



# Apple User

A Database Publication

Vol. 7 No. 12 December 1987 £1.50

Budget-priced Christmas software

Desktop publishing: Award-winning designs

Prodos patches for Apple family

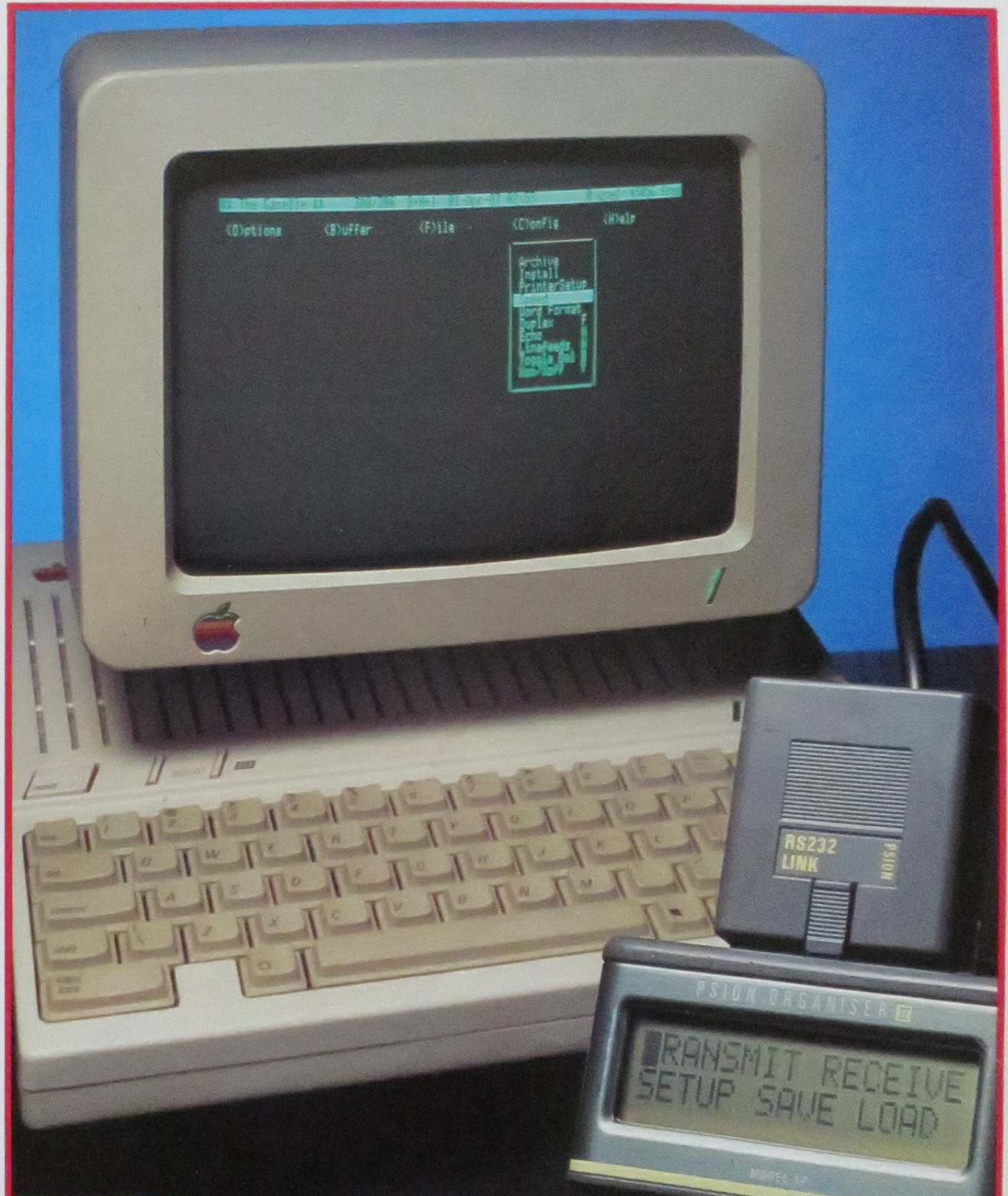
How to create your own Macintosh font

Plotter programming: Design and debugging

Make colour come alive on the IIs

## REVIEWS

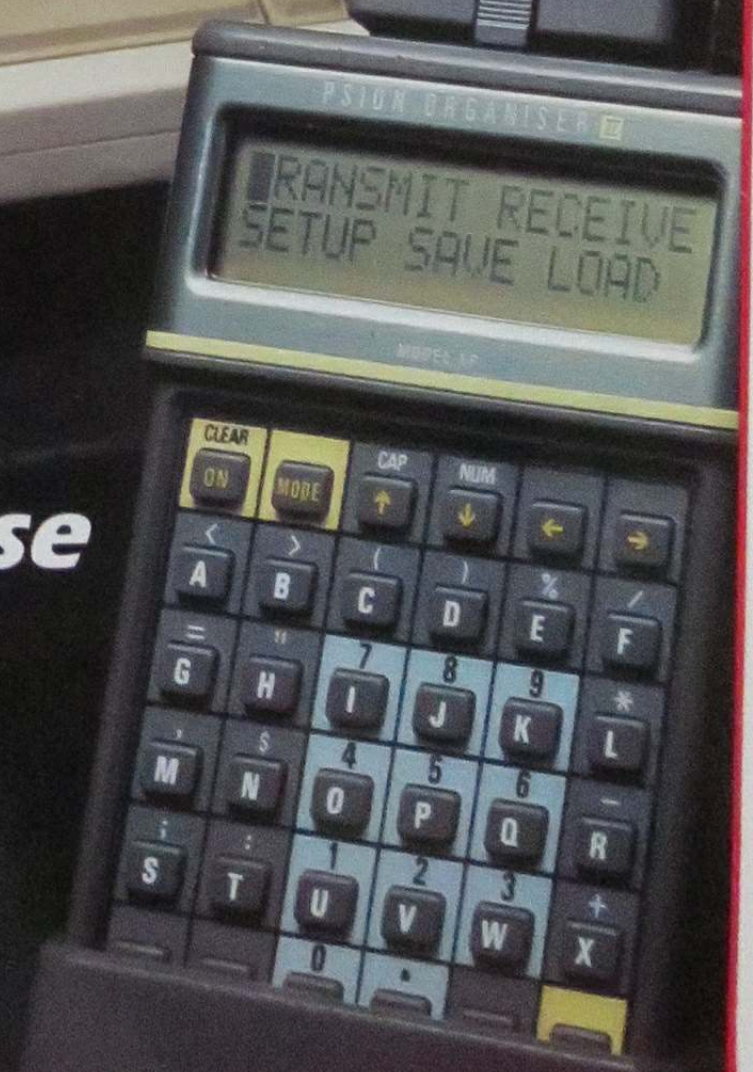
- Logic works
  - More
  - Word Builder
  - Sensible Grammar
- + all the latest games for the Apple II and Mac



Three of the Mac spellcheckers compared

Dictionary			
neighbouring			
A	Negroid	neighed	neoclassicists
B	Negrals	neighing	neoclassical
C	neigh	neighs	neoclassicism
D	neighbor	neither	neoclassicalist
E	neighborhood	nematode	neologism
F	neighborhoods	nematodes	neologisms
G	neighborhoods	nemeses	neologistic
H	neighborliness	neoclassic	neon
I	neighborly	neoclassical	neonatal
J	neighbor's	neoclassicism	neonataly
K	neighbour	neoclassicist	neonate
L			neonates
M			neoplasia
N			neoplasms
O			neoprene
P			neophyte
Q			neophytes
R			neoplasm
S			neoplasms
T			neoprene
U			neophyte
V			neophytes
W			neoplasm
X			neoplasms
Y			neoprene
Z			neophyte

## Organise your Apple!



# Give your APPLE the best!

INNOVATION

### HD-Mate

**Ultimate Hard Disk Partitioning**  
The HD-Mate utility is designed to allow you to have both ProDOS and PASCAL 1.3 programs on the same Hard Disk! (And if you're already using the same Hard Disk! you can have three operating systems Cirtech CP/M Plus, you can select the sizes of the on the same Hard Disk!). Simply select the sizes of the ProDOS and PASCAL areas you wish, install the PASCAL ProDOS and PASCAL areas you wish, into two equal-sized Disk. The PASCAL area is divided into two equal-sized Disk. The PASCAL area is divided into two equal-sized operation of the Hard Disk is not affected and all standard PASCAL 1.3 and ProDOS commands work in exactly the same way as with an ordinary disk drive. You can start up PASCAL or ProDOS from any disk drive (including the Hard Disk) and both systems will see their appropriate part of the Hard Disk.  
**MAKE THE MOST OF YOUR HARD DISK WITH HD-MATE £38.00**

### plusRAM

**the COMPLETE range of memory cards**  
plusRAM and plusRAM-xtra (with the unique RamDesk Manager memory management system) are designed for the II+, IIe or IIGS, giving 256K to 1 Megabyte extra memory. plusRAM-GS2 and GS8 are designed for the IIGS, giving up to a massive EIGHT MEGABYTES of extra memory - on one card! You can even add a further 512K with the instant-loading ROM/PROM-Disk Adaptors. plusRAM cards are fully ProDOS, DOS 3.3, PASCAL & CP/M compatible and are used by standard Apple II programs as super-fast electronic disk drives! plusRAM cards also feature AppleWorks 2.0/1.3 expansion with multiple disk saving, mouse control, date/time display, print buffer and calculator (also allows use of AppleWorks 1.3 on the II+).

FROM ONLY £99.00

VERSATILITY

### Uni-Mate

**A disk's best friend!**  
Uni-Mate gets rid of all those tiresome disk constraints, with support for several storage devices under DOS 3.3, PASCAL 1.1/1.2 & CP/M 2.20b/2.23 on the various models of Apple computers:

	DOS	PASCAL	CP/M
UniDisk 3.5	+ e c g	+ e c g	+ e c
3.5 Disk	g	g	
Slot RAMcard	+ e c g	+ e c g	
SCSI Hard Disk	+ e c g		
SmartPort Hard Disk	+ e c g	+ e c g	
Profile Hard Disk	+ e c g	+ e c g	
IIGS Internal RAMdisk	g	g	
IIGS Internal ROMdisk	g	g	

(+ = Apple II or II+; e = Apple IIe;  
c = Apple IIc; g = Apple IIGS)  
**TOTAL VERSATILITY FOR ONLY £28.00**

### CIRTECH CP/M PLUS

**Advanced operating systems**  
The sophisticated new CP/M Plus Systems let you use the huge range of CP/M programs, like dBASE & WordStar, on your Apple IIGS, IIe or IIc! With a lightning-fast 8MHz co-processor card and the most Advanced version of CP/M Plus, these Systems make full use of the Apples' power. Pop-up ToolKey windows allow you to copy and format disks, print screen dumps, control internal print buffers etc., at any time! The inbuilt File Manager, with pull down windows, keeps track of your programs and can be used to select user areas, run, copy, delete or rename files; & there's even an on-screen, full-function calculator! Fully compatible with all Apple-standard devices and you can even use CP/M Plus & ProDOS on the same hard disk!  
**TOP PERFORMANCE - £118.00**

VALUE

### CUT PRINTING TIME with a Cirtech CACHEBOX

No more wasted time waiting for a slow print operation to finish - with a CACHEBOX connected between your computer and printer, data is accepted as fast as your computer can send it (up to 20,000 characters per second). CACHEBOX stores the data in memory, leaving you free to use your computer while it takes care of the printing. Lengthy documents can also be stored in CACHEBOX until you're ready to print them and, with the multi-copy facility, you can make as many copies as you like, when you like! CACHEBOX comes complete with all required cables & is available in two sizes, 256K or 512K (enough for 200 or 400 full A4 pages!) in three interface configurations: parallel input/output; serial input/output, and parallel or serial input or output.  
**FROM ONLY £198.00**

PERFORMANCE

CIRTECH

CIRTECH

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the way forward

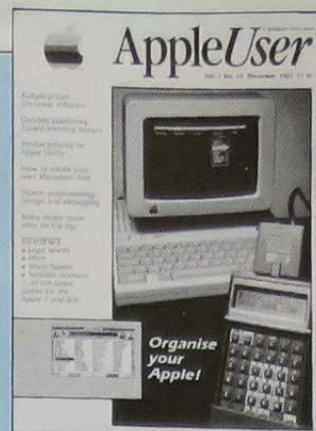
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SOURCE Mailbox: AAH555  
Telex: 265871 (MONREF G) ATTN: 84: CPD 001 (Telecom Gold)  
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I want to know more - please send me full data on all the CIRTECH products!

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ADDRESS: \_\_\_\_\_  
\_\_\_\_\_



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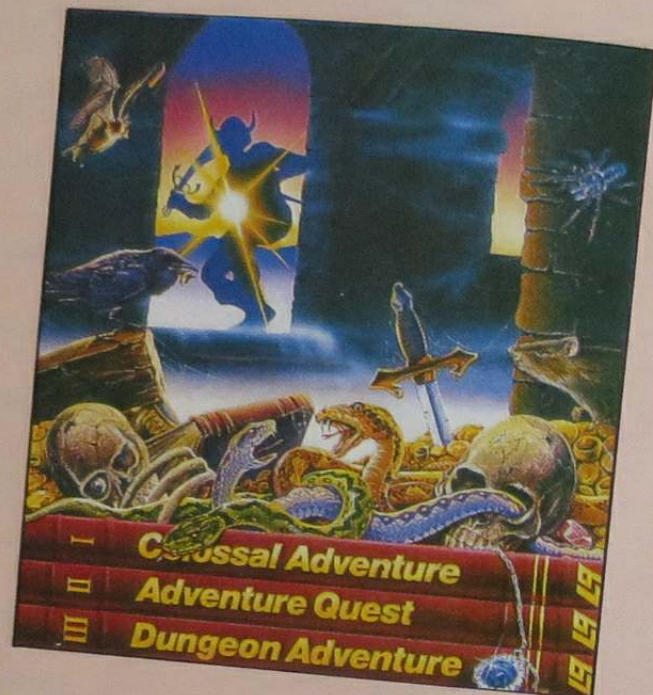
# AppleUser SPECIAL OFFERS!

## Two top adventure trilogies for you to play

Award-winning software house Level 9 has extensively re-written some of their best-selling adventures, and released them in two trilogies: *Jewels of Darkness* and *Silicon Dreams*.

In the *Jewels of Darkness* trilogy you start with *Colossal Adventure*, containing all the treasures, creatures, rooms and puzzles of the mainframe original.

In *Adventure Quest* you must discover the Old Roads to the Dark Tower, Fortress of the Demon Lord. Only there can you defeat him. There's magic in the air in *Dungeon Adventure*. Can you discover the treasure while facing the perils of skeletons, carnivorous jellies and orcs?



The first adventure in the *Silicon Dreams* trilogy is *Snowball*. You awake from suspended animation to find your spaceship on a collision course with Eden. In *Return to Eden* you must prevent the defence robots from destroying your ship. You have lost your memory in the *Worm of Paradise*, and you may have to join the governing party to regain it.

- Each features:
- Over 600 illustrations
  - New language interpreter
  - Huge 1,000 word vocabulary
  - Multi-command sentences
  - Ultra fast response times
  - 64 page novel and 12 page guide

Apple IIe or Mac	RRP	Special Reader Offer	You Save	Offer Inc. Subscription	You Save
<i>Silicon Dreams</i>	£19.95	£14.95	£5	£30.95	£7
<i>Jewels of Darkness</i>	£19.95	£14.95	£5	£30.95	£7
<i>Silicon Dreams and Jewels of Darkness</i>	£39.90	£27.90	£12	£41.90	£16

**You save £5 when you buy one of these packs or £12 if you buy both**

**TO ORDER PLEASE USE THE FORM ON PAGE 65**

## NEWS

# Apple poised for global expansion

APPLE Computer is set for further expansion on a global scale following a massive increase in sales and earnings.

In the 12 months up to September, sales increased from \$1.9 billion to \$2.66 billion – a rise of 40 per cent. Matching Apple's increase in sales was a 41 per cent rise in after tax profits to \$217 million.

Apple's chairman and chief executive John Sculley said: "Our new products are shipping in record numbers with the Macintosh range at its highest level ever."

"We are very encouraged by the strength of demand for our products and have taken this

opportunity to increase sales and marketing expenditure in order to support further expansion".

Apple UK's corporate relations executive, Mary Ainsworth, said: "Our success over the past year in the UK market has been tremendous."

"We are poised to go into the next fiscal year with a great deal of momentum in the business sector as well as in the expanding higher education market for the Macintosh."

"I am confident that we can better last year's figures by pushing forward on all fronts, especially those expanding areas such as desktop publishing and presentation".

The figures released by Apple show a remarkable turn-about from sales three years ago when the company almost founded.

To underline Apple's current strength, the company has reported final quarter sales 54 per cent up on 1986, with profits up 118 per cent.

"It has been a great year for Apple", said Sculley. "We successfully introduced several new products that have been well accepted, particularly in the business market."

"We have now completed the re-positioning of Apple and are entering the 1988 fiscal year with great expectations for the company".

## Systems simulation

A VERSION of *Stella*, the modelling and simulation program designed specifically as a teaching tool for the higher and further education market, has been released by Logotron.

*Academic Stella* for the Macintosh provides a visual aid to help students understand how complex systems develop by effectively forcing the user to think systematically about how a system changes over a period of time.

The manual contains worked examples of models which explain how complex systems such as predator-prey interactions in ecology or free market theory in macroeconomics operate.

Each example illustrates the construction of a model from its conception, showing how interacting factors can be built in to the simulation.

Other worked examples include a study of Newtonian mechanics in physics, stress behaviour in prisons as part of the psychology workshop and the cycles of rock formation and degradation in geology.

Price: £199.

## Desktop scanners

TWO desktop image scanners which have been designed specifically for the Macintosh have been released by Taxan (0344 484646).

The TX300 is a high resolution, high speed optical page scanner that can be used to convert text, handwriting, artwork and photographs into binary code for processing by the Macintosh.

Digitised images contain up to 300 black and white dots for every linear inch of the original document. Two basic scanning modes are possible, line art mode for completely black and white material and half tone mode for documents with continuous shading.

Taxan's other scanner the TX300A comes complete with VersaScan Image Plus software. VersaScan allows the user to select the best and most efficient set-up for each image. There are choices for brightness, contrast, grain, scale and scan mode.

Price: £1,800 and £1,298.

## Mac takes the wider view . . .

BIG Picture screens are now available in the UK following an agreement with the manufacturers, E-Machine, and desktop publishing specialists Heyden and Sons (01-203 5171).

The Big Picture screen for the Macintosh displays 1024 by 808 pixels and shows more than two and a half times the information available on a standard Macintosh screen. The supporting double feature software allows the user to work with both screens at once.

Heyden And Son will also be distributing Big Picture IQ (image quality). This has been especially designed to work with the Macintosh II and is claimed to offer the fastest performance of any grey scale monitor for the machine.

Each pixel is shown in one of 256 shades of grey, displaying scanned images in realistic photographic quality. It also simulates the 300 dpi resolution

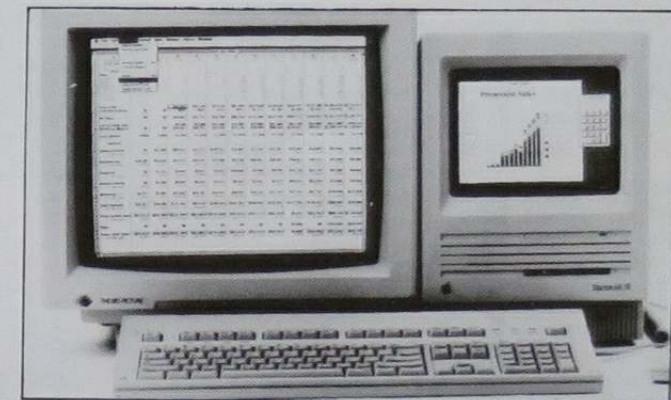
offered by a standard output device so the user sees exactly what the printer will reproduce.

Big Picture IQ's NuBus controller features a high speed 32 bit data path and 1mb of dedicated video memory. Price: £1,895 and £2,700.

Heyden and Son has also announced the release of a new graphics program for the Macintosh – Cricket Presents.

The program provides a comprehensive environment for the creation of sophisticated presentations of all kinds, without having to use separate text or graphics packages.

Presentations may be printed on a wide variety of devices, both colour and high resolution black and white.



## Enter Aldus Europe

IN a move aimed at strengthening and consolidating its position in the growing desktop publishing market, Aldus Corporation has announced the establishment of Aldus Europe.

Aldus, which produces Pagemaker for the Macintosh, is the world's leading supplier of desktop publishing software. The new subsidiary has been established to provide marketing, training and technical support for its markets overseas.

Sales, customer support and manufacturing will now be based at the new headquarters in Edinburgh.

Link your Apple II or Mac to the outside world with...

# MicroLink

When you join MicroLink you've got the whole business world at your fingertips – 24 hours a day. You'll have immediate access to ALL the facilities offered by Telecom Gold ... and a great deal more besides.

**Electronic mail** – The cheapest and fastest form of communication possible. It costs the same to send a message to one mailbox as to 500!

**Telex** – Link up with 96,000 telex subscribers in the UK and 1.5 million worldwide. You can even send and receive telexes after office hours or while travelling.

**Telemessages** – Type in your message before 8pm and delivery is guaranteed by first post the next day (except Sunday), anywhere in the UK and USA.

**Tele-booking** – Reserve train and theatre tickets, check flight details worldwide, or order from a vast range of products – from flowers to floppy discs.

**Advice** – Call on a team of professional legal and financial advisors as and when you need them, for both business and personal problems.

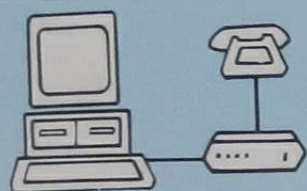
**Company searches** – Obtain facts about any British limited company in seconds, and fully analysed financial information on over 100,000 major companies.

**Translation** – Access the biggest and most up-to-date multi-lingual dictionary in the world, with over 380,000 words.

**News** – Use the powerful search commands to pinpoint vital business information from the world's leading news services, newspapers and periodicals.

**Radiopaging** – If you also have a pocket radiopager you'll be alerted each time an urgent message arrives in your mailbox. So you're always in touch.

**Gateways** – Get through to New York in just five seconds – or key into the EEC computer in Luxembourg, which links you to 600 databases throughout Europe.



POSSIBLE PACKAGES	
Apple II range	
A	Pace: Nightingale + Serial/Parallel card + Data Highway software (£218.15)
B	Miracle: WS2000 + serial interface + Vicom software (£238.65)
C	Pace: Linnet + Serial/Parallel card + Data Highway software (£275)
D	Miracle: WS4000 + serial interface + Vicom software (£299.90)
Apple Macintosh	
E	Miracle: WS4000 + Vicom software (£339.95)

All you need – apart from your Apple – is a modem, which plugs into your telephone wall socket, plus suitable communications software.

We have provided a list of possible combinations below, ranging from the very cheapest to ones which can automatically dial the MicroLink telephone number and connect you to the service – all you have to do is type in your personal security password.

Whichever equipment you use, you will be able to call MicroLink, open your mailbox, save to disc any messages waiting for you, and disconnect in as little as two minutes.

**More than 90 per cent of subscribers can connect to the MicroLink computer at local call rates.**

**TO FIND OUT MORE**  
Fill in the coupon and send it to the address below. You will receive full details of services and costs, together with an application form. Complete this and within days you and your Apple will be able to use all the services of MicroLink and Telecom Gold.

Please send me full details about MicroLink, and information sheets about the following hardware and software options (please circle):

A B C D E

Name \_\_\_\_\_

Address \_\_\_\_\_

Postcode \_\_\_\_\_

Send to: MicroLink, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

AU12

## NEWS

# £1.3 million boost for MicroLink

A MASSIVE expansion of MicroLink, Britain's fastest growing electronic mail service, is now being planned following the completion of a £1.3 million contract with Telecom Gold.

The agreement was signed by MicroLink chairman Derek Meakin and the general manager of Telecom Gold, Clem Jones.

MicroLink was launched in April 1985 as a means of encouraging users of microcomputers to start exploring the exciting new world of electronic communications.

It became an instant success, not only in Britain but in Europe, the Middle East and Australasia, as people all over the world found out how easy it was to couple their micro to the telephone to create instant links with people many thousands of miles away.

The MicroLink service is housed on a Prime 750 computer in Telecom Gold's top security London headquarters. As part of the new deal the service is this month being transferred onto a computer that is four times more powerful – the Prime 9955.

Said Derek Meakin: "The phenomenal development of MicroLink has meant that we have now outgrown the computer that has served us so well in the last two and a half years.

"The new machine will give us much greater flexibility. It will allow us to provide a much faster service, introduce a variable charging structure to meet the different needs of our users, and make possible the installation of many new and exciting facilities."

Starting with a basic electronic mail service, MicroLink has pioneered the creation of a wide range of services.

One is a unique link between MicroLink and the Post Office, allowing a user to type out a letter on his keyboard which can be delivered by the postman the following morning to any home in Britain or the USA.

The "electronic letter" is transmitted in seconds to the postal delivery office nearest the recipient, where it is printed out exactly as it was typed on the computer and then put into a distinctive gold and blue envelope ready for delivery.

MicroLink has also opened electronic gateways to vast overseas databases. One is to a computer in New York, through which MicroLink subscribers can



Pictured after signing the £1.3m deal are Telecom Gold general manager Clem Jones (seated left) and head of MicroLink Derek Meakin. Looking on, from left, are MicroLink sales and marketing manager Mike Hayes, Telecom Gold sales and marketing head Philip Madden, MicroLink joint managing director Michael Meakin, MicroLink marketing director Peter Brameld, Telecom Gold northern sales manager David Bromley and MicroLink systems manager Tim Clarkson.

be instantly connected to leading electronic services in the USA.

Another is to the EEC's communications headquarters in Luxembourg, where users can key in to the biggest dictionary in the world – a multi-lingual computer containing more than 400,000 words and phrases in eight European languages, and which is being added to at the rate of 2,000 words a month.

Said Derek Meakin: "We have lots of ideas for developing new

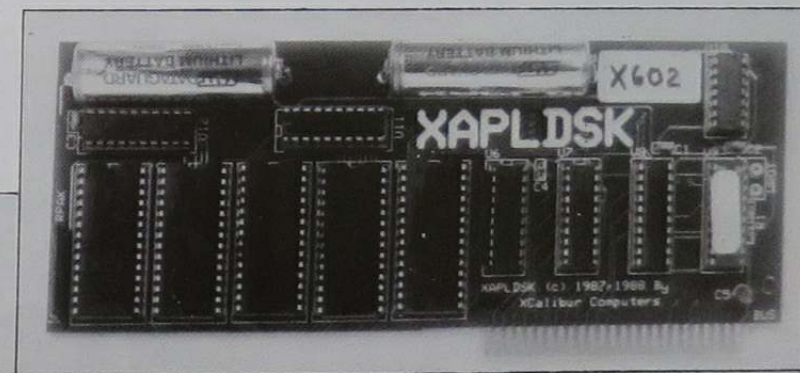
services on MicroLink, from opening many more international links to creating novel teleshopping opportunities.

"We also intend making the most of the enormous number-crunching capabilities of the new MicroLink computer to enable our subscribers to turn their home or business micro into a terminal that can tap the tremendous power and versatility of a mainframe computer."

Telecom Gold's head, Clem

Jones said: "We are delighted with the progress of MicroLink, as an important distributor for TG's Email service. It has been able to bring electronic mail to the computer enthusiast by providing a number of value added enhancements for this important sector of the market.

"Telecom Gold has had a successful relationship with MicroLink for two and a half years and this new contract consolidates the relationship."



WHAT is claimed to be the first battery-backed ramdisc for the Apple II range has been released by Xcalibur.

Called XAPLDSK, it is a 160k static ram based version of the Dos 3.3 disc with enough battery back-up time for at least 10 years.

In use XAPLDSK operates

just like a dos disc. It can be formatted at will and then removed from one machine and transferred to another, booting at switch-on as normal.

Xcalibur (0604 259211) says the card has been designed specifically for use in adverse environments where dust,

noise, wear and vibration may lead to unreliable operation if using rotating or mechanical storage devices.

The XAPLDSK ramdisc retains full compatibility with conventional discs and has a write protect link which can be made as required. Price £350.

The Best of MacPaint  
and MacDraw



When all you want is a masterpiece  
SUPERPAINT £125

## Trapeze Version 2.0 £249

Trapeze combines the powerful capacity of a spreadsheet with all the DTP features necessary to create professional presentations.

Because Trapeze organizes your information into blocks - rather than rigid rows and columns - numbers, text, graphics and even databases can be combined in a single worksheet.

In addition to its unique flexibility, Trapeze provides a wide range of business, scientific and engineering functions. Illustrating complex data is no longer a problem with the powerful charting capabilities. With eleven basic charts, and literally thousands of variations available, Trapeze surpasses many dedicated 'chart and graph' programs on the market today.

Once you have Trapeze there are no limits on the quality of your work.

First we give you Dark Castle. Now, plus...

### Beyond Dark Castle

In the Ante-room of the original Dark Castle, our hero Prince Duncan now begins his search for the Magic Orbs in *Beyond Dark Castle*. After gathering all 5 Orbs, he must battle with his greatest enemy - the Black Knight! If you like Dark Castle (and a lot of you do) you're going to love *Beyond Dark Castle!* £44.95

It's one thing to have great graphics. It's something else to make them move...

## VideoWorks II

Going far beyond the considerable power of its famous predecessor, VideoWorks II includes:

- Full animation and sound.
- Complete COLOUR painting program, up to 256 colours on the Mac II.
- Graphical notational score for editing up to 24 pieces of artwork at one time.
- Two disks of clip animation, tutorials and completed movies.
- Works with Mac II (in COLOUR!), Macintosh 512, Plus and SE.

- Use VideoWorks II for:
  - Animated presentations.
  - Rolling displays.
  - Movie and TV storyboarding.
  - Educational animations.
  - Animated cartoons and music videos.



£195

The people who know Mac software

# MacSerious

The MacSerious Company  
17 Park Circus Place  
Glasgow G3 6AH

Phone 041-332 5622 Fax 041-332 3209 Telex 777021 MACSER G

MacSerious is here to help you get the products your Mac needs to make it do what you want. We don't sell directly to the public in the UK, but any Apple dealer should be able to get our products for you. To make it easier still, we have appointed a number (about 70 as we write) of Authorised MacSerious dealers around the country. For the location of the one nearest you, and our free catalogue, phone or write to us. If you seek advice about what's best for your needs, call us for that too...we're here to help!

Please note that all prices shown are exclusive of VAT and subject to change without notice.

## WriteNow

Performance word processing for the Macintosh from T/Maker. WriteNow For Macintosh combines the power you would expect from a dedicated word processing system with the ease of operation that you're used to with MacWrite. WriteNow is £150.

### Key Features

- Easy to use (very similar to MacWrite).
- Very Fast! (Automatic Repagination and Instant Reformatting).
- Built-in spelling dictionary with 50,000 words.
- Up to 4 columns on-screen.
- Headers, Footers and Footnotes on-screen.
- Graphics in same line as text.
- Multiple open documents.
- Makes use of large screens.
- Works on Macintosh II.
- NOW compatible with PageMaker 2.0.

"This is the word processor we designed the Macintosh for!" Steve Jobs

## MORE 1.1c £249

Now you can prepare a presentation quickly and professionally, even at the last minute. For the first time, MORE integrates Idea Processing with Idea Presentation. You can transform your idea outlines into attractive Bullet Charts. Add Tree Charts and pictures, and you've got a fully-fledged slide-show. MORE is ideal for the entrepreneur writing a business plan - or anyone who develops presentations: managers and decision makers, executives, corporate planners, sales staff, educators...

MORE was voted 'Software Product of the Year' for 1986 by the US edition of MacUser magazine.

The new 1.1c version of MORE uses the colour of the Macintosh II to make your presentations much more eye-catching, and includes a FREE copy of the special MORE-compatible version of ACTA, the outliner that's a desk accessory.

## Super 3D £295 Super 3D Enhanced £495

The ultimate 3D program: Can create and work with both wire frame and solid objects. Duplicated objects are only stored once, saving memory and disk space. Models are rendered at extremely high speeds. PICT files can be created to use in SuperPaint and MacDraw. Super 3D also makes EPS files for use in programs such as PageMaker. Can create animations and store to disk for later playback. And Super 3D Enhanced is designed to take advantage of the 68881 maths co-processor found in the Mac II and third-party upgrades. Super 3D Enhanced can display over 16,000 colours with full animation on a Mac II.

## Apache Strike

£44.95

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ExpanSE expansion chassis system enables the SE user to select an array of option cards to configure a system that would not otherwise be possible. Instead of limiting the Macintosh SE to one expansion card, ExpanSE expands the functionality for the SE to four SE option cards. ExpanSE also provides an easy method of accessing and changing option cards; simply open the chassis and swap the cards. Now the SE user can expand the power of his Macintosh and thus his productivity!

EVERYONE has done it at least once - typed NEW, pressed Return and immediately regretted it. Somehow or other, as you make that last keypress, you know it's wrong - you know you've not saved the program - but you can't stop yourself.

