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Art Director
Sally Anne Silveira
Production
Kylie Prats
Consulting Editor
Matt Whelan
Managing Editor
Brad Boxall
Publisher
Michael Hannan
Cover Photography
Helmut Mueller

EDITORIAL AND OFFICE SERVICES

Allison Tait
180 Bourke Rd,
Alexandria 2015 NSW
Tel: (02) 693 6620
Fax: (02) 693 9935

ADVERTISING SALES OFFICES

New South Wales
Business Development
Manager: Damien Prins

Sales Executive
Mark Wilde
180 Bourke Rd,
Alexandria 2015
Tel: (02) 693 6666
Fax: (02) 693 9935

Advertising Production
Patrice Wohlneck

Victoria
State Manager
Virginia Salmon
Advertising Production
Matt Holden
221A Bay St, Pt Melbourne 3207
Tel: (03) 646 3111,
Fax: (03) 646 5494

Western Australia
Des McDonald,
48 Clieveden St, North Perth 6006
(09) 444 4426
Fax (09) 381 3115

Queensland
John Saunders,
26 Cherside St, Newstead 4006
Tel: (07) 854 1119

South Australia
Michael Mullins
98 Jervois Street, Torrensville 5031
Tel: (08) 352 7937

New Zealand
Corrie Mitchell,
Rugby Press
3rd Floor, Communications House,
Parnell, Auckland
Tel: (09) 796 648
Tlx. NZ 63112 SPORTBY

All Subscription Enquiries
to the Subscriptions Manager
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NEXT MONTH INCLUDES

The office of the future is here, from touch screens to voice messages via computer – our lead story for the New Year will show just how close to tomorrow we are!

January is a lazy time for most of, but if you want to 'make that micro work', we'll keep you busy: next month is packed with hardware and software projects. (You've always wanted to add an external speaker or build your own modem or computerise weaving, haven't you?)

Just to make sure it's not all forgotten, we've got a cure for amnesia! Then, so you've got someplace to remember it all, there's the beginning of a series on memory, gigabytes of it

Merry Christmas!

We've given ourselves a new look and we're giving you even more applications and ideas to make that PC work *harder!*



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MATT WHELAN



A simple idea . . .

DIDN'T we just talk about communications a couple of issues back? Yes, we did – but that won't stop me talking about it again. I've just seen an innovative local product that, I feel, has significant bearing on the future of communications.

It's Deslink, the result of a joint venture between Telecom Australia, Cybersoft and Netcomm. Deslink is a user-friendly way for people to deal with the user-hateful tty/line-oriented communications provided by Telecom's Keylink service.

Deslink is a simple idea (though not all that simple to code), and in itself is no enormous breakthrough for the industry. Yet, the concepts it embodies could have a profound effect on the future of communications.

I've been a comms 'fanatic' since 1980/81 when we launched this magazine, always in awe of the power of instant international communication and always wondering why I couldn't convince the people around me of how great it was.

Problem was, I could always convince them of the benefits just by showing them, but when it came down to doing it for themselves it was all too hard.

The modems were hard to use (they're better now), the comms software was almost 'do-it-yourself' (it certainly has changed too, but still requires a higher level of 'devotion' than the masses want to give it), and the systems you had to access to partake of this marvel were cold, uninviting, and downright painful (that has changed little).

I was discussing the future of communications recently with Cybersoft boss Doug Scadlock – he of the friendliest comms software, Gateway/The Netcomm Program V3 – and suggested what we needed was smarter software.

If everyone was to be able to use it, the hard work had to be taken out: the software should know where to send things, and how to get them there, and it should know where to get the information people wanted. At that point he invited me along to a preview of Deslink, and I soon found out why he was smiling . . .

Deslink comes very close to answering at least the first half of my proposition: you just tell it you want to send the message to Tom, Dick and Harry

and it does it – even if Tom is on Keylink, Dick has a Telex machine, and Harry is reachable only by facsimile.

All of these services (the fax is outbound only, naturally) and more – including access to other international and local mail systems, and services like Viatel – are available through one system, one account, and one impressive user interface.

There's still some setting up to do, but the amount of work that has gone into making this idiot-proof *and* enjoyable is amazing. Users/administrators can mail each other 'business cards' (the Deslink record of name/addressing information) to update addressing information, and the system even has a built-in capability to go and collect updates to itself when you receive a message telling you a new version has been released.

It sports an icon-based desktop metaphor (in-tray, out-tray, filing cabinets, rubbish bin and so on), and really guides the new user by the hand through the normally harsh world of collecting/delivering mail to systems like Keylink.

All message reading and composition is done off-line (with full-screen editors, help available at the touch of a key, and all those good things you don't get from antiquated mail system user interfaces), and messages are sent/received as Xmodem file transfers. Telecom's major worry was that Deslink users would spend a tenth the time on the system (thus cutting connect charges), because it is so efficient.

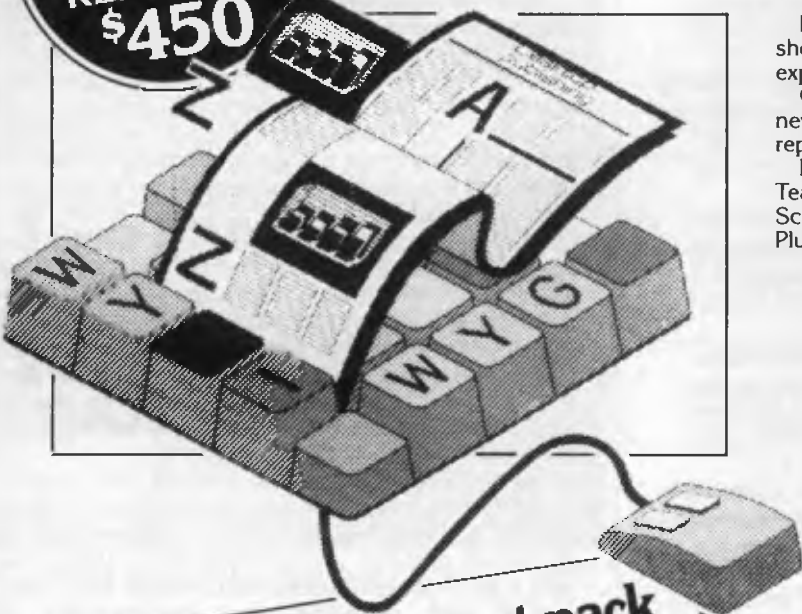
I don't think it's cause for worry – making the use of Keylink this easy will get them 10 times as many users, and more. Deslink advanced the Keylink-style mail systems 20 years, overnight.

I would now be comfortable – for the first time – talking a non-computerised business person into venturing into the world of comms. I know they could be up and running almost instantly, and be using the system heavily as a 'second-nature' activity as soon as the novelty of watching the icon-phone dialing wore off (yes, the correct numbers even blink on the keypad as it calls).

Cybersoft, already riding on a high of 5000 Netcomm Program/Gateway sales, has again shown the comms software industry – internationally – the way to go. Let's hope they all head there, and that the competition's fierce on the way . . .

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Your (changing) Computer

JAKE KENNEDY

a zoom lens is needed to get far enough away from the screen to show it all without problems with distortion and reflection. Unless the room can be darkened completely, a 'shroud' will be needed to block stray light (the one I've got my head up elsewhere on this page was made from a roll of backdrop paper we use in the photographic studio; ordinarily I use a cut-down cardboard box, but the only lens available made it necessary to get that far back from the screen.)

Good shooting!

□



Magazine editor with his head in a shroud

WITH THIS issue of *Your Computer* you will see a transition in our style that reflects the changes that are happening in the computer world – applications have become much more exciting (and colourful!) and closer to the 'real world' needs of general users. Of course 'users' have changed, too: as both hardware and software have become more friendly, forgiving and flexible, the need to wield a soldering iron and think in machine code has nigh well disappeared. All of which means that we can now spend our time with computers accomplishing things, rather than trying to work out how to do it in the first place.

Two stories in this issue particularly show the changes we are seeing: 'A Sound Idea' tells of a young Queensland researcher's success in writing a \$2000 software package that effectively replaces \$40,000 of hardware – it's being used to treat speech disorders and study bird calls, among other applications; and 'Powerhouse Amigas' shows an innovative use for the same machine that's bringing fun and pleasure to so many enthusiasts – interactive museum displays!

The metamorphosis in both YC and the industry as a whole was driven home to me when I compared December '81's cover with this month's: all those bits in the kit! (Even Les Bell had a hard time putting it together!) – it's a DSE Super 80, actually, priced at \$395 (A friend of mine who built one of the originals recently passed it on to his son who pointed out the dish washer had more memory, and lost interest.) And this month: dBase IV, which goes a long way towards bringing the power of a mainframe relational database to the PC. What a dramatic change in

concepts: from DIY hardware to self-programming (almost) software!

But, as long as computer users represent a minority of the population, we'll continue to run articles and tutorials for novices – one thing that we are not changing, is our dedication to helping *everyone* get more benefit from using a personal computer (I often get the impression that much of the industry thinks users are there to serve them, rather than the other way around).

Picture it!

IN RECENT issues you will have noticed the number of colour computer screen photographs we've been using. These have prompted a number of readers to ask how it was done, so I asked our chief photographer, Greg MacBean, (he does computers, too) for some hints. The essence of his advice was to be prepared to experiment with a few rolls of film (any good colour film will do) And – keep notes on every frame you shoot; a little card with the frame number in a corner of the screen will make those notes a helluva lot easier to sort out.

We use Kodak's Ektachrome Professional Daylight (ISO 100) because it gives 'warmer' colours, which reproduce well in the magazine. (Actually, photo boffins will tell you Tungsten film is the one to use – try a roll of both from several manufacturers since 'colours' are very much a personal thing.) For camera settings, start with 2 seconds at F8, then 'bracket' that shot with ones at F16 and F4. Next, change the time (to 1 second) and vary the F-stops again and repeat the exercise at 0.5 seconds.

A medium telephoto (about 105 mm) or

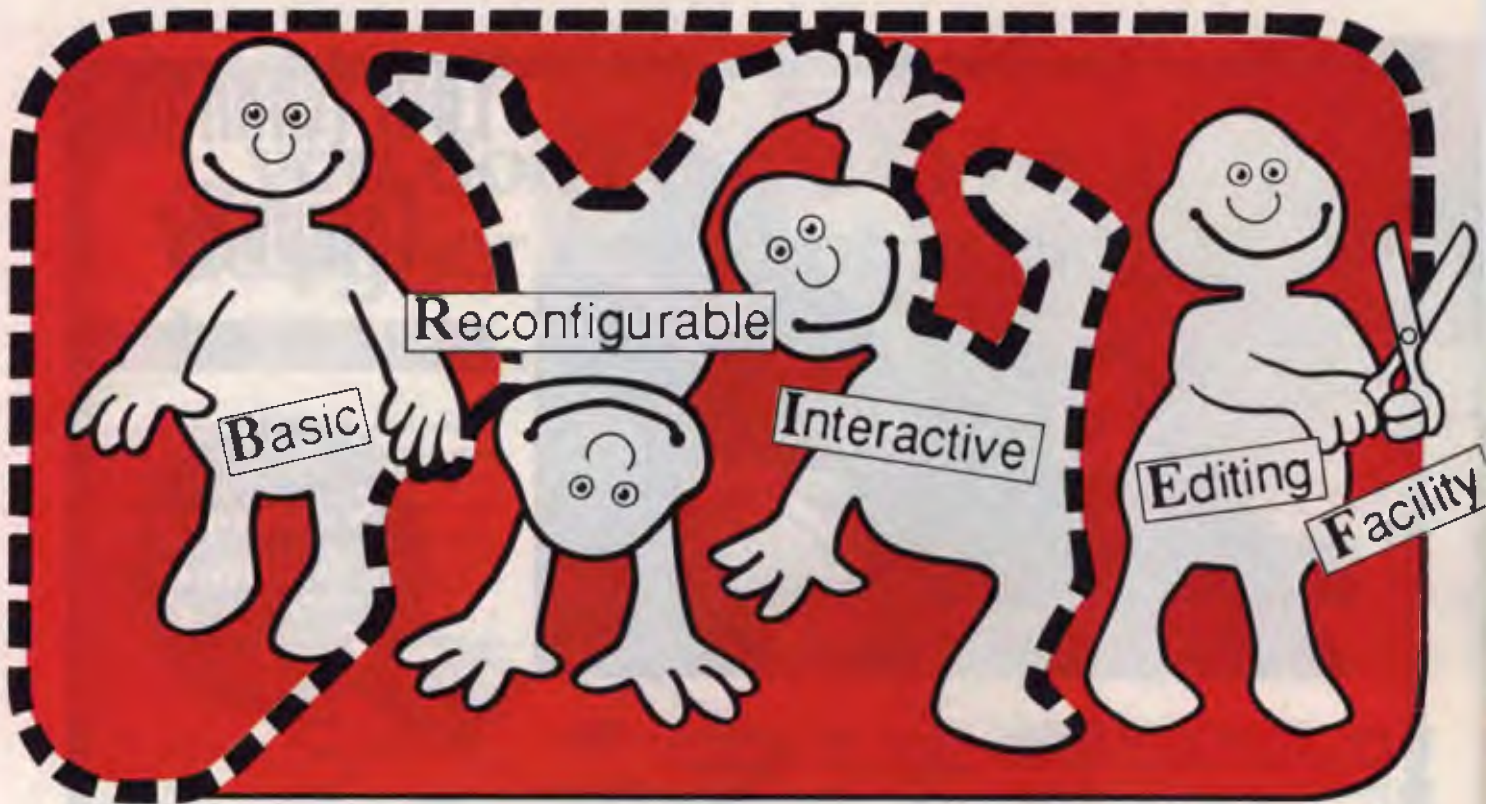
December 1981



'In the high-reward, high-risk world of the futures market, the investor would like every piece of information he can get, instantly. So a micro, some specialised software and a link to a market monitoring organisation are necessities.' – *There's a Micro in your Futures*, p29.

Santa Claus (when asked if installing a microcomputer had meant a reduction in staff): 'Actually, the contrary is the case. You see, we're so isolated here I've had to employ a horde of gnomes to operate the treadmill generator – then, I've had to employ a few whiphands to make sure the little beggars don't slack on the job.' – *Chips Solve Toy Distribution Problem*, p35.

'IBM 5150 – That's the official name of what most people term Big Blue's PC. The machine has been available for a couple of months now in the US' – *News item*, p7.



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Importing Aussie technology!

WILLIAM OLSON

They said two of our leading young solid-state chemists had already left for universities in the US.

Superconductors lose their spark
NOT ENOUGH money is going into superconductor research, a Federal Parliamentary subcommittee was told recently. The subcommittee heard evidence from scientists and university groups.

Two scientists from Sydney University's School of Chemistry told the committee that Australian chemical research was capable of discovering new materials, not simply finding uses for overseas discoveries. Drs Tony Masters and Maxwell Crossley told the parliamentarians that, in the short term, advances in superconductivity will certainly come from overseas.

They said two of our leading young solid-state chemists had already left for universities in the US. One of the scientists had asked for \$90,000 researching funds to set up a lab here: he was offered \$22,000. New York University immediately offered him one million US dollars plus permanent staff and access to an advanced facility investigating superconducting materials.

Both Masters and Crossley reminded the committee that in ten years or so we would be importing the technology these Australian scientists would develop in the US.

Also, US university students would now benefit from their knowledge, while Australian students will miss out. Dr Crossley believed Australia was now so far behind in ceramic superconductor research, it was not worthwhile trying to catch up.

Professor Graham Bowden from the University of NSW said many Australian universities now had to wait until 1989 before submitting research fund requests to the Australia Research Council. Researchers in Japan faced no such bureaucratic machinery Professor Bowden said. Australian research into superconductors would be strengthened with more liberal research funding, he concluded.

Unix R&D

Mitchell Germansky recently visited Canberra for an Information Technology Expo. Germansky is here from California to head a new Unix software research and development outfit based in Melbourne. Eastek, a former US company now based in Australia, is sponsoring the R&D unit.

Germansky, who has a Master's degree

sounds impressive, but if you have 2000 characters on a page of, say, mathematical data and 20 are incorrect then a lot of keyboard intervention is needed to correct those mistakes.

Handwriting recognition is not far away either, Germansky says. The Japanese have already demonstrated OCR on Japanese characters, which are then translated into English on screen.

Germansky's experience with Unix began at AT&T, where Unix was used to design support architecture for the US telephone system. Features such as 008 numbers and detailed phone accounts were built with Unix operating systems.

Germansky did two years at the Bell labs in California on Unix development. 'You see these books on the shelves written by the Unix gurus well, I used to play chess with these guys at lunch.'

'In any other company outside Bell labs doing Unix development, you go open the book to solve a problem. When I was there you went and banged on the guy's door who wrote the book!' While at Bell labs, Germansky found all the researchers very open about what they were doing and always ready to teach others.

in Computer Science, began his career in office automation in the '70s and worked on one of the first full screen display, floppy disk driven word processors in the world. Also, he was involved with first generation Optical Character Recognition (OCR) devices. Germansky says that these devices were incredibly slow, taking five minutes on a drum to scan one page. They were also font dependent and only able to recognise the type on an IBM golfball typewriter.

By comparison, he notes that the latest OCRs will recognise most fonts and scan a page in about 10 seconds. However, OCR is still not there yet, according to Germansky: the 99 per cent accuracy often quoted,

Not enough money is going into superconductor research, a Federal Parliamentary subcommittee was told recently. The subcommittee heard evidence from scientists and university groups.

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CANBERRA COMMENT

Germansky commented that what is happening right now in the PC market is interesting, because the processors are getting faster and the hardware is getting cheaper. He believes that PC makers are on the edge of big decisions about the software they want to go with in future since Dos has been stretched to the limit. Also he noted that the many new features in Dos 4.00 made switching to OS/2 much less interesting for many.

Germansky believes Unix is the way to go for future PCs. He sees the main problem, at present, as dBase and Lotus 1-2-3 not running on the Unix platform.

However, with the PC hardware becoming more powerful and Unix supporting multi-user, multi-tasking, it seems the ideal system for the future.

Eastek and Germansky are at present offering an optical disk storage system for large paper filing systems. The idea is to store 100,000 A4 pages on a single laser disk written on a WORMS (Write Once Read Many) system.

Initially, images are scanned at 200, 300 or 400 dots per inch (DPI). The information is then compressed at a ratio of about



'PC makers are on the edge of big decisions about the software they want to go with in future since Dos has been stretched to the limit' - Mitchell Germansky, head of Eastek, a new Melbourne-based Unix software R&D company.

20 or 25 to 1. This allows half a megabyte of data to be stored in only 20 to 30 kilobytes of space.

The computer uses a FORMEX database on its Unix system. Once the image is etched on to the laser disk it is there permanently. However a file can be deleted

simply by not referencing it with the software. Although permanent laser disk etching may appear a problem to those of us used to erasing and re-using floppies, legally it makes computer documents more acceptable. Two of the legal requirements for documents are that they must not be able to be changed or accidentally erased. The laser etched disk matches these standards perfectly. Germansky calls the Eastek system 'the new papyrus'.

He also mentioned the Apple Mac II when discussing Unix. Apple has AUX, which is its version of Unix. Germansky says he is disappointed that Apple will not be distributing AUX in Australia.

When asked to make some predictions, Germansky said he did not see traditional data entry requirements changing in the near future. For example, he thought voice recognition was at least five years away. He believes software development needs to take the same leap forward that hardware has in the past few years. Software development is still incredibly labour intensive and Germansky likened it to monks on stools in the middle ages copying out pages of the bible! □

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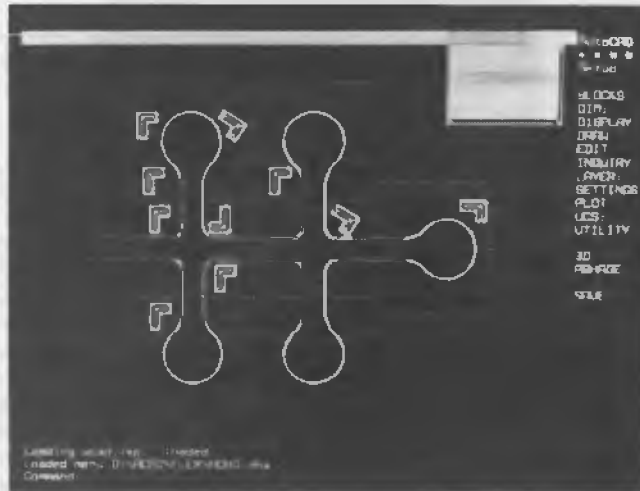
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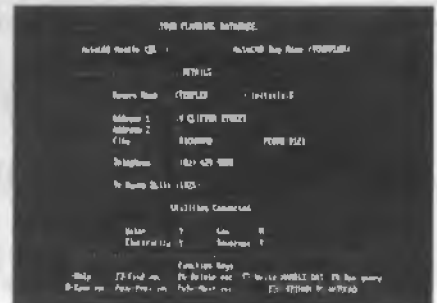
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AMERICAN GRAFFITI

HOWARD KARTEN

If there's one of those on your list, I think I have just the right idea for you: 'adult software.'

LAST CHRISTMAS, as I recall, the deadline for my column somehow crept up out of nowhere, so to generate some copy in a hurry, I thought up some fanciful ideas for software. This year, generating the obligatory Christmas column was easier – I just glanced through a few computer magazines and thought about real life.

For example: if you're looking for a truly unique gift for that special computerist in your life, or for the person who has everything, I have just the thing for you. It's a glove. A computer glove, actually.

I kid you not. VPL Research Incorporated in Redwood City, California, makes DataGlove. It attaches to its own control unit, which in turn connects to the serial port of your IBM PC or Macintosh. You put your hand in the glove, and bring up the image of an object on your screen. You move your fingers as if you had the object in your hand, and the object on the screen will move as if you've turned it. You can imagine how useful such a product would be. VPL suggests that the glove might find application in animation, human factors engineering, and other areas.

In the space of only a few hours, I myself was able to come up with one or two uses for the glove. For example, medical schools are said to be making heavy use of computers as instructional devices. Maybe they could use DataGlove to teach students how to perform certain... ah... shall we say delicate manual examinations? The price is right, too, for such a useful object. Only \$US8800.

Adult software . . .

All of us know some technology 'freaks' – folks who quickly and eagerly embrace new technology, regardless of what it is or how useful it might be to them. If there's one of those on your list, I think I have just the right idea for you: 'adult software.'

I have to admit, I've only just seen adult software advertised in the back pages of a mainstream magazine here, so I'm not entirely sure of exactly what it is. Still, it does suggest something interesting, doesn't it? If it's truly what we're intended to think it is, the technology freak who receives this gift won't be entranced by it for too long: those folks' interest in their toys almost always wanes as quickly as it grows.

In line with this, a few years ago, Ms Computer Writer set out to get me something that would dovetail with my nascent interest in linguistics. An ad for 'surplus speech synthesis units guaranteed perfect... attach to any PC' in an obscure hard-core computer hobbyist magazine attracted her interest, and she got one for me.

She hadn't seen the small print explaining that these units had been removed from automated medical equipment, however, and the result was that the I was able to produce some very nifty and authoritative sounding medical phrases ('blood pressure: zero over zero'; 'take two scotches and call me in the morning' are two examples), but not much else.

In another case, the wife of another hobbyist friend, carried away by his then high interest in LANs, bought a spool containing 3½ miles of optical fibre, complete with crimping tool. His ten-year-old thinks it's 'neat' that he can shine his flashlight through it, and the eight-year-old is enjoying playing cat's cradle with it.

Suggestions

If you'd like to do something really special for someone who's always running out of disk space, how about a 200 Mbyte hard disk? That's right, 200 Mbyte, and a mere \$US1500 or so from Maxtor.

A giftee on your list who's really paranoid might appreciate a copy of Freeze! 2.0, from Command Software Systems Incorporated, in Malibu, California. A recent communique from the vendor explains that this product, which can be set up to require from one to five access passwords before an IBM PC, XT, AT, PS/2 or compatible will boot, 'combines access control, intelligent passwords, intermission, a High Security Option, and Unique Security

Switches that protect against snooping, viruses, and accidental formatting and deleting.' (The kind of person who'd especially appreciate a gift like this probably owns one of those grounding set-ups that you wrap around your wrist to eliminate the possibility of static electricity.)

Of course, if you give Freeze! as a gift, you probably want to make sure the shrink wrapping hasn't been breached, and accompany it with a notarized affidavit attesting to the vendor's character!

On a more serious note, as usual, one of the cleverer and more useful Christmas gifts I've seen is a piece of Shareware. MindReader, a word processor for IBM PCs, tracks the phrases you use and builds up libraries, dictionaries, and databases of the phrases and words you use.

As you type material in, it will attempt to make suggestions for the following word or phrase. It does this by searching its resources to find the words or sentence constructions you've used in similar situations in the past. You can choose one of its suggestions, or ignore them in favor of your own input.

MindReader contains an on-the-fly spelling checker and a whole bunch of pop-up utilities, and it can automatically expand cryptic abbreviated input (for example, enter MAILAB and have it automatically expanded out to 'My article is late again because'). MindReader is said to accomplish these wonders through some AI techniques (although that *cliche* has become so overworked that by now even toasters make that claim), and to be good for writers (especially letter writers) who are not yet fully comfortable writing. MindReader is found on many bulletin boards here and so should be available in Australia as well. In ARC'd form, it takes up 166 kilobytes.

And if you want to give a really special gift to that special Significant Other (as we say in the States) in your life, try this: shut your computer off early on 24 December, and don't even think of going near it until at least 9 pm on Christmas Day!

As for me, I know what I'm looking for, or hoping to find under my tree: a deadline stretcher, that will magically create an additional 24 hours on the day when my copy is due at YC!

Merry Christmas, y'all. □

Pinwriter P2500 From NEC

WE HAVE had unfortunate experiences recently with some computers and dot matrix printers; experiences which have led to exasperation and feelings that I am in some way jinxed when it comes to operating computer equipment. Suffice to say that I now hold my breath whenever I unpack anything new, expecting everything possible to go wrong within the first half an hour.

The Pinwriter arrived already loaded with a black ribbon, so I inserted some paper and ran the self-test. It worked without any problems, and included a very reassuring Print Head Test, which gives immediate indication of anything wrong with the print head. Feeling that luck was at last with me, I connected the parallel cable and sent a file to the printer using the DOS print command. Nothing. For ten minutes, immersed in a cold sweat I tried everything I could think of, muttering threats against the electronic voodoo until, finally, I jiggled the parallel cable in its and printer suddenly burst into action. Just a dirty connection, and not NEC's fault at all.

The first impression from the P2500 is how quiet it is. NEC have gone to some trouble with sound insulation and a tight fitting cover to ensure the noise stays inside the printer body. Even with the top cover open, this printer sounds quieter than many others in the same class. There is a sound-proof mat supplied that helps even more, and a Quiet button on the front panel can be pressed to give quieter, if slower, printing. Quiet button operation brings the rated sound level down to 54 dBA from 57 dBA, and reduces print speed by 50 per cent.

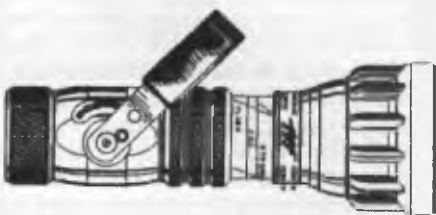


Figure 1. Ventura output using the Pinwriter printer driver from version 1.1.

NEC's 24-pin Pinwriter printer has loads of style, high resolution, and paper handling features that are as advanced as you'll find anywhere. Even Robert Thirlwell didn't have (too much) trouble operating it!

The P2500 has a print head with 24-pins arranged in a staggered 2 x 12 configuration. The dot size is 0.2 mm, and maximum graphics resolution is 360 x 360 dots per inch – this is the highest resolution available in a dot matrix printer, as far as we are aware. Of course, you need the appropriate printer drivers before your software can make use of this resolution.

The P2500 will print at a maximum rated speed of 265 cps (characters per second) in high speed draft, and at 90 cps in letter quality (12 pitch). There are faster 24-pin printers around, but they do cost more. The P2500 is good value considering the advanced paper handling features. There is also a wide carriage version, the P5300. Both can accept a colour option kit, suitable for printing colour graphics. A parallel interface is standard, and a serial interface can be installed as an option.

Letter Quality

Type styles include Courier, Prestige Elite, ITC Souvenir, Draft Gothic, and three proportional letter quality fonts: Times, Helvette, and Bold. Font sizes can be selected from pitches 10, 12, 15, 17 and 20, but not all sizes are available for every font. For example, ITC Souvenir can be selected in pitch 10 or 17 from the front panel, whereas Courier can be selected in the full range of pitches. There are two

character sets with 256 characters in each (IBM or Italic), and the IBM graphics characters are supported. In addition, there are 15 language character sets. This is a formidable array of standard type styles!

Draft printing (Gothic) can be selected in any of the pitch sizes, and a High Speed (265 cps) 12 pitch option can also be selected. All other timesteps print in letter quality form, and the quality of printing is notably high. Using the optional Multistrike ribbon would probably put it in the daisy wheel class, although we did not have the opportunity to try this. Times Proportional looks particularly attractive in a business letter, and Helvette Proportional gives the further option of a sans serif font. The proportional fonts are not available in non-proportional form, which is only a problem if you are printing out tables that rely on even spacing. A slot at the front of the printer can accept optional font cards.

To adjust the default settings so that the printer will be set to the user's liking when it is first switched on, there is a Memory Set Mode. If you press the Select button whilst turning the printer on, it enters the Memory Set Mode and prints out a menu. The user then selects an item from the menu by using the control panel.

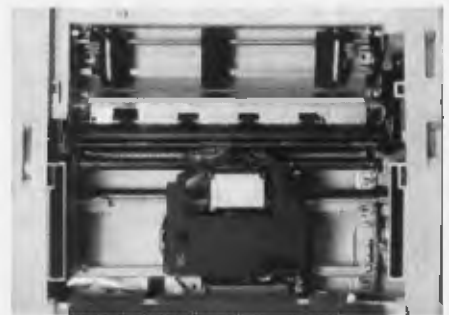


Figure 2. The roller bar sits above the platen, and rotates with it to gently pull the paper through. This helps to prevent slipping and allows for more accurate printing. Other rollers beneath the top cover press down on the roller bar when the cover is closed. Note the use of a true tractor feed.

DOT MATRIX PRINTER



Next to the Pitch button is a numeric readout. The Pitch and Quiet buttons are pressed to increase or decrease the numeric readout, and pressing the Select button enters the parameter. Choosing number 5 prints out all current settings, and returns to the main menu for further selection.

Other settings that can be selected from these menus include language character sets, graphics print direction (unidirectional or bi-directional), line spacing, carriage return and line feed functions, mar-

gin settings, paper load/tear off position, and interface settings. You can even select whether a zero is printed with a diagonal line through it. Once selected, the parameters are saved by selecting menu item 6, which also exits from the Memory Set Mode.

Paper Park. No Waste.

The P5200 has a sophisticated paper handling system that has been designed to avoid paper miss-feeds and jamming. In fact, it is so well designed, the switch over between tractor feed and single sheet feed is hardly noticed. This is because of the Paper Park function, available on most new dot matrix printers. This one works as a three-step operation that involves retracting the continuous forms paper by moving the bail lever forward, setting the paper select lever to single sheet, inserting the single sheet and moving the bail lever again to feed the sheet into print position.

The tractor drive uses true tractors, not sprocket wheels, again ensuring smooth feeding of continuous paper, and it works in both directions to assist paper handling.

Tearing off the paper is often a wasteful problem with dot matrix printers. After a

printer has finished printing a file using continuous paper, the user has to press the Form Feed button to allow sufficient paper to be fed beyond the platen. The paper can then be torn off at the perforation. This results in a wasted single form that sits at the top of your next printout until you rip it off and throw it in the corner along with all the other orphans. NEC have fixed this (and saved a few trees as well) with a paper-tear function. After printing a file, you simply pull the bail lever to the forward position, and the paper automatically moves forwards so that the perforation aligns with the acrylic cover edge. You then have eight seconds to tear off the paper, after which the printer retracts the paper back to the first position, ready to print.

Operating the Pinwriter is a simple matter of selecting type style and pitch from the front panel. The Select button puts the printer on- or off-line, and the feed button can be pressed to push the paper through one line at a time, or, if held down, it functions as a form feed. The manual is well laid out and easy to read, and should present few problems for first time users. For more advanced users, the manual has a comprehensive section that explains all of the Escape code combinations that can be used to operate the Pinwriter from Basic or from custom word processing commands.

Colour kit is an optional extra, and it consists of a carriage that can be installed by the user, and a four-colour ribbon. The carriage has a small motor which raises and lowers the height of the ribbon so that the correct colour is printed on to the paper. Colour graphics and text can be printed from software that supports NEC Pinwriter range or Epson LQ printers.

The P5200 is definitely recommended as a printer with a friendly user interface, high quality printing, advanced paper handling, quiet operation and a reasonable price. What more could you want? □

Product Details

Product: NEC Pinwriter P5200
From: NEC Information Systems, 99 Nicholson Street, St Leonards 2065 NSW; (02) 438 3544
Price: P5200 \$995 (narrow carriage) P5300 \$1670 (wide carriage)
Colour option \$200
All prices taxed.



Figure 3. The 'friendly' front panel controls - the Quiet button reduces the noise while printing, but also cuts printing speed in half.

A sound idea...

Ross Anderson of Uniquet describes a Queensland developed sound analyser and editor for the PC which is gaining world-wide recognition.

A SOFTWARE PACKAGE which analyses and edits sound on an IBM PC has been developed by 23-year-old Brett Jordan, a University of Queensland researcher, as an affordable research tool.

Jordan said that the Ultrasound software was developed to digitise and playback sound using an ordinary IBM PC with a playback tape recorder, and transformed the machine into a sophisticated sound analysis tool.

The software has already gained significant industry recognition as Jordan won the Jeans West Young Achiever Award for science and technology.

Using either an IBM XT with an 8087 maths co-processor, an IBM AT with an 80827 maths co-processor, or a fully compatible machine, an A/D, D/A card is used to digitise and playback acoustic signals from within the software. On a machine with 640 kilobytes of memory, up to 300 Kbyte of digitised sound (equal to 15 seconds) can be stored and processed in one sample, and then treated like any other piece of digitised data – it can be manipulated, saved to disk, loaded back into memory or copied.

A CGA card or compatible is used for the graphics capability which can display the data in several forms – as a waveform plot, spectral displays (individual spectra or a three-dimensional waterfall display), a spectrogram and a cepstragram – all of which may be obtained on screen or as hard copy. Continuous spectrograms can be produced on the printer.

The simplest form, the waveform display, can be manipulated using time cursors to mark out sections (windows) which can then be subjected to cut and paste editing in the time domain. The windows can be deleted, copied and inserted at any point in the waveform, saved to disk, retrieved and inserted.

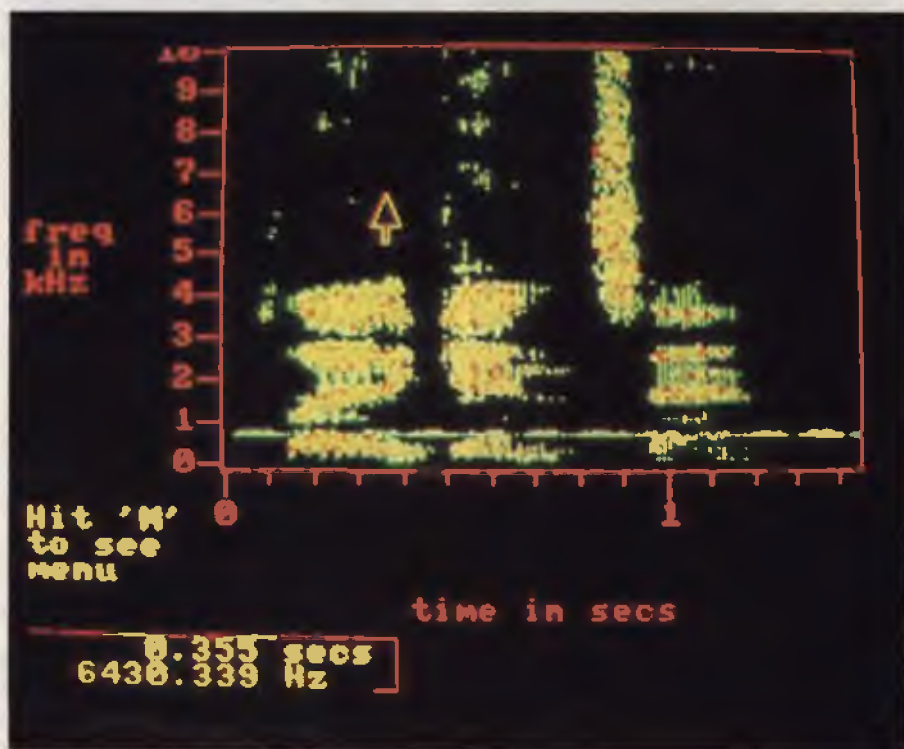
Ultrasound was specifically designed for speech and animal vocalisation research, but has wider applications for isolating any acoustic signal from background noise. In fact, it provides a flexible approach to noise removal and to investigating the functional contributions of specific regions of time and frequency.

Using a mouse to control the cursor position on the spectrogram, the time and frequency ranges of any sample can be measured and selected for removal using

digital filters. The filtered signal is then available for acoustic or auditory comparisons with the original and may be retained and restored after each editing trial.

The amplitudes of the time and frequency spectrograms are colour coded or shaded depending on the capability of the monitor. With the CGA card, four colours or shades are available and the user can alter the amplitude range which dictates how the graphic representation will be displayed.

Nominated amplitude levels can be changed while a spectrogram is being displayed on the screen and the spectrogram is quickly redrawn using the new mapping information. Any desired amplification or scaling function can be applied to the spectral components derived from the FFT.



Ultrasound was specifically designed for speech and animal vocalisation research, but has wider applications for isolating any acoustic signal from background noise.

Applications

David Stuart, an avid bird call recordist from Mullumbimby, NSW, who is building a comprehensive archive of Australian birdsongs, has used Ultrasound to clean up the sound from his on-location recordings. The technology has enabled him to remove alien noises such as insects, vehicles, wind, animals and other bird calls from his recordings, leaving him with the pure sound of individual bird calls.

As a speech research tool, Ultrasound has found a ready market in several University of Queensland departments. Dr John Ingram of the English Department has been using the software package to pinpoint changes occurring in the speech patterns of Vietnamese migrants as they learn to speak English. By viewing a graphic representation of the words or phrase and comparing these with benchmark patterns already established by a fluent English-speaking voice, Ingram hopes to speed up the learning process.

Similarly, in the Department of Speech and Hearing, Dr Bruce Murdoch has used Ultrasound to diagnose and analyse speech disorders. In the diagnostic stage of speech therapy, speech defects which sound almost identical to the ear can be caused by entirely unrelated circumstances and, thus, warrant a different therapeutic approach. Murdoch has been able to use the software to visualise

speech patterns and thus identify the possible causes of speech defects.

Jordan was able to develop the software largely because of the multi-disciplinary mix of scientific skills that he has acquired. A grounding in physiology taught him of the need to analyse sound, then computer science was needed to program the complex software, and electrical engineering to successfully process the analog and digital sounds.

Ultrasound has been designed as a menu-drive program. The applications are facilitated by pop-up menus and instantaneous access to the signal by auditory playback from within the different sub-menus of the system.

Interest

International interest has already been expressed and worldwide marketing of the software will be handled by UniQuest Limited, the University of Queensland's commercial marketing company.

Millgrant Wells Limited, a specialist distributor speech technology in Europe, has already signed agreements with UniQuest and other negotiations were continuing in the USA and Asian countries.

Ultrasound's proven worth at a commercial level was one of the reasons that Jordan won the Jeans West Award. All of his rivals were under 25 years old and had developed and proven the applications of their achievements, but few had been acknowledged at a commercial level.

If you'd like to know more about Ultrasound, contact Ross Anderson at Uniquest Ltd, University of Queensland, St Lucia 4067 QLD; (07) 377 2899. □



Brett Jordan, University of Queensland researcher – Normally, sound analysis technology costs around \$40,000. However, with Ultrasound, the same technology is available on a microprocessor for about \$2000, plus the cost of an IBM PC. I began working on the software as a part of my honours degree in neuroscience. This involved research into the echo-location pulses of bats and I required a tool which could provide benchmarks for comparisons in auditory signals. At the time there was no existing technology which served my research purposes and was affordable, so I began to develop my own tool.

During the development of the software package, several visitors to the laboratory saw potential uses in their own fields of research and asked me to continue its development, which I did after completing my honours year. In most cases, the software could be easily adapted to their specific requirements.

The end product is really an academic research tool which offers speech researchers and biologists a technology much cheaper and far more versatile than contemporary analysis tools.

Ultrasound has potential teaching applications in tertiary courses in acoustics, speech science, or signal processing and there has been a great response from laboratories and researchers across Australia, but I think we have only just scratched the surface of potential uses for Ultrasound.

Jordan's sophisticated analysis tool won him the Jeans West Young Achiever Award.





Epson PX-4

THE PX-4, also known as the HX-40, is a sister machine to the Epson HX-20, forerunner to all laptop computers. For those acquainted with the now discontinued HX-20, the PX-4 is essentially the same machine with a larger screen, CP/M and more RAM and is better value for money.

Hardware

OFFERING a Z80-compatible processor running at 3.68 MHz, 64 Kbyte of RAM, and up to 96 Kbyte of ROM, 64 Kbyte of which is user-installable, the PX-4 has considerable power.

Add to this the facts that it has a slave co-processor and is CP/M (version 2.2) compatible and, non-standard screen notwithstanding, you have a powerful, and almost intimately personal, computer. These things set the PX-4 apart from the other two machines, but then again, so does the price.

The 4-bit 7508 co-processor runs at 270 KHz and provides features such as a real time clock and calendar, an intelligent user-definable, auto power on alarm; power status monitoring which includes a user-definable pause before shutdown and software controlled power off with automatic resume on power up.

Using the same menu, the PX-4's RAM is configurable to sizes ranging from 2 Kbyte to a maximum of 35 Kbyte. Basic supports sequential and random access files.

The keyboard has a good feel to it, offering positive tactile feedback, and, without doubt, is the best of three.

All 10 (5 shiftable) function keys are programmable from Basic, although displaying the key labels on screen could be

A Hand-Held Wish List

Michael Floyd has found five 'portables' with a difference . . .

SURE, YOU could buy a computer-ophile a box of printer paper, a new game or two or even a book on advanced programming techniques for Christmas, but would these ignite a flame of joy in their eyes? Probably not. What then, will? Well, I have been a micro-computer enthusiast for nearly ten years now, and I think I have found the perfect Christmas present – a portable computer.

I'm not talking about the typical portable with up to 640 kilobytes of RAM, a backlit 80 by 25 LCD screen and one or two 3½ inch disk drives – I mean a less expensive non-standard machines that's genuinely portable and a useful tool.

The Tandy Model 102, the forerunner of which (the ubiquitous Model 100) is probably the best known machine in this class, Epson's PX-4 (an old favourite), and the Z88 (a newcomer from Clive Sinclair's Cambridge Computers) all have three main points in common: price, size and functionality.

They are all roughly the same dimensions as an A4 pad. The main difference in the dimensions is the depth of the casing: the Z88 is the smallest, measuring in at 290 x 13.60 x 23 mm deep; the Epson PX-4 comes in a close second at 295 x 13.63 x 34 mm and the Model 102 is 295 x 13.61 x 38 mm.



The PX-4 has a Z80-compatible processor running at 3.68 MHz, 64 Kbyte of RAM, and up to 96 Kbyte of ROM. Note the 72-key Qwerty layout.

a problem, particularly as there is no way of testing for the shift key.

LCD screen

SINCE the PX-4 is CP/M compatible, there is obviously a need to provide a display congruent with standard desktop computer screens. Epson achieved this by making the screen a window for a virtual screen which can be set to any size within the dimensions 80 x 25 or 40 x 50. The screen can be configured using the Basic Width command but the graphics screen remains the same at all times, at a resolution of 240 x 64.

The PX-4's screen is the most legible of all the machines tested – the screen is adjustable with a contrast wheel and has two other features that make it easier to read than the screens on the other two: the tiltable screen and the extendable feet at the rear. Another feature which enhances the display's clarity is the automatic generation of half-tones as a background, a technique also used with the Z88. This provides greater contrast than available from a standard LCD.

Lights, ports and power

NO POWER light is offered with the PX-4, but if the microcassette is attached the Free light serves as power light (of sorts). Both the Caps and Num lock keys have LEDs and there is also an LED for the Insert key.

Standard sockets are provided for a bar code reader, an external speaker and an external power source as well as a number of miniature 8-pin Din interfaces to the outside world: RS232; serial and a cassette port. An additional 20-pin printer socket is also provided. If these aren't enough, there is also a 50-pin socket for the expansion bus on the right side of the machine.

Power sources

POWER for the PX-4 is available from one of three sources: a 6 Volt DC power adapter; 4 AA penlight cell batteries or Nickel-Cadmium rechargeable batteries. An additional battery is supplied with the machine which is used to supply backup power for the main and slave processors, as well as RAM refresh if the main power source fails. This battery is recharged automatically when the power is on or when the power adapter is used.

A myriad of options is available for the PX-4, including: a digital multimeter; an

external 128 Kbyte RAM disk; a microcassette (which can be thought of as a sequential disk drive); an EPROM cartridge and even a cartridge printer. With the exception of the external RAM disk, these options all fit into the cartridge slot on the top right of the machine (shown with the microcassette attached).

Software

THE BASIC supplied with the PX-4 is Microsoft's Basic with enhancements to cater for the machine's extra features, such as the alarm system; the RAM disk and the microcassette.

Supporting both random and sequential files, graphics, reverse text, user defined characters, user defined 16 x 16 pixel patterns, Basic program chaining, multiple dimension arrays, binary files, base eight and sixteen conversions, machine code sub-routines and single channel sound, the language is certainly good enough for most Basic applications.

SCAW

SCAW (Scheduler, Calculator And Word processor) is also available – it's an integrated package that includes multiple alarms, an address book and telecommunications.

It is obvious after about half an hour's use of SCAW's word processor that Epson did not intend the package to be used for writing novels (or even short stories), rather for memos or letters. For that, SCAW (what an unfortunate name) is perhaps adequate. However, after several attempts at writing the PX-4 section of this article using SCAW, and losing updates to the file twice, I finally conceded defeat and moved to a desktop PC.

The reason for this was SCAW's reluctance to acknowledge my pressing the function keys. When the program did finally recognise a function key, the keyboard buffer had stored two of the key presses I had made, which SCAW interpreted as Quit. As the program doesn't check for open files, I lost it all!

Documentation

THE MANUALS supplied with the PX-4 are extensive to say the least. Covering practically every aspect of using the PX-4, from unpacking it so writing programs in Basic, sufficient detail is provided in almost every area of use – where it isn't, there's nothing a little experimentation won't overcome.

Tandy Model 102

IT SEEMS the Tandy Model 100 has been around forever (rather like Tandy) and in this, its latest incarnation, the Model 100 has been re-configured slightly (in memory size, physical dimensions and, particularly, price) and renamed the Model 102.

The Model 100 has long been a popular machine with journalists for text entry on location, which can then be transmitted to the newsroom over the telephone line.

In its day, this machine was certainly a winner and then lived up to its description as a 'truly revolutionary portable computer!' The LCD display was easy to read, the Basic similar to other Tandy dialects and 00000 the keyboard a good one. Nowadays however, the technology in this machine is a little dated.

Yet Tandy continues to price it well above what you would expect to pay for a machine of this vintage. Indeed, while writing this review the price increased by \$200 – while the standard RAM was also increased from 24 to 32 Kbyte, it still seems quite a jump, especially when you consider that RAM expansion for existing Model 102s costs under \$40 – plus installation, of course!

Despite this, and although it doesn't offer the same advanced features that both the other machines do, it does rank a mention because it (only just) remains less expensive than the PX-4.



The Tandy Model 102 employs an 8-bit 80C85 CMOS processor running at 2.4 MHz, with 32 Kbyte of RAM and 32 Kbyte of ROM. It boasts 56 keys with good tactile response and a 40-character by 8-line display.

Hardware

EMPLOYING an 8-bit 80C85 CMOS processor running at 2.4 MHz, the Model 102 has 32 Kbyte of RAM and 32 Kbyte of ROM. RAM is not expandable with Tandy products, but as Phil Tripp mentioned in July's YC ('The Portable Office'), third party products are available to give the 100s up to 256 Kbyte of RAM.

The operating system is Tandy's own (written by Microsoft) so the only software you are likely to see is that available from Tandy (which doesn't amount to much). A real time clock with calendar and day of the week is also built-in. Like the PX-4, the Model 102 has a RAM disk, although its use by Basic is limited to sequential files only. Further, the RAM disk size cannot be defined in anyway.

As with the PX-4, the Model 102 has a 40-character by 8-line display and a graphics resolution of 240 x 64. Physically, however, the screen is the largest of the three machines, measuring about 285 x 50 mm. This is because Tandy's LCD screen displays characters in double size, roughly the same proportions you would expect from a desktop PC in Basic 40-character mode.

Lights, switches and ports

A LED indicates when about 20 minutes of battery power remains, but (again) there is no power light. No lights are provided for Caps or Num Lock either, but, as mentioned, these lock up or down depending on mode. Switches are provided for controlling the mode of the optional modem, memory power and main power.

Ports included are an external power socket, a DB-9 bar code reader port, 7-pin Din cassette and phone sockets, a 20-pin printer socket, a standard RS232 port and a 40-pin system bus for the disk drive.

Tandy does not supply batteries, regular or rechargeable. Nor does it supply a power adapter as standard. Further, if you choose to use NiCads, you will need to buy a separate battery charger, as the Model 102 will not charge batteries directly. Battery life is about 12 to 14 hours and replacing batteries will not void memory contents as long as you don't take too long.

Software

STANDARD software supplied with the Model 102 could have been the machine's redeeming feature, but the Model 102 is lacking here too. It's sup-

plied with five packages: Basic, Text, TELCOM, ADRSS and SCHEDL.

Essentially, TELCOM offers basic communications capabilities including file up and down loading and auto-dialing from the same file used by ADRSS. In summary, the Model 102 has a lot of potential but it actually delivers very little. To a genuine hacker, software shortcomings will be of little concern as they will probably want to cut some machine code anyway, but the rest of us should look to something else for functional software.

The two manuals supplied with the Model 102 are sparse to say the least. The best use I found for these was to elevate the computer slightly.

Cambridge Z88

IF YOU needed proof that a market exists for these type of computers, the Z88 is surely it. Cambridge Computers has developed a machine with a number of surprising features, at a much lower price than you would expect. Memory capacity starts at 32 Kbyte and can be expanded by inserting with to three RAM cartridges. Each cartridge can be 128 or 512 Kbyte in size, so, with the 32 Kbyte of RAM already installed in the machine, total RAM can be up to or 1.568 megabytes!

The Z88 has a full sized rubber keyboard, an LCD screen capable of displaying 8 lines of 106 characters. Up to 80 characters can be used for applications, with the remaining display area used for menus and a graphics representation of the page being edited (called the Map).

Hardware

AS YOU might have gathered from its name, the Z88 uses a Z80 processor running at 3 MHz and is equipped with 32 Kbyte of RAM as standard. Technical information for the machine is short at the time of writing as the first 'official' shipment has not yet arrived, but all RAM appears to be configurable as RAM disk space and is addressed as RAM0 through to RAM3. An Eprom can be installed in place of a RAM cartridge allowing applications to be developed and kept permanently.

