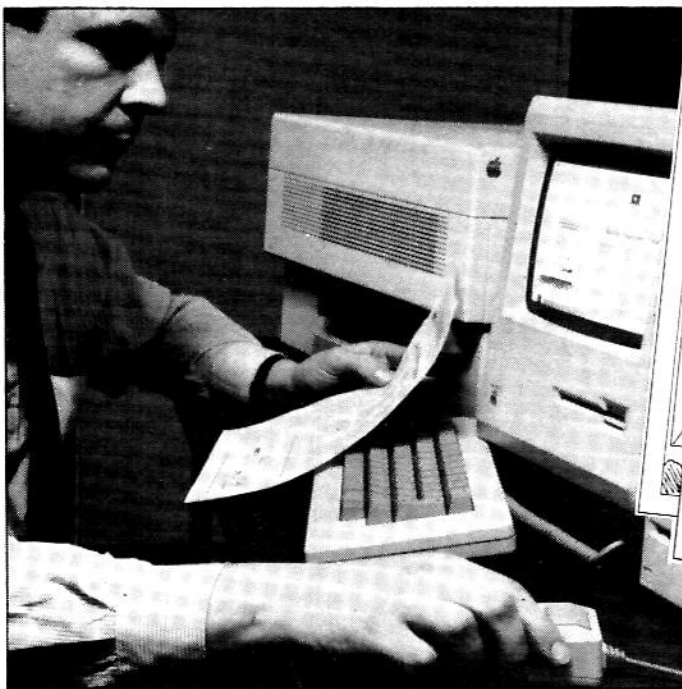
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Desktop Publishing

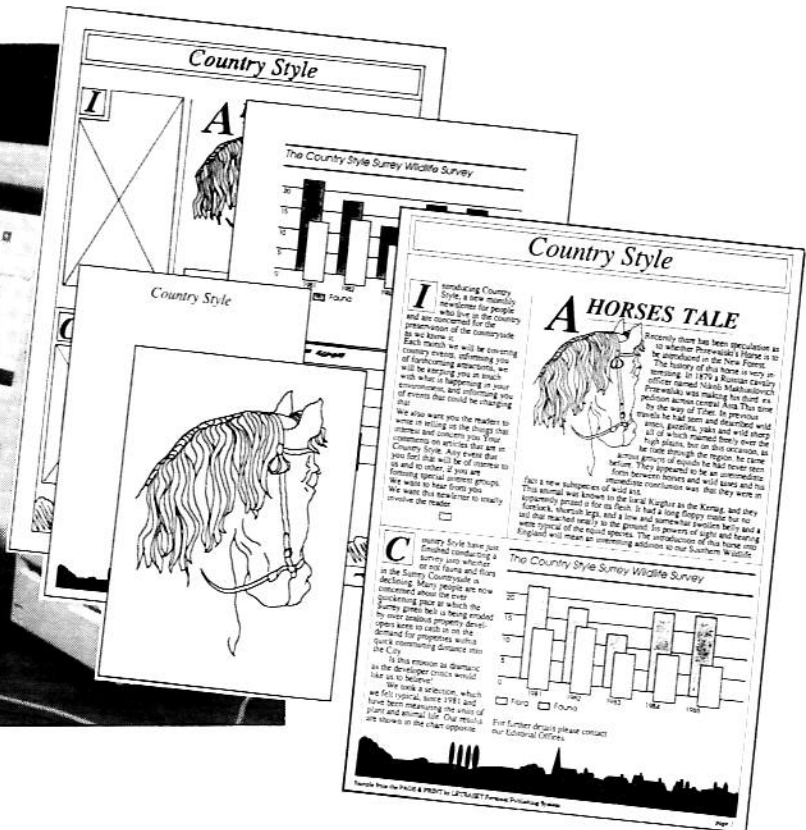
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Series 100 system from Linotype.  
Right: Letraset's Page and Print



# Giants measure up to challenge

CONVENTIONAL print giants like Linotype and Letraset – rather than fighting a rear-guard action against desktop publishing – are making sure they get a sizeable piece of the action.

Letraset has just announced its own Macintosh page layout software which it claims is more powerful than the Aldus Pagemaker.

Known as Letrapage, it is being marketed under Letraset's Page and Print label.

It offers automatic kerning and hyphen-

ation, letterspace justification, full WYSIWYG capability, a maximum of 1024 pages and the option of no less than a million Letratones.

The package reads Mac Write, Word, Paint and Draw and provides a full word processing facility.

Users will also find page numbering, on layout editing, 20 different page sizes, screened text, automatic "go to" and scaling, screen toolbox and high precision layout.

"All in all", says a Letraset spokesman, "we feel this is going to take some beating".

Meanwhile Linotype – still the world's leading manufacturer of typesetting equipment – is pushing hard with its Series 100.

Based on a Macintosh and linked to a choice of typesetting systems, this claims to be unique in that it produces the highest quality output keyed from the office desk.

This is due to its ability to output text and graphics from the computer on to a Linotype 100 or 300.

Linotype chose AppleWorld as the platform to announce improvements to the PostScript Raster Image Processor which forms part of the Series 100 system.

Available early in 1987, these include an increase in the number of downloadable fonts to at least 50 and a job buffer area to enable the user to carry out other tasks while the previous job is printing.

The page set-up facilities include standard US and European office sizes as well as the ability to define page formats larger than those available on most laser printers.

"PostScript technology was revolutionary when we introduced it in 1985", said Roger Andrews, Linotype UK sales manager. "These enhancements will enable us to maintain that lead into 1987".

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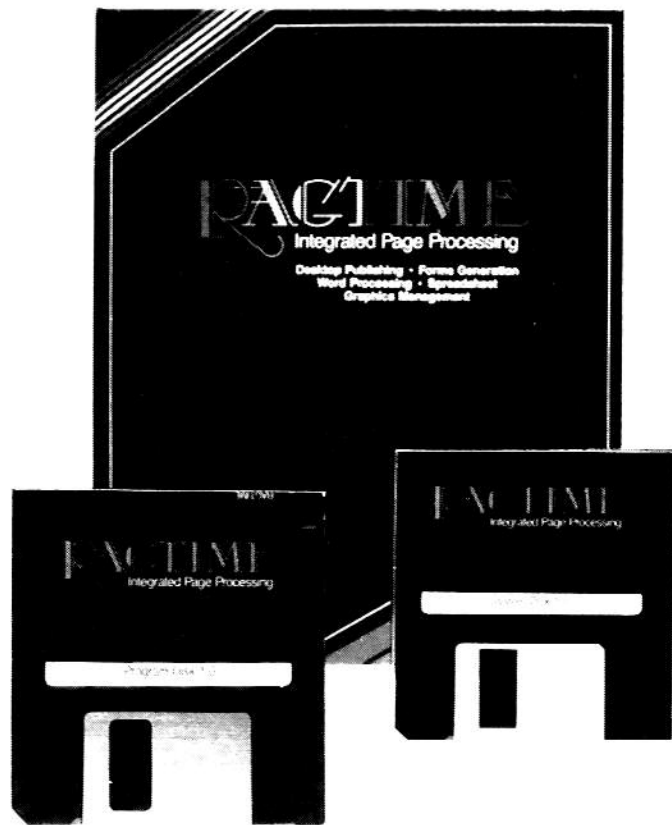
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# Three's company ■ ■ ■

THE story I'd like to tell you begins with an office shared by three people, one of whom (me) had a Macintosh Plus with HD-20 hard disc sitting on the desk. Attached to the Mac was an Imagewriter II and a LaserWriter. The Mac was used a great deal, although use of the printers was only sporadic.

The problems started to arise when all three people had to work on the same documents. All three were happy to word process – that is, type – but editing had to be done on hard copy – paper. Furthermore, if quality print was required for the final stage of the document, it had to be typed into the Mac irrespective of the machine on which it had been originated.

Project funds allowed for the purchase of another Mac and ImageWriter, which would then have produced compatibility between two of the three. However, at this stage I decided to investigate the possibility of getting two Macs and allowing them to share the hard drive and printers – in other words, networking three Macs and the two printers.

A word with our local Apple dealer was sufficient to establish that this was feasible using MacServe software but that we would need to add an AppleTalk hardware interface to the ImageWriter for it to form part of the network.

Subsequently, the network was installed, with the MacServe software mounted on the HD-20 and the original Mac acting as the network server. The hard disc was partitioned into three volumes of 6Mb each, one for each of the three people, the remaining space being used for system files and utilities, the MacServe Manager program and associated help files. Both printers were attached to the net as AppleTalk devices.

The network was installed on a day when I was on holiday and both of the other people were embroiled in a meeting. Hence, none of the three was witness to the setting up or had chance to ask detailed questions. Still, faith in the Mac user interface meant that nobody was particularly worried by the lack of training or experience. At least we had file compatibility.

MacServe volumes are accessed via the desk accessory menu. When a volume is selected, it appears on the desktop as a disc

---

## **Cliff McKnight attempts to network three Macs and two printers using software from MacServe**

---

and can be treated as such. If private access has been chosen, nobody else can access the volume at the same time, and it is write-enabled. If shared access has been chosen, several users can have simultaneous access but with read-only status – the disc is effectively write-protected. This is necessary because MacServe is a network server, not a file server.

While it is easy to allocate a volume for each user, and for this volume to be treated as a personal disc, this is quite wasteful of space on the hard disc. Since each user needs his volume to be write-enabled he must have private access and therefore needs word processing software on his volume. For this reason, each volume contains a copy of MacWrite. It is not clear what the legal implications of this are but certainly it is not feasible to use products like MacAuthor which limit the number of times the program can be installed on a hard disc.

In order to save space on the drive we eventually decided to restructure it so that we each had a personal volume but all the software packages were in a shared volume. Even with this set up, we still needed a copy of MacWrite on each volume and only one person at a time could access the software volume. I'll tell you about the restructuring later.

---

### **The advantages**

What then are the advantages of a MacServe network? Well, at least we have file compatibility. With a bit of messing about, we can pass files from one volume to another or read files on other volumes. Reading files is easy as long as the "owner" has not selected private access.

Passing files is a little more complicated since it involves the file originator having private access to the target volume, which in turn involves the target owner releasing the volume while transfer takes place. This

usually involves a conversation across the office, and to be honest passing discs around the office would not be much more difficult.

Given the masses of empty space on the HD-20 before installing the net and the general lack of space since, it could be argued that more efficient use is being made of the hard disc. However, it's not too difficult to fill a volume and it's not clear where we go from there.

We can also make more efficient use of the printers. After all, a laser printer represents a fairly big capital outlay and needs to be used efficiently in order to justify the expense. However, it is in the area of printing that we have experienced several problems.

The MacServe manual makes much of the fact that the software incorporates a printer spooler option and stresses that this "increases the performance and convenience of your Macintosh (and Apple Talk network) by spooling a printer, such as an ImageWriter".

The idea is that when an application prints a file, it is not actually sent to the printer but rather captured. Control is then returned to the application as though printing had taken place, and the file is actually printed as a background job, in the bits of time when not much is happening (from the processor's point of view).

We were having difficulty discovering why the spooler option didn't seem to be working – the Printing in progress message sat there for as long as it ever did, longer if someone else was already in the print queue. However, a careful search of the manual revealed, under the heading "MacServe IS NOT a LaserWriter spooler", that MacServe "is not able to spool print jobs for a LaserWriter or any other Apple Talk printer!" (my emphasis).

That's right – if the ImageWriter is a network device then MacServe won't spool print jobs to it . . . but if it won't spool to a printer on the net, what will it spool to? The answer turns out to be a printer connected to the host modem port. Two problems arise as a result of this: Our ImageWriter has been fitted with an AppleTalk interface which is not easily removed, and there is a modem connected to the host modem port anyway.

It is of course possible to use a switching

junction to allow both a modem and a printer to use the modem port. However, the print spooler must be paused while a modem is in use. In our case we'd also have to buy another printer or have the AppleTalk interface removed from the ImageWriter. Even then, the manual warns that disconnecting and connecting printers can "cause the Mac and the printer to get out of synchronisation".

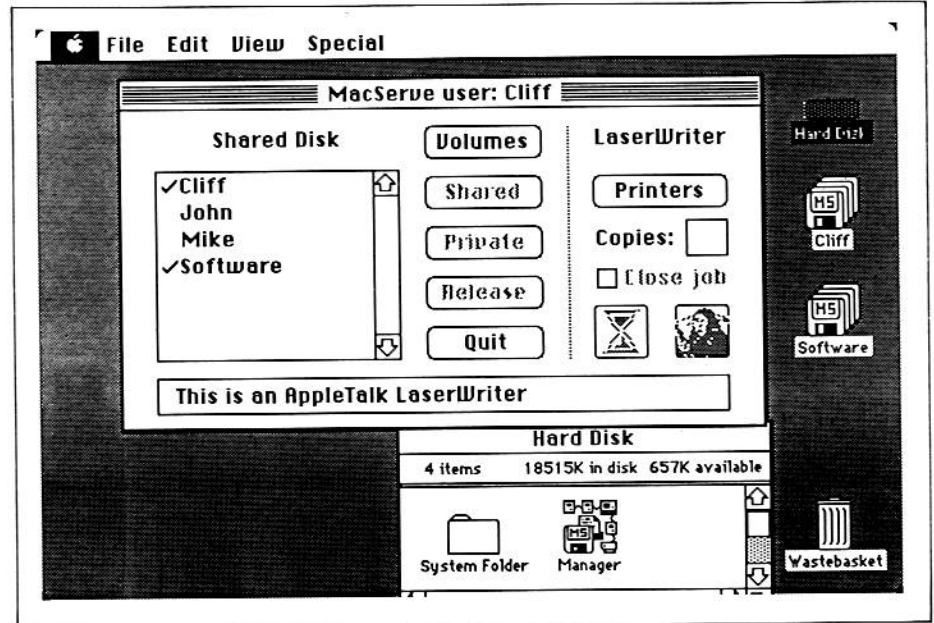
The other major printing problem concerned the use of the Chooser desk accessory. Having got used to using the Chooser, we now find, from an appendix in the manuals that MacServe prevents the Chooser from changing the AppleTalk connection status.

In fact, the manual points out that you can remove the Chooser from your system in order to avoid confusion. This is easy to do on a floppy, where a Chooser-less system disc can be used when connecting to the net and normal discs can be used for stand-alone operations. However, it is not really feasible with the hard drive.

Choosing a printer from MacServe is not without its problems either. For some reason it is at this point that the system often chooses to lock up completely. When this happens a complete shut-down is necessary, temporarily disconnecting the other network users. To its credit, MacServe waits patiently at the nodes until the host is once more available. However, on the whole we'd prefer a system that didn't bomb in the first place.

More disturbingly, the system files of the user nodes seem to get corrupted occasionally, something which never happened before we installed MacServe. This usually comes to light during a printing operation, when a variety of error messages appear.

These usually say something about lack of printing resource on the disc on which MacWrite is located, despite the fact that this situation is the usual one since the system is on the boot floppy and MacWrite is on a MacServe volume. When this hap-



Getting to grips with MacServe

pens, it's necessary to renew the system files and reinstall MacServe on that user node.

### Which Switcher?

Some problems have also been encountered when using the Switcher under MacServe. The appendix reports that MacServe is compatible with Switcher version 4.4. However, with MacPaint and MacWrite installed in Switcher 4.4, attempting to copy to the scrapbook from MacPaint produces an alert message about problems writing the scrap and it fails to carry out the operation.

Once a volume is created on MacServe its size can't be altered. Hence when we wanted to create a software volume we had to restructure it, reformatting the HD-20 and starting from scratch – making sure that we'd backed up the important

files to floppies, of course.

Even this wasn't straightforward because the volume creation routine kept telling us that the disc was too fragmented to create volumes of the size we wanted – yet we'd started from a freshly formatted disc and followed all the instructions in the manual. Somewhere along the line we seem to have lost about half a megabyte of space.

Since we want all three nodes on the net to have access to all volumes, we don't require some of MacServe's facilities. For example, the ability to set passwords for each volume and to set a password in order to control access to the Manager program. Also, we've found it easier to drag important files to backup floppies rather than wrestle with the archiving function.

The MacServe manual is not particularly well-written. Experienced Mac users find it bad enough and newcomers find it almost completely impenetrable, even though they understand the Mac user interface well enough.

### So what's the verdict?

All in all, then, I'm underwhelmed by MacServe. However, there don't seem to be too many software-only alternatives. For example, the IOMEGA Bernoulli Box is more like a high-capacity storage system which just happens to have network server software thrown in, and has a US price of \$2895. When a user node bombs on this system, it's necessary to close the whole net down. Similarly, the 3Server is a file server with a minimum 70Mb capacity and a US price of \$7995.

It looks as though HyperNet will be a useful file server software package and should sell for around \$295 when it becomes available, but has anyone seen it yet?

Maybe future issues of MacServe will fix the bugs. Maybe they'll rewrite the manual. Maybe we'll resort to passing floppies around the office.

## Apple tip

**i** With the Magic Window configuration file it is not possible to change the page format. The following patch will do. But note:

The Basic program (stored from \$800 = 2048) must not be longer as \$1FF (\$511) bytes for Magic Window. To make it more comfortable you have to move it to \$4000. For Magic Window II it must not be longer as \$FF (\$255) bytes and stored from \$6000.

Double spacing is stored as 0 for No and 1 for Yes.

The maximum and minimum values to be poked into the certain address are the same as stated in the program.

XXX stands for the name of the Magic Window mainfile. Please insert the name under which you have stored it.