However, don't panic. Make sure that you keep this program handy on your work disc. Then, if you have made the classic error yet again, just BRUN the program, type &, press Return and magically the Basic program reappears - save it to disc straight away.

The best way of entering the program is to use an assembler. The source listing given here is for the Apple 6502 Assembler, but other assemblers will be very similar.

The only area likely to give trouble is the interpretation of low and high parts of the start address in lines 16 and 18. The Apple assembler takes > to mean the low part and < the high part. Check your own assembler documentation on this point.

If you don't have an assembler and are not sure what to do, follow these instructions, which are generally valid for Apple 6502 assembly language routines given in Apple User.

At the Basic prompt (]) type CALL-151 and press Return. The ] will be replaced by the monitor's prompt (\*).

Now study the source listing given here. Notice that the left hand column has a sequence of hexadecimal numbers in four digits. These are the addresses in which the

## Spreadsheet graphing

VISUALISER is an AppleWorks spreadsheet graphing program and supersedes PBI's previous program - GraphWorks.

It features double hi-res graphics, colour and virtual memory for large spreadsheets. The Apple IIgs version also features statistics and background pictures.

Upgrades are available for owners of GraphWorks.

Product: Visualiser  
Price: £79 (Ile and Iic), £89 (IIgs)  
Supplier: Bidmuthin Technologies, PO Box 264, Harrow, Middlesex HA3 9AY.  
Tel: 01-907 8516

# Action replay

## Lee Hammond finds a way to restore a NEWed Basic program

machine code goes.

After each address is a colon and then one, two or three more hexadecimal numbers separated by spaces. These form the machine code. After these numbers come a line number and the assembly language form of the machine code. These you can ignore.

Towards the top of the listing is a piece of assembly language giving the start, or origin, of the code. In this listing it appears at line 4, which has the form

```
0300: 4 ORG $300
```

Now that we know the start of the code we can enter it directly into the monitor. Type 300: and follow it with some of the machine code numbers, separating them with a space. After typing a few press Return, then enter the next valid address

and repeat entering the code.

The Apple Monitor will take up to about 6.5 lines of entry on a 40 column screen but it is not worth entering that much in one go because it is all too easy to make a mistake when entering nothing but numbers.

Periodically check your entries by typing 300L and see that the listing you get is similar to the assembly listing given here. Note, however, that labels, - that is, names given to addresses by the programmer such as START and AMPER - will appear as the actual addresses in the monitor listing.

When you have correctly entered the program, resist the temptation to run it. First save it to disc by issuing the Dos or Prodos command:

```
BSAVE RESTORE,AS300,LS7B
```

The AS300 tells the disc system that the program starts at address 300 and the LS7B tells it that the length is 7B bytes.

You have to know how to do hexadecimal arithmetic with Dos, but alternatively, with Prodos, you can enter the end command ES37A. Remember that the monitor can do hexadecimal arithmetic for you.

```
0000: 1 *****
0000: 2 * RESTORE PROGRAM AFTER 'NEW'
0000: 3 *****
----- NEXT OBJECT FILE NAME IS MAX.OBJ0 *****
0300: 4
FD0D: 5 COUT EQU ORG $300
FD0E: 6 CROUT EQU $FD0D
00FC: 7 TEMPL EQU $FD0E
00FD: 8 TEMPH EQU $FC
0067: 9 PROGST EQU $FD
0069: 10 LOWEM EQU $67
00AF: 11 PROGEN EQU $69
03F6: 12 AMPER EQU $AF
0300: 13 *****
0300: 14 * SET-UP 'B' VECTOR *****
0300: 15 *****
0300:A9 0B 16
0302:8D F6 03 17 LDA #>START
0305:A9 03 18 STA AMPER
0307:8D F7 03 19 LDA #<START
030A:60 20 STA AMPER+1
030B: 21 RTS
030B: 22 *****
030B: 23 * SET PTR TO PROGRAM START+4 *
030B: 24 *****
030B:20 8E FD 24 START JSR CROUT
030E:18 25
030F:A5 67 26 CLC
0311:69 04 27 LDA PROGST
0313:85 FC 28 ADC #S04
0315:A5 68 29 STA TEMPL
0317:69 00 30 LDA PROGST+1
0319:85 FD 31 ADC #S00
031B: 32 STA TEMPH
*****
```

Th  
W  
T  
£  
Tr  
spr  
sar  
Be  
in  
ce  
de  
sh  
Ir  
p  
a  
c  
f  
t  
a  
c

```

031B: 33 * SEARCH FOR END OF 1ST LINE *
031B: 34 *****
031B:A2 00 35 LDX #S00
031B:A0 00 36 LDY #S00
031F:B1 FC 37 L1 LDA (TEMPL),Y
0321:F0 00 38 BEQ L2
0323:18 39 CLC
0324:E6 FC 40 INC TEMPL
0326:90 02 41 BCC L1B
0328:E6 FD 42 INC TEMPH
032A:E8 43 L1B INX
032B:D0 F2 44 BNE L1
032D:4C 2D FF 45 JMP $FF2D
0330: 46 *****
0330: 47 * RESTORE 1ST 'NEXT LINE' PTR *
0330: 48 *****
0330:18 49 L2 CLC
0331:E6 FC 50 INC TEMPL
0333:90 02 51 BCC L3
0335:E6 FD 52 INC TEMPH
0337:A5 FC 53 L3 LDA TEMPL
0339:A0 00 54 LDY #S00
033B:91 67 55 STA (PROGST),Y
033D:C8 56 INY
033E:A5 FD 57 LDA TEMPH
0340:91 67 58 STA (PROGST),Y
0342: 59 *****
0342: 60 * LOOK FOR END OF PROGRAM *
0342: 61 *****
0342:A0 00 62 L4 LDY #S00
0344:B1 FC 63 LDA (TEMPL),Y
0346:D0 05 64 BNE NE1
0348:C8 65 INY
0349:B1 FC 66 LDA (TEMPL),Y
034B:F0 10 67 BEQ GE1
034D:A0 00 68 NE1 LDY #S00
034F:B1 FC 69 LDA (TEMPL),Y
0351:48 70 PHA
0352:C8 71 INY
0353:B1 FC 72 LDA (TEMPL),Y
0355:85 FD 73 STA TEMPH
0357:68 74 PLA
0358:85 FC 75 STA TEMPL
035A:4C 42 03 76 JMP L4
035D: 77 *****
035D: 78 * SET LOMEM AND EOP PTRS *
035D: 79 *****
035D:18 80 GE1 CLC
035E:A5 FC 81 LDA TEMPL
0360:69 02 82 ADC #S02
0362:85 AF 83 STA PROGEN
0364:85 69 84 STA LOMEM
0366:A5 FD 85 LDA TEMPH
0368:69 00 86 ADC #S00
036A:85 B0 87 STA PROGEN+1
036C:85 6A 88 STA LOMEM+1
036E: 89 *****
036E: 90 * ISSUE 'OK' AND EXIT *
036E: 91 *****
036E:A9 CF 92 LDA #'O'
0370:20 ED FD 93 JSR COUT
0373:A9 CB 94 LDA #'K'
0375:20 ED FD 95 JSR COUT
0378:4C BE FD 96 JMP CROUT>
    
```

# Glasgow belongs to me

**Conrad H. Gempf tries his hand at sculpting fonts**

A FEW days ago, with the help of my Macintosh, I totally redesigned Glasgow. Despite the sentimental memories I had of it, the time had come for a total reconstruction.

The Glasgow in question is not the city, however. As a new Macintosh user a year and a half ago, I bought FONTastic and proceeded to design the typeface I called Glasgow in honour of the Glaswegian architect who inspired it, Charles Rennie Mackintosh.

though the Mac is, pencil and paper are much better tools with which to begin the process. Savour the effortlessness of constructing curves and diagonal lines. You are about to enter the less flexible world of the pixel.

Mouse in hand, you should begin work on the largest size you plan for your font. For most purposes, this will be 24 point, the size that the ImageWriter will use to print 12 point in high quality.

font down to half size, and go through letter by letter smoothing the results of that automatic process, being careful to preserve the spacing of each letter.

You will find this method much easier than starting with the small size, for that would involve smoothing out the Mac's approximations of the larger size.

There are certain key letters that, in most fonts, force decisions that will affect many of the other characters. Start by working on the lowercase letters n and the h of your font. When they look right, notice their width and their relative heights.

It was my first project, and my inexperience showed. Using experience gathered from more than a year in the "font biz", I herewith offer some tips and observations, some of which helped considerably in the Glasgow face-lift.

The first step in designing a typeface for the Mac is to know what you want the alphabet to look like. Clarify in your own mind the features that define the font. An outsider looking at your typeface should be able to see at a glance that all the characters in your font "belong" together somehow.

We start with the largest size for two reasons. First, the larger sizes allow the letters the most detail - if the ideas behind the font can be achieved on the Mac, the larger sizes is where it will happen.

Secondly, and more practically, the sizes that are doubles of each other, such as 12 and 24 or 9 and 18, are best created by scaling up or down. This ensures that the spacing remains proportional, which is extremely important if you ever plan to use High Quality printing on the ImageWriter.

Most programs will set the line-breaks in a body of text on the basis of the number of pixels in each line in the smaller size of the font. If the small and large sizes differ in terms of their spacing, then you will have either mysterious gaps between words, or letters running into each other or both.

To avoid this, draw the large size, then use FONTastic's Scale option to scale the

The width will normally turn out to be the average width for the rest of the letters, while the heights will be shared by most or all of the other characters.

In addition, you will find that many characters are variations on this basic shape. The m is an n with more, like the r is an n with less. The l, t, f, i and j are all related to the straight part of the h in one way or another.

The next character to receive attention should be the c. The same height as and comparable in width with the n, your c will demonstrate how you plan to handle most of the curved letters. The lowercase o and e come from the c, and so do all the variations with "sticks": The b, d, p, q and some gs and as.

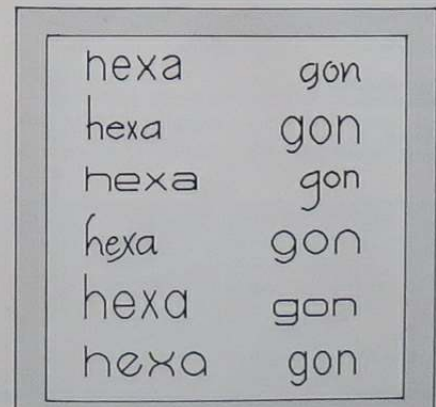


Figure 1: Features that define a font. Despite the fact that all of the fonts above are one pixel width sans serif fonts, most people will have no difficulty in matching the first halves with the second halves of the same font. Common features such as width, height and the nature of curves help define the continuity of a font.

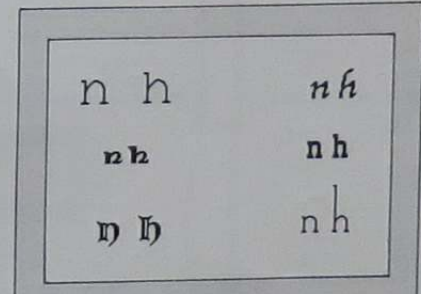


Figure 2: Key Letters. Just knowing what the n and h in a font look like gives you a very good idea of the appearance of the rest of the font.

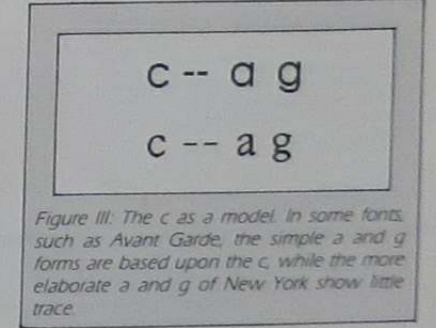


Figure 3: The c as a model. In some fonts, such as Avant Garde, the simple a and g forms are based upon the c, while the more elaborate a and g of New York show little trace.

If you don't have a copy on paper somewhere of every letter in the font, sketch one out with pencil and paper. Fine

The more elaborate versions of the "a" and the g will take some attention, as will the s in any alphabet.

Occasionally the letter y fits in with the abdpq lot, but more usually it belongs to the most awkward group of letters which are primarily diagonal. Along with y, there are v, w, x, z and k. Expect trouble when

# The truth about TELEX

## How much does it cost to go on Telex?

You could go the conventional way and buy a dedicated Telex machine. The cheapest will cost you £1,604 (the Whisper), the dearest £2,892 (the Cheetah). You will also need a separate telephone line, costing £101 to install, plus £404 a year rental. That's a total outlay over the first year of a minimum of £2,109. (All prices include VAT.)

Or you could do what more and more Apple users are doing - use your Apple II or Macintosh to double as a Telex machine. And just use your ordinary telephone!

## How do I turn my Apple II or Macintosh into a Telex machine?

All you need is a modem and appropriate communications software (see the advertisements in this issue), a telephone, and a subscription to MicroLink.

Telex is just one of a growing number of services available to Apple users on MicroLink. With it you can also read the news as it happens, go teleshopping, create your own closed user group, send telexmessages and electronic mail right round the world, download free telesoftware programs directly into your micro... and much

## But why use Telex?

Because it's a standard means of instant communication between businesses. Today there are 150,000 Telex machines in use in Britain - and more than 2 million worldwide. It's used to dramatically speed up business communications - just as quick as using the phone but far more efficient, because you have a hard copy of every "conversation" for your records.

But there's a big bonus you get when you use MicroLink for Telex that the conventional way doesn't offer.

With MicroLink you don't HAVE to be in your office to send or receive Telex messages. You can just as easily use your computer at home (or even a portable). So now you can check whether there are any Telex messages waiting for you - anywhere, anytime. How's that for your business efficiency?

How to Join: See Page 6

# Scrolling bar menu

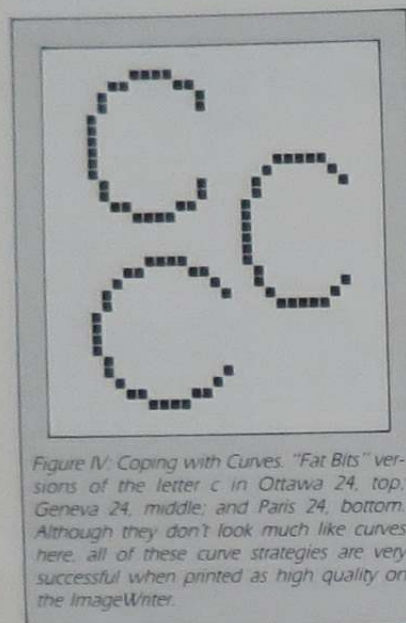


Figure IV: Coping with Curves. "Fat Bits" versions of the letter c in Ottawa 24, top; Geneva 24, middle; and Paris 24, bottom. Although they don't look much like curves here, all of these curve strategies are very successful when printed as high quality on the ImageWriter.

working with these, as the pixel is not very well-suited for representing diagonals.

Capital letters may be similarly broken into three categories: The basically straight ones - IHLEFTJ, the round forms - OQCGDUBPRS, and the diagonals - AVWYMNKZ.

On the whole the caps are easier to make - at least partly because they are permitted so much more space. Our old friends W and S are usually the worst of the bunch.

When you have the main alphabet up and running, please take the time to put in the accented characters. It strikes me as something of a minor miracle that a non-European computer company would have gone to the trouble of making these characters so readily available, and it is very easy to implement them in your font.

Looking at the FONTastic character chart window, displaying System (rather than Actual), simply COPY the a, and paste into the ' ', and so on for all the variations on all the vowels, then using the "fatbits" window, add the relevant accents.

It will only take a few minutes, but it will greatly add to the usefulness and the professional quality of your font.

Finally comes the really difficult part - finding a city name that isn't already taken. Will Bourton-On-The-Water fit on the Font menu, do you suppose?



Figure V: Putting in the accents. Using Copy and Paste from the Edit Menu, it is an easy process to duplicate the vowels. This accomplished, place the accents three or four pixels above each vowel.

MOST programs these days use a menu system in one form or another for moving from one part of a program to another. This can be fraught with difficulties, particularly if the full capabilities of the keyboard are to be used with the menu system or the user is inexperienced: This program solves those problems.

The menu system presented here is a scrolling type which can be placed anywhere within the screen boundaries. Any windows already set will be restored. Although the contents of the screen will be disturbed this should not matter since after a menu item has been selected a new screen layout will probably be implemented anyway.

When a menu is displayed on-screen it will be shown inside an inverse rectangle with an inverse bar on the default menu item. To select an item use the up/down arrow keys to move the bar to the item required, then press Return.

If the top or bottom of the menu window is reached the menu will scroll until the first or last item is displayed: When this happens a bell will sound.

Another way to select an item is to type its menu number - it does not have to be displayed. The inverse bar will then automatically scroll the menu until your selection has been reached. If it is the correct item, press Return. A combination of number selection and arrow keys can of course be used.

From the programmer's point of view the menu items should be placed in the ARRAY MENU\$(n) with the last menu item MENU\$(n+1) being "EXIT". The "EXIT" is used to find the length of the menu list. The array will need to be DIMmed when you declare your variables at the beginning of your program.

Note that the speed of the SCROLLING BAR MENU subroutine is not dependent on its memory position - the lines marked as

## Phil King shows how to make programs more user-friendly

REM----MEMOVE---- change the zero page pointers, so making the routine the first item in memory when the routine is in use and restoring the pointers upon completion.

That means that you can tack the routine on to the end of your program and it will run just as fast as if it were at the front end, hence the high line numbers. See the REM statements for more information.

The first array element MENU\$(0) is the pass string, the parameters of which are listed at the beginning of the SCROLLING BAR MENU subroutine as are the return parameters.

The pass parameters are as follows:  
MENU\$(0) = "HEADER\HTAB\VTAB-\SCREEN LNTH\DEFAULT MENU"

HEADER: The title of the menu (String).  
HTAB: Position of left margin (integer). Must be less than the screen width minus the length of the longest menu item minus 10. The overhead of 10 is to allow for the menu numbers and borders. That is, if the longest menu item were "Purchase Ledger" then the maximum left margin allowable would be: Screen width (80) minus length "Purchase Ledger" (15) minus overhead (10) = 80-15-10 = 50.

VTAB: Position of top line (integer). This must take into account the SCREEN LNTH parameter plus an overhead of two. That is, with a menu display of 10 items the VTAB position must be screen lines (24) minus menu length (10+2) which equals 12. So a VTAB position less than 12 will be fine.

SCREEN LNTH: Number of menu items to

be displayed (integer).  
DEFAULT MENU: Default menu item (integer).

As for returned parameters: the selected menu number will be in ANS(1) and the selected menu string will be in ANS(2). If the Escape key was pressed then ES will be set to 27.

This short program will test the SCROLLING BAR MENU subroutine. It will set up a suitable screen display, then create 20 menu items, the last one always being EXIT. It will then call the subroutine three times, creating three different menus in different areas of the screen.

To use the program simply load in both the MENU DEMO program and the SCROLLING BAR MENU Subroutine and type RUN. You will be presented with the first menu. Use the up or down arrow keys to make a selection, then press Return.

You will now be presented with the second menu: Type 19 and the menu bar will scroll to menu item 19, type 01 and the bar will scroll back to the first item.

Notice that if you enter two digits there is no need to press the Return key - that is only necessary if you select a number below 10, and type, for example, 5 instead of 05.

You should now be at the third menu. Pressing Escape will return you to the second menu, and pressing it once again will return you to the first menu. Try this now and get used to the way the menu operates.

I will not go into a description of the Demo program as it is quite self explanatory with lots of rem statements. I hope you find the programs of use and that they assist you in making your programs as user-friendly as possible.

One final note: I advise you to type the program in full and save it for reference. A compressed version can be used in your own programs.

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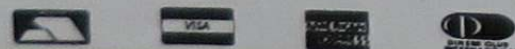
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Birmingham B20 3DD

Tel: (021) 356 7402

Telex: 334303 TXAGWVG

```

10 REM =====
   =====
20 REM =      MENU DEMO
   =
30 REM =      BY
   =
40 REM = PHIL KING -- MAY
   1987 =
50 REM =====
   =====
60 DS = CHRS (4)
   REM DOS
70 AS = ""
   FOR K = 1 TO 39
   AS = AS + "-"
   NEXT
   AS = AS + "="
80 DIM MENU$(20),W(3),WRDS
   (4)
90 KRD = 49152

   :KSTRB = 49168
100 REM JJSCREEN LAYOUTJ
   PRINT DS"PR#3"
   : PRINT
   : HOME
   : REM SET SCREEN
120 PRINT SPC( 48)"Menu De
monstration by Phil Kin
g"
   : PRINT AS
   : REM HEADER
130 VTAB 22
   : PRINT AS
   : PRINT "UP and DOWN arro
w keys active"; SPC( 21
);"ESCAPE for previous
selection"
   : REM FOOTER
140 PRINT SPC( 6);"Use ARR
OW KEYS or type Menu Nu
mber then press RETURN
for selection";
   : REM FOOTER
150 REM JJREAD TEST MENU DE
TAILSJ
   FOR K = 1 TO 19
   : READ MENU$(K)
   : MENU$(K) = "Menu "
+ MENU$(K)
   : NEXT
   : READ MENU$(K)
170 REM JJDO MENU DEMOJ
   REM MENU$(0) = "HEADER\
HTAB\VTAB\DISPLAY LNTH\
DEFAULT MENU"
190 MENU$(0) = "First Menu\
25\1\15\11"
   : GOSUB 51000
   : GOSUB 250
   : IF ES GOTO 190
200 MENU$(0) = "Second Menu
\36\10\15\12"
   : GOSUB 51000
   : GOSUB 250
   : IF ES GOTO 190
210 MENU$(0) = "Third Menu\
16\4\10\15"
   : GOSUB 51000
   : GOSUB 250
   : IF ES GOTO 200
220 PRINT CHRS (25);
   : VTAB 23
   : PRINT CHRS (11);
   : HTAB 30
   : PRINT CHRS (15);" DEMO
NSTRATION OVER "
   CHRS (14)
230 HTAB 20
   : PRINT "Type 'RUN' for a
nother demonstration";

```

```

CHRS (25);
: VTAB 23
: END
240 REM JJPRINT RETURNED IN
FOJ
250 PRINT CHR$(25); "Menu
number "; CHR$(15); AN;
CHR$(14) " Title ";
CHR$(15); AN; CHR$(14)
); SPC(5)
: RETURN
260 REM JDATA ITEMSJ
270 REM LAST DATA ITEM MUS
T BE 'EXIT'
280 DATA ONE,TWO,THREE,FOUR
,FIVE
290 DATA SIX,SEVEN,EIGHT,NI
NE,TEN
300 DATA ELEVEN,TWELVE,THIR
TEEN,FOURTEEN,FIFTEEN
310 DATA SIXTEEN,SEVENTEEN,
EIGHTEEN,NINETEEN
320 DATA EXIT
330 END
: REM OF DEMONSTRATION
340:
350:
51000
:
:
:P1 = PEEK (103)
:P2 = PEEK (104)
: ONERR GOTO 51650
: REM ---- MOVE ----
51001 REM =====

```

```

51002 REM = SCROLLING BAR
MENU = BY
51003 REM =
51004 REM = PHIL KING - MA
Y 1987 =
51005 REM =====
51006 REM CONFIGURATION
:- APPLE ][e, 80col card
51007 REM
51008 REM INPUT REQUIREMENTS
:-
51009 REM MENUS(0) = "H
EADER\HTAB\VTAB\SCREEN
LNTH\DEFAULT MENU"
51010 REM MENUS(N) = ME
NU ITEMS
51011 REM MENUS(N+1) = "E
XIT
51012 REM
51013 REM DETAILS RETURNED
:-
51014 REM SELECTED MENU N
UMBER IN
: <AN>SWER
51015 REM SELECTED MENU I
TEM IN
: <ANS>SWER
51016 REM ESCAPE KEY SET
TO 27 IF PRESSED
51017 REM
51018 REM AS = GENERAL

```

```

51019 REM J,K,P = GENERAL
51020 REM P1,P2 = POINTER TO
START OF PROGRAM
51021 REM WC3 = WINDOW PAR
AMETERS
51022 REM KRD = KEYBOARD R
EAD
51023 REM KSTRB = KEYBOARD S
TROBE
51024 REM AN = PASS VARIA
BLE
51032 REM MW = MENU WIDTH
51033 REM MN = MENU NUMBE
R OF BAR
51034 REM MT = MENU TOTAL
51035 REM MENU$( = MENU ITEMS
51036 REM WRDS(4 = MENUS(0) P
ARSER
51037 REM
51038 REM CHR$(29) = CLEAR F
ROM CURSOR TO RIGHT EDG
E OF WINDOW
51039 REM CHR$(25) = HOME CU
RSOR WITHOUT CLEARING S
CREEN
51040 REM CHR$(15) = SWITCH
TO INVERSE
51041 REM CHR$(14) = SWITCH
TO NORMAL
51042 REM CHR$(11) = CTRL(K)
= UP ARROW
51043 REM CHR$(10) = CTRL(J)
= DOWN ARROW
51044 REM
51045 REM MEMORY LOCATIONS
51046 REM 103-104 POINTE
R TO BEGINNING OF PROGR
AM
51047 REM 121-122 LOCATI
ON OF STATEMENT TO BE E
XECUTED NEXT
51048 REM
51049 REM SET UP YOUR OWN ER
ROR ROUTINE!!!?
51050 REM JJINITIALISEJ
51060P = PEEK (121) +

```

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```

51025 REM ANS = PASS STRIN
G
51026 REM ES = ESCAPE KEY
PRESSED
51027 REM BAR = BAR POSITI
ON
51028 REM MD = MENU DEFAU
LT REQUEST
51029 REM MH = MENU HORIZ
ONTAL POSITION
51030 REM MV = MENU VERTI
CAL POSITION
51031 REM ML = MENU LENGT
H ON SCREEN

```

```

PEEK (122) * 256
+ 1
: POKE 103,P - INT (P
/ 256) * 256
: POKE 104, INT (P
/ 256)
: REM ---- MOVE ----
51070 FOR K = 0 TO 3
:W(K) = PEEK (32
+ K)
: NEXT
:ES = 0
: REM OLD WINDOWS
51080 REM JJASSIMILATE MENUS(
0)J
51090 FOR K = 0 TO 4
:WRDS(K) = "
: NEXT
:J = 0
51100 FOR K = 1 TO LEN (MENU
$(0))
:AS = MIDS (MENUS(0),
K,1)
: IF AS = "N" THEN J
= J + 1
:AS = "
51110 WRDS(J) = WRDS(J)
+ AS
: NEXT
51120AS = WRDS(0)
: REM MENU HEADER
51130MD = VAL (WRDS(4))
: REM MENU DEFAULT
51140MH = ( INT (( VAL (WRDS
(1)) + 1) / 2)) * 2
: REM HORIZ-POS
51150MV = ( INT (( VAL (WRDS
(2)) + 1) / 2)) * 2
: REM VERT-POS
51160ML = ( INT (( VAL (WRDS
(3)) + 1) / 2)) * 2
: REM MENU-LENGTH
51170 REM JJMENU WIDTH/TOTALJ
51180MT = 0
:J = 0
:MW = LEN (AS)
51190MT = MT + 1
:J = LEN (MENUS(MT))
: IF MW < J THEN MW
= J
51200 IF MENUS(MT) < > "EXIT

```

```

: GOTO 51190
51210 REM JJCHECK DETAILSJ
51220MW = MW + 6
: IF MH + MW + 4 > 80
GOTO 51680
: REM WIDTH RANGE ERR
51230 IF MV + ML + 2 > 24
GOTO 51680
: REM LENGTH RANGE ERR
51240 IF MD > MT THEN MD
= MT
: REM DEFAULT
51250 REM JJPRINT MENU LAYO
UTJ
51260 POKE 32,MH
: POKE 33,MW + 4
: POKE 34,MV
: POKE 35,MV + ML + 2
: INVERSE
: HOME
: PRINT SPC(6)AS
: NORMAL
51270 POKE 33,MW
: POKE 32,MH + 2
: POKE 34,MV + 1
: POKE 35,MV + ML + 1
: HOME
51280 FOR K = 1 TO ML - 1
: IF K < 10 THEN
PRINT " ";
51290 PRINT " ";K";MENUS(
K)
: NEXT
: IF K < 10 THEN PRINT "
";
51300 PRINT " ";K";MENUS(K)
";
51310 PRINT CHR$(25);
CHR$(15);" 1";MENUS(
1); CHR$(29); CHR$(14)
); CHR$(25);
:BAR = 1
:MN = 1
51320 IF MD > 1 THEN FOR K
= 2 TO MD
: GOSUB 51570
: NEXT
51330 REM JJREADKEYJ
51340 WAIT KRD,128
:P = PEEK (KRD) - 128
: POKE KSTRB,0

```

```

51350 IF P = 11 THEN GOSUB 5
1490
: GOTO 51340
51360 IF P = 10 THEN GOSUB 5
1570
: GOTO 51340
51370 IF P = 27 THEN ES
= 1
: GOTO 51680
51380 IF P = 13 GOTO 51680
51390 IF P < 48 OR P > 57
GOTO 51340
51400 REM JJGET UP TO TWO NUMB
ERSJ
51410AS = STR$(P - 48)
: WAIT KRD,128
:P = PEEK (KRD) - 128
: POKE KSTRB,0
: IF P = 13 GOTO 51440
51420 IF P < 48 OR P > 57
GOTO 51350
51430AS = AS + STR$(P
- 48)
51440J = VAL (AS)
: IF J < 1 OR J > MT
GOTO 51340
51450 IF J < MN THEN FOR K
= J TO MN - 1
: GOSUB 51490
: NEXT
: GOTO 51470
: REM MOVE UP
51460 IF J > MN THEN FOR K
= MN TO J - 1
: GOSUB 51570
: NEXT
: REM MOVE DOWN
51470 POKE KSTRB,0
: GOTO 51340
51480 REM JJUP KEYJ
51490 IF MN = 1 THEN PRINT
CHR$(7);
: RETURN
51500 GOSUB 51620
: PRINT AS; CHR$(29);
:MN = MN - 1
: GOSUB 51620
: IF BAR = 1 THEN 51540
51510 VTAB PEEK (37) - 1
: PRINT
: PRINT CHR$(15);AS;

```