The Z88's operating system is a proprietary one, but in this case it less likely to be

a problem than it could be with the Model 102. This is because an extensive library of software is included in the already low price (more on this later).

Keyboard

THE Z88's keyboard is one of its more unusual features, consisting of a thin PCB, overlaid with a rubber membrane which has individual keys moulded into it.

It works fine, although I don't think it would be suitable for a 100 wpm typist. Nonetheless, after getting used to it, I had little difficulty in using the keyboard, particularly with the keyclick enabled – the Z88 had no trouble keeping up with my 35 wpm.

My only complaint regarding the keyboard is the poor quality of construction. The keyboard membrane can be removed too easily, and this is likely to occur if little fingers get to it. But other than that, it is more than acceptable.

LCD screen

THE OTHER striking feature of the Z88 is its screen. Providing a display with more than 80 characters, and using a number of attributes such as bold, reverse and reduced size, the screen is unusual to say the least. Another unusual feature is the colour of the text. Displayed over a screen of half-tones, the characters and graphics are blue, which provides a high contrast display.

Lights, switches and ports

THE Z88 uses the screen extensively, so there are no LEDs whatsoever. This is unfortunate, as I consider a power light mandatory for all computers (apart from the Mac II, which makes so much noise you always know when it has been turned



The Cambridge Z88 uses a 3 MHz Z80-compatible processor and a full sized rubber keyboard – RAM can total up to 1.568 megabytes!.

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off). Nor is there a power switch – the Z88 is turned on and off by pressing both shift keys together. Power off is automatic after a set, definable, period of time.

The Z88 has two ports, one a DB25 type serial port and the other a PCB edge. Although no specifications were available regarding this PCB edge connection, I would imagine this is used for system expansion and a disk drive.

The standard configuration of the Z88 includes batteries and a power adapter. However, as is also the case with the Model 102, if you choose to use NiCads, you will need to buy a separate battery charger. Battery life is about 18 to 20 hours and data stored in the machine will keep for up to 6 minutes without battery or mains power.

Software

THERE can be no doubt that the Z88's software is the most powerful and extensive of the machines reviewed, and it is this that places the Z88 well above the others. There are six accessories and six applications. The accessories are a diary, which is a powerful implementation; a calculator, which is the weak link in the chain; a calendar; a clock; an alarm system, which will turn the machine on if necessary; and a control panel for configuration.

Product Details

Product: PX-4
From: Epson Australia,
 3/17 Rodborough Rd, Frenchs
 Forest 2086 NSW
 (02) 452 5222
Price: \$1524 PX-4
 \$110 SCAW software

Product: Model 102
From: Tandy Australia,
 91 Kurrajong Ave, Mt Druitt 2770
 NSW
 (02) 675 1222
Price: \$1199 Model 102
 \$34.95, RAM expansion unit
 (installation extra)

Product: Z88
Distributor: Softime,
 19 Cato St, East Hawthorn 3123
 Vic
 (03) 209 0255
Price: \$885 Z88
All prices quoted are taxed.

The main application is Pipedream (an interesting name for an interesting package), which consists of a word processor (the real thing), a spreadsheet and a database. Time did not permit an in-depth investigation of the spreadsheet or database functions, but I have few complaints about the word processing system. The only thing missing is a spelling checker, but this is asking too much!

Documentation

THE MANUAL is 217 pages long, complete with index and five appendices. The information is adequate and easy to find, although some obvious deficiencies include technical information about the machine and BBC Basic machine code. However, I have no doubt that Cambridge will be releasing additional manuals in the near future to take care of these minor oversights.

The choice?

THE PX-4 is a great machine, even though it is a few years old now. It is easy to use, flexible, and it has a number of major advantages over the other machines reviewed here: the same version of CP/M used on some of the Amstrad micros; the microcassette, which is a powerful feature, albeit a little slow. With the microcassette, however, there is safe mechanism for storing programs and data that is more portable than a disk drive and less expensive than Epson's own external RAM disk or RAM cartridge; a virtual, adjustable, screen; auto-power on alarms and so on. I see the Epson PX-4 as the trend-setter in this area, and the laptop I would buy if I wanted the best available today.

I wouldn't be in the slightest bit surprised if Tandy discontinued the Model 102 when the company releases its PS/2 compatibles.

The Model 102 is dated technology which hasn't kept up with recent trends and although I certainly recommend the machine for 80C85 machine code freaks, I don't recommend it for general, everyday use by non-computer literate users.

The Z88 is, like the PX-4, also a great machine, offering great software, low price, and a step forward in miniature LCD screen technology. At the projected retail price, it represents exceptionally good value and is the pick for general purpose, low cost, portable computing. □

WHILE the PX-4, Model 102 and Z88 have much to offer at a relatively low cost, they may still be beyond the budget or needs of some readers. And, although you might expect that few computers could be more portable, the two described here are even smaller and less expensive.

Both use an 8-bit CMOS microprocessor, are expandable and definitely should not be considered as toys. They can also be used as powerful scientific calculators.

The PC-1360

Measuring a minute 182 x 72 x 16 mm high, and weighing about 220g, the PC-1360 really will fit into a pocket and is the only machine that can truly make this claim. It is pleasantly styled, with the display directly above the main keyboard.

This tiny package houses a CMOS 8-bit processor, with 8 Kbyte of RAM as standard, expandable through the use of credit-card thin RAM cards (complete with their own lithium battery) to 64K. The main unit is powered by two 3-volt watch batteries.

The main keyboard is well designed, considering the overall size of the machine. Obviously, you would not want to write a lengthy program on the machine, although with the RAM expansion, the 1360 would be more than capable of running it.

Using the keyboard is not as difficult as you might think – although the keys are quite small, they are well laid out, with sufficient space for two finger typing (which is all I can do, anyway).

Because of the position of the LCD screen in relation to the keyboard it is relatively easy to read, and screen contrast is adjustable. The 24 character, 4 line display consists of 152 horizontal and 32 vertical dots, all addressable using the PSET/PRESET and LINE commands in Basic. Eight by eight pixel patterns can also be created using the GPRINT command.

External devices which can be attached to the PC-1360 include a pocket disk drive retailing for about \$580; a 7-colour printer/plotter; 4, 8, 16 and 32 Kbyte RAM expansion cards; printer and cassette interface and a cassette recorder.

The PC-1360's Basic is no more difficult to use than any other I have come across.

The PC-1360 has a single port for communications, a 15-pin serial connector, which can be used to transfer data from the 1360 to another computer or a peripheral.

Two Pocket Rockets!



Sharp's PC-1360 offers a miniature Qwerty keyboard, a 4 line, 24 character display and up to 64 Kbyte of RAM.

The 1360 is supplied with a 344 page manual, which is a combined user and programming manual. Although comprehensive, the manual is not as easy to use as it could be, mainly because the Basic commands have been included in a separate section which is not indexed anywhere.

The PB-1000

This machine is a little larger and heavier than the 1360, but folds up into a neat, well protected package weighing 435 g and measuring 187 x 24 mm. Unfolded, the depth which becomes 177 mm.

The machine's state-of-the-art features include a Qwerty keyboard with a large

space bar and carriage return, a numeric keypad, soft-touch function key panel, LCD touch key display, contrast adjustment from the keyboard (which can be a little cantankerous) and a recessed reset buttons.

Inside is an 8-bit CMOS processor supporting 8 Kbyte of RAM as standard, expandable to 40 Kbyte; support for Basic and assembler and a real time clock and calendar. The unit is powered by three AA penlight batteries.

The keys of the 1000 are similarly sized to those on the 1360. Most keys perform three functions such as entering Basic keywords, and these are generated using the key by itself, or with the F or SHIFT keys.

While speed typing is not possible with the PB-1000, the keyboard is easier to use than the 1360's, particularly with the larger space bar and return key.

Supporting a text display of 4 lines of 32 characters, and a graphics resolution of 192 by 32, the LCD screen is essentially no different from the 1360s. With one exception, the entire screen is also a function key keypad. Using a grid which detects finger contact, up to 16 function keys can be created and displayed directly on screen.

The 1000 can be expanded through the communications port (a miniature RS232) which can be used to add a 32 Kbyte RAM pack, another PC, a 3 1/2 inch floppy disk drive, a Casio FP-1000 printer/plotter and a cassette recorder.

The version of Basic supplied with the PB-1000 is, again, fairly straightforward. As well as Basic, the 1000 also includes an assembler, which can be used to generate EXE files which can be called from Basic (using the CALL statement).

Two manuals are supplied with the machine - the Owner's Manual and the Command Reference.

Summary

The choice of these machines would not necessarily be an easy one. Although the PB-1000 is clearly more powerful, and expensive, it is also larger and less practical. Using the PC-1360 is physically easier than the PB-1000 because, as its batteries are stored above the screen, the 1000 tends to fall over unless balanced properly. However, for value the 1000 cannot be beaten with features such as the LCD touch screen, real time clock and calendar and the virtual screen. If state-of-the-art is important, try the PB-1000, but have a look at the PC-1360 before you make up your mind.



Casio's PB-1000 is an innovative machine featuring a miniature Qwerty keyboard, a 4 line, 32 character display and up to 40 Kbyte of RAM.



TimeLine Pro

TIMELINE (or TL to its friends) struck me right from the start as a well thought-out product, and this opinion was only reinforced as time went on.

TL is not fussy about what hardware you need. It needs only 256 kilobytes of RAM (but 384 Kbyte minimum is recommended), and very little else, although a printer would be very useful. TL will also make use of a math co-processor if you have one installed, although it is not essential.

Fourteen brands of printer are supported, and within each brand, several different models are available. TL recognises five different types of computer for video display, with mono and two types of colour display available for each. Surprising-

ly, TL does not support plotters in its standard form, although the optional TimeLine Graphics package does.

The 'limitations' on the size of the project that TL will cope with are staggering. On a 640 Kbyte machine, you can have 1000 tasks per schedule (only 50 on a 256 Kbyte machine), with virtually unlimited schedules, resources, cost categories and dependencies per project.

You are limited to 12 resources per task, and a maximum schedule length of 25 years. It is also possible to plan in a useful variety of time units - anything between minutes and months. If you're into big projects it's possible to have costs up to \$99,999,999 per task, which should blow *anyone's* budget!

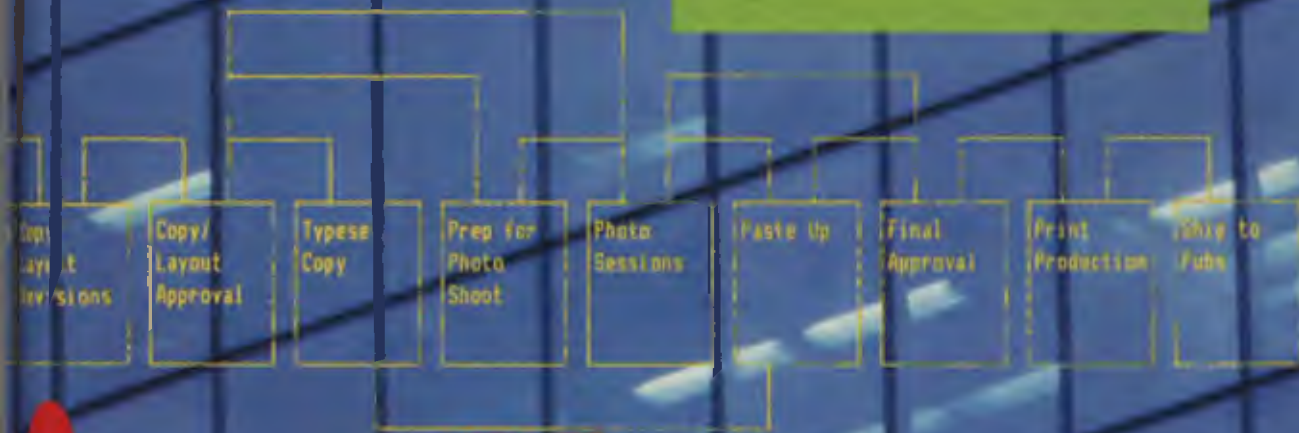
Installation

MY FIRST impression was not good, as the instructions for installation were not correct, but this problem was quickly fixed. However, it is a problem that is not likely to induce confidence in new users, especially those with a limited knowledge of DOS.

Speaking of installation, the installation program keeps you well informed of what is happening, unlike those programs that disappear off to the inner depths of your computer and leave you sitting to twiddle your thumbs.

As those of you who have read my reviews before will realise, I am no fan of copy protection, and thankfully TL is not copy protected.

Just another project management tool? Not likely – David Chatwin found this one is a well thought-out package that's ideal for low- to mid-level users (and it could be a lot of fun for the more experienced).



Project Manager

Setting up TL is very easy, especially as it is done through the normal menu. TL boasts a good range of printers, monitors and systems that it supports. The range of various factors that can be customised is big enough to be useful, but not so big as to be confusing.

Getting around in TL is easy, as the menu structure is well organised and easy to use. In true Lotus fashion, you use the slash (/) to bring up the main menu, then use the arrow keys or first letter of the item to select your choice.

Unfortunately, the overall polish of the menu system was somewhat spoiled by some silly actions. For instance, if you choose to quit, you are asked if you want to save the schedule. If you say yes, you

are taken to the File menu where you can elect to save, instead of having an automatic save done. If you do save, you are then taken back to the normal screen, rather than automatically going on to quit the program, as you first wanted to do.

Another thing I liked about the whole user interface is that TL prompts you at the bottom of the screen about what sort of information or menu selection you are supposed to be making.

The on-line help would rate amongst the best that I have seen, being context sensitive and very comprehensive. In fact, it almost makes the manual redundant.

Speaking of the manual, it lets the package down, as I found it to be a bit short, and lacking in the detail you might nor-

mally expect. It also tended to sink into jargon regularly, a drawback that might tend to confuse and discourage newcomers.

Another feature which the manual lacked was a tutorial for the novice user. There is a tutorial supplied with the package, but I didn't really like it, as it was the sort that displays little boxes at the bottom of the screen telling you exactly what to do. I doubt the true usefulness of this type of tutorial, and would like to see a better thought out one that exploits the power of the package.

Associated with the good help available on screen, TL has helpful little prompts at the top of the screen, just to remind you what you are supposed to be doing or en-

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tering. This serves to make the manual just a little bit more unnecessary. One thing I did like about the manual was the good reference section at the back – you can find out how to customise the disks, add a new printer configuration, and find out how to run TL on a local area network.

The 'limitations' on the size of the project that TL will cope with are staggering.

It was very refreshing to see a section on the technical side of a package, including a list of the interrupts used. You are also presented with all the gory details on how TL updates the screen, including a section which admits that TL goes around the operating system, which represents bad behaviour, but that these bad habits are also very fast. Also included are some of the reasons why some 'compatible' computers may not like TL. This is all very useful information to you closet hackers out there, and its inclusion in the manual was a nice touch.

TL also rates well in setting up a project. The variable factors you need to take into account in starting a project are easily set. This includes such things as work hours, holidays and so on.

Entering a new project is easy, and TL takes you through all the steps necessary to fully set up the project and customise the various settings you may want for that project. In fact, I found the process of setting up a project so easy that reference to the manual was not needed. TL would certainly have to rank amongst the easiest to use project management package that I have found in this respect.

The printing facilities offered rate well, with a wide range of reports available, and the ability to send reports to the screen, a disk file, or to the printer. I really like packages that allow you to send a report to the screen, so that you can preview it, before you waste a pile of paper and time on the printer. The range of reports available is excellent, with a standard report for almost any occasion. I would like to have seen a text editor, or the ability to define a custom report, but I suppose you can't have everything.

However, TL has very good facilities for outputting to various types of file formats for processing by other packages. TL has standard outputs to five word processing packages, ASCII files, and Sideways. Funnily enough, Microsoft Word is not supported, although Multimate is. Unlike most of its competitors, TL does not print charts down the page (sideways) directly; you have to use a program like Sideways to achieve this.

Talking about files, one unique feature of TL is its ability to automatically retain a certain number (up to five) of archive copies of a project. This would be invaluable for some users, as it allows you to hold the last few revisions of a schedule automatically so that you can trace the history of changes, without building up thousands of unneeded backups.

Costing

THE COSTING facilities available are not the best I have seen, and not the worst either. They are certainly very useful, but could best be described as middle of the road. One feature I liked was the ability to define at what stage through a task the costs are accrued – the beginning, end, or pro-rated over the whole task. This gives TL a definite advantage over some of its opposition in terms of costing abilities.

Another useful feature of TL is the notes fields attached to each task. There are two note fields which can be used to store all sorts of information about a task. You can simply use them as a scratchpad, or they can be used to store identifying information about a task that can later be used to sort and/or select tasks at a later stage.

The filtering (or selection) functions offered are as good and well thought out as the rest of the package appears to be. I certainly think that they would satisfy the requirements of most users.

Charts

I WAS SOMEWHAT disappointed with the quality of the PERT chart produced by TL – it is very rudimentary, and I feel that it would not cope well with complicated networks. The PERT chart is certainly a long way behind the types produced by the likes of Project and Super-Project+ (YC, May '88).

Setting dependencies between tasks was the paragon of simplicity. Tagging of tasks, and linking them together was a joy to do. For me to say this about any project management package is very rare, and I was glad that the apparent good planning of TL had carried over into this area.

The ability to enter partial dependencies for tasks was good. The linking of tasks was let down, somewhat, by the fact that you can only see the links (or dependencies) between tasks on the PERT chart. This is a somewhat cumbersome way of doing things, and as I said before, the PERT chart is not great.

One feature I always look for in a package of this type is the ability to move tasks around the chart. So far I have only found one package that really copes with this, and TL is not it. If you want to know which is the one – read my review of Project Manager Workbench (YC, May '88). I am sure that I am not the only person out there who makes mistakes about positioning tasks on a schedule, and would like to be able to pick a task up, and move it up or down the list with the minimum of fuss.

TL also allows you to split tasks, so that you can have part of a task happen, stop the task to allow something else to occur, and then go back to the original task. Unfortunately, you can't have both halves of the split task on the same line, and this detracts a little bit from the overall usefulness of this feature.

As I mentioned earlier TL has some bad habits as far as video accessing goes. These bad habits include bypassing DOS, which can cause problems, especially if you use memory resident software like SideKick, or if you use the likes of Windows or Desqview. They can also cause problems with some of the more dubious compatible computers. I suppose that if these things are a concern to you, and they worried me a little bit, then it might be best to try out TL on your machine before you buy it.

The variable factors you need to take into account in starting a project are easily set.

TimeLine Graphics

THERE is an add-on package available for TL called TimeLine Graphics (or TLG for short).

TLG adds a good range of graphics abilities to TL, as well as support for plotters, but its biggest drawback in my book is that it is a separate package to TL, and must be run outside the main program.

PROJECT MANAGER

Because of this, it is impossible to modify the original schedule from within TLG, so if you find a mistake when using TLG, you have to leave it, go back to TL, make the changes you need, and then go back to TLG – not a process for those who are easily frustrated.

Anyway, TLG offers three good charts, a timescaled PERT chart, which shows all the dependencies between activities, as well as their relative location in time. This PERT chart leaves the standard one in TL

Instead of defaulting to the first choice in the menu, TL defaults to the most commonly used (or sometimes the most logical) option.

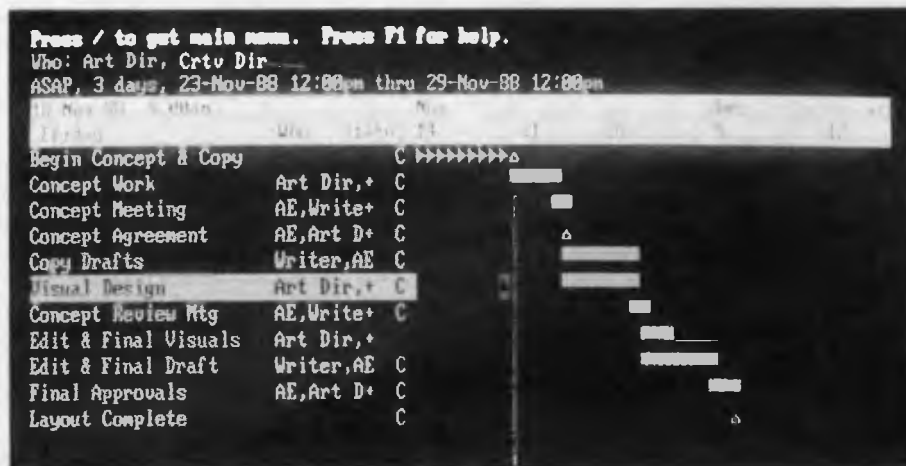


Figure 1. The Gantt chart is the heart of TimeLine – Tasks are listed down the left side followed by the Resources assigned to each task. A Summary is given (second and third lines from the top) to show timing and resource information for the highlighted task.

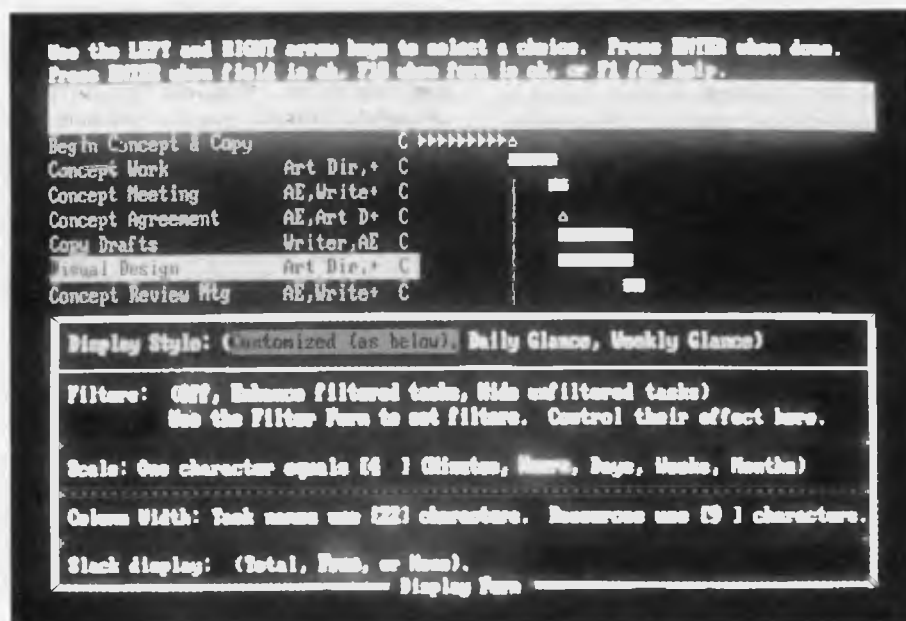


Figure 2. The Display Form is used to change the format and appearance of schedules onscreen and in the Gantt chart. Note the Filter facility – it's used to highlight specific aspects of a project for troubleshooting and can be used to create specialised reports.

for dead, and by itself makes the purchase of TLG worthwhile. The other charts available are a Gantt chart, which is basically a slightly improved version of the standard one, and an Actual versus Plan Gantt chart which is not available in TL.

Unfortunately my copy of TLG did not work (apparently because of a corrupted disk), and despite waiting over two weeks, PC Extras did not supply me with a replacement. This meant, of course, that I was unable to review TLG for this issue. I am a bit worried if this is indicative of the support offered by PC Extras for TL.

In the final wash I suppose that TL is aimed at competing with the likes of Project and SuperProject+. To my way of thinking it makes a more than able competitor for those two products, with some of reservations.

If the PERT chart is very important to you, then you may be disappointed with TL. I have to say that the PERT chart lets down on otherwise good package. The availability of the graphics package with the time scaled PERT chart improves the situation somewhat. I would prefer to see this facility available from within the main package, instead of having to go outside, but it is better than nothing.

My other main gripe is the lack of support for plotters from within the main package. In this day and age this is really inexcusable, and it would behave Breakthrough Software to include plotter support in any new releases.

Aside from the above reservations, I would have to recommend TimeLine to anyone who wants a good low- to mid-level project management package. TL certainly shows up as a package that has been pretty well thought out in its programming.

I would certainly have to place it above both Microsoft Project and SuperProject+, for ease of use and overall refinement. □

Product Details

Product: TimeLine;
TimeLine Graphics
Distributor: PC Extras,
86 George St,
Redfern 2016 NSW
(02) 319 2155
Price: TimeLine \$1130,
TimeLine Graphics \$378 (optional);
Both prices taxed.

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Maths/Scientific/Stats.	44	Disks
Misc./Special Applicat.	114	Disks
Wordprocessor/Editors	73	Disks
DOS/Disk Utilities	56	Disks
Misc./General Utilities	77	Disks
Printer Utilities	27	Disks
Bulletin Board Software	33	Disks
Communications	73	Disks
Databases	89	Disks
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- a big step for PC databases!

AFTER ONE of the longest-running 'release' cycles ever for a major piece of software, dBase IV has finally hit the streets . . . dBase IV, 'announced' on February 17 for a pre-July 30 release, stumbled past the first launch date and the revised September 30 deadline, to a final Australian 'release' of October 11. Of course, just as an announcement date is different from a release date, so too is a 'ship' date a different creature.

Shipments were expected to leave the local warehouse at the end of October, but we're not making any promises until we see the package in our hot little hands . . . Of course, we've had a dBase IV to play with for a while – long enough, in fact, to give you a relatively detailed overview/preview – but we still haven't sighted the release version.

And that's why we are treating this as a preview, not a review: with a product this big, and this ambitious, there are bound to be flaws even at release time. It's unfair to judge pre-release versions provided simply for us to get a 'feel' for the package.

Our pre-release version has its problems, but none of them is so big it would stop us from wanting to use it – or enjoying using it, for that matter. We don't expect the release version will be a 'bad' thing – far from it – but we do expect it to

Matt Whelan covers
d'Basics of Ashton-Tate's
latest (and longest!)
release . . .

have some typical Ashton-Tate 'rough edges'.

Despite any teething troubles that might arise, dBase IV is a big step forward for the PC database market. Yes, there are products which have had 'advanced dBase IV features' for some time, but the important thing is the undisputed market leader is setting a new standard.

Stepping IVward

dBASE IV is an even more important product than its features would indicate: it's the first sign of a serious step in an Ashton-Tate move to bring dBase out into the 'real world' of mainframes and minis, as well as PCs. The company has promised a range of products across machines and operating systems for the ultimate in data management 'connectivity'.

The 'first sign of a serious step' is dBase/SQL, the new language which – apart from its major upgrades over dBase

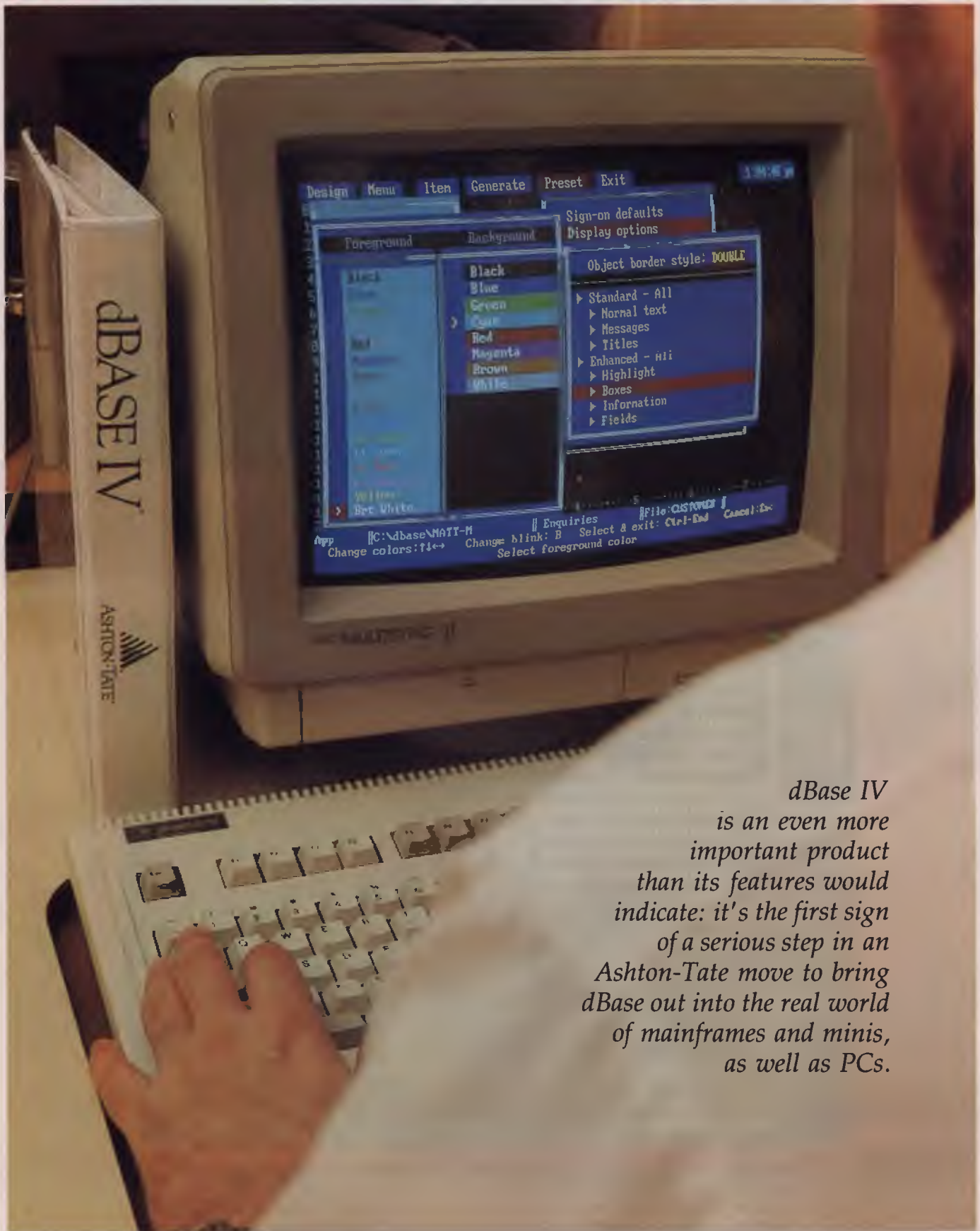
III Plus – brings a full SQL implementation to the mass of database users. The first true serious step will be version 1.1 of dBase IV, which will take advantage of OS/2 to provide 'server/client' data management with the Sybase SQL server.

Current-generation networking is almost guaranteed to have performance problems in database applications because all data has to move from the server's 'file store' to the workstations, even for simple calculations.

A database server 'engine' will provide the 'smarts' at the network server and workstations will simply pass out a 'question' and get back an 'answer', rather than having to move the data and do all the calculating/examining themselves. Nothing says a PC has to be the server – data could reside on a mini or mainframe – but even at the PC level this is a breakthrough that finally should make data sharing a workable reality.

dveloping dBase

WHILE WE wait for the server/client technology, Ashton-Tate has given us plenty to think about with the extensions and enhancements in dBase IV. When I first saw the company's 'announcement' of the product, I was quite impressed by the new features – as much by where they came from as what they were.



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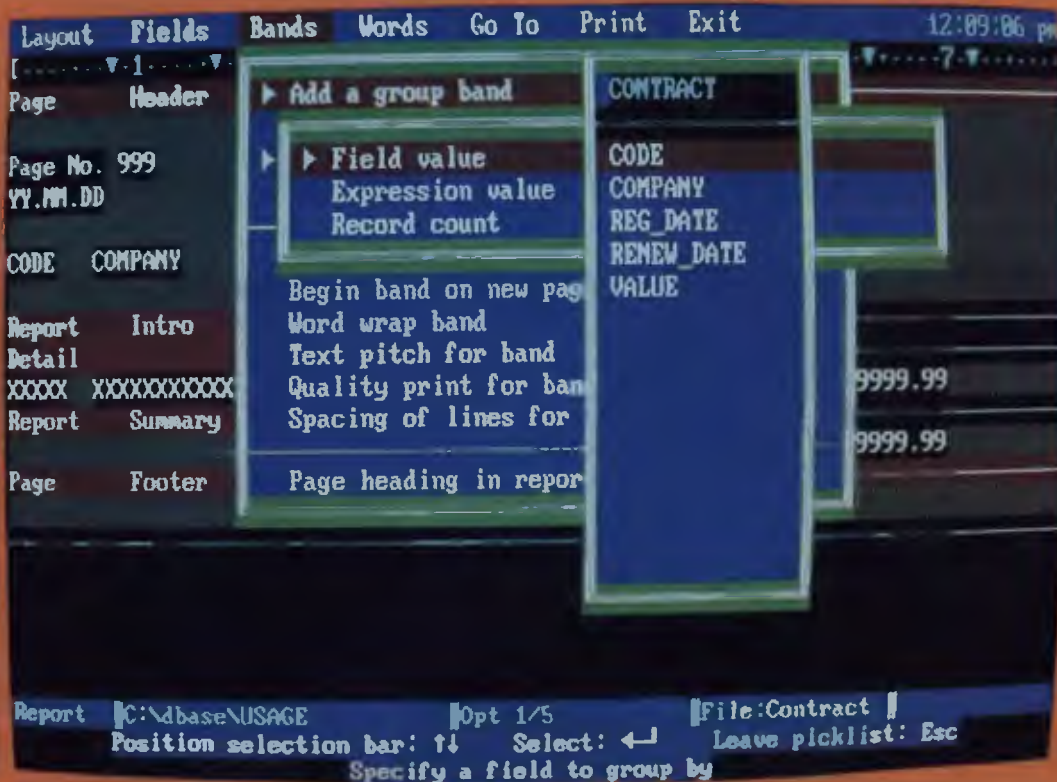


Figure 1. Reports in dBase IV are designed around a 'band' concept, where each band is either a specific grouping of records, or a special band such as a report introduction or summary. Reports can include calculated and special fields such as the system date or page number. Three different 'quick' report layouts are supplied.

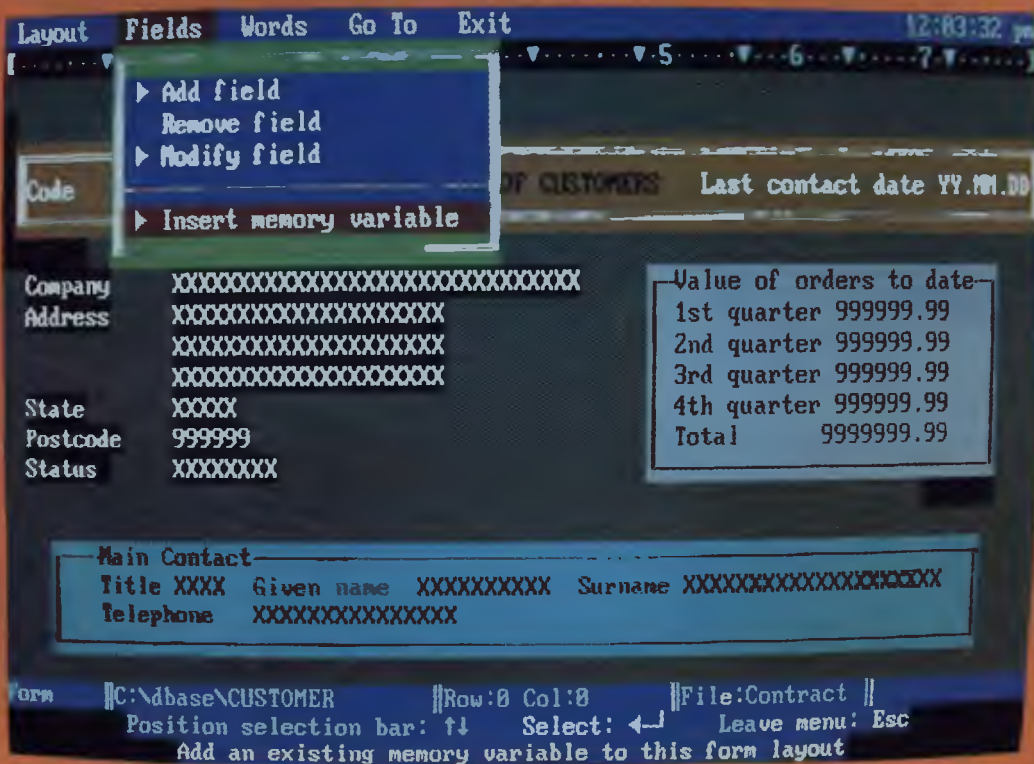


Figure 2. Two-dimensional arrays of memory variables, including commands and functions like APPEND FROM/COPY TO ARRAY, AVERAGE, DECLARE, and SUM are now supported and the maximum number of memory variables has been increased to 2048. In addition, there is an improved memory variable search algorithm to speed up retrieval of variables.

It's unfair to judge pre-release versions provided simply for us to get a 'feel' for the package.

It seemed at the time that Ashton-Tate had looked at the entire market for dBase competitors, compatibles and add-ons, and 'lifted' something from each. There are signs of Paradox, Clipper, FoxBase, Quicksilver, UI Programmer, and more in the dBase IV spec. It was a smart move, because the result is one of the best-rounded and most-powerful data managers on the market.

When you consider its 'dual-mode' power – both for the interactive user and the programmer/developer – dBase IV clearly outguns the clones and most (but not necessarily all) of its competitors.

It's hard to say where Ashton-Tate has made the most progress. The new user interface, the inbuilt code/applications generation, and the powerful 'Control Center' make it easier to use yet far more powerful for the average office 'database dabbler'. It seems that, for the first time, the full power of data management is available to all dBase users, not just the 'power users' and developers. There are many things the interactive user can now do that even the corporate programming team couldn't manage with III Plus.

Yet as soon as I start to believe the 'power-to-the-users' aspect is the biggest component of dBase IV, I get swamped by the enormity of changes made for the programmer/developer.

Ashton-Tate has clearly recognised it was losing the developers – people who share a greater claim to the credit for dBase's success than the company acknowledged for some time – to the 'power-clones' like FoxBase, Clipper and Quicksilver/dBXL.

In dBase IV, it has set out to win them back with compiler speeds, unlimited-distribution Runtime modules, powerful template-based code generation and documentation systems, advanced multi-user features, and massive extensions to the programming language.

The company has even announced (not 'released' or 'shipped', but that will be

Real Soon Now) a clone-to-dBase language translator (called StepIVward) and a native-code compiler (the tokenising, or 'incremental' compiler in dBase IV requires your object files plus the Runtime 'engine', like FoxBase: the native-code compiler will produce standalone EXE files, like Clipper).

Interestingly, the compiler development is being carried out by Apex Software, developers of the recent Ashton-Tate acquisition Front Runner (a good, but incomplete dBase compiler with the ability to produce memory-resident programs).

dFeatures

SO WHO benefits most from the new dBase? It's probably a draw, with interactive users and programmers both being 'showered with gifts'.

Let's look at some of those advances, starting with the user interface and interactive components and following up with the language extensions and improvements. Be aware, though, that there is so much to dBase IV that we can't possibly cover it all in one bite. We'll be covering individual features in more detail in coming months.

The new user interface is, finally, exactly that – a user interface. You really can use dBase's power interactively, and you can do it relatively easily with a consistent application of pull-down menus, helpful prompts, and 'what-you-see-is-what-you-get' design for screens, reports, labels and even full applications.

All full-screen components, from EDIT to SET, support the pull-down menu system and are aided by the built-in keyboard macro feature – yes, somewhat akin to the Lotus Macro, unlike dBase's programming language macro substitution which was often misunderstood by the spreadsheet users.

Browse and edit are more closely related – they now function more (correctly) like alternate (form and table) views of the same information, and you can toggle between the two at the touch of a function key.

The menu bar options in Browse have been greatly expanded, and a menu bar has been added to the Edit screen.

The text editor – for programs, memo fields and files – is significantly more powerful and has lifted many of the limitations imposed by the III Plus editor on file sizes line lengths. It also has control over character attributes (yes, dBase finally knows about smart printers! It supports the use of optional installable printer drivers to control print functions like bold,

italic, underlined, superscript, subscript and font, as well as providing access to the internal print system variables. The drivers are compatible with Framework and RapidFile drivers, and the developers' version of dBase IV includes a printer driver toolkit to allow for customisation).

Access to these, and the powerful Query-by-Example set-up of multi-file tables, is through the Control Center (well, that's how Ashton-Tate spells Centre – who are we to argue?) which looks nothing like the Assistant it replaces and, fortunately, is far more sophisticated.

One of the keys to the Control Center's sophistication is the fact it shows the user what state dBase is in – a table of columns lists available databases, views, screens, reports, labels and applications.

Current-generation networking is almost guaranteed to have performance problems in database applications because all data has to move from the server's 'file store' to the workstations.

You just position on a database name and hit return – or, in the language of enlightened user interfaces, 'point and shoot' – to select it, and are presented with a dialog box asking what you want to do with it. If you accept the default, the database is USED, and becomes active – and immediately any of the other file types associated with that database are moved above a divider line which shows the relationship.

Thus, if you want to enter data using a particular screen format, you just point-and-shoot the screen file and away you go. Same goes for reports, naturally, as well as the other file types.

Moving into design mode – the WYSIWYG work surface – is as simple as pointing at the filename (or the <CREATE> entry in the table) and hitting the 'design' function key.

It's a great way for the average user to not only have access to power, but to easily and quickly grasp where they are up to and where they can head to from there.

The Control Center also has some features not available from the dot prompt, such as a DOS file directory/manager system which allows tagging, copying, deleting, editing and the like.

dSigner dBase

THE WYSIWYG work surfaces provide far more power than their predecessors. For example, in screen designs you can more easily move objects, copy items, format data, set colours of individual elements, and draw lines and boxes.

You can even show memo fields, in their own opened windows. Sorely needed as it was, memo-field handling is one of the most improved areas of dBase IV. Various string-search and manipulation commands/functions now know about memo fields, and a series of Clipper-like functions allows you to extract memo information, formatted, on a line-by-line basis for reporting and so on.

(The dreaded disk space-munching behaviour of memo fields has been cured – instead of wasting space occupied by outdated memo field information, dBase IV re-uses defunct 'pages' in the memo file.)

There is a new work surface for creating the queries/views. You can easily join files, filter their records, and choose which fields to display. You can also create calculated fields and global filters for any query.

Special update queries help you automatically change a range of records at once.

The report generator, always one of dBase's weakest points, allows free formatting that should meet the most demanding requirements. It is now a relatively simple task to generate printed output of anything from mail-merge correspondence right up to multi-line, multi-file (up to 9 databases/relations with 10 indexes each) reports with 44 nested levels of grouping.

You design reports around a 'band' concept, where each band is either a specific grouping of records, or a special band such as a report introduction or summary.

Reports can include calculated fields and special fields such as the system date or page number. There are five types of summary field (such as total/average). Three different 'quick' report layouts are supplied.

Reports can include calculated fields and special fields such as the system date or page number.

Box and line drawing are available in printed reporting, while a full menu of text styling options lets you add bold or italics, as well as different type fonts and pitches. You can also choose whether to send your report to a printer or a disk file.

The label generator is as easy to handle, and also removes many of the limitations of its already-capable predecessor. You can use new calculated fields (dBase IV finally 'formalises' calculated fields as a separate entity, rather than leaving people to make the discovery for themselves that this feature is available) and special fields such as the current date or time.

The labels generator, like the report sys-

tem, offers full support of text styling and print settings.

Context-sensitive help boxes provide better access to information for using the menu system and the Applications Generator. They also offer syntax and examples for all the commands and functions in the 'standard' dBase language, as well as the SQL extensions.

The help boxes let you look at the Help Contents or Related Topics at any point, as well as providing 'back-up' and print options.

dFiles

THERE ARE some significant changes in the database structure – dBase IV is, however, upwardly compatible with III Plus so you can use your existing files as they stand.

Interestingly, some of the documented (in early pre-release information and in Ashton-Tate's own product announcement) extensions to the database structure seem to be missing from our pre-release version.

Some of these extras included inbuilt field pictures, validation clauses, help prompts and the like: these are not any-



Figure 3. Browse and edit are now more closely related and function more like alternate (form and table) views of the same information. The menu bar options in Browse have been greatly expanded, and a menu bar has been added to the Edit screen.

where to be found in the database structure, as suggested, although they do exist as features of the screen design generator.

Perhaps A-T's features 'chronicler' got it wrong, but we somehow doubt it. As much of the last-minute work on dBase IV revolved around removing troublesome, unfinished or 'memory-hungry' features, we think we know where they went ...

Database structures can now manage up to 255 fields/record. In addition, each field can optionally be designated a key field – in which case, dBase automatically creates a new MDX (multiple index) file.

The MDX files can contain more than 40 'keys' (each functionally equivalent to one NDX file), and is opened automatically with the database and kept up-to-date. The new databases also handle a new numeric data type, F, indicating fields that contain floating point numbers. There is a matching class of memory variable.

The better-than-nothing single-file 'chained' relationships of dBase III have finally been upgraded to allow real multi-file relations, and the Protect system's encryption has been made available directly from within dBase (rather than as a standalone program). It has also been extended to handle memo fields.

dLanguage

THERE ARE too many new commands and functions (not to mention improvements to old ones) for us to detail them all here, so we'll content ourselves with a discussion of the highlights and a selection of individual descriptions of the most interesting newcomers.

While Clipper and FoxBase users might find some of the extensions old news, the change for a 'pure' dBase programmer is enormous. This version should make your programs twice as good – and, with any luck, allow you to produce them twice as fast ...

Programming support for aliases is provided for the first time, with allowance for several commands and functions to operate on unselected work areas. For example, RECNO(Customer) returns the current record number in the work area with the alias Customer, or you can open a database in an unselected work area with USE Customer IN 2. There are almost 20 such enhanced functions.

A CALCULATE command has been added to meet the need for a single command capable of processing a number of database records for a variety of statistical and financial functions in a single pass. Not only can you calculate the 'old' sums,

counts, and averages, but also new statistical items like standard deviations, variances, minimums, and maximums.

Several financial functions have been added, including future value, present value, net present value, payments and other financial data. Around 15 mathematical and trigonometric functions added include SIN() and its friends, PI(), RTOD() (radians to degrees) and the matching DTOR(), plus SIGN(), CEILING(), FLOOR(), LOG10() and RAND().

In the 'control block' department, dBase IV provides a new construct which will speed up many programmed loops. SCAN/ENDSCAN is a 'conditional loop processor' which will find and process only the records which meet the nominated condition.

*Sorely needed as it was,
memo-field handling is
one of the most improved
areas of dBase IV.*

These loops are not only easier to program and require fewer statements than equivalent DO WHILE/ENDDO loops, but they will also eliminate some of the time-wasting inherent in a poorly thought-out loop design.

Hooray array! The new dBase fully supports two-dimensional arrays of memory variables, including commands and functions like APPEND FROM/COPY TO ARRAY, AVERAGE, DECLARE, and SUM, while the maximum number of memory variables has been increased from 256 to 2,048. In addition, there is an improved memory variable search algorithm to speed up retrieval of variables.

dSafe Data

A NEW SET command provides instant updating of disk files for secure data – SET AUTOSAVE, if set ON, enables the continuous automatic updating of disk information, rather than keeping your fragile data in dBase's internal buffers.

For further data/transaction security, dBase IV now supports full transaction processing with rollback capability. Once a transaction is started with BEGIN TRANSACTION, each change to (multiple) data files and index files is recorded in a special transaction file until an END TRANSACTION.

If an error occurs during the transaction, all data can be automatically restored with the ROLLBACK command

dBase now provides automatic file and record locking for the APPEND, BROWSE, CHANGE, EDIT, READ and REPLACE commands, so applications can be used in single- and multi-user environments with little modification.

A neat feature in BROWSE or EDIT (as if we should encourage their use in programmed systems) is the SET REFRESH TO command, which lets you specify the number of seconds to wait between checks of the database. If another user has changed the data, dBase will automatically display the new information for you.

One saviour for the idea of BROWSEing, EDITING or READING directly into the database is the enhancement of the GET to provide with the Clipper/FoxBase-style VALID option. VALID is followed by a condition which must be satisfied before the data is accepted – the condition can be any expression which returns a logical true or false, including a user-defined function.

Using a user-defined function as the condition allows unlimited validation by the programmer.

That clearly implies dBase now supports user-defined functions, one of our favourite Clipper extensions to dLanguage. You have to use them to understand how they allow virtually unlimited flexibility and power in the command language – even if the Ashton-Tate implementation is a little weak-kneed compared to Nantucket's (both, however, are significantly stronger than Fox's effort).

If you need a function that isn't provided in dBase, you simply code it yourself as a UDF tailored to your exact needs. You can then use it in any dBase expression or condition. And when you get that wrong, you can quickly solve the problem with the CodeView-style (well, almost) windowing debugger.

Speaking of windows, dBase IV provides full-featured windowing from within the programming language, with the number of windows limited only by the amount of memory available. Windows can be independently coloured, overlaid and moved with straightforward commands.

A number of III-Plus limitations are gone (or 'improved') – for example, the open file limit has gone from 15 to 99.

As I said, dBase IV is a big step forward for the PC database market – watch for other goodies in later issues. Meanwhile, check our separate specifications panel for some more details. □

The right product... the right time!

Glenn Miller of Ashton-Tate spoke with Paul Zucker after the dBase IV launch in Australia . . .



The emphasis will be more and more on communications and networking applications. — Glenn Miller, National Sales and Marketing Manager, Ashton-Tate.

GLENN MILLER is National Sales and Marketing Manager with Ashton-Tate in Australia — this isn't his first PC-related job as he's already worked with companies like Wang and Sperry

The Ashton-Tate office at Epping in NSW has both PCs and Macintoshes and it isn't hard to guess what brand of software they use, and the hardware Miller prefers. 'I'm using an Epson AX2 at the moment, but, as you might imagine, we've always got the latest and best machines on test here. We're always being given unreleased PCs to evaluate with our software,' said Miller.

At the office, he uses dBase. Byline desktop publishing and Multimate word processing — all Ashton-Tate products, of course. He doesn't use a home PC but said that A-T is looking at laptops for its staff in Australia. 'In the US our people have Compaq and Toshiba portables We're evaluating machines at the moment.' Although he doesn't use PCs for games, he admits to occasionally using Flight Simulator 'just for test purposes, you understand'

What sort of company would he look for after A-T? A software company One that makes real-world products. Software is the interface between the PC and humans. I could only work for a company which is heavily committed to research and development.

How does he feel about the comparisons between dBase IV and Lotus 123 release 3, especially now that 123 has been postponed till well into '89? There's no relationship between the products. dBase IV is 70 per cent original research. We've come in, in admirable time considering the fact that dBase IV is many times as complex as its predecessor. The press has been doing the right things, questioning on behalf of the user. But we won't suffer because we've produced the right product at the right time.

What will happen to the dBase family over the next couple of years? The emphasis will be more and more on communications and networking applications. Commonality of environment will be more important. There will be a Presentation Manager version, but this is less important than the communications functionality. We'll see RapidFile moving towards dBase IV, too.

How is the grey marketing problem?

We're still having trouble. As if it weren't bad enough having that mail order company selling products direct from the US, we've found out that Computerland has been bringing product in directly. It's a real problem because buyers still expect support. Our existence in the Australian market is proportional to the amount of product we can sell. If we lose share to grey-market copies, our presence is weakened.

How can buyers ensure that they are getting a properly imported product?

It's easy, just look for the 'Australian Authorised' sticker. As an aside, we're looking at ways to make our product more attractive, like unbundling support the way they have in the US. That'll reduce the purchase price, and is especially good for those users who are quite capable of supporting the product themselves.

You've recently had a very successful developer's conference in Los Angeles. Is there a local one planned?