Run the patch-program only on a back-up copy. **Stuart Hollywood**

#### MW Config.Format

```
1 PRINT CHR$(4); "BLOAD XXX"
2 POKE 2739,72: REM Page length
3 POKE 2740,3: REM top margin
4 POKE 2741,66: REM text length
5 POKE 2742,80: REM page width
6 POKE 2743,5: REM left margin
7 POKE 2744,70: REM text width
8 POKE 2745,0: REM 2 space 0/1
9 PRINT CHR$(4); "BSAVE XXX,LS2E00"
```

#### MW II Config. Format

```
1 PRINT CHR$(4); "BLOAD" XXX
2 POKE 2739,72: REM page length
3 POKE 2740,3: REM top margin
4 POKE 2741,66: REM text length
5 POKE 2742,80: REM page width
6 POKE 2743,5: REM left margin
7 POKE 2744,70: REM text width
8 POKE 2745,0: REM 2 space 0/1
9 PRINT CHR$(4); "BSAVE XXX,LS4000"
```



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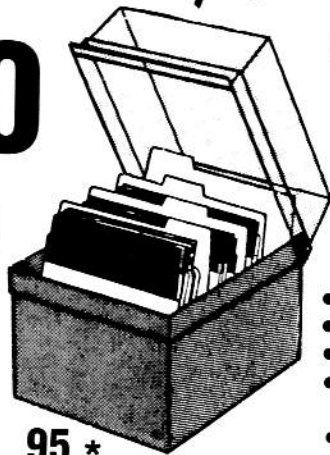
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**MicroLink application form: Page 13**



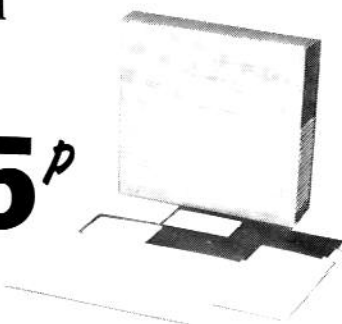
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**Delve deeper into  
the mysteries of CP/M  
with Robert Neale  
and Colin Foster**

---

THIS month we'll look at what the different Console Command Processor (CCP) commands do and how CP/M organises memory. However, first let's go back to the beginning and see just what happens when you boot a CP/M disc.

The machine executes a short 6502 routine held in rom on your disc control card. This loads another 6502 routine from disc which continues the load from disc and finally hands over command to the Z80 processor.

The image of the BIOS is loaded together with the CCP, something which happens frequently in CP/M and is known as a warm boot. It occurs generally when a program finishes and hands control back to the system or when you type Cntrl+C (generally written as ^C) at the keyboard.

What it does is load the main part of CP/M from the disc, the CCP and BDOS, log in the disc to let the system know what's

before are X which deletes everything you have typed on the line (much as in Applesoft BASIC), P which will switch the printer on and off (at any point in the line), S which will temporarily halt console output (restart it with any keypress), R which will rewrite a line which you have entered (used to tidy up the display when you have used the delete key - try it and see) and ^C which initiates a warm boot.

Under CP/M v.2 it is imperative that if you change the disc in the logged drive you must perform a warm boot by pressing ^C. If you do not then sooner or later the system will object.

The first of the built-in commands, DIR, you have probably met already. Type it at the A> prompt and you will get a directory listing of the files on the disc in drive a:. Typing dir will have the same effect because CP/M ignores case. This is the equivalent of the Dos 3.3 CATALOG and the ProDos CAT command.

You will notice that it does not tell you the size of each file nor even the number of disc sectors used. If you scan the directory with your copy of CP/M master v2 you will see a file called STAT.COM. (An almost corresponding file under CP/M v3 is DIR.COM but parameters are passed differently). If you type:

```
stat *.* (under CP/M 3 try 'DIR[FULL])
```

at the prompt the CCP will recognise this as a transient command and will load and run the program STAT.COM.

As you will see from the screen, STAT gives a much fuller directory listing than the built-in command DIR. Note that the command given to the CCP included information (the \*.\* ) on which STAT was able to act. We will discuss what all the information returned by STAT means and other uses of it another time.

For now note that we get a list of files on the disc in alphabetical order, together with their sizes in kilobytes and the amount of free space on the disc.

The disadvantage of STAT is simply that it is a transient command - the program STAT.COM must be present on the disc for the command to work. DIR on the other hand will work on any disc.

# Just a matter of memory

there and hand control over to the CCP.

Remember the CCP is just a program which acts as an interface between you and the computer.

Put a copy of your master disc - never use the original - into your boot drive (slot 6, drive 1) and switch on the machine, or if it is on and at the Basic level (that is, the prompt is ]) type PR#6. If you have a IIe or IIc press the three keys, Control, Open-Apple and Reset together and release Reset.

The disc drive will start and very soon you will see the ubiquitous A> prompt.

There are six commands (other than some Control+keypresses used for editing and switching the printer on and off) which the CCP will understand and obey itself - these are called the resident or built-in commands. They are listed in Figure 1.

If you type anything else in response the CCP assumes you have typed the name of a program (a COM file) on disc and it will attempt to load it into memory and execute it.

These "commands by default" are called transient commands because they change depending on which programs you have available on the disc in use. If the CCP does not find a file on disc corresponding to what you have typed it will respond with a question mark.

The Control+keypresses mentioned

---

## Part 2

---



---

### Ambiguous name

Returning to the \*.\* we gave STAT as a parameter on the command line. This is an example of what CP/M calls an ambiguous file name. It simply asks STAT to give us information on all the files on the disc whatever they are called.

The \*.\* referred to the two parts of a file name, the first \* means "match all characters up to the full stop" and the second means "match all characters after the full stop".

For example, if we had given the parameter as \*.COM we would have been given information back on all the COM files



<b>DIR</b>	Gives a limited directory listing of the files on disc.
<b>SAVE</b>	Saves a specified number of pages of memory, (starting at 100H) to disc with a specified name.
<b>REN</b>	Renames existing disc files.
<b>ERA</b>	Erases unwanted files from disc.
<b>USER</b>	Changes the current user area.
<b>TYPE</b>	Lists an Ascii text file to the current output device.

Figure 1: Summary of CCP resident commands

on the disc but no information on any other file.

The second built-in command is SAVE. This is often ignored because it seems to be wrapped up in the mysteries of programming. If you type save 24 fred.com the disc will whirr and the A> prompt will return with nothing much having apparently happened. However, type dir and you will see FRED.COM in the list. Type:

```
stat fred.com
```

and you will get information on FRED.COM.

This is another way of using STAT, this time with an unambiguous file name. It provides information only on the file specified.

You will see that there is now a 6k file on disc called FRED.COM. The command SAVE has copied the specified number of pages (24 in our example – note that this number is in decimal, not hexadecimal) of memory from the start of the TPA to a disc file with the name we have given it. A page of memory is 256 bytes.

Now type the command:

```
fred *.*
```

FRED has the same effect as STAT! Well, it should do – they are identical.

That's because after we had called STAT and it had executed it was still present in memory and we copied it to disc. STAT just happens to be 24 pages long. (We will return to finding out how long a file is later).

The third built-in command is REN or rename. This lets us change the name of a file by typing:

```
ren <newname>=<oldname>
```

An example is always easier to follow so type:

```
ren jim.com=fred.com
```

and now use dir or stat\*.\* to check that FRED.COM has become JIM.COM. If you need convincing issue the command:

```
jim *.*
```

The fourth built-in command is ERA or erase. Be careful – this is dangerous!

As the name suggests it lets us erase and effectively destroy files which we no longer want. Actually, in common with many

operating systems, the file is not removed but merely flagged as removed so it is possible to recover accidentally erased files. But there is no simple way of doing so. Type:

```
era jim.com
```

and JIM.COM will cease to be. (Check this with DIR or STAT). If you now issue the command jim \*.\* the system will respond with a ? and the A> prompt to signify that it cannot find the file.

The fifth resident command is not one we will use much, especially if floppies are the only discs on line. You may not have realised but you have been in user area 0 all the time. If you type:

```
user 1
```

you will be transported into user area 1. Type dir and see how many files you have on disc. Now type:

```
user 0
```

and issue the DIR command again. There are 16 user areas numbered from 0 to 15 under CP/M 2 and you will have noted that in areas 1 to 15 you have no files.

Therefore the problem is: How do I get any files in to another area?

You have already met the answer. Go into user area 0 and type PIP to load PIP (the transient file transfer program). Press return at PIP's prompt to exit.

Now enter your chosen user area and type SAVE 29 PIP.COM. (Actually the length of PIP varies slightly from version to version, save 30 pages with PIP3). You will now

have PIP in the chosen area and you can copy other files into it by adding (G0) to the PIP command. We will return to more uses of PIP later.

The last command in our tour of CCP commands is TYPE. This lets us look at the contents of any files of Ascii text which are on the disc. (Ascii is a standard coding system for representing text in computers and most micros – the Apple included – use it).

Type the command:

```
type dump.asm
```

and we can read the text file containing the assembler source code for the transient utility DUMP.COM. If you wish to stop the listing press ^Z.

TYPE will not let us look at machine code such as COM files. If you want to list a text file on your printer type TYPE followed by the filename but before pressing Return press ^P (Control+P). When the file has been listed press ^P again to switch off the printer.

## Memory mapped

So far we have explained a little about the different bits of CP/M and what each do. Figure 11 shows where each lives in memory when CP/M is running on the Apple. The addresses given correspond to Microsoft's v.2.2 but should be similar for other versions.

The bottom 256 bytes (the first page) makes up the system parameter area. This contains a lot of data useful to CP/M and programs running under it.

The next, and largest, area of memory starting at 100H is the transient program area (TPA) where all programs, including any you may write, are loaded by the CCP when you issue a transient command.

Above this is the CCP itself. This part of memory is also available to a program as an extra piece of TPA as once the CCP has loaded the program it is no longer needed. When the program finishes it will perform a warm boot and reload the CCP in case it was overwritten.

Above the CCP are the BDOS and BIOS. □

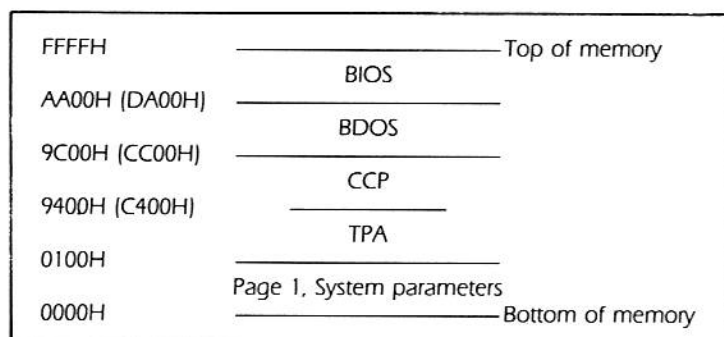


Figure 11: CP/M v2.2 memory organisation (addresses in brackets refer to the 60k version on a IIe/IIc or with a language card in an Apple II+).

# Implementing screen control

LAST month we looked at the justification for using a unit-orientated approach to Pascal programming, defined the structure of the data held in the SYSTEM.MISCINFO file and outlined the interface section for a Screen Control Unit which will enable us to write terminal-independent input/output routines with minimum effort.

The interface section defines those types, vars, procedures and functions which the programmer using the unit may access. This month we move to the implementation of the unit and examine just how the Screen Control Unit works. This is shown in Listing 1.

Firstly, however, please refer back to the interface section. It starts with a note that this unit uses another – Applestuff. I'll explain later why that turned out to be necessary.

The type declarations define firstly `sc_chset` which enables the programmer to supply the unit with a set of acceptable characters to be input, and secondly `sc_key_command` which allows variables to hold one of ten different key commands. This is used in the execution of commands typed at the keyboard – for example, cursor movement keys.

Finally in the interface section we see the list of procedures and functions. Note that here they are declared with their parameter lists, which are not repeated in the implementation section.

At the head of the implementation section are declared private variables which are not available to the calling program. (mfile had to be declared in the interface because Apple Pascal does not permit private files in units.)

Miscinfo stores the data read in from SYSTEM.MISCINFO. `Map_comm` is an array with one element for each character code. Each element of it stores the command to be obeyed when that character is typed.

The initialisation code in the main program of the unit first sets all commands to `sc_not_legal` then examines `miscinfo` to set the valid commands. For example, if `miscinfo` records that the `editoracceptkey` has a code of 3, then `map_comm[3]` will be set to `etx`.

Thus `map_comm` acts as a look-up table for the command keys. Procedures `sc_left`, `sc_right` and `sc_up` all work similarly.

Each moves the cursor one space in the

---

## Part 2 of Stuart Bell's tutorial series covering the unitary approach to program development

---

appropriate direction and checks whether a lead-in character is required, issuing one if necessary.

The code to move the cursor is then issued. `Sc_down` is a little different. as SYSTEM.MISCINFO doesn't store it, we assume that the `LFcode` is 10 – it is for all terminals that I've ever come across.

`Sc_erase_to_eol` (if names seem verbose, they are to maintain compatibility with version IV), takes as parameters a column and line number. It causes the cursor to go to that point and the rest of the line is cleared.

`Sc_eras_eos` works in a similar manner, erasing to the end of the screen.

`Sc_clr_screen` moves the cursor to the top left corner of the screen and clears it.

`Sc_home` moves the cursor similarly but does not clear the screen.

`Sc_width` and `sc_height` simply return the size of the logical screen. Note that as on 40 column Apples the width is stored as 79 to force the Filer to use shortened prompts, the width may not be correct.

Also, as `gotoxy` works from (0,0) in the corner, you should never try to access beyond one less than the `sc_width` and `sc_height`.

Now on to the interesting procedures! `Sc_getc_ch` works very much like the function `getch` which I described in the September 1985 *Apple User*. That is, it gets a character from the keyboard, waiting until a valid character (one of those passed to the function in the set of acceptable ones) is typed.

`Sc_map_crt_command` takes as its parameter a character typed at the keyboard. If this was the lead-in character (that is, if the keyboard prefixes special codes with a lead-in code) then the next character received from the keyboard is read.

The character code is then used as an index into `map_comm` to determine the action to be taken upon receipt of that key code.

Typically, a call to `sc_map_crt_com-`

mand will be followed by a case statement which lists the possible commands and defines what action is to be taken.

Finally, `sc_space_wait` waits for a space or Escape to be typed at the keyboard. If Escape was typed it returns the boolean value `true` so that the calling program may take special action if required.

A similar routine is used when the Filer gives the first page of a directory listing; space gives the next page, Escape aborts the listing. The parameter passed into the function informs it whether the keyboard should be flushed before being read – that is, whether any characters already typed should be thrown away.

Obviously this is useful if a drastic action might take place, such as formatting a disc, depending on what is typed.

This was where my implementation hit trouble: The system would not flush the keyboard! Page 43 of the Language Manual tells us that `Unitclear(1)` flushes the type-ahead buffer for `CONSOLE:...`; so what was wrong?

Eventually I realised that it does clear the buffer, but does not clear the keyboard strobe – the hardware signal that indicates that a key has been typed. Thus, I have to use the `keypress` function in Applestuff to check the strobe and throw away that character if necessary.

Hence Screenops uses Applestuff and all our user programs which use Screenops will also have to use Applestuff.

A neater way would be to use the assembly language `keypress` routine which I described in the October 1985 *Apple User*.

If you have that available, it would be better to assemble it and link it into Screenops, declaring it in there as an external procedure. This would avoid the need to use Applestuff each time.

The *Apple User* Screen Control Unit is now complete. The implementation of Listing 1 should be typed in after the interface part listed last month. Then compile it. It should then be incorporated into SYSTEM.LIBRARY, using the LIBRARY utility on APPLE3.

This is described on pp188ff of the Operating System manual. I described the process in greater detail in the September 1985 issue of *Apple User*.