```

CHR$(29); CHR$(14);
: VTAB PEEK (37)
: PRINT
51520BAR = BAR - 1
: IF BAR < 1 THEN BAR
= 1
51530 RETURN
51540 PRINT CHR$(22);
CHR$(25); CHR$(15);AS
; CHR$(29); CHR$(14);
CHR$(25);
51550 RETURN
51560 REM JJDOWN KEYJ
51570 IF MN = MT THEN
PRINT CHR$(7);
: RETURN
51580 GOSUB 51620
: PRINT AS; CHR$(29)
:MN = MN + 1
: GOSUB 51620
: PRINT CHR$(15);AS;
CHR$(29); CHR$(14);
: VTAB PEEK (37)
: PRINT
51590BAR = BAR + 1
: IF BAR > ML THEN BAR
= ML
51600 RETURN
51610 REM JJMAKE STRINGJ
51620AS = " " + STR$(MN)
+ " " + MENUS(MN)
: IF MN < 10 THEN AS
= " " + AS
51630 RETURN
51640 REM JJERRORJ
51650 POKE 216,0
: IF PEEK (222) = 255
THEN ONERR GOTO 51650
51660 RESUME
51670 REM JJEXITJ
51680AN = MN
:ANS = MENUS(MN)
: FOR K = 0 TO 3
: POKE (32 + K),W(K)
: NEXT
: REM SET OLD WINDOWS
51690 POKE 103,P1
: REM ---- MOVE ----
51700 RETURN

```

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# ENGLISH AS SHE IS, MORE OR LESS, SPOKE

DO you experience difficulty with reference to punctuation? Do you basically have problems in conjunction with grammar? Do you exhibit a tendency to excessive verbiage? Would you like to put a stop to your errors in the not too distant future? If your answer is in the affirmative, you need Sensible Grammar.

It found several faults in this paragraph and suggested a revised version as follows:

Do you have trouble with punctuation? Do you have problems with grammar? Do you tend to use verbiage? Would you like to stop your errors soon? If your answer is yes, you need Sensible Grammar.

Many users of word processing programs will be familiar with spell checking programs such as Pinpoint's Document Checker. But the limitation of spell checkers is that they do not reveal faults in punctuation or grammar. Sensible Grammar, which comes from the same stable as Sensible Speller, is a fast, easy-to-use program that checks your documents for common writing errors – though not spelling mistakes.

It uses a library of over 2,000 commonly misused phrases to identify clichés and faulty, informal, pompous, redundant, sexist or vague words and wordy phrases. It also detects many punctuation and capitalisation errors and other mistakes, such as repeated words.

The program works with Prodos-based word processors such as AppleWorks, Apple Writer, Format II, MouseWord, MouseWrite, Multiscribe, PFS:Write, Sensible Writer, Word Juggler and WordPerfect. It also works with standard text files.

To use Sensible Grammar you need an

**Geoff Wood puts  
Sensible Grammar  
through its paces,  
and, by and large,  
approves**

Apple IIc or an enhanced IIe or a IIgs. The program comes on two sides of a floppy disc and on a 3.5in disc. The floppy is copy protected but the micro disc version is not.

The manual of 88 pages includes a tutorial section which refers to an example file on the program disc. There is also a 12 page addendum telling you how to copy the program to a hard disc or ram disc.

The program takes about 30 seconds to boot up. The main screen has a menu bar across the top displaying the words Check, Phrases, Setup and Exit. There is a drop-down panel under the word Check showing three options, namely, Check Punctuation, Check Grammar and Check Both.

If you have a mouse connected, you can use it to select items from the menu. Alternatively, you can use the arrow keys to move sideways across the menu bar or up and down within the drop-down panel.

However, the mouse does not function in the same way as on the Macintosh or on some other Apple II programs with drop-down menus. The pointer is displayed as a caret (|) sign instead of an arrow. When you position it over one of the words in the menu bar and click the mouse button, the panel drops down, but you don't need to

hold down the mouse button. If you move the pointer to one of the commands in the panel and click once, the operation starts up – you don't need to double click.

If you use the arrow keys to select a command, pressing Return starts up the operation. If the program is already set to suit your hardware and software, you can launch straight into the checking process but if not, you should choose the Setup menu described later.

If you choose to check only the grammar the program takes about 30 seconds to load in the phrase files. The screen displays a list of these, and the number of entries in each – a tick mark is displayed against each file as it is loaded in.

## Sentences analysed

If you choose to check only the punctuation, it takes about 20 seconds to load in the relevant files. If you choose to check both the grammar and the punctuation, it takes about 50 seconds to load in all the files. These times are for floppy discs on an Apple IIe. With a micro disc or a hard disc or a ram disc, the times are much shorter.

The screen then shows a small panel (with scroll bars) displaying a list of the files on the document disc. You can use the mouse or the arrow keys to select a file, and there is also an option to change drives.

The program starts to read the file, analysing each sentence in turn, until it finds a suspect phrase or a punctuation error. The screen below the menu bar

## Cliché catching

Space does not permit a listing of all the words and phrases that Sensible Grammar suspects, but some typical examples in the Cliché category – with suggestions in parentheses – are: Gainfully employed (working), only time will tell (maybe) and viable options (choices). Among the Faulty category are: Alright (all right), compare against (with) and different than (from).

The Informal category includes: Brush up (refresh), do away with (dispose or destroy), put a stop to (stop) and Xmas (Christmas), while in the Pompous category are: Accentuate (stress), affirmative (yes), and take into consideration (consider).

## Redundant and sexist

The Redundant category includes: Absolutely unique (unique), advance warning (warning), and ultimate end (end), while among the Sexist words it detects are Businessman (executive), chambermaid (room cleaner) and policeman (officer).

shows two large, overlapping panels. The rear panel, known as the progress window, displays the left hand edge of your file so that you can see the first few words of each line. The front panel, the error window, displays the sentence in which an error is suspected.

The suspect word or phrase is highlighted in inverse. The error panel also shows the type of fault, for example, pompous phrase. It also displays alternatives to the suspect text or a recommendation such as Omit or Avoid.

At the bottom of the screen, a small panel displays a list of six options, which you can select either by pressing the first letter of the word or by using the mouse or the arrow keys. For example, if you think that your suspect word or phrase is better than any of the suggestions, you can use the Ignore option to continue the search.

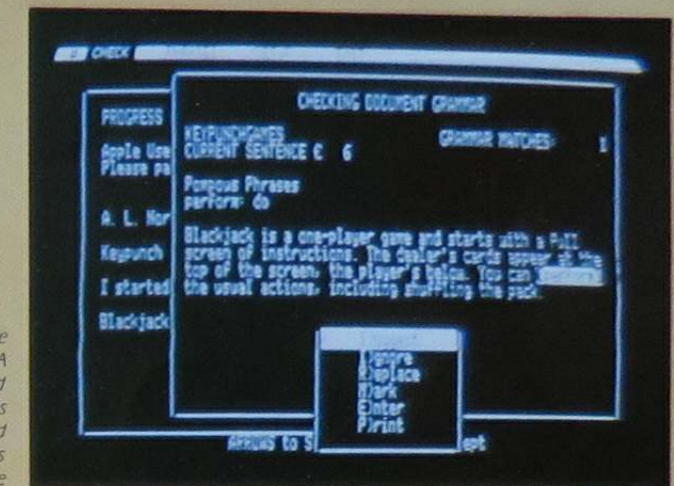
The default option is Suggest. If you choose this, the suspect phrase is replaced by the first suggestion. If you choose Suggest again, the next suggestion is displayed, and so on until the suspect phrase reappears.

## Alternatives

If you prefer one of the suggestions you can use the Replace option – after you have used Suggest to insert an alternative word or phrase into the sentence. This sequence must be followed even if there is only one suggestion, because after the Replace command the program moves on to look for the next suspected error. If you don't like any of the suggestions, the Enter option allows you to amend or replace the suspect text.

The Print option prints out the name of the file, the type of fault, the suggestions and the faulty sentence, useful if you want to keep a record of the faults. The Mark option simply marks the suspect text by enclosing it in square brackets, but does not reveal the type of fault nor the suggestions. If you want a printed record, you must use the Print option before you use the Mark, Ignore or Replace options.

When the program finds a suspected error in punctuation, it displays both the sentence and the type of fault – too much punctuation for example, or unbalanced parentheses. However, it does not allow you to correct the punctuation errors. The



Sensible grammar: A suggested alternatives is provided for a pompous phrase

panel at the bottom of the screen lists only three options – Ignore, Mark and Print.

As the search proceeds, the error window also shows the number of sentences checked, the number of punctuation errors and the number of grammar faults.

When the program reaches the end of the document, it offers you the option to keep the changes made to the file. Unless you cancel this option, the modified version of the file is saved, but the original version is retained with the suffix .OLD.

You can then revert to your word processor, load the modified file and use the find or search command to look for the marked faults. After correcting the faults, you can print out and save the file and delete the old version.

The manual points out that Sensible Grammar's suggestions will not always be right. There may be times when the original words are correct. For example, in this document, it came across the phrase "the program moves on to look for the next error" and it suggested "onto" instead of "on to".

And Sensible Grammar may not find all your grammatical mistakes – it identifies only the suspect words and phrases in its check lists. If you use a verb in the wrong tense, or a singular verb with a plural subject, it will not find your error, but it will detect such common mistakes as "none of them are" and "neither of them are".

You can examine and amend the check lists: When you select the Phrases option from the menu bar, a panel displays

## Vague and wordy

The Vague category includes: Experience difficulty (have trouble), in the not too distant future (soon) and it would seem that (apparently), on account of (because) and take into account (consider), while in the Wordy category are: Afford an opportunity to (allow or permit), are of the same opinion (agree) and at this particular time (now).

options to List Phrases, Add Phrases, Remove Phrases, New Phrase Group and Setup Group Index.

The phrases are grouped into lists – Clichés, Contractions, Faulty, Informal, Legal, Pompous, Redundant, Sexist, Vague and Wordy. There is also another group of lists used to check punctuation under the names Abbreviations, Adverbs (and conjunctions), Capitals, Capital exceptions, Coordinates, Numbers, Prepositions, Pronouns, Subordinates and Transitions.

## Translations

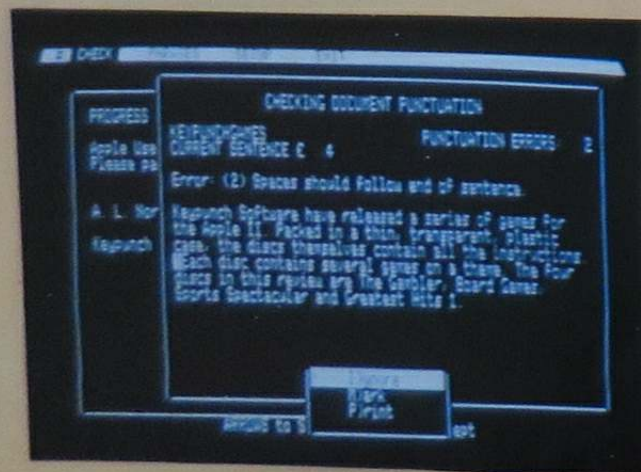
You can examine any of these by choosing the List Phrases option. A panel displays the phrase lists and you can use the mouse or the arrow keys to select one. The screen then displays the first few phrases in the list, which you can scan by using the mouse or the arrow keys. You can also print out the complete list.

Other options allow you to insert new phrases (and suggestions) to a list, or delete redundant ones. If the phrase is already in the list, the program does not replace the original version.

The New Phrase Group option allows you switch between the two groups of 10 lists or to add new lists to either of the groups. For example, you could create a language list to translate phrases from one language to another.

The Setup Group Index option lets you choose which lists should be used in the checking process. A panel displays a list of the phrase lists with the word Yes or No alongside each – if the word No appears, the list is not used in checking a document. You can change the setting of any list by highlighting it and pressing Return and the new settings can be saved on disc.

Two of the lists, Contractions and Legal, appear twice. One entry has the suffix Use. Normally, they are set to detect contractions like "don't" and legal terms like "aforementioned" and to suggest the alternatives "do not" and "mentioned earlier" but you ▶



Sensible punctuation: The program picks up errors the eye can easily miss

**Punctuation**

To find punctuation faults, Sensible Grammar looks for such features as a full stop at the end of a sentence, followed by two spaces or a Carriage Return. If you accidentally put a full stop after a question mark, it detects the error. It also detects an unwanted space before a full stop, but ignores full stops that are part of items in its Abbreviations category, such as U.S.A.

It detects the absence of a comma when you start a sentence with "However" or similar phrases and draws attention to the unnecessary second comma in "I must go, but, not yet".

It expects to find three digits after a

comma in a large number but it does not challenge large numbers that have no commas. It also checks for erroneous commas after the decimal point.

It looks for a capital letter at the start of each sentence, and if it finds capitalised words sentence, checks against its Capitals category which includes the names of the days and the months and words like I, Christmas and God.

It also has a list of Capital Exceptions, including AppleWorks and some other "oddities".

It looks for hyphens between compound numbers from twenty-one to ninety-nine. After a dash it accepts a

colon, but not a comma or a full stop. It detects excess punctuation in words like her's and their's, but it treats it's as the contraction of it is, not as the possessive of it with a punctuation error.

It also checks for correct pairing of some punctuations marks. For instance, ["example"] would generate the error message "Balance out of order". It also checks for punctuation which should be inside or outside quotation marks.

Sensible Grammar also checks for repeated words as in "Paris in the the spring." Some spell checking programs do this but Sensible Speller does not – a surprising omission.

◁ can transpose the settings to suit the style of document you are setting. Don't set both the Remove and Use versions to Yes – that would be contradictory.

So much for the Phrases – now for the Setup option. (Sensible Grammar did not detect that the previous sentence has no verb.) When you select this option from the menu bar, a panel displays five options, Printer, Disk, Characters, Text Collection and Quick Setup.

Choosing the Printer option allows you to set the printer slot and the width. You can specify an initialisation code and say whether the printer needs a linefeed and the high bit set. You can also set the program to print out automatically when you choose the Mark option. This facility could be useful for a teacher to mark a student's work and keep a record of the faults.

Choosing the Disk option allows you to set the slot and drive of the documents and the phrases. It also lets you change the option to keep the original file with the suffix OLD.

The Character option is not for the novice. It displays a list of the Ascii character set (on four screens) showing the hexadecimal number, the actual character and a code representing the way in which Sensible Grammar handles it.

Normally, it ignores Escape and Control characters and most symbols, but you can set it to detect any character. There is a facility to set a character so that when the

program finds it, it stops checking until it finds the same character again. This could be useful for excluding equations or text with special formatting.

The Text Collection option lets you modify the way that Sensible Grammar works on a document. Normally, it is set to ignore lines beginning with a full stop (as used in Apple Writer to embed formatting codes), but if your word processor uses a different character, you can change the full stop to the appropriate character. Normally, it expects two spaces between sentences but if there are more than two it does not detect the fault.

**Checking work**

There is also an option which sets Sensible Grammar to proofread a whole document and mark all the suspect items. This means that a teacher could do something else while the program checks a student's work. This option can be used with the automatic printout of faults.

You can change the characters that are used to mark suspected words or phrases or faulty punctuation. You can also specify the character used to denote the end of a paragraph (normally \$0D, Return), and an alternative Carriage Return character for "soft" Carriage Returns.

The Text Collection option includes a facility to set the length of header to be

ignored. For instance, AppleWorks begins each file with a block of information on formatting. By specifying the proper number of characters, Sensible Grammar skips over the header.

Fortunately, the Quick Setup option saves you having to work out the details of the Text Collection option to suit your software. A panel displays a list of word processors – you can select one by using the mouse or the arrow keys.

If you want to run another program, rather than quit, this option scans the disc in the document drive and lists the files and directones. You can highlight a startup file and press Return, or switch to another drive. The Quit option takes you into the normal Prodos quit message asking you to enter a prefix and pathname.

When you start up Sensible Grammar you can press Escape and choose an option to copy the program on to a ram card. However, the program does not run any faster from a ram disc than from floppies unless you have your documents on the ram disc.

The program searches for a suitable ram card such as the Apple Memory Expansion Card, then loads in all the necessary files. Some cards need to be initialised first. The copying program is written in basic and the manual tells you how to modify the program to initialise the card automatically and to copy Sensible Speller and AppleWorks to the card.

Sensible Grammar is not infallible and it will not turn a bad writer into a good one overnight. But if you use a Prodos word processor and want to improve the quality of your writing, Sensible Speller will be invaluable. □

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Supplier: Broderbund/MGA Micro-systems, 140 High Street, Tenterden, Kent TN30 6HT.  
Tel: 05806 4278  
Requirements: Apple Ilgs

Product: Sensible Grammar  
Price: £95  
Supplier: Business-Sense Computing, 5 Cattle Market, Hexham, Northumberland, NE46 1NJ.  
Tel: 0434 606526  
Special offer: Sensible Grammar + Sensible Speller: £175 (normally £200) if you buy Sensible Writer at the same time, the bundle is £259 instead of £295.

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# Portable peripheral




---

**David Stevens**  
**swaps his Filofax**  
**for a Psion**  
**Organiser II**

---

REGARDLESS of what television adverts would have us believe it is not easy taking your computer to work – or work's computer home. If you're mobile, upwardly or not, it's always been a bit of a dream to have a truly portable, rather than luggable, computer.

However, there is another approach. Leave your main computer and its peripherals where they are and buy one more add-on, an intelligent one which can have its own peripherals – a Psion Organiser II.

You will then possess a truly portable – weighing less than 10oz it will fit in a coat pocket with ease – terminal and computer with its own memory, its own utilities, and its own programming power. And at the end of the day you can pass information between it and your more cumbersome one back home without any problem.

The Psion II is very impressive. It measures 5.5 x 3 x 1.1in when closed and opens to show a full, alphabetically arranged keypad measuring 2.5 x 2.5 in with an LCD display of 2.5 x 0.75 in. This shows a two line by 16 character window on the full display. The whole is powered by an alkaline 9V PP3 battery.

The XP model which I have been using has a claimed 16k of CMOS ram with 32k of rom and there is a smaller model, the CM which has 8k of ram and 24k of rom. Both machines can take two snap-in datapacks – in reality, eproms. These are used for permanently saving data and programs or for buying off-the-shelf utilities such as a spreadsheet, dictionary, or suite of maths utilities.

### Good firmware

The datapacks can be up to 128k on the XP and 64k on the CM, and as small as 8k. They fit snugly in the back of the machine and can be snapped in and out whenever you need to change programs or data storage.

The top of the Psion has a 16-pin port to which may be attached an RS232 serial adapter or a parallel adapter, or peripherals such as bar code and magnetic card readers or a mains adapter. If you are going to use the Psion as a terminal to your main computer you will need the serial adapter.

The firmware on board the XP is good: At every level the machine will present a menu of possibilities and there is cursor key or hot key – press the initial letter of the option – movement between the options.

All actions are made with an EXEcute key and all areas of software may be left with a

CLEAR key. The main menu of the XP offers FIND, SAVE, DIARY, CALC, PROG, ERASE, TIME, INFO, ALARM, COPY, RESET and OFF.

It is worth having an Organiser for these options alone – it beats a Filofax hands down. FIND and SAVE offer a free format database into which anything can be added: It quickly searches for any, or part of any, word in it. This is backed up by the DIARY option which can keep track of appointments and there is an ALARM which sounds off rather quietly, but is perfectly audible if the machine has not been put well away.

INFO gives the number of bytes of memory left in ram, the percentage of the three memory devices, A, B, and C: used and the DIARY usage. A: is the ram and B: and C: are the data or program packs. TIME tells it or sets it, COPY moves data between memory devices and RESET is probably best removed from the menu for safety, but it can be restored if wanted.

CALC is a full calculator with the common mathematical functions such as SQR, SIN, COS, TAN, ATAN, EXP, LOG, LN, ABS, INT, RAD, and DEG built in as well as add, subtract, divide, multiply and raise to a power.

### Functions shared

The calculator illustrates some good points of the Organiser as a whole: The keyboard gives upper and lower case characters and has a CAPS lock and a NUM lock since the numbers form a keypad by sharing a block of keys in common with some of the characters. Therefore you press NUM if you want to use all numbers, otherwise they are usually gained by using the Shift key.

However, as soon as the calculator is active the keys return numbers directly. Generally, this is true of whatever area of software you enter. The keys are intelligently set to lower or upper case or numbers.

The functions belong to the programming language of the organiser (OPL) but are shared by the calculator. If you buy the Maths Pack then your own programs and the calculator can use the functions provided in that as well.

These cover routines to solve quadratic, cubic and generalised equations (Newton's method) and linear equations with up to 10 variables. Real and imaginary eigenvalues and determinants of up to 10x10 matrices may be evaluated.

There are functions for numerical and analytical integration and for statistics where chi-squared, correlation coefficients, and confidence levels may all be calculated along with the error function.

Polynomial curves may be fitted to experimental data – up to 100 pairs – for orders up to 9. I think that this is incredibly over the top, but I suppose if a user has bought such software he knows how to

use it. You can also evaluate Bessel functions of the first kind, the Gamma function, factorials, inverse trigonometric and hyperbolic trigonometric functions.

This philosophy of sharing covers several aspects of OPL and the database too, so that memory is not consumed quite as fast as might be expected. For example, in OPL, which is a cross between Basic and Pascal and with which any programmer would be quite happy, all pieces of software are created as procedures.

Any one procedure can then be called by another and any main program is just a procedure. The result is that common routines are just that – common to all – and much memory is saved, especially when compared with the more standard arrangement whereby each program loaded into memory carries all its sections within it.

The manual for the XP model says that the machine has 16k of ram and some adverts claim 32k. However, INFO says that it has 23k. In an attempt to investigate this I used a program to fill the memory with groups of 10 bytes and found that with 3400 of these the ram was approximately half used.

This suggests that data is packed in some way – another indication of the care taken to conserve memory. Interestingly, as the memory filled up, the time taken to compile and save a procedure increased. Clearly, it pays to keep memory usage down.

There is a spreadsheet available as a program pack, which offers more than 2500 cells (A-Z columns and 99 rows) and is Lotus 1-2-3 compatible in that it supports compatible formulae with all Lotus functions other than the database statistical ones. There is relative, absolute and mixed cell referencing and there is a natural order of recalculation. A Comms link allows the data to be uploaded to other spreadsheets where recalculation should take place.

### English spelling

One program pack which has proved very useful is the Concise Oxford Spelling Checker. This installs itself into the main menu and contains over 27,000 words with full plurals and variations – and is thankfully English and not American.

A search for a word is simply made by typing in the first few characters: As soon as there are three it will offer the first match it can make, then continue to check if you press more keys. As soon as you have a match you can press the EXE key to step through the rest of the available possibilities, or you can press a letter key or even the delete key and re-enter a letter.

It's very fast and economical in keystroke use. I have found it more convenient to use the Psion as a spelling checker when working with a document than to use most wordprocessors' built-in spelling checkers. It has proved itself even for crosswords.

Although it does not support wild cards

in the search, it does not take long to try the possibilities.

The most useful peripheral of all is the RS232 serial port. This plugs into the top of the Organiser and comes with built-in Comms software and a socket for a mains adapter. This is almost a necessity because running comms on the Organiser is very heavy on the battery.

In general use the battery will have an average life of two to six months – saving to datapacks tends to use batteries up more quickly.

### Safety factors

However, comms runs a battery down fast and it is frustrating to lose power in the middle of data transfer. Loss of power does not, thankfully, mean loss of data in the ram. The Organiser will warn you and shut down when it detects little available power and when changing the battery you have 90 seconds of safety, without one being connected.

The comms software provided is powerful, with full control over transmitted and received data formats and, of course, accessibility to it from your own programs. There is also a terminal program provided within the serial port firmware, so it is very easy to transfer data between the Organiser and other computers.

The package's cable terminates in a standard male 25-pin D-way connector (female pins) but Psion also provides adapters between this and other connector formats.

The Psion's manual is split into two main parts. The first covers the use of the main menu functions quite well with some good examples. The second is devoted to programming the machine, and although it covers all the ground it is a bit thin in some areas.

Therefore if you plan to buy one and program it you should look at a very good book which helps tremendously – the Psion Organiser II by Mike Shaw, published by Kuma at £9.95 (ISBN: 0-7457-0134-5).

I've noticed that a common reaction to the Psion is "What could I use it for?". However, people seem to find many different uses for them. One friend uses his for spooling machine tool programs and another uses his as a terminal debugger.

I've also heard of the Psion being used as a data logger and as a portable terminal on a packet radio system. And, it makes a great electronic notepad. □

Product: Psion Organiser II  
Price: CP £99.50  
XP £139.50  
Supplier: Psion, Psion House, Harcourt Street,  
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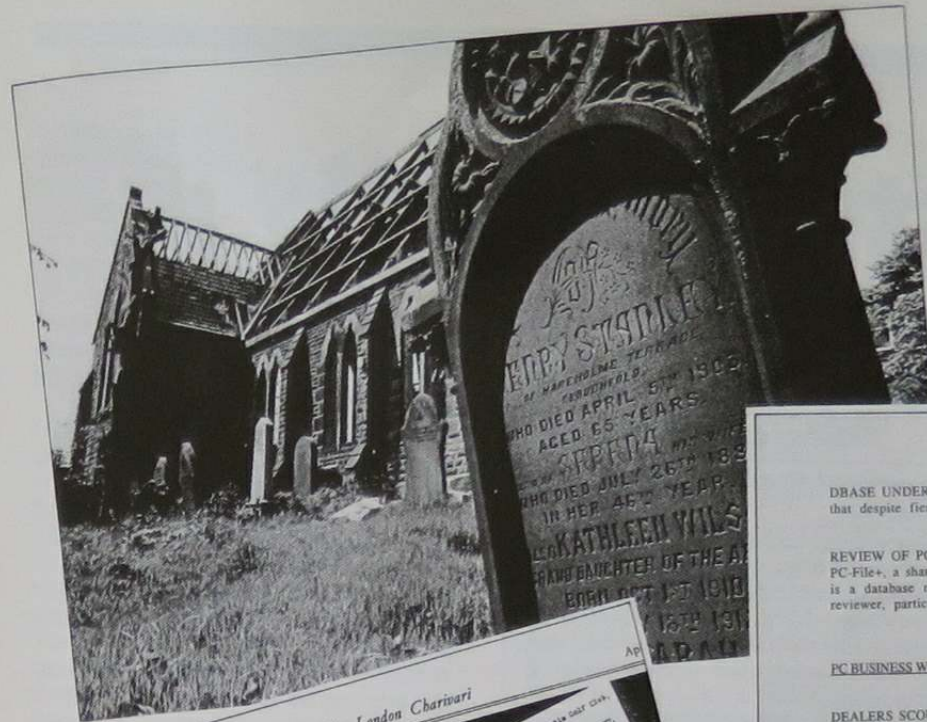


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DBASE UNDER FIRE - Article on the database market pointing out that despite fierce competition Ashton-Tate is holding its own.

REVIEW OF PC-FILE+ - Caxton Computer Systems has released PC-File+, a shareware product in the US but for sale in the UK. It is a database management package and is recommended by the reviewer, particularly at its price of £49.95.

### PC BUSINESS WORLD

DEALERS SCOUT FOR IBM SUPPLIES - Desperate dealers are turning to overseas distributors in a bid to meet demand for IBM's PS/2 machines. Some are trying to import scarce models from France and Germany. Others are being approached by distributors offering grey imports from the states. IBM has reacted by sending dealers a letter warning that accepting imports from the US will invalidate the warranty on the machines. Meanwhile, they have started round the clock production at its Greenock plant to cut the backlog. Some dealers are saying that some large companies are holding off from purchasing the new system because of the delays.

SYMPHONY UPGRADE TO DROP COPY PROTECTION - A new version of Lotus Symphony, to be launched later this year, will come without copy protection. MD, Floyd Bradley confirmed last week, "Symphony 2.0 will be a new way of discouraging illegal copying." Version 2.0 of Symphony will have an enhanced word processor and make better use of expanded memory.

DEC COMES CLEAN ON LICENSING SCHEME - DEC has confirmed that it is licensing Microsoft's OS/2 operating system and plans to ship it to customers early in 1988. The company had previously refused to be drawn on its plans to respond to IBM's April announcements. The most it had promised was to consider integrating PS/2 systems into its networks as they became prevalent. However, they indicated last week that they will release OS/2 at the same time as other manufacturers.

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# Casting spells

A SMALL riddle: When is a dictionary not a dictionary? Answer: When it's in a spelling checker. To most people a dictionary suggests a book that explains word meanings or offers equivalent words in a foreign language. Not so a spelling checker dictionary: it's simply a list of words – no meanings are attached.

If you're a good speller and normally reserve your dictionary for looking up the meaning of unfamiliar words, you probably don't want a spelling checker. However, if you're one of those people who seem to type with 10 thumbs then a spelling checker may be just what you're looking for.

The basic concept is appealing: simply bash away at the text on your word processor, select the portion that you want checking and the spelling checker does the rest, highlighting all those embarrassing errors.

However, it's not as simple or as clever as it first appears. A spelling checker will check each word against a dictionary and highlight those it doesn't recognise: But there are certain types of errors that it will ignore, namely those typos which annoyingly result in a legitimate word, for example *dare*, *bare* or *fare* when what you really wanted was *care*.

While they're not a panacea to the writer with keyboard dyslexia, spelling checkers are becoming increasingly sophisticated, many claiming to offer help with grammatical aspects of the text. By this it is meant that the spelling checker can identify double word errors, such as *the the*, or detect proper nouns that are not capitalised, such as *london*.

## Time and motion

Three spelling checkers were compared: MacLightning Version 2.0, WorksPlus Spell, and Spellswell Version 1.3. These represent a broad cross-section in terms of the way they operate and the wide variety of features they offer.

Testing was informal, the spelling checkers being used over a period of months, but all were tried using a standard document, an example provided for demonstrating MacLightning's capabilities.

You might imagine that MacLightning's developers would have rigged the document so as to show their product in its best light. Not so. It took close on 19 minutes to make the corrections to the test document using MacLightning – and the document is a mere 400 words in length and contains only 22 misspellings.

Using Spellswell the test document was corrected in little over five minutes. In comparison with MacLightning this was

## Gordon Allison compares the merits of three rival spelling checkers

very good, but the gain in speed stems from the simple way of navigating through the dictionary – either by scroll bars or the usual Mac convention of typing in the first few letters – and the ease with which words are replaced – only one click is required.

In fact, Spellswell's suggestion for misspelled words were curious in the extreme. *Understaden* produced *understuffed*, *beter* generated *betels*, *seletive* mutated to *Selenium* and the piece de resistance was *numonia* which conjured up *numismatists*.

Luckily, you can see the misspellings in the context of the original text, or the task of making corrections would be extremely difficult.

WorksPlus Spell is a gem by comparison. A range of suggested alternatives is suggested for each misspelled word, and if a suggestion is not made the dictionary is displayed. It took two-and-a-half minutes to correct the test document, and in each instance the correct spelling appeared in the list of alternatives, more often than not as the highlighted option ready to be pasted directly into the text.

## MacLightning

MacLightning is a desk accessory and claims to work with 90 per cent of all Mac

software. You load it into your system folder in the normal way using the Font/DA Mover.

It comes complete with Merriam Webster's Ninth New Collegiate Dictionary, which contains over 80,000 complete words and is recognised as the world's best-selling English dictionary – or so the makers proudly boast.

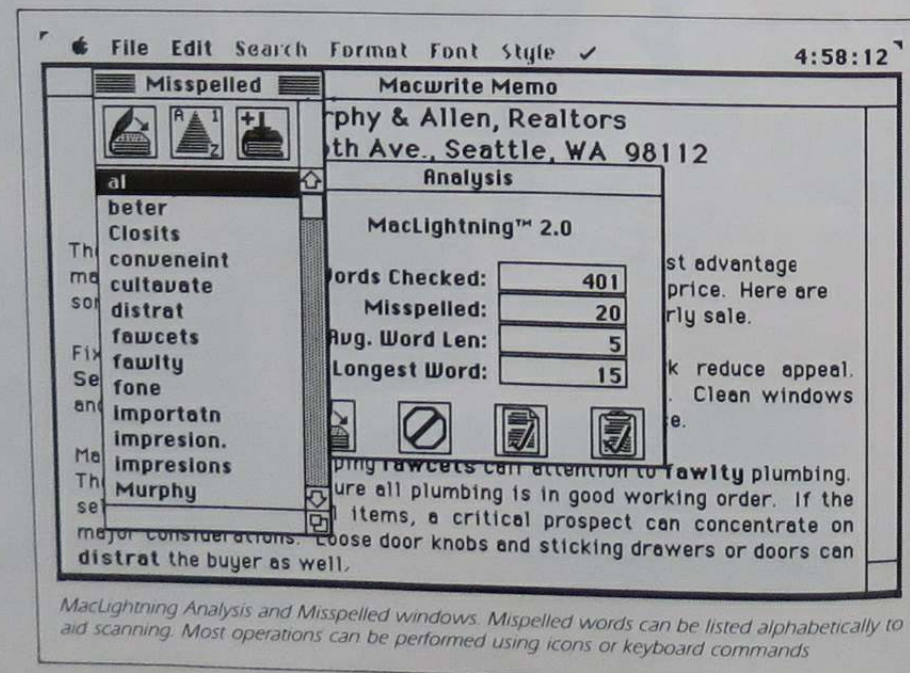
I can't dispute the trade figures on which this is based, but I do dispute the fact that it is an English dictionary. It's not!

All three spelling checkers have dictionaries that are as American, as turkey on Thanksgiving Day. Therefore it doesn't recognise *colour* as being correctly spelled, prefers *center* to *centre* and thinks that the people next door are *neighbors*.

With most spelling checkers you expect to undergo a period when you are customising the dictionary, adding those words that are peculiar to your own line of work. One of the major drawbacks to MacLightning, however, is that it only allows you to add words to the dictionary and does not permit the removal of those American spellings that you don't want.

Therefore, you can add *centre* to the dictionary contents, but you can't remove *center*. So if you spell it incorrectly – that is, the American way – it won't be flagged as an error.

MacLightning is very cumbersome and slow to use, due in large part to it utilising the resident search and replace facility of whatever text processing application you happen to be using. The sequence of actions required to replace an incorrect word is tortuous.



MacLightning Analysis and Misspelled windows. Misspelled words can be listed alphabetically to aid scanning. Most operations can be performed using icons or keyboard commands

First, double click on a word in the Misspelled window which will display the dictionary window. Only one alternative is suggested and even if this is the right one, you have to click on it to transfer it to the active portion of the dictionary window. You are now ready to enter the search and replace facility, which offers the usual choices of finding one occurrence at a time or going for a global replace.

Confused? You will be. Using MacLightning with MacWrite it's easy to click a button before the replacement has been spelled out in full, so you get parts of words pasted into the text.

The best feature of MacLightning is that it generates a list of all the suspect words rather than taking you through the errors in sequence like Spellswell and WorksPlus Spell. This means that you can select only those words that are misspelled and ignore those that are technical or unique to the topic.

MacLightning offers the option of checking text as you type. In this interactive mode as it is known, each time you make a mistake a beep sounds. Type Command+1 and the dictionary appears with a suggested alternative. Click on the correct word, type Command+2 and it is pasted into the text and you're ready to resume keying.

This mode might suit some people, but I can't count myself in their number. I'm a hunt-and-peck typist, albeit using four or five fingers. The number of errors is usually high, but I pick up most as I go along. The beep is a constant source of irritation and restricts the build up of a nice, smooth rhythm.

Product: MacLightning

Price: TBA

Supplier: Target Software, 14206 SW 136th Street, Miami, FL 33186

Tel: 010 1-800-622 5483

## MacLightning

Desk accessory capable of checking any text only document, and documents from Microsoft Works and Word, MacWrite, most DTP programs and even MacPaint documents.

Application size: 52k

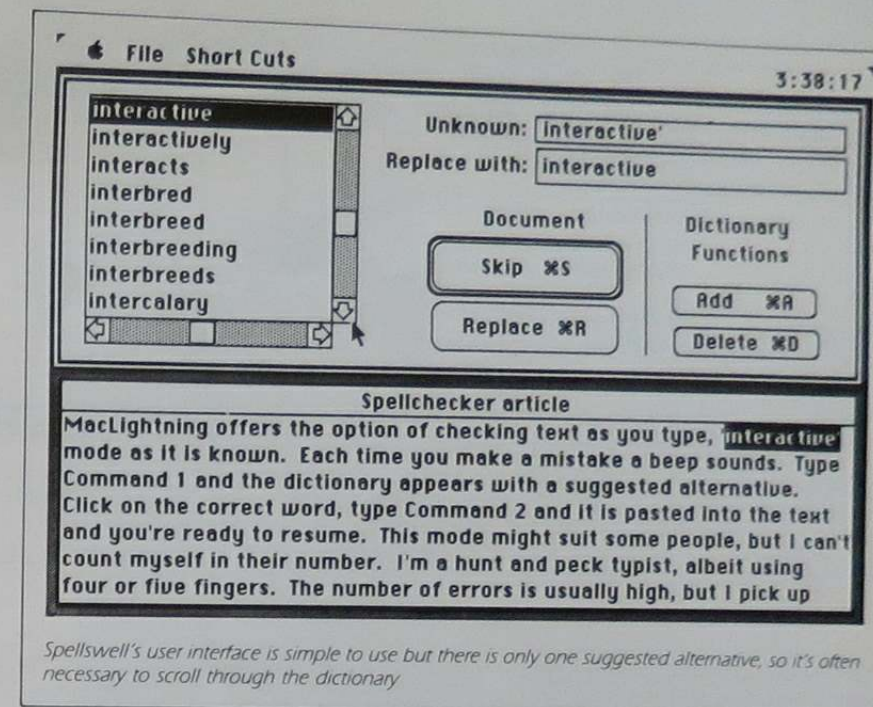
Dictionary size: 80,000+ (301k)

Features: Interactive or batch checking. Search for phonetically similar words. Thesaurus, legal and medical dictionaries available for purchase. Best Feature: Displays entire list of misspelled words.

Worst Features: Cannot delete original words from dictionary. Overly complicated procedures to replace words. Words not seen in context.

## Spellswell

Spellswell is a standalone, general purpose spelling checker. It works in true batch mode: You open the application then select a document for checking. This is a disad-



Spellswell's user interface is simple to use but there is only one suggested alternative, so it's often necessary to scroll through the dictionary

vantage as you cannot select parts of a document unlike MacLightning and WorksPlus Spell.

Its guesses at misspelled words were poor, but replacing words was very easy. However, on finishing checking a document you are not allowed to revert to the original version, and although you see misspellings in context, you cannot interact with the document – a real problem if you happen to skip a word by mistake or click on the wrong option, because you have to reopen the document to correct your mistake.

It does, however, maintain a separate document dictionary and can remember those words that were skipped on other passes, thus speeding up any subsequent checks.

As the number of spell checkers increases, the number of add-ons or added value gimmicks multiplies. Thesauruses can

Product: Spellswell

Price: £59.95 + VAT

Supplier: Greene Johnson/MacSerious, 17 Park Circus Place, Glasgow, G3 6AH

Tel: 041-332 5622

## Spellswell

Standalone program scanning any 'text only' document, and documents from Microsoft Works and Word, MacWrite and others

Application size: 59k

Dictionary size: 60,000+ (208k)

Features: Homonym checker, word count, checks for correct capitalisation and double word errors. Best Features: Individual document dictionaries. General competence and ease of use.

Worst Feature: True batch working – you can only select an entire file for checking and you can't interact with that file.

be useful, especially when you find yourself resorting to the same word time and time again, but none of the products tested had this feature.

Homonym checkers such as that offered on Spellswell are of dubious value. It is slow and tedious to use, stopping at instances of possible confusion on almost every line. To be fair, you can edit the homonym list which is stored as a text file, and so remove those ones that are really simplistic, but it took five minutes to convert the file to a MacWrite document.

There is a shortcut menu to speed up interaction – it defaults to a replace all occurrences option – and you can delete any word from the dictionary. Spellswell will also check for correct capitalisation.

## WorksPlus Spell

A spelling checker that is for use only with Microsoft Works. It offers both selective checking of any part of a document and an interactive mode. It is very easy to use and seems uncannily accurate when suggesting correct spellings.

One of the nicest features I found was the ability for WorksPlus Spell to detect extra spaces between words. If you're used to typing in 12 point Geneva, extra spaces can be difficult to spot.

Another useful feature was glossary typing, whereby you shorten or abbreviate common words or phrases, and upon typing them in a document they are replaced by the longer version.

Potentially useful for chemists, TNT can be transformed into trinitrotoluene by the touch of a space bar. As usual there is a catch – if the abbreviation already exists in the dictionary you are not allowed to define it as a glossary word. For example TNT is in WorksPlus Spell, so you would have to shorten it to *trt*.

WorksPlus Spell also offers a hyphen-▷

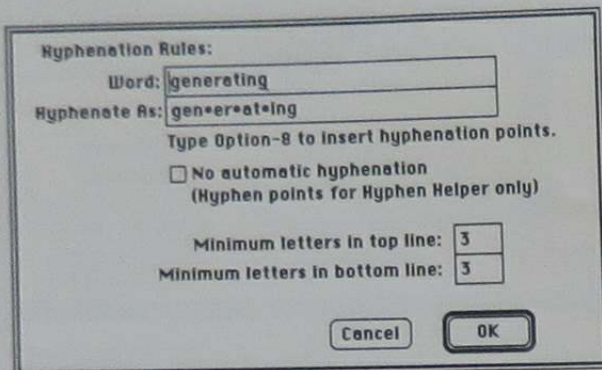


Figure III: WorksPlus Spell gives user total control over but you can elect to have it done automatically hyphenation.

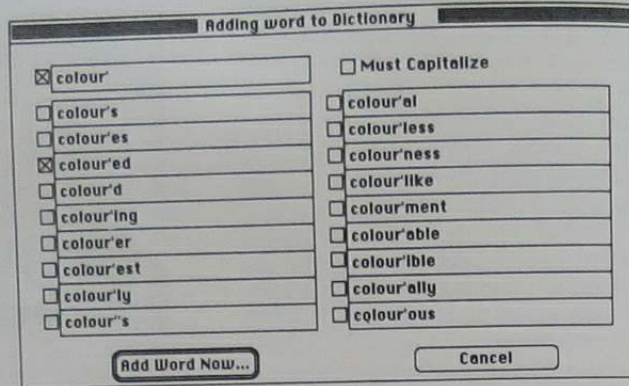


Figure IV: Adding words to dictionary made simple with Spellswell. WorksPlus Spell offers same facility, but with fewer word endings

ation feature, utilising a separate hyphenation dictionary, which is useful for tidying up those odd lines that look ragged. Hyphenation can be set up automatically or you can control it through a hyphenation helper, a device that allows you to see optional hyphenation points (see Figure III).

Product: Works Plus Spell Version 1.0  
Price: £68.95  
Supplier: lundeen & Associates/Microsoft, Excel House, 49 de Montford Road, Reading, Berkshire R91 8LP  
Tel: 0734 500741

[An upgraded version, 1.1, will be available shortly.]  
Fully integrated spelling checker for use with Microsoft Works.  
Application size: 56k  
Dictionary size: 73,000+ (140k).  
Hyphenation dictionary 146k  
Features: Interactive or batch checking. Offers alternatives including phonetically similar words. Glossary for common words and phrases. Hyphenation option.  
Best features: Speed, high hit rate for guesses, and ability to detect double spaces.  
Worst feature: Only for use with Microsoft Works.

**General considerations**

Adding words to a dictionary is generally easy. The spelling checker having flagged the word, simply click on the appropriate button or icon and it's done. However, you have to add the word in all of its correct forms: Plural, adjectival, adverbial and so forth.

Spellswell and WorksPlus Spell have tried to simplify this task by automatically generating a list of probable word endings. Figure IV shows the Spellswell list for colour, allowing quick selection of colouring, coloured and so forth.

This feature is an interesting diversion,

simply choose a word and behold the results. Words like *Grimsbly* are sure to raise a chuckle: *Grimsbily*, *Grimsblyer* and *Grimsbies*, are just a few of the suggested additions.

Size of dictionary is important. Obviously, biggest is best in most respects, but not if you're using a floppy disc system. To counter this problem Spellswell has two dictionaries, a massive 93,000 word collection and a more modest 60,000 word version.

If you are still using 400k floppies then it's worth noting that MacLightning's dictionary occupies a hefty 307k, Spellswell's larger offering accounts for 275k and WorksPlus Spell's a mere 142k. Don't assume that WorksPlus Spell has sacrificed coverage, it's packed in a 73000+ word dictionary.

A common problem with all three spelling checkers is their handling of inverted commas. I tend to use the plain quotation marks ( ' and " ) situated next to the return key, rather than the more intricate quotation marks ( " and " ) you can get by pressing option, shift and square bracket combinations.

MacLightning differentiates between

'plain' and 'fancy', flagging plain as, presumably, an incomplete possessive case. Spellswell flags both instances but would allow double quotation marks to pass. The WorksPlus Spell checker doesn't seem to make a distinction between any of the marks, but as a consequence it doesn't spot incorrect possessives such as *John's book*.

**Recommendations**

Spelling checkers are no substitute for a thorough proof reading of a document, but the right one can save time and effort. If you've standardised upon Microsoft Works as your word processing package, I have no hesitation in recommending WorksPlus Spell. Its speed and ease of use make it stand out from the other spelling checkers.

If you want to buy a general purpose spelling checker capable of checking files in the ubiquitous MacWrite and most other word processing packages then Spellswell is preferred. I'm afraid in comparison MacLightning is no flash performer, and I couldn't recommend it to anyone. □

**AppleUpdate**

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Product: 4th Dimension  
Price: £741.75  
Requirements: Mac Plus, SE or Mac II. Hard disc recommended.  
Supplier: User Power Software, Queens Studios, 121 Salisbury Road, London NW6 6RG  
Tel: 01-625 5666

**User-friendly**

**Pam Turnbull meets the people who count at MGA Microsystems**

ANYONE who owns an Apple computer will have probably heard of MGA Microsystems - the UK's largest mail order supplier of Apple software. From small beginnings in the 1970s based in Wye near Ashford, the company now has a mailing list of over 2000 Apple II end users, as well as Apple dealers.

Michael Gurr - MGA's founder and the M in MGA - bought one of the first Apple personal computers from the USA in 1977, thus establishing his first link with Apple. From there Michael Gurr Associates - with 30 years experience of the computer industry - began a consultancy specialising in small business systems.

The consultancy found it increasingly necessary to obtain software from the USA, for itself as well as for customers, and so the mail order business came into being.

It soon expanded, and this prompted the move to the company's present Tenterden address in 1980. This will soon be changing yet again, as in December MGA moves to still bigger premises in Appledore, Kent.

Jon Gurr, Michael's son, joined the company in 1979 on the marketing side, bringing with him experience in organising import and export as well as the Apple market.

**Still going strong**

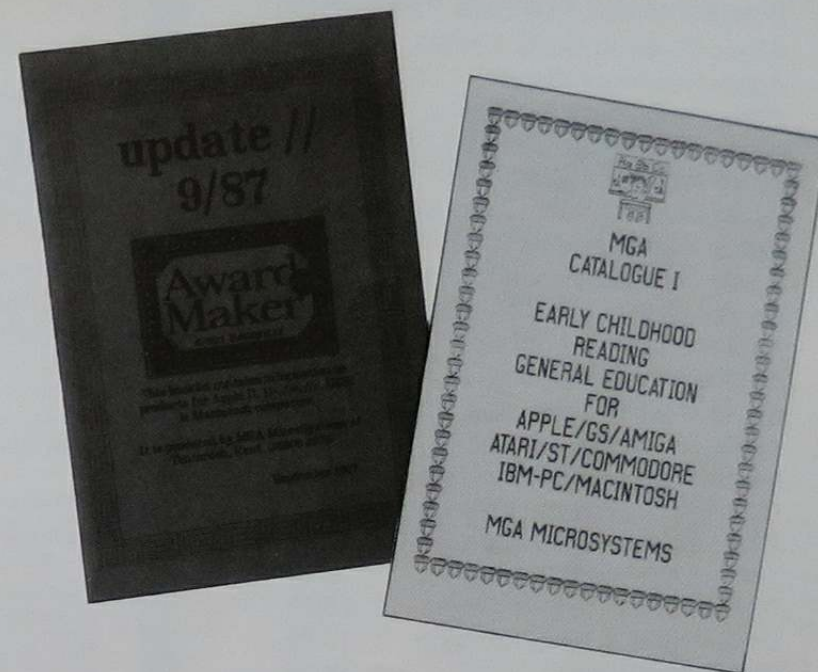
Over the last two years the mail order side has grown so dramatically that 1987 saw a break for MGA, with the two sides of the business splitting: The consultancy and installation of systems of Michael Gurr went one way, while MGA turned to concentrate on its role as supplier to the Apple II user.

With many software importers and suppliers switching to the Macintosh there were thousands of Apple users requiring support a hole which Jon knew MGA could plug.

This continuing corporate expansion led to Jenny Green - previously in charge of administration - joining Jon Gurr in the overall running of MGA in July 1987.

Thousands of Apple IIs have been sold in Britain, and even the first models are still going strong, although their initial use - and users - may have altered.

But even though there are newer, more business-orientated machines, Jon still prefers to plan and produce his leaflets and various types of artwork on his Apple - and



he's not alone.

So where are the Apples now? The market for MGA has most definitely shifted to the home user. Business users having moved more towards what are seen as purely business machines has meant that in many cases companies have sold their Apples to their employees - thus leaving a large potential market, but with a very different emphasis.

The introduction of the IIGs saw many people upgrading to this machine, yet software for it is still not readily available in this country.

MGA was quick to exploit this as the company already had very good lines of supply and so was able to make much new software available as soon as it was released in the USA.

From the add-ons required for its original consultancy work, MGA now supplies software, hardware - in the form of expansion cards and so on, as well as monitors and numeric keypads - and consumables such as heat transfer ribbons.

Since MGA has been involved with the Apple computer from its first days the company has a large library of available products and their suppliers, as well as an extensive knowledge of them.

Close contact with Apple (UK) and the UK Apple Users Club helps in this respect. Indeed Jon and Jenny don't see their role as a mere warehouse but as an information service, able to offer advice and help - something which they see as sadly lacking in some quarters. This information side is aided by their Quarterly Update magazine - full of special bargains and new products - which is sent to the Apple II users on their mailing list.

And for the future? Jon Gurr sees Apple's success in the UK as dependent on the IIGs. Though impressed by the user-friendliness of the Apple, which he still uses, there is no accounting software to compete with the more widely used business machines.

And so the future must lie with the individual Apple user - which MGA is committed to serving. □

**Apple tip**

**To SAVE a Double Hires Picture**

[Assuming PIC.AUX is the FIRST file saved in /RAM and before the Double Hires Picture is created or loaded by some other means]

BLOAD PIC.AUX,AS4000,S3,D2

(loads AUX page to \$4000 ready for saving with MAIN page)

BSAVE PIC.DH,AS2000,LS4000,S6,D1

(save both parts of the picture as one file)

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# U S A

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When the Mac is not in use, slip it over to protect it from dust, then when you want to transport it, just disconnect the mains cable and place the mouse, keyboard and external disk drive, still connected, into the appropriate outside pockets. There is also a large pouch to house software and manuals. Made from heavy duty black cordura it will provide all the protection that your Mac deserves. £25.00 + VAT

**Speedpad** - not just an ordinary felt topped Mousepad, but a large, fast surface which allows the Mouse to run quickly and truly, without gathering dust. It's smooth surface keeps remarkably clean but if thought necessary it can easily be washed. £9.95 + VAT

LAST year Graham Keeler wrote an excellent discursion on the anatomy of a Prodos disc and published it in *Apple User* in April and May of 1986. The second part contained a Basic program called ZAP which may be used to read, change and write blocks on the surface of a Prodos disc.

I've found the program is excellent for adapting disc catalogs and patching files, and in the latter context I have made a small addition to it to enable a search to be made for a particular value.

Also, ZAP uses monitor routines to accomplish several of its functions and unfortunately just one of these routines is moved in the IIGS system monitor. Luckily the program is easily adapted to allow for this and since the program is so useful - and in future articles we will be suggesting its use to patch various programs - I have here put this and some other patches to ZAP.

First, the changes to allow a disc to be searched for a particular byte: I have made F the command to Ffind a value. Press F, the value to be searched for. Depending on the mode in operation the value will be in hex, decimal or upper case Ascii. The search may be repeated by pressing M, or abandoned by pressing Escape.

To enable the F and M commands, change lines 20, 30, 40 and 50 as in patch 1

patch 1