Yes, in mid-1989 we're having an Australasian, perhaps SE Asian conference here. We may extend it to bring in other vendors who complement our products. We see our support of vendors as being one of the strengths of A-T. Already we've taken locally developed applications from Australia and are preparing to market them internationally.

What's happening in Ashton-Tate locally? We've got a head count of 15 at the moment and we'll be taking that to 28 in the new year. And we're manufacturing product in Singapore; that should improve supply. We're aiming for a higher profile in the market place. You're going to see a lot more of us in seminars and training. We've got the best products and we're going to let the market know it!

dFunctions and Commands

AS WE SAID, there are too many new Functions and Commands to handle all at once, but take a look at this sampling of a few of our favourites (commands first, then functions):

@ <row, col> command provides extended data validation, help and custom prompts whenever using the [WHEN <condition>], [SATISFY <condition>], [COLOR [<standard>], [<enhanced>]], [[OPEN] window <window name>] and [MESSAGE <expC>] clauses.

ACTIVATE MENU displays a previously DEFINED menu and transfers control to that menu.

ACTIVATE POPUP <popup name> displays a previously DEFINED popup menu and transfers control to it.

ACTIVATE WINDOW <window name list>/ALL displays and activates the windows contained in the name list or all windows. When a window is activated, all screen input and output take place in that window.

BROWSE has been much improved with an enhanced menu bar, the ability to edit memo fields, and multiple detail line editing. It can operate within a user-defined window with automatic panning of fields. Within BROWSE, you can now display calculated fields and do data validation on the same level as EDIT. BROWSE now performs a record lock only when you attempt to modify information contained in the record without first attempting a manual record lock.

CALCULATE processes records in the active database for the financial functions or IRR() (internal rate of return), MIRR() (modified internal rate of return), and NPV() (net present value). It also handles the statistical functions of AVG() (arithmetic mean), CNT() (count records), MAX() (maximum), MIN() (minimum), STD() (standard deviation), SUM() (sum of values), and VAR() (variance).

CONVERT TO <expN> adds a field to a database structure which contains information required to do multi-user lock detection. Upon execution, CONVERT adds the DBASELOCK field to the selected database. DBASELOCK is required to use the new CHANGE() and LKSYS() functions.

COPY MEMO [<memo field name>] TO <filename> [ADDITIVE] copies the named memo field to a new file, or adds the memo to an existing file if the ADDITIVE keyword is used.

DEBUG <filename> invokes the built-in debugger on the specified file.

DISPLAY MEMORY has been enhanced to show window names, pop-up menu names, standard menu names, and the memory consumed by each. This is in addition to memory variable names, data types, contents, and the amount of available memory left.

EMPTY FIELDS <field list> [<scope>] [FOR <condition>] [WHILE <condition>] blanks or empties the specified fields in the active database.

LINK <filename> is a stand-alone program capable of joining together up to 256 related program object (dbo) files into a single object file for faster execution. LINK will automatically join together any command, procedure, and format files referenced in <filename> or other file called by <filename>.

MOVE GETS FROM <buffer name> displays a previously saved screen image and re-executes the full-screen command associated with the buffer.

MOVE GETS INTO <buffer name> saves a screen image in memory for later retrieval by MOVE GETS FROM <buffer name>.

MOVE WINDOW TO <row>, <col>/BY <delta row>, <delta col> moves the active window to the new absolute position specified by <row>, <col>, or the new relative position specified by <delta row>, <delta col>. MOVE WINDOW TO also updates the window definition in memory to indicate the final coordinates.

REPLACE will now automatically convert between character and memo fields. In addition, the ADDITIVE clause may now be used with REPLACE to build up a memo field from several character strings.

RESTORE WINDOW <window name list>/ALL FROM <window file> restores either all or the specified window definitions previously saved with the SAVE WINDOW command.

ROLLBACK attempts to restore each database and index file involved in the current transaction to its state prior to the initiation of the current transaction.

SAVE WINDOW <window name list>/ALL TO <window file> saves either ALL or the named window definitions to the specified window file. If no file extension is given, the file is given the default .pic extension.

SET NEAR ON positions the record pointer to the first record following the computed position of a search key in an index after an unsuccessful SEEK or FIND.

SET PRECISION TO [<expN>] determines the precision of fixed point numbers in dBase. The precision may be set between 10 and 20. The default precision is 16. A different default precision may be specified in Config.db.

SET SKIP TO [<alias1>[/h][,<alias2>[/h]...]] changes the way the record pointer is positioned when processing related database files. When used with SET RELATION, SET SKIP causes the record pointer in the specified databases to be advanced before the record pointer in the primary database is advanced. This allows access to multiple occurrences of the same key in linked files.

SET TRAP now controls whether the debugger is invoked when an error occurs or the Esc key is pressed during program execution. SET TRAP ON to invoke the debugger automatically; SET TRAP OFF to handle errors in the usual fashion. The SET TRAP command also directs the DO command whether to search for and execute object or source versions of program command files. SET TRAP ON directs DO to search for and execute program source (.prg) files. SET TRAP OFF directs DO to search for and execute program object (dbo) files if the dbo file exists. If the dbo file does not exist, DO will search for and COMPILE the associated prg file into a dbo file, and then execute the newly created dbo file.

SET WILDCARD ON allows the use of the * and ? symbols as part of a pattern string for complex string comparisons. SET WILDCARD OFF makes string comparisons as a dBASE III PLUS.

dFine Functions

AT() may now take a memo field name as its second argument.

CALL() executes one of the up to 16 binary modules previously loaded into dBase through the LOAD command. CALL() returns a character expression with the same length as the input character expression. The value of the expression, however, can be modified by the CALLED module.

CHANGE() tests whether the current record has been changed since read from disk. CHANGE() returns a logical true (T.) if the count or checksum value of the current record is different than the value stored in the DBASELOCK field created by the CONVERT command; CHANGE() returns a logical false (F.) if the record has not been changed since first read from disk. See also the CONVERT command and LKSYS() function.

ISEMPTY(<expC>) returns a logical true (T.) if the specified field is empty or a logical false (F.) if the field is not empty.

ISMARKED ([<alias>]) returns a logical true (T.) if a transaction is in progress that may affect the integrity of the specified database or alias. A logical false (F.) is returned if no transaction is in progress and the integrity of the database header is intact.

LASTKEY() returns the decimal ASCII value of the last key pressed.

LEN() is now able to take a memo field name as its argument.

LKSYS(<expN>) returns either the time of lock, date of lock, or ID of the user who last locked a record or file. LKSYS() requires the DBASELOCK field created by the CONVERT command to operate.

LOOKUP(<exp to return>, <from field>, [<into field>]) searches the database containing <from field> for the first record where <from field> matches <into field>, and then returns <exp to return> if the search is successful.

MEMOLINES() returns the number of lines a memo field will occupy based on the value of MEMOWIDTH.

MLINE() returns the text of the specified line in the memo field, based upon the current value of MEMOWIDTH.

NETWORK() returns a logical true (T) if dBase is running on a network, and a logical false (F.) if it is not.

PICTURE functions now include L, to display leading zeros; S, to precede a numeric value with a currency symbol and separate thousands with commas; and the carat, to form an expression to display or edit in exponential or scientific notation. PICTURE now also supports enumerated data types with the M function.

PRINTSTATUS() returns a logical true (T.) if the printer is ready to accept output, and a logical false (F.) if the printer is not ready.

RAND() returns a random number. RAND() can either use a numeric expression or the system clock for the seed.

READVAR() returns the name of the field or memory variable currently being edited as an upper-case character string.

ROLLBACK() returns a logical true (T.) by default or when a ROLLBACK command completes successfully. When a ROLLBACK command is issued, ROLLBACK() returns a logical false (F.) until the ROLLBACK terminates successfully.

SEEK() is similar to the SEEK command but allows the use of an alias name as a second argument. SEEK() returns the true (T.) if the expression sought is found in the master index of a database file or a logical false (F.) if it is not found.

SET(<expC>) tests the status of ON/OFF SET parameters and returns ON if the parameter is SET ON or OFF if the parameter is SET OFF.

SOUNDEX(<expC>) returns the letter, digit, digit, digit SOUNDEX code of the specified character string.

SUBSTR() is now able to take a memo field name as its first argument.

UNIQUE() returns a logical true (T) if the key value of the current record does not exist in the primary index of a database; it returns a logical false (F.) if the key value already exists in the primary index.

dBase IV Specifications

DATABASE FILE

Number of records: 1 billion
 Number of bytes: 2 billion
 Record size, in .dbf: 4,000 bytes
 Number of fields: 255

INDEX FILE

Number of indexes per multiple index file: 47
 Blocksize: 16,384 bytes (default 2,048 bytes)

FIELD SIZES:

Character fields: 254 bytes
 Date fields: 8 bytes
 Logical fields: 1 byte
 Type N fields: 20 digits
 Type F fields: 20 digits
 Characters in field name: 10

ARRAYS:

Dimensions: 2 Total size (rows x columns): 1170

MULTI-USER PROCEDURES:

Maximum number of locks: 50 (files and records)
 Maximum number of reprocess counts: 32,000
 Refresh, maximum number of seconds: 3600

FILE OPERATIONS:

(Note that the number of files you can open simultaneously maybe limited by settings in the Config.sys and Config.dbf files, and by available memory.)

Open files of all types: 99
 Open database files: 10
 Open memo files per database: 1
 Open index files per database: 10
 Open format files per database: 1
 Open procedure files per run: 1

NUMERIC ACCURACY:

(Note that the decimal point does not count as a digit indetermining accuracy.)

Type F Numbers: 15.9 digits
 Largest number: 0.9xE+308
 Smallest number: 0.1xE-307
 Type N Numbers:
 10 to 20 digits based on the setting of SET PRECISION TO (expN)
 Largest number: 0.9xE+308
 Smallest number: 0.1xE-307

LABELS

Width: 255 characters
 Length: 255 lines

Number of labels across: 15
 Number of copies: 32,767

MEMORY VARIABLES:

(Note that available memory may limit the maximum.)

Defaults to 500 variables, but can be changed in Config.db to a maximum of 15,000 variables.

RUN-TIME SYMBOLS:

(Note that available memory may limit the maximum.)

Defaults to 500, but can be changed in Config.db to a maximum of 15,000

REPORTS

Width: 255 characters
 Number of databases: 9
 Number of indexes per database: 10
 Number of relations: 9
 Number of reports per database: unlimited
 Number of pages: 32,767
 Number of nested group bands: 44
 Number of fields: limited by memory
 Number of copies: 32,767

QBE

Joined files: 8

SQL

Tables in a join: limited by available memory
 Number of cursors: 10
 Number of indexes per table: 47

SQL statement length: 1024 characters

APPLICATIONS GENERATOR

Number of objects on work surface: depends on complexity of objects and available memory

Size of editor: 4K

MISCELLANEOUS CAPACITIES

Command line length: 255 bytes at dot prompt, 1024 bytes in edit window
 Maximum nesting level of control commands: set by

DO parameter in Config.db

Procedures per program/procedure file: 963

Procedure size limit: 65,520 bytes of code

Maximum number of active procedures: limited by memory

Levels sorted simultaneously: 16

Maximum number of GET commands in a format file: 2000

Printed page length: 32,767 lines

Number of macros: 35

Number of binary files that can be loaded: 16

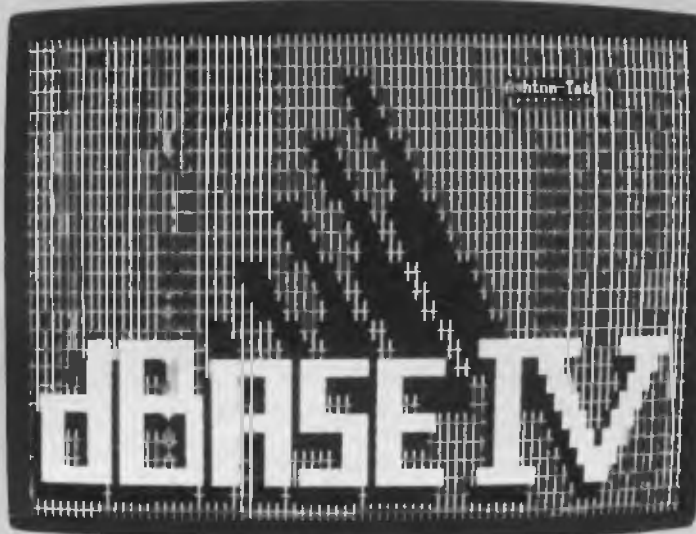
Number of printer drivers: 4 configured

Number of fonts: 5 per printer driver

Number of work areas: 10

Number of programmable function keys: 29

Number of recursive calls: limited by available memory and virtual stack size



COMPILE-TIME SYMBOLS:

(Note that available memory may limit the maximum.)

Defaults to 500, but can be changed in Config.db to a maximum of 5000

Capacities

The capacities for the various dBase IV operations, such as editing and report writing, are listed below. *(Note that available memory may limit these.)*

WORD WRAP EDITOR:

Number of lines: 32,000

Line length:

MODIFY COMMAND (.PRG): 1024

MODIFY FILE: 1024

MEMO FIELDS: 1024

SQL (F9): 1024

HISTORY: 1,024

REPORT: 255

FORMS

Number of rows: 32,767

Width: 80 characters

dLETTER

The Newsletter for dBase II and III Users. December 1988.

Functions IV Fun: Fantastic!

Last month we gave you an overview of the changes to dBase IV, plus a list of the new commands.

Clearly this sort of detail is exactly what dBase programmers wanted to let them know exactly what was in the new product. Sure gives you a better feel for the 'reality' than any promotional literature . . .

So, by popular demand, here are the new functions:

ACOS(<expN>) returns the angle with a trigonometric cosine matching the specified value.

ALIAS ([<expN>]) returns the

alias name of the specified work area as an upper-case character string.

ALLTRIM(<expC>) strips both leading and trailing blanks from the character expression.

ASIN(<expN>) returns the angle with a trigonometric sine matching the specified value.

AT() may now take a memo field name as its second argument.

ATAN(<expN>) returns the angle with a trigonometric tangent matching the speci-

fied value.

ATN2(<expN1>, <expN2>) returns the angle with a trigonometric cosine and sine matching the specified values.

BAR() returns the bar number of the most recently selected pop-up menu option.

CALL() executes one of the up to sixteen binary modules previously loaded into dBase through the LOAD command. CALL() returns a character expression with the same length as the input character expression. The value of the expression, however, can be modified by the CALLED module.

CEILING(<expN>) returns the smallest integer greater than or equal to the specified numeric expression.

CHANGE() tests whether the current record has been changed since read from disk. CHANGE() returns a logical true (.T.) if the count or checksum value of the current record is different than the value stored in the DBASELOCK field created by the CONVERT command; CHANGE() returns a logical false (.F.) if the record has not been changed since first read from disk. See also the CONVERT command

dTale

dLetter will now be included every month as part of Your Computer, rather than as a separate, subscriber's only publication. If you have any tips or hints you'd like to pass on to other users, drop us a line: dLetter, PO Box 199, Alexandria 2015 NSW - we'll pass them on. We'd also like to hear about any innovative applications you've found for dBase.

and LKSYS() function.

CJDATE(<expD>) converts a date expression into a character expression suitable for use in an index without further manipulation.

COMMAND() returns a logical true (.T.) by default and when a transaction is successfully ended. **COMPLETED()** returns a logical false (.F.) from the time a BEGIN TRANSACTION command is issued until an END TRANSACTION command is executed.

COS(<expN>) returns the trigonometric cosine of the specified angle.

DIFFERENCE() returns a number indicating how close two SOUNDEX() codes appear in a file.

DMY(<expD>) returns a character string representation of the date in DD month YYYY format.

DTOR(<expN>) converts the specified number of degrees to radians.

FIXED() converts a data type F floating point expression into a data type N fixed point number.

FLOAT() converts a data type N fixed point expression into a data type F floating point number.

FLOOR(<expN>) returns the largest integer that is less than or equal to the specified numeric expression.

FV(<payment>, <rate>, <periods>) returns the future value for the specified payment, rate, and number of periods.

ISEMPTY(<expC>) returns a logical true (.T.) if the specified field is empty or a logical false (.F.) if the field is not empty.

ISMARKED ([<alias>]) returns a logical true (.T.) if a transaction is in progress that may affect the integrity of the specified database or alias. A logical false (.F.) is returned if no transaction is in progress and the integrity of the database header is intact.

LASTKEY() returns the decimal ASCII value of the last key pressed.

LEN() is now able to take a memo field name as its argument.

LINENO() returns the file relative line number of the current command.

LKSYS(<expN>) returns either the time of lock, date of lock, or ID of the user who last locked a record or file. LKSYS() requires the DBASELOCK field created by the CONVERT command to operate.

LOG10(<expN>) returns the base 10 logarithm of the specified numeric expression.

LOOKUP(<exp to return>, <from field>, [<into field>]) searches the database containing <from field> for the first record where <from field> matches <into field>, and then returns <exp to return> if the search is successful.

MDX() returns the tag names of an .mdx file.

MDY(<expD>) returns a character string representation of the date in Month, DD, YYYY format.

MEMOLINES() returns the number of lines a memo field will occupy based on the value of MEMOWIDTH.

MEMORY() returns the number of kilobytes of unused RAM memory available in the computer system.

MENU() returns the name of the active or most recently ACTIVATED menu.

MLINE() returns the text of the specified line in the memo field, based upon the current value of MEMOWIDTH.

MODE() returns APPEND if the user is adding new records and EDIT if the user is editing existing records using one of the full screen editing commands (APPEND, BROWSE, CHANGE, EDIT, INSERT, or READ). MODE() returns the null string if no full-screen command is in effect.

NDX() has been updated to work with .mdx tags.

NDXKEY() returns the key expression of an index as a character string.

NETWORK() returns a logical true (.T.) if dBase is running on a network, and a logical false (.F.) if it is not.

ORDER() returns the name of the index file or .mdx tag controlling the order of a database file.

PAD() returns the name of the most recently selected menu option.

PAYMENT(<princ>, <rate>, <per>) returns the payment required to amortize a loan with the specified principal balance, interest rate, and number of periods.

PI() returns the floating point number 3.141592653897932385, as specified by SET DECIMALS, SET FIXED, and SET PRECISION.

PICTURE functions now include L, to display leading zeros; \$, to precede a numeric value with a currency symbol and separate thousands with commas; and ^, to form an expression to display or edit in exponential or scientific notation. PICTURE now also supports enumerated data types with the M function.

POPUP() returns the name of the active pop-up menu.

PRINTSTATUS() returns a logical true (.T.) if the printer is ready to accept output, and a logical false (.F.) if the printer is not ready.

PROGRAM() returns the name of the program or procedure being executed.

PROMPT() returns the PROMPT of the most recently selected pop-up type menu option.

PV(<pmt>, <rate>, <per>) calculates and returns the present value of the specified payment, interest rate, and number of periods.

RAND() returns a random number. RAND()

can either use a numeric expression or the system clock for the seed.

READVAR() returns the name of the field or memory variable currently being edited as an upper-case character string.

ROLLBACK() returns a logical true (.T.) by default or when a ROLLBACK command completes successfully. When a ROLLBACK command is issued, ROLLBACK() returns a logical false (.F.) until the ROLLBACK terminates successfully.

RTOD(<expN>) converts the specified number of radians to degrees.

SEEK() is similar to the SEEK command but allows the use of an alias name as a second argument. SEEK() returns the true (.T.) if the expression sought is found in the master index of a database file or a logical false (.F.) if it is not found.

SET(<expC>) tests the status of ON/OFF SET parameters and returns ON if the parameter is SET ON or OFF if the parameter is SET OFF

SIGN(<expN>) returns 1 if the numeric expression is positive, 0 if it is equal to zero, and -1 if the expression is negative.

SIN(<expN>) returns the trigonometric sine of the specified angle.

SOUNDEX(<expC>) returns the letter, digit, digit SOUNDEX code of the specified character string.

SUBSTR() is now able to take a memo field name as its first argument.

TAN(<expN>) returns the trigonometric tangent of the specified angle.

UNIQUE() returns a logical true (.T.) if the key value of the current record does not exist in the primary index of a database; it returns a logical false (.F.) if the key value already exists in the primary index.

XTRIM() outputs a character expression composed of converted, trimmed, delimited expressions.

Automatic Format-to-Program Conversion

by James Chuang

Boxes.PRG is a program that converts a screen format file into a .PRG file. Tedious conversion steps like changing GETs to SAYs and renumbering the lines on multiple-page screens are performed automatically. Boxes also converts the line- and box-drawing commands to @...SAY commands so that your screens are reproduced as faithfully as possible on the printer.

Although the programs that Boxes produces are nearly complete, they might require some modification to meet your exact needs. For example, memo fields require special treatment when you print them. Since Boxes doesn't attempt to distinguish memo fields from other types of fields, you will need to modify the program it produces if you use memo fields.

The generated program will print the current record in the database file. It assumes that the file is open and that the record pointer is set to the record to be printed. If you want your program to print all the records in a file, you must add the necessary program statements.

Setup

To set up Boxes, enter the program code into a file named Boxes.PRG using MODIFY COMMAND or another text editor.

Boxes.PRG

```
* Program.....: Boxes.PRG
* Author.....: James Chuang
* Date.....: March 1, 1988
* Versions.....: dBASE III PLUS, versions 1.0 and 1.1
* Notes.....: Boxes.PRG converts a format file
*               produced by CREATE SCREEN to a
*               program to print the screen on the
*               printer. Line- and box-drawing
*               commands are converted to @...SAY
commands.

CLOSE ALL
SET TALK OFF
SET SAFETY OFF
SET PROCEDURE TO Boxutil

* ---Filenames.
infile   = SPACE(30)           && Name of format
file.
outfile  = SPACE(30)           && Name of program
file.
workfile = "TEMPBOXZ.DBF"      && Name of working
file.
ndxfile  = "TEMPBOXZ.NDX"      && Name of index
file.

* ---Characters in a single-line box.
stlcner  = CHR(218)            && Top left corner.
strcner  = CHR(191)            && Top right corner.
sblcner  = CHR(192)            && Bottom left
corner.
sbrcner  = CHR(217)            && Bottom right
corner.
sacross  = CHR(196)            && Horizontal line.
svert    = CHR(179)            && Vertical line.

* ---Characters in a double-line box.
dtlcner  = CHR(201)            && Top left corner.
dtrcner  = CHR(187)            && Top right corner.
dblcner  = CHR(200)            && Bottom left
corner.
dbrcner  = CHR(188)            && Bottom right
corner.
dacross  = CHR(205)            && Horizontal line.
dvert    = CHR(186)            && Vertical line.

* ---Counters.
pagec    = 1                   && Page counter.
dpagenc  = 0                   && Page counter.
linec    = 0                   && Line counter.
mrec     = 0                   && Record counter.
tmrec    = 0                   && Record counter.

* ---Box descriptors.
tbox     = " "                 && Type of box.
tc       = 0                   && Top column.
tr       = 0                   && Top row.
```

```

bc      = 0                && Bottom column.
br      = 0                && Bottom row.

* ---Number of lines for top margin. This number should
* ---be between 0 and 15 on a 8 1/2" x 11" sheet.
tmarg = 5

* ---MAIN PROGRAM.
CLEAR

e * ---Get input (format) filename.
DO WHILE .T.
  @ 2, 0 TO 4, 79 DOUBLE
  @ 3, 1 CLEAR TO 3, 78
  @ 3, 12 SAY "INPUT FORMAT FILE NAME : ";
  GET infile

  READ
  IF LEN(TRIM(infile)) = 0
    CLOSE ALL
    CLEAR
    RETURN
  ENDIF
  infile = UPPER(TRIM(infile))
  infile = infile + IIF(".FMT" $ infile, "", ".FMT")
  @ 3, 41 SAY LEFT(infile + SPACE(30), 30)
  IF .NOT. FILE(infile)
    @ 10, 0 TO 12, 79 DOUBLE
    ?? CHR(7)
    @ 11, 1 CLEAR TO 11, 78
    @ 11, 8 SAY "FORMAT FILE DOES NOT EXIST ! --> "
    + infile
    infile = SPACE(30)
    LOOP
  ENDIF
  EXIT
ENDDO

* ---Get output (program) filename.
DO WHILE .T.
  @ 5, 0 TO 7, 79 DOUBLE
  @ 6, 1 CLEAR TO 6, 78
  @ 6, 12 SAY "OUTPUT PROGRAM FILE NAME : ";
  GET outfile

  READ
  IF LEN(TRIM(outfile)) = 0
    CLOSE ALL
    CLEAR
    RETURN
  ENDIF
  outfile = UPPER(TRIM(outfile))
  outfile = outfile + IIF(".PRG" $ outfile, "", ".PRG")
  @ 6, 41 SAY LEFT(outfile + SPACE(30), 30)
  IF FILE(outfile)
    textist = .F.
    ?? CHR(7)
    @ 10, 0 TO 12, 79 DOUBLE
    @ 11, 1 SAY SPACE(78)
    @ 11, 25 SAY "FILE EXISTS ! OVERWRITE ? ";
    GET textist

    READ
    IF .NOT. textist
      LOOP
      outfile = SPACE(30)
    ENDIF
  ENDIF
  EXIT
ENDDO

```

Boxes uses a work file, Tempboxz.DBF, which you must create before running the program. Tempboxz.DBF has two fields:

CONTENT	C	254
PAGENUM	N	2

As written, Boxes generates code that produces lines and boxes correctly on an IBM Graphics printer. This printer has the same character set as the IBM PC; therefore, the same codes that draw lines and boxes on the screen will work on the printer. Many printers support this character set, though you may need to activate the feature by changing a DIP switch or sending control codes to the printer. A quick way to test your printer is to press Shift-PrtSc while boxes are on your screen. If your printer substitutes other characters in place of the boxes, it isn't using the IBM character set. See your printer manual for specific information.

For printers that do not have a compatible character set, you can modify Boxes and substitute characters that the printer does have. There are two sets of characters, one set for single-line boxes and another set for double-line boxes. Check your printer manual to see whether there are line-drawing characters in the printer's character set. If there are, replace the values in the program with the values from the printer manual, and you should be all set.

Some printers have no line-drawing characters at all. If you have such a printer, you could substitute any other

characters you choose for the line-drawing characters: For example, to have corners print as asterisks, vertical lines print as exclamation points, and horizontal lines print as dashes, you would change Boxes in this way:

```
* --Characters in a single-line box.
stlcner = '*'   && Top left corner
strcner = '*'   && Top right corner
sblcner = '*'   && Bottom left corner
sbrcner = '*'   && Bottom right corner
sacross = '-'   && Horizontal line
svert   = '!'   && Vertical line
```

Usage

Before running Boxes, you must have a format

```
@ 10, 0 TO 12, 79 DOUBLE
@ 11, 1 CLEAR TO 11, 78
@ 11, 35 SAY "WORKING..."
```

```
USE &workfile
APPEND FROM &infile TYPE SDF
GO TOP
```

```
* ---Number the pages and renumber the lines.
* ---There are two REPLACE statements per loop, since we're
* ---putting two screen pages on a printed page.
```

```
DO WHILE .NOT. EOF()
* ---Screen 1 of 2
REPLACE Pagenum WITH pagec,;
      Content WITH STUFF(Content, 3, 2,;
      STR(VAL(SUBSTR(Content, 3, 2)) + tmarg, 2));
      WHILE Content <> "READ"

IF EOF()
  EXIT
ENDIF
SKIP 1
REPLACE Pagenum WITH pagec,;
      Content WITH STUFF(Content, 3, 2,;
      STR(VAL(SUBSTR(Content, 3, 2)) + tmarg + 25, 2));
      WHILE Content <> "READ"

pagec = pagec + 1
IF .NOT. EOF()
  SKIP 1
ENDIF
ENDDO
```

```
* ---Change GETS to SAYS.
REPLACE Content WITH STUFF(Content, 11, 3, "SAY") ;
      FOR SUBSTR(Content, 11, 3) = "GET"
```

```
* ---Delete READ Statements.
DELETE FOR AT("READ", content) = 1
```

```
* ---Translate boxes and lines.
GO TOP
mrec = RECCOUNT() + 1
DO WHILE RECNO() < mrec
  IF AT("TO", Content) = 11
```

```
  * ---Remember which record we're working on
```

file to convert. Boxes expects the format file to be exactly as dBASE III PLUS created it. If you modify a format file with an editor, Boxes might not be able to convert it properly.

To run the program, type

```
DO Boxes
```

at the dot prompt. The program asks for the name of the format (.FMT) file to convert and for the name of the program (.PRG) file to be generated. You do not need to enter the extensions. If a .PRG file with that name already exists, you must verify that you want to overwrite it.

```

tmrec = RECNO()

* ---Extract the coordinates of the top left and
* ---bottom right corners
tc = VAL(SUBSTR(Content, 7, 2))
tr = VAL(SUBSTR(Content, 3, 2))
bc = VAL(SUBSTR(Content, 18, 2))
* ---If the top left corner is on the second
* --- page, we have to move
* ---the bottom right corner down, too.
br = IIF((tr - tmarg) > 24, ;
        VAL(SUBSTR(Content, 14, 2)) ;
        + 25 + tmarg, ;
        VAL(SUBSTR(Content, 14, 2)) + tmarg)

* ---Call the box translation procedure.
pagec = pagenum
tbox = IIF(AT("DOUB", Content) = 24, "D", "S")
DO Box WITH tc, tr, bc, br, pagec, tbox

* ---Go back to the record we were working
* ---on, and DELETE it.
GOTO tmrec
DELETE
ENDIF
SKIP 1
ENDDO

* ---Add printer control commands.
APPEND BLANK
REPLACE Content WITH "SET DEVICE TO PRINT",;
        Pagenum WITH 0
APPEND BLANK
REPLACE Content WITH "SET DEVICE TO SCREEN",;
        Pagenum WITH 99
APPEND BLANK
REPLACE Content WITH "EJECT",;
        Pagenum WITH 99

* ---Write to output file.
PACK
INDEX ON STR(Pagenum, 2, 0) + Content TO &ndxfile
USE &workfile INDEX &ndxfile
SET ALTERNATE TO &outfile
SET ALTERNATE ON
SET CONSOLE OFF
DO WHILE .NOT. EOF()
    ?? TRIM(Content)
    ?
    SKIP
ENDDO
CLOSE ALTERNATE
SET CONSOLE ON
ZAP
CLOSE ALL
?? CHR(7)
@ 10, 0 TO 12, 79 DOUBLE
@ 11, 1 CLEAR TO 11, 78
@ 11, 36 SAY "COMPLETE"
RETURN
EOP: Boxes.PRG

Boxutil.PRG
* Program ....: Boxutil.PRG
* Author .....: James Chuang
* Date .....: March 1, 1988
* Notes .....: Procedure called by Boxes.PRG.

```

dBugs

dBase User Groups

Brisbane: Contact Ruth Carmichael on (07) 831-4844 or Peter Wetzic on (07) 228-1250.

Melbourne: For information on the Melbourne group's meetings, contact Vic Parsons on (03) 318-2666.

Sydney: Contact Hans Schneider on (02) 309-2961 or Graeme Johnston at Ashton-Tate (02) 868-3600.

Auckland: Write C/- PO Box 33-642, Takapuna, Auckland.

Clipper Users' Group: Talk to Dave Miller on (02) 649-4451.

Support

Some items in dLetter (usually tips, bug reports or sample programs) are copyright Ashton-Tate - they're reprinted from Technotes, with permission.

Technotes is a monthly magazine published by the company's Software Support Centre, covering the range of Ashton-Tate products.

Airmail subscriptions are available - you can contact Imagineering for details (or check inside your dBase manual for the coupon).

PROCEDURE Box

PARAMETERS tc, tr, bc, br, pagec, tbox

* ---Put single or double box character
* ---set in the working variables.

```
IF tbox = "S"  
  tlcner = stlcner  
  trcner = strcner  
  blcner = sblcner  
  brcner = sbrcner  
  across = sacross  
  vert = svert
```

ELSE

```
  tlcner = dtlcner  
  trcner = dtrcner  
  blcner = dblcner  
  brcner = dbrcner  
  across = dacross  
  vert = dvert
```

ENDIF

DO CASE

CASE tr = br

* ---Horizontal line only.

```
lineh = [ @ ] + STR(br, 2, 0) + [ , ] +  
  STR(tc, 2, 0) + [ SAY REPL(CHR( ) ) +  
  STR(ASC(across), 3, 0) + [ ], ) +;  
  STR(bc - tc + 1, 3) + [ ] ]
```

APPEND BLANK

```
REPLACE Content WITH lineh,;  
  Pagenum WITH pagec
```

RETURN

CASE tc = bc

* ---Vertical line only.

```
workline = tr  
DO WHILE workline <= br  
  lineh = "@ " + STR(workline, 2, 0) ;  
  + ", " + STR(tc, 2, 0) + [ SAY " ] ;  
  + vert + [ " ]  
  APPEND BLANK
```

```
  REPLACE Content WITH lineh,;  
    Pagenum WITH pagec  
  workline = workline + 1
```

ENDDO

RETURN

OTHERWISE

* ---Top line of box.

```
lineh = [ @ ] + STR(tr, 2, 0) + [ , ] + ;  
  STR(tc, 2, 0) + [ SAY " ] +;  
  tlcner + [ " + REPL(CHR( ) ) + ;  
  STR(ASC(across), 3, 0) + [ ], ) +;  
  STR(bc - tc - 1, 3) + [ ] + " ] ;  
  + trcner + [ " ]
```

APPEND BLANK

```
REPLACE Content WITH lineh,;  
  Pagenum WITH pagec
```

* ---Bottom line of box.

```
lineh = [ @ ] + STR(br, 2, 0) + [ , ] + ;  
  STR(tc, 2, 0) + [ SAY " ] +;  
  blcner + [ " + REPL(CHR( ) ) + ;  
  STR(ASC(across), 3, 0) + [ ], ) +;  
  STR(bc - tc - 1, 3) + [ ] + " ] +;  
  brcner + [ " ]
```

APPEND BLANK

```
REPLACE Content WITH lineh,;  
  Pagenum WITH pagec
```

* ---Insert the vertical lines.

```
workline = tr + 1  
DO WHILE workline < br  
  lineh = "@ " + STR(workline, 2, 0) ;  
  + ", " + STR(tc, 2, 0) + ;  
  [ SAY " ] + vert + [ " ]
```

APPEND BLANK

```
REPLACE Content WITH lineh,;  
  Pagenum WITH pagec
```

```
lineh = "@ " + STR(workline, 2, 0) ;  
  + ", " + STR(bc, 2, 0) + ;  
  [ SAY " ] + vert + [ " ]
```

APPEND BLANK

```
REPLACE Content WITH lineh,;  
  Pagenum WITH pagec
```

```
workline = workline + 1
```

ENDDO

ENDCASE

RETURN

* EOP: Boxutil.PRG

A Note on Style

Due to the column layout of dLetter, it is often necessary to break lines of code. When we do this, we place a semi-colon at the end of the line to indicate it is to be continued on the next line, like this:

```
REPLACE ALL field WITH ;  
field*1.1
```

dBase treats the semi-colon as a continuation character, and it is disregarded in the command line. Most of the lines of code we print will fit in the normal 80-column display, so you won't need to type in the semi-colons anyway.

But watch out for the fact that our desktop publishing software sometimes inserts its own line breaks for us – and we don't pick them all up. Lucky old PageMaker has never had to program in dBase, so it doesn't know to put the semi-colon in when it breaks a line. Be warned, and keep an eye out for these ones!



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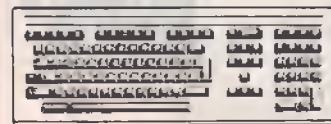
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X18052 (Excluding RAM). **\$194**



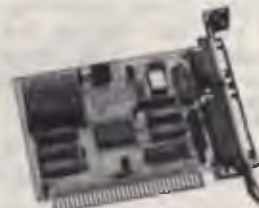
FLOPPY DISK DRIVE CONTROLLER CARD

These cards will control up to 2 or 4 double sided 360K IBM* compatible disk drives.
 X18005 (2 Drives)... **\$52**

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- Hercules compatible
- Interface to TTL monochrome monitor
- One Centronics parallel printer port
- 2K-Static RAM, 64K Dynamic RAM
- Display Mode: 720 dots x 348 lines

Cat. X18003 **\$139**

COLOUR GRAPHICS CARD

This card plugs straight into I/O slot and gives RGB or composite video in monochrome to a monitor.
 Colour graphics: 320 dots x 200 lines.
 Mono graphics: 640 dots x 200 lines.

Cat. X18002 **\$99**

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- 256K display RAM
- Handles monochrome, CGA Hercules and E.G.A.
- Paradise* compatible
- Up to 16 colours
- Standards: 320 x 200, 640 x 200, 640 x 348, and 720 x 348.

X18070 **\$330**

PRINTER CARD

This card features a parallel interface for Centronics printers. Included is printer data port, printer control port, and printer status port.

Cat. X18017 **\$29**

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- Programs 2716, 2732, 2732A, 2764, 2764A, 27128, 27128A, 27256, 27256A, 27512, 27512A, 27C64, 27C128, 27C256, 27C512
- Software set program voltage: 12.5, 21, 25
- Software: Write, read, verify, blank, check, copy, files, process.
- Intelligent programming method:
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 - 2764 24 sec. 27128 48 sec.
 - 27256 96 sec. 27512 300 sec.

X18022 **\$245**

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Cat. X18026 **\$49**

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 Cat. X18024 **\$55**



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The Biggest Computer Faire in the World

Bob Futcher gets us in the mood for Comdex Fall '88 . . .

ACCURATELY billed as the 'biggest computer trade faire in the world', this year's Comdex Fall exhibition in Las Vegas was the tenth anniversary of this, the most important computer show. It happens in November, and every year there is a contingent of Australians making the pilgrimage.

Last year there were in excess of 100,000 people milling about the 12 miles (no kidding!) of corridors. Not surprisingly, it was

common to hear an Aussie twang flavour the cosmopolitan hub-bub. There were importers of software on the lookout for new and (hopefully) marketable products; software developers hoping to give their new opus an airing. Hardware vendors had no shortage of inventive and promising gadgetry to consider – each machine claiming to be more powerful/fast/efficient than any other.

The theme this year was 'new business opportunities', and delegates were offered exposure to 1600 companies' trade displays (including 300 from overseas), as well as seminars and press conferences. A highlight was a panel discussion on 'The Next Decade, and the Last', featuring Canlon of Compaq, Gates of Microsoft, Kahn of Borland, amongst others. (Do they mean the NeXT decade? Steve Jobs may get the last laugh yet).

So we thought we'd give a brief pictorial overview of last year's conference, and we expect to report soon on the exciting innovations (hackneyed concepts but true!) gleaned in 1988. □



Las Vegas is built on desert, and has a minimum of drains. This is the preferred method of crossing a street after a downpour.



Dr. Zucker of Zuckerboard has a friendly arm wrestle with YC's own Zucker.



BlueStamp Airways used the Comdex venue to make the duel announcement of allowing laptops to be used on all flights and complementary pot plants to every second passenger.



You can always rely on the handful of Australian companies at Comdex to pull out all the nationalistic cliches. Tracker has been a consistent export earner for a number of years.

COMDEX



Australia could well take a (maple) leaf out of Canada's book. The Canadian Government block books areas such as this in the Hilton, and offers a package consisting of stand and equipment transport, at a nominal fee.



By the end of the show (when this shot was taken), the Press room had slowed to a busy hum. By contrast, the first day of the show saw this room alive with the frenzied activity of scores of reporters filing their initial Comdex reports.



Over one hundred thousand copies of the Show paper were printed and delivered to Comdex delegates' hotel rooms daily, in time for breakfast. Each issue was well over 100 pages.



The press room was well equipped with networked PCs, modems, free international phone lines and laser printers.



Ever on the lookout for an attention-getting stand, this company simulated a live TV news studio, where presenters constantly 'reported' on the product.

Borland's Sprint

The wordsmith's answer to 1-2-3?

A job this size typically requires three to four working days. If we start on Monday, June 30, we should be able to complete the job by Thursday, July 3. Our contractors will arrive at approximately 9:00 a.m. each day and will work until 4:00 p.m.

INSTRUCTIONS and RECOMMENDATIONS

Remove all wall hangings and fragile objects. We are not responsible for damages.

Plan to be without a kitchen for 5 days.

C:\WORK\SPRINT\PROPOSAL.SPR

[1 2 3 4 5 6 7]

BEGIN FOOTER

END FOOTER

October 24, 1988

NAME FIRSTNAME LASTNAME, TITLE

ADDRESS

CITY, STATE ZIP5 ZIP4

COUNTRY

C:\WORK\SPRINT\BIRDS.SPR

Page

3:45pm

Ln.3 of 22

Col.

RUMOURS OF the imminent launch of a word processor from Borland first reached me rather over a year ago. The new program, it was said, would be able to move from top to bottom of a multi-megabyte file in the twinkling of an eye, would emulate the controls of any of the major word processors and could be totally reconfigured to suit the needs of even the most demanding of users. Being an extremely demanding user with the most exacting of needs, I was immediately interested.

But the rumours proved groundless and I began to think it was another case of vapourware. I persevered with WordStar Pro 4, with frequent bouts of dalliance with other programs, but I always returned to my first love – as regular readers of these articles will know, I have been unflagging in my devotion to WordStar.

However, Sprint is now with us, and, to anticipate my conclusion, it is without a doubt the finest word processor I have ever used and I have used just about every major and minor word processor on the Australian market in the course of the last couple of years. Sprint, in fact, has achieved what no other word processor has done: it has lured me away from

Keith McKay has finally found a word processor to replace his beloved WordStar!

WordStar once and for all and become my word processor of choice. And 'choice' has a very special meaning here: Sprint can be reconfigured to the extent that you can quite literally design your own word processor.

Sprint is distributed on 11 floppy disks, by no means an excessive number these days for a top end word processing package. The documentation runs to three paperback manuals, which are up to Borland's usual high standard of documentation, not withstanding a few typographical errors. (A word processor manual, of all publications, should be free of spelling mistakes – don't the authors use the program's own spelling checker?) It runs under MS/PC-DOS Version 2.0 or higher and requires at least 384 kilobytes of RAM. The manual claims that Sprint

can be run on a floppy disk only machine and no doubt this is true; but with all power word processors a hard disk is virtually essential, and Sprint is no exception. It also benefits, naturally enough, from a high clock speed: on the Engine, my elderly 4.77 MHz PC/XT, it is rather sluggish, while on my 10 MHz AT its performance is decidedly better

Installation

INSTALLING Sprint involves running the Set up program, which copies the program files to the hard disk and allows various selections to be made, such as choosing from a list of some 300 printers and specifying alternative user interfaces and conversion utilities. Fully configured – selecting all possible user interfaces and conversion utilities and installing two printers it occupies some two and a half megabytes of disk space. A more modest and reasonable configuration occupies slightly under two Mbytes; and dispensing with the Thesaurus, as I had to do on the Engine's undersized and already bulging hard disk, takes the requirement down to just over one Mbyte. A mouse can be used, although it is not a thing I have ever favoured.

There are three ways of using Sprint: you can select an alternative user interface and drive it as if it were WordPerfect, for example, or WordStar; you can use its own menu system; or you can redesign the whole program from scratch. I shall return to this feature later.

The alternative user interfaces probably offer no great benefit to the single user, but in an environment where standardisation is a problem, as it is in a lamentably large number of cases, everyone could be using Sprint masquerading as whatever word processor they were used to – the advantages here are obvious.

A slow feature of Sprint is the Spell Checker – being used to WordStar's outstandingly rapid and erudite spell checker, I have always found anything else disappointing. Sprint's is almost equally well-read, however, and includes a British dictionary, which relieves one of the trouble of teaching the program the correct spelling of words like 'utilise' and 'colour'.

The spelling checker can also be set up to beep at misspelled or unknown words

WORD PROCESSOR

as you type (and the tone of the beep can be changed, of course – there's virtually nothing in Sprint that can't be). Dictionaries for Spanish, French, German and other languages are available.

Swap files

I SUSPECT that Sprint's Swap File contributes somewhat to the delay in loading and saving unusually large files: Sprint does not make backup files as such but maintains a swap file containing a copy of all open files, so that material can be recovered if there is a power failure or other mishap. At least two files must therefore be written to disk when material is saved:

the file itself and the copy held in the swap file. During editing, the swap file is updated every 3 seconds, although the default can be changed to a maximum of 60 seconds.

If any mishap does occur and the machine has to be rebooted without a graceful exit from Sprint, the user is asked whether to 'recover the last session' the next time Sprint is loaded. If the answer is 'yes', Sprint resuscitates the last active files from the swap file. I had personal experience of this feature when I accidentally pressed the Print Screen key with the printer switched off, which resulted in a hung computer. I should, of course, simply

have switched the printer on and let it do its thing, but for some reason (gin, quite possibly), the mind was disengaged and I unthinkingly rebooted.

However, when I loaded Sprint and agreed with it that the last session should most certainly be recovered, I was taken back to the file I had been working on with not a single character lost.

Sprint's editing screen is clean and uncluttered, showing a Status Line at the bottom which gives the name of the active file, the cursor position, the time and the current mode (Insert, Overtyping, Column and so on), as well as functioning as a command and prompt line. The Status



Line can be disabled to give an extra line for text display, but in a program which allows multiple file editing this is not a good idea. A Ruler Line is shown at the top of the first screen and redisplayed if any changes are made to tab or margin settings. Text can be displayed ragged right, right justified or in various other formats depending on the settings in the Ruler Line, and is reformatted automati-

cally if any additions or deletions are made or if tabs or margins are changed.

The *de facto* standard help key, F1, brings up Sprint's help screens, which are sufficiently detailed that the manual could be dispensed with for all but the more arcane features. One or two of the entries, however, are stricken with minor bugs - 'Starting Sprint' brings up help on 'Scrolling', for example, and the 'Quitting' entry

brings up help on 'Jump to Line'. This is a surprising defect in such an otherwise well polished program, and it is hard to understand how it has survived Beta testing.

Search and Replace

Search and Replace is the only Sprint Command I can find fault with. This command is executed either by pressing Alt-E to bring up the Edit menu and then invoking the Search menu, or by using the WordStar key combination Ctrl-OA. However, the direction of search depends on the setting in the Search menu, which means that Ctrl-OA cannot be used to carry out a backward Search and Replace if Forward has been set, and *vice versa* - it is necessary first to bring up the Search menu and change direction.

The Utilities menu includes the useful DOS Command option, which, given enough memory, allows you to leave Sprint temporarily and perform other tasks or run other programs. This menu also gives access to the Thesaurus, which contains some 240,000 words, and the Sort option, which is used for sorting a block in ascending or descending alphabetical order.

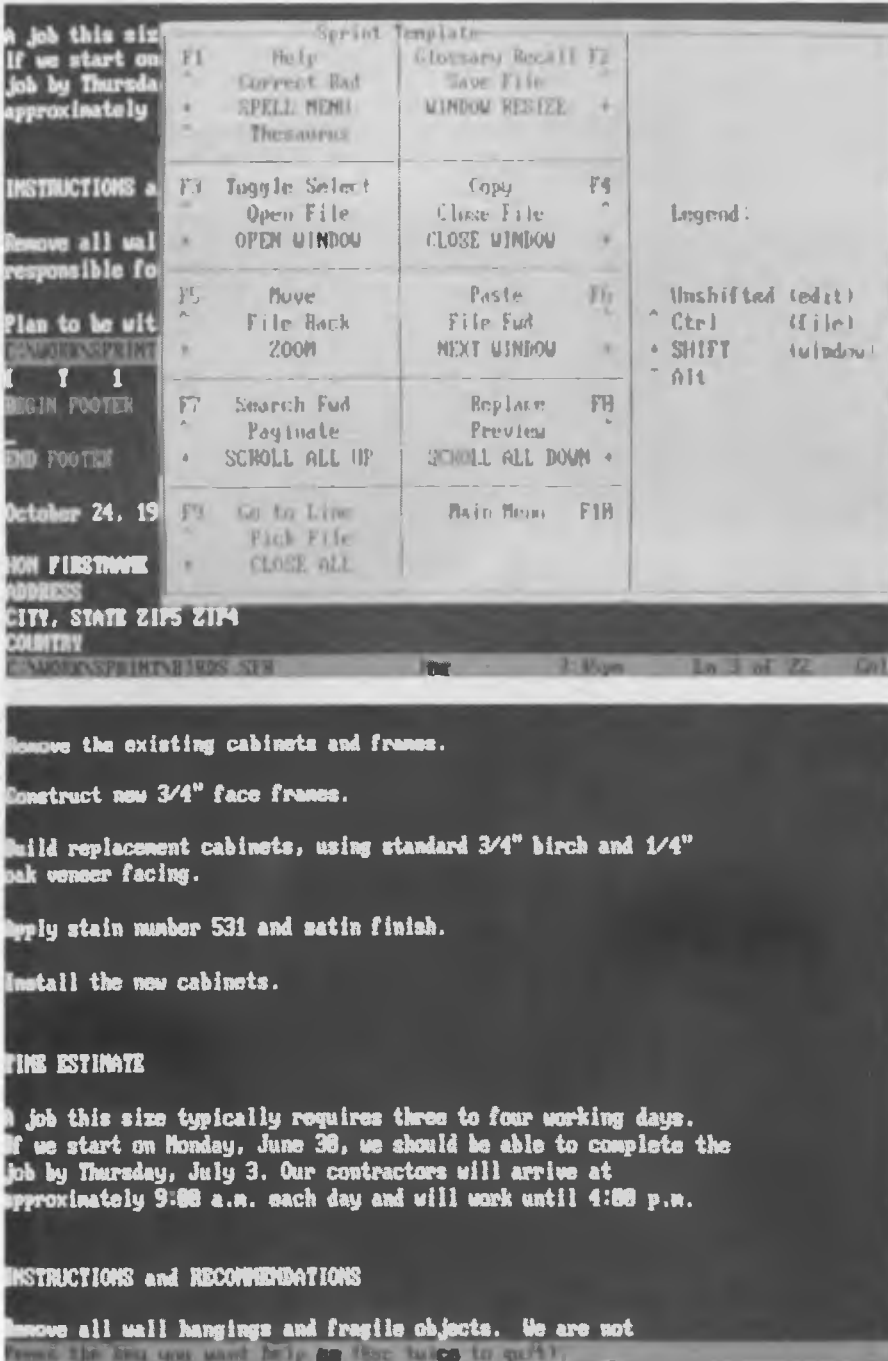
The powerful Index feature automatically creates an index at the end of a file, optionally including reference words, keywords and cross references, as well as page ranges (entries such as Roast Duck, Use of in Early Hittite Cuisine - pages 34-56).

Sprint has full support for footnotes and endnotes, either automatically numbered or flagged with asterisks.

Considerations of space preclude any extensive treatment of the Merge feature - suffice it to say that it is everything you would expect in a fully featured word processor. Given Sprint's scope for reconfiguration, it has the potential for becoming as powerful and versatile as you want.

Redesigning Sprint

HOWEVER, the most interesting macros are those which allow you to redesign Sprint altogether - Sprint itself really consists of a set of editor macros, and the program can be reconfigured quickly and easily by tampering with them. On one of the distribution disks, there is a file called SPMSOURCE.ARC, which contains the source code for Sprint's editor macros (the code is compressed and must be decompressed using the UNPACK program, which is supplied on the same disk). These macros are written in the Sprint macro language, which bears a certain similarity to C in its syntax.



To take a simple example, I decided at one point that the command to open a file was not to my liking (Alt-F to bring up the Files menu and O to open a file); and the default short cut key, Ctrl-F3, is not easily reached with one hand on an AT keyboard I therefore decided to change it.