● Next month we'll look at some simple programs which test and make use of the Screen Control Unit.

```

(* follows after listing 2 in last month's article *)

implementation

  var miscinfo:miscrec;
      map_comm:packed array[char]of sc_key_command;
      i:integer;

  procedure sc_left;
  begin
    with miscinfo do
    begin
      if predcharacter then write(leadintoscree);
      write(backspace)
    end;
  end;

  procedure sc_right;
  begin
    with miscinfo do
    begin
      if premcrigh then write(leadintoscree);
      write(movecright)
    end;
  end;

  procedure sc_up;
  begin
    with miscinfo do
    begin
      if premcup then write(leadintoscree);
      write(movecup)
    end;
  end;

  procedure sc_down;
  (* strangely, character for down not in miscinfo!
     almost all terminals use the ASCII code for LF *)
  const LF = 10;
  begin
    write(chr(LF))
  end;

  procedure sc_erase_to_eol;
  begin
    gotoxy(x,line);
    with miscinfo do
    begin
      if preereol then write(leadintoscree);
      write(eraseeol)
    end;
  end;

  procedure sc_clr_screen;
  begin
    sc_home;
    with miscinfo do
    begin
      if preerscreen then write(leadintoscree);
      write(erasescree)
    end;
  end;

  procedure sc_clr_line;
  begin
    gotoxy(0,y);
    with miscinfo do
    begin
      if preereol then write(leadintoscree);
      write(eraseeol)
    end;
  end;

  procedure sc_home;
  begin
    with miscinfo do
    begin
      if prechome then write(leadintoscree);
      write(movecursorhome)
    end;
  end;

  procedure sc_eras_eos;
  var i:integer;
  begin
    goto_xy(x,line);
    with miscinfo do
    begin
      if preereos then write(leadintoscree);
      write(eraseeos)
    end;
  end;

  procedure sc_getc_ch;
  begin
    repeat
      read(keyboard,ch);
      if eoln(keyboard) then ch:=chr(13);
      if ch in ['a'..'z'] then ch:=chr(ord(ch)-32)
    until ch in return_on_watch
  end;

  function sc_map_crt_command;
  begin
    with miscinfo do
    begin
      if (k_ch=leadinfromkeyboard) and
         (leadinfromkeyboard<>chr(0)) then read(keyboard,k_ch);
      sc_map_crt_command:=map_comm[k_ch]
    end;
  end;

  function sc_space_wait;
  var c:char;
  begin
    if flush then
    begin
      unitclear(1); (* clears buffer, but not keyboard strobe! *)
    end;
  end;

```

```

◀ if keypress then read(keyboard,c) (* so do it this way. *)
end;
write('Type <space>');
if not miscinfo.haslower then write(' to continue');
repeat
  read(keyboard,c)
until (c=' ') or (sc_map_crt_command(c)=escape);
writeln;
sc_space_wait:=c<>' '
end;

function sc_width;
begin
  sc_width:=miscinfo.screenwidth
end;

function sc_height;
begin
  sc_height:=miscinfo.screenheight
end;

procedure getmiscinfo; (* used in initialisation *)
var ti:integer;
begin
  reset(mfile,'*SYSTEM.MISCINFO');
  t:=blockread(mfile,miscinfo,1,0);
  close(mfile,lock)
end;

begin
  (* initialisation code follows *)
  (* read in SYSTEM.MISCINFO *)
  getmiscinfo;
  (* set all commands to non-legal first *)
  for i:=0 to 255 do
    map_comm[chr(i)] := sc_not_legal;
  (* now fill in array of valid commands *)
  with miscinfo do
    begin
      map_comm[keytoendfile]:=eof;
      map_comm[editoracceptkey]:=etx;
      map_comm[keytodline]:=dline;
      map_comm[editore scapekey]:=escape;
      map_comm[keytodeletecharacter]:=delchar;
      map_comm[keytomcup]:=up;
      map_comm[keytomcdown]:=down;
      map_comm[keytomcleft]:=left;
      map_comm[keytomcright]:=right
    end
  end.

```

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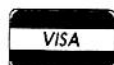


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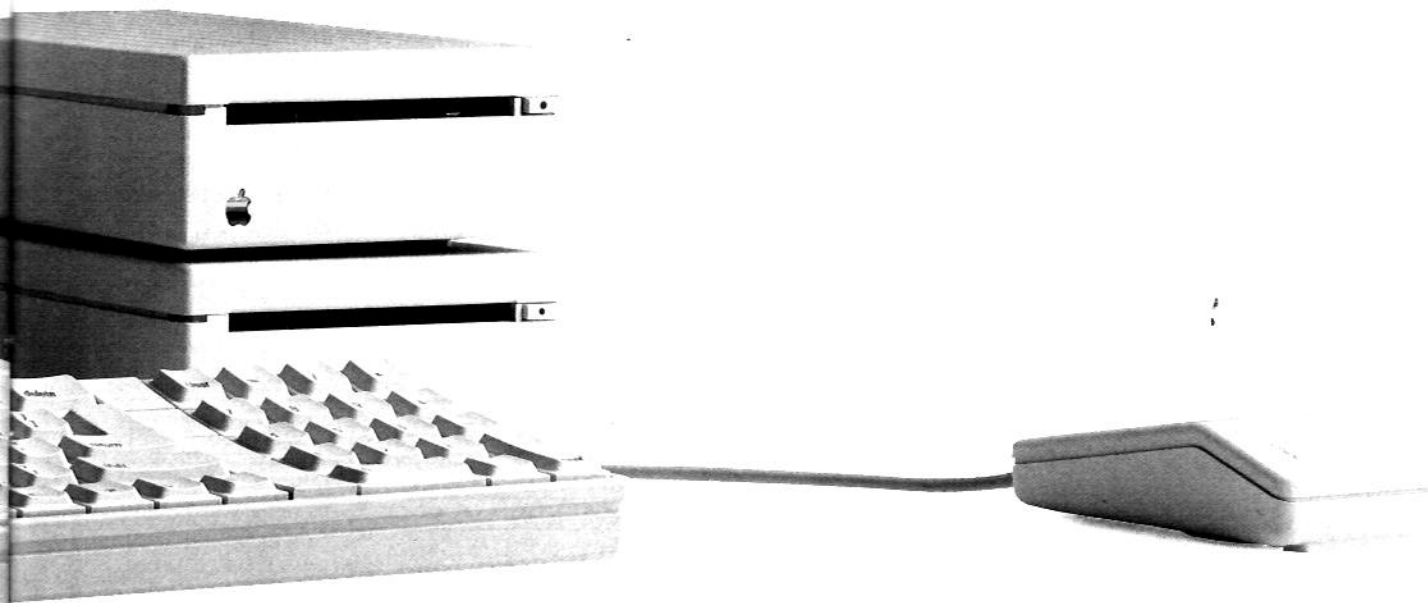
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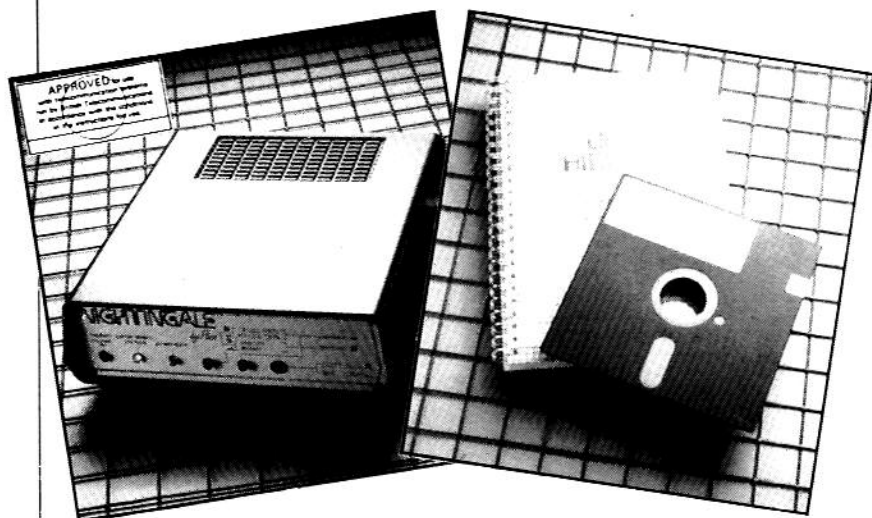
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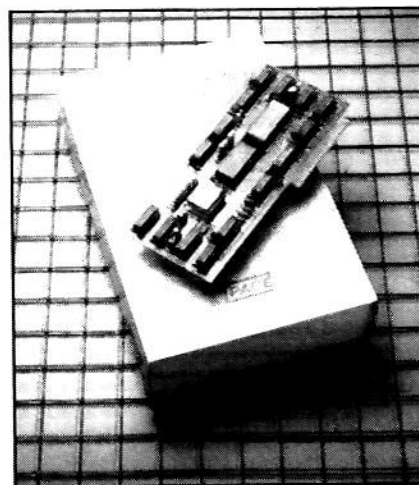
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# Keep an appointment with your Apple

THIS article describes the design and use of a routine to enable dates to be selected from a calendar. It was written as part of a program to print labels for patients' appointment cards in a General Hospital.

The program specification called for a minimum of operator input. This effectively ruled out entry of dates in the usual format and called for the creation of the following routines.

An additional benefit arising out of this was a simple disc data-file format where any week, or day within a week, could be accessed by reference to its field number in random-access files. These routines were originally written in 1984. They have been extensively tested and proven since, so would appear to be reasonably bug-free.

The demonstration program is for 1987, but by following the principles outlined below, a version for any year may be created.

In Figure I, the usual form of display for one month is shown. This can be considered to be an array of Y rows (deep) by X columns (wide). This analysis may be extended to any month.

However, there is a small problem with this array. Some months, for example, May 1987, have six rows (Figure II). This complicates the storage process slightly in that six rows must be specified to hold these months, leading to unused space in the array, and hence to wasted memory for those months which are only five rows deep.

## Weekends removed

Fortunately, appointments were made for Monday to Friday only, so weekends could be removed (Figures III, IV and V).

Using this technique, any month can be reduced to five rows by five columns. If there are less than five rows, (for example February 1987), then 0s are used to fill in the unused rows (Figure IV). Similarly, the "missing" days at the start and end of the month are filled in, (Figures III and V).

It can be seen that any day of any month in the year can be selected by specifying an address in the form of a Row and Column number within the range 1 to 5.

The month can be chosen by adding a

## Fred Wright offers a calendar routine used in his hospital to organise patients' appointment cards

further index from 1 to 12. This can be represented in the computer by an array specified by Y%(5,5,12). An integer array was chosen to conserve memory, although  $((5 * 5 * 12) * 2)$  bytes are still required to store it.

The next step is to assign a number to every week, from 1 to 52. This can be applied to any year (with certain exceptions - see later). Any overflow can be accommodated into the following year's calendar with a small patch to the calendar printing routine. These numbers are fitted into a spare column in the array (column zero).

## Simple encoding

If a row is empty, containing only zeros, (Figure IV), the week number is also set to zero. This is used in the program to detect invalid rows in the array. Whenever it occurs, the next week number - the first week of the following month - is selected for display.

If the last row of a month has less than five days in it (Figure V) then its week number is also given to the first row of the following month. So the first week of April would be numbered 14.

When a date is read and found to be zero, one of two actions is taken. If it's in the first row, then the row count is incremented and the same day of the following week is substituted. If it's the last row, then the same day in the first row of the next month is read instead.

This technique ensures a consecutive and simple encoding system which is easy to follow and implement as an algorithm. To summarise the technique:

Find a calendar of the year required. It's ▷

January 1987						
Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Figure I

May 1987						
Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Figure II

January 1987					
Mo	Tu	We	Th	Fr	
Fr					
0	0	0	1	2	
6					
5	6	7	8	9	
13					
12	13	14	15	16	
20					
19	20	21	22	23	
27					
26	27	28	29	30	
0					

Figure III

February 1987					
WkNo	Mo	Tu	We	Th	Fr
6	2	3	4	5	6
7	9	10	11	12	13
8	16	17	18	19	20
9	23	24	25	26	27
0	0	0	0	0	0

Figure IV

March 1987				
WkNo	Mo	Tu	We	Th
10	2	3	4	5
11	9	10	11	12
12	16	17	18	19
13	23	24	25	26
14	30	31	0	0

Figure V

◁ useful, but not essential, to have a program to print a calendar for any given year. Draw a line down to separate weekends (if not required). Ensure each month has five rows; if not, add a row of zeros at the end as in Figure IV.

Fill the spaces where months overlap with zeros, (Figure V) and give each week a number from 1 to 52. Where months overlap, the last row of the month has the same number as the first row of the succeeding month. For each month, write a DATA statement to hold the dates.

Similarly, write a DATA statement to hold the week numbers. Use FOR/NEXT loops to fill the array Y%(5,5,12), then use as required.

### Demonstration routine

A fully documented Basic routine to demonstrate the system is shown here. It is not completely error trapped, so an incorrect input will be accepted but may produce an error message.

Also included in the program is a routine to demonstrate the calendar/week numbering structure. To see this, use RUN 1000.

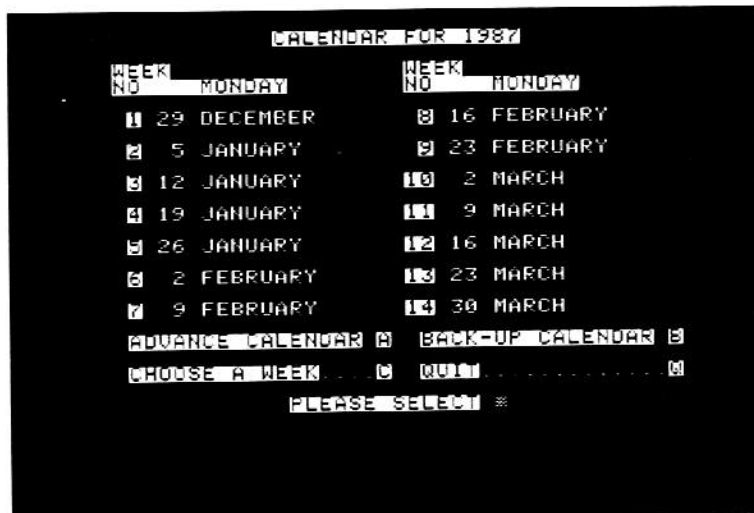
Data statements have been used to hold dates and week numbers. While this may appear to be rather wasteful of memory, it

is considerably faster than calculating each date as and when required and also makes the job of converting the subroutine for different years very easy.

In practice, a data statement for a month may often be re-used for another month in the following year. A simple way to do this is to create a text file of the calendar subroutine, make the changes with a word

processor, then EXEC the subroutine back into the main program, when it will overwrite the old subroutine statements.

As mentioned previously, certain years cannot be made to fit into 52 weeks using this technique. 1988 is one such year. The simple solution is to allow 53 weeks, and modify the subroutines and date selection routines accordingly.



Using the program

```

50 REM BASIC ROUTINE TO          YX(1,1,1) > 9 THEN HTAB
   DISPLAY CALENDAR FOR 1987      7: VTAB VX(1,1): PRINT
60 REM                            "DECEMBER"; HTAB 7: VTAB
70 REM THEN SELECT AND          VX(2,1): PRINT
   DISPLAY WEEKDAYS              "DECEMBER";
80 REM                            250 NEXT I: RETURN
90 REM FRED WRIGHT, 24 JULY      260 REM
   1986                            270 REM ROUTINE TO GET DAY
100 REM                            FROM VARIABLE K
110 REM MEDICAL PHYSICS          280 REM
   DEPT                            290 IF K = 1 OR K = 2 THEN
120 REM                            C = 1
130 REM SUNDERLAND DISTRICT      300 IF K = 3 OR K = 4 THEN
   GENERAL HOSPITAL                C = 2
140 REM                            310 IF K = 5 OR K = 6 THEN
150 GOSUB 2000: GOTO 500          C = 3
160 REM                            320 IF K = 7 OR K = 8 THEN
170 REM SUBROUTINES              C = 4
180 REM                            330 IF K = 9 OR K = 10 THEN
190 REM TRAPS FOR DEC OF         C = 5
   PREV YEAR                        340 REM
200 IF P < > 4 THEN              350 REM ROUTINE TO GET DAY
   RETURN                            FROM WEEK NUMBER
210 IF YX(1,1,1) > 9 THEN        360 REM
   HTAB 7: VTAB 6: PRINT          370 FOR TP = P - 4 TO P -
   "DECEMBER";                      1: FOR R = 1 TO 5
220 RETURN                            380 DA = YX(R,0,TP): IF DA =
230 IF WN < > 1 THEN              WN THEN 400
   RETURN                            390 NEXT R: NEXT TP
240 FOR I = 1 TO 5: IF            400 D = YX(R,C,TP)
410 IF D = 0 THEN TP = TP +
   1: R = 1: GOTO 400
420 RETURN
500 REM
510 REM PRESENT WEEKLY
   CALENDAR & CHOOSE DAY
520 REM SCREEN DISPLAY
   SHOWS 13 OR 14 WEEKS AT A
   TIME
530 REM IN 2 COLUMNS, 20
   CHARACTERS WIDE
540 REM
550 TEXT : HOME : INVERSE :
   HTAB 12: PRINT "CALENDAR
   FOR ";Y$: VTAB 3: PRINT
   "WEEK"; HTAB 21: PRINT
   "WEEK": PRINT "NO
   MONDAY"; HTAB 21: PRINT
   "NO MONDAY": NORMAL :
   POKE 34,4
560 P = 1: C = 1: REM SET
   MONTH TO JANUARY, DAY =
   MONDAY
570 V = 4
580 FOR RO = 1 TO 3: REM
   OUTER LOOP, COUNTS MONTHS
590 FOR R = 1 TO 5: REM
   INNER LOOP, COUNTS ROWS
   WITHIN THE MONTH
600 DA = YX(R,C,P): WN =
   YX(R,0,P): REM READ DAY
   AND WEEK NUMBER
610 REM END OF LEFT HAND
   SIDE OF SCREEN YET?
620 V = V + 2: IF V > 18
   THEN V = 6: POKE 33,20:
   POKE 32,20: HOME : REM
   YES, USE RIGHT HAND SIDE
   OF SCREEN
630 IF DA = 0 AND R = 1
   THEN V = V - 2: GOTO 700
640 IF DA = 0 AND R = 5
   THEN V = V - 2: GOTO 700
650 VTAB V: IF WN < 10 THEN
   PRINT " ";
660 INVERSE : PRINT WN:;
   NORMAL
670 PRINT " ";: IF DA < 10
   THEN PRINT " ";
680 PRINT DA:; PRINT " ";
690 PRINT MO$(P)
700 NEXT R: REM END OF
   INNER LOOP
710 P = P + 1: REM INCREMENT
   MONTH
720 NEXT RO: REM END OF
   OUTER LOOP
730 POKE 32,0: POKE 33,40:
   REM RESET SCREEN WIDTH TO
   MAXIMUM

```

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In the game you command either NATO or Warsaw Pact forces. To help you there is a full colour poster map, together with a detailed instruction booklet.