```
20 DIM KEYS(14),BTS(40)
30 DATA 8,21,11,10,82,87,72,68,65,
50,83,27,70,77
40 REM L-A,R-A,UP-A,DN-A,R,W,H,D,A
,;S,ESC,F,M
50 FOR J = 1 TO 14
```

and add the new boolean variable SZAP to line 330 as in patch 2. Note that I have

patch 2

```
330 DZAP = 0:UC = 0:LL = 0:UL = 1:SZ
AP = 0
```

changed the value of DZAP so that the program defaults to looking at memory as an option when first booted.

ZAP deals with commands in line 1110 so this has to be changed as in patch 3

patch 3

```
1060 FOR J = 1 TO 14
1070 IF KEYS = KEYS(J) THEN KEY = J
:J = 14
```

```
1110 ON KEY GOSUB 2000,2000,3000,30
00,4000,5000,
6000,6000,6000,7000,8000,30000
,22000,22060
```

# ZAPped again

Reading, changing and  
writing - Max Parrott  
adapts a Prodos utility  
for the IIGs

where I have added two new line numbers to the end of the line. In addition lines 1060 and 1070 have to be changed to reflect the new commands.

The new variable SZAP is used as a flag in the main display routines so add line 7125 and change lines 2070, 3020, 3070, and 10290 as in patch 4. Finally, add the new lines from patch 5.

patch 4

```
7125 IF SZAP THEN RETURN

2070 IF NOT SZAP THEN INVERSE : G
OSUB 9000: NORMAL
3020 IF NOT SZAP THEN GOSUB 9000
3070 IF NOT SZAP THEN INVERSE : G
OSUB 9000: NORMAL
10290 IF NOT SZAP THEN INVERSE : G
OSUB 9000: NORMAL
```

patch 5

```
22000 SZAP = 1: GOSUB 7010:SE = BT
22010 GOSUB 10000
22030 SZAP = 1:KEY = 2: GOSUB 2040:S
ZAP = 0
22035 KEY = PEEK (- 16384): POKE
- 16368,0: IF KEY = 155 THEN RETURN
22040 IF PEEK (BA + 128 * PAGE + X
+ 8 * Y) < > SE THEN GOTO 22030
22045 GOSUB 2070: VTAB 2: HTAB 1: P
RINT BLS;
22050 RETURN
22060 GOSUB 9000: GOTO 22030
```

While patching I found it more convenient to add line 1045 and change line 13510 as in patch 6 to enable lower case

patch 6

```
1045 IF KEYS > "Z" THEN KEYS = CHR
$ ( ASC (KEYS) - 32)
13510 GET CHS: IF CHS > "Z" THEN CHS
= CHR$ ( ASC (CHS) - 32)
```

entries to be made: They will reflect as upper case on the screen. They do preclude a search byte to be entered as a lower case Ascii character, but I found that I never wanted that option.

To enable ZAP on the IIGs I added line 5 (patch 7) to switch to 40 column mode (this

patch 7

```
5 TEXT : PRINT CHR$ (24): PRINT C
HRS (17)
```

may be useful on a IIc and IIe with 80 column card as well) and added lines 271-274 as in patch 8. Then line 10080 (patch 9) has to be changed.

patch 8

```
271 FOR J = 862 TO 886: READ X: POK
E J,X: NEXT
272 DATA 165,60,41,7,208,3,32,146,2
53
273 DATA 169,160,32,237,253,177,60
274 DATA 32,218,253,32,186,252,144,
230,96
```

patch 9

```
10080 CALL 868: REM PRINT 1/4 BLOCK
IN HEX
```

Finally to allow 3.5in discs on slot 5 to be checked, make patch 10 which assumes that 5.25in discs are on slot 6.

patch 10