I opened a file called NEWKEYS.SPM and loaded SP.SPM into that file, giving me a second copy of Sprint's macro definitions to play with and leaving the original file intact in case I should do something disastrous by mistake. I located the macro to open a file, which turned out to be called OpenFile, and then found the current definition of Alt-O, which was the key I wanted to use instead.

I replaced that definition with Openfile and saved the edited version of NEWKEYS.SPM. I then brought up the Utilities menu, selected Macros, invoked Load and the new key assignment was put in place. The new definition will remain as a default until I alter it again — the change is even reflected in the help screens.

Sprint's text formatting capacities bring it close to desktop publishing standards — the Sprint manual was prepared using

Sprint itself really consists of a set of editor macros.

Sprint itself and is a thoroughly professional piece of work as far as layout is concerned. In addition to full support for PostScript, there is a very wide variety of preset formatting styles. And just as the editor may be reconfigured, so may any of the formats: in addition to the macro language, Sprint has what amounts to a formatting language which allows customised alignment, page headings and footings, tables of contents and indexes, typestyles, fonts and so on

And just by the way, you can also design your own printer and screen drivers.

Conclusion

SPRINT is unique. I have been sharpening my superlatives in preparation for some sort of conclusion — I seldom have

the chance to use them in these articles — but I can best sum up my impressions by saying that I would not be at all surprised if Sprint became to the word processor what Lotus 1-2-3 until recently was to the spreadsheet: the best program of its kind, the only one worth considering for any serious work and the yardstick by which all others are judged.

Sprint represents excellent value for money, furthermore: any of the other top end word processors will cost substantially more, and will offer a good deal less in terms of power and flexibility. If you're looking for a word processor, buy Sprint. Even if you've already got one, still buy Sprint! □

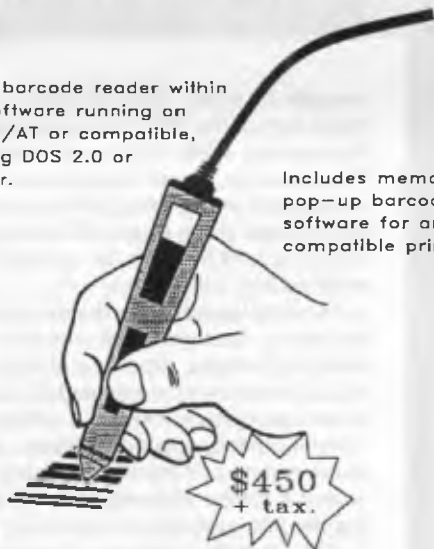
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■ Other benefits

Here's just a few: Operator overloading, overloading function names, default arguments to functions and better type checking.

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Graphics software for the Amiga

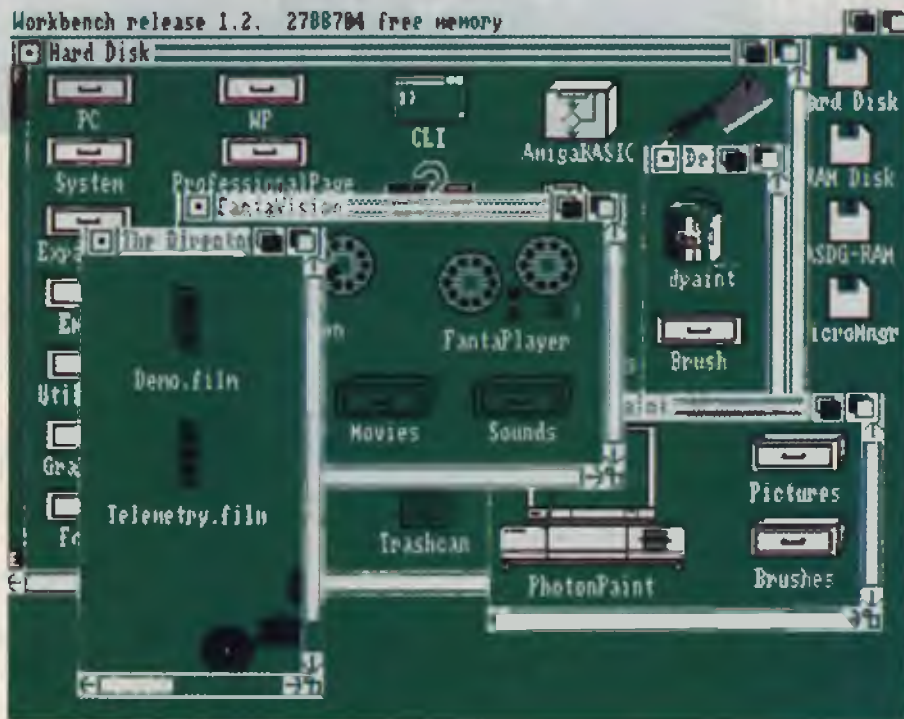
According to Gregg Faulkner, Commodore Amiga owners are faced with a real problem in selecting graphics software – an embarrassment of riches!

There are so many good graphics packages now available for the Amiga that making the right choice is not easy. The compensation is that even the very worst graphics package on the Amiga is 'right up there' with the better ones on other machines.

So what makes the Amiga such a dynamite graphics machine? Well, for starters, there is the choice of four basic screen resolution modes: 320 x 200 (32 colours),

320 x 400 (32 colours), 640 x 200 (16 colours) and 640 x 400 (16 colours) These are the stock-standard modes and together they provide a fair amount of flexibility, but wait

There are several extra modes which are now commonly used by all sorts of Amiga software. HAM (Hold And Modify) mode is now supported by a number of graphics and digitising packages. HAM mode allows all 4,096 colours on screen simulta-



The graphics accompanying this article were produced with Deluxe PhotoLab.



neously in either 320 x 200 or 320 x 400 resolution. Why the heck would anyone want to use 4,096 colours, you might ask. The answer is, you probably wouldn't. But HAM mode allows very subtle variation of colours and tones to provide shading and texturing which computer graphics have sadly lacked, until now.

In Australia, we are fortunate in that our television system (and therefore our Amiga monitors), provide a greater number of lines down the screen than does the American system. Britain, Germany and several other European countries use the same system as Australia and many of the recent software releases are now catering for the PAL system, as it is known

PAL capable software increases our screen resolutions to 320 x 256, 320 x 512, 640 x 256 and 640 x 512, respectively. That's a nice little bit extra, and there's more!

A mode called HalfBrite doubles the number of available colours in each of the 'standard' (or PAL) modes to permit up to



64 colours at a time. Most of the new graphics packages permit a process called Overscan which can again increase the size of the display. The maximum screen size currently supported is somewhere about 672 x 512. And that's still not the end of it!

Some of the better paint packages permit the 'canvas' to be greater than screen size, so the screen becomes a 'window' onto the canvas. In this way it is quite easy to produce images which are, for example, one screen high by six or more screens wide – super-ultra-panavision!

Paint packages

So what are these new, you beaut, Sknockout paint packages. For a year or so now the pace-setter has been Deluxe Paint II. The usual question asked of any other package was 'Is it as good as Deluxe Paint II?' More often than not the answer was 'No!'. Deluxe Paint II is a very good general purpose paint package. It supports the standard screen resolutions and



permits the 'page' size to be extended well beyond screen limits. Overscan or 'full video' is also supported, permitting a maximum screen of 672 x 444 pixels.

DPaint II (the name by which it is generally referred to) permits the use of 32 colours in lower resolution modes and 16 colours in interlace modes. The 'brush' capabilities of DPaint II are probably the most extensive of any paint package to date, permitting sizing, re-colouring, flipping, rotation around all three planes and perspective construction. The colour palette is easy to use, convenient, and supports gradient fills, colour cycling with multiple cycles and automatic colour scaling between chosen colours.

DPaint II allows any of the multitude of fonts now available to be imported and used. Combining the variety of fonts with the power of the brush facility permits some outstanding text presentations. All in all, DPaint II still hold up very well against even much newer packages.

Photolab

The newest package from Electronic Arts, the publishers of DPaint II, is Deluxe Photolab. Users of DPaint II will feel very comfortable with the controls of DPhotolab; as you might expect, there is a lot of similarity. DPhotolab is a HAM paint package – it is capable of producing images using all 4,096 colours simultaneously – and some of the specimen images supplied with the package are stunning.

DPhotolab lacks the perspective functions of DPaint II but almost all of the other functions are carried over to this new package. The colour palette selection process is very effective, making production of a gradual range of tones very easy and fast. The ability to 'blend' and 'wash' colours is magic. Now I can produce clouds which look like clouds, rather than curvy white bricks hanging ominously in the sky. DPhotolab contains, on the program disk, as well as the DPhotolab program itself, a program called Posters which permits you to print any standard IFF Amiga image in just about any size up to about three metres square. Let me repeat, three metres square – heaven help our printer ribbons and the ink supply for our ink-jet printers!

Another program on the DPhotolab disk is Colors. This program allows you to load an IFF standard image and then modify the image in a whole host of ways, from

pixellation (tiling) to modifying the palette and many more. All in all, a very nice set of programs.

Photon Paint is another strong contender in the field of graphics packages. Like DPhotolab, Photon Paint is a HAM mode package. It uses some of the nicest menu structures I've seen on the Amiga, and is a pleasure to drive.

*In the education sphere,
Amiga graphics can be
recorded on tape to
provide colourful
illustrations of just about
any subject matter,
without the need to lug
the computer around.*

One of the biggest features of Photon Paint is its ability to 'wrap' a 'brush' around three-dimensional objects. Not only does this enable you to produce solid looking objects on screen but it has a built-in shading function which permits you to specify the direction and intensity of a light source. The package then adjusts the shading on the three-dimensional object to suit – brilliant!

Photon Paint also permits a 'brush' to have varying degrees of transparency. A brush can then be placed in front of another object and the background will show through to a controlled degree. Sounds a bit weird, but the end result is really something. Great for ghosts and vampires and things that go bump in the night!

There are quite a number of other good quality paint packages available for the Amiga, Express Paint, Digi-Paint and Aegis Images, to name a few. Each pack-

age has its individual advantages and shortcomings. The best way to evaluate the packages before you buy is to ask other Amiga users. What I feel is vital, you might not regard as particularly important, and *vice versa*. If you can get a range of opinions it will help.

Applications

Okay, so there are plenty of good paint packages. What are they useful for? I'm really glad you asked because I'm dying to tell you. This is where the Amiga really stands out from the crowd.

The Amiga computer handles its graphics display using a 100 per cent television compatible signal. This means that it is simple to feed the video output from an Amiga directly into a standard television, or video cassette recorder, or monitor, or video projector for large displays. Amiga graphics can in this way be used to provide colourful, dynamic labels and title screens for your videos.

In the education sphere, Amiga graphics can be recorded on tape to provide colourful illustrations of just about any subject matter, without the need to lug the computer around. In business, presentation graphics can be taped in advance and replayed as required.

With the addition of a Genlock (a device which combines the computer image with a 'normal' video image) Amiga graphics can be used to highlight parts of a scene, add labels to training video material, provide animated action within a 'real' scene, and on and on.

A number of packages, such as The Director, Animation Effects and Digi-FX, have been released in recent months. These packages permit you to create dynamic, even animated, graphic presentations based around standard Amiga IFF images. Powerful stuff indeed!

Add to all these packages the specialist Character Generation software like TV*TEXT and Pro Video CGI and the Amiga becomes a very cost-effective imaging powerhouse. When you realise that an Amiga 2000 with a 40 megabyte hard disk, three Mbytes of RAM and a good range of graphics software can be bought for under \$6,000 retail it becomes very attractive to businesses, educational institutions, and even the serious home enthusiasts amongst us. In terms of big bangs for your bucks, the Amiga can't be beaten.

Know of any good Amiga applications? If so, write and tell us about them.

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Powerhouse Amigas

Brew your own beer or design a swimming costume; furnish a room or test your office skills – Robert Thirlwell has been interacting with the Powerhouse Museum and its Amigas.

(with the possible exception of the Ontario Science Centre) to use Amigas for interactive displays. They've found the Amiga well-suited to the work, with an in-built graphics co-processors that display up to 4096 colours and can be programmed for animation. The machines also have the advantage of being very cost-effective when compared with other systems.

THE MUSEUM of Applied Arts and Sciences in Sydney incorporates the Mint and Hyde Park Barracks, the Museum on the Move, the Observatory and the new Powerhouse Museum near Darling Harbour. A small team headed by Systems Officer Kathy La Fontaine is responsible for creating interactive displays using Amiga 500 computers as a base. Programmer Andrew Roberts uses C for animation effects and graphic artist Kate Lamerton does the artwork using Deluxe Paint II. In September they had eight interactive displays installed within the museum complex, and they were working on three exhibits for the new Space Exhibition.

According to La Fontaine, the Powerhouse is the first museum in the world



Figure 1. Design a teapot: after selecting a suitable pot body, you are given a choice of handles. The images were digitized using DigiView, then cleaned up with Deluxe Paint on an Amiga 500.



Figure 2. One of the interactive displays at the Powerhouse gives visitors the chance to try out their dress sense, and learn about historical changes in fashion at the same time.

Trackballs and Buttons

There are two different interactive systems in use at the Powerhouse: IBM-based touch-screen systems, and Amiga-based animated graphics displays. The IBM-based interactives are located in the entrance foyer, where they provide visitors with information about the various exhibition areas. Other touch-screens (some with video input as well) are located at 'The Information Machine'. The Amiga-



Figure 3. Some of the interactives are so popular, there is stiff competition for access. This one is described by Ms La Fontaine as being 'almost perfect'. It allows the user to design a swimming costume through choosing between different body shapes, colours, costume shapes, and costume patterns, often with hilarious results.

based interactives are located within various sections of the museum as supplements to existing material in the museum's vast collection. They have a control panel beneath the screen with a trackball (from computer games machines) and three touch-sensitive buttons labeled Reset, Select, and Continue. The user moves the trackball to place the cursor over a menu selection, and presses select, similar to using a mouse.



Figure 4. Brewing beer gives the user the chance to select different amounts of hops and malt, temperature levels etc, and gives feedback on the results. The display uses cycle animation to make the brewers lips move, and to assist the flow of froth.

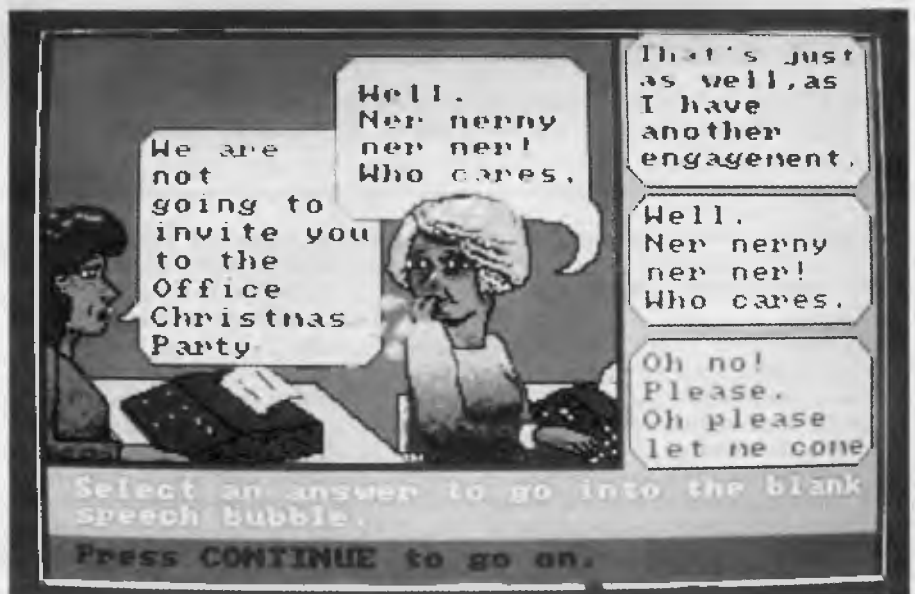


Figure 5. This interactive display assesses the user's potential for various positions in an office organization. Cycle animation is used effectively with the oral expressions in this frame.

INTERACTIVE AMIGAS



Figure 6. Kathy La Fontaine, Systems Officer, Interactives, heads the small team that uses Amiga 500 computers to put together displays at the Powerhouse Museum.

The controls have to be tough, since they have to withstand thousands of grubby fingers and the occasional frustrated wallop.

The first Amiga interactives at the Powerhouse were installed in time for the opening in March 1988. These are located within the Style section of the museum, and they include Design a Teapot, Design a Garment and Furnish a Room. From the initial concept, Lamerton uses the Amiga to draw details using a combination of techniques.

Images are digitized and fed into the Amiga using DigiView, and Deluxe Paint II software is used to edit the images down to pixel level. Then Roberts supplies programmed animation effects to combine

images in an interesting way, and to impart movement to drawn figures. For example, in the Design a Teapot interactive, the selection of teapots glides smoothly past the viewer in a line-up. The displays are in full PAL overscan with 32 colours.

As La Fontaine pointed out, a good interactive display should aim at having its controls and hardware transparent to the user. The primary idea is to inform, entertain or both, and if the controls get in the way, the idea has failed. By the looks on the faces of some of the visitors using the interactives, the Powerhouse team has succeeded, particularly amongst children. In fact, competition can be fierce for some of the more popular displays.

Within the Brewing and Pubs section of

the museum is an interactive display in which visitors can try their hand at brewing, experimenting with various amounts of hops and malt, and trying out different temperatures at which to ferment the beer. If you get it wrong, like I did, you are told that your brew tastes awful. (This display is the most popular with the male museum staff).

The Australian Communities interactive presents statistics about immigration to Australia. The user selects a country and a date, then the program displays a picture depicting life at that place and time, with accompanying statistics. It then makes a graphic comparison of the percentage of people living in Australia who were born in the country at that time.

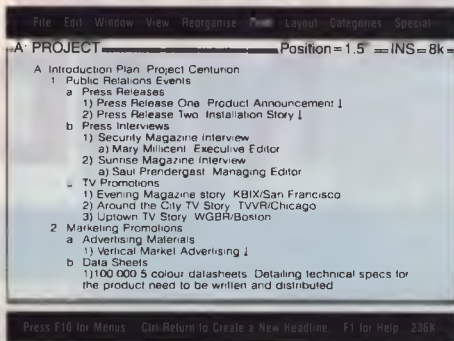
Mind those stairs!

Going Places is a recent installation, in which the user can experience what it is like for some disadvantaged people to find their way around using public transport. You can be an old man, a woman with two kids, a man in a wheelchair, or a woman who cannot speak English. The woman who can't speak English appears on screen looking like, in La Fontaine's words, 'A walking human mop'. I followed the movements of the old man, who was trying to make it to the hospital using a bus and a train. I was shown a map, and at various places I was confronted with decisions, such as 'go north', 'read the sign' or 'purchase a train ticket'. I made the mistake of attempting the stairs at the railway station and fell down dead.

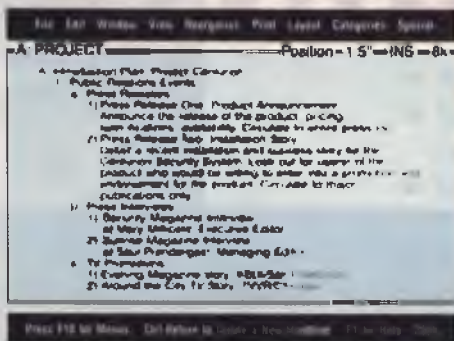
On the programming side of things, Roberts has written an animation scripting program to put together a number of modules to cover movement of objects around on the screen, user responses through the trackball and console buttons, generating bar graphs and so on. Animation is made possible by cycling sets of colours to give the illusion of movement. Roberts is very happy with the Amiga, although he said there was a steep learning curve, but once the machine is mastered, it's a very powerful tool. All the programs are run from RAM (the computers have Spirit boards installed to give a total of two and a half megabytes of RAM) to give speed and to save wear on disk drives.

The interactives team began in mid '86 (with several other members) with their first Amiga computer. In the space of two and a half years they have progressed a long way. □

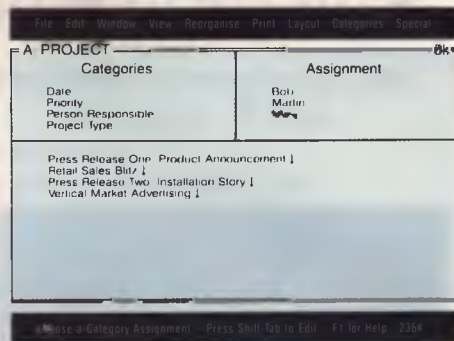
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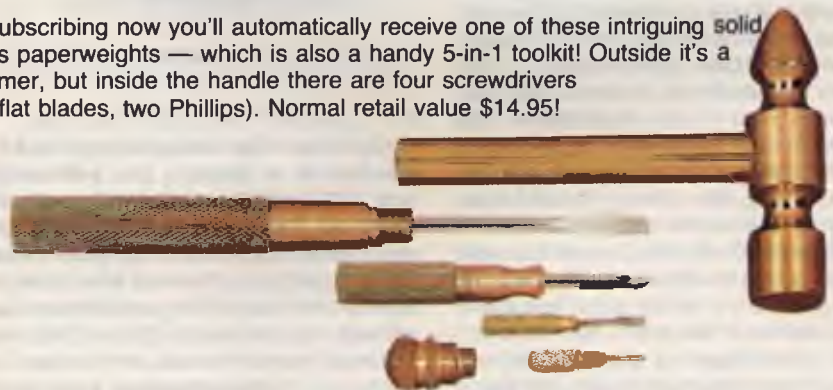
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30th, 1989**





MacDrafting with MacDraw II

I'VE JUST come out of a lengthy period of house renovations, where all my plans were created on MacDraft which was a sort of pirated-plus version of Apple's original MacDraw. Mark Cutter wrote both programs, but with MacDraft he was able to make many of the improvements that Apple stomped on in-house.

Now Claris has taken over all Apple's rights to MacDraw (and MacWrite, MacProject and MacPaint). It claims that there has been a lot of real effort thrown into upgrading the old staples. Apple tended to concentrate on hardware and forgot to do much with the software, much to the chagrin of Mac enthusiasts.

But under Claris, MacDraw II has now moved substantially ahead of both the original MacDraw (which is still being sold by Claris) and MacDraft, but strangely some of the bugs and annoying idiosyncrasies have remained unfixed, and also a couple of new ones have been added. Claris also claims that the model II is a 'more precise version' and that it is '3 to 10 times faster'. The precision claim is genuine, but I'm darned if I can see much difference in the speed – or why it matters.

Stewart Fist has just raised his roof . . . then Claris released a renovation!

Claris has other extensions planned for MacDraw II. It has gone into partnership with CASE (Computer Aided Systems for Engineers), of Cincinnati, which has ten years experience in the computer aided design (Cad) area. This is a joint effort to extend MacDraw II into a full-flown Cad package, to be called Claris CAD and released towards the end of this year.

Claris is maintaining both versions of MacDraw and introducing Claris CAD, as well. We are perhaps seeing here the beginning of a new form of software marketing, where a whole range of complexity levels are simultaneously available. You can buy in at the original MacDraw base-

level, knowing that if you need extra features they are always available one step up, and that you haven't wasted your learning time or your work.

So, in keeping with the spirit of these changes, this is a hybrid review – a new look at MacDraw II in comparison with the old MacDraw and MacDraft, plus some mention of the extras that will soon be available with Claris CAD (which was shown to me recently in an alpha version).

MacDraw II

I GUESS the first thing that you notice about MacDraw II is that it looks, if anything, easier to use than the old MacDraw/MacDraft. You've still got a palette of nine tools down the left hand side of the screen, and a straight-forward menu bar across the top with everything you would expect in the way of menus. But through better interface design there are now a lot more functions, with less clutter.

There's one noticeable difference to the menu bar – the Fill and Pen (pattern) selections have gone; they have been replaced by a horizontal single-line palette directly under the bar and spanning

across the screen from side to side. There are actually more patterns available than you can see on the one screen line, so you've been given two horizontal scroll arrows, and on the outer sides of the arrows are two selection 'boxes'.

Click in the left box (immediately to the side of the left arrow) and you are then able to choose the 'shape-fill' pattern; click in the right box and you are able to choose the 'pen fill' pattern. This simple procedure has replaced two rather large menus in MacDraw, and one menu (plus option key) in MacDraft, and at the same time it has increased the range of patterns available by 50 per cent and allowed you to add colour selection. You can create your own fill designs and allocate colours using the same dialog.

MacDraw II has also allowed full selection of pen widths. There is still a standard

a brick wall, and with the line on the inside of the dimensions. This way, simple standard elongated boxes can be used to represent both the sides and the cavity of a double-brick wall. You can still do this with centred measurements, but you spend a lot of time adding extra inches to the automatic dimensioning to take the extra thickness into account.

Let's get the other items on my MacDraw II hate list out of the way... then we can get onto the good stuff!

For some reason when you shift-click to select more than one object in the screen, wherever they touch, the common handles disappear; two objects in contact look like one big object. Claris mention this idiosyncrasy in the manual which means that they knew about it months before the release date, but decided not to fix it - which makes it even more infuriating.

class as serious, not so much because of any absolute limitations (you can get around it), but because it demonstrates a cavalier attitude to users' problems.

Do you remember how to draw circles with MacDraw? You choose the oval tool, hold down the shift key, click and drag, and... abracadabra... you have a perfect circle! With MacDraw II you can do the same with the rectangle tool (to get squares), and with the line tool (to fix the line at 180, 135, 90 or 45 degrees only).

The problem with MacDraw II is that this shift-key process is erratic - mostly it works but sometimes it doesn't, and I can't figure out why. It seems to happen only after I've been making changes for a while, so it's probably due to some buffer area filling, or something... I hope that someone up top in Claris stomps heavily on whoever is responsible for letting the program loose without fixing this bug. Squares and circles are basic.

If you have already created a circle and then decide to increase it or decrease it in size, you are supposed to be able to select it, hold the shift down and then resize it using the handles in the normal way. But my circles always became oval when I tried this and my squares always became elongated rectangles. Back to the drawing board, Claris, you've got bugs at a basic level. These primary tools of drafting - squares, circles, lines, rectangles and ovals - *must* work every time.

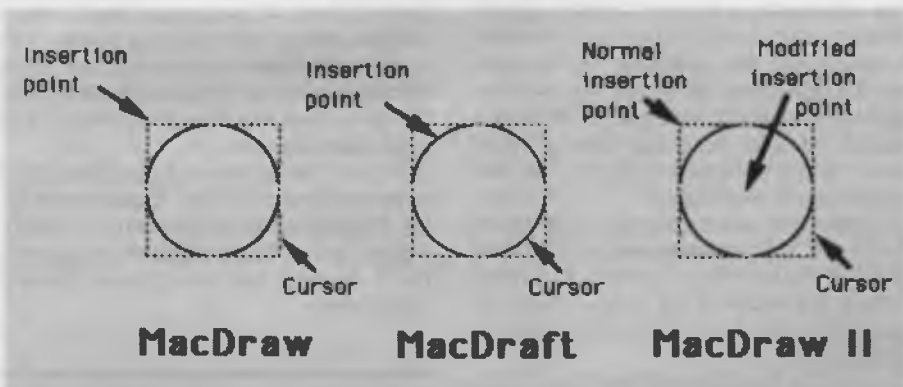


Figure 1. MacDraft treats circles as circles, with both the insertion point and the cursor positioned on the perimeter. MacDraw assumes the circle is a modified square, and positions accordingly. MacDraw II has the very useful 'method' of allowing the insertion point (for squares and circles) to be set at the centre.

menu selection, but you can add one customised size to this list, and this can apparently be any width you want - specified in points (72 = 1 inch), millimetres or inches.

There is one major deficiency in the pen choice, however. The old MacDraft allowed you to specify whether you wanted the thickness of the pen line to be centred (around the nominal dimensions), or whether the line should fall inside or outside the dimensions. MacDraw II hasn't incorporated this idea, so pen lines are always centred and this is a major loss in flexibility.

On house plans I always work with the pen-line set to represent the thickness of

Claris also hasn't fixed the problem of selection and movement of irregular polygons. This was a defect in the original MacDraw which Cutter fixed in MacDraft, but which is still in MacDraw II. The problem is a lack of consistency between the selection and movement of polygons and circles or rectangles. The latter two can be selected by clicking anywhere within the shape, and you can move either object by grasping it anywhere within the object space. With polygons you must click and move only on the edges - and with MacDraw II this requires very accurate positioning of the cursor.

The above are just annoyances and a lack of consistency, but this next defect I

More problems

BUT THE problems don't end here. When you've created these objects and try to move them around on the drawing, something very funny goes on as well. The original MacDraw objects move very smoothly and accurately, and in any direction, but MacDraw II objects have a definite predisposition for horizontal, vertical and 45 degree motion - even when you want to go at 30 degrees. You sometimes end up with your cursor nearly an inch away from the object, with the two going in quite different directions, and sometimes objects flip over horizontally or vertically like the pages in a book. Something is very wrong here.

And colour - wonderful colour. Claris has been making a big deal out of the availability of colour in MacDraw II in the press, but not in the reference manual. There are a few words jammed in here at the last moment about how fantastic colour is, but nothing to help you get colour up and running.

After hours of hunting around and

MACDRAW II

trying everything a dozen times, I finally worked out how to customise the pattern palette to give me the eight colours. Once you've done this, you won't have any further problems – but it would be nice if they told us how!

So far I've only talked about problems, and although these are plentiful and annoying, we have got to remember that this is a prime example of the dreaded Version 1.00 syndrome and, in addition, I'm using the program on a Mac II. Which is all a bit like kicking black cats under a ladder on Friday the 13th: you've got to expect trouble.

I don't want to over-emphasise these problems because you can always get around them somehow, and MacDraw II is so much better than the old MacDraw and MacDraft that it is worth using anyway. So now, the good bits.

Back to the drawing board, Claris, you've got bugs at a basic level.

Autoscrolling

FIRSTLY, MacDraw II has autoscrolling (Praise the Lord!). If you are attempting to move a bathtub into the bedroom and the plan is so large that the bathroom is off the top or side of the screen, the image will scroll automatically as soon as you get to the edge. This simple procedure makes MacDraw II feel like a very large continuous image, rather than a set of discrete pages. They copied this idea from MacDraft.

Secondly they've added a simple expansion and reduction facility. Your drawings can be reduced in size to only 3.12 per cent, or expanded in size to 3200 per cent in 2X jumps. The degree of 'accuracy possible' also changes in proportion to the magnification, so if you've got to position something very accurately on the plan you simply enlarge it, add the detail, then return to your working size.

Then there's layering which works very well in MacDraw II and is essential to any modern drawing program. Think of these as transparent cells over the drawing. You can add any number of layers over the original, and you can change the order of

layers, prevent some from showing, isolate them so that they only show alone and so on. You can also cut and paste between layers, and group and ungroup objects within a layer or between layers. You've got full flexibility here.

Then you've got macros. Claris doesn't call them macros (that sounds too much like IBM) but MacDraw II has an excellent macro-recording facility that lets you work with different 'views' of your drawing, and handles the library. Say you are working on a large house floor plan, and you know that you will constantly want to jump back to a more detailed plan of the kitchen, with the plumbing details included. You can create a macro 'view' so that this is only a one-click operation.

On the 'wide-shot' (as they say in the film industry), you might only have one layer active – usually the basic floor plan of the house. To create the view, you centre the kitchen area on the screen, click on the enlargement button to blow up the kitchen area to, say, 200 per cent, then selectively add the plumbing layout using the Layout menu. Now that you have established what you want in this 'view', you select Set View from the Layout menu, give it a name through a dialog box, and the macro is recorded.

Anytime you want this view in the future (with the 200 per cent and the plumbing details) you only have to select it by name from the bottom of the Layout menu, or remember which one of the key combinations it is.

A similar procedure is used to record a library of useful objects. The library window appears to be nothing more than a large plan page, just like any other, into which objects are pasted using a preprogrammed macro. The menu command, Open As Library, lets you select an object by name, copy it into the clipboard, automatically resize it to suit the new scale, and paste it wherever you choose – again a one-click operation. It is very quick and very handy; and extremely simple in application.

There are a lot of other minor changes to procedures, such as setting the radius of the curves in the rounded-box tool; and there's now a really good rotation system (any degree you want); alignment that works easily; a good set of rulers with metric and imperial measures, with a range of variable ruler divisions which give you the Autogrid parameters.

Autogrid allows you to establish positioning 'rules' so that objects can only be sized and positioned in modules of, say,

5 cm. With Autogrid on, and ruler divisions set to 5 cm, an object must be either 15 cm wide or 20 cm; it can't be in between.

The Show Size facility is superb. This is where MacDraft made the original MacDraw look sick when it first came out. With MacDraw II they have provided you with the *x* and *y* co-ordinates of the cursor, within a narrow bar at the bottom of the screen. As soon as you click to create an insertion point, the *x* and *y* figures revert to zeros; consequently, as you pull out a rectangle or extend a line, the size bar is feeding you accurate information about the actual dimensions. The dimensions include any angle of rotation, and also both the diagonal ('true') and the horizontal ('projected') size of lines on an angle.

You can also auto-size your dimension arrows using the Line menu and customise your arrowheads and the patterns of dashed lines. If you group your dimensioning arrows and the object they refer to, future changes in size are immediately reflected in a change in the dimensions – the dimension variables remain 'hot' and reflect any changes.

You've also got enough control of text to make this into a mini-desktop publishing program, although this feature is nothing as good as Claris originally suggested. Don't imagine you are going to replace PageMaker.

MacDraw II is now a high-end drawing program, and its coming extension into Claris CAD will create a first-class low-end Cad program.

Despite the criticism, MacDraw II is now a high-end drawing program, and its coming extension into Claris CAD will create a first-class low-end Cad program.

The distinction in the classification is really only in the range of functions and controls available to the user. Some of these Cad extras are designed to speed up

the drawing process, some allow more customisation, so that the program has wider application and suits the idiosyncrasies of various people and companies, and some are designed to do things that weren't possible before with MacDraw II

Cad classification

CLARIS says that you can learn to use Claris CAD 'to 80 per cent of its capabilities within 45 minutes' (presumably from a MacDraw II base), instead of the usual 45 days with other Cad programs. Cad programs are notoriously difficult to learn, and they usually cost between \$3000 and \$30,000.

To qualify for the Cad classification, a program needs to have extras like the ability to draw perfect tangents, automatic perpendiculars, offsets, fillets and chamfers, and to allow new construction from the endpoints, or centres, intersection points and so on. It needs area and perimeter calculations, individual x and y scaling, and a variety of hatching. If you don't need any of these, be happy with MacDraw II (at least, version 1.01 which is scheduled to appear soon).

In fact, if you sit down and examine the various functions needed by a good Cad program you'll find that there are about 3000. So the problem arises: how to design an interface to allow this number of

selections without losing the value of the Mac? In keeping with the Apple tradition, Claris has been very clever in its interface design.

To the MacDraw concept of a single palette of 'tools' Claris has now added 'modifiers'. These three palettes aren't mutually exclusive, so the range of functions available is (the number of tools) \times (the number of methods) \times (the number of modifiers).

Actually, we have already got one 'method' box on MacDraw II. It is a little check box below the tool palette which allows you to select whether the insertion point for a square or circle should be at the perimeter or at the centre. Claris CAD will have a whole range of these 'method' boxes, arranged as a selection pallet.

The idea of modifiers is something new in our metaphorical concepts, and it includes some idea of 'fuzziness'. For instance, if you choose the line tool plus the 'perpendicular' modifier, and draw a line from an insertion point across the page to a line which crosses its path, on release of the mouse button the computer will immediately select this as the nearest line and find the point along it which will create a 90 degree angle. Your 'approximate' line will swing around automatically, until it satisfies the modifier's requirement of perpendicularity.

Similarly, if you've got the 'centre' modifier switched on when you draw a line, then the line will automatically attach itself to the exact centre of rotation of any circle or arc nearby. If the 'tangent' modifier is on, then the line will stick to the perimeter of the arc to create a perfect tangent.

You can change from one modifier to another in the process of drawing a line. You can start with centre modifier for the beginning of the line, then change to a tangent for the end. So the process is relatively intuitive and simple to use to do very complex things.

You can also ungroup (or explode) an object that wasn't grouped in the first place. If you draw a square then 'ungroup' it, you have four individual sides each of which can be moved or cut, independently.

The selection of lengths, width, radii and so on, can also come from the keyboard, so exact figures can be entered (with a selectable degree of precision) and the choice will be reflected on the screen. This is often simpler and easier than using the mouse.

Different menus

CLARIS CAD also makes use of a new 'pop out' form of menu attached to the tools pallet. In concept, these are identical to the pop-down 'roller blind' menus of the standard menu bar except that they roll out horizontally. It's a good way to get a variety of subtle variations in tool selection.

Lastly, Claris CAD will import MacDraw II, PICT, IGES and DXF files, so it can be used as part of a drafting network based around AutoCad. There's a translator program to handle the file exchange from IGES and DXF.

You'll be seeing a lot more of this program, I predict. Claris says that it will sell for around \$1500 which is about half that of any comparable program, and it will run on any Mac with one megabyte, so cheap drafting workstations are now possible. I'll do a full review as soon as I can get my hands on a beta copy. □

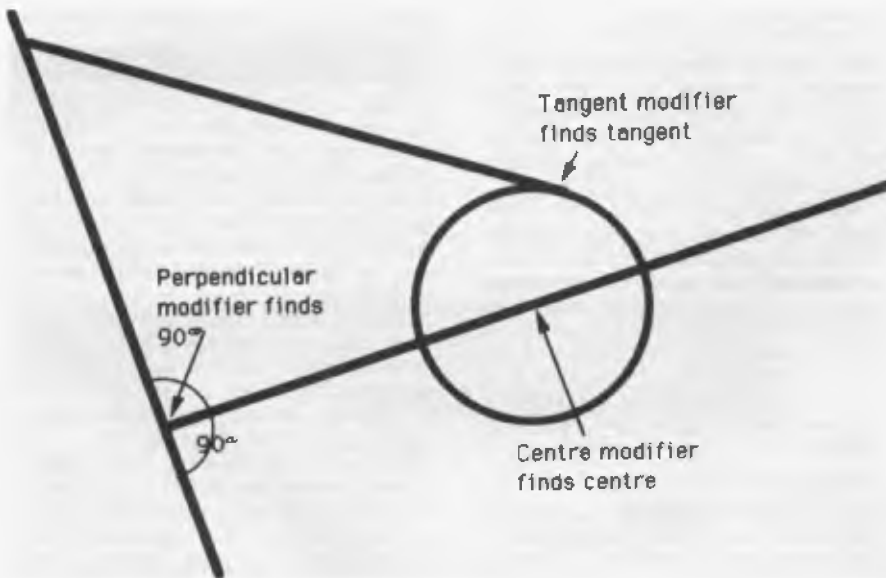


Figure 2. Claris CAD uses the concept of modifiers to automate the geometry of drafting. These modifiers also have a degree of 'fuzziness' which allows you to click near to the point of attachment, and the program makes the necessary adjustment.

Product Details

Product: MacDraw II V 1.0
 Distributor: Imagineering,
 77 Dunning Ave,
 Rosebery 2018 NSW (02) 697 8666
 Price: \$745 taxed

Clarifying Claris

BILL HOLTZMAN, Regional Manager for Claris in this part of the world, flew in last month on a whistle-stop tour of Australia showing Claris CAD to selected journalists and dealers – Stewart Fist spoke with him for YC –

There was a lot of PR bumf and industry rumours around at the time Claris was being split off. What is the real story behind Apple's formation of Claris?

There's no doubt that Apple had a major problem with software before Bill Campbell convinced them to slough-off Claris. Apple is a hardware company, and it isn't all that good at software – especially software support. A lot of users and dealers were complaining that Mac software wasn't being improved and introduced at the rate they had a right to expect.

On the other hand, the Apple-brand on software was cause for legitimate complaint from competitors like Microsoft and Ashton-Tate, so Claris was a compromise solution for them, too.

It is just over a year since Apple announced Claris and about six months since you started shipping product, so how has the wide world treated you away from the shade of the Apple tree?

Well, for a company that's only been going such a short time we're doing particularly well. We've been building up staff, and we've spent a lot of the time just upgrading the existing range of products – so now you've got MacWrite 5.0, MacDraw II, FileMaker II and MacProject II.

Claris now has a staff of 275, and over a hundred of these people are working full-time on Mac software development. We've also established a group in Dublin to do language translations for the non-English markets. There are 10 different language products either shipping or under development.

We've been buying in skills and products from outside also. We purchased an Apple II company (StyleWare – with GS Works and MultiScribe) that is very strong in educational software, another that is very successful in the Mac world (Nashoba Systems – with FileMaker), and we've also struck up a strategic alliance with CASE (Computer Aided Systems for Engineering) to develop Claris CAD.

FileMaker is an enormously successful product in the US with 42 per cent overall share of the market; MacWrite is the top Mac word processor in the under-\$200 field, and MacProject is the dominant project management product across all platforms – Mac and MS-DOS. To top

that off, MacDraw II is about to sweep the field with its Cad extensions.

What, or who, is making the difference as far as software development goes?

No doubt the most important new face at Claris is Yogen Dalal who is now in charge of product development. He's got a doctorate in computer science from Stanford, and he was one of the original team at Xerox PARC who designed the Xerox Star which, with its mouse and graphics interface, was the direct ancestor of the Macintosh.

He also had a hand in the design of Ethernet, which is now the industry standard for networking, and he wrote the inter-LAN protocol language TCP/IP, which has now become the de facto standard for internet communications – so he's one hell of a clever guy. Then he left to start a company called Metaphore, which makes a powerful graphics workstation, before coming to us.

Tell us something about the new Cad program.

When you look at the various sections of the marketplace, Apple has been very successful in the very technology-intensive and engineering-intensive companies. And when you take a close look at what is happening there, you find that the engineering fraternity loved their Macs for basic drawing, word processing and many other things, but they are doing most of their design work on the Sun workstations.

Now with the Mac II and the Mac Ix with the 68030 chip, it is possible to do everything they need, a lot easier, with the Mac. The parallel here is with desktop publishing where it used to take specialist skills to run a typesetting machine, but now anyone can do it with a Mac.

We thought we could do the same thing with Cad using the Mac interface, so that the learning curves and implementation times could be so much shorter and yet the program would fully integrate into this specialist world. So we started looking closer and closer and did a lot of research, and it became obvious to us that we should have a Cad product, and that this should be a 2-D, not a 3-D, product.

Why not 3-D?

Because in the architectural, mechanical-design and construction world most of the requirements are at the 2-D level for actual plans and drawing, as opposed to rendering and presenting images – which is the 3-D area.

So finally Claris got together with



CASE. We know the Mac interface better than anyone else and we have the distribution channels for the product CASE brought the specific Cad knowledge, routines, and understanding of what the Cad marketplace is.

In a relatively short time we were able to bring CASE's technology into – or rather, behind – our Mac interface. It has been a very fast development, and it looks and feels like a super version of MacDraw and it handles MacDraw files right up to AutoCad. So we will be able to ship Claris CAD by early December, and it really is an extension of MacDraw II.

Was it difficult to advance a program like a MacDraw that fast, that quickly?

Our solution was to do some high-tech decanting. The Cad world is very sophisticated, very demanding, and you have to be able to have very specific tasks for very specific situations. So the challenge becomes, 'How do you do this with the Macintosh?'

Do you end up having 3000 icons, all of which do different things, what do you do? It all becomes a mess.

So we had to design a different way to look at the selection process, and we ended up with what we call 'tools, methods, and modifiers'. Mac users will all be familiar with tools, but these new ideas are very difficult concepts to explain, but fortunately easy to show people. And, by using these three factors we are able to produce about 5000 choices without destroying the basic simplicity of the MacDraw screen.

Like other Mac approaches, the use of these tools is essentially intuitive once you've got the concepts, and so you'll find that anyone that can use MacDraw II will be able to make the transition to Claris CAD with very little trouble.

Normally, Cad users need prolonged training courses, but we will be releasing Claris CAD with only a HyperCad tutorial and there will be a short videotape available to explain the major features. The program is going to cost about \$A1500 so – it's going to bring Cad into a whole range of new areas that couldn't afford the programs or the workstations before.

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The Toshiba T3200 Laptop

Phil Grouse sat up in his sick bed to review the Toshiba T3200 – and to rewrite Stylus!

I WAS IN THE thick of a raging hack attack and could ill afford time out for non-computing activities. When the specialist informed me that I had bowel cancer, my first reaction was – that's a pain in the butt! Worse still, he booked me into hospital about two weeks later – just in time to miss PC-88 at Darling Harbour

Cancer, of course, is no joke. It's the one diagnosis that we all dread. One of my 'friends' sympathized at the time by remarking that mine was 'the worst type possible'. Great. But the facts were that

mine was fully operable, the operation was a complete success, and I am now convalescing, and with a scarcely interrupted hack attack thanks to a Toshiba T3200.

This latest hack attack is the rewriting of Stylus (a diagrammatic programming system, reviewed in YC, March '87) in C. Originally written in PL/I-86, it has become a very successful programmer's tool. But because of the deficiencies of the PL/I language, Stylus cannot support path

names, and has certain restrictions on file sizes. Nevertheless, we have a contract with a major manufacturer/distributor in Tokyo, and the Japanese buy as many in a month as Aussies do here in a year.

Some time ago I received a request from the Australian Defence Department to port Stylus to a mainframe environment. That was the signal to do Stylus

Two new Toshibas

THE RELEASE in October of two new Toshiba laptops brought the total in Toshiba's range to nine models. The new T1600 is a battery powered AT compatible, weighing only 5.2 kg, and the T5200 is a fast 20 MHz 80386 machine with two expansion slots

The T1600 is claimed to be the lightest AT laptop available in Australia. This weight saving is largely due to the lightweight, rechargeable battery packs, which plug in to the front of the machine. The dual packs can provide enough power for up to two hours of computing use. The T1600 is based around an 80C286 CPU,

running at 12 MHz or 6 MHz. It has a socket for an 80C287 co-processor, 1 Mbyte RAM expandable to 5 Mbyte, and a 20 Mbyte hard disk drive with an access time of 27 ms. It also has a 3 1/2 inch 1.44 Mbyte floppy drive.

The display on the T1600 is a large backlit liquid crystal display. It is EGA compatible and can display 640 x 400 pixels. As well, there is an EGA RGB monitor port at the rear of the machine, for attaching an external monitor. The keyboard has 86 keys, with dedicated cursor control keys, and 12 function keys. Standard interfaces include a parallel



The T1600 is based on an 80C286 CPU, switchable between 12 MHz and 6 MHz. It features a detachable screen, 1 Mbyte RAM expandable to 5, and a 20 Mbyte hard disk drive with an access time of 27 ms. Note the detachable battery packs that slot into the front.



The T5200 has 2 Mbyte RAM expandable to 8, a 100 Mbyte hard disk with an average access time of 25 ms, and a 1.44 Mbyte 3 1/2 inch floppy drive. The display is a high resolution gas plasma VGA, which will also display EGA.

port, two serial ports, a 5 1/4 inch floppy drive port, an expansion bus connector for an expansion chassis, and a numeric keypad port.

The T5200 has 2 Mbyte RAM expandable to 8 Mbyte, a 100 Mbyte hard disk with an average access time of 25 ms, and a 1.44 Mbyte 3 1/2 inch floppy drive. It has a 92 key keyboard with 12 function keys and a dedicated numeric keypad. The display is a high resolution gas plasma VGA, which will also display EGA. Standard interfaces include two serial ports, a parallel port which can double as a 5 1/2 inch floppy port, and a VGA external monitor port.

Also standard are a 16-bit full length slot and an 8-bit half length slot. With two expansion slots and two serial ports, this laptop can be configured to run as a file server for a local area network, and is described by Toshiba as 'The Network Executive's Laptop'.

Both machines can be used with an external monitor, and the built-in displays can be detached for this purpose. Prices for the two new machines are \$7999 for the T1600 and \$15,999 for the T5200, including tax.

'properly' in as portable a language as possible. So rather than do a mechanical conversion from PL/I to C, I decided to treat the original as a basis for the functional specifications for the new model, redesigning the logic from scratch.

Combined with an ever-growing wish list from the customer base, and my own

experience, Stylus II is rapidly becoming a major advance over the original. Of course it's being written using Stylus I and the XC source language translator. Hence the urgency of the hack attack.

I count myself fortunate for the many genuine friends that I have made over the past few years. To two, in particular, I owe

a great deal. One is a regular and popular writer for this magazine. I won't blow his cover, but his real name is Hamish Gregor (You needn't be Sherlock Holmes to figure that one out). Then there's Peter Feldtmann, a computer buff who has helped me out more times than I've had hot dinners.



Toshiba, computers and Wasinski . . .

Paul Zucker spoke with Stefan Wasinski, General Manager Of Toshiba's Australian Computer Products Division at the T1600 and T5200 launch . . .

BEFORE joining Toshiba, Wasinski (pronounced 'vershinskee') was National Sales and Marketing Manager with Imagineering

He works with PCs, but does he use one? Yes, Wasinski has a Toshiba T1200 portable with a 20 Mbyte hard disk and he uses a Toshiba P351 printer. His main software is WordPerfect Executive, the word processing package.

'I now have a copy of Lotus Agenda and I think that it will become my most useful productivity software', he said

Stefan takes his portable home regularly, as well as to most business meet-

ings - 'It's battery powered and completely self contained. I have access to exactly the same data wherever I go because it's the same machine. The 20 Mbyte hard disk holds all my data.'

What would your ideal PC be? I'm quite happy with the machine I have, but I might swap to the new T1600. I don't find a need for a colour screen.

Which reminds me of my first visit to Toshiba in Japan - anyone who'd been before took their PCs with them, especially the Americans. The Japanese in the head office use their PCs for everything. Sit down at a meeting and mention

something and all around the room people are going tap-tap - keying the words in. Next time I'll take mine and go tap-tap with everyone else.

Does Toshiba use Australia as a test market? Yes and no. Sometimes we see a machine here first, partly because the larger markets still have current machines in stock, and sometimes machines are launched first in other areas.

We don't necessarily get every model either - it depends on the needs of the marketplace. There's a desktop machine in the European range, the 80 Mbyte Model T3500, that we could have, but who needs another desktop on the Australian market?

At any time, Research and Development in Japan has 16 or so machines ready to go. That means they're ready to put to market whatever we need. I feel that in two years we'll see that up to 50 per cent of all desktop PCs will be portables. They'll be lighter, faster and with an option of colour screens.

How is he promoting Toshiba's computer products? We're not the biggest, but we're comfortably close. We're concerned about the high-end dealers at the moment because they're under a lot of pressure. Some of them have a complete staff turnover in less than a year. We now have a team which can make corporate presentations to assist the dealers, but we never sell directly.

Our current ads emphasise the practical side of our products, rather than being showy. We don't sponsor racing cars but our products are seen at the top of Mount Everest, at the South Pole, with the Flying Doctor, in education - the laptop is a mature product.

What about your years with Imagineering? It was like handling 30 lions at once. Great fun, tremendous people, stimulating, challenging! I got a very broad experience - in fact I got ten years of experience in two years. Jodee Rich was a unique person to work with and I developed some lasting friendships there.

Where would you like to work not for Toshiba? I like the pace and stimulation of the industry. I would be very happy working for Apple, Compaq, NEC - companies like that which also have excellent products. I admire the way a number of computer companies present themselves

Came the bad news of the impending hospitalic incarceration and both Hamish and Peter came to the rescue. Through Toshiba, Hamish managed to borrow one of its latest offerings - a T3200 laptop - for my use whilst in hospital.