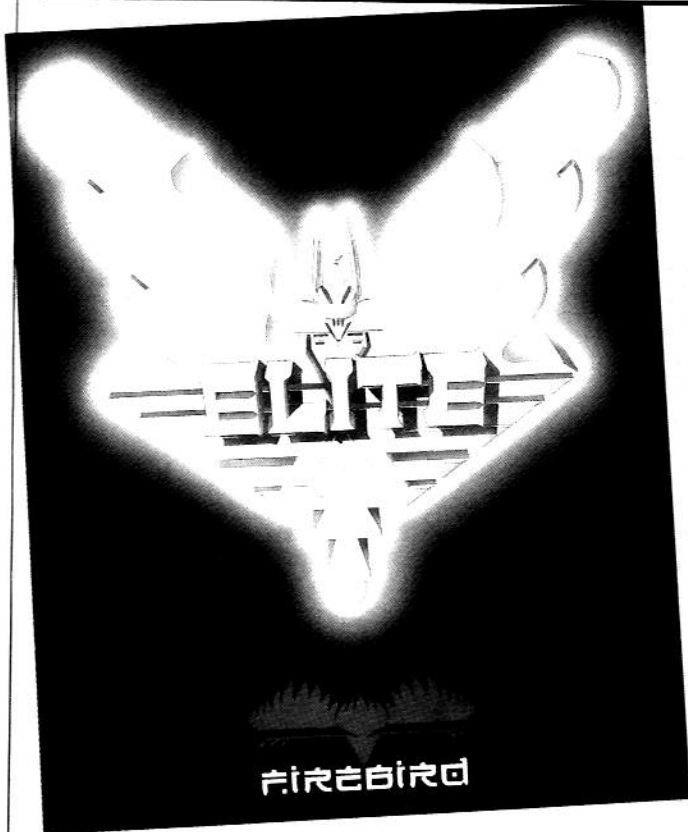
*While the producers of Theatre Europe have taken every care in researching this program to ensure the accuracy of details, we must stress that the events depicted in this conflict simulation are entirely fictitious. They must never be allowed to happen — the danger is that they might!*

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## AppleUser GAMES

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**ALIEN ZAP** – Good, old-fashioned machine code arcade game by Peter Ibbotson. Clever Apple graphics, and plenty of action.