```
3525 IF SN = 6 AND (BLK = 279 AND P
AGE > 3) THEN PRINT BLS;: RETURN
3530 IF (BLK = 1599 AND PAGE > 3) O
R (BLK = 0 AND PAGE < 0) THEN PAGE =
PAGE - 2 * KEY + 7: PRINT BLS;:
RETURN
4035 IF BLK < 0 OR (BLK > 279 AND S
N = 6) OR (BLK > 255 AND NOT DZAP) O
R
(BLK > 1599 AND SN = 5) THEN P
RINT BLS;: RETURN
```

Even if you do not have a IIGs it may be worth making these latter patches - the program will still run on a IIe, IIc or II+. □

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# VIEWFRAME

How often have your groups huddled around your computer terminal trying to see your data or graphics? How often have you given presentations using inadequate or out-of-date transparencies? The ViewFrame Projection Display solves these problems. ViewFrame is a low-cost, easy-to-use tool for displaying your computer's text and graphics on a large screen, using any ordinary overhead projector. It serves both small groups or large audiences. Simply place ViewFrame on your overhead projector in place of the usual transparency. Your computer display can then be projected from three to 20 times normal size onto a screen or convenient wall. ViewFrame can display computer-generated graphics and animation as well as text. ViewFrame is ideal for:

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- Budgeting
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Use ViewFrame with spreadsheet programs such as Excel to aid in project planning, budgeting and inventory control. Conduct brainstorming sessions with ViewFrame and outline-processing software such as MORE. Prepare and edit reports, outline business strategy, review action-items... These are just some of the many uses you will find for the ViewFrame projection display. Ideas can flow freely when everyone in your group has the agenda in view!

#### What you get:

- Can be used with any Macintosh (interface card supplied) or MS-DOS computers with the enhanced graphics adaptor (EGA) board.
- Additional Mac interface cards and cables available at extra cost.
- The monochrome display will show the whole of the standard Mac screen. With MS-DOS EGA, it can show 640 by 400 pixel resolution graphics or 80 column/25 line text format.
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- NO SPECIAL SOFTWARE REQUIRED.
- WORKS WITH ALL APPLICATIONS.
- Overhead projector is not included.

## Days of future past

PORTAL is different. It's not a game, there are no puzzles to solve, no treasures to collect, no sentence parser to deal with text input because there's no need to input any text. It's what its author, Rob Swigart, calls a computer novel.

Like a book, the story slowly unfolds as you get more information. Like a book of the future, it is no longer a linear text string but a complex database through which you must navigate.

The story so far: When you arrive back on Earth after a 100-year voyage, the year is 2106 and all the people have vanished. Everything else is there – trees, birds,

Program: Portal  
Price: £34.99  
Requirements: Apple II  
Supplier: Activision Inc, Drawer No 7286,  
Mountain View, CA94042 USA.  
Tel: 0101-415 9600410

animals – but, as you soon learn, there is no human life in the solar system.

By chance you find an active terminal connected to the 12 Worldnet "dataspaces". OK, so it looks like your Apple, and initially most of the dataspaces are "temporarily empty", but slowly you begin to find files which can still be read.

Then you make contact with HOMER, a raconteur algorithm which seems to have forgotten everything. The Heuristic Overview of Matrix Expansion and Reconstruction algorithm is just part of the future artificial intelligence technology which is now in your past.

That's the clever part of Portal. Although you're placed in the future, you're slowly reconstructing it as the past. Moving around the dataspaces, you and HOMER gradually piece together the story which got you to where you came in. It's one big

flash back.

It's also something you'll either love or hate. The moving up and down levels of the dataspaces, in and out of files, is nowhere near as convenient as turning the pages of a book. The repeated noises can be irritating too.

All movement can be controlled from the joystick or keyboard, but you don't need the latter to enter commands because there is nothing to command. Portal is /not/ an adventure game so there's no "get sword" or "fire lasers".

If I were to judge Portal against a book I would have to admit that it's slower than even my pedestrian reading speed. If I were to judge it against a textual database, I'd have to admit that I missed the ability to query it. However, as computer-based entertainment I found it very enjoyable.

At £34.99 it's a lot more than I'd pay for a novel, even if it does fill six sides of disc. However, as a view of how the novel might develop, as an interesting variation on the narrative form, it's certainly worth a look.

Paperbacks made books affordable – what we need now is the computer paperback.

Dave Russell



## Fast and furious

IF you like your armchair sports fast and furious and you can give that joystick some wellie, try out Ski Crazyed – the Alps never witnessed skiing as fast as this.

Ski Crazyed doesn't provide much in the way of apres ski, unless you count a quick burst of music, some applause and a knees-bend to remove your skis. The exhilaration of getting to the end of the piste was quite enough thank you. Frankly, I just wanted to rest the first time I managed it. And that was just the beginner's slope.

However, you do get a rest on the slope every time you fall, while you hear the snow plough whining its way through the valley – or maybe that was the disc drive and I'm getting snow sickness.

After taking some short lessons from the resident ski pro and his protege, the red skier, in avoiding large rocks – called moguls – and jumping and slaloming I was ready for the first slope. At least I thought I was.

The skis are totally under joystick control, unfortunately I wasn't totally in control of the joystick. But practice and perseverance won through and I eventually made it. After that, though, it just gets harder. I managed

Product: Ski Crazyed  
Price: TBA  
Requirements: Apple II with at least 64k, one disc drive and joystick.  
Supplier: Baudville/MGA Microsystems, 140 High Street, Tenterden, Kent TN30 6HT.  
Tel: 05806 4278

some tricky manoeuvres over the jumps and I could even avoid the ice patches, but I lost count of the number of times I had to be picked up by the two experts with the stretcher or even buried in the avalanches.

If you get bored with the slopes presented you can always improve on nature and design your own. Up to 10 can be made and saved. You have to be firm with yourself and not cheat by making them too easy but on the other hand if you find that you really do need a nursery slope...

The only thing that puzzles me about Ski Crazyed is its sense of geography. The user guide says we get the best of the Alps and the mountains of North America in the prestigious Kilimanjaro Annual Inter-



national Skiing Tournament.

And indeed you have to work your way through the slopes up to the final event – which I haven't, or more honestly can't. But I shall practice and I recommend you do too.

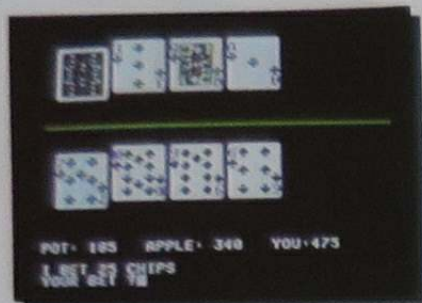
D. Vine

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KEYPUNCH Software has released a series of games for the Apple II. Packed in thin, transparent, plastic cases, the discs themselves contain all the instructions.

Each disc contains several games on a theme. I started with The Gambler, a compilation of four games – Blackjack, Stud Poker, Derby Day's [sic] and Poker Dice.

Blackjack is a one-player game and starts with a full screen of instructions. The dealer's cards appear at the top of the screen, the player's below. You can perform the usual actions, including shuffling the pack.

Equal scores result in a stand-off rather than a win for the dealer. Five-card tricks appear to be nothing special. Oddly, the dealer sometimes lets the player win. Twice he gave up on 17 although I had turned up 20. When I stuck at 13, the dealer dealt himself 16 and then turned up a picture card.

The game was reasonably addictive in that I felt the urge to try and get my money back. However, since I apparently had a bottomless purse, it didn't matter how heavily I lost, which stanchoned the flow of adrenaline somewhat.

The games disc that came free with the IIc contains Apple 21, a more sophisticated, colour version of Blackjack. If you don't have it, this might help while away some idle moments.

The rules of Stud Poker, another one-player game, simply explain how to operate the game on the computer, not how to play poker. Apparently, "strategy is important" but there are no hints on how to apply it. Despite this, I quickly won \$200.

The cards are displayed on the screen as in Blackjack with text at the bottom for prompts or remarks. If your face betrays your thoughts, try Stud Poker. The computer can't see you wince – or yawn.

The ungrammatically named Derby Day's was my next selection and despite the lack of instructions, it kept my interest longer than Stud Poker.

The game offers two screens. The first displays columns headed Horses, Odds, Players and Cash while the other shows the race. The odds can change as you watch. After a two-minute countdown at the top of the screen, the race is run regardless.

Eight numbered horse-and-jockey silhouettes move across the screen for about 45 seconds, more a redrawing of identical shapes at very short intervals than

## Budget buys

Program: Keypunch Collections.  
Price: £9.99  
Requirements: Apple II  
Supplier: Keypunch/MGA Microsystems, 140 High Street, Tenterden, Kent TN30 6HY.  
Tel: 05806 4278.

animation. Again, the adrenalin flow was low as this black and white display soon becomes tedious.

However, the game does cater for several players and, played on the family TV, might add sparkle to the Christmas party – especially if matchsticks, Smarties or even real money are changing hands.

The final game on The Gambler is Poker

Dice, five-card poker with dice. The idea is to roll the five dice twice to get the winning combinations listed in the rules. You roll the dice by typing any combination of 1-5 and then pressing 9. These numbers are not displayed, so you won't know if you mistyped.

All the dice (dotted rectangles), merely disappear and reappear even if only one is "rolled". After two attempts, a comment such as "You have three of a kind in 3's" appears – then you start again.

I found this game little more captivating than Stud Poker and soon got bored with the simple, repetitive action.

The next disc, Board Games, was an improvement and Chess, the first game on

## Essence of magic

Program: Beyond Zork  
Price: £24.99  
Supplier: Infocom/Activision, 23 Pond Street, Hampstead, London NW3 2PN.  
Tel: 01-431 1101

**NEARLY one million copies of Zork were sold – that was 10 years ago and now there is Beyond Zork.**

**To put you in the picture: Since you last explored the Great Underground Empire, a series of bizarre events has plunged the kingdom into chaos. The wizards have mysteriously disappeared and so has the magic required for society to continue. In their place are civil disorder and rampaging monsters.**

**You are a mere common peasant, but the remaining enchanters have chosen you to reclaim and hide the fabled Coconut of Quendor. This strange artifact contains the essence of magic within its time-impervious shell. At first you will be unaware of the magnitude of your task – yet your knowledge and abilities will increase with time.**

**Rather than being a sequel, Beyond Zork is a new era. The rich prose of interactive fiction remains, but now you can create your own character, drawing on the most popular aspects of role-playing.**

**In the best tradition of table-**

**top adventures you have six key attributes: Compassion, strength, luck, intelligence, dexterity and endurance.**

**Yet there is a trade-off... if you are extremely intelligent your strength may suffer. If you prefer you can leave your fate to the computer and let your attributes evolve during your experiences and battles.**

**It is not just the scenario and character generation which have altered, but also the look of the screen: Windows display your attributes in bar charts form, your location or your inventory throughout the course of play, while an on-screen map allows you to chart your moves.**

**Several other enhancements add to the interactive features of this game: Programmable function keys allow you to perform frequently-used commands with a single keystroke – particularly useful in the heat of battle!**

**By naming monsters and objects as you encounter them you control the games vocabulary, while the Macintosh version allows an undo option for your last move.**

**Brain Moriarty is behind Zork – the award-winning author of Wishbringer and Trinity – is behind Zork. And Beyond Zork should be available here for Christmas.**

**Pam Turnbull**

the menu, is probably the best of the four.

Pieces are moved by typing the appropriate coordinates in the narrow margin on the right. The flashing piece then moves quickly into position. When the computer moves, it also displays the coordinates: Illegal moves result in an annoyed beep and the obliteration of the offending input.

The squares are unmarked but the instructions explain the co-ordinates. Except for the margin, the layout covers the whole screen and the traditional-looking chessmen are quite well-drawn.

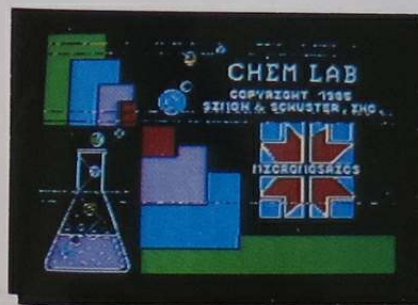
A one-player game with eight levels of difficulty, it should suit most enthusiasts. Blundering beginners can practice without the embarrassment of an audience.

Next came Flip-It, a computer version of Othello. I found the instructions unclear so I just went ahead and played.

The grid covers just over a quarter of the screen at the bottom lefthand corner and to play you key in simple co-ordinates. Illegal entries produce upward scrolling responses which eventually elbow the grid completely off the screen.

The only indication of the computer's "thinking" is a flashing cursor. Once it blinked for a good five minutes before I impatiently rebooted.

While Othello is doubtless entertaining, I felt that this version was the result of indifferent programming, and hardly fit to share



AIMED squarely at the "education with fun" market, Chem Lab is a hard-backed book with details of 50 "chemical experiments" which may be carried out in the safety of a "chemical laboratory in the computer" provided by the protected, Dos 3.3 disc which comes with it.

At first I could not decide whether Chem Lab was "serious" about teaching chemistry. The gushy style of the book – "At last you're where it's at. You've arrived in Chem Lab. Welcome" – suggests to me that the emphasis is on fun, not chemistry, although in real life the two should go together as far as I'm concerned.

The "lab" is a two-dimensional view of a work area containing two robot arms, a dumb waiter, a solids dispenser and three gas valves. The robot arms are manipulated from the keyboard, one at a time, and can be used to summon up equipment via the dumb waiter and to move the equipment and chemicals around the area. Bunsen flames may be lit, and pressure and super-

the disc with the other games.

Moving on to Connection Plus, I was pleased to find the computerised counterpart of the game where you drop coloured discs edgewise on top of each other in an upright plastic frame to create a vertical, horizontal or diagonal row before your opponent does.

After all these one-player games, it was irritating to find that a human opponent is required for this simple, full-screen game which is reasonably addictive.

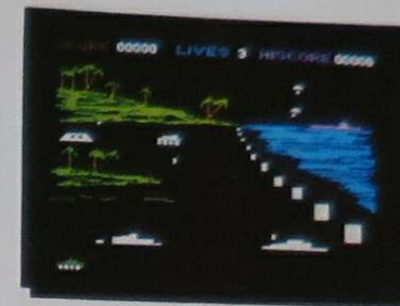
The Trap, a deceptively simple game, is the last on the menu. Again, coordinates have to be entered – make notes because the web-like frame is unmarked.

The object is to trap the computer's single black piece so that it can no longer move. You have three white pieces which can move up, down, right and forward. The black piece can follow any unobstructed path without restriction.

The computer's responses are quick and the program learns from its mistakes so that subsequent games become more difficult. Despite its apparent simplicity, it's addictive, but the variety of moves possible must surely be limited.

Sports Spectacular, the third disc, is probably the least spectacular of the bunch.

Baseball, a two-player game, is number one on the menu. The most striking feature is the discovery that you need paddles – a



fact not advertised anywhere but on-screen.

A rather simple graphic displays the corner of a green field where stands a virtually invisible batter facing a static configuration of square blobs. This is the pitcher from whose nether regions the ball mysteriously emanates. The curve of its flight can be controlled to some extent and your paddle button enables fielders to jump and try to catch the struck ball.

Results of current action appear near the bottom of the screen and after each innings, a complete run-down of the state of play is displayed. I imagine only keen baseball fans would appreciate this, but they probably already own a far more impressive program.

In Football (American) we are spared the lowly graphics. Instead the screen bulges >

## Chemical reactions

heat used if required.

An experiment is chosen from a list and the lab is entered. Querying via the keyboard elicits information on the chemicals available and the target chemical to be prepared.

The first on the list (described in detail in the book) has powdered baseball, bubblegum, supernova juice, soda pop, and Alaskan gas as raw materials and the target is Magic Elixir.

Actually it's unfair of me to pick this one out – it is intended only as a tutorial. A more typical experiment is to prepare nitric oxide from copper, platinum, ammonia, carbon monoxide, oxygen and hydrogen.

A tutorial is needed – the book has 16 pages devoted to controlling the work area and its contents. The experiments have to be done correctly. The right equipment has to be got at the right time and the chemicals have to be added in the right order.

Because of the need for order I think Chem Lab is not suitable for young children – I'm sure they would become frustrated. With older children and adults the frustration will come from not knowing how to proceed with an experiment. Unless you are a chemist or have a text book to refer to it could take ages to get it right. Being faced with intransigence from an adventure

game is bad enough, but such problems pale into insignificance compared with a chemical mystery.

I also found that after some time I became bored with the tedium of having to manipulate the arms to do everything. But come to think of it, finding the right equipment and assembling it is the most boring part of real chemistry.

After using Chem Lab I have decided that it is not a serious teaching tool, but a game with educational overtones. It is not serious about teaching because it ignores any concept of quantities of reactants – they are just added, never weighed. Some of the chemical terms in the book are too loosely described and I don't like the idea of heating a corked flask!

However, as a game it's different – and sometimes quite exciting.

**Max Parrott**

Product: ChemLab  
Price: £40.25  
Requirements: A 64k Apple II with at least one disc drive and preferably a colour monitor, although the text display is better on a monochrome screen.  
Supplier: Simon & Schuster, MGA Microsystems, 140 High Street, Tenterden, Kent TN36 6HT.  
Tel: 05806 4278

with text which combines a running commentary with the results of the play and a demand for strategic action from you, the coach.

A keyed-in number means your team makes a particular play, again filling the screen with text. Entering a 9 gives a complete breakdown of events. I could find no escape from this seemingly interminable game except by rebooting.

If, thanks to TV, you are an American football fan, you may find comments like "The play is an end run.../ The defense is blitzing.../ The play is good for 54 yards..." meaningful and exciting. Enjoy!

The optional instructions in Golf, the third item, are clear and helpful. Though the action is less than stunning, - no swishing clubs or bouncing balls - the ingredients are here.

Variouly sized angular areas of colour represent the course with water, sand, trees, wind and rough. You can select different woods, irons, wedges or a putter and hit the ball by inputting a number. You can adjust the direction in five-degree increments moving clockwise.

Your decisions are based on displayed information: Hole number, par, distance in yards. You can invoke a useful chart to help you decide which club to use when.

I suspect most people will feel slightly happier with this game than with the previous two. It is better run in colour as the monochrome screen is confusing.

The last Sports Spectacular is Bowling. The instructions are brief and clear. The left and right arrows position the recognisably human bowler and the ball is "automagically" released after three or four seconds, ready or not.

The central bowling lane, flanked with score boards for one or two players fills most of the screen. The ball ejects from the static figure and flickers down the lane to the pins which all disappear after any contact has been made. Those pins deemed by the computer not to have fallen reappear. Sometimes you are deemed to have made a strike.

Though hardly addictive, Bowling can be a pleasant, if brief, distraction.

Colour and action arrive at last with Greatest Hits 1 which consists of three programs for zap 'n' blast fans.

The first offering is called Defender and is a typical space game requiring a joystick. Flying one of the last three spacecraft left



on the planet, you have to fend off waves of attacking aliens who keep increasing in numbers and fiendish weaponry in proportion to your success.

Your spaceship fires missiles galore, but only three, of the space bombs which will destroy every alien ship on screen. A strip across the top gives you a radar view of the mountainous terrain over which you are flying and a little advance notice of impending doom in the shape of the spiteful enemy.

Your craft will travel up, down, left and right - simultaneously if you're careless.

The funny blobs moving about down below are not to be shot at. They are your own people - no wonder they were such easy targets. You can score extra points by destroying alien craft about to abduct folks and returning them to the planet.

Not the most original of games, it's still a lot of fun if you like blowing things up.

D-Day is similar but you are earthbound in charge of a tank defending the shoreline against invaders from the sea who, with monotonous regularity and unparalleled cheek, land and drive military vehicles on to your territory.

While the aircraft carrier way out at sea sends air strikes against you, lots of little men leg it across your line of fire and hide

in clumps of trees to shoot at you. You have to find and destroy the hidden enemy to progress to more difficult levels where the number of invaders increases dramatically.

Your tank can only move from either side of the screen to the other and can be controlled either by joystick or keyboard.

Some of you may have moral reservations about a game which seems to sanction the machine-gunning of running human figures - my own view is that pedestrians shouldn't lob grenades at my tank. Frankly, I was so busy butchering little men that I missed Bread on the TV. What greater praise than that?

Finally, Westward-Ho is a one-player joystick game which can also be played on the keyboard.

You are a cowboy defending three covered wagons from marauding Indians. You have nine lives per level and you need them. Every time you are killed, a grave and headstone appear on the spot, even if it's in mid-air. You may promptly get buried again as you reincarnate in the path of an oncoming arrow. Even riderless horses can shoot arrows, but you can shoot back at the arrows as well as the horses.

The Greatest Hits 1 compilation has a lot of what The Gambler, Board Games and Sports Spectacular mostly lack: Colour, sound effects, action and "playability".

The remainder are, by comparison, rather dreary - for my money at least. Few of the games feature much in the way of colour or sound and they all share the boring capitalised text with no wrap-around and frequent bad spelling. They smack of the early days of the Apple II+.

As the cost of most games works out at around £2.50 each, you may feel this is not exorbitant. They could be a handy Christmas stocking filler and at least they won't cause tooth decay.

Lew Norris □

## Christmas bargains

Price: £9.99 each  
Supplier: MGA Microsystems, 140 High Street, Tenterden, Kent TN30 6HY  
Tel: 05806 4278

**Castle Wolfenstein:** For this adventure game you will need fast thinking and quick responses. The time is World War II, and the castle is occupied by the Third Reich as a battlefront headquarters.

Fortunes of war are fickle and you find yourself captured and imprisoned.

However, as a cellmate dies he passes to you his loaded pistol. With 10 bullets in your Mauser M-98 you must escape - but only once you have found the war plans.

**Beyond Castle Wolfenstein:** Not a terribly original title, but your character

cannot escape his hero status since escaping from the Castle on his last mission.

You are famed for your ability at getting past Nazi guards and so you have been given a new and more dangerous assignment.

The underground has smuggled a bomb into a cupboard inside the Fuhrer's Berlin bunker. Your task is to move the bomb to the secret conference room, set the timer and escape...

**Frogger:** Adapted from the successful coin-op arcade game from Sega. Your aim is simple - you must find your way home. This seemingly safe task is complicated by the fact that you are a frog and your way is barred by a busy main road and a treacherous alligator-infested river!



# A heaven sent laser with a down to earth price

At last - an affordable full-featured Laser printer for the Macintosh.

The PERSONAL LASER PRINTER from General Computer fills the gap between Apple's ImageWriter and LaserWriter printers.

Only slightly larger than the ImageWriter and offering similar printing quality to the LaserWriter, the PLP is well suited for all the documents you create in the course of your work...text, spreadsheets, hi-res graphics, presentations, DTP documents.

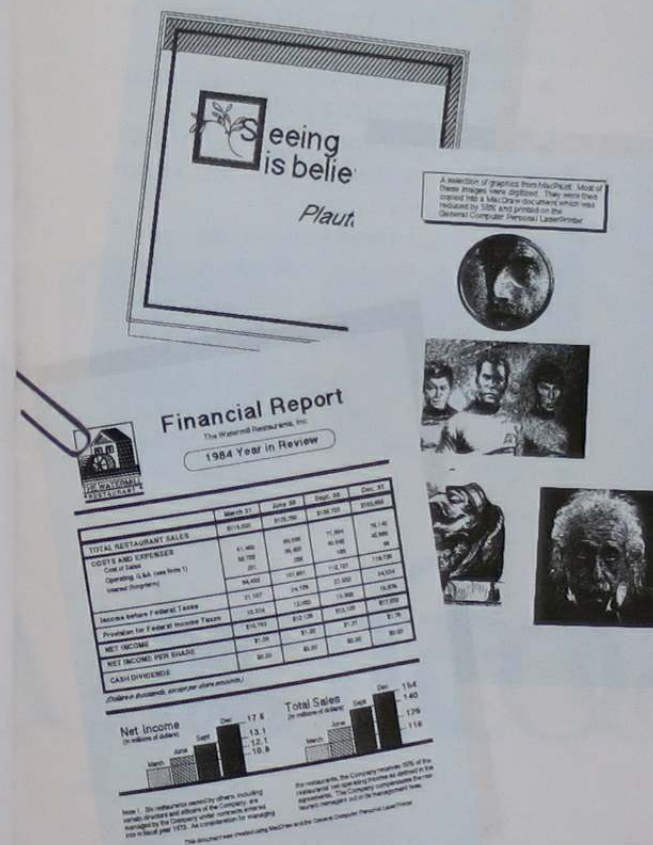
The PLP prints scanned images, hi-res graphics and text at an impressive 300 dots per inch near type-set quality. It comes with all the fonts available on the Apple LaserWriter, plus Bitstream's version of Palatino and Helvetica Narrow.

Three powerful printing modes that are presented by the Macintosh print manager are included in the PLP: preview, draft and high quality. It is Quick Draw compatible and prints at a speed of up to six pages per minute.

At a retail price of around half that of the AppleLaser Writer, the General Computer Personal Laser Printer is a must for your Mac.

The PLP is available from your Apple Dealer and at Apple Centres.

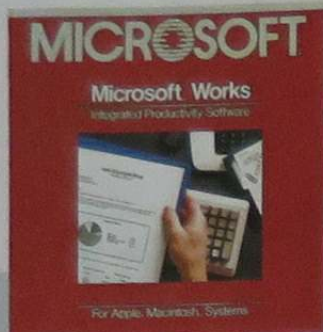
The PLP is not compatible with PostScript.



GENERAL COMPUTER

Todd Hall Road, Carrs Industrial Estate, Haslingden, Rossendale, Lancs. BB4 5HU.  
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1 Gleneagle Road, London SW16 6AY.  
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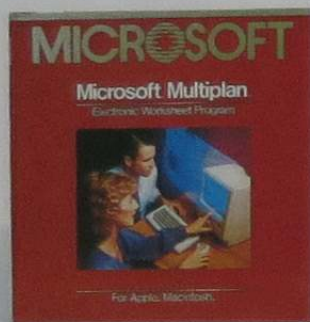
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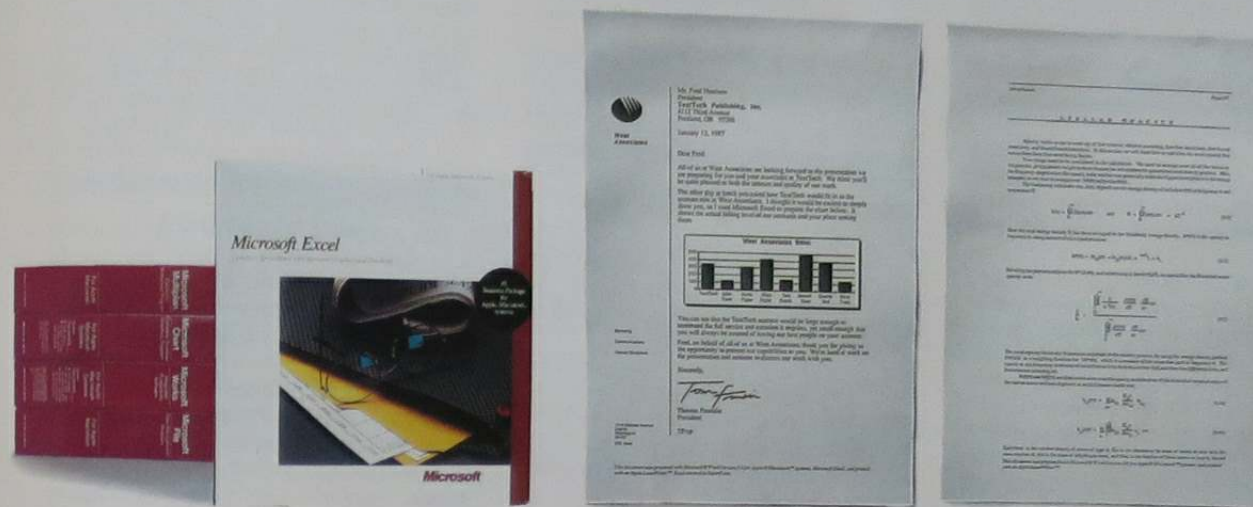
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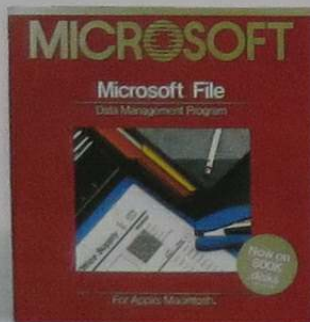
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# Plotter practice

WHEN the plotter is first used by a program it may have settings in its on-board memory remaining from a previous use by another program - such settings might have defined the size and format of lettering or methods of shading.

In any program, therefore, an early line after the machine is first enabled from Basic should initiate it to its default settings, otherwise earlier settings could cause an unwanted format to apply.

Two commands are used for resetting: IN and DF. Remember - plotter language commands consist of pairs of letters. The difference between these two commands need not concern us at present, but the curious can always look them up in their manuals.

I have used IN in line 320 of my program because it effects the more comprehensive reset. No numbers (parameters) are necessary following the IN and DF commands.

Placing the pen via the PA (Plot by Absolute coordinates), and by PR (Plot by a move Relative to the last position) was discussed in the last article. Few other commands controlling the various things that a plotter can do include anything about where to do it.

This is because plotters remember the point where the pen was last sent - the last commanded position - and carry out their next commands from this point. Before giving most commands, therefore, the beginner must remember to send the pen to the required position.

At the end of your program do not forget to disable the plotter by PR# 0 or messages will continue to be passed to it from the keyboard. While unlikely to damage the machine, such signals may cause it some anxiety.

It is also good practice to send the

## In part 2 of his Series, Geoffrey Jago looks at more plotter commands and debugging techniques

command SP0 (Select Pen zero) just before the PR# 0. This replaces any pen in use and sends the plotting arm to its home position.

### De-bugging

When controlling a printer from Basic it is not too difficult to spot program bugs because errors can be made to appear on-screen, or at worst the printer will cheerfully commit the crimes to paper.

With a plotter, however, programming errors all too often cause both computer and plotter to descend into an uncommunicative sulk while the plotter flashes a light to say that it didn't understand that last one.

Help is provided in two ways. First, if a serial interface is used you can ask certain plotters to output two numbers by the commands OE and OS.

```
PR#2:IN#2:REM PLOTTER CONTROLLED BY
SLOT 2
PRINT "OE";INPUT E:PRINT "OS";INPUT
S:REM QUIZ THE PLOTTER
PR#0:PRINT "ERROR NO: " E " STATUS NO
": S:REM DISPLAY ON VDU
```

Two numbers are then shown on-screen which will give you clues when looked up

in the plotter's manual. OE (Output Error) tells you what kind of error has been visited upon the beast and OS (Output Status) affords something about the way certain operating options have been set.

It is also possible to modify plotter error routines to suppress some error messages via a command IM (Input Mask) plus a single number.

In my experience the amount of information thus available is limited at the best of times, and you may have to reset the system to get it to talk at all, by which time it may have forgotten what was wrong.

I therefore find the following method, which concerns enabling and disabling the ancillaries, of more use.

Slot 2 is the conventional place to install a plotter driver, but it is good practice to include a program line to allow the operator to choose other slots. This is done by setting the variable SL to the plotter's slot number.

It is then a simple matter to divert plotter commands either to the VDU - SL set to zero - or to the printer - SL set to the printer's slot number. Whether on paper or screen, you can see what the plotter has to suffer and hopefully crush the bugs.

The following line does the job:

```
INPUT"WHICH SLOT SERVES THE PLOTTER?"; SL
```

Thereafter, the command to enable the interface is PR# SL. Disabling remains as PR# 0.

With the Apple II it is often recommended practice to give the commands in the form: PRINT DS "PR #2", where DS contains Control+D. Experience with my Apple and plotter is that the use of this format can cause plotter errors and hang

the system, so my practice is to give the commands directly.

Some plotters can be switched to a printer mode, after which instead of drawing they write out all the commands and data being sent to them, albeit more slowly than a printer.

The length of the plotter commands displayed for inspection can be great, especially when program loops are used. When inspecting on VDU remember that the screen display can be halted before it scrolls out of sight by toggling Control+S.

One puzzling bug that will trigger an error in some instances occurs when the plotter reads variables that are preceded by a minus sign. The fix is to enclose the variable and its sign within brackets, or to rewrite a formula so that it does not begin with a minus sign.

### Simple pie chart

The purpose of a pie chart is to give an accurate visual impression of the relative size of the different parts that make up a whole entity. In my example the chart shows the simplified total working costs of a company broken down into categories.

The program has not been lengthened to include specialised methods for the input of data because my object is to focus on plotter commands. The values and text are

written into the program on lines 170 and 180.

Finished programs would obtain their data from the keyboard, from disc files or from READ ... DATA statements. The dimensions used to control the plotter in the program are in units of a tenth of a millimetre, which should suit most machines.

This month's program draws a complete 360-degree pie diagram made up of as many sectors as there are items of data. An early task is to sum all the data values and, by simple proportion, allocate a centre angle to each sector so that when all are put together they will exactly fit into a single circle.

At the same time the accumulated total of the centre angles can be summed and stored as sector starting angles.

The position of the pie on the platen is defined by inputting the X and Y coordinates of its centre and storing them in variables X and Y (line 140). Line 150 stores the pie radius R.

In our case each sector will be shaded similarly by 45-degree hatching, as was used in the simple bar chart described last month. Soon after enabling the plotter (line 340) it is told which type of shading to use by the command, FT (Fill Type) followed by three numbers:

- The type of shading (I have used Number 3 - simple hatching)

- The distance between hatching lines
- The angle of hatching in degrees from the horizontal

The program uses two commands to draw and hatch each sector. The first, EW (Edge Wedge) draws an outline like the plan view of a piece of a round pie. The second, WG hatches it.

After receiving these commands the plotter expects three numbers in the following order:

- The radius of the pie.
- The angle to place the first side - starting angle.
- The centre angle of the sector.

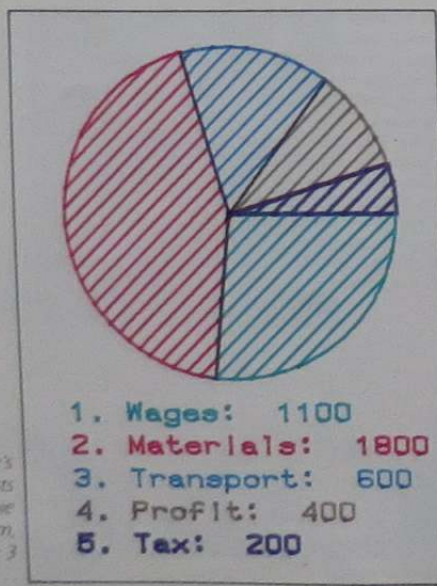
The starting angle is given in relation to a horizontal base line pointing right - like an east-point on a map. The centre angle defines the size of the slice.

Clearly, the same values must be used by both the EW and WG commands. Line 390 and 400 do this. The plotter centres the circle on its last commanded position and is given this by line 330.

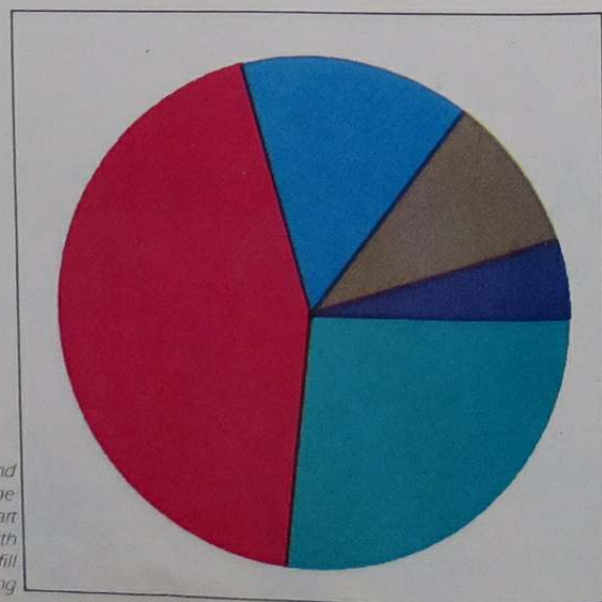
The program assumes an eight-pen plotter using, via lines 360 to 380, each pen in turn to draw each of the sectors in a different colour. Line 370 resets the controlling variable P back to 1 to repeat the same colour sequence if more than eight sectors apply.

For plotters with other than eight pens the eights in line 370 should be changed to >