Having archived all the necessary software tools, utilities and source code files

(using PKARC, a shareware program available from any self-respecting bulletin board), I transferred those archives to 13 cm (5 1/4 inch) disks from my Ferranti AT clone. Peter Feldtmann then came to the rescue by loaning me his Bondwell 8, another neat little laptop which features both 13 cm (5 1/4 inch) and 9 cm (3 1/2 inch)

drives (but alas no hard disk). The Bondwell turned my 13 cm (5 1/4 inch) archive files into the 9 cm (3 1/2 inch) disk format needed by the forthcoming Toshiba T3200. When the T3200 arrived, Hamish had already set up its hard disk with my archives, and it was rearing to go.

Now I should point out at this stage

LAPTOP

that not every hospital is likely to let a patient who has had major surgery turn the ward into a computer lab just one week after the operation. However I was fortunate in getting a private room at the Sydney Adventist Hospital. Without doubt, I would have to rank it as the perfect hospital environment. They put up with this strange computer boffin with his laptop and heaps of computer manuals. (Perhaps they were giving me status more as a specimen than as a patient?!)

The T3200

But enough of that. I want to tell you about the T3200. In brief, it's a dream Fast (12 MHz 80286), with a whacking great 40 megabyte voice coil hard disk and easy-to-read gas plasma display screen, it leaves my 8 Mhz AT clone at the starting gate. Losing it will be traumatic. It took Stylus II ahead in leaps and bounds. The only points I could criticise were the documentation, screen brightness and the absence of battery support.

Nevertheless, even in the absence of documentation (that turned up later), it was a breeze to get operational. Most of the time it sat smack on my lap, I being propped up in bed looking suitably sick with numerous tubes hanging from here and there. (Given the circumstances, I can't pretend that this is an exhaustive review.) The unit was swiped from an unsuspecting technician's desk at Toshiba, sans documentation, and replete with other people's files.

It was set up with MS-DOS 3.2, but some of the SYS files were missing, so I couldn't run it full pelt with a RAM drive. In spite of that, the speed of the hard disk made up for it. That disk is whisper quiet, has a formatted capacity of 42,434,560 bytes, and runs like the clappers. Golden Bow's vseek test reveals an average seek time of 40 ms over the entire disk. This would be less than 35 ms if only the first 20 Mbyte were in use. That compares with 60 ms for my regular AT clone with a 20 Mbyte disk.

At 8.6 kg it's no lightweight, but hefting by its retractable handle is no big deal. It measures 370 x 97 x 395 mm, and is genuinely comfortable on the lap. The hard disk has been 'hardened' against accidental knocks and bumps, even when it's in use. Nevertheless I treated it like a carton of eggs. After all, within a few days it contained precious new Stylus modules. A park utility (FDISKOFF) is normally invoked before powering down.

The plasma display simulates the EGA rather than act as a monochrome screen.

The keyboard

There's no skimping on the keyboard. It features a full numeric keypad, ten function keys and the regular typewriter key area. There is also a key labeled Fn. In conjunction with four other keys, this lets you change the screen font, change plasma resolution between 350 and 400 rows, and switch between the plasma display and an external monitor.

The keyboard is pleasant to use. No annoying clicks, and has a positive but light feel. However, if you choose, an external IBM-compatible AT keyboard can be plugged into a socket on the right side of the unit.

The key lock LED indicators are located in a display area just below the plasma display along with indicators for power, disk activity, and external CRT. I personally prefer the lock indicators to be located directly in their respective keytops, that way I'm less likely to be taken unaware by an inadvertently pressed Caps Lock. Others may not be so fussed. A removable write-on template is positioned just above the function keys.

This is the first time I've used a machine with a plasma display. It beats LCD hands down. Even the back-lit variety. The image is crisp, and can be read at any angle and in (almost) any lighting.

The plasma display simulates the EGA rather than act as a monochrome screen. Colours are mapped into one of four grey scales (from black to white). XCHAD is a memory resident utility which lets you change the mapping table. It is activated by Ctrl-SYS REQ.

For brightly lit environments you must sacrifice portability and hook up an EGA monitor to the T3200's rear. Pressing Fn-End switches the display signals to the EGA. Fn-Home restores the plasma display. In the hospital environment, the ambient lighting was fine, but when used near a sunny window the screen was easily swamped.

Located on the right hand side is a 9 cm (3 1/2 inch) 720 kilobyte floppy disk drive. It is compatible with the PS/2 range, and

many other laptops. An external 13 cm (5 1/4 inch) drive can be attached to a multipurpose port on the rear of the machine, if required. Parallel and serial ports are also provided.

Inside

Internally, the unit is driven by a 12 MHz 80286, and has 1 Mbyte of 16-bit RAM as standard, and can be upgraded to 4 Mbyte in the field with a piggy-back card. Naturally, it includes a battery-backed calendar clock. A small fan circulates air drawn from vents near the top of the unit. (That's nice, since it means that you can use it in bed without having the bedclothes blocking the vents. All very practical.)

In addition to XCHAD, an extended memory driver called EMM, and a setup program, the system is supplied with DOS 3.2. I managed to run a considerable range of software on it, and not one program fell over (apart from prototypes of Stylus II, that is).

On my 8 MHz AT clone, a complete remake of Stylus II takes just on 28 minutes if I do not use RAM disk. This involves numerous compilations using Computer Innovations C86, a library manager and Microsoft's LINK. It is both CPU and disk intensive. On the T3200 the job takes 14 minutes. That's exactly twice as fast, even though the clock rates are in the ratio of 2:3. The fast disk drive, and zero wait state memory probably account for the performance.

The documentation supplied subsequently was the T3200 Owner's Manual. It's probably a preliminary version since it is written in classical Jnglish. Toshiba will no doubt have it retranslated into Oz in due course. In spite of that, it provides most of what you need to know, and is well illustrated.

All in all, from an itinerant programmer's viewpoint, the T3200 is a superb machine. As I do a fair bit of international traveling, it is very tempting to add it to the collection. Given adequate sales of Stylus II, I may well do just that. Good one Toshiba. □

Product Details

Product: T3200
From: Toshiba Australia, 92 Talavera Rd, North Ryde 2113 NSW
(02) (02) 887 3322
Price: \$9690 taxed

Caveat emptor!

I WOULD HATE to hazard a guess as to how many people have bought computers or software packages, only to find that what they have purchased is totally unsuitable for their requirements. These are the items that one sees for sale in the classified sections of newspapers ('still in original packing'), relegated to the shelf, or otherwise condemned to a life of uselessness and inactivity.

Purchasing inappropriate equipment is something that most of us, at some time or another, have found ourselves guilty of. Unfortunately, in the majority of cases, the guilt for buying unsuitable items can lie only with the purchaser. After all, the salesperson will only sell you only what you agree to – if you agree to an unsuitable product, that is what you will get!

It rests solely upon the shoulders of the purchaser to ensure that the product bought is the best one for the need. With computers, peripherals and software, intending purchasers are to be counted among the lucky few in the great consumer quagmire. The wealth of information lying at our very fingertips is unmatched in any other industry. And, user groups abound, while magazines dedi-

The purchase of computer products represents a major investment for any user. Keir Wells offers advice for the potential purchaser . . .

cated to specific computers, areas of software applications and industry information are to be found at every newsagent.

With all these sources of help and information, the decision on the best purchase can be almost painless. Painless, that is, provided that care is taken and advice is heeded.

The first step

Whether you have decided to buy a computer, a modem, printer or software package, the first step is the most critical of all. You *must* draw up a detailed

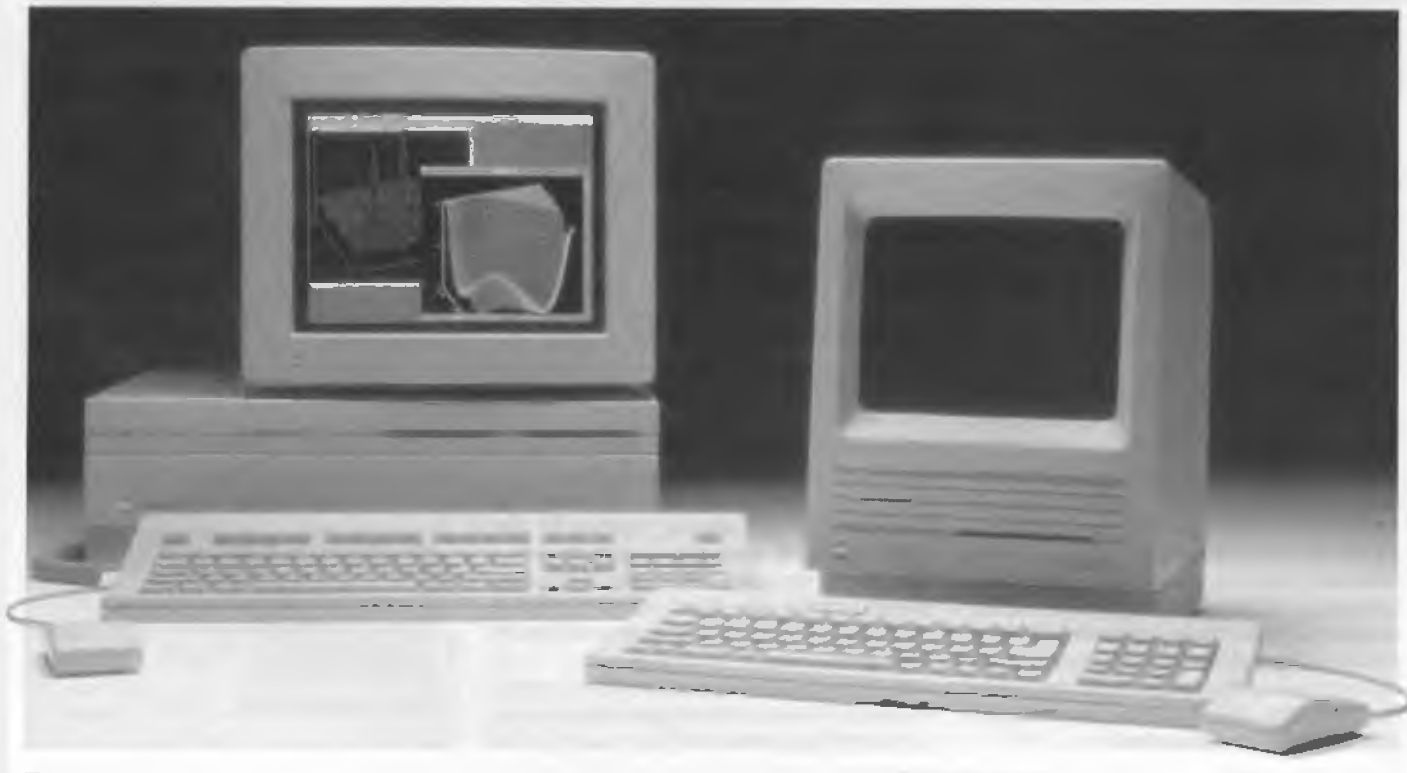
list of what you want the particular product to do. A lot of people tend to bypass this, the most important of steps

Let your imagination run rampant, think of what your requirements will be in two, or even three, years hence and not just for the next few months. Make the list detailed, thorough and complete. Go over it several times and then have your work colleagues or family go over it as well and add their comments. No matter how out of place something on the list might seem, *leave it there!* This one item could well end up being the factor upon which your decision might eventually rest

Sources of information

Once you have compiled the detailed list of items which would appear to suit your requirements, there are still several steps to follow in order to ensure the best possible buy. The first of these is to contact the main distributor, importer, dealer or manufacturer of each product and acquire from them certain items of important information –

1) The recommended retail price. This gives you a fair idea of what price your local dealer should be asking of you for



BUYING TIPS

the product, and allows you a fairly accurate basis upon which to base quotes from different dealers for the same product.

2) Any reviews of the product done by third parties. Reviews done by parties in no way connected with the product are an absolute boon and wherever possible should be obtained. I shall present more on what to look for in a review later in the article.

3) If you are purchasing a computer, then ask about any user groups in your area. User groups are the best, and sometimes the only, place where information about hardware and software can be obtained. (A complete list of Australian User Groups was published in YC, Oct. '88.)

4) Ask to be sent brochures. While the brochures may or may not be helpful in making a decision, they will at least help you focus your thoughts.

What to look for in a review

The most informative and useful reviews upon which to base any sort of an opinion are those written without the dreaded poison pen of a resentful or biased reviewing writer. A review that has bench test results and direct comparisons to other similar products are a buyer's best friend. They show exactly how the product will operate under certain given conditions. These are the reviews which have been written professionally and carefully and in general will offer the most helpful information.

Always read a review carefully and as you proceed, check off any corresponding items on your list of 'wants'. Try to get hold of as many reviews as possible, as one reviewer's opinion of a product might well differ from someone else's. One review might concentrate on several capabilities (or incapacities), of a product, while another could well concentrate on totally different aspects.

Brochures

Brochures produced by the manufacturers will generally provide a wealth of information to the prospective purchaser. It is obvious that a manufacturer is not going to prepare a product brochure and publicize what their product is *not* capable of doing. Keep this thought in mind when reading a brochure. Also, to check the items against your list in order to find out what the product does not offer and keep in mind that it might have useful features that you hadn't thought of yourself.

...but beware, the best seller may just have been the best advertised!

Salespeople

Computer stores seem to hold a magnetic influence over me. Every time I approach one I am compelled to enter the portals of technology and feast my eyes upon the beautiful sights therein. It is at this stage that one of the by-products of our age enters the scene – the salesperson!

It's unfortunate that retailers often seem to staff their computer section with people who were only last week selling shoes. One recently, I was in a well-known

electrical retailer and asked for a packet of disks which were on display in a locked display case.

The salesman quite happily unlocked the case and offered me a packet. Nowhere on the box could I find it stated whether they were double sided, double density or otherwise. When I asked if they were, he unhesitatingly replied in the affirmative. Being wary, and further prompted by my wife in the background doubtfully shaking her head, I then asked if they were double or single sided. Then the smile face was replaced by a look of concern and he admitted that he was not really up to date with this form of technology and hurried off to find a colleague who was able to inform me that they were indeed only single sided – *caveat emptor!*

Handing the packet back to the salesman, I walked off in absolute disgust, in my opinion of the majority of salespeople



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the printer work with the computer *before* you take it home! It is not enough to base your decision on reviews, brochures, books, salespitch and opinions because that is exactly what they all are – opinions of others.

In the majority of cases, once the money is handed over you have arrived at the point of no return, which brings me to one more point. Ask if there is a 'satisfaction period' before the purchase. That is, if you are not completely satisfied with what you have bought, is there a provision enabling you to return the goods for a purchase, or near purchase, price refund? Obviously, you will not often find this provision pertaining to software.

When buying a computer, always check if the software support is likely to cover your operating requirements. Find out if there are implementations of a particular programming language that you may wish to use, whether or not there is a good range of applications such as word processors, databases, spreadsheets and even games available for the computer you are contemplating buying.

If possible, speak to people who are currently using the product. Ask them if there are any limitations or other problems that you may have not as yet uncovered. Check to see if there were any bugs or glitches and also whether or not backup support from the retailer or manufacturer is readily forthcoming.

When buying software, always, always, *always* check that your current hardware settings is one hundred percent suitable. What's the use of buying a computer aided design package if the only hardcopy output device you have is a daisy wheel printer? Or a communications package that doesn't fully utilize your \$2000 modem? Even if you're buying a game, check that it will run with your type of graphics card.

What I have outlined above is quite literally only the tip of the iceberg. There are publications that have been written dealing *entirely* with purchasing of computers and software. I haven't even touched on subjects such as the possibility of modification to off-the-shelf software, or ensuring that there will be enough expansion slots in a PC to cater for your expansion requirements.

It may seem like a much more daunting task than previously thought, but the buying of computer products can be an interesting, enlightening and painless experience if only the purchaser would consider all avenues and, above all, be patient. □

forcefully reaffirmed.

On the other hand, I have often come across salespersons in the computer industry who have quite happily admitted that the product they were selling was not in the least suitable for my requirements, and have even suggested another retailer in the area and a product that was better suited to my needs. When dealing with a new retailer, prepare a question that you know the answer to, to test them – something along the lines of 'Can I use my son's C64 joystick with this clone?'

Once you have located a salesperson who appears to be fairly sincere, show them your list and ask for suggestions to fulfill your requirements. There is no need to tell them what you have already looked at, or what others. Let the salesperson give you a new perspective and show you products that you may not have even previously considered. Ask them questions about warranty periods and which of the products shown to you has been proven to be the best seller – but beware, the best seller may just have been the best advertised!

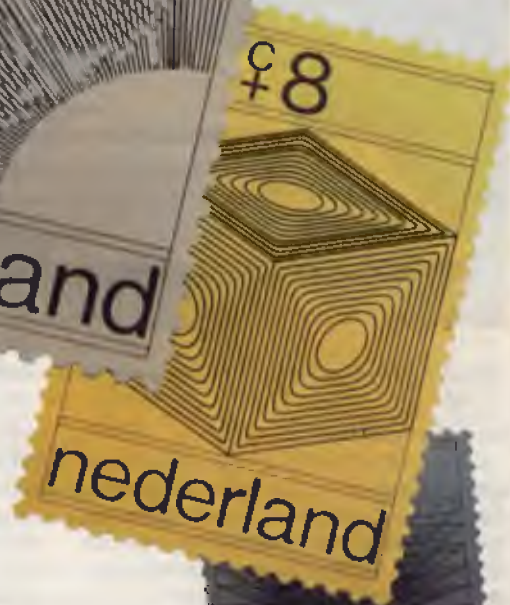
If you are buying software, one of the

most important questions to have answered is whether or not what you are buying is the latest version. Software houses are continually updating and revising their software packages as bugs become apparent, or they try to go one better than the competition. There are, unfortunately, too many software retailers who are quite prepared to sell an outdated version of a software package to any unsuspecting consumer.

This same problem applies to books related to software applications. Ensure that the book you are buying covers the version of the software product you have. On the subject of books, it is also a good idea to find out if there are any books dealing with the package.

Most large bookstores have impressive stocks of computer and software books; even if they don't have one on the topic you want, they are generally only too happy to pursue one for you.

Whether you're buying software or hardware *always* ask for a 'test drive' – especially if you are buying a system comprising components from different manufacturers. Take no one's word for it: see



A stamp of approval . . .

Philatelist Raymond Schuessler tells about bringing stamps and computers together . . .

THE AVALANCHE of computers is being matched by the release of postage stamps paying homage to computers and its effect upon industry and culture. It isn't often that a new topic springs upon the stamp scene and this one is already growing by leaps and bounds.

As the stamps proliferate, computer enthusiasts are joining the hobby and finding that the search and collection of such stamps can be as intriguing as the computers themselves. And computers can actually help one in collecting such stamps.

Israel was the first in 1964 to issue a computer stamp as part of a set to publicize that country's contribution to science. East Germany followed with one in 1966 as did Czechoslovakia with a Space Conquest set which included a stamp showing the binary code.

Anytime industrial progress was aided by computers, the nation issued a stamp in gratitude. Colombia issued a stamp with computer symbols to celebrate the First Data Processing Congress in 1967. Tunisia the following year publicized the introduction of electronic equipment into

The stamps shown with this article are all from the author's collection.

Computers on stamps

THE FIRST STAMP depicting a computer was issued 20 years ago by Israel; two years later East Germany issued the second. Since then, computer stamps have proliferated all over the world, at a rate equal almost to that which computers themselves have come into our lives.

In a recent article, *Gibbons Stamp Monthly* noted: 'With the computer revolution seemingly destined to have an even greater impact on our lives than the industrial revolution had on earlier generations, a thematic collection of computer stamps seems to have a promising future.'

As the number of computer stamps issued increases, computer enthusiasts are taking up the hobby and finding that collecting stamps that feature their favourite machines is a satisfying way to combine several interests. Many even use their computers to help in the

acquisition and cataloging of their collections.

Recently the American Philatelic Society (APS) sanctioned a new group for those interested in using computers in philately. The goals are to set and publish standards regarding storage of philatelic data, and to provide a forum for the interchange of ideas regarding the use of computers in philately.



An initial survey showed that many collectors were interested in such a group; interest ranged from serious philatelists doing research in postal history to novice collectors who simply wanted an easy method to maintain a want list. Such a group could be set up

here also.

For more information contact the APS Computer Group chairman, Martin D. Robinson, 7130 Claybeck Dr., Dayton, OH 45424 USA.

Sources of information

The Mathematical Study Unit of Philately has released a checklist of more than 200 computer stamps. Its journal, *Philameth*, covers the computer topic regularly. To obtain the checklist, write to Larry Dodson, 3624 W Frier Dr., Phoenix, Arizona 85021 USA. Another source is an 8-page list of computer stamps compiled by Robert V. Boos, 34 Santa Barbara Drive, Plainview, NY 11803 USA (\$2.40 for overseas mail, 54c domestic.)

A stamp catalog in your local library will list and/or illustrate all the stamps ever issued, along with their official numbers and current values. The most up-to-date information on pricing and availability can be found in stamp newspapers.

For information closer to home, check your state capital's phone directory for the address and number of your local Philatelic Association



Anytime industrial progress was aided by computers, the nation issued a stamp in gratitude.

contributors to the science such as Archimedes, Apollonius, Newton, Einstein, Popov, Fourcalt, Pascal, and Da Vinci.

Sometimes a stamp will show an ancient abacus side by side with computer



the postal service. Australia, that same year, honoured the International Congress of Soil Science with a stamp showing soil testing by chemistry and computers.

In 1969 Norway issued a stamp with a punched card to honour the 200th anniversary of the first Norwegian census. From the Netherlands in 1970 came a set of stamps depicting various designs made by a computer: parallel planes in a cube; isometric projection from circle to square; two overlapping scales; transition phases of concentric circles with increasing diameters and four spirals.

The Netherlands, at one time the issuer of the most computer stamps, issued in 1969 the first punched cards on stamps to

honour the 50th anniversary of the postal checking service. Stamps can trace the history of the computer and its earliest



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COMPUTER STAMPS

You might note that the early stamps will become harder to find once they get in demand and they could increase in value substantially.

circuits to depict the progress of mathematics. A German stamp of 1973 was issued to honour the 350th anniversary of an early calculator built by Professor Wilhelm Schickard of the University of Tübingen!

On one Egyptian stamp an ancient mode of arithmetic and the modern computer card are shown. Specific computers shown on stamps are the Tobotron micro-computer and the Model 55 Elka. Great Britain showed a word processor and Prestel; another shows a computerized check-

out at a supermarket. Computer operators and their machines are pictured on many stamps as the machines flood the civilized world.

Where to find computer stamps

In 1983, the Mathematical Study Unit of Philately released a computer checklist of more than 200 stamps. Its journal, *Philamath*, which devotes some of its coverage to the computer topic, has a checklist of 200 stamps obtainable from Larry Dodson, 3624 W. Frier Dr., Phoenix, Ariz 85021 USA. It is open to membership.

Another source for an 8-page checklist of computer stamps is Robert V. Boos (54c postage US; \$2.40 airmail overseas), 34 Santa Barbara Drive, Plainview, NY 11803 USA. Boos observes: 'Even the most casual observer realises the growing impact of computers on our civilisation; as time goes on, this impact will be manifested in a large number of stamps with computer themes.'

Boos' 8-page checklist is divided into three sections. The first is devoted to those who contributed to the develop-

ment of computers such as Da Vinci, and Pascal who produced one of the first operable calculating machines in 1642. The second section lists stamps showing computers or related topics such as punched paper symbols. The final section covers stamps com-



COMPUTER STAMPS

memorating computers or computer related events, such as the First Data Processing Congress. Each checklist is arranged alphabetically by country of issue and includes date of issue, catalog number, and a brief description.

The American Philatelic Society (APS) started a new group for those interested in using computers in philately. The goals are to set up and publish standards regarding storage of philatelic data, and to provide a forum for the interchange of ideas regarding the use of computers in philately. An initial survey showed that many collectors were interested in such a group; interests ranged from serious philatelists doing research in postal history to novice collectors who simply wanted an easy way to maintain a want list. For more information contact the APS computer group chairman, Martin D. Richardson, 7130 Claybeck Dr., Dayton, Ohio 45424 USA.

You might note that the early stamps will become harder to find once they get in demand and they could increase in value substantially.



Since a background of computer knowledge is helpful in this topic, the computer expert will have a distinct advantage over the philatelist in garnering a complete collection

To start your own collection peruse the *Scott Catalog of Stamps* at the library, which lists and/or illustrates all the stamps ever issued with their official number and current value in mint (unused) and used condition. Subscribe to a good stamp newspaper such as *Linn's Stamp Weekly*. Study the ads for dealers who have the stamps you need.

You can subscribe to a 'new issue' service in which the company will send you new issues of computer stamps as they are released around the world. Visit a stamp shop and see if they have any on your list.

Stamps should be stored in 3-ring plastic sheets with windows which protect the stamps from creasing, humidity and dust. These can be kept in a loose-leaf notebook.

Computer philatelists will find that computers are an easy way to keep track of one's stamp collection, and the stamps still needed. One can record the catalog number of each stamp possessed and needed, the condition, quantity, value and cost. □

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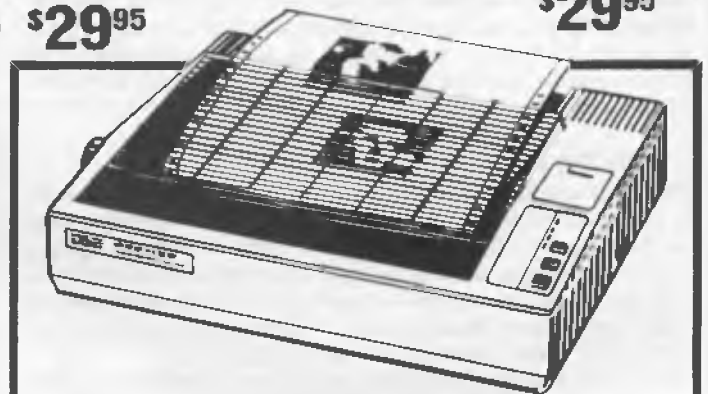
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PRESENTLY, artificial intelligence methods require that a programmer collect the data and the logic and 'wire' it into the program. A learning program collects its own data and logic so that it can use this information as it needs it or for later use.

Various learning structures have been developed in the field called automata theory. They are generally divided into two categories –

1) **Learning by eliminating mistakes.** This works by trying a certain move or course and evaluating how good it was. As we shall see, this method can be quite powerful. Figure 2 shows a flow diagram for this type of learning. The diagram accounts for good/bad or yes/no scenarios and will automatically take care of all possible situations.

2) **Learning by copying or being taught.** A program may imitate what is done by a teacher, or it may be told how to do something. Of course, this means there must be a teacher, but this method is generally faster than the first one. Normally a learning process combines both of these methods to some extent.

Thinking is basically an extension of the learning process. It involves going through the steps of learning internally and without doing any inputs or outputs. It causes a program to evaluate what is likely to happen.

As seen in Figure 1, learning is an interaction with the outside world and the learning program. Thinking is achieved by building a model world within the program and then looping this with the learning section. The model world can be updated as the program interacts with the real world. So the overall effect is to learn about the world and what to do in certain situations. Notice that this thinking process can loop ahead of the real world and, therefore, anticipate events.

A thinking program

THE Thinking Tic-Tac-Toe program (see Listing 1) uses the mistakes method of learning, and extends it to the thinking loop just described. Tic-Tac-Toe was chosen because it is easy to observe when the program displays what it is thinking on the screen.

At first the program makes random moves. It only detects when a win, lose or draw situation exists. When it loses, a mistake is made and it learns not to do the same moves again.

If a button is pressed indicating your move, then the computer finishes the current thinking loop and starts to accept your input, as if from a teacher. Your actions are stored and 'thought' about until a new situation arises.

It is a useful exercise to break down the program into a flow diagram. You might try to include 'learning by imitating' into this program, in other words, the program does what you did for a given situation.

The thinking speed can be increased by not showing what is being thought, or by assembling the program into machine code. For something more challenging, try including a pattern recognition section which works out the logic behind the win/lose and adjusts its outputs accordingly.

The learning and thinking processes outlined here may be built

into programs like 'This Is' It could then anticipate your questions and ask you its own.

Pattern recognition

AFTER examining the basics, you may have noticed a major problem. Consider the Thinking Tic-Tac-Toe program. It uses a memory space for every conceivable pattern. Also, win situations must be recognised at each loop – slowing it down. For a small program this has little effect, but when you apply this to large programs, memory spaces can quickly become astronomical, and processing might take years.

This problem is really related to the way a computer works. Comparisons can only be made between one or two bytes at a time. This can be solved with parallel processing or by comparing parallel arrays.

Another problem with computers is that they compare two items in a straight yes/no manner. In other words, two pictures must be exactly the same to be equal. If a comparison system used probability then it would be able to tell if two pictures are similar and in what way. Doing this by conventional computers is costly and time consuming.

Both these changes require a change in hardware. Neurology gives us models for work on parallel probability processing – the field is relatively new, but promising.

The ideas and experiments covered in this lightning fast tour of artificial intelligence may seem simple, but they form the basis for serious research. □

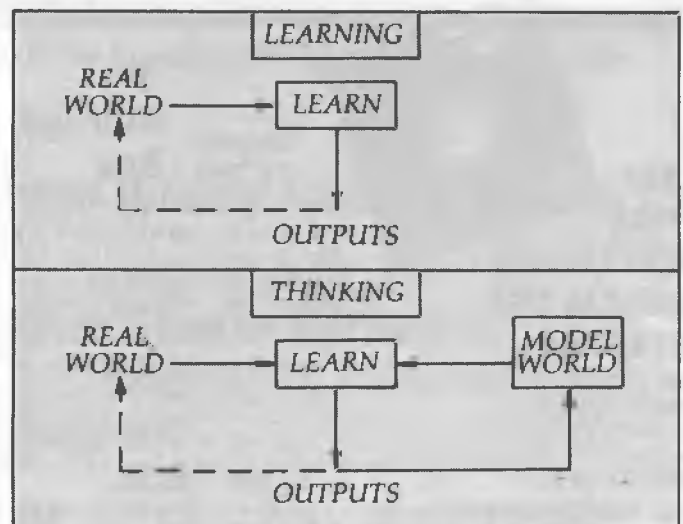


Figure 1. Learning is an interaction with the outside world and the learning program. Thinking is achieved by building a model world within the program and then looping this with the learning section. The model world can be updated as the program interacts with the real world.

LEARNING USING THE MISTAKES METHOD

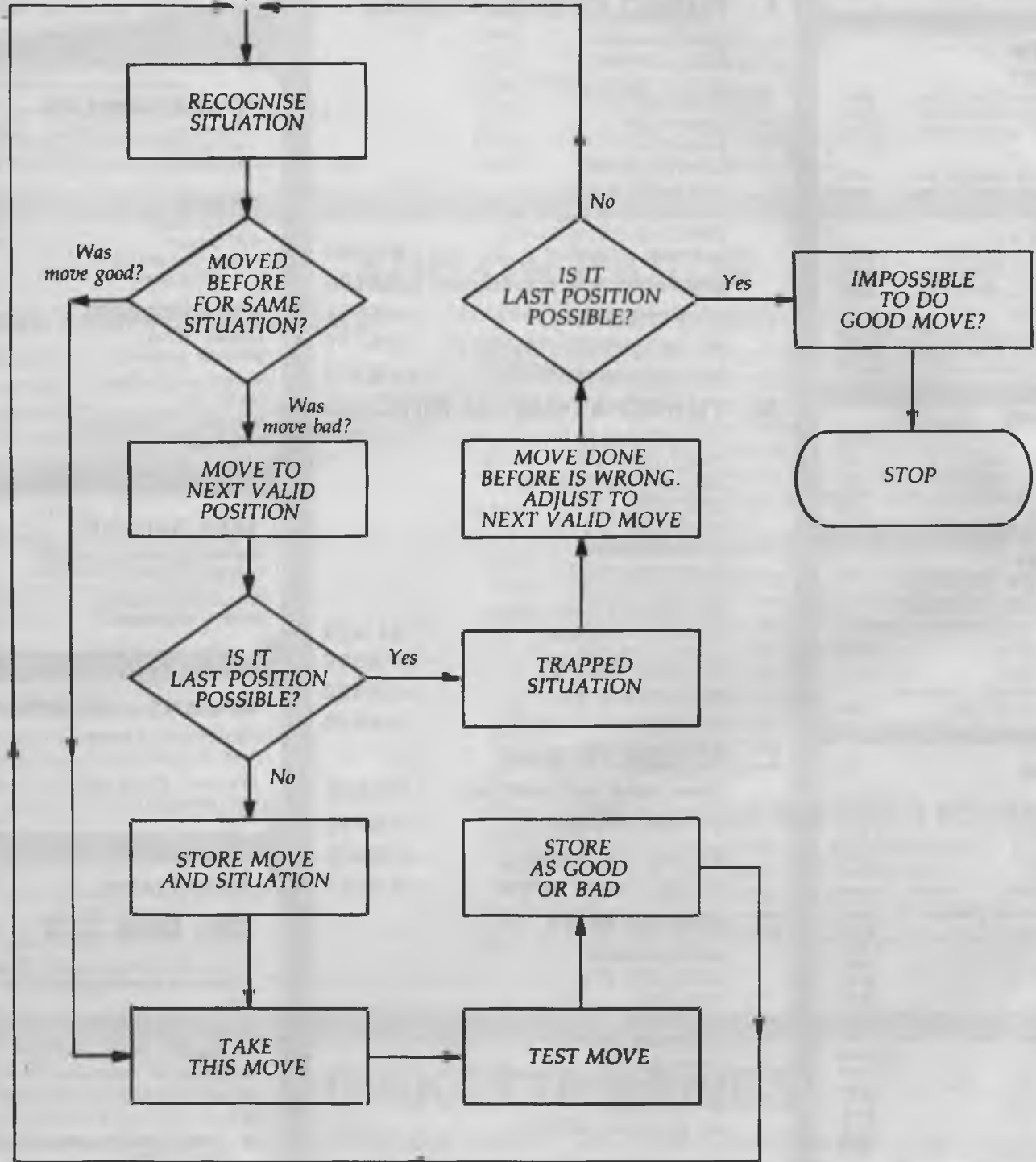


Figure 2. A flow diagram for learning by eliminating mistakes. The diagram accounts for good/bad or yes/no scenarios and will automatically take care of all possible situations.

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ARTIFICIAL INTELLIGENCE

```

100 REM      ### THINKING TIC-TAC-TOE ###
110 REM      # Miroslav Kostecki. June '85
#
120 DEFINT a-z
130 d=2: DIM w(6561),p(9),m(5,2),s(5)
140 CLS: PRINT : REM ...Draw Grid.
150 FOR j=1 TO 2
160   FOR i=1 TO 7
170    PRINT TAB(30);"##";TAB(50);"##"
180   NEXT i
190   PRINT TAB(10);STRING$(60,"#")
200  NEXT j
210  FOR i=1 TO 7
220   PRINT TAB(30);"##";TAB(50);"##"
230  NEXT i
240 '
250 REM      ...Initial moves for anywhere
.
260 FOR a=1 TO 5
270   s(a)=INT(RND*9)+1
280  NEXT a
290 REM      ...Clear all boxes.
300 FOR a=1 TO 3
310   FOR b=1 TO 3
320    c=b*3-3
330    IF p(a+c)=0 THEN 380
340    k=a*20-6
350    FOR l=b*8-5 TO b*8-1
360     LOCATE k,l: PRINT STRING$(14," ")
.
370   NEXT l
380   LOCATE a*20,b*8-4: PRINT a+c;
390   p(a+c)=0
400  NEXT b
410 NEXT a: n=1: LOCATE 1,1
420 IF d=2 THEN d=1: PRINT "Thinking";
430 '
440 REM      ...Play if key pressed
.
450 IF n>1 AND d=1 THEN 520
460 a1$=INKEY$
.
470 IF a1$<"1" OR a1$>"9" THEN 510
480 z=INT(VAL(a1$))
490 IF p(z)=0 THEN d=2
500 IF d=2 THEN PRINT "Learning":GOTO 56
0
510 IF d=2 THEN 460
520 REM      ...Move to next position
.
530 z=s(n): IF p(z)=0 THEN 560
540 z=INT(RND*9)+1
550 IF p(z)<>0 THEN 540
560 s(n)=z: p(z)=1
570 b=1: GOSUB 1030
580 IF n>2 THEN GOSUB 780
590 ON a GOTO 290,250
600 '
610 REM      ...Computer moves for situation
.
620 g=s(n,2)-1
630 h=0: t=1
640 FOR i=1 TO n
650   h=h+(s(i)-1)*t: t=t*9
660  NEXT i
670 z=w(h): n=n+1
680 z=z+1: IF z>9 THEN 980
690 IF p(z)<>0 THEN 680
700 m(n,1)=h
710 m(n,2)=z
720 p(z)=2
730 b=2: GOSUB 1030
740 IF n>2 THEN GOSUB 780
750 IF a=1 OR a=2 THEN 250
760 GOTO 440
770 '
780 REM      ...Test for win
.
790 j=j*3+1
800 IF p(i)=b AND p(i+3)=b AND p(i+6)=b
THEN 890
810 IF p(j)=b AND p(j+1)=b AND p(j+2)=b
THEN 890
820 IF p(5)>b THEN 850
830 IF p(1)=b AND p(9)=b THEN 890
840 IF p(3)=b AND p(7)=b THEN 890
850 REM      ...No one won
.
860 IF n<5 OR b=2 THEN RETURN
870 LOCATE 1,2: PRINT " Its a draw";
880 a=2: RETURN
890 REM      ...Someone won
900 IF b=1 THEN 940
910 LOCATE 1,2: PRINT " I won ";
920 a=1: RETURN
930 '
940 LOCATE 1,2: PRINT " You won ";
950 w(m(n,1))=m(n,2)
960 a=1: RETURN
970 '
980 REM      ...Move before must be wrong
.
990 LOCATE 1,2: PRINT " Forced win";
1000 w(h)=0: w(m(n-1,1))=m(n-1,2)
1010 GOTO 300
1020 '
1030 REM      ...Put piece into the box
.
1040 j=INT((z-1)/3): i=z-j*3
1050 k=i*20-6
1060 FOR l=j*8+3 TO j*8+7
1070   LOCATE k,l
1080   IF b=1 THEN PRINT STRING$(14,"/");
1090   IF b=2 THEN PRINT STRING$(14,"#");
1100  NEXT l: LOCATE 1,1: RETURN

```

Listing 1. The Thinking Tic-Tac-Toe program uses the mistakes method of learning, and extends it to the thinking loop process of anticipating events.

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Friends Pitch Free Owls to the Sun



Computer poetry – is it art or merely 'word salads'? asks Tim 'Haiku' Hartnell.

Stand, pale half the day,
Friends pitch free owls to the sun.
Weep the truth proves nought.

IN EVERY work of genius we recognise our own rejected thoughts: they come back to us with a certain alienated majesty'. Emerson said that in 1841, and the phrase 'a certain alienated majesty' sums up the unsettling effect some lines of computer-generated poetry have on us. The random juxtaposition of words in such a poem often resonate disturbingly.

There is an unexpected pleasure in some lines of poetry created by computer. Take the title of this article. It comes from this poem which was written by my IBM PC, running the program HAIKU

A perfect example of that juxtaposition is in the title of a book of computer poetry which was published in 1983 – *The Policeman's Beard is Half-Constructed*. It is highly improbable that you or I, or any human being for that matter, would have thought of that particular delightful line. Just like those friends pitching free owls to the sun, the image of the policeman's half-constructed beard is a felicitous one.

In essence, writing a program to create poetry is simple. The easiest way is to first write a sample verse yourself, and then break it down into words and phrases. I wrote the HAIKU program with this article by first making up a simple haiku, which is a Japanese form, traditionally containing three lines, and seventeen syllables.

COMPUTER POETRY

Margaret Masterman, head of the Language Research Unit at Cambridge University, produced one of the earliest programs to produce haiku-like works in the late Sixties. Cambridge's clanky main frame churned out works like these –

All black in the mist,
I trace thin birds in the dawn.
Whirr! the crane has passed.

To write our program, I simply took this verse, and broke it down into sections, and then created a set of DATA statements which could substitute for each section. The program itself then chooses a word or phrase at random from the DATA statements, assigns it to a string, and then prints it out.

To make that clearer, have a look at the first line of the Cambridge haiku quoted above – 'All black in the mist'.

I broke that down into three parts: the words 'all' and 'black', and the phrase 'in the mist'. The program has 18 words which can be used in the first position in this line including 'now', 'death', 'blind' and 'sway'. There are 27 adjectives which can appear after this, including 'strong', 'sad', 'smug' and 'fair', and 23 phrases such as 'half the day', 'without doubt' and 'passing by', can be chosen to complete the first line.

The next two lines of the Cambridge haiku were analysed in a similar way, and alternative words and phrases place in DATA statements. I thought of as many as I could out of my head, then turned to a *Complete Works of Shakespeare* for ideas when I ran dry. (Shakespeare is responsible for the free owls, by the way.)

```

10 REM HAIKU
20 REM (c) Tim Hartnell, 1987
30 REM Interface Publications
40 CLS:DIM A$(18),B$(27),C$(23),E$(8)
50 DIM F$(24),H$(23),J$(13),K$(21),L$(20)
60 PRINT "PLEASE STAND BY..."
70 FOR J=1 TO 18:READ A$(J):NEXT J
80 FOR J=1 TO 27:READ B$(J):NEXT J
90 FOR J=1 TO 23:READ C$(J):NEXT J
100 FOR J=1 TO 8:READ E$(J):NEXT J
110 FOR J=1 TO 24:READ F$(J):NEXT J
120 FOR J=1 TO 23:READ H$(J):NEXT J
130 FOR J=1 TO 13:READ J$(J):NEXT J
140 FOR J=1 TO 21:READ K$(J):NEXT J
150 FOR J=1 TO 20:READ L$(J):NEXT J
160 PRINT:PRINT
170 PRINT A$(INT(RND(1)*18+1));
180 Q=RND(1):IF Q>.95 THEN PRINT "I";
190 IF Q<.1 THEN PRINT " ";
200 PRINT " ";B$(INT(RND(1)*27+1));
210 GOSUB 410
220 PRINT " ";C$(INT(RND(1)*23+1));";"
230 GOSUB 410
240 PRINT E$(INT(RND(1)*8+1));" ";F$(INT(RND(1)*24+1));
250 GOSUB 410
260 IF RND(1)>.8 THEN PRINT " ";
270 PRINT " ";B$(INT(RND(1)*27+1));" ";H$(INT(RND(1)*23+1));
280 GOSUB 410
290 PRINT " ";C$(INT(RND(1)*23+1));";"
300 GOSUB 410
310 PRINT J$(INT(RND(1)*13+1));
320 GOSUB 410
330 R=INT(RND(1)*4+1)
340 IF R=1 THEN PRINT "I ";
350 IF R=2 THEN PRINT " ";
360 IF R=3 THEN PRINT "...";
370 IF R=4 THEN PRINT " ";
380 PRINT K$(INT(RND(1)*21+1));" ";L$(INT(RND(1)*20+1));"."
390 FOR J=1 TO 7:GOSUB 410:NEXT J

```

```

400 GOTO 160
410 FOR U=1 TO 100:NEXT U
420 REM DELAY
430 RETURN
440 REM DATA STATEMENTS
450 REM A$(n)
460 DATA All,Oh!,Now,No,Death,Blind,Friend,Try,Cry
470 DATA Stand,Stay,Pass,See,Watch,Hear,Touch,Sway,Just
480 REM B$(n)
490 DATA strong,sad,smug,fair,deep,rich,mean,young,dark,blue
500 DATA black,red,green,pale,grey,white,brown,bent,old,thin
510 DATA gaunt,stern,light,stopped,free,grant,faint
520 REM C$(n)
530 DATA in the mist,in the sky,on the edge,to the sun,past the night
540 DATA through the light,in the sound,of the sea,in the dark,in the night
550 DATA half the day,over all,without doubt
560 DATA suddenly,fade away,stand so tall,reaching out,passing by
570 DATA bending down,eyes weeping,smiles fading,dragon's teeth,crystal waves
580 REM E$(n)
590 DATA I,You,They,Nights,Doubts,Friends,Late,Faint
600 REM F$(n)
610 DATA trace,move,dread,need,test,prove,push,vend,find,see,watch,tend
620 DATA shade,touch,bend,break,kill,save,stone,crave,pitch,take,put,search
630 REM H$(n)
640 DATA birds,trees,pools,owls,star,light,stones,sharks
650 DATA reeds,rocks,twigs,shapes,rings,boys,sin,plagues
660 DATA plants,clouds,robes,blood,blame,days,fish
670 REM J$(n)
680 DATA Sing,Oh,Now,Then,But,If,Why,Say,No,So,Smile,Weep,Dance
690 REM K$(n)
700 DATA the moon,fair light,dragon,pale eyed,a tear,falcon
710 DATA blue veins,slight form,coy touch,fresh death
720 DATA derk son,traitor,good name,the truth,a shell
730 DATA not drowned,music,passion,the heart,an oath,a friend
740 REM L$(n)
750 DATA does fade,has passed,has turned,doth end,forgets,twice torn
760 DATA stands false,shuns truth,proves nought,compares,would trust
770 DATA could prove,looks fair,ends time,would rage
780 DATA can lie,makes war,calls far,flees swift,lives young

```

Listing 1. The HAIKU program simply chooses a word or phrase at random from the DATA statements, assigns it to a string, and then prints it out.

Alternative approach

AN ALTERNATIVE approach to cribbing from Shakespeare was outlined by the British programmer, Margaret Chisman, in her article entitled 'Producing Computer Poetry' (*Best of Creative Computing*, Volume Two, pp. 106-107). After following the 'create a verse and then break it down into bits' procedure, Chisman turned to a dictionary, and Rodale's *Synonym Finder*

'The criterion for the selection of words in each group is generally overall compatibility of meaning, mood and category,' Chisman writes, 'but with an occasional word quite out of keeping to provide a jolt.'

'Each person has their own repertoire of words, and writing this kind of poetry it is easy to get into a semantic rut. So I flip the dictionary open randomly and follow up any interesting words in the *Synonym Finder*'

Chisman decided to start with a non-haiku-like poem as her 'outline', and wrote a program which came up with –

My head thrives on pain
Unseen by guilt
Not relaxing not seducing
Comfort if controlled
Corrupts

COMPUTER POETRY

(Sounds like a typical Saturday night!)

To enjoy creating poetry in this way, I suggest you enter and run our HAIKU program first, and then put your own words in place of mine in the DATA statements. To keep each verse to 17 syllables, I made sure that each section of each line could only be replaced by words and phrases containing the same number of syllables, but there is no reason for you to be automatically bound by the same rules.

Once you've modified the program in this way, by adding your own words and phrases, you can write a poetry program from scratch, using an original 'first verse' to analyse for word and phrase substitution.

But is it art?

ONE SYMPTOM of the mental disorder schizophrenia is called 'word salad writing'. An example of this, quoted in *Introduction to Psychology* (Atkinson, Atkinson and Hilgard, 1983, p 470), includes the lines: 'If things turn by rotation of agriculture or levels in regards and time to everything Much of abstraction has been left unsaid and undone in these productmilk syrup, and others, due to economics ' You can see there seems to be some relationship between the outpourings of creative computers and word salad writing

It is easy to criticize computer poetry and say it is nothing more

than the production of endless word salads. However, if you are willing to read carefully through the output of your own programs and discard 90 percent or more of what is produced, to keep only the better output, you can end up with some quite solid material.

There are optimists who see true computer poetry, which goes beyond random word manipulation, on the horizon. Herman Kahn, in the book *Computers and Creativity* by C. S. McCauley, says: 'The computer may write better poetry than human beings, better drama, make more perceptive judgments . . . before the end of the century.' But such days are far ahead, if our free owls are any indication.

Finally, I'd like to share with you my favourite computer poem, which David Levy (the chessmaster who once bet \$10,000 that no computer program would beat him at chess within ten years) quotes to prove that there is no necessary difference between computer-generated poetry and the person-made kind -

Woman, why do you create your face
in the fountains of New York?
The fountains are gracious,
and the nightmares guard them.

Our HAIKU program is unlikely to come up with gems of that quality, although you can be certain that many free owls will be pitched to the sun when you run it on your computer! □

Your Personal Poet

I AM NOW officially a poet. Some seventy-five seconds after first loading up the commercial program, Your Personal Poet (\$29.95 from Micro-Methods, 20 Harbour St, Mosman 2088 NSW; (02) 969 6295), I had written (or caused to be written) -

You're Special, *Your Computer*
I'm choosing a way that is new
To say something just about you
You cause apoplexy
Because you're so sexy
Your Computer, 'bout you this is true

But it's not just limericks that Personal Poet produces. Fred Nile would be unlikely to approve of steamy little verses like the one I asked the program to produce next -

Have you opened the envelope slow?
I picture your eyes with a glow
Your sexiness shows
Like a firefly glows
Well, Timmy, you've read, now you know
You're sexy, I have to admit it
My fantasy's hot, and you fit it
In your naughty appeal
There's a sexual zeal
Aglow is my heart 'cause you lit it!

With the help of Personal Poet, I could write the sequel to The Rocky Horror Show!

Dwight Minkler II (now there's a classic American name!) wrote the original version of Personal Poet - which he says can produce more than a billion verses without repeating itself - late one night on his Osborne I. Minkler had been a Cobol programmer for 20 years when he was hit by inspiration one night. He ran to his

clunky old Osborne and by dawn had the first working version of the program. It took him nearly five years of polishing it, until it became the IBM PC program capable of producing classic works like those shown above.

How does this new program work its magic? You simply run the program (there is no installation procedure, and the supplied program disk is unprotected), and answer a few questions. These include the name of the people the poem is for (up to nine names can be incorporated into a single poem), their sex, the person's most distinctive characteristic (such as 'sexiness', 'inquisitiveness', or whatever), the theme of the poem (including Christmas greetings, birthday, congratulations on graduation, love, friendship, emotional support) and - most importantly - whether you want a limerick-like poem, or something more misty-eyed.

Once you've done that, you press the Return key, the disk drive grinds away for a few seconds while the message COMPOSING!!! flashes on the screen. After half a minute, your poem - in all its awfulness - appears. You can then save it to disk, print it out (in 'Olde English' letters to a dot matrix printer), or tell the Personal Poet to produce another poem (or another billion of them) using the same information which you gave it before.

'Even if you enter the same information twice, you won't get the same poem,' Dwight claims. 'The program keeps track of what it has just done and tries not to do it again.'

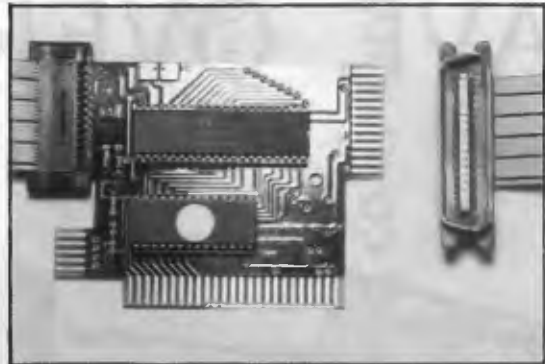
As well as the program disk and instructions, Your Personal Poet comes complete with a set of pre-printed fancy cards, which you load into your printer so that your best poems can be printed out. Special envelopes are also supplied. Stationery refill packs, for when you change lovers and need to churn out some more hot words, are available for \$17.95 each (each pack contains 10 Personal Poet cards, 10 matching envelopes and 12 Personal Poet forms).