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## AppleUser GAMES

### DISCS No. 1

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```

740 GOSUB 200: REM CORRECT
FOR DECEMBER OF PREVIOUS
YEAR
750 POKE 35,19: REM PROTECT
CALENDAR WINDOW
760 VTAB 20: INVERSE : HTAB
2: PRINT "ADVANCE
CALENDAR";: HTAB 19:
PRINT "A";: HTAB 22:
PRINT "BACK-UP
CALENDAR";: HTAB 39:
PRINT "B";: NORMAL : HTAB
18: PRINT ".": HTAB 38:
PRINT ". ";
770 VTAB 22: INVERSE : HTAB
2: PRINT "CHOOSE A
WEEK";: HTAB 19: PRINT
"C";: HTAB 22: PRINT
"QUIT";: HTAB 39: PRINT
"Q";: NORMAL : HTAB 15:
PRINT "....": HTAB 26:
PRINT ".....";
780 VTAB 24: HTAB 13:
INVERSE : PRINT "PLEASE
SELECT";: NORMAL : PRINT
" ";
790 GET KK$
800 IF KK$ = "A" AND P = 13
THEN P = 1: POKE 32,0:
POKE 33,40: POKE 34,5:
HOME : GOTO 570: REM END
OF YEAR, SO BACK TO
JANUARY
810 IF KK$ = "A" THEN POKE
32,0: POKE 33,40: POKE
34,5: HOME : GOTO 570
820 IF KK$ = "C" THEN POKE
35,24: POKE 34,19: HOME :
GOTO 860
830 IF KK$ = "Q" THEN TEXT
: END
840 IF KK$ = "B" THEN P = P
- 6: IF P < = 1 THEN P =
1: REM CANNOT GO BACK
PAST JANUARY
850 POKE 32,0: POKE 33,40:
POKE 34,5: HOME : GOTO
570
860 HTAB 8: INVERSE : PRINT
"SELECT BY NO";: NORMAL :
PRINT " ";
870 INPUT MN
880 TEXT : HOME : PRINT
"WEEK NO ";MN;" ";Y$:
POKE 34,2
890 FOR K = 1 TO 10
900 VTAB (2 * K) + 1:
INVERSE : PRINT K;:
NORMAL : HTAB 4: GOSUB
290: IF D < 10 THEN
PRINT " ";
910 PRINT D;: HTAB 7: PRINT
MO$(TP);: HTAB 18: PRINT
LEFT$(DA$(K), LEN
(DA$(K)) - 3);: HTAB 30:
PRINT RIGHT$(DA$(K),2)
920 NEXT K: GOSUB 230: VTAB
22
930 END
1000 REM
1010 REM RUN 1000 TO
DISPLAY CALENDAR AND WEEK
NUMBERS
1020 REM
1030 GOSUB 2000: HOME : FOR
P = 1 TO 12: PRINT
MO$(P);" ";Y$: HTAB 5:
PRINT "Mo Tu We Th Fr"
1040 FOR R = 1 TO 5: PRINT
YX(R,0,P);" ";: FOR C =
1 TO 5
1050 D = YX(R,C,P): IF D <
10 THEN PRINT " ";
1060 PRINT D;: ";: NEXT C:
PRINT
1070 NEXT R: PRINT : NEXT
P: END
2000 REM
2010 REM SET UP VARIABLES
2020 REM
2030 REM ARRAYS: DAYS,SCRN
TABS,CALENDAR,MONTHS
2040 DIM
DA$(10),VX(2,5),YX(5,5,12)
,MO$(12)
2050 FOR I = 1 TO 10: READ
DA$(I): NEXT I: REM READ
DAYS
2060 DATA MONDAY AM,MONDAY
PM,TUESDAY AM,TUESDAY
PM,WEDNESDAY AM
2070 DATA WEDNESDAY
PM,THURSDAY AM,THURSDAY
PM,FRIDAY AM,FRIDAY PM
2080 FOR I = 1 TO 2: FOR D
= 1 TO 5: READ VX(I,D):
NEXT : NEXT :D = 0: REM
SCRN VTAB ARRAY FOR DEC
31 CORRECTION
2090 DATA
3,7,11,15,19,5,9,13,17,21
,0,0,0
2100 REM
2110 REM SUBROUTINE TO
CREATE CALENDAR ARRAY FOR
1987
2120 REM
2130 FOR P = 1 TO 12: FOR R
= 1 TO 5: FOR C = 1 TO 5:
READ DA:YX(R,C,P) = DA:
NEXT C: NEXT R: NEXT P
2140 REM JANUARY
2150DATA29,30,31,1,2,5,6,7,8,
9,12,13,14,15,16,19,20,21,
22,23,26,27
,28,29,30
2160 REM FEBRUARY
2170DATA2,3,4,5,6,9,10,11,12,
13,16,17,18,19,20,23,24,25
,26,27,0,0,0
,0,0
2180 REM MARCH
2190DATA2,3,4,5,6,9,10,11,12,
13,16,17,18,19,20,23,24,25
,26,27,30,31
,0,0,0
2200 REM APRIL
2210DATA0,0,1,2,3,6,7,8,9,10,
13,14,15,16,17,20,21,22,23
,24,27,28,29
,30,0
2220 REM MAY
2230DATA0,0,0,0,1,4,5,6,7,8,1
1,12,13,14,15,18,19,20,21,
22,25,26,27
,28,29
2240 REM JUNE
2250DATA1,2,3,4,5,8,9,10,11,1
2,15,16,17,18,19,22,23,24,
25,26,29,30
,0,0,0
2260 REM JULY
2270DATA0,0,1,2,3,6,7,8,9,10,
13,14,15,16,17,20,21,22,23
,24,27,28,29
,30,31
2280 REM AUGUST
2290DATA3,4,5,6,7,10,11,12,13
,14,17,18,19,20,21,24,25,2
6,27,28,31,0
,0,0,0
2300 REM SEPTEMBER
2310DATA0,1,2,3,4,7,8,9,10,11
,14,15,16,17,18,21,22,23,2
4,25,28,29,30
,0,0
2320 REM OCTOBER
2330DATA0,0,0,1,2,5,6,7,8,9,1
2,13,14,15,16,19,20,21,22,
23,26,27,28
,29,30
2340 REM NOVEMBER
2350DATA2,3,4,5,6,9,10,11,12,
13,16,17,18,19,20,23,24,25
,26,27,30
,0,0,0,0
2360 REM DECEMBER
2370DATA0,1,2,3,4,7,8,9,10,11
,14,15,16,17,18,21,22,23,2
4,25,0,0,0
,0,0
2380 REM
2390 REM READ WEEK NUMBER
INTO COLUMN 0
2400 REM
2410 FOR P = 1 TO 12: FOR R
= 1 TO 5: READ
MN:YX(R,0,P) = MN: NEXT
R: NEXT P
2420 REM DATA JANUARY TO
JUNE
2430DATA1,2,3,4,5,6,7,8,9,0,1
0,11,12,13,14,14,15,16,17,
18,18,19,20,21
,22,23,24,25,26,27
2440 REM DATA JULY TO
DECEMBER
2450DATA27,28,29,30,31,32,33,
34,35,36,36,37,38,39,40,40
,41,42,43,44,45
,46,47,48,49,49,50,51,52,0
2460 REM
2470 REM READ MONTHS INTO
ARRAY MO$
2480 REM
2490 FOR I = 1 TO 12: READ
MO$(I): NEXT I
2500DATA JANUARY,FEBRUARY,
MARCH,APRIL,MAY,JUNE
2510DATA
JULY,AUGUST,SEPTEMBER,
OCTOBER,NOVEMBER,DECEMBER
2520 Y$ = "1987": REM SET
YEAR VARIABLE
2530 RETURN

```

This is one of hundreds of programs now available FREE for downloading on

**MicroLink**

Product: *Silent Service*

Price: £24.95

Supplier: Microprose, 2 Market Place, Tetbury,  
Gloucestershire. Tel: 0666 54326

THE latest release from Microprose is the superb *Silent Service*, a US World War II submarine simulation. All the action is based on historical incidents and takes place in the South Pacific.

A colour monitor is highly recommended and a joystick is essential as every screen contains a number of command icons, such as periscope, up/down, engine speed, fire torpedo or deck gun and so on. Simply position the pointer on the appropriate icon and execute the command by pressing the button. Graphics throughout are simple but atmospheric.

*Silent Service* provides three optional methods of play: Torpedo and deck gun practice, convoy action and war patrol.

The first is intended to introduce you gently to handling the submarine and you have the opportunity to take pot shots at four old cargo ships anchored (for practice

purposes) outside the American base at Midway.

There are seven different Convoy Actions to choose from, each of which sets you in a particular historical simulation.

They are ideal for playing when time is short since you're quickly into battle. Each requires the use of specific tactics for success and, as in the real thing, the hunter can become the hunted.

War Patrols are the true test of the submariner's skill. They allow you to play out a full patrol during which a wide variety of situations, opportunities and dangers present themselves.

Your mission is to scour the Japanese convoy lanes to seek out and destroy the maximum amount of enemy tonnage.

There are six different Patrols to select, each involving a differently equipped submarine.

In real life a patrol took up to two months – in this simulation time is scaled up by a factor of four. However, there will be occasions when you want to speed things up even further so the game allows you to increase the scale up to 32 times real time, so that two minutes of play represents just over one hour.

You can increase or reduce the scale at any point but will automatically be returned to normal scaling if you are detected by the enemy or torpedoes are fired.

As well as having four skill levels to choose from you can tailor the game to your own tastes and abilities by selecting from a variety of other options. *Silent*

## Mourning in the Moonmist

Product: *Moonmist*

Price: £24.99

Supplier: Infocom, c/o Activision, 23 Pond  
Street, Hampstead, London NW3 2PN  
Requirements: Any Apple II or Macintosh

WOE is me! Dress me in mourning! Something has happened that I would not have dreamed possible. I have discovered an Infocom adventure that fails to satisfy.

The cause of my despondency is the ease with which I completed *Moonmist*. I started the adventure one afternoon and – shock, horror – completed it by teatime.

The plot is very English and concerns funny goings-on at Tresyllian castle. Apparently a ghost, the White Lady, has started some nightly perambulations and worse, someone has attempted to kill one of the guests.

You play a detective invited there by your female friend, Tamara Lynd. The game commences as you pull up outside the castle gates in your sports car.

Once inside and having met all the guests, you can explore the castle or change for dinner. At dinner, a recorded voice (shades of Agatha Christie) announces a challenge in the form of clues to be found and a riddle to be solved.

Adding spice to the mystery, the maid declares she's seen "summing dredful" in one of the rooms and will not be returning.

The butler tells you that last night he saw the White Lady bending down and searching for something in the New Great Hall.

You won't be surprised to learn that as the action takes place almost entirely within a castle, secret passages feature very heavily. It is your job to explore, seek evidence, interrogate, deduce, and solve the mystery.

The program has a number of nice touches. For example, it lets you choose your own name, including a title. I couldn't resist a unique opportunity to solve the case as Lord Dimwit Flathead.

If you try to arrest somebody too early in the game, you'll be told, "Bad form. Wait until after dinner". Failure to dress for dinner will not go unnoticed either.

*Moonmist* is quite enjoyable judged on its own merits, but suffers when compared to practically every other Infocom adventure.

Because of their depth and originality these normally take most players weeks, sometimes months, to unravel and

complete. *Moonmist*, I'm sorry to say, is the glaring exception.

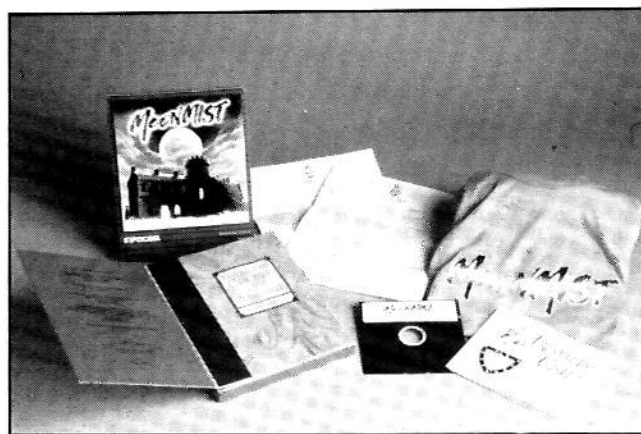
To be scrupulously fair, *Moonmist* is specifically aimed at adult gamers new to adventures and has deliberately been made simpler than the usual run of Infocom products. As an Infocom veteran it was only natural that I should find *Moonmist* easy meat.

Then again, *Wishbringer* (an earlier release) was also a beginner's adventure but for my money offered yards more variety, entertainment, humour and challenge. It also had very little padding (superfluous objects, rooms and so on), symptoms of which are sadly evident in *Moonmist*.

Having said that, *Moonmist* is still a better adventure than many from other companies. It is also as handsomely packaged, playable and as bug-free as all Infocom adventures.

If you're new to adventures then by all means give it a try. If you're an old hand, then don't get your expectations too high. Perhaps I did.

**Bob Chappell**



Service uses several types of screen – or Battle Stations. The main one is a very impressive conning tower and serves as a primary selection screen.

Moving the pointer selects the different parts of the tower, each of which represents a battle station. You can also elect to end the game or continue a war patrol from the Conning Tower screen.

The Map station indicates the position and movement of your own and enemy shipping. The map itself shows the whole of the South Pacific but by using the excellent – and reversible – zoom feature you can narrow down and magnify the area surrounding your ship to a mere 40 miles.

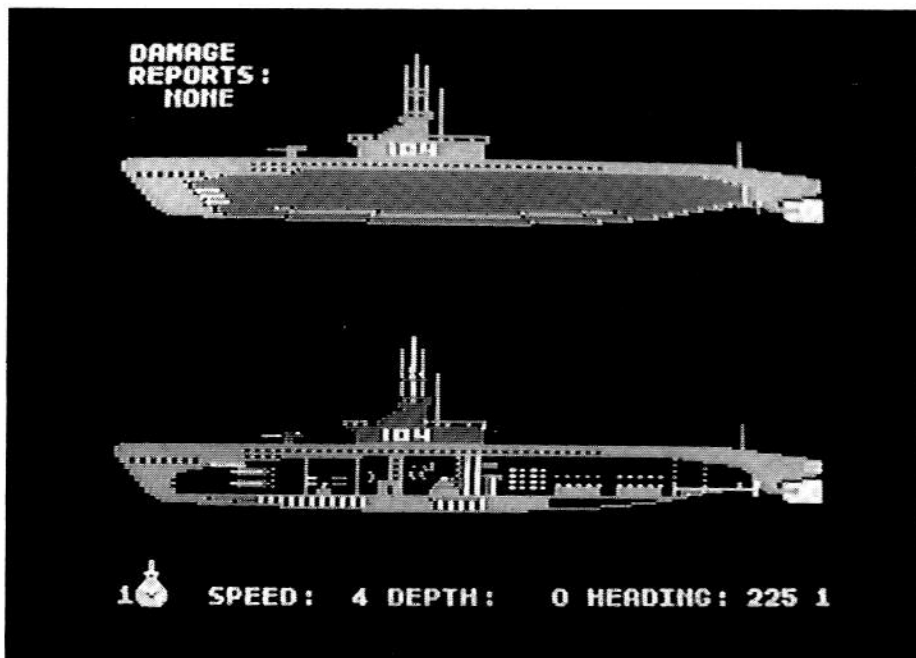
A Report screen gives you precise graphical information on damage and the Log provides a review of your achievements on the patrol.

The Instruments and Gauges screen is clearly set out and provides a mass of information, which is easy to assimilate once you know what's what, and takes only a little practice to master.

While on or near the surface, raising the periscope (replaced by target bearing transmitter binoculars at night) brings up an enlarged view of the sea, visible ships and land.

When a vessel is in your immediate line of sight, the Periscope's black cross-hairs turn white and target tracking is automatically displayed.

You can also access such data as speed, range, identity, angle on bow and giro angle – the last two being for those who initially elected to control torpedo targeting manually. There's some devilish estimating of angles involved so you advised to let the



computer do it unless you're really experienced.

You can dive, surface, alter throttle and fire from most of the different stations. And when a torpedo is fired you can see the wake and possible point of impact if you're watching through the periscope or from the bridge.

On the surface, the deck gun can also be manipulated and fired but you'll really be chancing your arm if you take on a destroyer with that alone! If desperate you can always fall back into releasing debris to try and fool the enemy into thinking they've

sunk you.

The 50 page operations manual that accompanies the program cannot be faulted – it should serve as a yardstick by which all other documentation is judged. As well as the program and tactical operations, it contains a feast of useful, flawlessly presented background and technical information.

Although I am not a fan of wargames, I found *Silent Service* challenging and engrossing – a first rate program in all respects.

**Bob Chappell**

## Puzzle fun for tiny tots

Product: *Puzzle Master*

Price: £29.99

Publisher: Springboard, c/o MGA Microsystems, 140 High Street, Tenterden, Kent TN30 6HT. Tel: 05806 4278

Requirements: Apple II+, IIe, IIc

PUZZLE Master is a multiple skill level educational game for age 4 and above. On booting, you are presented with a picture menu offering a choice of 10 categories, plus a d-i-y drawing option and another to access a disc. Selecting a category produces the first of the pictures it contains.

Of the icons under the picture, the book (left-hand side) leafs through the pictures in the category and the picture (right-hand side) returns you to the picture menu. It's the ones in the middle that do all the real work.

Selecting the horizontal lines icon causes a line to be drawn across the middle of the picture. Selecting it again causes both horizontal halves to be further halved, giving four strips.

You could carry on selecting it, but

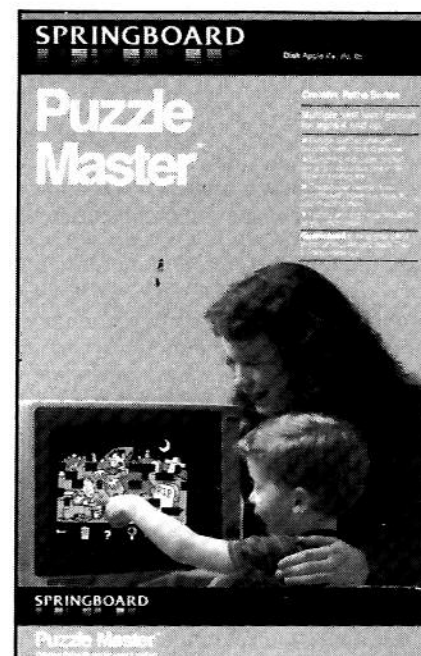
enough for now. Selecting the vertical lines icon has a similar effect, so that selecting both icons twice gives a picture which is cut into 16 pieces.

As soon as you make your first cut, the fifth icon, known as the cement truck, appears between the vertical lines and the picture. Select this and the pieces of the picture are scrambled.

The trick is to reassemble the picture. You do this by using the cursor to select a piece, whereupon it is whisked away to the work screen where you position it in what you think is the right place.

The program is quite happy for you to put a piece in the wrong place, but once you've dropped it a spy-glass icon appears. Selecting this will either confirm your positioning or give you a hint about the general area that it should be in. You don't have to use this icon – you can simply return to the jumble screen and pick up another piece.

When you successfully reassemble the



picture, the program lets you know with an assortment of flashy effects and then offers you the single option of returning to the picture menu. There are 25 pictures in all, ▶

◁with each category having either two or three.

Repeated use of the cutting icons doesn't always produce twice as many segments. Using the horizontal icon for the maximum eight times yields a picture split into 40 strips. The vertical icon can be used up to five times, giving a maximum 20 strips.

In principle you could cut a picture into 800 pieces. However, the resulting jumble would take best part of a week to reassemble. Luckily, the program does have a save facility so at least you could eat and sleep.

If you don't like any of the pictures provided, the draw facility on the picture menu lets you exercise your artistic abilities. The resulting picture can be saved to disc and then loaded into the Puzzle Maker for the scissor treatment.

Puzzle Master is a simple idea well implemented. It has the advantage over the real thing in that the pictures can be used again and again. Even so, the manual suggests you might like to resort to paper as an extension activity.

For example, it suggests you could use one of your child's own drawings. This isn't a bad idea if your child can stand to see a labour of love cut to ribbons because it does personalise the game.

The pictures can be cut into a wide range



A scrambled picture

of pieces, so Puzzle Master can be used by children of all ages, though younger children might benefit from a colour monitor as the colour provides additional information. However, it's not too bad on a green screen if you don't cut the picture into too many pieces.

The manual suggests that a joystick can be used, but our Kraft stick proved far too sensitive. Still, none of the kids had any difficulty with the keyboard other than a tendency to use the Apple keys to select. These didn't work although they should be usable in place of the joystick buttons.

The kids that tried the Apple keys then tended to go for the Return key – it shows what the conventions are, doesn't it? In fact Puzzle Master uses the space-bar, which is consistent with some but not all of Springboard's other programs.

I wouldn't want to make as strong claims for the educational value of Puzzle Master as Springboard do, but the program is useful and all the kids who tried it got some fun from it. What's more, none of the pieces got lost!

**Cliff McKnight**

# There's tension in the depths

**Product:** GATO

**Price:** £26.95

**Supplier:** Spectrum HoloByte, c/o Mirrorsoft, Maxwell House, 74 Worship Street, London EC2A 2EN. Tel: 01-377 4600

**Requirements:** Apple Macintosh 128k or Apple II

IF the word GATO reminds you of a large cream cake described by a dyslexic, chances are that you were probably not a Second World War American submarine commander.

GATO was the name of a class of submarine and is also the title of a first class game from Spectrum HoloByte. It is available for the Apple II, but I have reviewed the Macintosh version.

You command a submarine in the Pacific Fleet and your orders are sent to you in morse code. Fortunately, at the simpler skill levels the message is also written out for you.

A typical mission might involve you sinking a cargo ship carrying vital enemy radar parts, or rescuing the crew of an aircraft stranded on an island in enemy waters. But beware! Sometimes these messages have been sent by the enemy and you will find yourself sailing into a trap.

The screen display is quite impressive. The bottom third is reserved for you to control the submarine. Rudder control allows you to change your heading while the dive planes control your depth.

While on the surface you can use diesel power but when you dive below 20 feet you have to switch to batteries. The periscope can be raised or lowered and swung around all four quadrants to give 360 degree vision.

Three dials show you how the submarine is behaving while the oxygen gauge indicates how long it will be before you need to resurface.

The fore and aft torpedo tubes are shown along with information as to their loads. Once a tube has been fired it takes some time for the crew to reload it. All the controls operate via the mouse, but for keyboard fanatics there is also a key for each control.

The remaining two thirds of the screen can take on one of two different forms. However, for both of them the radar screen sits in the top left hand corner realistically blipping when a target is detected. The most useful display is the view from the periscope coupled with a single quadrant map and a damage report request panel.

Alternatively you can call up a map of all 20 quadrants along with a control panel giving you control over your tubes, which can be loaded with torpedoes or mines.

As there is nothing to look at when you

are below periscope depth you might as well look at the large map. This shows the trails of the ships as you watch them move but the trails are not preserved when you send the map away.

One of the interesting features of GATO for the advanced user is that you can design your own missions. This means you can re-enact an actual event or invent your own.

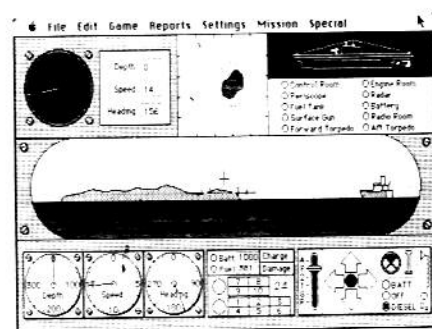
Once the enemy ships spot you they will break ranks and pursue you, using some very cunning tactics, but you can manoeuvre, shoot or bluff your way out of trouble.

The view from the periscope is well presented especially when circling around ships. However, instead of a gradually changing view of a ship there is a rapid switch in its shape.

This can be especially annoying when you want to track the ship at an angle because it seems to break out in wild – and not very realistic – oscillations. But the graphics generally are so good that I will forgive the programmer.

The forty page rule book is well written, covering nearly everything you need to know, though I would have liked more information about the range and arming times of the torpedoes.

Plotting an interception course is quite challenging and needs patience as well as a good eye. The pace of the game is quite



slow but that only increases the tension. There is an option to speed up the whole game tenfold but that is only useful when embarking on a long chase.

This is not a game of lightning reflexes but one of tension, judgment and quick thinking. You have to make your moves some time before you see any result, which adds a sense of realism to the game.

I have only begun to touch the surface of this submarine game, if you will pardon the pun. It is packed with features and holds your attention well. It is what all great games should be – easy to play but hard to master.

**Mike Cook** □



# Snapshot and the Art of Apple II Switching

The Snapshot card unleashes your Apple's hidden power to interrupt-and-resume any running program. When you load up Snapshot's on-board RAM with one of Dark Star Systems' growing family of easy-to-use, menu-driven software packs, you get awesome switching power at the press of a button....

**Switch 1** The Snapshot Shuttle is an Apple II Switcher that lets you keep up to four different programs where you can access them instantly — in your RAMcard. That means no more waiting for disk I/O. And armed with the Shuttle, you can interrupt a program and resume running it at exactly the same point, so there's no time-wasting search for where you left off. Use the Shuttle to switch among your wordprocessor, database, spreadsheet and comms programs — or any applications you like. The Shuttle's great for program development too. It lets you switch among operating systems, from any language to your compiler, editor, assembler or debugger — back and forth between all your favorite programming tools in fact.

**Switch 2** The Snapshot Printer-rupt lets you interrupt any running program, print its display using a galaxy of great menu options, and resume running it as though nothing happened. Use it to view and print both MousePaint screens; crop text and graphics; expand graphics; rotate left and right; invert and shade; print Pages 1 and 2 side-by-side, or *and*, *or*, and *xor* them; set dot-density; check the form position; auto-center, and adjust margins — you name it, you can do it with the Printer-rupt.

**Switch 3** The Snapshot Copykit lets you make archival backups of your copy-protected software. It will copy total-load programs up to 128K in less than 25 seconds, and it's invaluable for backing up multi-access programs too. The Copykit's *fast* saving and loading of total memory saves hours when you need to work with spreadsheets or other programs that take an eternity to handle large files. And the Copykit lets gamers start the action at those hard-to-reach high levels every time!



**Switch 4** The Shell is the memory-manager and mini operating system which allows Snapshot software to work within an interrupted program. Use it to write your own machine-code or Basic Snapshot program. It could be a great debugger, a comms program, or even a neat little game. Whatever your Apple's doing, the Shell lets you suspend it and get your program up-and-running at the press of a button.

Snapshot and its software packs are compatible with the Apple II+ and IIe, all the popular 80-column cards, memory cards, printer cards, and graphics-capable dot-matrix and ink-jet printers. The system comes with 12 months warranty and free tech support, and Snapshot program disks can be upgraded inexpensively, so they need never be out-of-date.

**PRICES (ex VAT)**  
 Snapshot version //e card (requires software) .....£ 95.00  
 Each software pack (requires card)..... £ 20.00  
 All 4 software packs..... £ 55.00  
 UniCopy 3.5 software pack.....£ 20.00

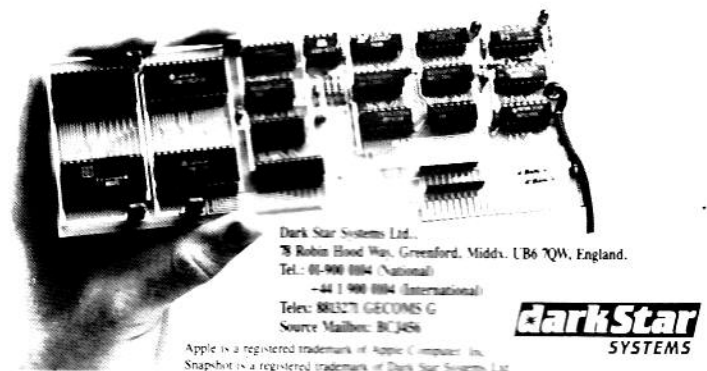
**MEMORY EXPANSION CARDS**  
 The Shuttle will let you load 2 x 64K programs into a 128K Apple. Naturally, the more memory you have, the more programs you will be able to load. The Shuttle works with all the popular RAM cards including Apple's new Memory Expansion Card.

Cirtech 64 extended //e 80-column card.£ 54.00  
 Dark Star Ramrod 128K card..... £ 90.00  
 Cirtech Flipper 1MB card.....£315.00

**TERMS**  
 Dealer and distributor terms are available on application.

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 Add £5.00 for airmail to anywhere else



## THE ROSCO RAM EXPANSION GUIDE

From a standard 16K RAM card to a fully kitted 1MB MultiRam card — Rosco have got the upgrade product to suit your computer and your pocket.