```
100 REM PLOTTER COMMANDS - 220 REM TO PLOT ANTICLOCKW 350 FOR J = 1 TO N 480 PR# 2
SIMPLE PIECHART ISE, MAKE CA(J) POS. T : REM START DRAWING PIE : REM ENABLE THE PLOTTER
110 REM (C) 1987 G. JAGO O MAKE START POINT ON L 360 P = P + 1 490 PRINT "SI.15,-2;" : REM SET SIZE OF LETTERI
120 DIM DES(30),SA(30),CA(3 EFT, MAKE R NEG. 370 IF P > 8 THEN P NG : REM MOVE PEN TO POSITI
: REM DIMENSION ARRAY VAR : P = P - 8 500 PRINT "PA'X - R',Y ON BELOW DIAGRAM
TABLES : REM AFTER PEN 8 START : REM START WRITING LET
130 REM DEMONSTRATION DATA : AGAIN AT PEN 1 : REM MOVE PEN TO POSITI
SET BELOW- DIMENSIONS I : PRINT "SP'P;" : REM MOVE PEN TO POSITI
N TENTHS OF MM. : REM THESE 3 LINES SEL 510 FOR J = 1 TO N : REM START WRITING LET
140 X = 500 380 : REM DRAW OUTLINE OF S 520 P = P + 1 : REM MOVE PEN TO POSITI
: Y = 1200 390 PRINT "EW'R',SA(J)' 530 IF P > 8 THEN P : REM MOVE PEN TO POSITI
: REM POSITION OF CENTRE : "CA(J)"; : REM MOVE PEN TO POSITI
OF PIE : REM DRAW OUTLINE OF S 540 PRINT "SP'P;" : REM MOVE PEN TO POSITI
150 R = 200 : REM THESE 3 LINES SEL 550 PRINT "LB'J', "DES(J
: REM RADIUS OF PIE ECT PENS 1-8 IN ORDER : REM MOVE PEN TO POSITI
160 P = 0 390 PRINT "EW'R',SA(J)' : REM MOVE PEN TO POSITI
: T = 0 : "CA(J)"; : REM MOVE PEN TO POSITI
: CT = 0 : REM DRAW OUTLINE OF S 560 PRINT "PA'X - R',Y
: REM RESET THE VARIABLES : REM SHADE THE SECTOR : REM MOVE DOWN TO STAR
170 DES(1) = "Wages" 400 PRINT "WG'R',SA(J)' : REM MOVE DOWN TO STAR T OF NEXT LINE
: DES(2) = "Materials" : REM MOVE DOWN TO STAR T OF NEXT LINE
: DES(3) = "Transport" 410 NEXT J : REM MOVE DOWN TO STAR T OF NEXT LINE
: DES(4) = "Profit" 420 PRINT "SP0" : REM MOVE DOWN TO STAR T OF NEXT LINE
: DES(5) = "Tax" : REM REPLACE PEN & DISEN 570 NEXT J
: REM DESCRIPTION ARRAY : ABLE PLOTTER : REM PUT THE PEN BACK NI
180 V(1) = 1100 430 REM ***** 580 PRINT "SP0;" : REM PUT THE PEN BACK NI
: V(2) = 1800 440 REM WRITING DESCRIPTION 590 PR# 0 : REM DISENABLE PLOTTER
: V(3) = 600 S ON PLOT : REM DISENABLE PLOTTER
: V(4) = 400 450 HOME : REM DISENABLE PLOTTER
: V(5) = 200 460 PRINT "WOULD YOU LIKE T 600 END
: REM ARRAY OF VALUES HE CATEGORY DESCRIPTION
190 N = 5 : REM MOVE DOWN TO STAR SWRITTEN BELOW THE DIAG
: REM NUMBER OF ITEMS RAM?"
200 REM ***** : GET AS : REM MOVE DOWN TO STAR
210 REM WORK OUT EACH CENT : REM VDU MESSAGE : REM MOVE DOWN TO STAR
RE ANGLE : IF AS = "N" THEN : REM MOVE DOWN TO STAR
: REM SET NO.3 HATCHING : REM RESET PEN NUMBER
```



A company's working costs in pie chart form, using Style 3 shading.



...and the same chart with fill shading

< the number of pens available.

If you are using a plotter with a single pen it is still possible to distinguish between sectors by different styles of hatching. Line 380 should be changed to PRINT "FT" P "15,45" and lines 160 and 370 changed so that the value of P cycles 2,3,4,2,3,4...

This will vary the type of hatching each time a new sector is drawn. For single-pen work lines 470, 520, 530 and 540 should also be removed. To tailor your diagrams to your liking you may also experiment by

changing the second and third FT command parameters which control respectively the spacing between hatching lines and the angle at which they are drawn.

If you would like the hatching angles to lie parallel to a radius centering each sector, or parallel to a tangent, experiment with commands that allow the third parameter to be controlled by the angles used in the EW and WG commands. The plotter language is sufficiently sophisticated to allow a very wide choice of design.

### AppleUpdate

## Setting the standard

TEXTURES is a fully compatible Macintosh implementation of the Tex typesetting standard, which produces high quality documents.

Tex has been implemented on mini- and main-frame systems and is becoming the standard language for typesetting quality and technical material. For instance mathematical texts present some of the most difficult typesetting problems. Tex deals with this problem using the classical rules for mathematical typesetting.

Graphics applications such as MacPaint and MacDraw can be ported to

your Tex files, with the total page previewed on screen.

Two additional packages will be available in the next few months for the Macintosh Plus, Latex (£45.95) and Amstex (£86.25).

Product: Textures v1.0  
Price: £517.50  
Supplier: Addison-Wesley, Finchampstead Road, Wokingham, Berkshire RG11 2NZ  
Tel: 0734 794000  
Requirements: Macintosh 512, 512/800 [512E] or Mac Plus, and two disc drives.

For those with plotters having a text facility stored in their rom the last section of this month's program is devoted to writing out the data below the diagram.

The loop is used to select the same sequence of pens as before, thereby relating by colours the sectors to the printed data. Line 500 defines the starting position for the text 5 mm below the base of the pie - Y co-ord minus Radius minus 50.

Line 560 within the loop then moves the pen down and back to the start of each line. Note that PA and the comma are contained within quotes and the final semicolon has been omitted without ill effect.

Text is accessed within the loop by the LB command. All data coming down the plotter's line after it accepts LB are printed as letters or numbers until a CHR(3) (Control+C) calls a halt.

An examination of line 550, which prints the text, will show that it prints the data sequence number J followed by a full stop and a space followed by the contents of the Description variable DES (J) followed by a colon and two spaces and finally the contents of the value variable V (J).

On completion of this line CHR(3) tells the plotter to stop printing any more text. Note that the spaces, full stop and colon are included to give a neat plan output. The format of this command is similar to that used in controlling a printer from Basic.

● Continued next month.

# MicroLink

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# NEWSLETTER

## Email is good business

BOOKSELLERS Graeme Roberts and Tony Swann, who first got in touch through MicroLink's bulletin board, are finding electronic mail makes for good business.

Graeme made a 12,900 per cent profit on a battered copy of Sowerby's Exotic Mineralogy he sold to Tony, a director of natural history specialists Wheldon & Wesley.

"I bought the book for £1 from a local junk shop after seeing Wheldon & Wesley's advertisement on the MicroLink BB", said Graeme. "I thought it was probably worth more than I paid, but had no idea I would get as much as

£130".

Tony Swann was equally delighted with the deal. "After a couple of hours hard work with a soft rubber I was able to remove the accumulated dust and grime of 175 years and turn it into a quite reasonable copy which I sold on the phone to a collector in America for £240 the same day", he said. "The three of us are very happy, and it's all thanks to MicroLink".

The aged scientific tome was a change of theme for Graeme who specialises in out-of-print science fiction, fantasy and horror and is currently expanding into supplying dealers and

collectors in the US. His main reason for joining MicroLink is its "enormous potential for speeding communications" with his clients.

Tony also considers MicroLink an extremely useful business tool. "It isn't just because of increasing sales and purchases", he says. "I travel a lot around Britain and Europe and find the Official Airlines Guide saves me much time at the travel agency. Telex and the British Rail timetables come in handy too."

"Overall I'm delighted with the system and it's certainly beginning to pay for itself".

## Cut the cost of fashion

PEOPLE can now dress themselves from head to toe in the latest fashions with the help of MicroLink.

London company Twillfine is using the system to advertise High Street chain store fashion wear at a fraction of normal retail prices.

The garments aren't seconds - they're warehouse stock which has to be cleared to make room for new lines.

Twillfine's prices are as low as £4 for blouses usually priced £14.99 and £1.50 for shirts which normally retail at more than £13.

## YOUR chance to join MicroLink - Page 6

### New board for chess

MICROLINK subscriber Keith O'Connell has challenged the world to a giant electronic game of chess.

Playing on the MicroLink bulletin board he says he is willing to take on anyone of average standard.

"I don't mind how many games I play at once", he said. "Anyone who wants to take part can just mailbox me with their moves in response to my game on the bulletin board."

"All I ask is that my opponents play for themselves, and don't just use a computer chess program to decide their moves. I want to play people, not a computer - I can do that on my own at home".

MICROLINK subscriber Theo van der Meer has launched a search for software authors with experience of writing for peripherals.

He wants them to help him develop a device which allows people with severe muscular problems to use computers.

Theo's company, Preston Communications, is UK distributor for a Dutch product that links a muscle

## Micro muscles

or several muscles to a joystick, allowing people with all kinds of muscular diseases to control a micro.

The device, which takes over the five joystick functions, has just completed clinical trials in Holland and is now being tested here.

"Our problem is that all

the programs to control the device are currently written for the Commodore and we need to have them re-written for other machines such as the BBC Micro, IBM PC and compatibles, Atari, Apricot, Apple and Macintosh", said Theo. "We will of course gladly pay for this work".

## Tower triumph

TWO years after finding himself out of a job at the age of 56, Yorkshireman Philip Gibbs is boss of his own company and poised for success.

With the help of his computer and MicroLink he has launched Sheffield Skyhook to manufacture self-erecting towers for closed circuit TV systems.

Now his project is

nearing completion he is also receiving financial support from British Steel, British Coal and the Department of Industry prior to going into full production.

Philip has been using MicroLink to improve his communications with the various agencies he deals with, and has also found the Compass Online directory of UK companies invaluable as a source of potential customers.

"At the moment we are using MicroLink mainly for telex", said Philip. "But when we finally get going full swing we'll be making use of Email as well".

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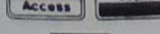
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# More power to your elbow

TO start with a confession, I'm not the most organised or imaginative of writers.

I'd relied for years on the advice of a battered English teacher: Start at the beginning, have three paragraphs in the middle, and finish at the end. Not the most flexible of formats, but I managed to muddle along with it for quite a while.

However, what works for junior school compositions doesn't work so well for reports that go up the line to senior management, and after one effort I'd slaved over was returned with the comment "I assume English is your second language?" I decided it was time for a change.

To hand was a copy of More, hitherto neglected because it billed itself as offering "Intelligent idea processing". I'd dismissed it - unopened - as a word processor with a gimmick. In the light of the cryptic memo I gave it a try.

The manual was a pleasant surprise: Clear, concise, well-exemplified and indexed. After it had steered me successfully through backing up the system and program discs and generally getting started, it seemed only fair to let it guide me through the

## Ian Smith gets himself sorted out with More

introductory tutorial as well.

It didn't take long to produce the outline of a typical working day (Figure I), with the main headings sorting themselves out - something I'd had to battle with the tab key to achieve previously.

More to the point, inserting, amending and deleting entries was fast and simple - no more cutting, pasting and losing things in the bowels of the clipboard. Groups of entries under one headline remain attached to it, so manipulation of segments is no problem. Indeed, each headline has its own window attached.

Pull-down menus allow entries to be altered at a mouse click - to be indented further perhaps, or to be reorganised into a different order. Similarly, well-thought out Find, Search and Replace functions allow quick tidy-ups while you work.

Usefully, it's also possible to get the "big picture": Selecting the option to Collapse Subheadlines results in the indented notes disappearing, leaving a clear outline. Similarly, the outline can easily be expanded to any level of depth.

So far so good - a neat skeletal outline produced with minimum fuss. But More hasn't achieved anything yet that couldn't be done - at the cost of a little more effort - with any word processor.

Scanning the outline produced in Figure I reminded me that I could no longer postpone the inevitable but would have to arrange my appointment with fear at the bank. As I'd already noted the number, and had a modem hooked up to the Mac, I discovered that I could let More's fingers do the walking.

By first selecting a headline containing a phone number, then choosing the Dial Phone command from the Edit menu (Figure II) all you'll have to do is pick up the phone when the call is answered.

The call made, I decided a little preparation might not go amiss. So, back to square one to hack out a self-contained memo. What I really wanted to do though was have the memo and outline on-screen at the same time, to avoid having to call up separate files all the time.

Back to the pull-down menus, this time to the Window option. This allows a split screen, horizontally (as in Figure III) diagonally or vertically, and offers the facility to return to a full-screen view of either document. In fact More can handle up to six outline windows at once, making cross reference simple.

Deciding that all that my day's outline lacked was visual appeal I resorted to the pull-down menus yet again and discovered the Tree Chart option: One mouse click and straight text was transformed into

something that at least looked interesting (Figure IV). And the Tree Chart has enough tools attached to it to satisfy the most design-conscious presenter.

I restrained my artistic inclinations on this occasion, but graphics windows - containing artwork created in a program like MacDraw, or from More's own Tree and Bullet Charts - can be attached to any headline. Graphics can be called up fastest with Switcher, but traditional Clipboard and Scrapbook techniques work well enough.

With one day organised - or at least looking organised - I thought I might as well sketch out the rest of the month. Again, the program anticipated the need, and the Edit menu offers a calendar option to make life easier.

## More options

There's a lot more.

A Templates menu allows you to create standard formats, a real time-saver, and mini-databases, of names and addresses for example, from which information can easily be retrieved. There's no need to leave More to knock out a letter either: Select the relevant part of your outline, open a document window and type away.

A lot of thought has gone into presentation as well, from a selection of fonts, styles and sizes when it comes to printing, to a powerful Bullet Chart option which allows the creation of "slides" for presentations. Bullet Charts can be exported into MacDraw for further refinement.

More supports both the LaserWriter and ImageWriter - and has colour options available for the ImageWriter II. There's even an application here for desktop publishers, as outlines can be directly transferred to page layout programs, including PageMaker and ReadySetGo. In fact outlines can be converted into MacWrite, Jazz and Microsoft Word format, or into plain or tabbed Ascii format as well, all of which allows a very useful degree of flexibility.

## Conclusions

More is one of the most user-friendly pieces of software I've come across, even by Mac standards. After very little warm-up time the manual is scarcely needed, but it's easy to find the relevant section when you get a little lost. For confirmed manual non-users, the version reviewed here, 1.1, includes an Undo command which saves a lot of head scratching frustration.

From being a reluctant and sceptical user I've become an addict: More might not succeed in getting me organised, but that's not the software's fault. Recommended.

Product: More  
Price: £286.35  
Requirements: 512k Mac; Hard disc recommended  
Supplier: MacSerious, 17 Park Circus Place, Glasgow G3 6AH.  
Tel: 041-332 5622

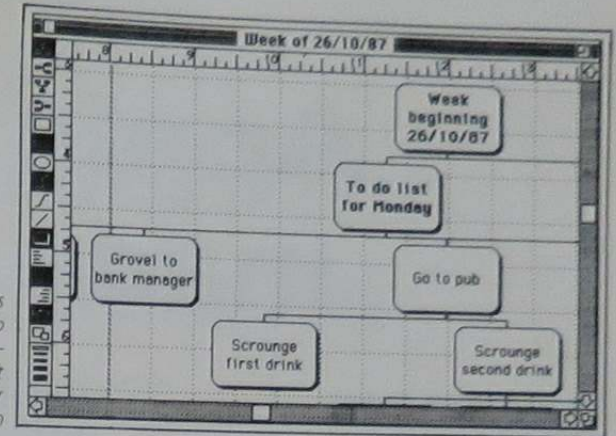


Figure IV: Outlines can be turned into Tree Charts easily - the tools at left allow for further modification

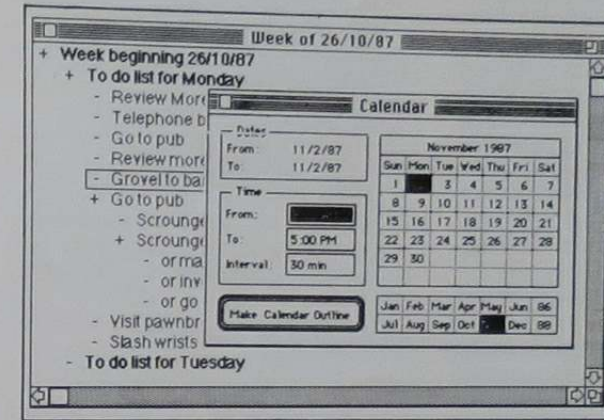


Figure V: Called from the Edit menu, an on-screen calendar can cover any period

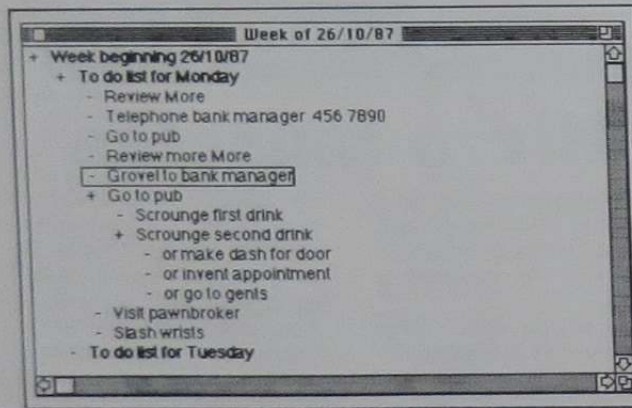


Figure I: Outlines can be expanded to any level or depth

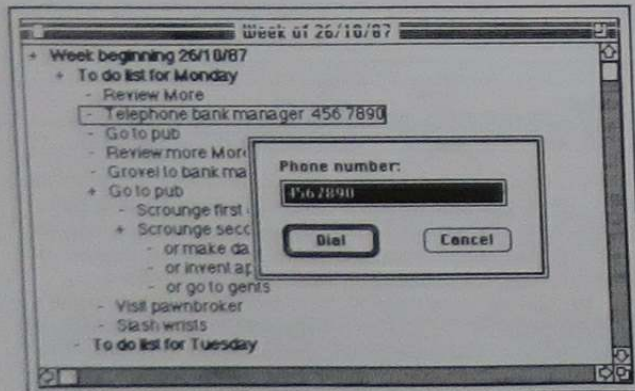


Figure II: Dialling from within More couldn't be easier

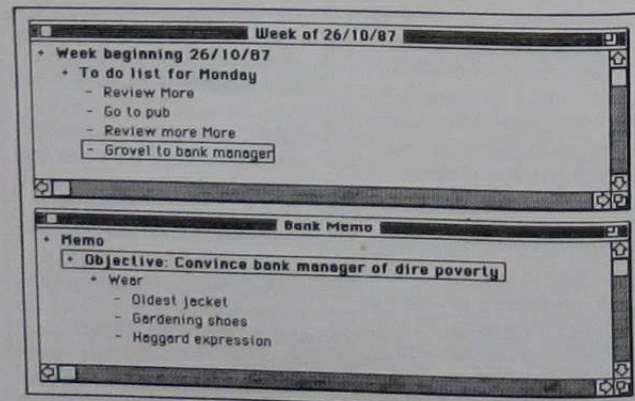


Figure III: The Windows option allows split-screening

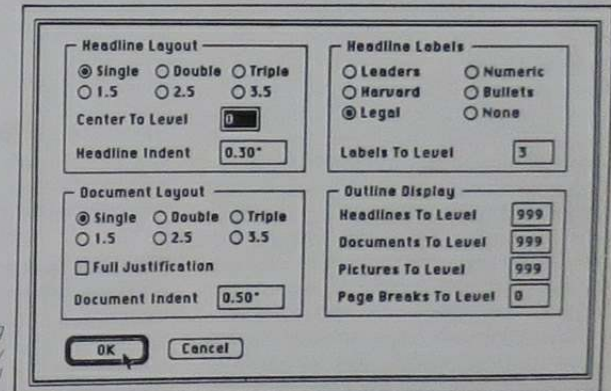


Figure VI: Printing options allow a great deal of flexibility

## AppleUpdate

### Macprolog: New editions

FOLLOWING its recent launch of MacProlog 2.0 for the Macintosh, Logic Programming Associates has announced a new Student Edition as well as price reductions on all LPA products.

The LPA MacProlog 2.0 Student Edition uses a built-in incremental compiler and a high-powered declarative graphics environment which contains a call-graph debugging facility.

Clive Spencer, LPA's marketing manager said: "We feel there is an enormous growth potential in the Macintosh market, especially in higher education". Developers can now purchase LPA's

Macprolog 2.0 Wizard Edition with built-in incremental compiler, high powered declarative graphics environment, a new C and Pascal interface, serial I/O and optimising compiler.

Product: MacProlog Student and Wizard Edition  
Price: £275 and £495  
Supplier: Logic Programming Associates Ltd, Studio 4, The Royal Victoria Patriotic Building, Trinity road, London SW18 3SX.  
Tel: 01-871 2016

# Apple Writer made easier

## Loading the disc catalog

The command Control+O followed by A# loads in the disc catalogue as a text file which you can print out and save. Indeed, you could create a file to hold the catalogues of all your current discs and update it periodically. If you forget which disc holds the file you want, use Control+F to search for the file name or part of it or, with Prodos, the date created or modified.

With Prodos, if you want to include the files in subdirectories, load in the main catalogue, locate the cursor after the subdirectory name, then repeat the command but with the pathname of the subdirectory before the #.

A Prodos catalogue includes not only the file name, the number of blocks and the number of bytes but also the dates and times of creating and modifying each file. To strip out the dates and times, use Control+F with <??/??/?? ??:??<A.

## Copying text

Most users know how to move text with Control+W or Control+X but many do not realise that if you hold down the Closed Apple key while using them (with a left arrow on the data line), the text is not deleted but is absorbed into a buffer. You can then move the cursor, change the direction arrow with Control+D and use Control+W or Control+X to recover the text from the buffer.

With Control+X, you can absorb two or more short paragraphs, but the buffer is limited to 1024 characters. If you locate the cursor at the end of a paragraph, the data line displays the number of characters in that paragraph.

To copy longer passages of text, you can

## Geoff Wood offers more tested tips for AppleWriter users

use Control+L with #IFIRSTLASTI where FIRST and LAST are the first and last words or phrases of the text you want to copy. This operation may be easier if you split the screen with Control+Y so that you can see the text you wish to copy.

## Interchanging characters

One of the most common typing errors is the transposition of two adjacent characters, for example, hte instead of the. To rectify this fault, locate the cursor to the right of the second character, hold down the Open Apple key and press the left arrow, release Open Apple and press the left arrow again, then hold down Open Apple and press the right arrow key. This action is much easier to perform than to describe. With practice, you will find that it is faster than using the Delete key and retyping the characters.

## Deleting spaces before carriage returns

Normally, a carriage return should come immediately after the full stop at the end of a paragraph, but if you accidentally insert space characters between the full stop and the carriage return, the spaces are not apparent. This can cause formatting problems in printing.

You can display the carriage returns by

using the Control+Q menu, then search for the spaces by eye. Alternatively, you can find such spaces by using Control+F with <><.

## Switching off wraparound

Word wraparound can be switched off with Control+Z. This speeds up the screen handling for fast typists. It is also useful for displaying a table or text that has characters in the last column. With word wraparound on, the last column must contain either a space or a carriage return.

## Printing to the screen

Apple Writer 2.0 can show the page and line number (Control+Underline) but Dos3.3 versions can't. To find the page breaks, set the Print Destination to PD0 and print the file to the screen. Then, if necessary, embed some .FF commands to put the page breaks in the right places.

If you have a document of more than one page, with commands embedded at the start to set the Page Interval and Printed Lines, print it to the screen before you print it out. You may find that the first page is not the correct length. Press Escape after the first page, then print to the printer.

## Printing wider than the screen

The Prodos version of Apple Writer can display up to 240 characters per line by scrolling sideways. Earlier versions can't, but they can print wider than the screen display. This is useful for wide tables or legal documents.

## Using 12 characters per inch

The Dos3.3 versions of Apple Writer do not allow you to adjust the display margins, so the screen always has up to 79 characters per line. If you print 10 characters per inch, the printout does not match the display.

But if you set the margins to 0 and 79 and print 12 characters per inch, the printout matches the display and gives adequate margins on 8in wide paper.

## Reprinting part of a document

If you print a long document and then find that you need to edit and print just one or two pages, you can embed some .EP0 and .EP1 commands so that it prints only the part you want. The page numbers will still be correct.

● If you have any useful tips on Apple Writer that are not covered in this article, write in to Apple User and let us know. □

# Creative tools for creative people

## Part 3 of Jaromir Smejč's series on imaginative computing

**Scanners and Tablets.** They each transform analogue signals into digital data which the computer processes and can display as a bit-mapped image. Tablets use a pencil like stylus or crosshair cursor to trace an image by hand, the others convert a picture.

**Dithering:** Technique in which neighbouring pixels alternate between two available colours, creating the illusion of many more colours. This is particularly effective because four bits of colour information per pixel can simulate 125 colours, not just the normal 16.

**DMP:** Abbreviation for Dot Matrix Printer, here used exclusively for the impact DMP unless otherwise mentioned.

**Dot matrix printer:** Create documents by printing dots on to the paper and come in various flavours. Impact printers use normal paper and fire pins in the printer's head on to the ribbon to create an image.

Non-impact printers use other means such as a stream of ink – jet printers, heated elements in the head (thermal printers) or photocopying techniques (laser printers). Jet and thermal printers often – but not always – need special paper. Practically all dot matrix printers have graphics capabilities.

**Downloadable font:** Also variously called user-defined font, downloadable characters, custom characters and custom font and all referring to a font which you can transfer from memory within the printer or from your computer – maybe from a disc supplied by a manufacturer – to the printer so that it can use this font rather than the usual one.

It's tedious to design and download your own font and is probably better to buy software for the task. If you need to switch between fonts within a document you need to check whether the appropriate printer command can be put into your word processing document. If you use

AppleWorks see *Apple User*, June 1987 for help.

Larger character matrices can be simulated by combining smaller characters and printing a null space between characters or lines as appropriate. You can design symbols in this way and don't forget that as far as the printer is concerned you are printing text and so you can use all the special text commands offered such as condensed and double width.

**DPI:** Abbreviation for dots per inch, see **Resolution**.

**Formatting:** Really professional looking documents need formatting, for example into multi-column printouts, or wrapping text round pictures – desktop publishing programs have these capabilities. Some word processors almost approach the required capabilities but what they do not do can be done by **Cut and Paste**.

**Fount** or more commonly **Font:** Refers to an individual set of characters of a particular **Type face, Type size and Type style**. Members of one type family are distinguished by two variables, weight and width.

The former refers to the thickness of the character, the latter varies the face by making the characters narrower or wider while keeping the height constant. Thus a face can have more than one version and be light or heavy or bold and so on.

Font size is measured in **Points**, thus 10-point and 12-point Helvetica are two different fonts. Commonly, however, in computer publications the size is dropped and only the name is referred to as in Helvetica although strictly speaking this then refers only to the type face, not the font.

The multitude of fonts available for the Apple is welcome, but can present a confusing tangle. Beware – a document with too many different fonts or type styles and faces makes the reader uncertain about what he is supposed to be looking at.

**Font Editor:** A character set designer and editor program. See also **Download font, Font, Font format and Matrix**.

**Font format:** Very often the different font formats are confusing. At the moment there are two formats used under single or double hi-res graphics on the Apple. These are first, the Bit-mapped fonts typified by ▶

## AppleUpdate

### Samna enhanced

IT is now possible to use Samna's enhanced high-level WORD IV 1.1 and Plus IV 1.1 word processing software packages with Apple's PostScript based LaserWriter printer.

The PostScript driver is one of several enhancements found in the new version. Some of the other features include image input, equation processing, forms processing, user defined function keys and wordbase manager.

The new release also supports TIFF (tagged image file format) which represents a standard for storing graphic

images digitally.

Users can now create documents incorporating any image, picture, diagram or logo conforming to the new standard.

Product: Samna Word IV 1.1 and Plus IV 1.1  
Price: £550 and £650  
Supplier: Samna International, Southbank House, Black Prince road, London SE1 7SJ.  
Tel: 01-584 1121

◀ those in the Apple Dos Tool Kit (Programmers' Toolkit Workbench) and used by the Applesoft High Resolution Character Generator, Beagle Graphics, Higher Text II and so on.

Bit-mapped fonts used on the hi-res screens are non-proportional with a fixed width and height, usually in a matrix of 7x9 and hence their use is limited.

There are programs available to convert them into the second font format, the **Shape font** where each character or symbol is stored as a series of vectors, akin to the shape tables of Applesoft Basic. The spacing between characters is adjustable and can be proportionally spaced, but they take more memory than the bit-mapped fonts.

Shape fonts are used by Multiscribe, Font and Shape Mechanic and others. Unfortunately, font formats are peculiar to each program. Even formats from the same author but in different programs (for example Mark Simonsen's Font and Shape Mechanic compared with Fontworks).

**Grabber:** See **Video digitiser**.

**Graphic:** Refers to pictures, symbols and so on, especially those created in **Print Shop** format. See also CLIP ART. Graphics programs fall into two categories, depending on the way images are stored. These are **Bit-mapped graphics**, often called paint or **Raster-scanned** images, and object oriented graphics, also called vector graphics.

The former are composed of dots like a newspaper picture and are compatible with **Scanners** and **Video digitisers**. Their resolution is limited to the screen resolution because printing essentially takes place by dumping the screen.

The latter also show their pictures in dots, but because they store information about objects within the picture the resolution when printed is adapted to the device used. Thus laser printers are expected to give a better output than DMPs with object oriented programs but not with bit-mapped programs.

**Halftone:** Refers to simulation of a continuous tone image – as in a newspaper's reproduction of a photograph – by using a pattern of dots to give different grey levels.

**Hard disc systems:** Very useful devices when working with graphics programs because of their large memory capacity. Prices are dropping, but take care when choosing, check that you can have Dos, Prodos, CP/M, and Pascal compatibility if you need it. See also **MTBF**.

**Hi-res:** The Apple II high resolution graphics screen of seven colours has 280 x 192 plotting points or **Pixels**. Double hi-res is available on the IIc, the IIgs and a IIe with extended 80 column card and gives 560 x 192 pixels in 16 colours.

The IIgs also has two other hi-res modes with 320 x 200 pixels in 4096 colours and 640 x 200 pixels in 256 colours – not all at once! For decent hi-res and 80 column text display you need a monitor with at least a 14MHz bandwidth for the smaller and an

18MHz bandwidth for the larger displays.

I know of no hardware or software which will print a double hi-res screen in a true 1:1 ratio compared with the screen. The various programs available on the IIgs are generally much better at printing, especially in colour and in shades of grey.

**Input Device:** There are many types of input device to Apple computers other than the keyboard, including mouse, joystick and paddles which do not need describing here. Keyboards can come in a bewildering variety. Some have special programmable keys and are suited to certain software and some, such as Muppet Learning Keys for pre-school children, have special uses.

Some of these specialised input devices are very software specific, so care needs to be taken when buying. The resolution, accuracy and reproducibility of drawing tablets, light pens, trackballs and so on all depend on the model and hence any specifications mentioned here are for guidance only.

Card readers (Chatsworth's OMR-500, Mountain Computer's Intelligent card reader) can read cards marked with holes or pencil marks and convert the data to Ascii. Useful for inventory control, grading of marks and surveys and so on.

Drawing or Graphic tablets are used to draw, model, sketch, paint, prepare graphs and charts and sometimes to measure: The touch type (Koala Pad) work with a flexible membrane over a base membrane. Both have a conductive element etched into them or with an homogeneous, resistive surface and conducting pen so that the location may be calculated from measured voltages.

Others (Apple Graphics Tablet) work by measuring the changes in electric or magnetic fields or ultrasound. These are generally the most expensive and most accurate kind of tablet.

The third kind (Digital Paintbrush and VersaWriter) use two potentiometers mounted on arms attached to the pointer and by measuring the variation in resistance can calculate its position.

Three dimensional pointing devices (Space Tablet), allowing x, y, and z axis data to be input are a variation of this last type using three potentiometers instead of two.

The accuracy of all these tablets varies widely. The best available is around 0.025mm but more generally is around 0.1mm with an output rate of 200 or less points per second.

Most of the associated software has routines for circles, boxes, lines, can use hi-res pictures and pick up and move portions of a picture. Some also handle text. The newer type of tablets (Kurta IS/GS) use cordless pens or pucks.

Data acquisition systems collect real time signals from scientific instruments in order to measure, monitor or control. Most modern instrumentation have serial ports incorporated and will thus pass data and receive commands.

Light pens detect areas of the screen lit by the software and signal the computer. Besides specialised programs and CAD related hardware, light pens are used more to facilitate data retrieval than for drawing. No typing skills are required and young children have more fun interacting with the screen than with a keyboard.

Touch screens allow you to use your finger as a pointer – there are two major varieties. The first uses a matrix of infra red beams which criss-cross the front of the screen. Your finger breaks the beams and the x and y coordinates are then calculated. The resolution depends on the number of beams, typically 96 x 64.

The other design uses a transparent flexible plastic sheet separated from a second sheet – or the glass – by an air gap. Transparent, conducting strips are etched on both sides allowing the coordinates of the point where they touch to be calculated.

The resolution of these ranges from 16 x 16 (Detronic's P1000A Panel) up to 250 x 250 points (Personal Touch's TouchWindow).

A variation on the theme has been introduced by Epson with its Handy Terminal computer input device with additional printer which has a combination of touch panel and display.

Voting systems are equipped with special numeric keypads and software. Each participant answers multiple choice questions by pressing an appropriate key from a choice of 6 to 12 and on Apple II systems there are up to 30 possible participants (Reactive Systems' Voter 30 and Group Response System).

Voice entry allows from 20 to 1000 recognised words to be spoken as commands into the computer with an accuracy of about 95 per cent. Such terminals are already important for disabled users and will certainly spread in their usage. □

● To be continued.

## Appletip

### Printing from Picture Manager

WHEN using Multiscribe's Picture Manager to load and print a single hi-res picture which is stored on a Dos 3.3 disc, converting to Prodos alone is not enough as the file will not be recognised.

However, Picture Manager will

accept a Mousepaint picture file, so convert it from Dos to Prodos in the normal way, load it into Mousepaint and re-save it.

Picture Manager will then accept it quite happily.

Den James

AppleUser  
SPECIAL  
OFFERS!

The first Apple User Games Disc was one of the most popular packages we've ever offered our readers. Now comes Apple User Games Disc No. 2 – more great games that we thought were ideal but which were just too long to be printed in the magazine. And the price is still £5.95 for 7 games – that's just 85p a game!

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

**SATELLITE CONTROL** – A game of skill on the hi-res screen by Edwin Long. You're challenged to change the shape of a shuttle's orbit.

**LIFE** – This ubiquitous game has seen many forms. This latest, by Gerrard Manning, uses the hi-res screen to create new challenges.

**TYPING TEST** – A nice, simple game from Lawrence Tan, but one that will help improve your typing and keyboard skills. Ideal for beginners.

**CARD TRICK** – The computer is an excellent medium for performing feats of sleight of hand. Play tricks with cards with J. Taylor.

**NOUGHTS & CROSSES** – The graphics may not be sensational, but Frank Lewis shows how to play a fast game using only the lo-res screen.

**THE PERILS OF PRINCESS EMMELINE** – Denise McKnight invites you to face unknown foes as you immerse yourself in this adventure.

**MURDER** – Can you deduce who the murderer was? Roger the Lodger, maybe? And what weapon did he use – an exploding cigar?

**BOMBER** – Flatten the deserted city to provide a landing strip for your plane. If you're in a destructive mood you'll have a field day!

**PELMAN** – A two-player game of memory. Pit your wits against another human for a change – and let your Apple be the referee.

**DINGHY SAILOR** – We've all seen flight simulators. Now for something completely different. See how you can handle this sailing dinghy.

**NIM** – It may look like a straightforward game. In fact, nothing could be simpler. But YOU try beating this challenging program.

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# Brush strokes

GS specific software is beginning to appear and the way is led by the drawing programs. The ones I have seen all tend to be somewhat similar, with a drawing area, palette and icon areas with options available via pull-down windows.

Choices are made and drawing is accomplished with the mouse. They all have various brush sizes, and there are aerosols to paint with as well. In addition there are straight lines, ellipses, boxes and fill routines.

Text is generally supported in several

## Max Parrott loads his palette with 816/Paint

fonts with various formats and sizes, and areas of the picture – but not usually objects – may be moved around the screen.

816/Paint version 2.0 is one of this genre, but with some differences. There are actually two programs on the copy protected Prodos 16 v.1.2 disc, one for drawing on the 320 x 200 screen and one on the 640 x

200 screen. Both programs behave the same except for colour differences. Drawings may be loaded into both and can appear quite similar.

The usual selection boxes are arranged at the bottom of the screen and can be switched off so that a larger drawing area is obtained. It has a Smooth Curve and an Arc Generator as two of the icons, both of which can be very useful.

The Fat Bits option is there of course, but is again different from the general run of the mill stuff. It is gained through a magnifying glass icon which gives a movable window on the drawing area so that you can quickly identify the area of interest. The screen is then split with the zoom-in part on the right and the normal on the left.

Some of the pull-down window options are directly available from the keyboard, but not enough in my opinion. There is an undo option for the very last action taken.

## Editing colour

Printing on the ImageWriter II through the IIgs printer port is excellent, in colour and in monochrome. Both programs produce shades of grey for the colours of the screen when printing with a black-only ribbon, producing a pleasant picture very well. Other printers and interface cards are supported, as shown in Table I.

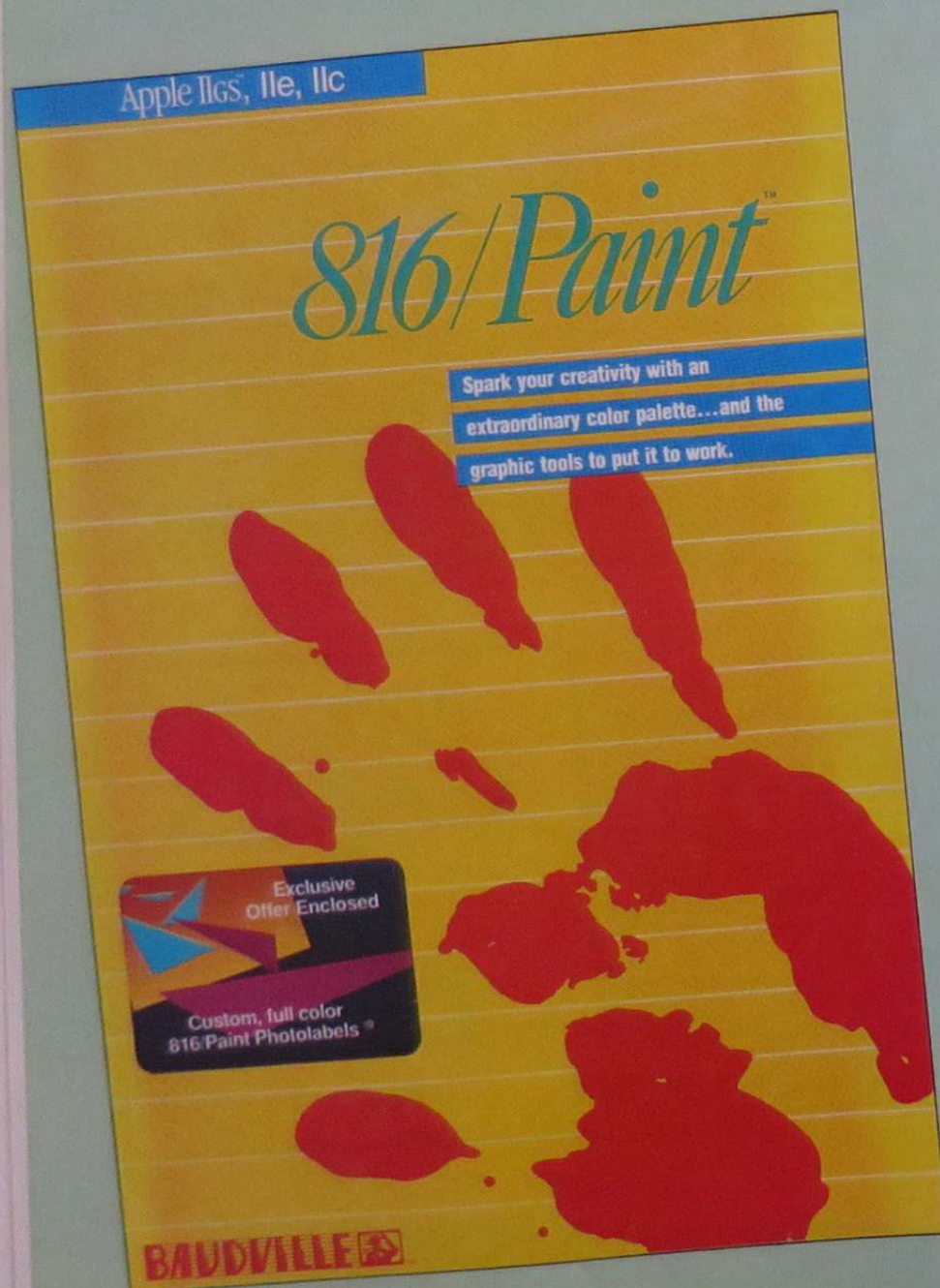
The screen colours may be edited via six sliders which control the red, green and blue colours together with the hue, saturation and intensity. In this way all 4096 colours may be generated for each of the allowed 16 solid colours in the 320 program and saved to one of eight palettes.

In the 640 program the 16 colours are accomplished by dithering techniques, so changing a colour may well affect others.

As well as solid colours there are patterns within each palette which may be edited and saved independently of the palette colours. Brush strokes may also be edited and there is a mirror option for symmetrical drawing. The four reflecting planes may be independently or concurrently selected and the centre of the reflection point may be moved anywhere on the drawing.

The manual states that the buyer receives two discs; a 3.5in for the IIgs and a 5.25in for the IIe/c. It also claims that standard hi-res and double hi-res drawing is possible (and necessary on the IIe/c) and that there are file conversion programs to move pictures between the programs. However, none of this is true.

There was only the Prodos 16, 3.5in disc in the pack and in the main directory there are messages to the effect that these pro-



## Printers

ImageWriter and ImageWriter II  
Apple DMP  
C.Itoh  
DataProducts  
Epson FX, RX, LQ, JX, EX, and MX  
IDS  
Okidata 84 92 182 and 292  
Okimate 20  
Panasonic  
Scribe  
Star Micronics

## Printer interfaces

GS printer port  
Apple Parallel  
Apricorn Grapher  
Apricorn Parallel  
CSS 772 Parallel  
CSS 7720, 7729 and 7731  
Dumping-GX and 64  
Epson APL  
Fingerprint and Fingerprint plus  
Fourth Dimension  
Graphstar  
Graphset plus  
Graphitti  
Grappler Parallel  
Grappler plus Parallel  
Pro Grappler  
K-T Parallel  
Microbuffer II  
Pkaso  
Printermate  
Print-it Parallel  
SSM AIO Parallel  
Tymac  
Versa Parallel  
Wizard BPO  
Wizard IPI

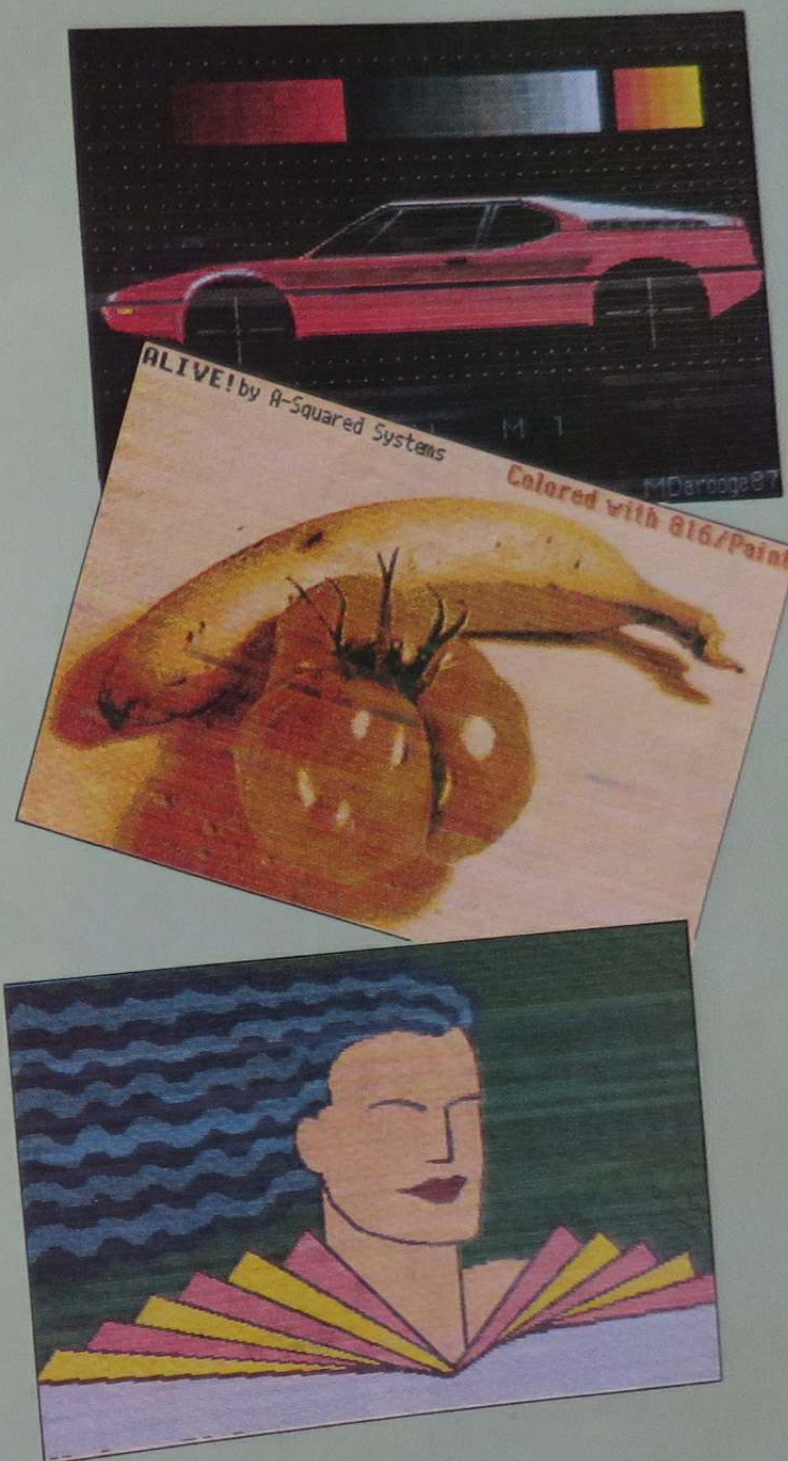
Table I: Printers and interfaces supported

grams are not distributed with the 3.5in disc, but are available on a separate disc by sending a form back to the manufacturers.

I cannot see why Baudville has taken this unusual step unless the company is desperate to see who has bought its software. It is a great inconvenience to the buyer, especially one not resident in the USA and must be of some inconvenience to Baudville.

I hope this idea does not catch on – it spoils an excellent set of programs. Because of this I have not been able to test the IIe/c versions of the program or the picture conversion routines.

Product: 816/Paint version 2.0  
Supplier: Baudville/MGA MicroSystems, 140 High Street, Tenterden, Kent, TN30 6HT.  
Tel: 05806 4278  
Requirement: Apple IIgs with colour monitor and at least one 3.5in disc drive or, presumably but not tested, an extended Apple IIe with mouse card or IIc with a 5.25in disc drive.  
Price: £76.50



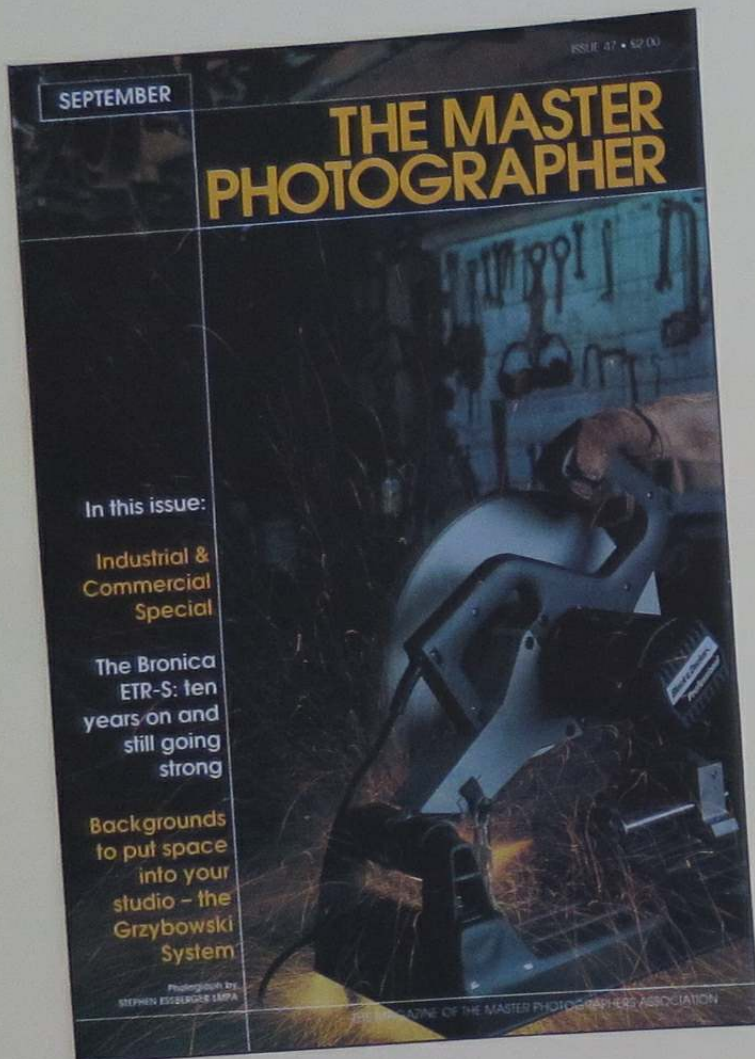
Sample output: What you see is, unusually, what you get



THE Macintosh played a significant part in this year's Desktop Publishing Awards, winning three of the categories.

The awards were sponsored by PIRA, the UK technology centre for the printing and publishing industry, and presented at the Desktop Publishing Show organised by Database Exhibitions at London's Design Centre.

# Apples snap up top DTP awards



WINNER of the top award, Best Newspaper or Magazine, was Icon Publications of Nottinghamshire for The Master Photographer.

Production is by David and Shirley Kilpatrick who use a series of Macintoshes.