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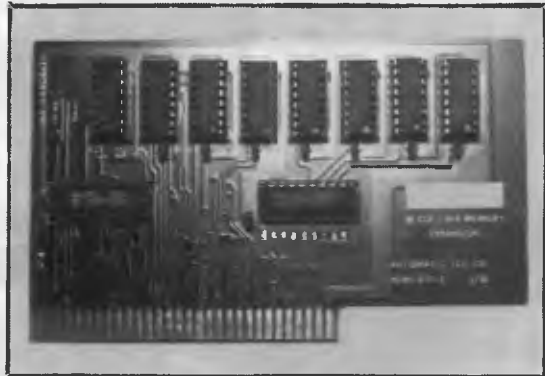
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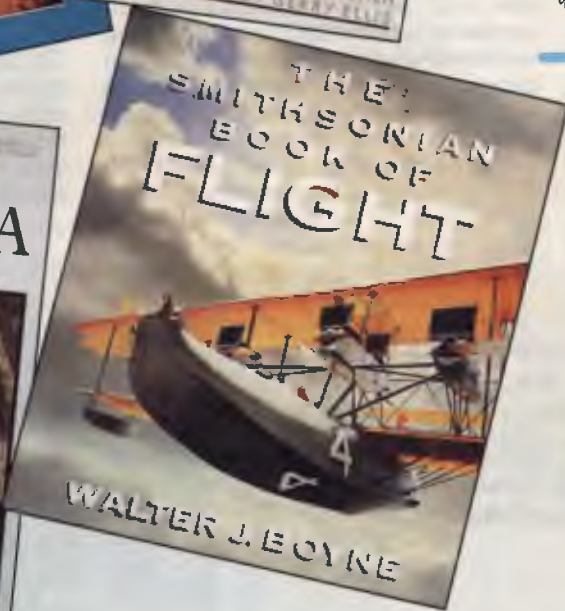
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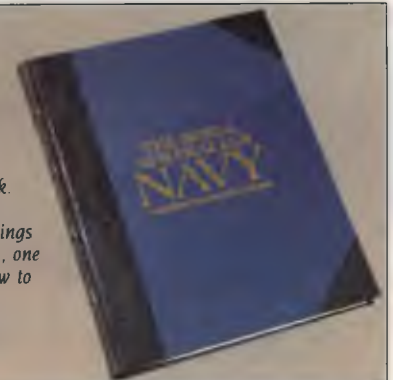
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The Amstrad PCW9512

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THERE can not be too many *Your Computer* readers who are not aware of Amstrad. Since the company started its local operations recently, it has made a number of dramatic moves. The most memorable would be its cutting retail prices by 25 per cent, closely followed by a \$2.2 million marketing campaign

So, there can be no doubt that the company has the money, the means and the intent. The question that remains is does the company have the product?

The PCW9512 is an interesting machine, as is Amstrad's approach to marketing it. It's interesting because it is not an IBM compatible, the keyboard doesn't conform to any standards (except the original 1884 Qwerty, and it is CP/M Plus based. Add to this the fact that Amstrad has again opted for the non-standard 3-inch disk format, and you'll probably be asking yourself the same question I was (at first). Why?

If your primary requirement is for a word processor, Michael Floyd suggests this dedicated machine.

Well, for its price (which includes a daisy wheel printer), the PCW9512 is an ideal entry level word processor for small companies with minimal word processing needs, self-employed trades people, freelance journalists, or any one who needs a word processor but can only afford an electric typewriter.

The most striking feature about the 9512 is the size of the screen. Capable of

displaying 32 rows of 90 columns, the screen is certainly larger than most.

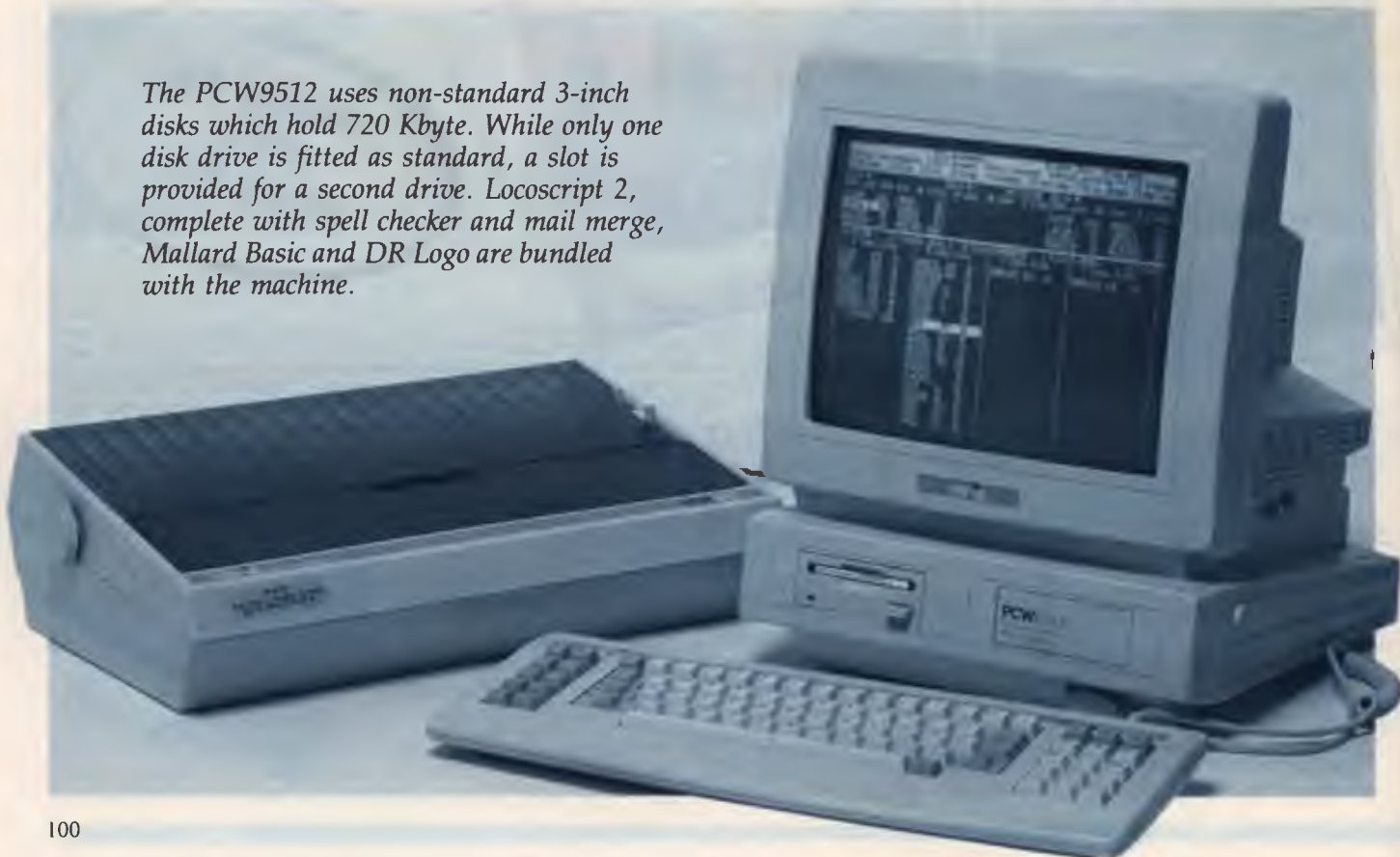
The CPU

FOR THE Amstrad buffs, the PCW9512 is essentially a PCW8256, with increased disk storage, larger memory (512 kilobytes) and improved screen resolution. Like the 8256, it employs a Z80 processor running at 4 MHz.

The keyboard has a number of ergonomic features such as the wrist support and height adjustment, and the keys provide reasonable tactile feedback.

Those acquainted with PC and AT keyboard standards will find the layout takes a bit of getting used to. Many of the standard keys are missing; in their place are the Cut, Copy and Paste keys for manipulating blocks of text; Cancel, which exits from a menu selection; the Spell Check key; and the special keys marked + and -, which are used to make selections from a menu or embed a text formatting command in text.

The PCW9512 uses non-standard 3-inch disks which hold 720 Kbyte. While only one disk drive is fitted as standard, a slot is provided for a second drive. Locoscript 2, complete with spell checker and mail merge, Mallard Basic and DR Logo are bundled with the machine.



Disk drive

WERE IT not for the fact that this machine is marketed as a dedicated word processor, the non-standard 3-inch disks would be a significant problem, particularly as Amstrad will not be importing any additional software for the machine.

However, the disks can hold 720 Kbyte which is significantly better than the standard 360 Kbyte floppy Amstrad has assured me that a number of Australian companies are importing software for the 3-inch CP/M format, as they are for the CPC6128.

Only one disk drive is fitted as standard on the 9512, but an additional slot is provided for another drive.

The large, monochrome screen is capable of displaying graphics at an unusual resolution of 720 x 512. This also provides a high definition for characters and makes for an easily readable screen.

Despite the screen resolution, very few screen attributes are supported – bold, italics, superscripts and sub-scripts cannot be displayed on the screen. Conversely, reverse text can be displayed but not printed (a limitation of the daisy wheel printer). The software does provide an indication of a word's attribute by displaying it at the top of the screen, but I am used to basic WYSIWYG displays

The daisy wheel printer

THE DAISY wheel printer is quiet and efficient and has a 15-inch carriage. Both single sheet and continuous stationery can be used and changing from one to another is simply a matter of snapping the tractor feed unit into place

The daisywheel itself provides 100 printable characters, including the usual upper and lower case, numerics, punctuation, special symbols and fractions.

Software

FOR A dedicated word processing system, the software supplied with the PCW9512 is extensive. As well as the CP/M Plus operating system, the software includes the word processor, Locoscript 2, complete with a spell checker and mailmerge system, and two programming languages: Mallard Basic, reputedly the fastest Basic interpreter, and Digital Research's DR Logo.

Firing up Locoscript is simply a matter of inserting the disk and booting the machine, or by pressing the Shift/Extra/Exit keys. The system copies the word process-

ing files to the RAM disk, checks the printer, and then displays the disk management menu on screen

This menu allows files and disks to be copied, moved, renamed and so on, and it also allows files to be selected (using the cursor control keys) for editing and printing.

The large, monochrome screen is capable of displaying graphics at an unusual resolution of 720 x 512.

Once a document is open for editing, most of the commands and features are available through drop down menus. Document layout, including headers and footers, text formats, styles and sizes, page manipulation and the spell checker are all controlled through these menus. Short cuts are provided in the form of dedicated function keys for cut, copy and paste function, manual pagination, moving the cursor to the end of a line, page or document, skipping a character, word, line, paragraph or page and using the search and replace functions

LocoSpell, the spelling checker, refers to an expandable 80,000 word dictionary that allows individual words or the entire file to be checked. As well, the remainder of a file from the current cursor location can be checked for spelling.

Mallard Basic

MALLARD Basic, a strain of Basic I had not encountered before, is a particularly powerful interpreter, offering such features as: restoring data pointers to a specified line number; swapping the values of variables; While and Wend loops; disabling the break action; keyed files; multiple file handling; upper to lower case conversion (and *vice versa*) and error trapping routines.

Unfortunately, Basic does not directly support the graphics capabilities of the machine (nor does it offer a clear screen command) Having a resolution of 720 x 512 available, but not easily accessible, is rather like buying a Porsche and then not having any money left for petrol.

The 9512's implementation of DR Logo is comprehensive, offering the only readily available method of accessing the system's graphic capabilities. DR Logo provides features such as disk storage of screen graphics, more than 200 primitives, multiple instruction lines, user definable procedures, local and global variables, turtle graphics, split screen and word and list processing.

Graphics shortcomings not withstanding, Mallard Basic appears to be one of the more powerful Basic interpreters around, and for it to be included with a machine priced as low as the PCW9512 is an excellent move by Amstrad.

Documentation

DOCUMENTATION is probably one of the most difficult problems faced by computer manufacturers. Where do you draw the line between supplying too much or too little information? Should the user be presented with one manual, covering every topic briefly, or several manuals, covering every topic in depth?

Amstrad has opted for the former. The single manual supplied with the PCW9512 has more than 600 pages, and covers just about everything at the user level, ranging from unpacking and assembling the machine to some of the more esoteric CP/M Plus commands. A fairly extensive tutorial for the word processing system is also included

Summary

AMSTRAD insists the PCW9512 is a word processor first, and a computer second. Bearing this in mind, it is fair to say that as a word processor for those unable to afford extravagant hardware or software, the PCW9512 represents a good investment. It offers an acceptable quality of output, easy to use software, and considerable convenience. There are problems, mostly speed, but I'd rather buy a PCW9512 than a typewriter and if you're looking for a dedicated word processor, I suggest you take a serious look at what the 9512 has to offer. □

Product Details

Product: PCW9512
From: Amstrad Australia,
 19A Boundary St, Rushcutters Bay 2011
 NSW
 (02) 360 3144
Price: \$1299 taxed
 (includes daisy wheel printer)

Learn about educational software!



Where do you turn for information about educational programs for home and school which suit local curriculum requirements, computer hardware and the particular student? Sharon France knows . . .

COMPUTER Education is a complicated issue. Funds granted by Departments and raised by P&Cs and schools are spent in the first instance on computer hardware, while an ongoing commitment has to be made for computer fodder – otherwise known as software. Some schools come out of the experience well informed and well equipped to get the most out of their computers and students. Others are not so fortunate. Software is not a cheap item,

and one which you are usually not allowed to try before you buy (with the understandable phobia on the supplier's part of piracy).

Where do you turn for information about programs for your school which will suit your curriculum requirements, your computer hardware and your students? Magazine advertisements do not tell you enough, while representatives from computer and software retailers may tell you too much! Where to go; what to do?

The various State Departments of Education have addressed this problem with many producing software review and evaluation documents. On a national level, an online and micro-fiche system co-ordinated by the National Software Co-ordination Unit (NSCU) allows all schools in all states to have access to factual information and review comments on many different pieces of software.

Here is a guide to what sort of support there is, in the form of software review publications, around Australia. Where it is possible we have provided contact addresses to allow you to pursue your own investigations to discover the software which best suits you, your children or your school.

Before we start, mention must be made that not all State and Territory Departments of Education were able to meet this article's stringent deadline. This should not reflect poorly on those concerned, however, it does mean that this picture of software support and documentation is necessarily incomplete.

Victoria

Rquest for evidence of software reviews by the Victorian Department of Education resulted in an overwhelming response. The amount of information sent to me stacked high on my already overcrowded desk, and left me with no doubt that the Victorians are hot on the heels of providing their schools with adequate information about software. The number of items sent to me included –

Comput-About – a series of documents which is aimed at general application of both specific software titles (for example, 'Using AppleWorks as an Integrated Package') and broader applications ('Word Processing In Schools');

Bits on Software – loose-leaf software evaluation notes presented in hardware specific bundles;

Case Studies – software specific evaluations which uniformly comment on such aspects as the software's strong and weak points and aids with comments on practical classroom use and set-up;

Welcome to Transylvania – a rather delightful compilation of materials which includes approaches, guidelines and teaching notes to help integrate into the curriculum. This software package is produced by Penguin and Polar Software for Commodore, Apple and Macintosh computers.

All of these samples of software review and application are well presented. In producing individual documents for different need areas, the Department has effectively utilised its resources and catered for many groups.

The system is geared towards making access to information as quick and easy for teachers as possible.

Northern Territory

The Northern Territory produces an all encompassing document called CompuTalk. It has the appearance and feel of a free-form newsletter, and its main aim is not necessarily to review software, although reviews are part of its recipe. For example, items in one issue included, 'Recovering Damaged AppleWorks Files', a review of the package Alice In Wonderland and a discussion concerning Mathematics Syllabi with emphasis on the aspects and influences of computer systems.

CompuTalk is informative and contains items of local interest, but if you are after lots of software reviews, this probably should not be your first port of call.

South Australia

The South Australian Department is involved in not only publishing software reviews, but software itself (under the title Satchel Software). All of the material sent for my perusal came in the form of top quality documentation and for the main part, presented in spiral bound format.

The five pieces of documentation supplied were –

The Computer in the General Curriculum – a newsletter which contains comments and information from the Department.

Soft Where? Computers in Geography – a handbook specifically for teachers of Geography. The three sections of the book include an alphabetical listing of all rele-

vant software, a short review on each piece and a slightly lengthier application review of selected titles.

Nexus User Guide – a manual for the electronic information system set up by the SA Department of Education

Softword – software and documentation for Satchel Software's BBC word processor.

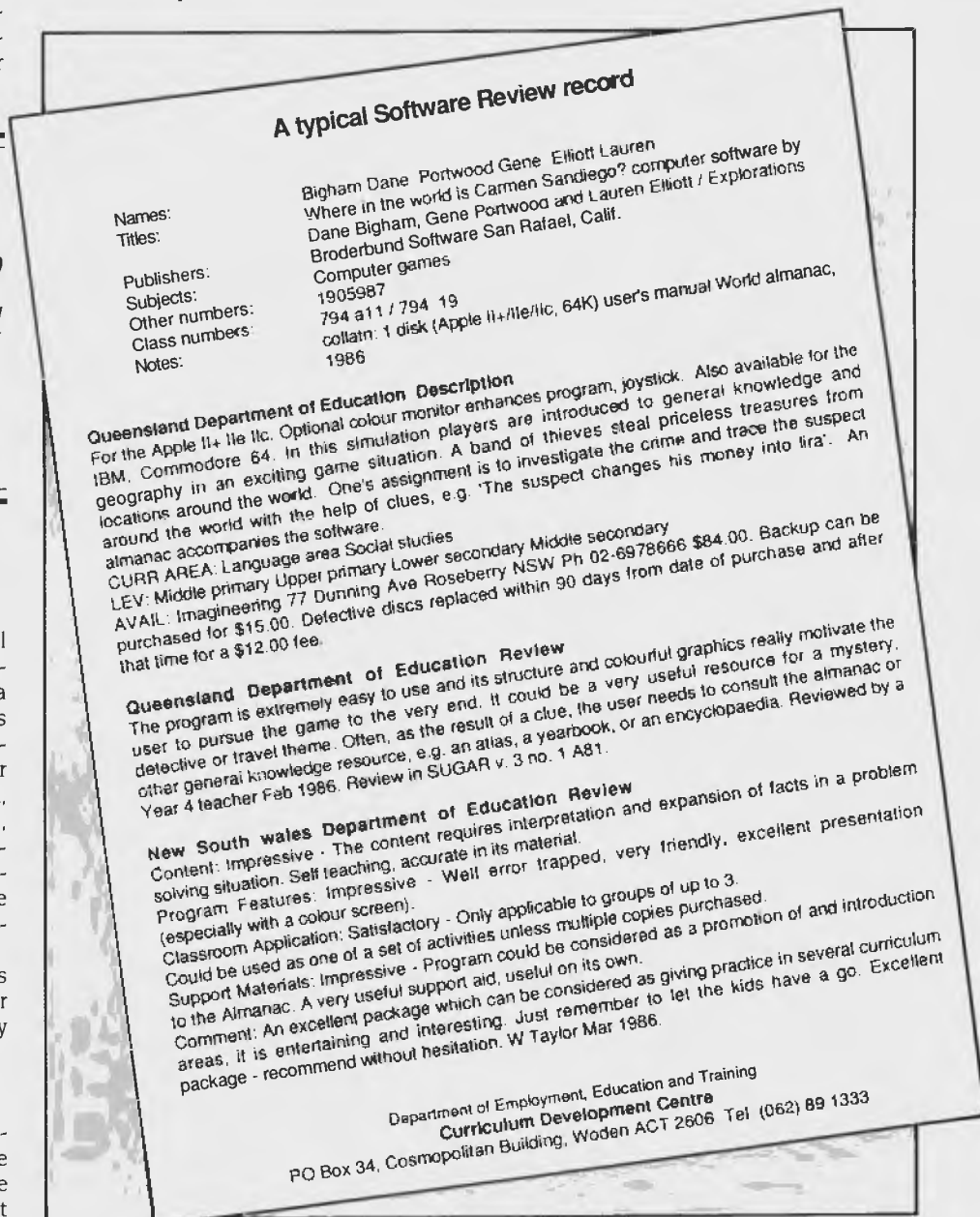


Figure 1. A typical record of a software review from the Curriculum Development Centre, a national organisation.

Soft Options – a series of software reviews written by teachers.

The latter is probably the most relevant to readers of this article and is well set out and presented in a spiral bound, foolscap format. As a preface to the reviews, all software included in the booklet is indexed according to title (alphabetically), subject area, year level and computer type. This makes it extremely easy to find what you are looking for, no matter which angle you are coming from. If you are looking for reviews for your Microbee or IBM, don't look here. *Soft Options* contains reviews specific to Apple, BBC and C64 computers, only.

The software reviews themselves vary in length but contain common elements including title, subject area, type of hardware required, suitable age range and price. In the main, the reviews are by practicing teachers so there is a strong hands-on/classroom applications approach which is useful. *Soft Options* is well rounded off with a listing of software suppliers' contact addresses and a mention of other sources of software review information.

New South Wales

NSW has *IT*. Not the definitive *IT*, but something which, for most teachers and parents, would come close. *IT* stands for Information Transfer, a journal produced by the NSW Computer Education Group (NSWCEG), every school term. I was sent two recent copies and was delighted with the content.

Not only does *IT* include straight software reviews, comparisons are also drawn between different packages which have a similar theme or application. In addition, hardware comes under scrutiny, as the contributors volunteer their ideas and experiences with various computers, printers, modems and so on. *IT* is also a forum for news about the CEG and welcomes editorial regarding computer education in other states, and indeed other countries.

Information Transfer contains most of the information that a computer oriented teacher would want. There is a heavy emphasis on contributions for the magazine, and if there is a bent towards a particular brand of hardware or software it is not intended or planned. The emphasis is on sharing and transferring ideas to each other.

The software reviews outline the name of the software, the publisher/distributor,

In producing individual documents for different need areas, the Department has effectively utilised its resources and catered for many groups.

the recommended retail price, the contents of the package and the system requirements. This is followed by a descriptive evaluation of the package which, typically, is short and to the point.

The NSWCEG also produces a number of other general publications which include computer related titles (for example: *Creative Writing With the Computer*, *Index to Public Domain Computer Software for the Apple II* and so on). More information about these may be found in the NDEC Resource Catalogue and Price List.

Queensland

A spoonful of *SUGAR* will help the computer lessons go down – or so the Queensland Department of Education entice us to believe. *SUGAR* (Software Users Guide to Available Resources) is the computer software review publication published by the Queensland Department of Education, which is distributed every two months to all schools in Queensland (including Primary, Secondary, Special and Catholic), with copies made available to other states.

SUGAR would not win awards for the most attractively designed publication, but it contains heaps of software information in the form of reviews and it is presented so that it may be easily filed and referenced. It comes in a landscape orientation with holes punched along the top for insertion into a ring-binder.

The front page lists the reviews and encodes them (A 123 is review 123 for Apple software, B is for BBC and M designates a mix of computers not specified). This coding and presentation makes it extremely easy for Apple or BBC dedicated schools to select relevant reviews and discard the rest. To make it simpler still, the sections are colour coded.



Figure 2. The Minister for Science, Barry Jones, meets Brent Cornish, Director, Curriculum Development Centre, and two National Software Co-ordination Unit project officers, Tricia Berman and Anastasia Blake, at the Toorak Teachers Centre.

Each issue of *SUGAR* contains sixteen reviews in all, with these being prefaced by a section called Patches. Patches is an editorial comment on problems reported by teachers about software, hardware or whatever. It is very much a forum where bugs and 'fixes' for problems may be presented. It is a very useful service indeed, and written in a very readable style.

The 'meat' of *SUGAR* is of course the reviews. Each one is presented in the form of a review card and takes up both halves of the vertically divided page. Because of its uniformity, it is very easy to access information at a glance. Sections on program description, presentation and overall comment are a 'tick the box' arrangement, while the general description and special notes sections are more discursive.

A lot of time and effort has gone into the compilation and presentation of *SUGAR*, and it would indeed be an asset to your school.

The National level

As a certain ad campaign for a brand of computer reminds us, this is the age of 'initial' choices – we are so busy trying to convey vast amounts of information, we rely upon acronyms as a sort of shorthand or a 'techno-speak' if you like. Every industry and group has their own shorthand – even the CWA. It was not surprising, therefore, to find that the federal Department which includes Education has a whole bevy of initials describing parts of its organisation and special projects.

One of the most recent organisations to join these ranks is the National Software Co-ordination Unit (NSCU), a special project organised and currently administered by the Curriculum Development Centre (CDC) in Canberra.

The NSCU project team administers the National Software Review Database which is available to all schools in all states, as a sub-set of ASCIS (Australian Schools Catalogue Information Service database). It provides both factual information and comment about software for use on the more popular brands of micros.

The NSCU and its database project was initiated in 1987, but was not officially launched until May this year. It employs the services of two project officers who co-ordinate input from all State Departments of Education, and representations from Private, Catholic and Special Education systems.

It is important that money for computer equipment is spent wisely. . .



Figure 3. Three of the participants of the National Workshop on Software for Education, held immediately after the launch of the National Software Review Database, were (from left) Bevan Levingston, Barsons Computers; Terry Malone, Edsoft, and Ngaire MacLeod, Queensland Department of Education.

Each record on the database has two elements – the cataloging or bibliographic information and the abstract (which may be divided into a number of sub-sections, including a description and a number of subjective reviews). The bibliographic element, which allows for easy cataloging, contains information on the following points: hardware (including peripherals required); software required; curriculum area; student level; publisher; distributor and cost, and site licence information.

The NSCU Description is just that – a short non-judgmental statement which may include educational objectives of the program or a quick run-down on what the program does. It also includes indicators for the curriculum area, the age level it is aimed at and from where the package may be obtained. The integrity of the system is managed by the project officers and ASCIS which ensures that key descriptive words are included in all records so that they may be accessed appropriately.

The Review elements contained as abstracts to the record may vary in number and form. They are subjective by their very nature and provide the user with information gleaned from using the software in the classroom.



Figure 4. The National Software Co-ordination Unit set up an advisory body, the Software Co-ordinators Advisory Group, which has representatives from all Australian education systems.

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Lotus Agenda

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\$1199

Fujitsu DL 2600

\$1825

Diconix 150 ink jet

\$call

FoxBase + Multiuser

\$550

Plus Hardcard 40

\$1450

Intel Above Board 286

\$870

J-Laser Plus AT

\$950

Pagemaker 3

\$call

IBM SOFTWARE

Coda	\$350
dBase 4	\$call
DS Backup Plus	\$150
Fastback	\$210
Freelance Plus	\$715
Harvard Graphics	\$595
Lotus 123	\$649
Magician	\$290
Microsoft Excell	\$799
Mirror with Viatel	\$115
Quattro	\$299
Paradox 2	\$895
Supercalc 5	\$call
Sidekick Plus	\$275
Symphony	\$975
Timeline 3	\$890
Turbo Pascal 3	\$130
Turbo Basic	\$130
Turbo C	\$130
Turbo Toolboxes	\$130
Turbo Prolog	\$130
Ventura Publisher	\$call
Word Perfect 5	\$599
Wordstar 5	\$450

STORAGE SYSTEMS

Seagate 30MB RLL	\$490
Seagate 45MB voice coil	\$890
Miniscribe 42MB	\$675
Microscience 44MB v coil	\$990
Caching HD controler	\$2350

MODEMS

NetComm AutoModems	\$call
NetComm SmartModems	\$call
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IBM ADD ONS

Hyperformance 12.5	\$1290
Intel 80287	\$299
Intel 80387	\$799
Hypertec boards	\$call
3.5 1.44MB drives	\$350

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Fujitsu range	\$call
Epson range	\$call
Toshiba range	\$call
Brother range	\$call
NEC *new* range	\$call

Vega VRAM

\$call

Intel 386PC

\$1490

Hyperace 286 Plus

\$625

Complete Fax

\$990

LASERS

Ultra Laser	\$call
Toshiba PageLaser	\$call
AST Postscript	\$call
Epson GQ3500	\$2890
NEC Silentwriter	\$call



DISCWARE

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THE DISCWARE 386-40 \$4995

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ROM:	IBM AT compatible.
DISK STORAGE:	1.2 MB Floppy Drive, 40 MB Hard Disk.
EXPANSION:	6 x 16 bit slots. 2 x 8 bit slots.
INPUT/OUTPUT:	Parallel/Serial.
POWER:	225 watt power supply.
OPTIONS INC:	Mono or Colour Card. Key Lock 12 months warranty.



CPU:	80386
RAM:	1 MB
ROM:	Phoenix
DISK:	1.2 MB
STORAGE:	40 MB
EXPANSION:	8 Slots
INPUT/OUTPUT:	Serial/Parallel 101 keyboard 12 month warranty

LIMITED QUANTITY AVAILABLE AT THIS PRICE

TOSHIBA T5100 T5200 T3200

MODEL	T5100	T5200	T3200
CPU:	386 16MHz	386 20MHz	286 12 MHz
RAM:	2 MB	2 MB	1 MB
DISK:	1.44 40MB	1.44 100MB	720KB 40MB
I/OS:	Ser/Par/Exp	Ser/Par/Exp/2 slots	

Pericomp 386

MODEL:	386/16	386/20
CPU:	386 @ 16 MHz	386 @ 20 MHz
RAM:	1 MB	1 MB
DISK STORAGE:	1.2 + 80 MB	1.2 + 150 MB

Pericomp 286

MODEL:	286/10	286/12
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RAM:	2 MB	1 MB
DISK STORAGE:	1.2 + 40 MB	1.2 + 70 MB

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Olivetti M28 20MB
mono **\$3290**

Zenith 286
\$call

ALR Flexcache 386
\$call

AST Premium 386
\$call

AST Premium 286
\$call

Wyse 386
\$call

Wyse 286 8MHz 1MB
mono **\$3590**

Toshiba T5100
\$call

Toshiba T3200
\$call

Everex Step 386
\$call

Kaypro 286 40MB
\$2995

Monitor not included



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ABCDE
 FGHIJK
 L NO
 PQR T
 UVWX
 YZ

Ignore it and it won't
go away.

MS

Multiple Sclerosis.

Access to the database

Although the main thrust of the database is to have it immediately accessible via PCs and modems (in other words, online access) the information is also available in microfiche form. An annual subscription to the NSCU database microfiche costs \$20, and is a reasonable alternative to the online system. The familiar black plastic cards, which slot into microfiche readers found in most libraries, are indexed by the following: title, author, publisher, hardware type and subject. Therefore, if you are after all of the reviews submitted so far for your BBC dedicated school, you may gain great pleasure from analyzing the BBC screens on the 'Hardware Type' fiche.

The real thrust of the database, however, is to have it immediately accessible using the equipment which it is intended to help and supplement – your computer. All that is needed is a modem (2400/2400, 300/300 and 1200/1200 are acceptable, but *not* 1200/75), a PC and the requisite communications software.

Registration with ASCIS provides the user with a package of information detailing log-on and accessing procedures. Access to ASCIS is made by a local phone call in the capital cities and via AUSTPAC for outlying regions. This helps to keep costs of phone charges to a minimum and compliments the cost of \$15 per hour charges for use of the database itself.

The system is geared towards making access to information as quick and easy for teachers as possible. It employs a free-form searching mode for this reason. Entry of key words and phrases in a search, such as NSCU, Mathematics, Apple and Primary, will single out a number of records which will suit a particular set of computer classroom requirements.

The beauty of the system is that resources can be located very quickly with an enhanced searching ability. Because the NSCU database is part of ASCIS, you also have access to a great store of ideas and materials which are not necessarily computer bound. For instance, while interrogating the system for suitable 'Bicentennial' thematic material, you may discover useful books, audio-visual and pictorial information on the subject.

At present, there are approximately 450 records attributed to the efforts of the NSCU. Given the amount of software floating around schools in Australia, this may seem like a drop in the ocean. Perhaps it is, however, we should be mindful that

these are early days for the NSCU and that the whole project cannot depend on the dedication of a select few. I am sure that the NSCU would welcome comments and especially contributions of software reviews from interested parties.

The efforts of the NSCU are highly commendable. It is important that money for computer equipment is spent wisely, and the sharing of knowledge and experience with software products for our schools is very valuable. The fact that the database information is accessible whether you have the requisite communications equipment or not, ensures that all schools are able to benefit from the project. □

Organisations

For further information about the publications and organisations mentioned contact –

Victoria

State Computer Education
Centre of Victoria,
Genoa Street, Moorabbin 3189 Victoria.

Northern Territory

Computer Education Centre,
Professional Services Branch,
Department of Education, PMB 25,
Winnellie, 5789 NT

South Australia

SA Education Department,
c/o Angle Park Computing Centre,
Trafford Street, Angle Park 5010 SA.

New South Wales

Northern Districts Education Centre,
179 Beecroft Road,
Cheltenham 2119 NSW

Queensland

SUGAR, Schools Computing Services,
Library and Resource Services Branch,
Department of Education, PO Box 33,
North Quay 4000 Queensland.

National

For further information approach your local school to make contact with one or all of the following –

ASCIS, 324 Camberwell Road,
Camberwell 3124 Vic.

NSCU, Curriculum Development
Centre

PO Box 34, Woden 2606 ACT.

Your SCAG (Software Co-ordinators
Advisory Group) Member
Department of Education
Your State or Territory

Lend a hand!

LARRY LEWIS

WELL, HERE we are again at Christmas time, that month where credit cards cringe in your wallet. This is also the time that a whole swag load of the younger set get their first modem. Many SysOps have a bad time with new callers from Christmas Day until mid-January, what with all the learners who are given modems and left to work it out for themselves.

Please, if you buy someone a modem at Christmas, especially for a younger person, make sure that you are prepared to help with the exploration of that wide world of communications. The operators of BBSs are always pleased to see a new 'face', but it gets a bit wearing on the nerves to have to teach new comers all the fun of a BBS, especially when there are heaps of them all at once.

Make sure as part of the 'present' you set up the modem, test it, and, most importantly, have in mind a couple of systems that can be introduced to the latest member of electronic communications. By this I mean you should actually show them how to logon, use the system, post a message and all the other things that make BBSing fun!

You will also have to make sure you find a board that will accept your call – there is an ever increasing number of boards that

only want callers who have 2400 baud modems (or better), others that are very intolerant of new users and even ones now that only want certain 'types' of users

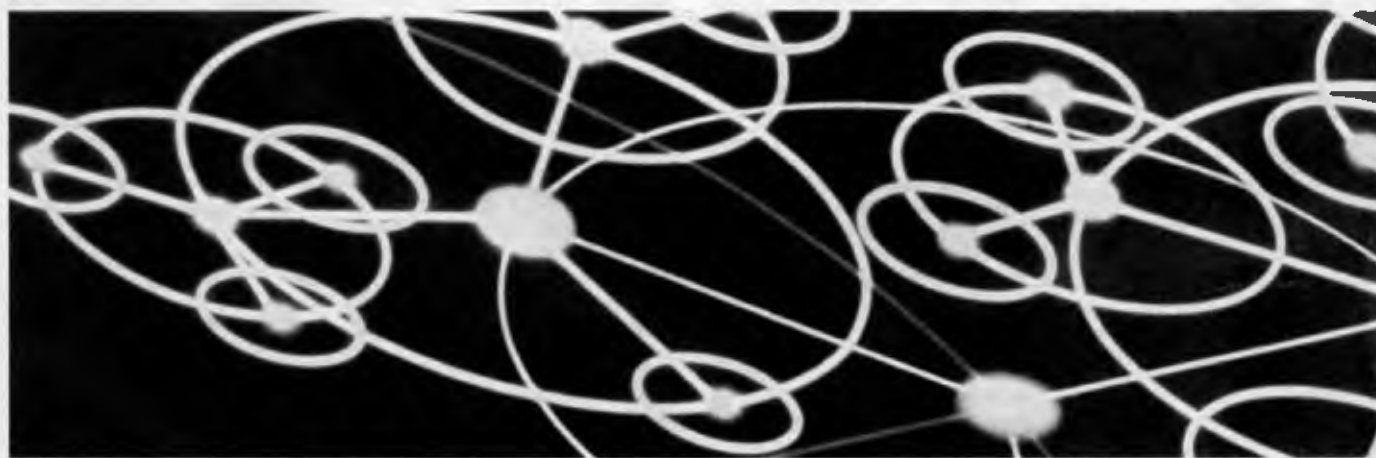
There are lots of other traps to watch out for – as a new user you will see all sorts of yummy programs available for downloading but beware because some systems will cancel your access if you download too much software without giving anything in return.

Personally, I dislike this approach. I would much rather only receive uploads of good stuff, instead of making people upload absolutely anything to get their ratio up so they can download more. I use a time limits to control my system: you have a certain amount of time each day and how you decide to use it is up to you.

PAMS Registry News

This month a statistics file has been added to the list of stuff that the Registry creates. It will make interesting reading – let's see now, we had 400 plus systems with 81 systems having updates (a quiet month!).

Anyway, a list of changes is included for you to browse – see you next year! □



Primary Electronic Collection Points

The last full listing was given in the October 1988 issue; refer to the Services page on how to obtain Back Issues.

ACT – PC Exchange RIBM
(062) 58 1406
NSW – Prophet TBBS
(02) 628 5222
Vic. – Brainstorm Australia
(03) 758 7086
Qld. – AMPAK RCP/M
(07) 263 7070

SA – The Electronic Oracle
(08) 260 6222
WA – Nemo Multiple BBS
RAPL
(09) 370 1855

PAMS News 8810

NEW SOUTH WALES

*** Amended ***
2000 and Beyond TBBS
Sysop: Greg Kuhnert
Phone: (02) 522 6514
Baud: V21 V22 V22bis V23 B212
Access: Mem VA
Computer: System One

DOS: CP/M
BBSSoftware: TBBS
*** Amended ***
3M Australia Pty Ltd
Sysop: Graham Stair
Phone: (02) 498 9184
FIDOnet: 711/409
Baud: V21 V22 V22bis B103 B212
Access: Public
Hours: Weekdays: 1900 –
0700 Weekends: 24 Hours
Computer: IBM PS/2 Model 70
DOS: PC DOS
BBSSoftware: Opus
*** NEW System ***
Aftermath BBS
Sysop: Ron & Andrew Clark
Phone: (02) 872 5520
Baud: V21 V22 V22bis V23

Access: Reg VA
Computer: Amstrad 1640
DOS: MS DOS
BBSSoftware: GTPower
*** Amended ***
Albury & Wodonga Opus BBS
Sysop: Andre Dowding
Phone: (060) 25 2647
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM AT Clone
DOS: PC DOS
BBSSoftware: Opus
*** Amended ***
Amiga MIDILine
Sysop: Andrew Khoo
Phone: (02) 868 4836
Baud: V22 V22bis B103
Access: Reg

THE PROPHET

Hours: Daily: 0000 – 0700
 *** Online ***
Beauford BBS
 Sysop: Roger Cooper
 Phone: (047) 58 6542
 Baud: V21 V22 V22bis V23
 Access: Public
 Computer: IBM XT Clone
 BBSSoftware: Fido
 *** Amended ***
Computrol
 Sysop: Robert Spence
 Phone: (02) 489 6848
 Baud: V21 V22 V22bis V23 B103 B212
 Access: Public
 Computer: IBM XT Clone
 DOS: MS DOS
 BBSSoftware: GTPower
 *** NEW System ***
Dharruk BBS
 Sysop: Tony Prichard
 Phone: (02) 625 3246
 FIDOnet: 713/612
 Baud: V21 V22 V23
 Access: Reg VA
 Computer: Ulatra XT Turbo
 DOS: MS DOS
 BBSSoftware: QuickBBS
 *** Amended ***
Dick Smith Electronics BBS
 Phone: (02) 887 2276
 FIDOnet: 711/808
 Baud: V21 V22
 Access: Public
 Computer: Multitech PC 500
 DOS: MS DOS
 BBSSoftware: Opus
 *** NEW System ***
Edlink BBS
 Sysop: Craig Sinclair
 Phone: (02) 232 5584
 FIDOnet: 712/205
 Baud: V21 V22 V22bis V23
 Access: Reg LVA
 Computer: IBM XT Clone
 DOS: MS DOS
 BBSSoftware: Opus
 *** NEW System ***
Excalibur
 Sysop: Kevin Scott
 Phone: (02) 896 1063
 Baud: V21 V22 V22bis V23 B103 B212
 Computer: C64
 BBSSoftware: Punter
 *** Amended ***
FairStar BBS
 Sysop: Robert Thomas
 Phone: (02) 570 4555
 Baud: V21 V22 V22bis V23 B103 B212
 Access: Mem VA
 Hours: Daily: 1800 – 0800
 Computer: Commodore PC 10
 DOS: MS DOS
 BBSSoftware: Wildcat
 *** Offline ***
Fido Australia
 *** Amended ***
Flex or Die
 Sysop: Ioshua Levy

Phone: (02) 558 0129
 FIDOnet: 712/507
 Baud: V21 V22 V22bis V23
 Access: Reg VA
 Computer: IBM AT Clone
 DOS: PC DOS
 BBSSoftware: QuickBBS
 *** Amended ***
Intersoft BBS
 Sysop: Craig Heading
 Phone: (02) 476 2391
 FIDOnet: 711/411
 Baud: V22 V22bis
 Access: Mem Reg LVA
 Computer: Tandy 2000
 DOS: MS DOS
 BBSSoftware: Opus
 *** NEW System ***
Konektion Business Link
 Sysop: Robert Earle
 Phone: (02) 906 1354
 Baud: V22
 Access: Reg VA
 Computer: IBM XT Clone
 DOS: PC DOS
 BBSSoftware: Opus
 *** Amended ***
Mail Dispatch
 Sysop: Matthew Wood & Andrew Avery
 Phone: (02) 969 5861
 FIDOnet: 711/905
 Baud: V21 V22 V22bis V23
 Access: Mem Reg
 Hours: Daily: 1600 – 0700
 Computer: IBM XT Clone
 DOS: MS DOS
 BBSSoftware: QuickBBS
 *** Offline ***
Omen RTRS
 *** Name Changed ***
Program Paradise
 Note: Now called Mail Dispatch
 *** Offline ***
Shortwave Possums
 *** Amended ***
Sorcim microS
 Sysop: John Caine
 Phone: (065) 59 4537
 FIDOnet: 711/405
 Baud: V21 V22 V22bis V23 PEP
 Access: Reg
 Hours: Daily: 2100 – 0800
 BBSSoftware: QuickBBS
 *** Offline ***
South Coast Amiga BBS
 *** Amended ***
Statesman
 Sysop: Michael Gayford
 Phone: (047) 33 1010
 FIDOnet: 713/307
 Baud: V22 V22bis PEP
 Access: Reg
 Computer: IBM XT Clone
 DOS: PC DOS
 BBSSoftware: QuickBBS
 *** Amended ***
Sydney CAE BBS
 Sysop: Geoff Shearsby
 Phone: (02) 660 8272
 FIDOnet: 712/628
 Baud: V21 V22 V22bis

Access: Reg LVA
 Computer: IBM XT
 DOS: PC DOS
 BBSSoftware: Fido
 *** NEW System ***
Tech Exchange
 Sysop: Chris Moran
 Phone: (02) 713 1447
 Baud: V21 V22 V22bis V23
 Access: Reg LVA
 Computer: IBM AT Clone
 DOS: MS DOS
 BBSSoftware: Opus
 *** Amended ***
Tesseract RCPM+
 Sysop: Scott MacDonald
 Phone: (02) 820 1325
 Baud: V21 V22 V22bis V23
 Access: Mem VA
 Computer: Collex
 DOS: CP/M+
 BBSSoftware: RBBS
 *** Offline ***
The Ivory Tower
 *** Amended ***
The Pig Pen BBS
 Sysop: Michael Pigram
 Phone: (02) 630 3693
 Baud: V21
 Access: Public
 Hours: Weekdays: 1930 – 0630Weekends: 24 Hours
 Computer: C64
 BBSSoftware: Hal
 *** Amended ***
Wollongong Amiga BBS
 Sysop: Peter Nicholson
 Phone: (042) 27 3927
 Baud: V21 V22 V22bis
 Access: Reg VA
 Hours: Weekdays: 1730 – 0800Weekends: 24 Hours
 Computer: Amiga 2000
 DOS: AmigaDOS
 BBSSoftware: BBS PC!

QUEENSLAND

*** Amended ***
AMPAK PBBS/RCPM
 Sysop: Brian Wendt & John Bews
 Phone: (07) 263 7070
 Baud: V21 V22 V22bis V23 B103 B212
 Access: Mem Reg
 Computer: AMPRO
 DOS: CP/M80
 BBSSoftware: PBBS
 Note: 144.90 Mhz VK4KJB 11200 bps
 Amateur Packet Radio
 *** Name Changed ***
Apple Q Node 2
 Note: Now called Phoenix BBS
 *** Amended ***
BaudWalk BBS
 Sysop: Geoff Ryan
 Phone: (07) 285 5814
 Baud: V21 V22 V22bis V23 B103 B212
 DOS: PC DOS
 BBSSoftware: Focus
 *** Name Changed ***
Brisbane Commodore User Group
 Note: Now called Commodore Computer Users Group Old
 *** Amended ***
Christian BBS
 Sysop: Andrew Johnston
 Phone: (07) 253 7917
 FIDOnet: 640/220
 Baud: V22
 Access: Public
 Computer: Ultra Turbo XT
 DOS: MS DOS
 BBSSoftware: Opus
 *** Amended ***
Coelurus BBS
 Sysop: Peter Brewer
 Phone: (075) 63 2621
 FIDOnet: 640/601
 Baud: V22 V22bis
 Access: Reg VA
 Hours: Weekdays: 2100 – 0800Weekends: 24 Hours
 Computer: IBM XT Clone
 DOS: MS DOS
 BBSSoftware: Opus
 *** Amended ***
Commodore Computer Users Group
 Sysop: Greg Shea
 Phone: (07) 344 1833
 FIDOnet: 640/304
 Baud: V21 V22 V22bis V23 B103 B212
 *** Amended ***
Commodore Computer Users Group Qld
 Sysop: Colin Canfield
 Phone: (07) 395 6725
 Baud: V21 V22 V23
 Access: Mem VA
 *** Name Changed ***
Excalibur BBS
 Note: Now called Christian BBS
 *** NEW System ***
Galaxy GateWay Computer
 Sysop: James Collins
 Phone: (07) 207 8900
 Baud: V22
 Access: Reg VA
 Computer: Amiga 500
 DOS: AmigaDOS
 BBSSoftware: BBS PC!
 *** Name Changed ***
MilliWays BBS
 Note: Now called BaudWalk BBS
 *** Amended ***
Phoenix BBS
 Sysop: Kelvin Sagers
 Phone: (07) 800 4660
 Baud: V21 V22 V22bis V23
 Access: Mem
 *** Amended ***
Stanley's Place
 Sysop: John Wain
 Phone: (07) 264 4747
 FIDOnet: 640/212
 Baud: V21 V22 V22bis
 Access: Reg VA
 Computer: IBM XT Clone
 DOS: MS DOS
 BBSSoftware: Opus
 *** Offline ***
Sun City Opus
 *** Name Changed ***

THE PROPHET

The Galaxy GateWay Computer System
Note: Now called Galaxy GateWay Computer

*** Amended ***
TurboLink Australia
Sysop: Viv Brunner
Phone: (07) 862 1860
Baud: V21 V22 V22bis V23 B103 B212
Computer: IBM XT Clone
DOS: MS DOS
BBSSoftware: Opus

SOUTH AUSTRALIA

*** Amended ***
The Bureau BBS
Sysop: Patrick Browne
Phone: (08) 258 1466
FIDOnet: 681/855
Baud: V21 V22 V23
Access: VA
Computer: Kaypro XT
DOS: MS DOS
BBSSoftware: Opus
*** Online ***
The Hackers Retreat
Sysop: John Waye
Phone: (08) 266 2408
FIDOnet: 681/857
Baud: V21 V22 V23
Access: Mem LVA
Computer: Commodore PC
DOS: MS DOS
BBSSoftware: Opus

VICTORIA

*** Amended ***
AmigaLink
Sysop: Bohdan Ferens
Phone: (03) 792 3918
Baud: V21 V22 V23
*** Amended ***
Anzugs CBCS
Sysop: Gordon Castle
Phone: (03) 563 2496
Baud: V21 V22 V22bis V23
Access: Mem Public
Computer: IBM Model 80
DOS: PC DOS
BBSSoftware: Opus
*** Amended ***
Big Tedd's Bulletin Board
Sysop: Rob Bates
Phone: (03) 509 6067
Baud: V21 V22 V23
Access: Reg LVA
Computer: IBM XT Clone
BBSSoftware: Opus
*** Amended ***
Cave 76
Sysop: Avatar
Phone: (03) 836 6976
Baud: V21 V22 V22bis V23
Computer: IBM XT Clone
BBSSoftware: Opus
*** Amended ***
Crystal Palace
Sysop: Chris Brunton
Phone: (03) 725 1923
Baud: V21 V22 V22bis V23
BBSSoftware: QuickBBS

*** Amended ***
Custom Programming OPUS
Sysop: Allan Williamson
Phone: (03) 848 3331
Baud: V21 V22 V22bis V23 B103 B212
Access: Mem VA
Computer: IBM PC Clone
DOS: PC Dos
BBSSoftware: Opus
*** Offline ***
Cycum IBBS PC
*** Amended ***
Down Under Amiga/IBM
Sysop: Greg Hudson
Phone: (03) 755 1584
FIDOnet: 632/306
Baud: V22 V22bis V23
Access: Public
Computer: Compaq 386
DOS: PC DOS
BBSSoftware: Opus
*** NEW System ***
Dr Blaze
Sysop: Ron Lyth
Phone: (03) 890 9323
FIDOnet: 632/344
Baud: V21 V22 V22bis V23
BBSSoftware: Opus
*** Amended ***
Dragon City BBS
Sysop: Mal Fields
Phone: (054) 47 0398
Baud: V21 V22 V22bis V23
Access: LVA
Computer: Amiga
DOS: AmigaDOS
BBSSoftware: BBS PC!
*** Amended ***
Eastcomm Opus BBS
Sysop: Keith Haslam
Phone: (03) 288 0775
Baud: V21 V22 V23 V23ORG
Access: Public
Computer: Eastcomm PC/AT
DOS: PC DOS
BBSSoftware: Opus
*** Amended ***
Engbase CBCS
Sysop: Greg Furlong
Phone: (03) 29 6336
Baud: V21 V22
BBSSoftware: Opus
*** Offline ***
Entropy BBS
*** Amended ***
L & A Opus BBS
Sysop: Phillip Kelly
Phone: (03) 800 3215
Baud: V21 V22 V22bis V23
Access: Reg LVA
Computer: IBM AT
DOS: PC DOS
BBSSoftware: Opus
*** Offline ***
Live Wire BBS
*** Amended ***
Maxitel BBS
Sysop: Galvatron
Phone: (03) 560 9292
Baud: V21
Access: Public

Computer: C64
BBSSoftware: C Net 64
*** Amended ***
Melbourne PC Users Group BBS
Sysop: Charles Sandercock
Phone: (03) 819 5392
FIDOnet: 632/323
Access: Public
DOS: MS DOS
BBSSoftware: Opus
*** Amended ***
Mercury BBS
Sysop: John Fisher & John Swanland
Phone: (03) 887 1485
Baud: V21
BBSSoftware: C Net
*** Amended ***
Micom CBCS
Sysop: Peter Jetson
Phone: (03) 758 8642
FIDOnet: 633/371
Baud: V21 V22 V22bis V23
Access: Mem Reg
Computer: IBM Clone
DOS: MS DOS
BBSSoftware: Opus
*** Amended ***
Miki's Opus CBCS
Sysop: Miklos Bolvary & Emil Zudic
Phone: (03) 887 1756
FIDOnet: 633/374
Baud: V22 V22bis B103 B212
Access: Reg VA
Hours: Daily: 2100 - 0900
Computer: ELT 286 Baby AT
DOS: PC DOS
BBSSoftware: Opus
*** Online ***
Motel International
Sysop: Kim Gratton
Phone: (03) 509 9611
Baud: V21 V22 V22bis V23
Access: Public
Computer: Apple 2GS
BBSSoftware: TProBBS
*** NEW System ***
Nostromo
Sysop: Andrew Maggio
Phone: (03) 772 6542
Baud: V21 V22 V23
BBSSoftware: Opus
*** Amended ***
Osborne Australian BB
Sysop: Craig Orr
Phone: (03) 890 4096
Baud: V21 V22 V22bis V23
Access: Reg LVA
*** Amended ***
Pegasus
Sysop: Lee Gordon Brown
Phone: (03) 725 4948
Baud: V21 V22 V23
Access: Public
Hours: Weekdays: 1700 - 0900Weekends: 24 Hours
Computer: IBM AT
DOS: MS DOS
BBSSoftware: Opus
*** Amended ***
Sams
Sysop: Alan Haslar
Phone: (03) 563 1117

Baud: V21 V22 V22bis V23
Access: Public
*** Amended ***
SMART BBS
Sysop: Richard Hoskin
Phone: (03) 602 1336
FIDOnet: 633/368
Baud: V21 V22 V22bis
Access: Mem VA
Computer: ALR 386
DOS: PC DOS
BBSSoftware: Opus
*** Amended ***
Southern Mail
Sysop: Maurie Halkier
Phone: (03) 725 1621
Baud: V22 V22bis
Access: Public
Computer: Eastcomm PC/XT
DOS: PC DOS
BBSSoftware: Opus
*** Offline ***
The Australian Pub with NO Beer
*** NEW System ***
The CadPhone
Sysop: Dan Moane
Phone: (03) 890 0091
FIDOnet: 633/367
Baud: V21 V22
BBSSoftware: Opus
*** Offline ***
The Kelly Gang BBS
*** Amended ***
The NATIONAL CBCS
Sysop: John Blackett Smith
Phone: (03) 25 6904
Access: Public
Computer: IBM AT
DOS: MS DOS
BBSSoftware: Opus
*** Amended ***
Yarra Valley BBS
Sysop: Frank Conner
Phone: (059) 64 3125
Baud: V21 V22 V23 B103 B212
Access: Mem VA
Computer: C64
BBSSoftware: Punter
*** NEW System ***
Zen BBS
Sysop: Craig Bowen
Phone: (03) 899 6184
Baud: V21 V22 V22bis V23
BBSSoftware: TBBS

WESTERN

AUSTRALIA

*** Offline ***
AMSNet BBS
*** NEW System ***
West Gate BBS
Sysop: Phil van Leen
Phone: (09) 481 0489
FIDOnet: 691/613
Baud: V21 V22 V22bis V23 B103 B212
Access: Reg VA
Computer: IBM AT Clone
DOS: MS DOS
BBSSoftware: Opus

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The scanner: born in the USA.