**16K RAM CARD** — The most basic RAM card available but still an essential add-on for Apple II, II+ and europlus machines when using the majority of programs **£29.00**

**128K RAM CARD** — The big sister of the 16K RAM card and again widely used on Apple II, II+ and europlus machines. This card becomes essential when using many databases, large spreadsheets and special programs like RoboCad. Supplied with it is a diskette with three utility programs and a manual **£89.00**

**RESOLUTION 64** — A best seller manufactured by Rosco for the Apple IIe which gives an 80 column display as well as doubling the memory size. The card is a direct replacement for the Apple Extended 80 Column Card for a fraction of the price. A full manual is included **£29.00**

**RESOLUTION 64+** — This package provides the RESOLUTION 64 card along with RAMDRIVE software which uses the extra memory as an electronic diskette for temporary program and data storage giving improvements in speed of up to 40 times that of a diskette. The RAMDRIVE is available for DOS 3.3 or CP/M users (state DOS 3.3 or CP/M when ordering) and the complete package retails at **£59.00**

**RESOLUTION 128** — This latest card from Rosco adds 128K of RAM to the Apple IIe's existing memory as well as an 80 column facility and RAMDRIVE software. The RAMDRIVE program utilise's the RESOLUTION 128's memory in such a way that a complete disk full of programs and data can be stored on the card and accessed very quickly. As with the RESOLUTION 64+ package, the RAMDRIVE is available in DOS 3.3 or CP/M and the one required is stated when purchasing **£79.00**

**MULTIRAM IIe** — This combined 80 column and RAM card for the Apple IIe is the introductory model to the MultiRam range. The card starts at 256K RAM and is easily expandable up to 768K. It is supplied with a full manual and disk which contains, a Ramdisk option, AppleWorks expander and RAMtest facility.

MultiRam IIe 256K **£169.00**  
 MultiRam IIe 512K **£209.00**  
 MultiRam IIe 768K **£239.00**

**MULTIRAM RGB IIe** — The MultiRam RGB IIe provides up to 1MB on the card itself (more with piggy back boards), as well as 80 Column and RGB colour output features. This card, like the MultiRam IIe can be connected to the optional 65C816 bit which makes the Apple IIe compatible with many Apple IIGS software packages. The MultiRam RGB IIe is also provided with the special utilities disk mentioned above and a comprehensive manual

MultiRam RGB IIe 256K **£209.00**  
 MultiRam RGB IIe 512K **£239.00**  
 MultiRam RGB IIe 768K **£269.00**  
 MultiRam RGB IIe 1MB **£299.00**

**MULTIRAM IIc** — For all Apple IIc users who feel they could do with a little more power, the MultiRam IIc is the answer. This card is available in 256K and 512K forms and fits totally inside the case of the Apple IIc (the 65C816 processor option is also available on this card). It is provided with the same special utilities disk as the other two MultiRam cards and is supplied with a comprehensive manual

MultiRam IIc 256K **£229.00**  
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# PINPOINT

## ACCESSORIES, COMMUNICATIONS AND MUCH MORE

### Stand-alone or integral with AppleWorks.

PinPoint provides desk-top accessories and communications which become an integral part of AppleWorks. A single key press gives you access to:

- Communications
- Calculator
- Appointment diary/calendar
- Notepad
- Typewriter
- QuickLabel
- Graphics/Text Merging

### PLUS: SPELLING CHECKER

PINPOINT provides communications with electronic mail/telex services such as One-to-One, Telecom Gold and EasyLink from within AppleWorks and is as easy to use as AppleWorks itself. It will directly transmit an AppleWorks Word Processor file. There is no text-file creation necessary, simply use the arrow keys to point to the file to transmit. Messages received are automatically saved as AppleWorks WP files. And all without quitting AppleWorks.

### PINPOINT POP-UP SPELLING CHECKER

You can now Spell check within AppleWorks without leaving your document. There is no need to save, print or create a text file. One keypress selects PinPoint. A further single keypress selects the Spelling checker. You can check an entire document, just a paragraph or just a word, with a single keypress. You can even check the spelling of a word in a Spreadsheet cell or a DataBase field.

When a spelling is faulty the pop-up speller will suggest up to 10 alternatives for automatic correction or you can easily add the word to the dictionary. Or you can edit the word yourself.

The Spelling checker is an optional add-on to Pinpoint and is dedicated for AppleWorks.

Both PinPoint and the Spelling checker are particularly suited for use with extended memory peripherals such as RamWorks, Z-RAM and RamFactor...

### MEMORY MANAGEMENT with Pinpoint RAM Enhancement Kit:

This is a utility program which gives much more flexibility and ease of use when using Ramdisks.

The RamFactor card can be automatically partitioned via its own on-board firmware. RamWorks and Z-RAM are usually used as a total memory area for expanded AppleWorks (or other single program such as SuperCalc 3a) or a single RamDisk.

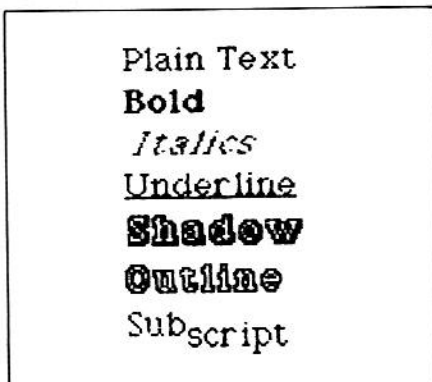
Using the PinPoint RAM Enhancement Kit enables RamWorks and Z-RAM to be easily partitioned into two areas: typically one area for expanded AppleWorks and the second area as a Ram-Disk containing often-used files. The RAM Enhancement Kit enables a startup disk to be created which will automatically load the required files into RAM on boot-up. A typical configuration would be for a 1 Meg RamWorks to have 700K available to Expanded AppleWorks and 320K designated as a Ram Disk. The Ram Disk has been set to auto-load the PinPoint accessories (including the spelling checker and its 50,000 word dictionary) plus two standard letter formats, and two spreadsheet templates. On boot-up, all these are automatically loaded into RAM, saving later disk access and giving fast loading into the AppleWorks desktop directly from the Ram disk. (AppleWorks recognises the Ramdisk directly). PINPOINT requires a IIc or Enhanced IIe with at least 128k of RAM.

Prices: (excluding VAT)  
 PinPoint ..... £69.00  
 PinPoint Pop-up Spelling Checker ..... £69.00  
 PinPoint Ram Enhancement Kit ..... £29.00  
 (included free with PinPoint to  
 Z-RAM/RamWorks owners)  
 IIe Enhancement Kit (4 chips) ..... £59.00

# MULTISCRIBE

MultiScribe gives you MacWrite on the Apple IIe or IIc.

MultiScribe uses the double hi-res screen to provide multiple fonts, and sizes, proportional spacing and shadow and outline printing - just like MacWrite!



With MultiScribe you don't have to use a mouse. All functions and pull-down menus are easily accessed via the keyboard. Plus, as well as 10 fonts provided, there's even a font editor so you can create your own. All this on a full feature word processor.

MultiScribe works with a IIc or 128k IIe and most dot matrix printers and interface cards. You can even use MultiScribe to customise files created on other word processors such as AppleWorks or AppleWriter - in fact any word processor that can save text as a text file. Give your old files new life with the attractive, attention-getting fonts and print-styling available only with MultiScribe. (MultiScribe can also save text as text files for transfer to other programs.)

For all its sophisticated features, MultiScribe is remarkably easy to learn and use. There are no complicated control codes to learn. Macintosh-style pull-down menus provide you with all the word processor commands you'll ever need - without leaving your document. And MultiScribe feature advanced visually-oriented text editing commands, like cut & paste and ruler-based text formatting.

### IF YOU'RE AFRAID OF MICE, DON'T WORRY

With MultiScribe you have the option of using a standard keyboard or a mouse. You can use your mouse to pick and click commands from the pull-down menus, or use the keyboard to simulate mouse action. And for advanced users, MultiScribe offers keyboard equivalents for most commands, allowing you to by-pass the pull-down menus.

With MultiScribe you can change type styles easily, on the screen and on your printouts. With a few simple keystrokes or mouse clicks, you can change that humdrum print into fancy fonts - like Old English, business quality print, foreign language characters or maths and engineering symbols. Ten fonts are included but if you don't like any of them, then you can create your own (or edit an existing font), with MultiScribe's FontEditor. For education the FontEditor can be used to create maths, physics, chemistry and biology fonts while for business use, the FontEditor can be used to create logos and letterheads.

MultiScribe can even be "Ram-Driven" with RamWorks, Z-RAM or RamFactor, and accelerated with-TransWarp.

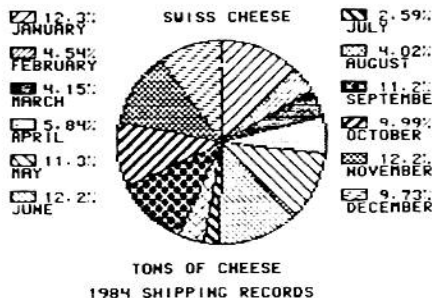
And all this for just £59.00.

No wonder Nibble magazine gave MultiScribe 5 apples - its highest rating.

Price: (excluding VAT)  
 MultiScribe ..... £59.00

# GRAPHWORKS

GraphWorks is the graphics program for AppleWorks.



GraphWorks has been developed to offer business graphics capabilities for AppleWorks Users. GraphWorks is a stand-alone program which directly accesses AppleWorks spreadsheet files and plots them as four graph types: bar, stacked-bar, line and pie charts.

Price: (excluding VAT)  
 GraphWorks ..... £79.00

### ProFILER 2.1 ProDos DataBase for Apple II computers

ProFiler 2.1 is a data manager/report generator which is intermediate in terms of power and ease of use between simple file systems such as Quickfile/ApplesWorks and complex, truly power databases such as dBaseII and Omnix.

The structure of ProFiler is a flat-file system with the ability to merge two files. It also provides a mail-merge facility with AppleWriter II, and will accept database files from AppleWorks.

ProFiler 2.1 has been designed for ease of use, is menu driven with help screens available at key points. It is programmed on a single floppy disk with hard disk transfer capabilities for increased storage and speed.

Key features are:  
 Maximum records per file: 64,000. (Subject to available space on your disk (floppy or hard disk)).

Maximum pages per record: 8 (16 in 40 column mode).

Maximum fields per record: 250.

Index fields per record: 3.

Search: Maximum of 10 search criteria per record. (Browse and/or report).

Report: Free-Form or columnar. Calculated fields on columnar report plus averages, counts and totals.

Mail-Merge: With AppleWriter II Version 2.0 (ProDos). (Use the Convert utility for Dos 3.3 version).

Import Data: Accepts AppleWorks' DataBase files directly. Will also accept text file input. (And can output as text file).

Price: (excluding VAT)  
 ProFiler 2.1 ..... £99.00

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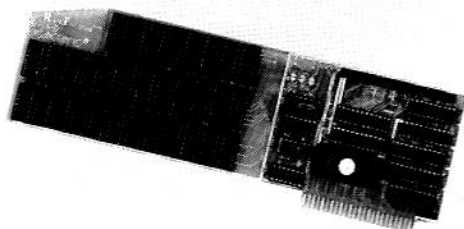
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Also available

# RAMFACTOR

Compatible with IIe  
and II+



## RAMFACTOR FOR APPLEWORKS ON THE II+

While RamWorks is the clear winner for the auxiliary slot of a IIe, RamFactor sets the standard for IIe main slots and the II+.

Like RamWorks and Z-RAM, RamFactor follows the Apple software standard. RamFactor also follows the Apple II Memory Expansion standard for Ram cards.

This permits the organisation of the memory into multiple work areas containing different programs and operating systems. It also permits limited expansion of AppleWorks 1.3 or later.

With RamFactor, you'll be able to instantly add another 256k, 512k or 1 Meg onto the main board of your IIe or II+.

And as it's socketed you can upgrade your RamFactor at any time.

Virtually all modern software is already automatically compatible with RamFactor: software such as AppleWorks, PinPoint, SuperCalc 3a, ProFiler, Catalyst 3.0 and more.

## PROGRAM FLIPPING

RamFactor can be organised into a maximum of nine partitions. Each partition functions as a separate RamDisk which may be configured for either ProDos, Dos 3.3 or Pascal 1.3. This enables you to switch between programs and operating systems at electronic speeds.

## APPLEWORKS POWER

RamFactor now includes software which enables AppleWorks to run on the II+.

So, with RamFactor you don't need any further software to run AppleWorks on your II+. And RamFactor expands AppleWorks as well:

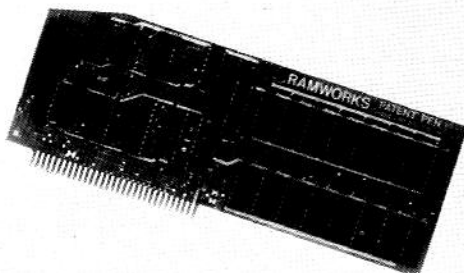
RamFactor gives AppleWorks a larger desktop, increases AppleWorks' internal memory limits so that the Word Processor can have 5,300 lines, and the database 5,300 records. Plus it also automatically loads AppleWorks into RAM and so accelerates AppleWorks by eliminating program disk access. It will also auto-segment large files across 2 or more floppy disks. It even provides the time and date on the screen with virtually any ProDos compatible clock.

Unlike RamWorks, however, the AppleWorks must be version 1.3 or greater. And you still require an 80 column card (for the II+ we recommend ViewMaster). You also require a 16k language card in Slot 0 (or the TransWarp accelerator in slot 0).

Prices: (excluding VAT)	
256k RamFactor .....	£239.00
512k RamFactor .....	£289.00
1 Meg RamFactor .....	£369.00

# RAMWORKS

Compatible with IIe



## RAMWORKS GOES UP TO 3 MEG

RAMWORKS is the sensational best selling memory card for the Apple IIe. Not only does RamWorks enhance and expand a vast array of other programs, it gives enhancements and expansion to AppleWorks that no other card can match or even come close.

## No wonder people say: RamWorks for AppleWorks!

RamWorks plugs into the Apple IIe auxiliary slot and functions EXACTLY like Apple's extended 80 column card. But with RamWorks you get more memory, 80 column text, AppleWorks enhancements for ALL versions of AppleWorks, plus room to grow without using more slots. A design so advanced there's a patent on it.

Key features include:  
(send for a more complete list of features, or see July or August issues of *Apple User*)

- Accelerates AppleWorks by eliminating disk access
- Increases AppleWorks Database to over 15,000 records
- Increases AppleWorks Word Processor to over 15,000 lines
- Increases AppleWorks Clipboard to 2000 lines or records
- Built-in AppleWorks printer buffer (for Super Serial Cards)
- Auto-segments large files so that files greater than disk capacity can be spread over two or more disks
- Expands ALL versions of AppleWorks - V1.0, V1.1, V1.2, V1.3 (and greater)
- Displays time and date on AppleWorks screen with any ProDos compatible clock
- Compatible with ALL IIe hardware (except Slot 3) including hard disks, Unidisk, Transwarp, Pro-App, modems etc, etc.

## PLUS EVEN MORE MEMORY:

RamWorks is now RamWorks III. And that means all the above features plus increased memory above 1 Meg. 1.5 Meg RamWorks and 3 Meg RamWorks are now available:

Prices: (excluding VAT)	
256k RamWorks .....	£219.00
512k RamWorks .....	£269.00
1 Meg RamWorks .....	£369.00
1.5 Meg RamWorks .....	£539.00
3 Meg RamWorks .....	£1299.00

## HARD DISK FITS MACINTOSH PLUS APPLE IIe AND APPLE IIc

Finding a reliable and affordable hard disk for your Apple computer is now a whole lot easier with the arrival of the Pro-App 10 and 20 Megabyte hard-disk systems.

The new Pro-App hard disk is fully compatible with Apple IIe, Apple IIc and Macintosh Plus. (Macintosh 128 and 512 compatibility coming soon).

The Pro-App uses the latest hard-disk technology to improve the compatibility between Apples and Macs. Further, it uses Apple's own Unidisk controller to eliminate memory conflicts on the IIc and so provide a reliable hard-disk.

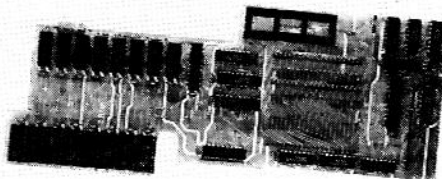
## Interfaces and operating systems:

- Macintosh Plus:** High-speed SCSI interface.
- Apple IIc:** Connects to the external disk drive port on IIc. IIc MUST be Unidisk compatible.  
Operating systems: ProDos, Pascal 1.3 & Dos 3.3
- Apple IIe:** Connects to a Unidisk controller card.  
Operating systems: ProDos, Pascal 1.3 & Dos 3.3

The Pro-App follows the current Apple styling and is supplied with cables, manuals and software. (You may need a controller card for the IIe.)

Prices: (excluding VAT)	
(Specify cable kit required/computer)	
10Mb Hard Disc System .....	£795.00
20Mb Hard Disc System .....	£995.00
IIe UniDisk Controller Card .....	£49.00
IIc UniDisk Control Upgrade Chip .....	£19.00

## THE 1 MEGABYTE IIc IS HERE WITH NEW Z-RAM II



Z-RAM is the supreme champion when it comes to expanding the IIc and making it more powerful. But now Z-RAM II is here, and that adds a whole EXTRA MEGABYTE to your IIc.

AppleWorks is expanded to a desktop size of 800k (that's nearly 16 times bigger than a standard IIc), PLUS you can run CP/M programs like dBase II and Wordstar.

Or you could have a half-Meg AppleWorks desktop, with a quarter-Meg RamDisk set aside to store accessories and communications such as PinPoint and its pop-up Speller, plus a 50,000 word dictionary plus a few files. And all this running at electronic speed on a IIc with no need for an external disk drive. (And there's a 64k (max) print buffer included for AppleWorks). Z-RAM is fully compatible with Pro-App Hard Disks.

You don't know how good a IIc is, until you've seen it with Z-RAM.

Z-RAM installs easily and securely inside the IIc in less than half an hour.

Installation is easy. Full, clear and precise instructions show you how and all you need is a screwdriver. (Absolutely no soldering).

For AppleWorks expansion - see details under RamWorks (or see July or August issues of *Apple User*).

Prices: (excluding VAT)	
256k Z-RAM II (with CP/M) .....	£359.00
512k Z-RAM II (with CP/M) .....	£419.00
768k Z-RAM II (with CP/M) .....	£459.00
1 Meg Z-RAM II (with CP/M) .....	£599.00
640k IIc	
(IIc with 512k Z-RAM fitted) .....	£899.00
1152k IIc	
(IIc with 1 Meg Z-RAM fitted) .....	£1059.00

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## Economic data on tap

THE new Wecon Data-Base program from World Economics for the Apple II series is designed to give easy access to economic data and provide standard economic tables.

The tables can be varied in several ways by choosing a number of different options – varying the selection of years, obtaining percentage changes over a year, converting US dollars, and changing data to the form of an index.

Economic data can be built up in files on the user's discs, or supplied by World Economics.

Companies can include their own production and sales information in the standard format so that these figures can be accessed in the form of a table comparable to the country information.

On each Wecon country disc there are about 40 different series which include gross domestic product, consumers expenditure, exports, imports, consumer price index, exchange rate and production of main items. Information is in the form of annual figures.

The Wecon program costs £320. Country discs containing economic data on the UK, US, Japan, France and West Germany cost £30 each.

● *World Economics, 40 Bowling Green Lane, London EC1R 0NE. Tel: 01-278 0333.*

## More storage for Mac Plus

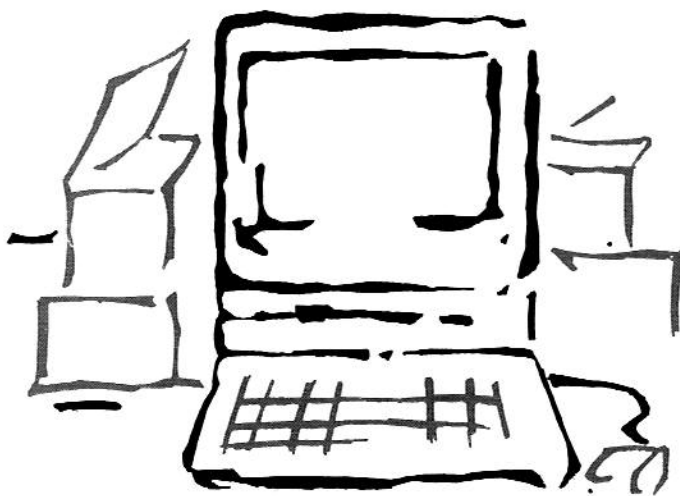
TWO ranges of SCSI technology-based products for the Macintosh Plus have been announced by Rodime.

The first is an add-on box offering 20 and 45 Mb of external storage. The second comprises drives of similar capacity for internal mounting in the Macintosh Plus.

The Rodime 20 Plus and 45 Plus are Winchester disc drive subsystems with 20 and 45 Mb of formatted storage respectively.

The subsystem contains the Rodime 3.5in Winchester disc drive together with power supplies, fan, drive selector, and offers a complete arbitrating solution for external storage requirements based on the Small Computer System Interface.

Rodime 20 I Plus and 45 I Plus use the same Rodime Winchester



disc drives but are mounted in a specially designed frame complete with power supply and fan.

Both new ranges operate via the SCSI port and Rodime claims they are up to ten times faster than the Macintosh floppy drive and up to six times faster than hard disc drives that use the floppy port.

● *Rodime Europe, Nasmyth Road, Southfield Industrial Estate, Glenrothes, Fife KY6 2SD. Tel: 0592 774704.*

## Comms for network

DISTRIBUTOR P & P Micro has announced the availability of HyperNet, a communications package from General Computer which works with the AppleTalk network.

HyperNet gives access to HyperDrive's 10 or 20 Mb internal Winchester hard disc. Any Macintosh in an AppleTalk network can read, edit or transfer files to and from HyperDrive.

The package allows both HyperDrive and non-HyperDrive Macintoshes to work together, and runs Macintosh software without modification. Price £250.

● *P & P Micro Distributors, Todd Hall Road, Carrs Industrial Estate, Haslingden, Rossendale, Lancashire BB4 5HU. Tel: 0706 217744.*

## Memory expansion

NEW memory expansion system for the Apple II series, Flipper from Cirtech, comprises one full Mb of memory controlled by a RamDesk manager.

RamDesk uses a Macintosh-like window environment to enhance the capabilities of the Flipper memory card.

It allows the user to choose

from one large area of memory or several smaller ones, and switch between programs using either a mouse or the keyboard without rebooting from disc.

Flipper is compatible with all Prodos, Pascal 1.3, Dos 3.3 and Cirtech CP/M Plus based programs, and comes with support for Pascal 1.1/1.2 and Softcard CP/M 2.23 and 2.20b.

The system expands the Appleworks DeskTop to 1012k and the number of database records to 4,200. Price £350.

● *Cirtech UK, Currie Road Industrial Estate, Galashiels, Selkirkshire TD1 2BP. Tel: 0896 57790.*

## Extended desktop

A SERIES of new programs which extend and complement the Pinpoint desktop accessories and Spelling Checker software for the Apple IIc, enhanced IIe 65002, and IIGS is available from Bidmuthin Technologies.

Infomerge is a full featured mail merge and reporting program for Appleworks which stands alone and accesses database files and word processor documents for full merging. Features include selective searching of databases and multiple calculated fields. Price £79.

Point-to-Point is a professional communications program which includes auto dial/answer, online printing, text editor, print formatting, online file handling, clock support plus a powerful micro language with 14 commands.

It handles Appleworks files as well as text files, and is the only communications program which uses all eight Pinpoint desktop accessories. Price £119.

Document Checker is companion to the Pop-Up spelling checker for Appleworks. It

can also spell check any Prodos text files and can be used with other word processors such as Applewriter. Price £99.

Pinpoint Toolkit provides the means to customise or write desktop accessories and includes Pop-Up Prodos filer. Price £49.

Keyplayer is a macro program for Appleworks compatible with Pinpoint. It installs as a Pinpoint desktop accessory and is the only macro program which works with Appleworks and Pinpoint desktop accessories at the same time. Price £49.

● *Bidmuthin Technologies, PO Box 264, Harrow, Middlesex, HA3 9AY. Tel: 01-907 8516.*

## Drawing utility

A NEW object-oriented drawing program for the Macintosh has been released by Heyden & Son.

Cricket Draw incorporates a powerful PostScript editor with commands such as Search and Replace and colour generation from a palette.

Other features include starbursts, elliptical arcs, freehand drawings, Bezier curves, log and linear grates, diamonds and rectangles.

Users can create blocks of text similar to MacWrite, manipulate any object and text – by drag, reflect, fountain, tilt and rotate, shadow and resize commands – select line style, border, fill, and ruler varieties, and position text along any path. Price £295.

● *Heyden & Son, Spectrum House, Hillview Gardens, London NW42JQ. Tel: 01-203 5171.*

## Powerful spreadsheet

THE power of Lotus 1-2-3 is brought to the Apple IIe and IIc by VIP Professional, a new generation spreadsheet from Bidmuthin Technologies.

It adds a full-blown Macintosh-style interface to the integrated spreadsheet, database and graphics of 1-2-3. Mouse owners can use pull down menus, scroll bars, cell-pointing and other Macintosh features.

VIP Professional can import files from Appleworks and use Lotus files and templates. It can address up to 4 Mb of memory. Price £249.

● *Bidmuthin Technologies, PO Box 264, Harrow, Middlesex HA39AY. Tel: 01-907 8516.*

---

**William Seabrook offers  
his safest solution for  
altering Dos to incorporate  
new functions**

---

# Extra commands for your Apple

ANYONE who has tried to implement a Basic program that was originally written for another machine on the Apple – or vice versa – will have soon encountered problems, because a verb supported in one dialect of the language is absent or has a completely different syntax in another.

It is normally not too difficult to find your way around this, but even the most partisan Apple owner must at one time or another have looked with envy at some facilities available on other implementations of Basic. This article, in looking at one perhaps rather trivial example, PLACE, considers some methods of adding your own commands into the Apple vocabulary.

The PLACE command emulates the function of the Basic verb LOCATE or AT. Its function is to position the cursor at a location given by the coordinates of the

two parameters, typically before a PRINT, INPUT or GET statement. The first parameter is in the range 0-23 and gives the line number, the second between 0-39 (or 79 if you have an 80 column card active) indicating the column that is a combination of VTAB and HTAB.

Before we look at the code to do the job we have a small problem to solve. Having written a new command how do we tell the system the function exists and where the code resides? I know of three possible solutions:

- Use the ampersand (&) token.
- Amend the keyword list within Dos substituting the new command name for one you no longer need, that is VERIFY.
- Amend Applesoft.

I know that each will work, because as PLACE has developed it has used each of these options in turn. However they all have disadvantages, and it is really a question of which method best suits your needs, listings are given for the first and last options and but for reasons that will become clear, I have not included code for the second solution.

If you are familiar with the RENUMBER facility you will have already seen an exam-

ple of this option. Bytes \$03F5 to \$03F7 (1013 to 1015) may be used to point to a routine to be obeyed when the interpreter encounters an ampersand (&) within a Basic program.

For example:

```
POKE 1013,76 : POKE 1014,88 : POKE 1015,252
```

will clear the screen if you now type &. These three POKES cause an unconditional branch to \$FC58 which is the code for the HOME command.

---

## Disadvantages

Although this is a convenient and powerful method of overcoming the problem, it has two disadvantages. In the first place once you have set & to branch to one item of code you cannot use it for another purpose, so for instance RENUMBER can not be called via this hook. Secondly, a listing of a program using this facility does not make its meaning very clear without a few rem statements. For example to move to 13,8 the syntax will be &13,8.

However if you are happy with these restrictions this is by far the safest solution. You implement PLACE on your system by running the program in Listing 1. To arrange for the command to be available all you need to do is incorporate this code in your Hello program together with:

```
65 POKE 1013,76 : POKE 1014,223 : POKE 1015,188
```

which, of course, is a branch to our new code.

Dos is loaded into ram, which means you can, should you wish, actually alter code and thus the way it works. When you type INIT the image of Dos resident in ram at that time will be written to the new disc, so any changes you have made will be available the moment the system is rebooted from that disc.

However this needs a great deal of care, as it is very easy to corrupt Dos and render your disc unusable. So it is well worthwhile keeping at least one version of standard Dos on a protected disc, and avoiding leaving an unprotected disc in a drive while "improving" Dos.

---

## New functions

That said, altering Dos is a very common and convenient way of incorporating new functions. Between SA884 and SA908 is a table of keywords for all the Dos commands, and it is fairly straightforward to change the entries in this list. For example try:

```
POKE 43239,87 : MAXFILES 3
```

and you see ?SYNTAX ERROR. Why? Well you have changed the keyword table entry for MAXFILES to read WAXFILES so:

```
WAXFILES 3
```

will work. (To reset Dos: POKE 43239,77.)

For our purposes we could sacrifice VERIFY and amend its table entry to read PLACE, then specify the entry point to our routine in the command handle entry-point table (\$9D1E to \$9D55) by altering \$9D54 and \$9D55. However there is a third table, and this presents something of a problem.

The command valid keyword table, \$A909 to \$A940, indicates which parameters can be included within a command and keywords which may be supplied. Unfortunately none of the Dos commands uses two numeric parameters so it is not possible to utilise a valid keyword entry for a command of the form PLACE 10,10 as we require.

In an attempt to solve this I included a "trap" when Dos encountered an error in the parameters permitted for a command, identified if the command was PLACE by checking the Y-register and returned to Basic.

Although this worked quite well it had become a fairly major change to Dos, and seemed unnecessarily complicated. Further as with all Dos commands called within a program, to use PLACE by this method the code had the, to my mind, rather ugly format:

```
10 PRINT CHR$(4);"PLACE 10,2"
20 PRINT "LINE 2"
```

If you wish to use this type of approach I would recommend using commands that either have only one parameter or none at all, and preferably would normally only be called outside a program, perhaps a HARDCOPY screen dump type command.

Further background about this method can be found in the excellent book Beneath Apple Dos by Don Worth and Pieter Lechner.

### Command axed

Unlike Dos, Applesoft is firmly in rom and so unamendable, or is it? If you have a language card or an Apple IIe you can copy Applesoft across and inform the system to use that version, so allowing you to make any changes you wish (see the article by Peter Gory in *Apple User* April 1985). As with dos above, the same method can be used to amend the keyword table, this time it spreads from \$D000 to \$D25F.

The command I elected to axe was STORE for two reasons. I have never, nor do I imagine I ever will, use cassette-based commands (does anyone these days?), and STORE has the same number of letters as PLACE. The method is rather simpler than for dos, first overwrite the entry for STORE with the letters PLACE (\$D185 to \$D189) then adjust the branch location (\$D050-\$D051).

Listing I is the new routine and Listing II the utility to copy and amend Applesoft to point to the PLACe code. As the generated code both reside within dos (albeit occupying two unused areas) if a new disc is subsequently INITIALISED it will

```
10 HOME
20 VTAB 10: PRINT "LOADING
'PLACE' CODE VIA
MONITOR": PRINT : PRINT :
PRINT
30 LET CODE$ = "BCDF:20 46
E7 A5 51 C9 00 D0 12":
GOSUB 500
40 LET CODE$ = "BCE8:A5 50
C9 18 B0 0C E0 28 B0 08":
GOSUB 500
50 LET CODE$ = "BCF2:86 24
85 25 20 22 FC 60 4C C9
DE": GOSUB 500
60 VTAB 20: HTAB 11: PRINT
"CODE INSTALLED"
70 END
500 LET CODE$ = CODE$ + " N
D9C66"
510 FOR I = 1 TO LEN
(CODE$)
520 : POKE 511 + I, ASC (
MID$(CODE$,I,1)) + 128
530 NEXT I
540 POKE 72,0
550 CALL - 144
560 PRINT LEFT$(CODE$,
LEN (CODE$) - 7)
570 RETURN
```

Listing I

```
10 HOME
20 VTAB 8: PRINT "LOADING
CODE TO COPY/AMEND
APPLESOFT": PRINT : PRINT
: PRINT
30 LET CODE$ = "B6B3:A2 00
86 3C 86 42 CA 86 3E 86
3F": GOSUB 500
40 LET CODE$ = "B6BE:A9 D0
85 3D 85 43 A0 00 8C 81
C0": GOSUB 500
50 LET CODE$ = "B6C9:8C 81
C0 D8 20 2C FE A2 00":
GOSUB 500
60 LET CODE$ = "B6D2:8E 83
C0 8E 83 C0 BD EE B6 30
06": GOSUB 500
70 LET CODE$ = "B6DD:9D 85
D1 E8 D0 F5 A9 DE 8D 50
D0": GOSUB 500
80 LET CODE$ = "B6E8:A9 BC
8D 51 D0 60 50 4C 41 43
C5 00": GOSUB 500
90 VTAB 22: HTAB 11: PRINT
"CODE INSTALLED"
100 END
500 LET CODE$ = CODE$ + " N
D9C66"
510 FOR I = 1 TO LEN
(CODE$)
520 : POKE 511 + I, ASC (
MID$(CODE$,I,1)) + 128
530 NEXT I
540 POKE 72,0
550 CALL - 144
560 PRINT LEFT$(CODE$,
LEN (CODE$) - 7)
570 RETURN
```

Listing II

automatically be available on reboot. However to allow the code to be used a:

```
CALL 46771
```

is required, and it is probably tidiest to incorporate the above line somewhere in your Hello program.

Anyone who has not seen this method of loading a binary image into an Apple might be a little confused by these listings, but actually they are very straightforward. Most code in assembler is entered via the monitor by a CALL-151 and then a series of instructions of the form:

```
BCDF:20 46 E7 A5 51 C9 00
```

and so on. These programs attempt to simplify the task by letting Basic do the work for you. CODE\$ is set to the

command you would normally give the monitor, the subroutine at 500 then passes the values into the input buffer before calling the monitor to make the actual changes, and then returning control to Basic (D9C6G).

Listing III is the assembler listing for both modules lines 66 to 80 refer to Listing I and lines 29 to 62 to Listing II.

The PLACE routine starts by calling the Applesoft subroutine GETNUM (\$E746) which reads the input buffer and evaluates the parameters putting the first into LINNUM (\$50 & \$51) and the second in the X register. The high order byte LINNOH will be zero unless the first parameter exceeds 255, which is obviously invalid, so a branch is made to ERROR. LINNOL is now examined and control passed to ERROR if this is >

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<equal to or greater than 24.

The second parameter is checked to ensure it is less than 40 and then the two values stored in CV (\$25) and CH (\$24) before calling VTAB (\$FC22) to move the cursor to these coordinates. ERROR returns to Basic via (\$DEC9) to print the Syntax error message.

MOVE/AMEND uses the monitor MOVE command to copy Applesoft on to the language card (cf Peter Gorry's routine). On entry to MOVE, A4 (\$42 & \$43) must contain the destination address, A1 (\$3C & \$3D) the starting source address and A2 (\$3E & \$3F) the ending source address.

DESEL and SELECT re special switch locations which allow the language card to be written to and activated simply by

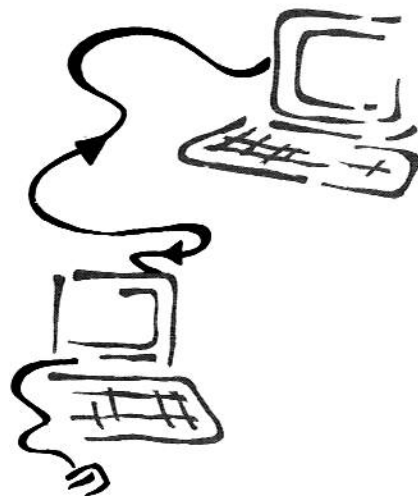
writing to them twice. The final section of code, lines 51 to 62, makes the required changes to our own version of Applesoft. First the command keyword table is amended so that STORE becomes PLACE and finally the start address of the new code substituted.

As written, any attempt to specify a horizontal position beyond column 39 will cause a Syntax error. To allow positions 40-79 to be specified when an 80 column card is active it is necessary to POKE 48367,80.

I would suggest it is best to do this when you turn the card on:

```
PRINT CHR$(4);"PR E3" : POKE 48367,80
```

To revert to 40 columns, POKE 48367,40. □



```

]
SOURCE FILE: PLACE CODE
0000: 1 *****
0000: 2 *
0000: 3 * PLACE COMMAND *
0000: 4 *
0000: 5 *****
0024: 6 CH EQU $24 ;HTAB DISPLACEMENT
0025: 7 CV EQU $25 ;VTAB DISPLACEMENT
003C: 8 A1L EQU $3C ;START SOURCE LO
003D: 9 A1H EQU $3D ;START SOURCE HI
003E: 10 A2L EQU $3E ;END SOURCE LO
003F: 11 A2H EQU $3F ;END SOURCE HI
0042: 12 A4L EQU $42 ;DESTINATION LO
0043: 13 A4H EQU $43 ;DESTINATION HI
0050: 14 LINLO EQU $50 ;1ST PARA LO
0051: 15 LINHO EQU $51 ;1ST PARA HI
C001: 16 DESEL EQU $C001 ;RAM DESELECT SW
C003: 17 SELECT EQU $C003 ;RAM WRITE SW
D050: 18 STOREL EQU $D050 ;ADDR STORE LO
D051: 19 STOREH EQU $D051 ;ADDR STORE HI
D185: 20 STORE EQU $D185 ;= "STORE"
DEC9: 21 SYNTERR EQU $DEC9 ;PRINTS 'SYN ERROR'
E746: 22 GETNUM EQU $E746 ;READ 2-BYTE NO
FC22: 23 VTAB EQU $FC22 ;VTAB TO A-REG
FE2C: 24 MOVE EQU $FE2C ;MOVE A1-2 TO A4
0000: 25 *
0000: 26 * MOVE APPLESOFT TO CARD
0000: 27 *
----- NEXT OBJECT FILE NAME IS PLACE CODE.OBJ0
B6B3: 28 ORG $B6B3
B6B3:A2 00 29 LDX #0 ;LO BYTES FOR
B6B5:86 3C 30 STX A1L ;SOURCE/DEST
B6B7:86 42 31 STX A4L ;SET TO ZERO
B6B9:CA 32 DEX ;SET LAST ADDR
B6BA:86 3E 33 STX A2L ;OF MOVE TO
B6BC:86 3F 34 STX A2H ;$FFFF
B6BE:A9 D0 35 LDA #D0 ;HI BYTES
B6C0:85 3D 36 STA A1H ;FOR SOURCE/DEST
B6C2:85 43 37 STA A4H ;TO $D0
B6C4:A0 00 38 LDY #0 ;TWO WRITES TO
B6C6:8C 81 C0 39 STY DESEL ;LANG CARD SWITCH
B6C9:8C 81 C0 40 STY DESEL ;ENABLE WRITE

B6CC:D8 41 CLD ;SET DECIMAL MODE
B6CD:20 2C FE 42 JSR MOVE ;D000<D000.FFFFM
B6D0:A2 00 43 LDX #0 ;TWO WRITES TO
B6D2:8E 83 C0 44 STX SELECT ;THIS SWITCH
B6D5:8E 83 C0 45 STX SELECT ;ENABLE READ/WRITE
B6D8: 46 *
B6D8: 47 * AMEND APPLESOFT TO
B6D8: 48 * REPLACE STORE WITH
B6D8: 49 * PLACE
B6D8: 50 *
B6D8:8D EE B6 51 LOOP LDA PLACE,X ;TAKE NEXT CHAR
B6DB:30 86 52 BMI OUT ;0 = END
B6DD:9D 85 D1 53 STA STORE,X ;OVERWRITE "STORE"
B6E0:EB 54 INX ;WITH "PLACE"
B6E1:D0 F5 55 BNE LOOP ;ALWAYSTAKEN
B6E3:A9 DE 56 OUT LDA #>START-1 ;LO BYTE OF
B6E5:8D 50 D0 57 STA STOREL ;PLACE CODE
B6E8:A9 BC 58 LDA #<START ;HI BYTE OF
B6EA:8D 51 D0 59 STA STOREH ;PLACE CODE
B6ED:60 60 RTS ;PLACE NOW AVAILABLE
B6EE:50 4C 41 61 PLACE DCI "PLACE"
B6F1:43 C3
B6F3:00 62 DFB #00
B6F4: 63 *
B6F4: 64 * CODE FOR PLACE COMMAND
B6F4: 65 *
----- NEXT OBJECT FILE NAME IS PLACE CODE.OBJ1
BCDF: 66 ORG $BCDF
BCDF:20 46 E7 67 START JSR GETNUM ;READ PARAS
BCE2:A5 51 68 LDA LINNOH ;IF SET NO
BCE4:C9 00 69 CMP #00 ;> 255
BCE6:D0 12 70 BNE ERROR ;SO FAIL
BCEB:A5 50 71 LDA LINLOL ;CHECK 1ST PARA
BCEA:C9 18 72 CMP #18 ;>= 24 ?
BCEC:80 0C 73 BCS ERROR ;SO FAIL
BCEE:E0 28 74 CPX #20 ;2ND PARA
BCF0:80 08 75 BCS ERROR ;>= 40 FAIL
BCF2:86 24 76 STX CH ;SET HORIZONTAL
BCF4:85 25 77 STA CV ;AND VERTICAL
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# BACK ISSUES

Catch up on articles you may have missed. Back issues from January 1985 are still available at £1.25.