Much of the work is done on a Macintosh Plus with a 2Mb MacSnap and DMS 20FHD. They use PageMaker 2.0, MacWrite, MacDraw and Cricket Draw software.

Text is entered, on a Macintosh SE with two 800k floppies and a separate DMS 20HD. For writing and text editing they use a Lisa 210 with a 10Mb file server. A Macintosh 512 is used by secretaries for type entry.

Output is initially to a LaserWriter Plus for proofing, then Discs are taken to nearby Spectrum Graphics printers for output on a Linotron 300.

## Mac snaps up top prize

Another entry from the same source was declared a finalist. Ilford Photo is an in-house company newsletter produced three times a year for the Ilford Group for around 5,000 employees and retired staff in three languages simultaneously.

Special file utilities are used to transfer from the IBM DisplayWriter discs which are returned by Ilford from its French and German companies where translation is tackled by journalists able to cope with idiomatic writing.

WITH Apple at the helm, a fledgling British industry finally came of age as the doors opened on The Desktop Publishing Show 1987.

It set out to be the first prestige event for desktop publishing and it succeeded - overwhelmingly.

So much so that some sources are already predicting that the figure of £300 million - the current estimate of what the desktop market will be worth in 1988 - is "far too low".

The confidence in the market is reflected by the news that show organisers Database Exhibitions plan to make the event a permanent fixture on the calendar.

The Desktop Publishing Show 1988 will be held on October 13th, 14th and 15th, with the venue once again being the Business Design Centre, Islington, London.

Even before the 1987 event took place, Database was aware it had a winning hand. For every major player in the exciting new market had agreed to exhibit.

Leading as ever was Apple, who invited key software developers to join its stand to show a complete range of desktop publishing solutions based on Macintoshes.

Among these was the first UK showing of Interleaf Publisher, the document-processing package for the Macintosh II. It is claimed to be the first major workstation software to be transferred to the personal computer environment without loss of functionality.

Another item on show for the first time in the UK was the HyperCard reviewed in last month's *Apple User*.

One of the many seminars at the show included a presentation by Apple DTP marketing manager Richard Bradley.

He said: "Two years on from the creation of the market, Apple is still the dominant force in desktop publishing. With the support of third party developers, we are able to show increasingly powerful and sophisticated solutions in both existing and new market sectors".

As the doors closed on the show, the company was full of praise for it.

"It was a highly successful event", said Apple's Mary Ainsworth. "It was certainly a demonstration of the depth of interest in desktop publishing.

"It was a wonderful chance for us to discover what people want of us and to

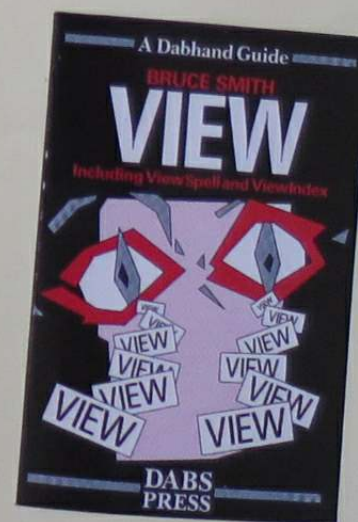
gauge response to our advertising. "We felt there was a very high level of attendeee.

"We anticipate being there again in 1988 - a year that will be shaping up to be most significant for desktop publishing - and we still expect to be in a similar, dominant position", she said.

Close to 7,500 people visited the show and this figure would have been higher if the second day hadn't coincided with London being devastated by a hurricane.

Despite the chaos, 1,400 people made it to the Business Design Centre on the day the weather paralysed the capital.

This was just another measure of the



THREE shortlisted entries for the competition came from Dabs Press. These were the books, VIEW: A Dabhand Guide and FingerPrint, plus a series of Dabs Press leaflets.

The text was originated on other machines and transferred, sometimes with difficulty and a degree of re-entry, on to a Macintosh SE using MacAuthor.

All formatting codes were stripped from the files before the transfer via Red Ryder.

Author Bruce Smith explained: "We chose MacAuthor because it has style sheets, allowing a single typestyle to be selected for large portions of text. A subsequent change to the style will automatically be reflected in the whole document, which is essential for consistency.

"Only one page in VIEW: A Dabhand Guide could not be produced in

event's success.

"Our faith in the market has been totally vindicated by this, the first show to be completely dedicated to desktop publishing", said Derek Meakin, head of Database.

"We always knew we would have a success on our hands with this event, but the level of interest demonstrated surprised even us.

"The Desktop Publishing Show will almost certainly assume the importance to its own industry that the Motor Show has in the automotive trade and the Ideal Home Exhibition commands in the furnishings sector.

"Because so many new people are now getting involved in desktop publishing I am convinced that the figure of £300 million always given as the estimated value of the market for next year will in fact turn out to be virtually double that", he said.

## Prepared on an Apple IIe

MacAuthor, so this was originated in PageMaker.

PIRA had created a special award for the Best Non-Professional Desktop Publisher and the winner was Link Up magazine from Broadway in Worcestershire.

The magazine sets out to inform people interested in spirituality, ecology and related fields.

First produced eight years ago, the publication developed until an Apple IIe was employed to manage mailing and prepare copy, which was eventually read by printers directly from a 5.25in disc.

The magazine's technical adviser, Christopher Russell-Pavier, said that the experience of desktop publishing meant that Link Up expanded very rapidly and is soon to move into offices in a business centre.

"Dtp has contributed to the staff's gaining experience quickly and wanting to move on until, at present, Link Up is on the point of crossing the threshold to become a professional enterprise".

The magazine is initially prepared in Worcestershire with wordprocessing on an upgraded 128k Macintosh. Copy is passed on disc or Email to a 512k Macintosh in London for page make-up using Ready,Set,Go!3. It is output on art paper on a LaserWriter Plus.

The artwork and photographs are prepared and pasted on to the laser printout by hand before being presented as

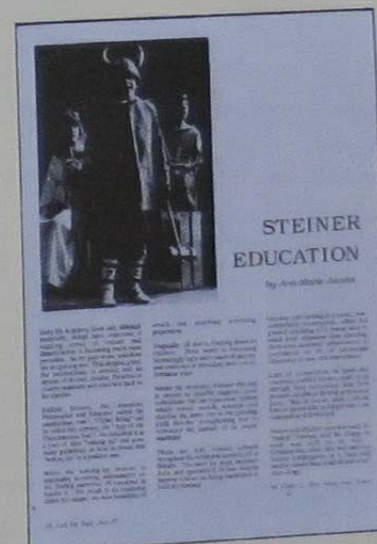
IN the books category, the winner was Blueprint Publishing of Bowling Green Lane, London.

Its title, Desktop Publishing, was written by publishing product manager for a UK systems house, Kirty Wilson-Davies; office automation consultant, Joseph St John Bate; and chairman of the Periodical Publishers' Association's production and technical committee, Michael Barnard.

The book starts by providing an overview of the state of the art and goes on to look at aspects of the process in detail including a range of specific examples.

All editing and a significant amount of text entry was performed on a Macintosh Plus with page composition through Pagemaker 1.2, including diagrams produced in MacDraw.

A complicated series of transfer programs were employed to take text from a variety of machines on to the Macintosh.



A page from Link Up

camera-ready copy to the printer.

MacWrite is used for word processing including a Search and Replace routine to change inverted commas with a "smart" version. The work is then imported to Ready SetGo! using the Get Text facility.

MacPaint is used to produce specialist artwork to illustrate articles, while MacDraw is employed to create more complicated effects which can be allied with text in Ready,Set,Go! using Multi-scrap.

# Apple User Classifieds

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● Burnley Apple user group meets monthly, details Tel: 0706 78291.

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● Apple IIE privately owned from new, 2 Apple drives, Philips monitor 80, Microsoft Z80, 80 col, CCS7710 serial clock, parallel cards superb condition, considerable business software £525. Tel: Camberley (0276) 62715.

● Peripheral cards superserial, 128k ram, IC tester £70 each, Mockingboard & ALF music cards £45 each., Z80 CPM, 64k 80 col £27 each. Grappler + parallel printer card £35. 16k Ram £27.50. Communications Epson, 6522 PIO cards £30 each. AD/DA 8 bit £60, disc drive £85. Tel: 01 736 7809.

● Apple Lisa - software engineered to run as Mac c/w MacPaint & MacWrite. Twin 5-meg Profile disc

drives. Like new £75. Imagewriter 132 col printer £250. Tel: Rae 0737 42813.

● Magic Video digitiser for Macintosh computer with B/W video camera and s/ware, cost £799 will accept £400, Summagraphics 9x12 MacTablet, Graphics Tablet r.r.p. £400 will accept £200. Macintosh Software for sale at less than half price over 75 titles to choose from, business and pleasure, phone for list. Apple IIE 128k colour monitor, two drives, hard disc, Accelerator, Z80, 80 column cards and 15" Epson printer £900. Tel: 051 645 0703.

● Macintosh 512k (400) low mileage v.g.c £590. Tel: Maidenhead 75806.

● Apple three, monitor, 10mb/hd profile Apple writer, Visicalc, Key-strokes, Database, 505 discs, bargain £400 o.n.o. Tel: Bill 0908 368761 evenings.

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# Brave new world revisited

**Denise McKnight  
tries her hand at  
adventure writing**

NO matter how easy a package is to use, what really counts is the end result. The World Builder package I reviewed in *Apple User* last month can easily produce large, intricate adventure games - but are they any good?

Obviously, the merit of any game must depend in part on the author's imagination. This is the driving force for the scenario, the puzzles and the general entertainment value of the game. But where one is using a package, rather than working from scratch, the author is not in complete control.

I once heard someone comment that they could always spot a game which had been written with the Quill. In my experience I think the same must be said of World Builder. There is an overall feel to World Builder - generated games which is most distinctive.

## Set features

The set features of a World Builder game are the framed graphics and text windows and the menu bar. The windows can be any size and position you wish to make them, although I could not see any way of changing the actual frame.

The menu bar can appear with or without the Weapons menu and the actual options on the Commands menu can be customised. However, I could not see an

easy way to alter the menu bar apart from this.

Commands isn't a bad word - it just is not necessarily my first choice for either a serious application or for a package aimed at the very young.

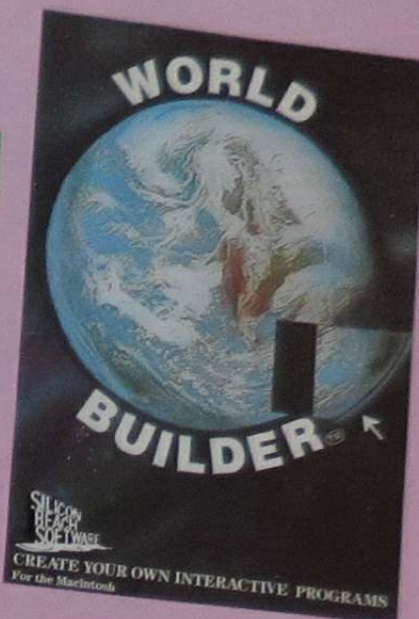
Perhaps the real problem is that the end-products I've seen just haven't really been very imaginative. Leaving my own little effort and the package demo game to one side, the two offerings I've seen are Enchanted Scepters (reviewed by Duncan Langford in the April 1986 *Apple User*), which like World Builder is published by Silicon Beach, and Radical Castle (Figure 1) which is a shareware game.

The scenarios for these two games are not really dissimilar, both are in the fantasy mould and both involve wandering around, in, and under castles. In fact, I have to think very hard to remember which is which.

Neither game has anything particularly new to bring to adventure gaming, though they are both quite enjoyable and an adventure game fan would enjoy either of them. Their good points are largely good points in World Builder as a package rather than in the use of the package - which is nice in a way, given the main subject of this review!

The good points are the use of sound and a little animation, which help set the atmosphere, the pleasant graphics - I confess I found them preferable to the highly acclaimed, OTT graphics in the Pawn - and the ability to manipulate graphic images with the mouse.

Unfortunately, I think the bad points were also partly due to using the package. The World Builder graphics are very good, but the text side seems to have been



comparatively ignored.

You can instruct the program to look for a string like "get flower" and the program will accept any text input containing those two words. But your player might type in "take plant", and the program would reject this unless you had included this as an option.

## Limitations

While this might sound obvious, most other adventure game writing programs I've seen allow you to compile a vocabulary list where you can enter lists of synonyms, all having equal value. The program will then accept "get", "take", "pick", "grab" and so forth as equivalent without you having to specify all alternatives at each possible input.

The result of this limitation in the World Builder program is that I found the two published games tedious to play. I had to be very careful to call the meat a "hind quarter" even when the program loosely referred to it as "meat" or "beef".

Little extras which are fast becoming >

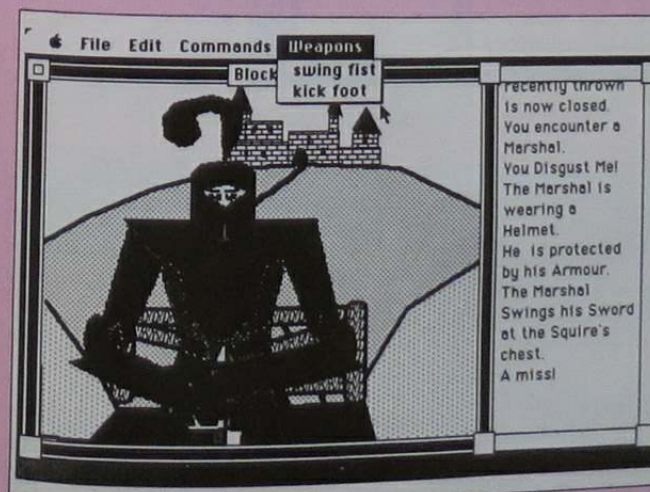


Figure 1: Not many means of defence when you meet the Marshal in Radical Castle

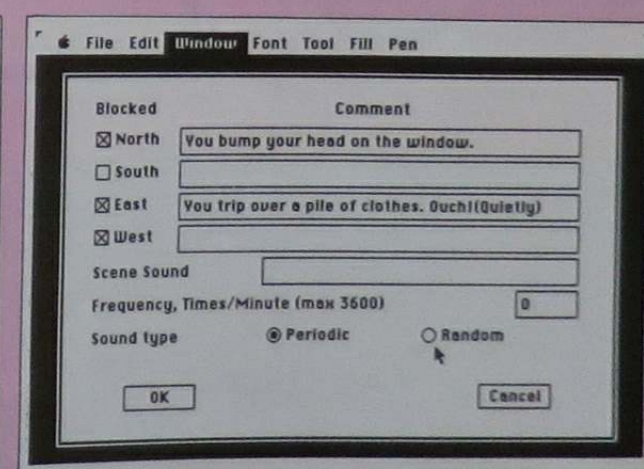


Figure 2: Adding the atmospheric details

standards like "get all" and use of "it" to refer to the last item mentioned are also lacking. You could possibly include them in the code for each scene, but you probably wouldn't bother to work it all out.

On the other hand, I found that it was wonderfully easy to include those little responses to input which make such a difference to the feel of a game, like entries for trying to go the wrong way in a room, picking up objects and so forth - see Figure II.

One mixed blessing in World Builder is the ability to populate your world with a variety of characters. It is fairly easy to create, draw and manipulate a number of different characters - up to 32,767 per game. You can determine the characteristics of each world inhabitant in more detail than most role-playing simulations.

Then having chosen their sex, strength, level of cowardice, aggressiveness, bribability and a wealth of other data (see Figure III) you can let them wander off at random to interact with your player in the fullness of time.

The problem is that it is so easy to create these characters and give them virtually a life of their own that the game can soon resemble Piccadilly Circus rather than a medieval dungeon.

We've all seen Mac users who go a little insane with the euphoria of having such a variety of fonts and styles available that their writing looks like a Letraset catalog. I have the feeling that World Builder has the same effect on game writers. The result is not very comfortable for the player.

However, World Builder need not only be a game creator. The manual, while recognising that game-creation is going to be the main use, does suggest other applications such as training material and storyboarding.

The uses of the package in education are particularly interesting, either at school or higher levels. Instead of drawing a dungeon or castle, the initial scene could be a machine or, as in Figure IV, a plant. The text window gives brief details about the item.

Clicking on a part of the picture - in the example the flower - "moves" the student to a larger image of this part. Clicking on the various details can elicit text or graphic information about the subject.

The level of interaction with the program

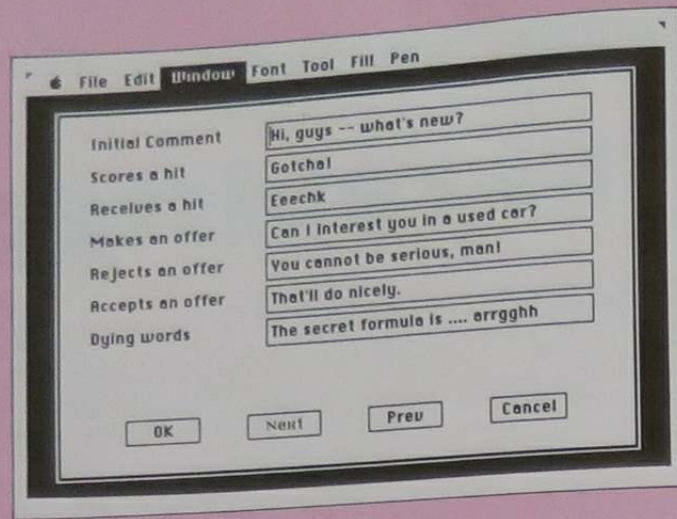


Figure III:  
The SIXTH character  
data screen - phew!

can be varied by, for example, asking the student to find a missing part from another window and bring it back to the correct area of the object being studied. Essentially this is no different from finding and using the copper key in the brass cell door.

For younger children a similar idea could be used. A picture could have several parts defined so that noises, animation or other screens occur when the child clicks on them.

An example could be a picture of a house with a barking dog, ringing door bell, view of a nest in the tree, and so forth. These could be coupled with large font text as a reading aid, or with a foreign language.

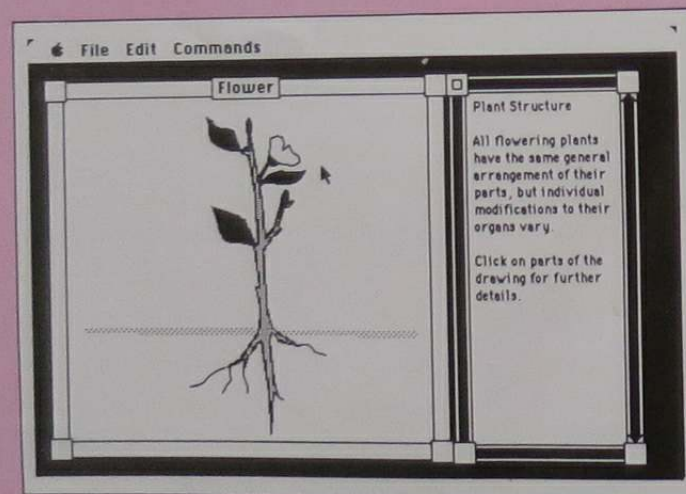


Figure IV:  
World Builder can  
be educational too

Unfortunately, though, the release of HyperCard may have preempted World Builder's use in this way. Mind you, World Builder is less of a memory guzzler and doesn't need the new roms, so it may well find favour with those of us still using 512k machines.

World Builder is a large package and certainly not limited just to graphic adventure game writing. Like all packages, the merit of the end product depends on the creativity and inventiveness of the user. World Builder merely gives you a good set of tools and leaves the rest up to the individual world builder.

With all those fiddly bits, Startibartfast would have loved it. □

## AppleUpdate

*The Language Tutorial and Cookbook is a thorough and clear guide outlining the features and capabilities of PostScript as well as showing practical ways to create useful programs.*

*The Tutorial provides a step-by-step guided tour, while the Cookbook contains a collection of some of the most useful techniques and procedures that PostScript programmers can use. The companion volume, the Language Reference Manual, gives a complete*

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# PROBLEM PAGE

**This month's column is written in response to points raised on System and Finder software, Mac pricing policy and Artificial Intelligence.**

**TONY HASEMER**

FIRSTLY and most importantly, a profound and embarrassing apology. A couple of issues back, I was talking about BBSing and happened to mention in somewhat disparaging terms a sysop whose BBS would never be recommended in this column.

To my horror, Paul Beaumont of MacTel Phoenix, based in Ipswich, took my remarks to refer to him: And after he had phoned me I re-read my article and realised that the mistake was entirely my fault and not his.

I'd like to make it absolutely clear that I was not in any way talking about Paul or about his excellent Bulletin Board Service. On the contrary, I would recommend both of them very highly. Phoenix's telephone number is 0473-610139, and for those who'd like to try it out it supports V21, V22, V22bis, and V23, all at 8-N-1.

### Systematically speaking

PEOPLE are still having trouble with various combinations of System and Finder software, a subject which I last raised in *Apple User* a few months ago. Since then we have seen the release of System versions 4.1 and 4.2, and an upgrade of the Finder to version 6.0.

As I understand it, version 4.1 of the System was intended to cure some problems with running System 4.0 on the Mac II, while 4.2 should have been a generic version suitable for all machines. Version 4.2 should also be compatible with the new MultiFinder multi-tasking software currently being shipped with new SEs and Mac IIs.

Unfortunately that isn't - yet! - quite the case. Our Lab Mac II is still a month or two away from actually being in my hands, so I can't tell you anything about its System's performance. But on a Mac+ it is still best to stick with System 4.0, as I said before.

You can, however, happily move to the

new Finder (version 6.0) and gain some useful additional features, such as a thermometer-type measure of how much is left to do during file-copying operations, and information in the "About the Finder..." box about your memory (ram) usage.

Sadly, I haven't yet been able to get the MultiFinder to work properly on a Mac+, although more than enough of it runs to show that this is an enormous step forward from the user's point of view.

Its multi-tasking capability allows you to have several windows on your screen - limited only by the amount of memory in your machine - each of which contains a separate usable application. Making any window the active window lets you continue working in that application.

The time saved with cut-and-paste operations between, say, a drawing program and a text-processor is unbelievable. What's more, MultiFinder gives you a spooling (background printing) facility so that you don't have to wait for a print job to be completed before going on with your work.

Every now and again a new piece of software arrives from Apple which makes old hands smile happily and say "This is what the Mac should always have been like". MultiFinder is one of these.

Its remaining problems are difficulties with very popular, though non-Apple, DAS such as DiskTop and the miniWriter. In themselves, these two are so very useful that no-one who is accustomed to them will like to be deprived of them.

### Lights, camera, Amstrad?

AN interesting question arose recently with a friend of mine who needed a word processor on which he could type film scripts. This is not a need which many exist-

ing word processors (on any machine) can cope with, since it involves parts of the page being typed in one column and parts in another.

Even Word 3.0 doesn't make this at all easy, especially if you have seen other Macintosh software and know the meaning of WYSIWYG.

Now, you know and I know that my friend should have bought a Mac. But despite my protestations he didn't: He bought an Amstrad word processor for around a thousand pounds less. It will do the job he wants, but apparently little else.

The question is, given that my friend could (just about) have afforded a Mac, what should I have said to convince him of all the usefulness and fun which he could have got from the very much more expensive machine? I might perhaps have spent a week giving him practical demonstrations, but we live 60 miles apart and that just wasn't practicable.

### The price isn't right!

IN a tangential vein, the price difference of the top-of-the-range Mac II between here and the USA has now reached the point where it is very substantially cheaper to fly to the States, to stay in a hotel for the night, and to bring your Mac II home under your arm.

Apple frowns very heavily upon this practice, and has apparently made warning noises about it to anyone planning to do this on a large scale. But no-one has yet produced a single reason for the almost universal practice, where Mac hardware and software originating in America is concerned, of translating dollars directly into pounds on a one-to-one basis.

In fact if one takes into account relative costs of living and individual incomes.▷

things should actually be cheaper in this country if they hope to sell to the same market. The present situation, in the absence of any explanation, does the reputation of the vendors no good at all.

**Intelligent research**

FINALLY, an issue which interests me very much is Artificial Intelligence on the Mac. AI is a strange and exciting area of study, bringing in not only advanced programming techniques but also computer science, cognitive psychology and philosophy.

Very recently, with the advent of 68020 processors, 4Mb memories and, not least, suitable software such as Common Lisp, the once-humble Mac is now a sufficiently powerful machine for serious research to be done on it.

I hope to write more on this subject in the coming months, but don't let that stop you sending in any problems you might be having.

Write to Tony Hasemer at Apple User, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

**Book Shelf**

**Word processing dictionary**

THIS 82 page book lists just about all the words and phrases associated with word processing. Each entry is accompanied by a paragraph or two of clear description and they are well cross-referenced.

To give a flavour of the book the first three entries are *abandon text*, *abbreviation file* and *abbreviation file (use of)* and the last three are *wraparound/wordwrap*, *write* and *write protect*.

The book is clearly aimed at students of word processing, whether studying formal courses or learning at home, but I think it will also be useful to anyone who is involved with feeding their word processing units with their daily grist.

It is competitively priced at £3.25, and excellent value for money. It doesn't mention individual manufacturers of word processing systems nor individual systems, but it does have a section contrasting dedicated word processors with micros running word processing programs. There are no serious omissions

that I can think of, but I do have one or two quibbles.

For example icon and mouse are mentioned but not windows; thermal paper printers are described, but not thermal ribbon printers. And there is no mention of desktop publishing and page layout software, although this is an area of increasing importance to word processing departments.

There are a few entries relating to electronic mail but PSS and Telecom Gold do not appear, although the less appropriate Prestel does. On the other hand, the more common Ascii is mentioned but the EBCDIC and Baudot codes are not. The dictionary then, is not exhaustive: But given that Word Processing coverage is the stated aim it does its job very well. — **Max Parrott**

*Word Processing Dictionary by Sylvia Dando, published by McGraw-Hill, ISBN 07-084993-5 at £3.25.*

**Online help**

**Steve Jackson offers more aid to the baffled with the second part of his glossary that puts comms jargon into plain English**

**Kermit:** A file transfer protocol – or the program which performs it – for mainframes, minis and micros. Not so common as Xmodem but becoming more so.

**Log-on:** When accessing a host computer you have to identify yourself, usually by giving numbers and/or names together with password(s). This is logging-on.

**Null modem:** The RS232 specification is for a DTE to DCE connection, in which case a wire from pin n of one connector will normally go to pin n of the other connector. However, you can connect two DTE devices in which case the data and handshaking lines have to cross – the transmission of one has to be received by the other. A cable which crosses these lines is a null-modem.

**Modem:** The machine which sits between your computer's serial port and the telephone socket on the wall. The phone will plug into the modem so that you have normal voice use as well. Some modems cater for different baud rates and have autodialling and hang-up as well – the more you pay the more you get.

It is attractive to have fast rates as the telephone charges consequently decrease. However, you are limited to the speed at which your host operates. Most work at 300/300 or 1200/1200 or split rates such as 1200/75.

**Parity:** Information may be transferred in 7 or 8 bits along with a parity bit. This helps the receiver to determine if the data has been corrupted in any way. It is a simple, first step system in which the data is packed up with a bit to make the whole an even number (even parity) or an odd number (odd parity).

This can be checked by the receiver and a decision taken on whether to request a resend. However, many systems do not use the parity bit (no parity).

**Protocol:** A formal set of rules governing the interchange of information between two programs or devices: In serial communications is usually taken to refer to the speed of transmission and reception,

the word format, number of stop bits and the parity.

This is usually abbreviated, for example a common MicroLink protocol is 300/300,7e1 signifying transmission and reception at 300 baud, 7 data bits, even parity and 1 stop bit. The number of start bits is rarely mentioned because it's nearly always 1.

**PSS:** Packet SwitchStream by which data is collected at some local computer (hence a local phone call away), is collected into packets of information and transmitted rapidly via special lines to the computer you want to contact which is further away, hence saving you telephone connection charges. Once logged on to this system it is completely transparent to the user.

**RS232:** A non-standard standard for serial transfer of data. It controls the signal levels expected on certain pins of a serial port and the meaning of those levels. However, there is such a wide interpretation of the ways of implementing the standard that it is unlikely that any one peripheral will match a computer port in its description.

Nevertheless, maybe surprisingly, serial ports seem to be robust things and nearly always a connection can be made with a little thought and experimentation.

**RS422:** Yet another standard for serial transfer of data. The standard to which the IIs and the Macintosh adhere – or do they? I've not seen any other machines with the same description. However, Apple equipment to Apple equipment connections all work very well.

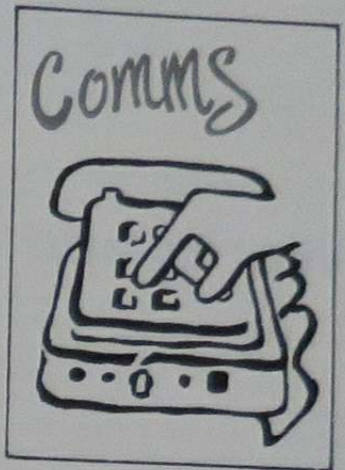
**RTS:** Request to Send: The DTE outputs an RTS to the DCE which in turn replies with a CTS.

**RxD:** The received data line: This is the line on which data is received by the DTE and it is also the name of the line by which data comes from the DCE to the DTE. The name of the line does not change from the DTE to the DCE.

**SCC:** Serial Communications Controller: A kind of chip which appears in many serial ports.

**Serial port:** Data is transferred between machines in serial format, that is the bits of information are sent one after the other down a wire to a receiver of some sort. Early Apple computers did not have inbuilt serial ports and so you have to buy a serial card for the Apple II plus and the Apple IIe.

By tradition this will go into slot 2 of your Apple if it is to be used for communications. It will go into slot 1 if it is to be used as a printer interface. If you can only afford one and you need it as a printer interface you want a communications program which



will allow you to set the slot of the serial card.

The IIs, IIsx and Macintosh all have serial ports built-in. They are not the same, however, so check whether your machine is supported by any software you intend to buy.

**Split baud rate:** see **Baud rate**  
**Spooling:** As incoming data is received by the computer it is sent off elsewhere: This is known as spooling. Data is usually spooled to the screen so that you can view it, but usually in comms packages spooling implies saving the data off to disc as it comes in.

**Start bits:** see **Stop bits**  
**Stop bits:** Serial data is transferred in 7 or 8 bit sized chunks along with parity bits and with start and stop bits either side of the data to delineate it. The stop bits come at the end, start bits at the beginning.

**Terminal:** The screen and keyboard by which you communicate with a computer. Generally when running communications software on your micro, it is a terminal to the host computer.

**Time-out:** the time taken to perform an action is measured and if longer than some preset value the action is usually aborted and said to have "timed-out". Some packages give the user control over time-outs, most do not.

**TxD:** The transmitted data line, this is the line on which data is transmitted by the DTE, it is also the name of the line by which data comes from the DTE to the DCE. The name of the line does not change from the DTE to the DCE.

**Up-loading:** Moving programs or files from your computer to a host computer is uploading.

**V21, V22, V23:** These are modem specifications, covering operating frequencies and the like. Put simply you need V21 to talk to most messaging systems such as bulletin boards and Telecom Gold and V23 to talk to Viewdata services like Prestel. Generally then it is best to buy a modem ▶

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which covers V21 and V23 standards. V22 is a newer standard and more expensive, but faster.

**Viewdata:** A system whereby the host computer sends a frame of information at a time. This frame is composed of codes and characters in a 24x40 matrix so that a limited form of graphics may be implemented, but not all systems are the same.

Viewdata terminals in this country support Prestel and are usually fitted with a special chip which responds to the codes

and generates the screen directly on a colour monitor. However, some programs will emulate a viewdata screen, for Prestel you generally need a UK program for emulation.

**Wordlength:** The number of bits which make up the character, typically 7 or 8, but there are codes which use 5 bits.

**Xmodem:** A commonly recognised file transfer protocol for use by mainframes minis and micros. Data is transferred in blocks of 128 bytes and each block has a

checksum performed on it by the transmitter. This is transmitted along with the block and the receiver compares it with the incoming block.

If there are any errors it requests the block to be retransmitted. If too many requests are made for retransmission the sender or receiver will time-out. The file transfer is transparent to the user other than various pieces of information which are presented to him by his software. You will always be informed of the status of any transfer.

Some packages operate an enhanced Xmodem protocol which transfers details of the file being transferred as well as the actual contents. In this case any type of file may be transferred, but it is only of use if the originator and receiver both are of the same type of computer with the same operating systems.

**Xon/Xoff:** A software initiated handshaking mechanism. The idea is that if the receiver has to stop receiving for some reason, perhaps to save data to disc, it can send a "stop" command (usually Control+S).

The transmitter then stops and will only resume sending when it receives a "continue" command (usually Control+Q).

However, the system is not foolproof by any means. By the time a transmitter has received the stop it has probably sent a whole lot of data which has been lost by the receiver. Still, it's better than nothing. □

## AppleUpdate

### Words and pictures

COLOURFUL efficient and accurate is how Version Soft describe its Writer's Choice elite for the Apple II and IIs.

Pull-down menus make the package simple to use and the use of windows allows you to work with up to 16 different documents on the same screen.

Colour highlighting is available to let you emphasise certain sections or organise your thoughts as you write and edit.

You can easily illustrate your letters, memos and so on by adding pictures from Paintworks Plus, Clip Art Gallery, Draw Plus or from any compatible

graphics programs.

The size of what you write is limited by your Apple's memory but Writer's Choice elite can handle Ascii files from any AppleWorks compatible word processor.

Product: Writer's Choice elite  
Price: £74.75  
Supplier: Version Soft/MGA Micro-systems, 140 High Street, Tenterden, Kent TN30 6HT.  
Tel: 05806 4276  
Requirements: Apple II

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# Racing circuits

## Tony Hasemer test drives a specialist Mac tool

Clicking on any device selects the whole circuit.

LogicWorks does not limit you to the size of the screen. The final size of your circuit can, so the makers say, extend up to 38 feet by 38 feet!

### Device libraries

Nor are you limited to a small number of logic devices. Besides the commoner ones immediately available from the Gates and Devices menus, libraries of more complex devices can be loaded. Or you can take a circuit of your own, provide an icon for it, and - via a separate application called the Device Librarian - add that to the library too.

You can even create your own clock waveforms - as complex as you like - by drawing them directly into the timing graph window. It would have been nice to have been able to save these waveforms, and I could have done with a horizontal scroll bar on the timing window.

Using LogicWorks is equivalent to building a breadboard mockup of a circuit with real wires and real devices. But where wrong connections can cause complete

failure of delicate logic chips in the real world, in LogicWorks your devices will always come back to life once the faulty connection is removed.

Again as in the breadboard case, LogicWorks does no error checking for you, and it is up to you to choose sensible places to put your probes or your names for the timing graph.

Similarly, you could design a vast circuit which in the end achieved no more than a single NAND gate, and LogicWorks wouldn't be able to warn you. But as a simulation of the real-world activity, LogicWorks does most of the right things.

Inevitably - the product is under continuous development and upgrades are planned - it does a few wrong things as well. The Zap tool in particular is hard to use: it is too big and clumsy when you may be trying to get at items which are only fractions of an inch apart.

I spent a long time trying to prevent two crossing wires a quarter of an inch from a JK flip-flop from repeatedly joining themselves as I zapped parts of the circuit around them.

### Minor problems

I also had trouble in renaming signals. My new name would appear on the circuit, but there would be no corresponding waveform in the timing diagram. And if I went back to the circuit and scrolled it temporarily off screen, the name would disappear.

I found that this could be worked around by extending or moving the corresponding signal-wire. But a renamed output from a clock generator refused to provide any output until the circuit was reloaded from the disc.

On a 68020 Macintosh - actually a Levo, but presumably the same effect will be seen on the MacII - the timing graph scrolls by far too quickly and too jerkily to be readable, and as far as I could see there is no way of slowing it down.

The manual could be improved. It assumes on the part of the reader a considerable knowledge of logic circuit devices and of how they behave when signal edges pass through them. The Getting Started section covers six pages, with only two short examples, then the manual moves straight into its Detailed Reference section in which the uses of the various menus and tools are defined.

I'm not trying to suggest that Capilano

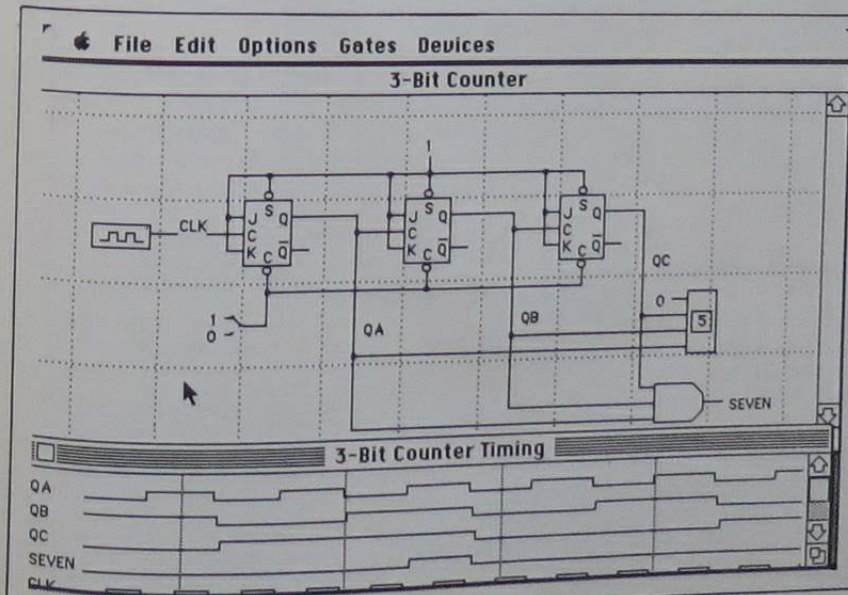
LOGICWORKS is a tool for designers of logic circuits. It consists of a MacDraw-like background upon which you place symbols representing standard logic devices - gates, flip-flops, registers, buffers and so on - connecting them with "wires", again very much as one draws lines in MacDraw. Where wires cross, you can specify whether they also connect at the crossover.

The resulting circuit can be "run" by applying a clock generator to it and inspecting its various signals via logic probes or hex displays. At the same time, in a separate window, a timing graph appears whereby the precise relationships of edges in the signals can be seen.

This working environment is nicely intuitive. If for example you give a name to a signal - by clicking on a wire carrying that signal and then typing the name in some nearby space - the signal's waveform automatically appears in the timing graph: If you later remove the name, the signal disappears from the graph.

### Zapping tool

You can also name the logic devices themselves. Wires and/or devices can be removed by zapping them with a special tool, and both can be moved by click-dragging. Clicking on any wire selects as a group all wires which are directly connected to the one you clicked on. Double-



A LogicWorks mockup: Faulty connections are no longer fatal

Computing should have included a complete course on logic circuitry, merely that a meander example – perhaps the construction of a simple digital clock – might make LogicWorks approachable by novice designers as well as by experts.

I would also have liked to see a greater prominence given to the occasional cases where the circuit as designed in LogicWorks will not work if constructed with real components. The manual does fairly state that if you have left unused inputs open – which is bad practice anyway – you may get different results depending on the type of real device (TTL or CMOS, for example) which you've used.

There is also a short section describing how LogicWorks itself operates, to help you to assess the likely accuracy of the simulation. The situation where the simulation fails the practical test may well be a rare one, especially in the hands of a good designer. My quibble is that if it happens, you're likely to need more help than is given here.

Included with the package is the utility InfoUtil. This can read LogicWorks circuit files and can generate from them various useful listings: Of interconnections for each signal, of components used, and of "materials" – components listed by their type and the quantity used in the circuit.

All in all, LogicWorks is an excellent ad-

dition to the growing range of specialist Macintosh tools. The program has about it that instantly-recognisable "feel" of having been itself well-designed and well-implemented.

It didn't crash on me once in several hours of use, and apart from the oddities mentioned above it behaved exactly as I expected it to do. If I were a logic circuit

designer by profession I would certainly want a copy for my own use.

Product: LogicWorks  
Supplier: Capilano Computing Systems/  
Computers Unlimited, 246 Regents Park  
Road, London N3 3HP  
Tel: 01-349 2395  
Price: £224.25

## AppleUpdate

### Command performance

FOR use with Microsoft Works, Works-Plus Command will greatly enhance Works for everyone from the novice to the expert.

Installing directly on to the Microsoft Works disc and becoming part of the program, Command allows you to accomplish a multitude of tasks with ease and skill. You can print multi-column labels from a database and automatically generate tables of contents and indexes for word processing documents.

Important weekly or monthly reports, once broken down into their complex steps and recorded in macros, can generate all future reports at the touch

of a single key. Telephone calls can be logged and automatically charged to a specific person or company.

Command includes a full programming language for extending and customising Works, with more than 100 built-in functions for sorting, searching, parsing and manipulating information.

Command, like Spell, is written by Tim Lundeen – the principal software developer for Microsoft Works.

Product: WorksPlus Command  
Price: tba  
Supplier: Lundeen & Associates, PO Box  
30038, Oakland, CA 94604.  
Tel: 0101 415 893-7587

## Appletip

### Disc management

SOME programs deal with enormous amounts of data and it is a good idea to store it on separate discs. However, you normally have to put a message on the disc in a HELLO program, and of course the disc has Dos on it.

The program listed below will

initialise a disc under Dos 3.3 and put a message of your choice on sector 0 of track 0. But there will be no Dos and no HELLO program on the disc. If you attempt to boot this data disc your message will be displayed on a clear screen; press a key (set by you) and the drive will reboot.

The program to do this allows you to enter the message (up to 195 characters, including returns and commas), checks to see if it is right then asks for the key you want to be used to reboot with. Just press the one you want, put the new disc in the drive and press the spacebar to format it.