The MegaScan Image Scanner is the only U.S. designed and manufactured flatbed desktop image scanner on the market today. It can scan line art or photos, at a resolution of 300 dpi and 32 levels of gray. All in just 9 seconds from scan to edit!

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With 1.3MB of on-board RAM, the MegaBuffer is the interface between your 286 or 386-based CPU, scanner and laser printer. It also holds the full-page bit map

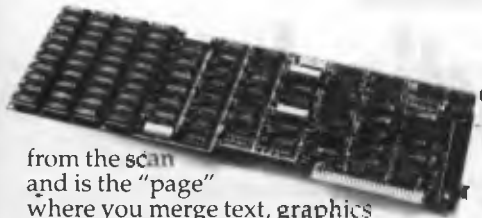
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SoftscrybeTM is a PostScript[®] language interpreter which can interpret PostScript[®] page description language files and subsequently convert the information to print an equivalent result on an on-postscript[®] laser printer.

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SoftscrybeTM is a software package which works in conjunction with the AVR-MegaBufferTM card which is compatible with any 286-386 P.C. compatible computer.

With the added advantages of MegaScanTM software you can capture your PostScript[®] originated file in the MegaBufferTM and in turn save it in MegaScanTM MSI format which will allow you to print in an amazing 10 seconds after conversion.



from the scan and is the "page" where you merge text, graphics and photos to create a 300 dpi image in true WYSIWYG.

And with the full page in the Mega-Buffer, zooming, scrolling and pixel-editing are real-time operations.

MegaScan eliminates laser-lag too. Because the MegaBuffer's 1.3MB of RAM also acts as a printer controller. So you can print direct to the laser printer engine for full-page 300 dpi output in just 10 seconds. Every time. Regardless of page size. Regardless of printer memory.

The software: power and flexibility.

MegaScan software is a single application providing scanner control, a powerful paint/pixel editor, extensive image processing, text editing, page make-up and a screen snapshot utility. Also included is a RAM disk utility so the MegaBuffer card



can support other applications.

Use MegaScan software by itself to create short documents, or as a powerful graphics "front-end" to any GEM® - based publishing program like Ventura Publisher or GEM Desktop Publisher™ for long, complex layouts. File format options include TIFF, .PCX and GEM.IMG to support all other popular publishing applications.

Optimum options.

Optional capabilities include user trainable OCR, PC-to-FAX communications and font creation software to make it even easier to capture, edit, store, communicate or produce high-quality graphics and text.

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President Computers have installed **complete** Desktop Publishing Systems into many Corporates and small businesses throughout Australia. The key to our success is that we provide a "complete tailored system" with the expertise and training which is so vital with these highly intergrated systems.

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- AVR-Laser Adaptor
- SX or CX engine base laser printer (with video port)



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NEW PRODUCTS

A Christmas selection!

For the Stocking

Your Computer
Federal Publishing
Phone: (02) 693 6666
Price: See below

A present that will last a whole year is a subscription to *Your Computer* magazine. Every month is chock-a-block with feature and PC application stories, reviews, hints and regular user columns. A wealth of information for dBase users is *dLetter*, compiled by Matt Whelan, this comprehensive newsletter gives hints, tips and technical advice for all versions of dBase. Fill in the subscription card in this issue; we are also offering a chance to win a \$4000 computer system – a great present for your favourite computer buff!



WORM

Mitsui
Phone: (02) 451 7711
Price: Not supplied

Mitsui has released the WORM – the Write Once, Read Many times laser memory, 5 1/2 inch optical disks. WORM offers ultra high memory storage capabilities (600

We've chosen this month's New Products to help you find a gift for the hacker of your heart (even if it's yourself)! To make it even easier, our suggestions have been divided into two categories: For the Stocking (under \$200) and Under the Tree (over \$200). Merry Christmas!

Mbyte to a possible 16 Gbyte).

The basic WORM drive is the size of a small modem and connects to an IBM PC AT or compatible, using DOS for storage of up to 200,000 A4 test pages or 30,000 graphics pages, including DTP applications. It also allows for automatic archival and retrieval of LAN databases. WORM drives are compact, quiet and work in any office environment. It's claimed the disks can be stored for up to 15 years. WORM employs an in-built error checking and logic.

Computer titles

Dymocks
Phone: (02) 233 4111
Price: See below

A book is always a good gift to give at Christmas and Dymocks has a range of computer titles available. *OS/2 Programmer's Guide* by Ed Iacobucci (\$55), is a complete OS/2 programming guide, written by the leader of the IBM OS/2 design team. *Using PageMaker for the PC* by Martin Matthews (\$47.95), follows clear, concise steps using a hands on approach to perfect desktop publishing techniques.

Financial Analysis with Lotus 1-2-3 by Neil Cohen (\$90.15) is a book and disk package that helps you learn to do financial analysis with 1-2-3 quickly and easily. *Mastering AutoCad* is the second edition of George Imura's guide

to Cadd (\$55.95). More titles, covering a range of topics are available.

Lotus Agenda
Blackwell
Scientific Publications
Phone: (03) 347 0300
Price: \$44

Lotus Agenda is a book for beginners to the Lotus Agenda spreadsheet program. This book shows in simple terms what can be done with the software, and how to achieve it. It starts with illustrations of applications so that the user can see what Agenda does and then proceed to establish their own uses.



The book was written by Ian Sinclair, who has been a micro-computer user for many years,

and has taught computing and programming to both beginners and more advanced users. He has written previous books dealing with micros

Kings Quest II
Ozi Soft
Phone: (02) 211 1266
Price: \$44.95 taxed

In *Kings Quest II – Romancing the Throne* – journey along with King Graham, inheritor of the Daventry throne. Search for the magic keys that will lead to an enchanted land, miles and dimensions away. Explore underground caverns, eerie towers and ocean wonderlands.



Help King Graham unlock the secrets that will lead him to the rescue of a princess locked away in a secret tower. Ride flying carpets. Meet and mingle with legendary characters like King Neptune and Count Dracula.

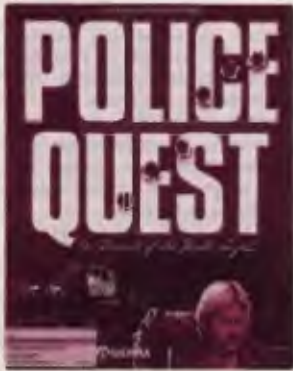
For IBM, Tandy and MS-DOS compatibles. Supports EGA, CGA, MCGA, VGA and Hercules monochrome graphics cards. Joystick optional.

Police Quest
Ozi Soft
Phone: (02) 211 1266
Price: \$55.95 taxed

Police Quest takes place in Lytton, a small town with a growing problem. A major criminal, dubbed by the Press as 'Death Angel' is creating havoc in the community – drug trafficking, robbery and murder. In *Police*

NEW PRODUCTS

Quest, you take on the role of a street cop in uniform. You'll deal with the routine of police life such as handing out tickets, attending briefings and so on. If you make it to 'good cop', you may be asked to go undercover in an assignment to infiltrate Death Angel's gang and bring the racketeer to justice. You must follow standard police procedures throughout the game.



Suitable for IBM, Tandy and

MS-DOS compatible. Supports EGA, CGA, MCGA, VGA and Hercules monochrome graphics cards. Joy-stick optional.

R&B range

R&B Software

Price: See below

R&B Software has a range of inexpensive software for the Apple II, IIC and IBM or compatibles.

Mouse Clock is a PRODOS compatible, software driven, on-screen clock for the Apple IIC. The Financial Companion is a financial utility for calculating loans, mortgages, superannuation, investments and so on (Apple II and IBM). Jackpot is an on-screen simulation of a poker machine (Apple II and IBM). These three products are priced at \$19.95 each plus \$2 postage; R&B Software's postal address is PO Box 168, Melbourne Airport 3045 Victoria.

Another release from R&B is PRO-CAD, a Cad design system for designing custom made, sin-

gle- and double-sided printed circuit boards. Includes full auto-routing and several sizes of printouts. PRO-CAD costs \$79.95 and is for the Apple II series only. According to R&B, this product will be available soon.

GOfer for the Mac

TRIO

Technology Marketing

Phone: (09) 321 4724

Price: \$179 taxed

GOfer is a high speed text search and retrieval program that finds and displays text inside of files, without prior of indexing archival material.

GOfer can initiate searches from within an application program and the search will continue in the background. It will begin a search with a single word or phrase, or perform complex searches using Boolean AND/OR/NOT logic. An on-screen, real time summary of search progress is provided, even during background searches. GOfer also

expands the capabilities of Macintosh Clipboard by allowing users to copy many times to Clipboard, without losing previously copied text.

Helicopter Simulator

Ozi Soft

Phone: (02) 211 1266

Price: \$55.95 taxed

Fancy a ride in a whirly-bird?



Then check out Helicopter Simulator. This game is a three-di-

Two Fingers... Two Hands!



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Low cost software is now available for your IBM & compatible PC or your Commodore 64/128. Quality user supported and public domain software is available for \$12 a disk. No membership charges, no postage charges, no requirement to purchase more, just quality software at very low prices. Below we list just some of our great programs for the IBM PC. Call or write for your complete 16 page catalogue free of charge. No obligations, just the opportunity to save money.

BUSINESS

PC1009 PC DESK: Good program that allows you to keep a file of names and addresses and easily merge them into your documents using the inbuilt word processor. Also provides handy access to a calendar, calculator and phone dialler.

PC1022 TURBO SPELL: Spelling checking program that includes its own large dictionary and allows you to add your own words easily.

PC1037 READRITE: Memory resident style analyser that allows you to determine the readability using the Flesch scale, of text on your screen as you type it.

PC1080 THOUGHT ORGANISER: Thor, a brain scanning program. Allows you to outline your thoughts and ideas on any topic and review them, edit them, scan them, and print them as you need. Great for students and business people.

PC1220 ONBASE DATABASE: Excellent memory resident "pop-up" database which allows you to have up to three databases resident on your computer at all times.

PC1240 FILEMASTER: Program designed to help you manage your paper files. Allows you to maintain them in serial order and look them up by subject, category, sender, receiver, or a number of other criteria.

PC1400 LOTUS COMPATIBLE SPREADSHEET: AsEasy, an excellent Lotus 123 compatible spreadsheet program with almost all the features of its famous counterpart, and a host of power features.

PC1410 INSTACALC: Powerful memory resident "pop-up" spreadsheet which can read Lotus files. Can import data direct from screen and export data directly into word processing documents.

PC1623 PC BILL MASTER: Cheque book management program which is very easy to use. Has a regular cheque book register type display and maintains recurring payments. Allows for easy bank statement balancing, and up to 100 ledger accounts.

PC1681 SOLVE-IT: Financial analysis program which calculates return on investment, break even analysis, depreciation schedules, loan schedules and even statistics. Computes 28 functions in all.

PC1750 SPC INVENTORY: Good inventory program which keeps track of sales, stock, and replacement cost. Can add sales tax, and handles up to three selling prices per item.

PC1860 MANAGEMENT TUTOR: Collection of programs that provide a complete computerised management course. Covers communication, delegation, decision making, interviewing, and planning.

PC1962 EASY PROJECT: Project management tool which allows upto 20 user defined project phases, unlimited number of resources per project, up to 1000 user defined tasks per project, fast data entry, automatic scheduling, and Gantt chart production.

PC3101 OVERVIEW: DOS shell file manager for hard disk users. Enables you to carry out routine file commands easily as well as providing a tree directory of your drive, multiple window access to up to six directories, file view function, and more.

PC3230 CP/M TRANSFER: Excellent CP/M to DOS transfer utility that also includes a CP/M emulator. Allows you to read Osborne, Kaypro, Morrow, and other CP/M formats, and even run the CP/M programs on your PC. **TWO DISK SET.**

PC3270 SOFT-TOUCH: Keyboard utility that allows you to program individual key combinations with user defined keystrokes or macros. Also allows you to combine three keystrokes into even larger macros.

PC3400 LQ: Memory resident printer utility that allows you to produce letter quality print on inexpensive dot matrix printers. Also lets you use different font sets on your printer with four fonts available at all times. Suitable for Epson, Star, Citoh, and IBM Proprinter.

PC3450 CLASER: Excellent utility for HP Laserjet users. Allows easy choice of printer fonts, printer port, graphic screen dumps, and even allows Laserjet to emulate an Epson FX printer.

PC3500 P-BASIC: BASIC compatible basic interpreter. Runs almost all Basic software. Suitable for Amstra PCs to replace non compatible BASIC-2.

PC5030 OPTIKS: Astounding graphics package which allows you to read and write almost any graphics format including MacPaint, PCPaintbrush, Newsroom, MS Paint, and more. Supports most printers including HP Laserjet, and even supports scanners. Most powerful graphics package we have seen. **TWO DISK SET.**

PC5750 BARCODE GENERATOR: Create barcodes with this program and your printer. Uses 3 of 9 system which allows for full alphanumeric coding. Configured for Epson and IBM Proprinter, but can be configured for other printers.

RECREATION

PC2030 3D CHESS: Excellent graphics chess game suitable for both CGA and Hercules video. Multiple levels of play from beginner to champion. Allows analysis of play, help as you play, and a true three dimensional view of the screen.

PC2042 DIAMOND BASEBALL: Text simulation of the play by play action of a baseball game. You are presented with all the situations faced by a major league manager. So good it was used by a US radio station to simulate a game cancelled due to a strike.

PC2060 AMERICAS CUP YACHT RACE: Excellent graphics game which allows you to race the cup from your PC. Control the rudder and the sails as you tack and round the buoys with the best. This game has to be seen to be believed.

PC2052 REFLEX POINT: Graphics game where you have to save the Earth from Invids. In order to complete your mission you will use motor cycles that become body armour and jets that become robots.

PC2054 NINJA: Martial arts game which combines platforms with arcade action fighting. Requires CGA video card.

PC2100 SLEUTH: Adventure game where you have to find the murderer. Each time you play a new scenario is produced so you never get bored.

PC2106 SPACE QUEST: Adventure game with graphics where you are travelling through space and as you near your destination, trouble strikes.

PC2110 BRAINSCAPE: Excellent educational adventure game which teaches you neuroanatomy as you play. You find yourself alone in the brain fighting to find your way out. Interesting graphics.

PC2202 BLACK JACK TUTOR: Blackjack game which actually helps you improve your game. You play against the computer which helps you practice new tactics and strategy as you play.

PC2300 WAR ON THE SEA: High level strategic and tactical simulation of typical World War II naval campaigns.

PC2353 MEGAGOPOLY: Great investment strategy game. You inherit \$100,000 and must obtain financial independence. Test your investment skills whilst having fun.

PC2800 ASTROTIT: Adult arcade game. Destroy the falling objects before they destroy you. However you have to see them to believe them. Great fun for adults.

PC2806 FRENCH: Adult adventure game based in a French whorehouse. Find your way out but make sure you "look" at all the girls first.

PC8005 ABC: Good program for children to learn letters and numbers, and also develop their computer literacy.

PC8020 CALCULUS TUTOR: Good program for those ready to learn Calculus and advanced mathematics. Covers trigonometry, algebra, exponents and more.

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**Commodore 64 Software
also available**

NEW PRODUCTS

mensional simulation of an helicopter ride - with you as the pilot.

It features flight maneuvers not normally possible with airplane or jet simulators: fly sideways, backwards or rotate a full 360 degrees while hovering in mid-air. You can employ fast or slow scan to give you a full 360 degree of your surroundings, or you can operate your Zoom Control for extreme close-ups. Or, if you feel like getting out of the pilot's seat for a while, you can see out-of-ship points of view from the radar tower or ground-level.

There are four playing modes to choose from: flight, target practise, combat (against computer) and an optional two-player game via modems.

Birthday Times

Tandy/Hallmark

Phone: (02) 675 1222 (Tandy)

Price: \$5

The Birthday Times Certificate is the latest novel way to celebrate birthdays. It is the result of co-operation between Tandy and Hallmark Cards Australia. The Certificate is obtained by entering a name and corresponding date of birth into a Tandy 1000 TX computer which contains Hallmark's The Birthday Times database; the certificate is generated through an NEC P-660 Pin-writer printer.

The Certificate contains facts and trivia relating to a person's day, month and year of birth. This information includes news of the month, tunes of the time, famous people who share your birthday and famous firsts. It is available in nearly 100 leading newsagents and card and gift shops around Australia.

Pointing Device Adapter

Bryte Software Services

Phone: (02) 290 2844

Price: \$140 taxed

The PDA is a short board which allows you to convert almost any serial pointing device (for example, a mouse or trackball) to a bus version. This generally improves performance and frees a serial port.

A sophisticated software driver (MAP) is supplied with the PDA.

The driver constantly adjusts the cursor movement relative to the speed, as well as the direction of the pointing device. If you move the device slowly, the cursor moves pixel by pixel; if moved quickly, the cursor flies across the screen.

The PDA has a sensitivity range of 50 dpi to 1000 dpi. It is fully compatible with FastTrap (see review YC Nov.'88) and PC-TRAC.

WordFinder

TRIO

Technology Marketing

Phone: (09) 321 4724

Price: \$129 taxed

Can't quite find the right word? TRIO has just released WordFinder, a thesaurus available for the Macintosh.

A word is highlighted using the mouse, then WordFinder is selected. Synonyms for the highlighted word are instantly displayed. Double-click on a chosen synonym and the highlighted word is automatically replaced. You can also look up synonyms of synonyms. There are 220,000 words in 302 Kbyte of disk space.

WordFinder is compatible with HyperCard and MultiFinder. It requires less than 50 Kbyte of RAM and can be used with MacWrite, PageMaker 3.0, Microsoft Word and many other packages. Available for both Macs and IBM PCs.

Shareware

Manacomm

Phone: (07) 374 1311

Price: See below

Manacomm has recently expanded its services to include registration for Shareware products. After negotiations with overseas-based Shareware authors, Manacomm is now able to keep certain products Shareware, as long as certain levels of registration are maintained. Membership is \$38 per annum (plus \$5 post and handling per order) and includes the bi-monthly *Shareware* magazine and members' specials on disk purchases. Members outside the Brisbane area have access to the 008 toll free order line.

An order can be placed 24 hours a day on the pre-programmed order line and will dispatched in 48 hours.

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PLUS LQ Printer: \$5295 inc. tax

SAMSUNG 40Mb AT with EGA colour, **PLUS 2 colour network stations complete with software \$9750 inc. tax**

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NEW PRODUCTS

The One Minute Manager DSE

Phone: (02) 888 3200
Price: \$199 taxed

If you gave a copy of the best-selling management book *The One Minute Manager* as a present last year, why not give the software package. Putting The One Minute Manager to Work, this year?

This package allows managers to quickly and easily use the skills they have read in the book in their day to day job. It's simple to operate, with no special computer skills required as it uses on-screen help as a guide through the program.

The Office Buggy

Stack & Store
Phone: (02) 652 1565
Price: Not supplied

If you are sick of cleaning up the chaos of computer printouts, manuals and disks that spill out of the home office, the biggest hint you can give is The Office Buggy. The Buggy is an organizer designed for both printouts and hanging files. It has two drawers underneath the hanging space for stationary, manuals and disks.



The Office Buggy is mobile and made of steel.

Up and Running

Manacomm
Phone: (07) 374 1311
Price: See below

Up and Running is a selection of eight Shareware programs: PC-File+ is a powerful database manager from Buttonware for business and home use; PC-Calc+ is an easy to use spread-

sheet for all types of business accounting; PC-Outline is a tool that allows you to outline your presentation; Procomm is a telecommunications package; PC-Write and Galaxy are two word processing packages. Powermenu is a menu driven software management utility, while Automenu is a menu management program

Members can order all eight programs (on 13 disks) for \$100.

Computec

K-Mart
Price: \$17.95

This is a great pressie for *anyone* you know who uses a computer – the Computec floppy disk holder.



It is made of polystyrene and offers storage capacity for up to 100 5 1/4 inch floppy disks. The two way hinge enables the lid to be flipped back or removed completely, if desired, for easy access. Also, the base can be nested in the lid to enable more table room. Three position index system dividers, with snap-on label tabs, are provided. Available from most K-Mart and Super K-Mart stores.

Fluent Laser Fonts

Solutions
Phone: (075) 395 422
Price: \$175 per font (taxed)

Solutions is now distributing the CasadyWare range of Fluent Laser Fonts for the Apple Macintosh. There are 22 fonts available, and each font includes screen and printer fonts for use with PostScript printers.

The fonts can be scaled to any point size supported by the application program. They can be printed at the maximum resolution of the attached PostScript

printer. Each font includes clear screen fonts in four or five point sizes and allows extensive kerning pair information for automatic kerning.

All fonts support Western European and Scandinavian languages.

Challenger Pack

DSE
Phone: (02) 888 3200
Price: \$29.95 taxed

Space games – The year is 2050 and darkness has descended upon the world. Enemy forces have captured the once peaceful earth, turning everything to ruin and despair. Only you can save the world from utter destruction! Enter the cockpit and blast off to fight the waves of enemy starfighters! Use your turbo capability and laser weaponry to blow them out of the galaxy.

Board games – Sweep across the board to victory! Use your cunning mind and sheer determination to take the match! Capture your opponent's king in chess, roll the dice to obtain a winning card and much, much more!



For IBM, Apple and Commodore machines.

Kings Quest III

Ozi Soft
Phone: (02) 211 1266
Price: \$44.95 taxed

To Heir is Human is the third game in the Kings Quest series. Step into the tattered shoes of Gwydion, a young slave serving the powerful and evil wizard, Manannan. Use your wit to learn his magic spells. But be careful, for if the evil wizard catches you

with his magic he will surely kill you.

Embark upon perilous voyages to distant lands, Encounter beings, both mystical and mythological, from fiction and fairy tales. With wisdom and resourcefulness you will progress far, perhaps uncovering your unknown destiny.



For IBM, Tandy and MS-DOS compatibles. Supports EGA, CGA, MCGA, VGA and Hercules monochrome graphics cards. Joystick optional.

Under the Tree

Identity PC

Data Decor
Phone: (03) 429 9488
Price: Not supplied

The Identity PC workstation enables a full micro computer system, including a printer, to be maintained as a self contained unit and to be moved easily between work areas. It features adjustable keyboard platform, VDU platform and printer platform, as well as convenient drop sides.

Sizes of the main work surface, the printer platform and the drop sides can all be varied to suit the space required or the system that needs to be accommodated. Identity PC is available in a variety of colours and in either textured laminate or veneer finish.

M290

Olivetti
Phone: (02) 358 2655
Price: See below

Olivetti has released its latest entry-level workstation, the

NEW PRODUCTS



M290. It uses an 80286 processor running at 12 MHz. Either 1 or 2 Mbyte of RAM memory, is available as well as hard disks of up to 100 Mbyte.

The M290 has architecture based on a plug-in CPU board, which can be easily replaced as newer, more powerful processors are developed. Olivetti has also released three video subsystems offering high resolution graphic. These screen controllers can be added to all new and existing Olivetti PCs.

The M290 is priced from \$6853 (taxed) for a basic model, comprising a mono monitor, 20 Mbyte memory and 1 Mbyte of RAM.

Newviews

Comprop
Phone: (07) 232 0454
Price: \$695

NewViews is an integrated, full-featured accounting package. It has an unorthodox approach to accounting in that you set up reports for such items as balance sheet accounts, income statement accounts and inventory items, instead of a traditional chart of accounts.

You type in the list of accounts and subaccounts as you want them to appear in your reports and use whatever formatting you want. What you see on-screen is how a finished report will look

when it is printed out.

Setting up the report arithmetic for your reports is fast and easy; you tell the program where totals and underlines should appear and what account you want items to total into. The program does all the work after that.

You never have to enter the added lines for traditional double-entry bookkeeping.

The program is actually crediting cash and debiting the phone expense account. In a more complex transaction, on the bank line you would put in the date and description, then expand and type in the names of account descriptions and amounts to be credited.

The information is immediately cross-referenced to each of the accounts. The totals will also automatically appear in the total column of the bank line; this can be modified and printed as a credited.

As the numbers affected are immediately updated in the real-time feature, changes wouldn't ordinarily appear in an audit trail, but the program provides one with numbers for easy tracking of changes.

You never post or close the books in Newviews. This means that you can generate reports from any periods you've entered, up to 10 years, by putting the starting and ending dates at the top of the Analysis View columns.

A disk of demonstration files is supplied to help the user get familiar with the program. Context sensitive help is given in pop-up windows and registered owners get a quarterly newsletter full of program tips.

Deja View

Sourceware
Phone: (02) 427 7999
Price: \$205 taxed

Deja View is a memory resident utility program that minimises the effects of sudden power system crashes on PCs. It prevents data loss due to power failure, or other mishaps, by regularly saving the contents of a PC's memory to its hard disk.

Deja View features a keyboard buffer memory of 150 keystrokes, which means that it can save files without interrupting the user. With the auto-save option activated, Deja View will automatically save data at time intervals specified by the user, or after a certain number of keystrokes have been entered. It also lets

users run two different application programs on their PCs, switching between them with three keystrokes.

DeskPaint V2.0

TRIO Technology
Phone: (09) 321 4724
Price: \$249 taxed

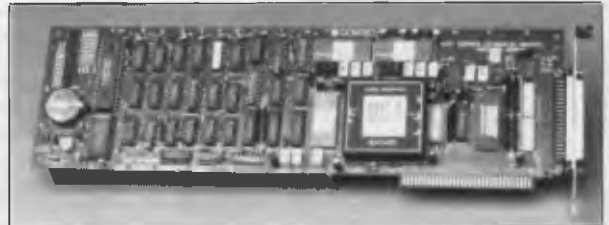
DeskPaint Version 2.0 is a complete graphic package that gives you Paint, Tiff and Draw editing in two desk accessories. The DeskPaint 2.0 desk accessory creates, loads, edits and saves bitmap graphics, including TIFF, MacPaint and PICT formats. Bitmaps up to 4000 dpi resolution are supported.

A special feature of DeskPaint is Auto-Trace, a facility for tracing bitmap images (TIFF or MacPaint) to PICT objects that can be edited, rotated and resized in DeskDraw (or MacDraw II) and printed at high quality on Laser-Writer and Linotype printers.

Also included is a handy utility that converts Mac TIFF images to IBM PC TIFF format.

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NEW PRODUCTS



Spring range

Spring Circle Technology

Phone: (02) 540 2499
Price: Not supplied

Spring Circle Technology has released a range of computers onto the Australian market. These include the Spring Compact 88 (4.77/10 MHz, 640 Kbyte memory); Spring Compact 286 (6/10 MHz, 640 Kbyte or 1 Mbyte); Spring Tower 286 (6/10 MHz, 640 Kbyte or 6/12 MHz, 1 Mbyte), and the Spring Tower 386 16/20 MHz, 1 or 4 Mbyte).

The Spring Compact 286 system features an RS232 serial port, parallel printer port, a 1.2 Mbyte floppy disk drive with second drive option and either a 20 or 40 Mbyte hard disk. The Spring 386 system features 20 MHz zero wait state, a 32-bit RAM expansion adapter, an RS232 serial port, parallel printer port and a disk controller. A 1.2 Mbyte floppy disk drive is installed with a second drive option.

CCS Designer

Electronic Solutions
Phone: (02) 427 4422
Price: \$299

CCS Designer is a Cad package with the ability to enlarge, rotate, zoom, paint, fill, undo, redo, flip, move, copy, delete and save sections of drawings. It supports arcs and curves, and has an adjustable grid and snap gravity point. Multiple character sets and 8 line types with adjustable thickness are also supported. Auto dimensioning and scaling and colour support are also featured.

CCS Designer runs on any IBM PC or compatible with 512 Kbyte of RAM. Built-in printer drivers support 180 mice, 52 input devices, 77 plotters and over 140 printers including laser and matrix types. Three libraries of symbols are available: electrical/electronic, home design and furnishing and flow charts.

SPOT

The Computer Factory
Phone: (02) 938 2522
Price: \$1595 untaxed

SPOT is a trainable optical character recognition (OCR) program. The program, as you receive it, is completely ignorant of

what the collections of dots it sees actually mean: you must train it by telling it which characters correspond to which pictures of dots. This training process is simple, and you only need to do it once for each typestyle you to be scanned. In general, there are two parts to the OCR process – first, train on the typestyle to be scanned and then scan documents using the trained typestyle.

SPOT includes features to expedite both of these processes, with options to allow you to customize the program such as a font editor, a facility to scan images into a compressed file and text output options. SPOT requires an IBM PC, XT, AT or compatible with at least 513 Kbyte total system memory.

Identity PC

Data Decor
Phone: (03) 429 9488
Price: Not supplied

The Identity PC workstation enables a full micro computer system, including a printer, to be maintained as a self contained unit and to be moved easily between work areas. It features adjustable keyboard platform, VDU platform and printer platform, as well as convenient drop sides.



Sizes of the main work surface, the printer platform and the drop sides can all be varied to suit the space required or the system that needs to be accommodated. Identity PC is available in a variety of colours and in either textured laminate or veneer finish.

Davrelle Wand

MicroAustralia
Phone: (02) 736 3299
Price: \$1479 untaxed

The Davrelle Wand allows infra-red remote control of slideshow presentations in any package, including Davrelle, Harvard Graphics, Concorde and Ventura Publisher.



It has a remote control keypad and senses infra-red signals to a receiver which plugs into a standard serial communications port. When the Wand is installed, a template can be chosen (for example, Davrelle or Harvard Graphics). This template is used to interpret the meaning of each Wand key as it is pressed, to make the Wand work with the particular software package. Any key on the Wand can be set to start a macro or type a key script on the PC. It comes with a carry case.

My PC

Grace Bros
Phone: (02) 218 2948
Price: \$1699

For all those colour co-ordinated yuppies out there, Grace Bros and Imagineering have joined forces to release My PC, in two startling colours. You have the choice of either porcelain blue or aquamarine green. According to Imagineering, My PC is suitable for business people working from home, as well as entrepreneurs who want to jazz up the office



My PC has a VGA colour monitor, a joy-stick controller card and comes with two Epyx games. It is MS-DOS compatible, has 512 Kbyte of memory, twin floppy drives and a multi-function board. Every purchaser is eligible to six months membership to Murphy Line, an after-hours computer query service.

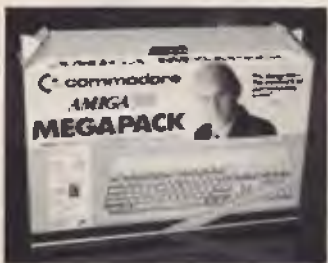
Commodore Computer Packs

Commodore
Phone: (02) 427 4888
Price: See below

Thinking of a computer for the kids for Christmas? Commodore has a number of packages available for its Commodore and Amiga ranges of computers. The C64 Family Pack is priced at \$349 and the C64 Pro Pack is priced at \$669. The A500 Pack is priced at \$999.



The A500 MegaPack is the Mega Amiga 500 with extra memory, word processing software and training tapes; priced at \$1499. The PC-Colt is a 640 Kbyte, colour IBM XT compatible; it is priced at \$1299. All prices recommended retail.



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POWER AND FUNCTION

- Motorola 68000 or 68010 processor.
- 512K bytes RAM as standard.
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- Optional disk/co-processor card.
- Four 80 pin expansion slots.
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- Centronics compatible parallel printer port.
- General purpose digital to analogue I/O port.
- Analogue two-button joystick port.
- Graphics: 320H x 200V 16 colours, 640H x 200V any four of 16 colours.
- Standard RGBI interface or composite video.

THE OPERATING SYSTEM

1616/OS is a programmer's delight

- ROM resident.
- Inbuilt screen editor.
- File & Directory management.
- I/O redirection.
- Over 100 documented internal system calls.
- Monitor functions.
- Installable drivers.
- Unprecedented Hardware accessibility.
- Windows and graphics and more . . .

The flexibility and power of 1616/OS make it a pleasure to use. Complicated tasks are simple.

"C" DEVELOPMENT SYSTEM

All Australian. The Hi-Tech "C" Compiler running under 1616/OS comes with macro assembler, linker and librarian. The special Applix Library utilises the power of the 1616

system calls. A cross-compiler running under MS-DOS and producing code for the 68000 is also available.

DISK/CO-PROCESSOR CARD

Truly a computer in its own right, the 1616 Disk Controller Card adds another dimension to the 1616 system.

SSDCC Technical Features:

- On board Z80H CPU (running at 8Mhz).
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- 8K to 64K of static RAM.
- WD17722 disk controller chip.
- Supports both 3.5" and 5.25" DS 80 track floppy drives.

Options:

- SCSI hard disk interface using the NCR5380.
- Two additional serial ports (under Z80 control) using the Z8530 SCC.
- CP/M support



JOIN THE HUNDREDS OF 1616 USERS

Mini kits start at \$239, basic kits from \$599, keyboard \$139, power supplies from \$89, disk controller kit from \$249. Fully built ready to run systems \$1800.

All software has been specially integrated into 1616/OS to utilise the 1616s power.

68000 macro assembler free, 32 bit forth including source \$89

SS Basic \$69 Hi-Tech "C" \$275

If you require further information, pricing and updates, user groups information.

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Multimate Adv II	\$689
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WordStar 2000 + Rel 3	\$495
Microsoft Word	Call

GRAPHICS

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Harvard Graphics	\$625
Magician	\$399
GEM Draw	Call
Ventura	Call

UTILITIES

Norton Utilities	\$120
Norton Advanced	\$189
Norton Commander	\$105
Xtree Pro	Call
DS Backup Plus	\$175
TypeQuick	\$84
Fastback Plus	\$299
Sideways	\$105
PC Tools Deluxe	\$115
Complete PC Tutorial	Call

COMMUNICATIONS

Gateway V3	\$149
Crosstalk	Call
Mirror	\$125

INTEGRATED

Framework III	Call
Symphony	\$945
Open Access II	\$975

BORLAND

Sprint	Call
Quattro	\$285
Turbo Pascal V.5	\$195
Turbo ProLog V.2	\$195
Turbo Basic V.2	\$195
Turbo C V.2	\$195
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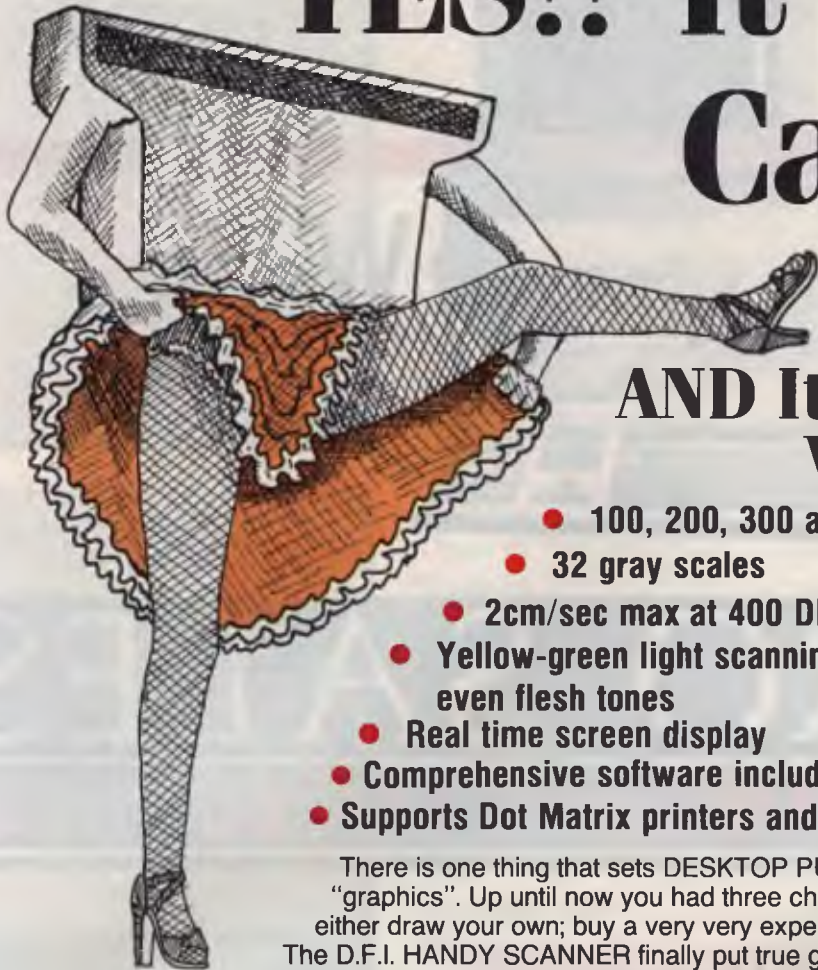
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STEWART FIST

Taxing your patience

I AM ONE of those computer buffs who actually tried to keep recipes on my original Apple ... until the egg white started sticking up the keys. I also became embroiled in the fad to computerise phone and contact lists, with electronic appointment/work record diaries, and with day-by-day pocket accounting systems, where you kept an electronic record of every petty cash payment on a pocket-sized super calculator ... theoretically!

At one stage I actually bought a Tandy 100, simply for the convenience of always having it with me to computerise all the records I was keeping. The only trouble was, it wasn't much of a convenience: who wants to lug around a \$600 portable (with flat batteries half the time) when a \$1 Spirax notebook was just as good?

However, I'm still the eternal optimist when it comes to computers. I always seem to get caught up with naive enthusiasm every time some software house announces that they have a 'unique solution' to a problem – even though in most cases these are problems that I haven't previously experienced.

But there's one thing of which I'm sure: that the Apple with a simple accounting system is the ideal way to keep my cheque book in line and help organise my end-of-year tax records. At least, I think so!

I work from home through a husband/wife proprietary company, and we only keep one combined cheque account and a couple of credit cards – so nothing in accounting could be much simpler. But here is the rub: accounting packages are designed for companies with accounting complexity – not for people with simple needs.

I've tried every Apple package and spreadsheet technique I can lay my hands upon, and nothing has worked (yet), as well as the old pencil and 13-column cash book. But never let it be said that I gave up!

I've finally come to the realisation that Apple accounting packages are created for, and by, accountants; and accountants love to complicate things. If they can take a simple list of items purchased, quadruple them, allocate them to 364 different double-entry accounts where costs are seen as credits and items as assets, and then introduce special techniques to balancing the various files, and then automate the whole procedure to produce a series of reports that no one other than an accountant can read ... they are happy. With this amount of confusion, they feel, life has not been wasted.

*I've tried every Apple
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hands upon, and nothing
has worked (yet) . . .*

The trouble is that accounting programs function on the belief that the world is perfect; that everything always adds up – and anyone who has ever worked on computers knows that this is not so!

Dollars and Sense (D&S) is a good case in point. The interface was designed by the village idiot, but essentially, once you get a hang of the program, it works okay. I used it for one year to keep my accounts. Never again.

The problem was that D&S will not let

you exit from the program until everything adds up perfectly, and my accounts very rarely do. When I finally get down to entering data from my cheque book (or from Bankcard) nothing ever quite matches.

Sometimes I've forgotten to write down a cheque amount, or there's a blank stub, and I want to leave that figure open until the bank statement arrives; sometimes the cheque paid to the credit card company doesn't exactly match the list of items, because the wrong amount was paid at the wrong time, or some figures are in dispute, and so on. So D&S's insistence that I get it right before I can close down is infuriating, and it ends up making more work than it saves.

However, to be fair, a moderate size small-business, with one person willing to spend a couple of hours a day on the program, D&S would be excellent. It just doesn't happen to fit the way I work, or the casual (impulsive?) way I want to enter records. Nor do any of the other accounting programs that I have tried and rejected since.

AppleWorks spreadsheet

The AppleWorks spreadsheet was my most recent try at getting something simple to work. I kept the procedure simple and basic with separate SS files for the cheque book, pay-in book, credit cards and bank fees. I then allocate every cost or income to a separate column in the appropriate file, according to whether they were home/private expenses, or business expenses, taxable income, or just loan money passing through the account and so on. I had thirteen major categories.

My columns extended from A to X, with a couple of special categories, like one to keep track of house renovation expenses. The whole system worked extremely well except for the fact that it is a real curse to enter data into spreadsheets; you spend half your time on the arrow keys jumping

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columns. It also took a 1 megabyte GS to hold the spreadsheet towards the end of the year, and trying to print out a spreadsheet on A4 fanfold paper, then stick it together, is a nightmare of truly gigantic proportions.

*Use AppleWorks'
database as the entry
screen, then only
transfer across to
spreadsheets for the final
additions at the end of
the year.*

So after a lot of thought, here is the final solution; I'm giving you this advice for free.

Use AppleWorks' database as the entry screen, then only transfer across to spreadsheets for the final additions at the end of the year. This means that entry into the database is quick and easy and you will only need one long session of consolidation in July.

I've set up only two primary files; one for cheques, bank charges and pay-ins, and the other for all credit cards. You need to have these two because the credit card file allows you to allocate individual items, but the total charge for each month is already in the main account as a cheque paid out to the credit card company.

I've got a standard set of fields for both files: Date, ChequeNumber, PaidTo, Amount, ForWhat, Category, Check.

In the Credit Card file I use the Cheque-Number field to record which credit card and the month of the invoice, so, if there are queries, it is easy to find the reference.

The PaidTo field also doubles as a PayIn field for deposits, and the Check field lets me add a 'tick' whenever something has been checked off against the bank statement during reconciliation. The point is that the whole lot fits across the screen in

the tables mode without scrolling, and in that mode it is dead easy to add details one at a time.

The key here is that I am never going to end up with the traditional large spreadsheet, multi-column layout, anyway: that's for the birds! I came to realise that spreadsheets like this are simply an attempt to translate paper-based systems to computers, unnecessarily (for me, anyway).

Adding up

At the end of the financial year I will simply run through the Credit Card file, selecting all records in, say, the Business category and print that as a DIF file to disk. Then, take it over to a small one-category spreadsheet simply to add it up using the @SUM(X1 ... Xy) function. I'll do this for every category in the Credit Card file, then copy each result to an individual record in the main Cheque/PayIn file. I've already got the Total figure in this file (from the cheques paid) so this gives me a consolidation of the item allocations.

From the Cheque file I will then select on categories again, one at a time, and copy them through DIF over to individual spreadsheets. Once again, I will add them up, then print them out - one to a page. These are my total consolidations in each category of expenses and incomes.

One final spreadsheet with one line for each category (and a few extras for Sundries) should produce a consolidated Profit and Loss sheet. And the whole lot will be only A4 in size, about 30 pages thick, and with more detail than could be included in the old spreadsheet method.

The key factor is that it will also be a lot easier to add information throughout the year, and if I want to keep to a monthly schedule, I can do regular bank reconciliations to make sure no one at the bank is fiddling the books.

If you've got the same problems as me, running a small one/two person company or partnership, I recommend this procedure. If anyone has any better ideas, I'd be pleased to hear from you. □

Hints, tips and ideas!

Got any hints tips or ideas you'd like to share with other Apple users? Or maybe you've discovered (or written) a great new program you'd like to tell others about - if so, send them (on disk) to *Your Computer*, PO Box 227, Waterloo 2015 NSW.

Want to waste time?

JOHN HEPWORTH

Want to waste time? Try re-inventing the wheel. I bet that, as you program, you write the same little routines time after time, and you write routines that perform the same tasks as routines already created by others.

It has always been good programming practice to create subroutines that can easily be merged with new code, thereby allowing a new application to be written in far less time than writing it all from scratch. This has always been possible in Basic, though not always easy with older interpreters and compilers that relied on line numbers to control program flow.

Pascal, with its named functions and procedures made it easier. C makes it essential, for it is a terse language and relies on a standard library of pre-written functions which come with every compiler. Even more importantly, pre-written functions are not merely merged with the rest of the source code and re-compiled time after time, but each function is compiled once. The resulting machine language is linked to the rest of the program when it is compiled.

The standard libraries don't cover all possibilities, and many programmers have created additional libraries of useful or essential functions. Typically, the libraries are sold commercially for several hundred dollars. Now user supported libraries for Microsoft C 5.0, QuickC and Borland Turbo C 1.5 are available. This month I will look at the quaintly named C Spot Run, a truly essential addition to the tool kit of any C programmer.

C Spot Run

C Spot Run (CSR) is a library of C and Assembly routines for C programmers. These routines supplement the standard libraries provided with compilers, and provide tools for specialized applications. The use of pre-written routines greatly reduces the amount of tedious code writing in almost any situation.

Libraries for both small and medium memory models are included for Microsoft C and QuickC in the Shareware version Versions 5.0 and 1.0 up, respectively, are supported. To use CSR with a com-

mand line version of a Microsoft compiler (CL or QCL), simply add the library name to the end of the compile line. In order to compile an application with CSR from within the QuickC, integrated environment it is necessary to create a make file.

CSR is provided for use with Turbo C Version 1.5, in the small memory model. The library is contained in TCSCSR.LIB and works with both the command line and integrated version of Turbo C. In order to use it from within the integrated environment, you must create a Project Make file containing both the application source file names and the complete library file name. The application can then be built from the Compile menu.

Registered users of CSR get source code, and, additionally, receive make files to recompile the Microsoft and Borland libraries. These make files allow easy library maintenance when changes are made to the source for a CSR function, and allow for easy recompilation for any memory model. The source code detects at compile time the current compiler and memory model and uses the preprocessor to make any necessary changes.

CSR functions

A vast range of functions are included in the CSR libraries. The names are pretty cryptic, and are generally derived by condensing a phrase which describes the purpose of the function. This is pretty common practice in C, and most C programmers are pretty adept at divining the purpose of a function from its cryptic names.

A quick glance reveals that the bias is very strongly towards windowing and field input routines, along with disk drive and directory routines, string routines, time and date routines, menuing, screen output and so on. Some simple graphics routines are included for CGA, though with the graphics functions in the standard Microsoft and Borland libraries these are almost irrelevant. Useful are a few simple functions for sending output to the printer via BIOS function call 5.

The disk drive routines can find the number of available logical drives, find or set the default drive, find the first or next file matching a mask. These functions

could be used to achieve almost any directory task, and as an example, the function `dirwin()` is included. It opens a window and displays the names of 36 files in the selected directory. If more than 36 files are in the directory, successive screens are displayed by pressing a key.

CSR Version 3 contains just a few simple graphics for the CGA adapter. They perform simple graphics functions with no concern for the aspect ratio of the screen, relative co-ordinates and so on. All of the functions work with the exact co-ordinates given and assume a 1:1 aspect ratio. They provide a very few basic routines for some form of graphics output, and most users with Microsoft and Borland will use the functions in the standard libraries instead.

A vast range of input routines are included. These fall into three families – general input, field input and window input. The functions in each family are parallel, and the field functions have a 'f' prefix while the window functions have a 'w' prefix. The maximum and minimum range of valid input can be specified. An input mask input can be defined. Field editing can be allowed. Default values can be prescribed.

It has always amazed me how rarely does a C compiler manual, or a C textbook, define any way of sending output to a printer. It is a task vital to many programs even at novice level, but becomes a major task in many cases. CSR 3 includes printer output routines for basic printer control. The routines provide for single character output, string output, and formatted string output. These routines all call DOS function number 5 which means that with the DOS MODE command and so on, the output can be redirected or reformatted.

Timer functions can implement up to ten different elapsed time counters. The counters are numbered from zero to nine. Each may be individually started, stopped, and read. These ten counters work with the internal system clock and are not bus clock rate dependent.

CSR also makes available a range of sound functions for use with the Microsoft compilers. Turbo C has some sound functions, and these are used in preference to

those in CSR. A note can be played for the time specified and for the desired pitch.

CSR has an exceptional range of functions for windows and menus. Routines can perform background/foreground windowing. If a window being addressed for output is overlapped by another window, it is moved to the front of the 'stack' and becomes the active window.

The window library also contains a large number of support routines to make movement of, and output to, windows as easy as possible. There are routines that make pop-up menus, centre text, draw boxes, and do much more. Full colour support is available. For speed, all of the cursor and output functions are in assembler. Source for the windowing routines is not distributed with registered versions of CSR.

Demo program

On disk is a demonstration program called CSRDEMO, in source code as CSRDEMO.C and in executable form as CSRDEMO.EXE. Around one third of the functions in the library are used. An initial menu appears in the centre of the screen, and at the top right of the screen is a window in which the system time and date appear, with the time being constantly updated. The menu has several options - General Information, Windows, Sound, Menuing, Directory Access, Input, Other Features and New Dimension Software.

General Information gives an overall impression of CSR, and New Dimension Software gives details of its publisher. The Windows option shows many powerful ways to create, move overlay and otherwise use the windowing functions. The Sound, Menuing and Directory Access options give some details and demonstrations of the abilities of CSR in these areas. Input refers the user to another program on the disk called CSRORDER, which prompts the user and accepts responses, and then prints out a form to register the package! It again is in .C and .EXE variants and is a good demo in its own right.