## January 1985

John Sculley's View of 1985 - Games (Geiffing Adventure, Story Maker, Stellar 7) - Application: Apples down on the Farm - Cloze Technique (Plus review of Clozemaker) - World of the 6809 Part II: Flex Operating System - Apple II v ITT 2020 - Reviews (Ormbeta Compact Accounting System, CGL Half-Height Drive) - Apple IIe and IIc compatibility - Handling Interrupts and large arrays in Pascal - Reporter's view of Macintosh - PLUS News, New Products, Appletips and Letters.

## June 1985

Apples keep track of music companies and Macintosh designs record sleeves - Fun and Games (Music Construction Set, Song Writer, Music Readiness) - Pascal Tutorial: start of a new series looks at records - Reviews (Tick-Tack translation package for Apple II+/Ile, Musicworks for Macintosh) - Graphics (three books reviewed) - Mugraph: light dependent resistors making sounds - Ampersand: routines for making music and sounds from Basic - PLUS all the latest News, New Products and Readers' Letters.

## October 1985

&DOSFile: start of a new series - spreadsheet for home budgets - Apples in a Hertfordshire college - using Page 3 routines with a language card - Graphics DIY Part XVI - Reviews (Ramworks extended 80-column card, Computereyes and Magic digitisers) - add a factorial function to Basic - Pascal tutorial: assembly language programming - lower case Pascal - Fun & Games (Mix and Match, Spotlight, Instant Zoo, Ernie's Quiz) - free sectors on disk - PLUS News, New Products, Letters and Appletips.



## May 1986

Making of a monster Macintosh - Fun & Games (Ultima IV, Spellbreaker, Captain Goodnight) - Scrolling hi-res pages - Making the most of Wordstar - Spreadsheet: presenting balance sheets in visual form - ProDOS Part 2 - Reviews (Supercharged Apple II with Snapshot Shuttle and Cirtech Flipper, Jeeves for desktop facilities) - DOS amendment to display free sectors - Application! Apples in use in a technical college - PLUS all the latest Apple news and your letters.

## February 1985

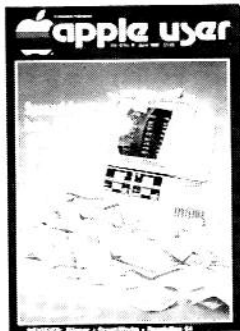
Steve Wozniak talks about Apple II developments - Quicksort algorithm in Fort and Basic - Games (Deadline, Witness, Planetfall, Enchanter, Scorerer, Expedition Amazon) - Graphics DIY part XI - Targeting with a spreadsheet - Apple to Apple file transfer - Miners' strike resolved by computer? - Chemical formulae on Lisa - two Macintosh books reviewed - World of the 6809 Part III - Software reviews (Sales Edge and Management Edge) - Application: book publishing - Split screen techniques - PLUS News, new products and letters.

## July 1985

Apples at the heart of Papworth Hospital - Fun & Games (Secret of Arendarvon Castle, Antagonists, Fahrenheit 451, Rendezvous with Rama, Amazon, Shadowkeep, Adventure Writer) - Pascal Tutorial: using files of records - Binary file load utility - Using extended 80 column card memory - Macintosh (Flowcharting, Preview of Guide) - Book reviews (Business Basic, Epson printers) - Reviews (FingerPrint and Printerrupt) - Graphics DIY Part XIV - DOS patches - PLUS News, New Products, Letters and Appletips.

## November 1985

Graphics Library final part plus disc offer - MEMDOS operating system - calculating duty rosters with a spreadsheet - Macintosh: reviews of Microsoft's Excel and P&P's fat Mac upgrade - ProDOS gives Applesoft new lease of life - Review of Cirtech CP/M Plus system for IIc - Apple word processors compared with MS-DOS counterparts - &DOS-FILE: two more routines added - Pascal tutorial: parameter passing - extra tracks on discs - Fun & Games (Suspect, Karateka, Dazzle Draw) - PLUS News, New Products and Letters.



## June 1986

Hi-res Picture Editor Part 1 - Fun & Games (Carmen Sandiego, Newsroom, Scamper) - Spreadsheet: Check your electricity bills - Reviews (Graphworks, Resolution 64, Flipper) - Renumber long programs using Exec - An easy way to edit Programs with a Word Processor - Hangman with BIG letters: Ideal for the disabled and poor sighted - Word Squares Generator - ProDOS manuals revisited - Application: Apples in newsagents' shops - PLUS all the latest Apple News, New products and your letters.

## March 1985

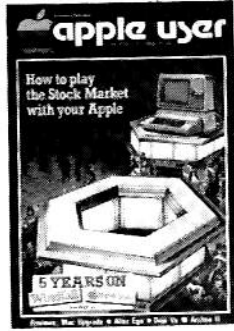
Circle drawing algorithms - Super Pilot System Log - Summarising data with VisiCalc - Competitive estimating with Multiplan - Graphics DIY part XII - Ampersand editing - Macintosh (MacTerminal, Mouse Stampede, optical mouse, plus Mac book) - Reviews (Merl modem, Intec hard drive, Vision 128/256 card, the Editor, plus three educational packages) - Fun and Games (Xyphus, Fighter Command, Picture Writer) - PLUS News, New products, letters and Appletips.

## August 1985

Spreadsheet secrets shared - Apple IIIs provide power behind computer bureau - Graphics DIY Part XV - Wordstar scrolling problems solved - Descartes data processing program generator - Fun & Games (Winnie the Pooh, Mickey's Space Adventure, Print Shop, Hitchhiker's Guide to the Galaxy) - Mac at the centre of a publishing revolution - Pascal Tutorial: random access files - Review of Micro Planner for Macintosh - Restore to any Data line - PLUS News, New Products, Letters and Appletips.

## December 1985

Hardware project to improve video output - Pascal Tutorial: bomb-proofing programs - &DOSFile: data compression techniques - date calculations with Multiplan - Application: Apples in an academic household - Review of DDTe debug card - Macintosh: reviews of MacType and Mac the Knife - Fun & Games (Sword of Kadash, Cutthroats) - Sliding block puzzle in Metacraft's Forth - Apple User Games Disc offer - PLUS News, New Products and three pages of readers' letters.



## July 1986

Word Square: Answer to last month's puzzle - Spreadsheet: Chris Burridge creates a model based on Stock Market securities - Fifth birthday review - Fun & Games (Alter Ego, Déjà Vu, The Adept) - CP/M: Beat its hidden areas - Thin Mac into Mac-Plus - Application: Engineering students using Apple IIs - DOS update for lower case commands - Retrieving Pascal disc directions - Part 2 of Paul Sinnett's hi-res picture editor program - IIc graphics dump - PLUS all the latest Apple news and your letters.

## April 1985

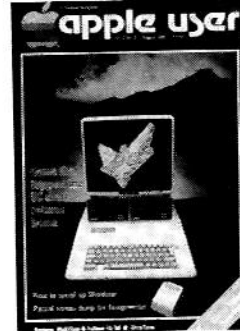
Apples in the dental surgery - Adding graphics commands to Applesoft - Using the VBLANK signal - Getting to grips with software - Reviews (Speed-Demon card, PFS File/Report for Macintosh, W-P-LAB) - Weather forecasting with Mac - Pascal File's D command - Fun and Games (La Triviata, Design Your Own Home: Architecture, Interiors, Landscape) - Books (Appleworks, VisiCalc, Machine level programming) - Index to Windfall Vols. 1 and 2, PLUS News, New products, Letters and Appletips.

## September 1985

Appleworks spreadsheet eases house purchase calculations - Pascal Tutorial: Units - Macintosh: Review of Lotus Jazz - Applesoft line by line comparator - Graphics dumps via a Super Serial card - Mac Publishing: Review of three page layout packages - Kitchen design based on Apple IIe - Choosing educational software - Bomb-proof input routines - Fun & Games (Skyfox, Wishbringer, Rescue Raiders) - Book reviews (Visicalc, Accounting software) - PLUS News, New products, letters and Appletips.

## January 1986

Spreadsheet model for sales forecasting - Pascal tutorial: speed-up techniques - Fun & Games (Colouss Chess 4.0, One Man Band) - Application: how a shopkeeper uses an Apple IIc - Reviews (Lawtant disk controller card, Lemi Midi interface) - Heapsort in Fort and Basic - Macintosh reviews (Crunch, Mac +II) - Duodisk write protect switch hardware project - &DOSFile: expansion and compression - Index to Volume 5 - PLUS News, New Products, Appletips and Letters.



## August 1986

Reviews (Expand the II's capacity with MultiRam, Full-text, New Zealand-derived word processor) - MicroLink update - Part 3 of Paul Sinnett's hi-res picture editor program - Fun and Games (Elite, Chess, Balance of Power, Bond's Tale) - Spreadsheet: How to get wealthy on the Stock Market, Part II - Pascal: D. Jones' dump for Imagewriter, J.P. Lewis grapples with Boolean logic - Using UltraTerm more fully - CP/M: Automate Wordstar - PLUS all the latest Apple news and lots of your letters.

## May 1985

Sports Day runs smoothly w. Apples - Graphics DIY Part 2 (pie charts) - Reviews (I Workbench, Macputer I Copytext, Omnis 2 on Macintosh, seven Logo books) - RWTS explained and demonstrated with a disc verify routine - protecting programs from Copy - Pascal (directory access from within programs) - E search in Fort and Basic Reaction Timer - Apples Hungary - Fun & Games (Srr Shopper, Plantin' Pal, Mi Cookbook) - PLUS News, N products, Letters and Applet



## February 1986

Hi-res overlay utility - Pa tutorial: first look at dyne memory usage - Hardw build an interface for Snap video RAM camera - Application: Apples at home in century house - &DOS database and form generator Reviews (Cirtech and Ty printer cards) - Macini (reviews of Microsoft File Ensemble) - Fun & Ga (Seven Cities of Gold, Adver Construction Set, The Pay-C Using Text Page 2 - PLUS N New Products, Letters, Appletips.



## September 1986

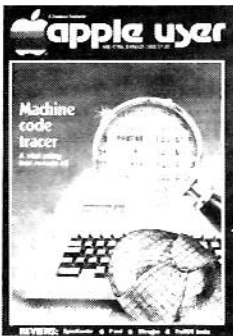
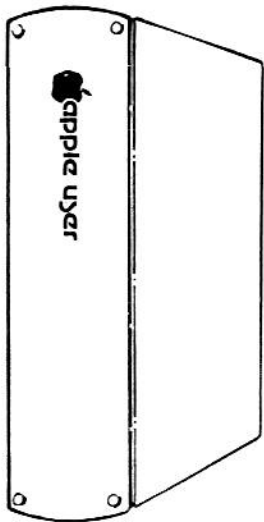
Graphics: Print Shop expansion - Game: Brick Shoot C Utilities (Simplify graph plotting, date stamp IIc files formulae with Practical II) and Games (Ballyhoo, Oo Clip Art for Newsroom Ultima II) - MicroLink up Spectagram: Colour for Apple II+ - Perfect pitch Guitar Tuner - Reviews: comprehensive Interface System Acqsoft for laboratory Pinpoint, Cirtech's 280 and CP/M Plus) - PLUS latest Apple news, New pr and your letters.

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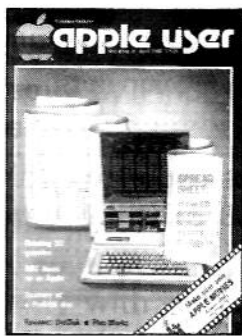
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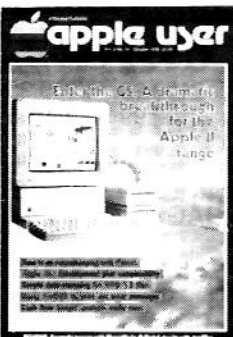
### March 1986

Pascal tutorial: dynamic memory usage Part 2 - Fun & Games (Transylvania, Ring Quest, Crimson Crown) - CP/M: PIP patch to enable repeated commands - &DOSFile: RAMdisk function - ProDOS: four books reviewed - Spreadsheet: useful miles-per-gallon calculator - Comms: budget equipment interfaced to Apple Part 1 - Reviews (Speed-Loader, P-trail - Macintosh (review of Ultraplant) - Machine code step-by-step tracer utility - Applesoft, lower case input routine PLUS News, New Products and Letters.



### April 1986

Pascal tutorial: Tips and books - Fun & Games (Mac Wizardry, Brataccas, Enchanted Scepters and Airborne) - Comms: budget equipment interfaced Part 2, software to simulate a simple teletype terminal - Spreadsheet: annual salary budgets - Graphics: machine code routine to rotate 3D wire frame images - Apples applied to slide production - Reviews (Apple's 3.5in Unidisk Plus-Works and BBC Basic running under CP/M) - Organisation of a ProDOS disc Part 1 - PLUS all the Apple news, new products and your letters.



### October 1986

Reviews: The new Apple II GS, the Macroworks utility for Appleworks, circuit design with Logimac, Your Best Interest (book) - Utilities: Mousekeeping with Pascal, ProDOS error messages, Date-stamping DOS 3.3 files, Handling dates - Fun & Games: Trinity, The Hobbit, Stickers, MacGolf - MicroLink Update - Game: Space Cargo (listing) - Business: How to prepare Cash Flow Budgets - Hardware: Installing enhanced and standard roms in the IIe - PLUS all the latest Apple news, new products and your letters.



### November 1986

Reviews: Peanut external drive for the IIc - MacTel: the Macintosh Bulletin Board - Switchback: An American only answer to roms problem of the IIe - More on the Ultraterm - Apple UCSD Pascal 1.3 - Utilities: ProDOS system file finder, HP-res picture shrinker - Pascal Tutorial: - Graphics: - Fun & Games: Science Toolkit, MacNooga Choo-Choo, Leather Goddesses of Phobos, Theatre Europe - CP/M: New series - Desktop Publishing: It's growth is examined - Game: Dodge it - PLUS all the latest Apple news.

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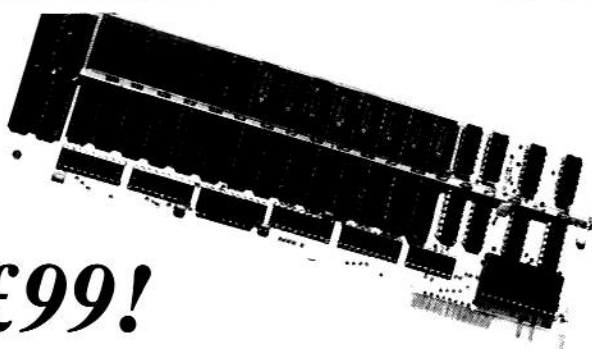
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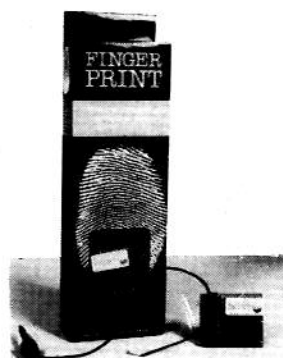


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