```

10 TEXT
: HOME
: PRINT
: HIMEM: 8190
: FOR I = 1 TO 40
: PRINT "-";
: NEXT
: POKE 34,3
20 FOR I = 16384 TO 16414
: READ A
: POKE I,A
: NEXT
: REM Place RWTS in memo
ry
30 FOR I = 8192 TO 8251
: READ A
: POKE I,A
: NEXT
: REM Place code in memo
ry
40 VTAB 1
: HTAB 1
: PRINT "Enter Message, p
ress <ESC> to end";
: CALL - 868
50 I = 8252
: HOME
: POKE - 16368,0
60 GET A#
: A = ASC (A#)
70 IF A = 27 THEN 130
80 IF A = 13 THEN PRINT
: GOTO 110
90 IF A < 32 OR A > 126
: THEN PRINT CHR# (7);
: GOTO 60
100 PRINT A#;
110 POKE I,A + 128
120 I = I + 1
: IF A < 8447 THEN 60
130 VTAB 1
: HTAB 1
: PRINT "Satisfied with m
essage (Y/N)?"
: CALL - 868
: GET A#
: IF A# < > "Y" AND A#
< > "N" THEN 40
140 FOR J = I TO 8447
: POKE J,0
: NEXT
: REM Clear remaining Me
ssage space
150 VTAB 1
: HTAB 1
: PRINT "Press key to reb
oot on";
: CALL - 868
160 GET A#
170 POKE 8243, ASC (A#)
+ 128
180 VTAB 1
: HTAB 1
: PRINT "Place Data disc
and press Space-Bar ";
190 GET A#
: IF ASC (A#) < > 32
: THEN PRINT CHR# (7);
: GOTO 190
200 W = PEEK (44723)
: X = PEEK (44802)
: Y = PEEK (44803)
: Z = PEEK (44804)
210 POKE 44723,0
: POKE 44802,234
: POKE 44803,234
: POKE 44804,234
220 PRINT
: PRINT CHR# (4)*"INIT FR
ED"
230 POKE 44723,W
: POKE 44802,X
: POKE 44803,Y
: POKE 44804,Z
240 PRINT CHR# (4)*"DELETE
FRED"
250 CALL 16384
: REM Call RWTS routine
260 VTAB 1
: HTAB 1
: PRINT "Boot Data disc (
Y/N)?"
: CALL - 868
: POKE - 16368,0
: GET A#
270 PRINT
: TEXT
: HOME
280 IF A# = "Y" OR A#
= "Y" THEN PRINT
: PRINT CHR# (4)*"PR16"
290 END
300 DATA 169,64,160,10,32,2
17,3,96,0,0,1,96,1,0,0,0
,0,27,64,0,32,0,0,2,0,0,
96,1,0,1,239,216
310 DATA 1,189,136,192,141,
12,192,141,14,192,141,2
43,3,141,244,3,32,132,2
54,32,47,251,32,137,254
,32,147,254,32,88,252,1
60,0,185,60,8,240,6,32,
240,253,200,208,245,44,
16,192,173,0,192,201,16
0,208,249,44,16,192,76,
166,250
    
```



## Pascal commands

I AM interested in two undocumented command options in Apple Pascal 1.1. At the outermost level of the Command prompt line there are various options including Edit, Run and so on. There are also two options called Make Exec and Swap which are not mentioned in the Operating System Reference Manual.

I wonder if there is anybody out there who could help me with these two commands. Also, there is a mystery file called SYSTEM.ATTACH which has priority over 'SYSTEM.STARTUP' in the booting process – why is there no information about this in the manuals? – Danny Wong, Hong Kong.

The outermost command level options, Make Exec and Swap, are commands added to the Pascal system after the manuals were written. Later versions of these were accompanied by addenda sheets – obviously you have early versions.

The Make command allows you to create an exec file by typing the commands at the keyboard. Alternatively the same file could be made in the editor. You first give the volume name and file name of the exec file to be created, then change the terminating character if you wish. Then follow the sequence which you wish to happen in the exec file.

Commands will be carried out and will appear in the final file, including any mistakes you make – so take care. You end the creation of the exec file by typing the terminating character twice. You use the exec file from the command level by selecting the X)ecute option and then giving the file name preceded by a slash /. You can edit the exec file from within the editor but it's not always easy. The Swap option gives your programs more room (about 2200 bytes) if you switch

it on. However, some file operations may be a little slower. If selected, the boot disc has to be in the drive at the right time but the filer will function correctly without it.

SYSTEM.ATTACH attaches "new" peripherals to the Pascal system, for example unusual ram cards or a mouse. This is not documented in the user manuals but is available to software developers who wish to use such for their products. – Max Parrott.

## Poking around

I'M learning to program the Apple IIe, using the one at school, and I'm quite new to it. At the moment I'm working on my Startup (under Prodos) so that it can't be broken into.

I'm looking for POKES to stop people listing and wrecking it, but they are hard to come by. Also I'm experimenting with sound and the best thing I can come up with is

```

FOR A = 200 TO 10 STEP -2:POKE 6,A:PO
KE 7,5:CALL 768:POKE 6,A+20:POKE 7,2:
CALL 768:NEXT A.
    
```

I have also found how to do the sound at random, but I want to get deeper into the subject. – Mark Bateman, Castlemartyr.

If your program POKES 214 with the value 128 you will find that any direct command will make it RUN. Then to disable the reset key, or at least make it rerun your program use this subroutine:

```

60000 POKE 768,32:POKE 769,234:POKE 7
70,3:POKE 771,76:POKE 772,182:POKE 77
3,213:POKE 1010,0:POKE 1011,3:POKE 10
12,166
    
```

Next, trap Control+C with the ONERR

command in the following way.

```

10 ONERR GOTO 60010
60010 IF PEEK(222) = 255 THEN RUN
60020 POKE 216,0:RESUME
    
```

You do still have the problem that one of your friendly colleagues could boot up with a different disc and then LOAD your program. If I were you I would just keep a copy of the program on another disc where they cannot reach it.

As your music program stands, you are going to get a shock one day when you boot your system with another disc. The Apple does not have any "music commands" built in and you have to program sounds yourself. A simple program to make musical notes, from Jim Dawson, is

```

10 FOR M = 770 TO 795: READ C: POKE
M,C: NEXT
20 DATA 172,1,3,174,1,3,23,2,208,253
,169,4,32,168,252,173
30 DATA 48,192,136,208,239,286,0,3,2
88,231,96
    
```

You then POKE the duration of the note into 768, the pitch into 769 and a variable which depends on the last note played into 780.

This is generally 4, but if the last note was middle E or D it is 48 and if low E the value is 69. Experiment with pitch values using a duration of 160.

Another way of making sounds (from A. Pegum) is to use the USR command, the program to work it is:

```

10 FOR I = 768 TO 786: READ C: POKE I,
C: NEXT :POKE 11,0: POKE 12,3: POKE
10,76
20 DATA 32,12,225,172,161,0,173,160,
0,32,168,252,173,48,192,136,208,244,
96
    
```

and a good value to use is given by Z=USR(3000), try experimenting with others. – Max Parrott.

## Service

I WOULD like to commend the recent good and courteous service that we have received from DataPak (GraphicWriter).

We recently ordered a back-up disc for GraphicWriter: Not only was the disc promptly returned, but so was our banker's draft of \$15 which we sent to cover the transaction.

We understand that it is now company policy to supply a free back up disc with every program – retailing for over \$100 – something we need never have known. Such integrity is certainly appreciated. – Ian Case, Medical Focus Ltd., Hampshire.

## Back to school

I HAVE been trying to discover whether any programs exist for facilitating the production of school timetables which can be run on the Apple II or Ie.

Programs listed in the education section of directories appear to be teaching aids or school administration packages. Can you advise me of any likely sources or known programs? - I.G. Harvey, Chester.

● The only package which we have ever come across is Studentdata from Education Software, 12 Barclay Road, Walthamstow, London E17. This apparently handles timetable structuring based on a blocked week, up to 10 days of 15 periods per day with a maximum of 50 blocks.

It was reviewed in *Apple User* in March 1984 when it was found to be "an am-

bitious attempt at a complete administration package".

It is menu driven, described as rather slow with minor bugs and "somewhat limited in its usefulness by the maximum number of records and parameters with which it can cope".

From limited, personal experience, programming timetabling is an horrendous problem and it doesn't surprise me that there are no or next to no packages in the market. - Max Parrott.

## Apple to Mac

YOUR October article "Apple to Mac.." is interesting. I have recently changed my personal computer from an Apple Ie to a Mac SE, and needed to transfer correspondence files and spreadsheet data from 5.25in floppies to the new Mac's hard disc.

I obtained MacTransfer from Southeast Software, which can work by connecting

the ImageWriter cable from the Mac to the Ie's serial card. Once the card is correctly configured the transfer is straightforward, and complete freedom of filename is permitted at the receiving end.

Using Apple Writer and WriteNow the facilities within the latter converted text files to an acceptable A4 format, leaving the old Apple Writer format commands to be manually deleted if thought necessary.

The spreadsheets were another matter. Excel cannot interpret any of the Visicalc or Flashcalc data formats and, if transfer is attempted, starts a new row for each cell, which is garbled anyway.

The answer seemed to be to make text files of the data ("Print to disc"), which Excel will accept. This, however, put a whole row of Flashcalc data into the first cell of each row in Excel.

The solution is to prepare a blank page on the word processor with tab stops corresponding to the spreadsheet columns, load the spreadsheet data as a text file, and manually insert tab commands after each cell of data.

Certainly it is tedious, but it is a great deal quicker and more accurate than retyping the lot.

The edited text file is then loaded into Excel which will now accept it correctly as separate cells, and although the data has been loaded as text, the program will recognise the cell contents as values whenever formulae refer to them.

It is not possible to transfer working formulae from one machine to the other. Indeed, simple re-entry of formulae may not work without adjustment of brackets and suchlike as the order of calculation differs between the programs.

MacTransfer states an Apple Ie can only handle 1200 baud but I found that with a SpeedDemon card installed 2400 baud worked perfectly. - N.S.R. Duffin, Belfast.

## Hanging files

I WAS very interested in the letter on the subject of 'hanging AppleWorks' from Sajid Rivzi in September's *Apple User*. I have had exactly the same problem with two other programs, PFS:Write and Hilderbay's Bookkeeper, after replacing my standard Apple 80-column card with a Glamire 80-column/64k card in a Ie.

After about half an hour the letters on the screen would begin to alter and then the program would hang. The card has been back to the manufacturer for testing and is perfect - it was left running for 48 hours continuously without any problem.

Neither program uses the extra memory, in fact, and it is clear that the fault is in the computer. The 80-column display does sometimes flicker and fade with the standard card but never alters the display or causes the program to hang.

In your reply to Sajid Rivzi you said that you suspected the power supply. Do you

mean the mains supply or the power supply/transformer within the computer? Can this be tested? Why would removing the fan help? (I don't have one). How do you clean the slot and the fingers on the card? Has anyone else had this problem, and found a cure? - Michael Pegum, Dublin.

● Yes, I meant the power supply in the box within the computer. It is interesting that you have only had problems with two programs, but I suspect that this is because you use them a lot with the 80-column card active.

What you say reinforces my conclusion that it's the power supply: A low current and/or voltage is made worse by the extra ram being supported in the new card and that's it - it gives in.

Whether the power supply itself gives a lowish output or whether something within the computer is taking a lot of current is difficult to say, but it's probably the supply being low.

This is why I said removing the fan might help. If it's taking power from the same supply it can only make things worse. It should be possible to test the supply but it needs to be tested under load - that is, in the computer, under normal working conditions.

Cleaning the card fingers is accom-

plished by either gently wiping them with a clean tissue moistened in isopropyl alcohol - tape head cleaner - or very gently rubbing them in one direction with a clean, soft pencil rubber.

The slot is best cleaned with an aerosol such as electronics people use for cleaning.

## Music Making

PLEASE could you give me details of where I can obtain music software for the Europlus. I have a DX7 and various other Midi devices that I would like to link up with my Apple so that I can do editing, sequencing, composition, score-writing and so on.

The only thing I have come across so far is the Greengate DS3 system, which I thought was rather expensive for what it could do. I am sure that there are other items available but enquiries at music shops have tended to draw a blank. - Dave Lewis, Guildford.

● The only software - and hardware - of which we are aware comes in three major ranges. The cheapest is typified by Music Construction Set and Music Studio, middle range by the Mockingboard.

At the top of the range is the Mountain Hardware System - probably now out of

date - and Greengate's DS3. And possibly something which may suit you better - the Lemi interface and software.

This was reviewed in *Apple User* in January 86 and you should contact Computer Music Studios, Park House, Llangennech, Dyfed for more information. There is a range of software to accompany the Lemi.

We suspect that newer hardware/software will soon appear for the Iigs and of course the Macintosh has software such as the Opcode Sequencer, Professional Composer and Professional Performer, but it is rather unlikely that such software will appear on the Ie/c and Europlus.

However, if anyone knows better...



## Stocks suite

WITH reference to the two queries in the October edition about software for stocks and shares, I have written and been successfully using a very comprehensive suite of just such programs for the last two years.

I have been seriously considering marketing the suite for some time and am now in a position to release copies with a sampler starter of two years share prices for £55.

The programs are configured to work on the Apple II with 80 column capability, Epson printer with graphics and Cirtech compatible printer driver.

The programs are contained on one disc drive and the share prices on the second.

The more sophisticated portions of the suite generate automatic buy and sell recommendations based entirely on technical factors.

I have found the point and figure charts referred to by M.G.Hallmey of Reading are not so easily open to computer interpretation and hence are of limited use for such charts but at the moment they are not in a saleable form.

However, if demand was sufficient then I would be prepared to rewrite and release them as an add-on to the existing suite. -

A.W. Crawford, The Old Post Office, Twelveheads, Chacewater, Truro, Cornwall TR4 8SH.



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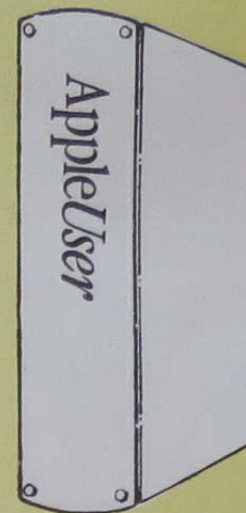
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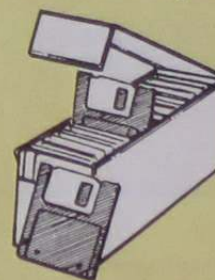
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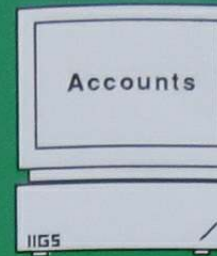
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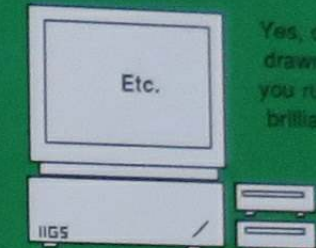
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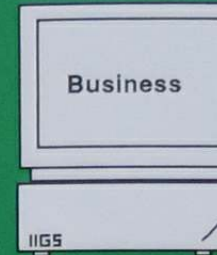
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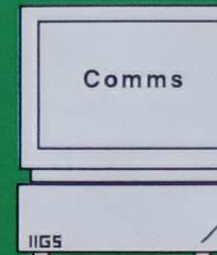
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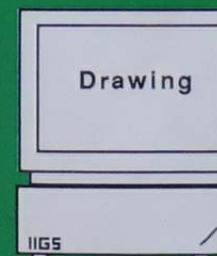
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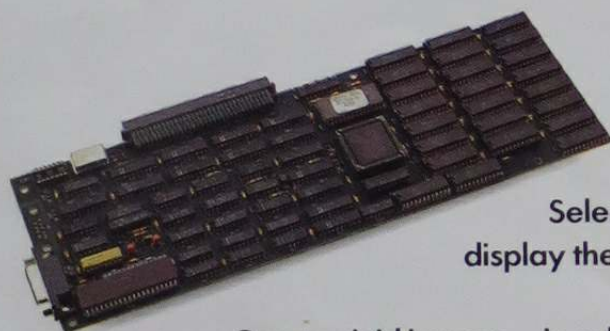
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