I had no problem compiling CSRDEMO.C and CSRORDER.C with Turbo C 1.5, and would expect no problems with Microsoft C or QuickC. They are potent and powerful advertisements for the capabilities of the package.

Documentation

The manual for CSR is in the file CSR30-3.ARC. When extracted from the archive, the manual is nearly 300 kilobytes long

and prints out to around 30 mm thick on A4 paper. After explanatory material are comprehensive descriptions of each and every function in the library. The whole manual is an example that could well be followed by the writers of manuals for several commercial compilers and libraries that come to mind.

Each function has one or more pages to itself. The details for a given function start with its name at the top right corner of the page. Next comes a short summary of the necessary arguments and their data types. The dates the routine was created and last updated are shown.

Other details include the author's name and the name of the source code file, a list of the files in which the code is contained, and a list of other required functions that may not be in every library. Next follows one or more paragraphs describing the function, a paragraph explaining the return value, a list of related functions in the library, and a final example of how it might be used in a portion of code.

*The standard libraries
don't cover all
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Library updates

The CSR routine library is constantly being expanded. Library updates come in one of two forms. Small collections of new routines, or single routines, are placed in archives along with a single page of documentation and distributed via bulletin board systems. After printing out the documentation page, it is inserted in alphabetical order into the manual.

Major updates to the entire library are distributed in archives containing all the routines, and a totally new version of the

complete manual. New Dimension Software has a newsletter for registered users to keep them advised of new versions, and to pass on other advice.

CSR is a product of New Dimensions Software, of 23 Pawtucket Dr., Cherry Hill NJ 08003 USA. Most of the vast range of routines in the library were written by Bob Pritchett, or adapted by him from C routines in the Public Domain. Some of the other routines have been contributed by users, and CSR is becoming a focus for C routines from many sources.

CSR is distributed in three ARC files. CSR30-1.ARC contains all the header files (those with .H extensions normally found in the INCLUDE subdirectory) plus batch files, demonstration .EXE files, and some utility .EXE files. CSR30-2.ARC contains not one, not two but three .LIB files. Each of these is a library of functions, and is easily linked with your own code. One is a library for the small memory model in Turbo C, the others are libraries for small and medium memory models in Microsoft C 5.0 and QuickC. CSR30-3.ARC contains the manual, a truly monumental effort.

There are three levels of registration. Normal registration is \$US50, and includes source code for the routines and batch files for recompiling all the libraries for additional memory models. Normal registration allows use of the libraries in non-commercial programs. To use the libraries in commercial programs, a commercial licence is required costing \$US75, and again includes source code and batch files. Simple registration without the source code is \$US15.

The CSR library of routines and utilities may be freely duplicated and distributed, with some minor restrictions. No fee may be charged, other than reasonable expenses for media and reproduction, with a maximum of \$8. The library must not be distributed by any for-profit corporation, without the express written permission of Bob Pritchett. Credit must be given to New Dimension Software when CSR routines are used in any distributed application, in both the code and program documentation.

I have barely touched upon the power of CSR in this limited space. It suffices to say that, if you use Microsoft C, QuickC or Turbo C you *must* get a copy. The Shareware version only supports a limited range of memory modules, and so I'm sure that quickly you will register and get the source code allowing you to re-compile the library for any memory model you could require. Highly recommended! □

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Engraving and Graphics

RITA PLUKSS

Epicycloids in ST Basic

THERE are many books on the market for computer users, but if you only look at Atari ST specific books you could be missing out on some very interesting computer applications. Computer specific books are great for those areas that teach you how to manipulate your Atari ST to produce a desired result or increase your knowledge in particular areas.

But – there will come a time when you will want to broaden your horizons by doing things that are not in the general run of the mill. This could entail specifically redesigning a database, spreadsheet, desktop publishing environment, graphics or even mathematical computation. At times like this, the general non-computer specific books come into their own.

A few years ago I purchased a book called *Microcomputer Art* by Ross Edwards (Prentice-Hall of Australia, 1985) and it has given me many hours of enjoyment. The entire contents are devoted to reproducing the motion of a geometric pen or geometric lathe on a computer screen. The patterns were taken from a number of different publications, dating from 1851 to 1884 and dealing mainly with the engraving of geometric patterns on wood, metal or glass surfaces.

There are over 600 examples of these patterns and the co-efficients to generate them. In the author's own words 'this book is unique in combining two of the most ingenious of nineteenth and twentieth century technologies: nineteenth century geometric engraving and twentieth century computer graphics'.

Although the program to generate these epicycloid patterns is given for a number of different computers (including 8-bit Ataris), there is no listing for the Atari ST. (The book was written before the ST was released.) To rectify this omission, Listing 2 is a simple ST Basic version of the program, as discussed by Ross Edwards, and will generate epicycloidal patterns on a high resolution monochrome monitor, or with a few minor changes, on a low resolution colour screen.

Epi-what?

So what is an epicycloid? Simply put, it is

the path traced out by a point on a wheel rotating around a second (fixed) wheel. Many of you would have seen this in operation and know it by the patterns generated by the old Spirograph, that can be traced out using various size wheels rotating around each other.

The basic mathematical formula is –

$$f(x) = f(a) + f(b) + f(c)$$

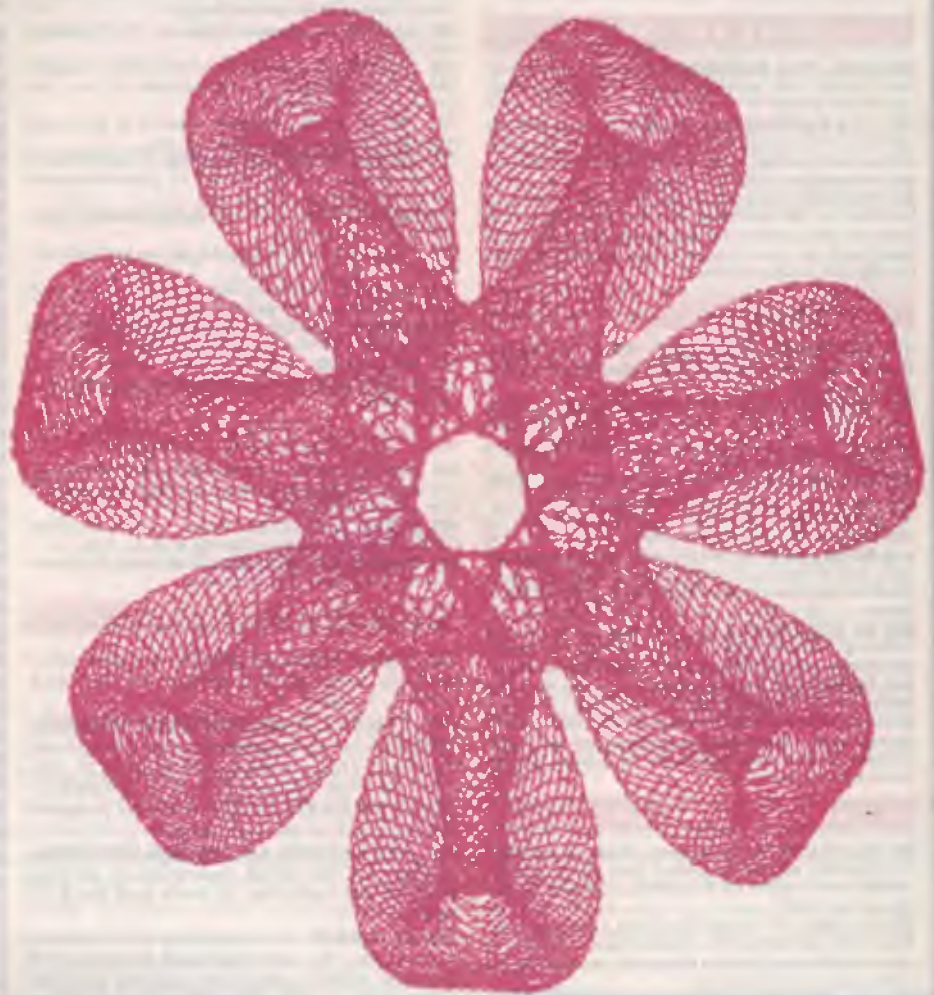
where each of the terms on the right hand side of the equation represents a sine or

cosine function such as –

$f(a) = R\sin(Ua) + S\sin(Va) + T\sin(Wa)$ with the number of terms in the equation increasing with the complexity of the final pattern. The main problem in generating these patterns is working out the values of the constants R, S, T, U, V, W and so on. You can do this by either obtaining Edwards' book, or by trial and error.

Some input variables are –

D – step size. The recommended size is



Produced with the variables from the first line of Table 1.

from 0.01 to 0.0001; smaller values will lead to finer detail but will decrease plotting speed;

R – radius of the second or fixed wheel.

S – radius of the rotating wheel. (R + S is the radius of the curve generated.)

T – radius of a third rotating wheel. (R + S + T is the radius of the curve or the pattern generated.)

N – is the factor that influences the final shape of the pattern (see Line 290 in Listing 2).

As the pattern takes shape you will no-

There will come a time when you will want to broaden your horizons by doing things that are not in the general run of the mill.

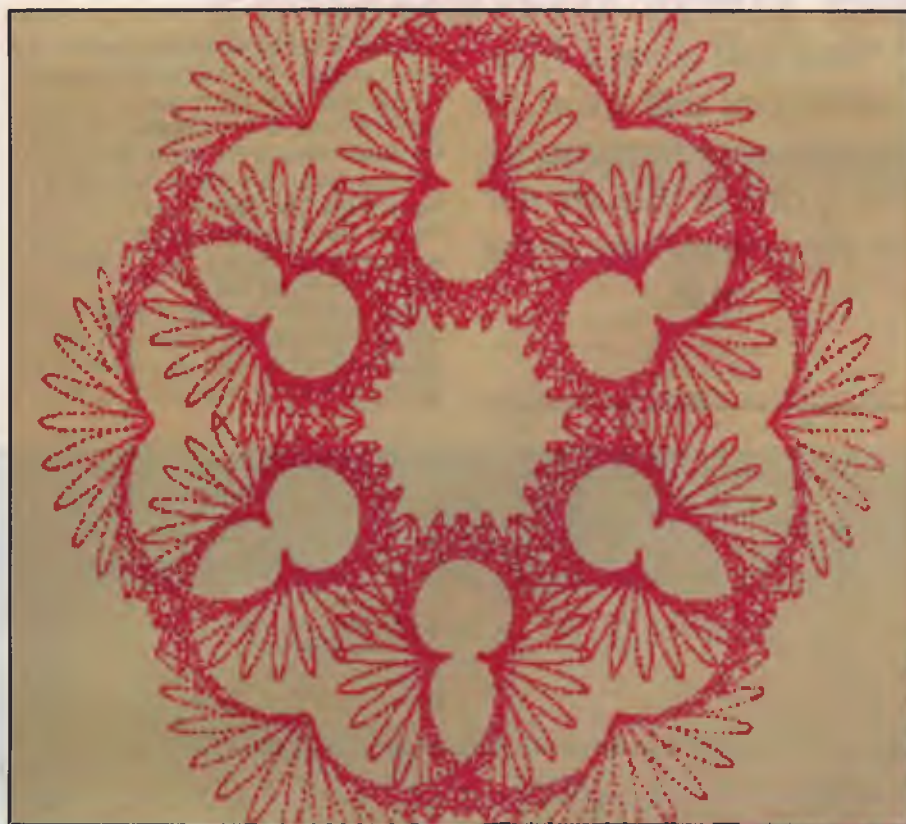
tice that a series of loops or whirls are drawn around a basically circular shape. If N is positive, then the loops are drawn inside the circle; if N is negative, the loops are drawn outside the circle. The number of loops drawn is equal to N-1 and N+1 respectively. The input requires values for NA and NB where $N = NA/NB$. In most instances NB will equal 1, but it is nevertheless an important factor.

If N is fractional then a point on the rolling wheel will only return to its original position after NB rotations (otherwise the pattern will be incomplete). T, U, M, L, V



ATARI

SC1224



Produced with the variables from the second line of Table 1.

```

10 ' EPICYCLOIDAL PICTURE SHOW
20 fullw 2:clearw 2
30 dim Filename$(15),f$(8),b$(4)
40 defdbl Z:Z=SYSTAB+20
50 read f$:if f$="-999" then 260
60 ' Enter picture file names as
data in lines 70-79
70 data filename1,filename2,.... etc.
80 data -999
100 let b$=".pic"
110 Filename$=f$+b$
120 open "R",#1,Filename$
130 close #1
200 '-----
210 PIC.READY:
220 reset:bload Filename$,peek(Z)
230 openw 2:
240 if inp(2)=0 then 250:rem checks
for keypress
250 goto 50
260 close #1:end
    
```

Listing 1. Slideshow – a program to display saved screens in the order you want to see them.

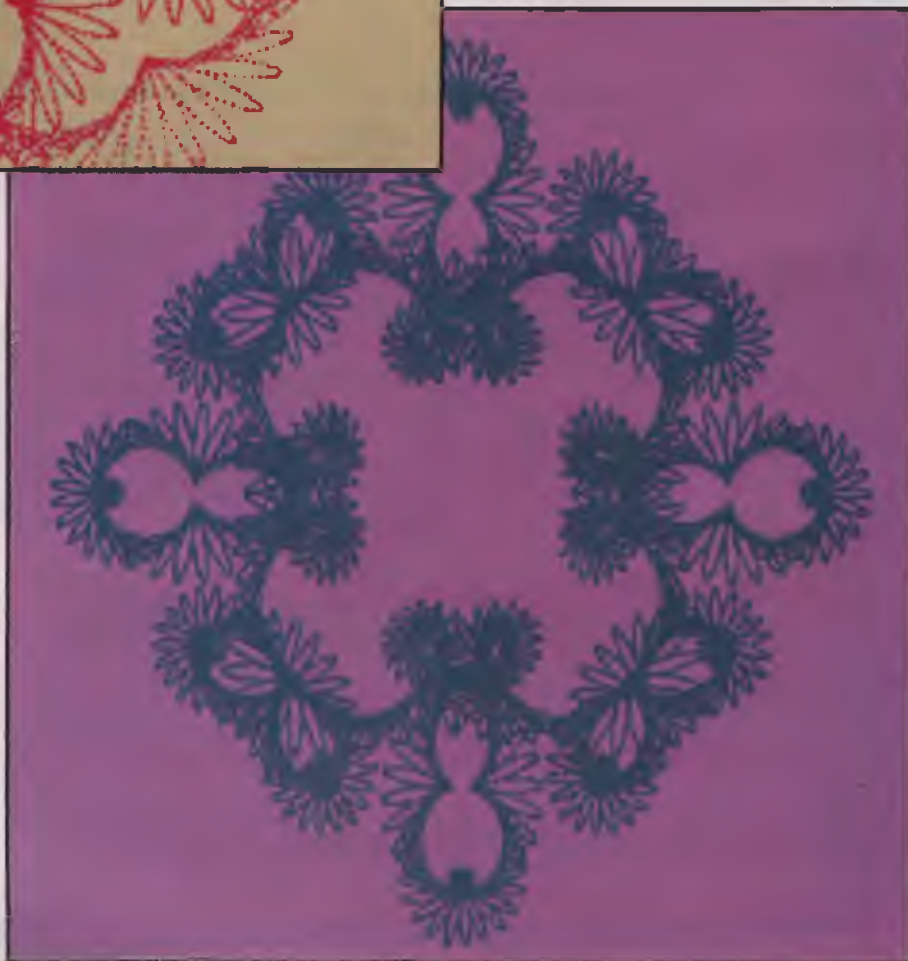
and K are extensions to the basic formula and represent the radius of extra rotating wheels for more complex patterns.

Program lines

Lines 30 to 140 set up the screen and prompt for a filename. This filename will be used to either automatically save the finished pattern or to load in a previously saved screen. Lines 200 to 350 are the actual working program. If you are using a low resolution colour screen change Line 330 to $X = 12 * X + 150$; $Y = 12 * Y + 82$.

Line 410 saves the screen after completion. Lines 510 to 540 are the screen retrieval routine, allowing you to load in and view a previously saved screen. If you are using a low resolution display most of the onscreen prompts will need to be realigned (Lines 50, 60, 220, 230, 250).

Listing 1 is another very simple ST Basic program to display saved screens as a



Produced with the variables from the third line of Table 1.

*The entire contents
are devoted to
reproducing
the motion of
a geometric pen
or geometric lathe
on a computer
screen.*

have access to it. If you have another Basic, or prefer one of the other languages available, it is a simple matter to rewrite the few lines of code to suit your own requirements.

When altering lines in ST Basic, the default character set can be very difficult to

read. To overcome this problem, before you enter the editor type in POKE SYSTAB+2,1 and press Return in direct mode. Editing now becomes a lot simpler, when you want to alter a line you will find that the line is displayed in easily read bold characters. □

D	R	S	T	U	NA	NB	M	L	V	K
0.0005	45	27	6	-13.8	-5	2	-207.5	202.5	0	0
0.0005	56	28	7	6.3	7	1	331	-299	0	0
0.0005	47.5	15	15	4	-7	1	13	622	3.5	-588
0.0005	60	24	14.4	13.6	-5	1	379	-365	0	0
0.005	45	30	12	0	-54	1	110	0	0	0
0.1	40	40	0	0	7	1	0	0	0	0
0.025	30	30	0	0	-12	5	0	0	0	0
0.01	40	20	15	0	-8	1	-26	0	0	0
0.025	30	30	-8	0	-3	5	-10.2	0	0	0

Table 1. Some co-efficients from Edwards' Microcomputer Art – refer to the text for an explanation of the variables. Note that three of the epicycloids with this article were produced from this table.

slideshow In Line 70 you have to enter the names of your own screens in the order you want them retrieved. This slide show must be run from within ST Basic.

Admittedly both programs are quite unsophisticated. However, they do serve a purpose in allowing the beginner to at least start off programming – knowing that there is an achievable result at the end. ST Basic is certainly not the best or fastest Basic around, but as it is included with the purchase of the Atari ST, everyone will

```

10 ' 520/1040ST EPICYCLOIDAL ART
30 fullw 2:clearw 2
40 dim Filename$(15),b$(4),file$(10)
50 print "Enter filename to save or
load (8 characters maximum)"
60 print "(No quotes needed.
Extender '.pic' added by program.)"
70 input file$
80 if len(file$)>8 then 50
90 let b$=".pic"
100 Filename$=file$+b$
110 defdbl Z:Z=SYSTAB+20
120 open "R",#1,Filename$
130 l%=LOF(1):close #1
140 if l%<>0 then goto PIC.READY
200 ' ***EPICYCLOIDAL PLOTTING
ROUTINE***
210 DEFSNG D,K-V
220 ?? "Enter step size between 0.0001
and 0.01 (Smaller values";
230 ? "lead to finer detail but also
decrease plotting speed.)"
240 INPUT D:rem D=stepsize
250 ?? "Enter R,S,T,U,NA,NB,M,L,V,K
(even if the value is zero)"
260 INPUT R,S,T,U,NA,NB,M,L,V,K
270 fullw 2:clearw 2
280 PI=3.14159
290 N=NA/NB:Q=abs(NB+NB)
300 for A=0 to Q*PI+D step D
310 X=R*cos(A)+S*cos(N*A)+T*cos(M*A)
+U*cos(L*A)+V*cos(K*A)
320 Y=R*sin(A)+S*sin(N*A)+T*sin(M*A)
+U*sin(L*A)+V*sin(K*A)
330 X=X+X+307:Y=Y+Y+172
340 LINEF X,Y,X,Y
350 next A
400 ' ***SCREEN SAVE ROUTINE***
410 reset:bsave Filename$,peek(Z),32767
420 end
500 ' ***SCREEN RETRIEVAL ROUTINE***
510 PIC.READY:
520 reset:bload Filename$,peek(Z)
530 openw 2:
540 if inp(2)=0 then 540
550 end
    
```

Listing 2. Epicycloids - a simple ST Basic program to generate epicycloid patterns like those accompanying this column.

Ventures with Venture Writer

SHARON FRANCE

HAVING recently attended the NSW Computer Education Group Conference held in the Blue Mountains, I was disappointed with the absence of third party Microbee software. Microbee Systems itself was there, displaying quite a range of standard 'Bee software titles, but the swarm of small software producers, present at previous conferences, was nowhere to be seen

Microbee Systems had a solid collection of software packages on display, but you had to pick through carefully to locate the 'new kids on the block'. There was one, however, which stood out from the rest, and is, in fact, a product of the Computer Education Unit. The program (or rather, the package) is Venture Writer, a computer version of the popular 'twist-a-plot' novels. Venture Writer is the first piece of software to be produced by the unit under the banner of Schoolware Software, and is aimed at the Primary classroom, for ages seven to twelve, as a creative writing tool.

Venture Writer

If you are familiar with the 'twist-a-plot' novel concept, you will understand how riveting they can be. The reader is drawn in, often to become the central character of the book, and is invited to make choices about their actions in the story, thus influencing the outcome. It is, in essence, interactive 'intelligent' reading. Venture Writer allows children to be the authors of these creative pieces of literature. When the software is fired up, you are presented with a title screen and, upon pressing any key, the first in a series of Venture Writer menus.

I selected the Do Disk Work option and then decided to make a Venture Disk. The program prompted me through the whole procedure (Did I have a formatted destination disk? Was it in drive B:?. Did I know that files X, Y and Z were on this disk? Was my source disk in drive A:?.) It was nice to see a piece of software which was so straight forward and did not assume anything about the user.

I rebooted on the resultant disk, however it did not search for the program and automatically boot into it, like the original had done. This is easily fixed by going into the INIT program and setting up the initial command line to be VW.COM. I typed VW in at the Shell and *voila*, I was into Venture

Writer. I had a quick look around the menus and decided to play it by (and with) the book.

The teacher's view

I opened the manual and decided to tackle it from the teacher's point of view. I turned to the chapter marked Teacher's

Tutorial. Having never had to face 30 or so 'smiling cherubs' and rely upon an unpredictable piece of equipment as a computer for a lesson's 'entertainment', I took this exercise very seriously.

The tutorial was a 'twist-a-plot' with Alice (*a la* Wonderland) as the base story. It took me through construction of one



Before the students are ready to enter the story onto the computer with Venture Writer, they must first produce a flow chart of the story on the worksheets provided with the package.

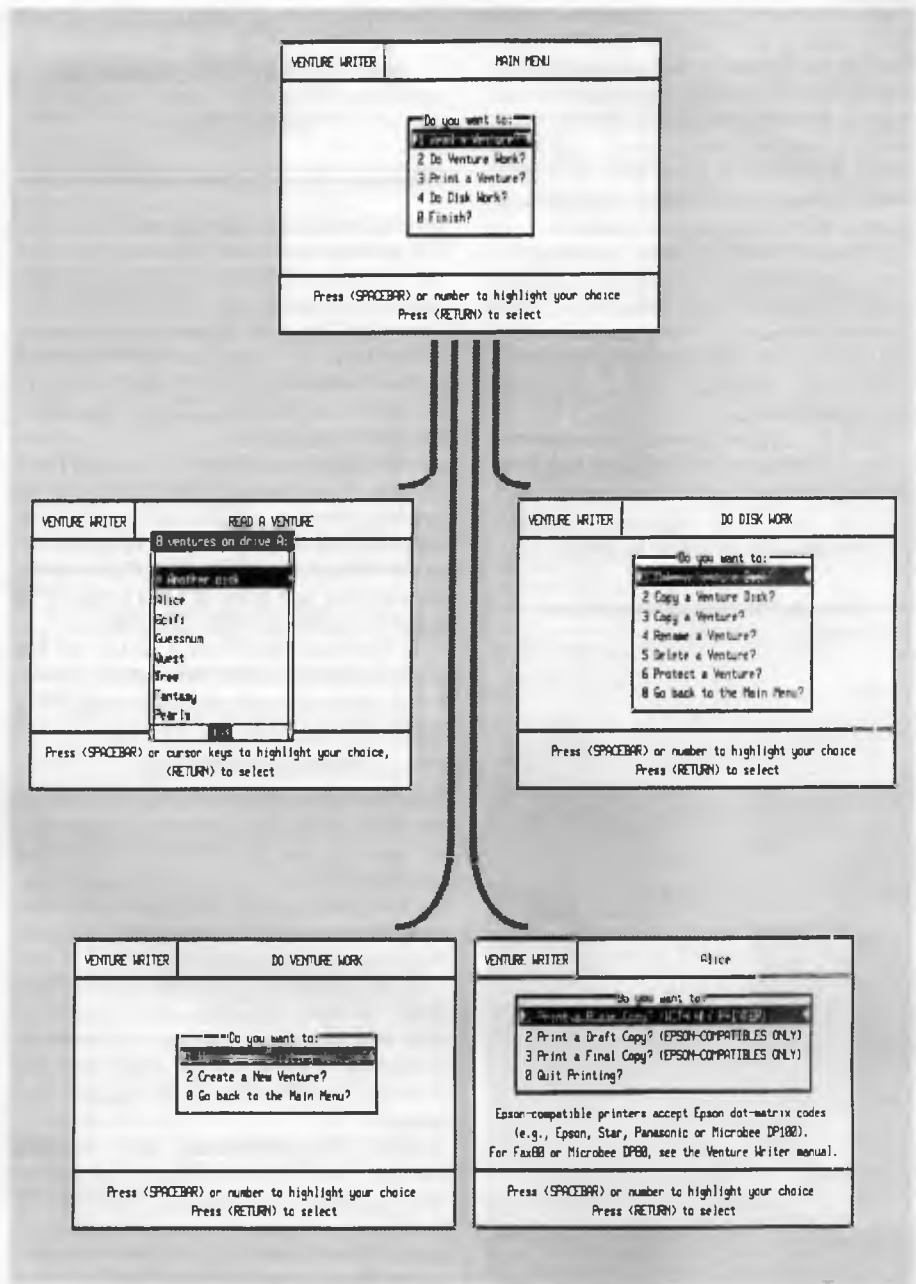
MICROBEE FILE

arm of the venture path.

The venture had already been partially written and had Alice down the rabbit hole already after the White Rabbit. My first task was to locate where I had to start adding to the story. By pressing Escape at the Beginning Page, I was presented with the Page Work Menu. I escaped from here to a Different Page, then selected Passage-way from the menu. I was ready to enter the text

Venture Writer follows the standard Microbee word processing procedures, and the automatic word wrap makes entering, reading and editing the copy simple. After I entered the text indicated in the manual, I went on to set up the next page, a Continue Page. I pressed Escape and was taken to the Page Work Menu and here selected the option to Make this Page CONTINUE elsewhere.

Alice, in hot pursuit of the fleet-footed bunny, was about to find herself in a 'Long Hall'. To achieve this I had to select a Brand New Page on which to continue my venture. I named it, when prompted, Long Hall. This procedure was repeated, after I had typed in the appropriate text, so that the Alice, whilst in the Long Hall, was to discover a 'Golden Key'.



This page from the Resource Materials for Venture Writer shows various stages in a 'twisi-a-plot' example, as they would appear on-screen.

Venture Writer takes process writing one step further by adding a new dimension, whereby the program itself stimulates and invites children to become even more creative.

At this juncture, I was introduced to another linking device, the Branch Page, which requires the reader to make a decision. I selected Option 3 (Make this Page Branch) and designated it as a new page. I called the new page 'Keep Looking'. Because a branching page has two arms or directions, I had to create the second one, and again called up a Brand New Page. This page was called 'Lost Key'. I was sent back to the menu and selected the option,

Work On The Text Again.

My screen now contained three boxes: a large one at the top of the page for the main body of the text for Golden Ring and two smaller boxes at the bottom corners, the first headed Keep Looking and the second, Lost Key. To move from one box to another is a simple matter of pressing the tab key.

Deleting a page

The rest of the tutorial contained more of the same – branching and continuing pages, with the last item in the tutorial examining how to delete a page and how VW responds to various situations. It is not possible to delete a page which points to another page or string of pages.

The Student Tutorial is written in a very

similar style and covers all of the points the students will need to know – from booting the software, through setting up branching and continuing pages to reviewing the venture. This chapter is prefaced by Lesson Notes, which are most useful. In a point by point form, they show teachers how to introduce students to Venture Writer using a set venture.

But we have looked at this package literally 'back-to-front'. Using the Microbee and the Venture Writer software to enter such a 'twist-a-plot' only comes at the end of many hours of reading, thinking, constructing, writing, editing, mapping and conferencing.

What is suggested in the documentation and by those who have used the package, is a distinct set of activities which must be completed long before the students access the program on disk.



After planning their own stories, students can then set to work in pairs to map out their story lines. Note the 'Let's write an adventure' theme of the classroom.

Students need to have exposure to the style of literature they are going to emulate. It is therefore necessary to get the children to read a number of 'twist-a-plot' stories to demonstrate how the author draws the reader into the story (usually by making them the primary character; as a

In that way they have a picture of the whole system.

consequence, the story is written in the first person), and how the reader then becomes responsible for the outcome of the story by choosing and making decisions. Once familiar with these professionally written tales, it is suggested that exposure to peer 'twist-a-plots' will demonstrate to students that they are capable of producing similar ventures.

John Walters of Belmore South Public School, one of the many teachers who was involved with the trailing of the software, suggests that at this stage it is a good idea to introduce the children to the program so that they 'get a feel for [it] before they begin to write their first Venture.

'In that way they have a picture of the whole system before they start writing, and it gives them an understanding of the innovative tool they will be using'.

Pre-written adventures

This introduction is made easy by the fact that there are a number of pre-written adventures on the disk, which both students and teachers can try their hand at solving. The samples include the Alice In Wonderland Venture and a wonderful Venture, Pearls, written by a student.

At this stage it is possible for the students to start planning and conceiving their own stories. Care must be taken to stress that a twist-a-plot is a delicate and intricate web. It needs to be planned and mapped.

Before the students are ready to enter the story onto the computer, it is necessary for them to produce a flow chart of their work, and label each of the steps or pages. Once a clear flow chart has been achieved, students can then start to write the meat of the story pages (or frames). Worksheets are provided in the documentation. These are photocopied for student use and are a guide for students as to the amount of text which will fit into each frame.

An important part of the whole process is consultation and conferencing with peers and teachers, not only about story structure and logic, but also grammar, spelling and continuity. Once everyone, especially the student, is satisfied with the story, the process of entering the text begins.

Notes on the documentation

The documentation is comprehensive and inspiring. The tutorials are instructive and clear and are well supported by a concise reference section. The section on Curriculum Ideas is one of the best I have seen, as it leads the teacher gently into the possibilities of this package.

There are some of the more predictable applications (Fracturing a Fairy Tale and presenting Moral Dilemmas), but there are a number of not-so-obvious uses (writing up science experiments or tracing historical events and suggesting alternative situations and their outcomes). These sorts of suggestions are real gems. They are the sparks of inspiration for new and interesting classwork.

The extra props and tools, the keyboard cards and blackline masters, distinguish this package as a real teaching tool. □

Microbee Filed

AFTER producing a 'baker's dozen' Microbee Files I am handing in my 'Bee badge. It has become increasingly apparent to me, and no doubt to you, that I have a penchant for things computing and educational. Writing this column, I have been aware that there are many different Microbee owners, and not all of you are teachers or students. (It is, however, a fact that Microbee is primarily an educational computer with a penetration into NSW schools, particularly Primary which is second to none – not even Apple!)

There is room for other Microbee stuff, so with pleasure and utmost confidence, I hand the reins over to a most competent writer and Microbee owner, Jeff Ponton. From January, Jeff will be filling these pages with software reviews, reports of unusual Microbee applications and the odd programming tip. I know that you, like me, will be looking forward to a fresh approach to Microbee.

As for me, I haven't hung up the word processor – yet. By the grace of YC, I will be writing a regular column about my pet area – Computers and Education, starting next month. It will cover a number of areas, computers and their software. There will, of course be the odd Microbee application, so stay tuned!

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You need not be a member to purchase our disks. Members receive our 400+ page Directory, bimonthly magazines and discounts on disks. Right now members (and that includes new members who use the coupon on this page) can purchase a selection of ten disks from the library for just \$59.50 including tax (+\$5 p&h). (\$NZ99.50+\$5). That is just

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per disk
\$9.95 per disk in NZ

If you decide that you don't like the software you may still keep it. You only pay the author's registration fee if you like the software and decide to use it. Manuals are included on the diskette or you can purchase our new publication "Up and Running in 15 Minutes" which covers the products marked ↗ on this page.

The following is a small selection from the library:

- ❑ #5, #730 & #1015 PC-FILE+ (3 disk set) ↗ ☆
Jim Button's very popular database system. Works with other Buttonware software eg PC-TYPE, PC-CALC+.
- ❑ #78 & #627 PC-WRITE (2 disk set) ↗ ☆
The famous Shareware word processor from Quicksort. Everything you need in a word processor including spell check.
- ❑ #90 & #594 GENEALOGY ON DISPLAY (2 disk set)
Written in BASIC with concern for the novice Genealogist. As well as the expected features eg printing family trees, family group sheets, and descendants charts the program creates parentchild indexes and prints ID numbers.
- ❑ #105 PC PROFESSOR
A very popular tutorial on the BASIC programming language which increases in complexity as the user progresses.
- ❑ #199, #1016 & #1017 PC-CALC+ (3 disk set) ↗ ☆
A new version of the popular and easy to use spreadsheet program from Buttonware.
- ❑ #287 & #288 FILE EXPRESS (2 disk set) ☆
Expressware's great new easy to use and much more powerful data base system. Very easy to get started as it comes complete with an on disk tutorial.
- ❑ #320 TOUCHTYPE
A colorful way to improve your typing. Suits either PC or newer enhanced keyboards.
- ❑ #344, #345, #1032 & #1124 PC KEY-DRAW (4 disk set) ☆
Combines CAD, paint, slide show and desk top publishing into one package. Fast and easy to use with or without a mouse.
- ❑ #403 PC-TUTOR
Ideal for new users to gain an understanding of your PC and how to use it. Checks on your progress with question answer format.
- ❑ #404 EZ-FORMS ☆
Create your own master forms exactly as you want them. Great for small businesses.
- ❑ #455, #681 & #682 PC-TYPE (3 disk set) ☆
Jim Button's WP with on line help, spelling checker, whoops key, and mailmerge which works with PC-FILE, Wordstar and ASCII files.
- ❑ #480 PC OUTLINE ↗ ☆
One of the very best Shareware products. Can outline and organize documents point by point. Ideal for essays and the like. From Brown Bag Software.
- ❑ #499 PROCOMM ☆
Datastorm Technology's state of the art telecommunications software.

- ❑ #505 PC STYLE ☆
Analyses text files for readability - considers the number of words per sentence, % of words of specific length, personal words, action words. Make your writing read better.
- ❑ #523 SIDEWRIITER
Turn your spreadsheet on its side and print it on your Epson or compatible printer down instead of across the page.
- ❑ #524 & #525 EXPRESS CALC (2 disk set) ☆
One of the better Lotus 123 clones handling worksheets up to 64 columns by 256 rows. Complete with tutorial and documentation.
- ❑ #528 NEW YORK WORD ☆
A sophisticated WP originally written for larger machines. Includes hyphenation and de-hyphenation.
- ❑ #608 AUTOMENU ↗
Magee Enterprises menu management program that has become one of the fastest selling Shareware programs.
- ❑ #641 MAHJONG (Australian author)
A fascinating game with extraordinary graphics on colour or Hercules mono. Excellent documentation for beginners with play levels from beginner to excellent.
- ❑ #646 AMY'S FIRST PRIMER
Six games to teach basic reading skills to a pre-reading child. Sophisticated reinforcement helps the learning can be fun approach.
- ❑ #669 & #670 GRAPHTIME II (2 disk set, Australian author) ☆
Business presentation graphics with line column and pie charts. Works with dBase Multiplan and Lotus. Hercules version on #833 & #834.
- ❑ #687 & #688 ACS IN-CONTROL (2 disk set, Aust. Version) ☆
Comprehensive contact filing system with on-line documentation, high speed search, electronic card file and tickler file. Can graphically display appointments for next two weeks.
- ❑ #696 QUBE-CALC ☆
Three dimensional spread sheet with on line help and powerful macros.
- ❑ #705 CHILDRENS GAMES
A straight forward approach to making fun educational with good graphics. Geared for 2 to 10 year olds.
- ❑ #726 GOALSEEKER ☆
Finds answers fast by working backwards in Lotus, VP Planner, Supercalc 3/4 or Multiplan.
- ❑ #727 POWERMENU ↗ ☆
Brown Bag Software's menu system with 10,000 selections. All your applications can be a keystroke away!
- ❑ #728, #729 & #1112 HOMEBASE (3 disk set) ☆
A new version of Brown Bag's memory resident desktop organiser. PC Magazine said, "It delivers the most bang for the buck among desktop organisers."
- ❑ #765 GALAXY ☆
A new leader in Word Processors with enough versatility and strength to be valuable to both the beginner and professional user.
- ❑ #780 BRIDGEPAL
A great way to practice your bridge with up to three partners.
- ❑ #800 BAKER'S DOZEN ☆
A collection of more than 13 utilities from Buttonware.
- ❑ #812 & #813 SOAR (2 disk set)
Service Oriented Accounts Receivable for businesses that provide services as well as products. Menu driven and easy to operate.
- ❑ #816 & #817 TURBO C TUTORIAL (2 disk set)
Programmers who know other languages will be very familiar with Turbo C when they complete the lesson.
- ❑ #819 CROSSWORD CREATOR
Ideal as a learning tool but can be used by anyone who enjoys designing or solving crossword puzzles.
- ❑ #828 EDRAW ☆
Sophisticated graphics able to draw schematics, block diagrams, flowcharts and can even be used to lay out a printed circuit board.
- ❑ #830 WAMPUM
A full featured menu driven implementation of dBase III. Can be used for application development and an enduser database management system.
- ❑ #836 DISK COMMANDO
Seventeen utilities for your floppy or hard disk drives. Shareware's answer to Norton Utilities.
- ❑ #844 FUN KEYS, EDUCATIONAL FOR CHILDREN
Teaches the alphabet to 2 to 5 year olds by showing pictures for each letter and playing nursery rhyme melodies.

- ❑ #855 FASTBUCKS ☆
A menu driven home budgeting system.
- ❑ #870 HGCIBM - COLOUR EMULATION FOR HERCULES
Enables software written for colour cards to run on the Hercules mono card.
- ❑ #878 TEACHERS DATABASE FOR THE CLASSROOM
Not just a database but test scores may be weighted, averaged, statistically analysed, changed to a percentage or changed to a letter grading. Saves significant amounts of teacher's time.
- ❑ #879 BIORYTHM MONTHLY SCHEDULE PROGRAM
Not only can you produce a Biorythm but compare those of two people for compatibility.
- ❑ #893 PRIVATE LINE AND WEAK LINK
Private Line is an encryption/decryption program. Weaklink connects two PC's via their serial ports and allows file transfers. For example file transfers can be made from the 5.25" drive on one machine to a 3.5" drive on another.
- ❑ #909 & #910 dTIME KEEPER (2 disk set)
Can record time by the minute for a number of employees. Provides current accounts receivable totals and enables automatic billing of standard charges. Menu driven.
- ❑ #918 CAMBRIDGE THOROUGHbred HANDICAPPER
Attempts to predict future performances by analyzing the past performances. Also gives a betting strategy.
- ❑ #923 PROFESSIONAL REAL ESTATE ANALYST
A set of Lotus macros to analyse the return on a property using up to 14 different measures.
- ❑ #1007 C WINDOW TOOLKIT
Designed for the novice and intermediate C programmers who want full screen, colour, cursor control and windowing capabilities without complex escape sequences or DOS level interrupts. Even more features for the experienced programmers.
- ❑ #1058 EXPRESS GRAPH ☆
Easy to use business graphics - Input your own data or load from a spread sheet.
- ❑ #1110 MINDREADER ☆
A curious mix of W.P., spell checker, address book - great for the slow typist as it predicts what you may type next.
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GS-OS at last!



GS-OS

I promised last issue to tell you about some of the new releases I got hold of while at Apple Fest in the States. As space is limited and my suit case was full of new products and programs when I arrived back, a complete run down on all the new items will appear in the Australian GS Users Diskette.

First of all, GS-OS is now finally available. Ever since the IIGS was released, we have been using what most serious GS Users would call a make-do-for-now operating system. The old Apple II has had ProDos 8 for some time, the IIGS was given ProDos 16 which was nothing more than a system written around ProDos 8, with all the limitations that ProDos 8 had. There have been rumours about a new op-

erating system for the IIGS. I've heard all about ProDos 2.0 right through to Version 4.0 of ProDos 16.

GS-OS is Version 4.0 of the Systems disk and has nothing to do with ProDos 16. Although, users with sharp eyes will notice a file called ProDos on the disk, this is purely a startup file to keep compatibility with older software packages.

GS-OS is purely an operating system, which operates all the drivers in the GS – so much for all the rumours that say it reads Mac disks, reads MS-DOS and does multi-tasking. The operating system has nothing to do with these functions. What it does do is fill in all the limitations ProDos had. ProDos would not see any more than 32 megabyte, a real problem these days of 100 Mbyte hard disk drives,

and the newly introduced 512 Mbyte Compact Disk. GS-OS solves this problem.

While on this subject, some people have been going around saying that under the new operating system you don't have to partition your drive. This is true, but who in their right mind won't? Can you imagine how long it would take to look through a 100 Mbyte hard drive for a single file, not to mention the headaches you'd have trying to catalog the drive?!

7 partitions!

The greatest advantage of the new GS-OS is that it allows you to partition a 100 Mbyte hard drive up to 7 different disk drives, or 7 different volumes, and they don't all have to be of the same operating system.

Your first partition would be the start up operating system, then, as soon as the computer knows where to go it will head straight to the volume header that the drive has been named. It will then go down the files till it finds the file to be run. Therefore, if the file required is on partition 5, it would not bother looking at, say, partition 2, 3 or 4.

In the beginning was the single sided 400 kilobyte Mac 3 1/2 inch disk. Then came the 800 kbyte double sided disk, but still when reading this disk, the drive circled each track 4 times to pick up information.

GS-OS now allows double tracking or the ability to read each track with only two passes. Anyone with any sense can see what this will do to those long, boring boot up times we have all had to put up with on the GS. Not only this, but under GS-OS you can actually choose which way you want to initialize your disk. Sources within Apple tell me that the IIGS now actually copies a Mac disk faster than the Mac can.

Finder

The Finder Versions 1.0 and 1.1 were written by Oliver and Cheryl Ewy. In August, Jim Merritt, Don Brady and Darryl Lovato took Version 1.1 and made the necessary changes for it to run with GS-OS, the new Finder now being Version 1.2.

The Finder Help menu shows first timers how the Finder works. The latest NDA comes with GS-OS an updated 16-bit cache system. You can cache anything from 32 Kbyte to as high as you want, but 800 Kbyte is about the limit GS users need

at the present time for 3½ inch drives.

A validation file has now been added, something like the one found in Copy II Plus. I took the cache out to 800 Kbyte and it took me 5 minutes, 40 seconds to validate the disk the first time. Then using Cache I did it again, this time taking 22 seconds, an incredible decrease in time and very handy for users with large RAM boards. During the time you're working on most of the new features added to GS-OS, a timer is displayed on the screen (something like a speedo in your car), as the work is done, the timer fills up with red, when it is full the job is complete.

The ability to Erase the Control Panel Ramdisk after restart has been added, and the colour menu bar has now been made into a square block (rather than going straight down over the window, as it did in earlier versions).

A second disk comes with GS-OS with an abundance of new drivers, which can be added to the operating system. These include two new MIDI interface drivers, an SCSI Driver, the long awaited Epson Printer drivers, a console driver and so on. These drivers can quickly be placed on the master disk using a file called Installer which is also on the second disk.

Scripts have been written especially to upload and remove those files when and where you want them. Another program on this second disk is called Advanced Disk Utilities. This is the program you will use to do all your fancy disk formatting, and it has the ability to partition hard disk drives. One other added feature is the ability to format a disk full of zeroes. Small Icons are used to let the users know what disk is being used, so there is no room for mistakes while using this program.

Both of these new utilities have been named Version 1.0 and I have already been informed that a Version 1.2 is already on the drawing board. The Finder now allows you to activate or deactivate any driver or disk drive, a great improvement when you're not using your 5¼ inch drive or disk drive. You can now tell the IIGS that any drive doesn't exist when it actually is still connected.

The good news for owners of the Apple IIGS in Australia is that Frank Reville, the IIGS marketing manager for Apple Australia, has been demonstrating GS-OS around most of the user group meetings. But the big news is that when GS-OS was

released at Apple Fest in San Francisco in September, nearly all the GS Owners registered with the Australian GS Users Association were sent free upgrades of the new GS-OS. GS owners who are not registered with the Australian GS Users Association can contact their local Apple Dealer or this association.

AppleWorks GS

AppleWorks has now sold millions of copies for the Apple II series, and with the popularity of the more powerful IIGS many users have looked for an upgrade to a 16-bit version. Styleware has, over the last year, released a few different packages that use some of the features of the IIGS, and Beagle Bros has released packages that will give the old version of AppleWorks new power. Now Styleware has come up with a totally new product called GS Works.

*Well, it didn't take
Apple long to see that
this product filled in a
big gap in its software
line-up . . .*

Well it didn't take Apple long to see that this product filled in a big gap in its software line-up, so the word is that it tried to buy the rights to GS Works. Styleware apparently wasn't interested, so the next move – Claris (which is owned by Apple) bought out the whole company. Exit GS Works and enter AppleWorks GS.

AppleWorks for the Apple IIGS is great. The program takes the old three-in-one package, that was called AppleWorks and changed it into a new program that combines six powerful applications in one easy to use package.

The old applications are still there – word processing, database and spreadsheet, but a lot more powerful than before. Three more powerful applications have been added – page layout, graphics and communications enabling you to

create impressive, professional quality documents, organise and search through information, create illustrations, manage budgets and also tap into the new world of communications.

Desktop publishing (DTP) is its first great capability, so you can now create documents with both text and graphics. The good news is that graphics from popular GS programs such as GS Paint, Paintworks Plus, Deluxe Paint II and Top Draw can all be transported over to work in AppleWorks GS.

Files can also be transported directly from your old copy of AppleWorks. An interface called the WYSIWYG (What You See Is What You Get) has been designed, so you can preview on the screen exactly what you will get on the printed copy. Epson printer drivers have been included in AppleWorks GS.

Some features included are a mouse-based graphic interface; pull down menus, WYSIWYG display; cut and paste between applications; direct window-to-window information transfers; undo command; compatibility with AppleWorks; the ability to allow 14 windows on the screen at any one time, and colour printing.

As a word processor it features paragraph formatting; 80,000-word spell checker; a built in thesaurus for up to 470,000 synonyms and automatic mail merge.

Its database features include customising entry screens with mouse-based interface; spreadsheet-like display; records limited only by memory; up to 256 fields per data record; a built-in report generator; colour-coded fields, and sorting of up to four fields. Some of the package's spreadsheet features include absolute and relative referencing; built-in graphics; customised graphics; smart recalculations; bold or underlined cells; red highlighting, and mouse-adjustable columns.

As a DTP tool AppleWorks features text and graphic merging; direct or cut and paste file import; guides and rulers placement; positioning text anywhere on the page; automatic text flow; graphic rotation; a Bit-Map paint program; full colour graphics; zoom features for fat-bit editing; all basic paint tools; nudge keys for precise repositioning and multiple text sizing, styles, and colours.

AppleWorks supports all popular modems and has internal and external

modem compatibility. It can save scrolled text for later review and allows data transfer in all four major protocols as well as text file exchange from word processor.

The bad news for owners of glorified Iles (512 Kbyte IIGS) is that AppleWorks GS requires 1.25 Mbyte of memory; one 3½ inch disk drive is okay, but two are advised. AppleWorks GS is available through Claris, and the GS Users Association.

*The old applications are
still there – word
processing, database and
spreadsheet, but a lot
more powerful than
before.*

Superstar Ice Hockey

This is an extraordinary sports simulation software program with sharp graphics. Options to tailor the game to your own style include two on two, four on four, or even six on six. Regular League, division Championships, Conference Championships and even Sport Time Cup Series games are all included.

You can act as the team's owner, general manager, or as the head coach. Your tasks include recruiting players from the minors, conducting training camps, making certain line changes, and call strategies. You can select to play another player, against the computer on your own or with a partner, or have the computer play itself.

Like most games I have previewed, the package comes with two manuals. One being the general instructions, the second being the IIGS Reference Booklet – which totally supersedes the original manual, so why they ever included it any way beats me!

Super Ice Hockey has its own style of protection which includes a series of

questions that only an original owner would know the answers to. So don't bother trying to get a copy of this one off a friend, it won't do you much good. If you don't know the answer it reboots the program.

There is no mouse control, so a joy-stick is needed, or you can use two: one for each player with the special GS adapter. When the game starts you can go into practice sessions, or go straight into main league. The amount of time you play, what players you play and which ones the computer plays, what colour your uniforms are, and so on, are all able to be modified.

I enjoyed this game even though it took some time to learn the rules, but the thing I must say I enjoyed most is the ability to knock your opponent off his feet while skating past; this might not be sportsmanship, but it brings out the little boy in me! The Australian distributor is YPA, though Superstar Ice Hockey is also available through the Australian GS Users Association.

Educational software

Last month I promised to tell you about some of the new educational software I brought back for the IIGS. Like all good educational software, these programs use an amount of direct-talking to the user.

Read and Rhyme is recommended for children of 5 to 10 years; it is for 1 or 2 players and is a 2 disk set. This program was designed for children to learn while playing with space ships and creatures. Skills used include reading, rhyming, phonics, tense, vocabulary, discrimination and context.

Rhyming Rockets

The object is to select which word doesn't rhyme with the other two. Young readers will use their knowledge of phonics to read and sound out the words from a 400-plus word database. A correct answer gets the added thrill of allowing you to blast off the rockets on the screen.

Flying Saucer shows sentences with a word missing; the idea of this is to get the user to choose the word that is missing, making sure the sentence is grammatically correct. Over 200 comprehensive modules on two difficulty levels are available.

Over 1000 words are included in the database of Alpha Blast. You must arrange lists of ten words in alphabetical order before the space ship can take off. Different levels of difficulty are available.

Rhyming Challenge is a stimulating 1 or 2 player game for both children and adults. The object is to make as many words as you can that rhyme with the word the computer selects. A friendly alien keeps score for you.

Aesop's Fables features all the old favourite stories – with reading, comprehension and vocabulary questions. This covers word meanings, rhyming, alphabetizing, and analogy skills, over 700 questions and answers in all. Aesop's Spells is a spelling exercise, in which you are shown a picture and asked to spell the name of the object.

Another spelling builder, Spelling Skills, contains over 800 words based on first, second, and third grade curriculums. You may also add your own custom-made spelling list and save them onto disk.

Memory builder is a one or two player memory concentration game designed to enhance sight and reading and knowledge of contractions.

Magical Myths is for 1 or 2 players aged from 8 to 12 years and is a 2 disk set. It features creative writing, reading comprehension, word processing and a memory game. Magical Myths will introduce the player to the wonders of Greek myths, with three of the all-time great stories: Creations of the Gods, Pandora's Box and King Midas. A mini word processor permits children to write their own stories, save them and print them. The program also allows you to create your own multiple quizzes with the Quiz Creator.

Two other educational games, Adventures of Sinbad and Arabian Nights, are similar in style to Magical Myths, but with different subject matter. If you are interested in any of these disks, contact the Australian GS Users Association, PO Box 210, Wentworthville 2145 NSW. □

Hints, tips and ideas!

Got any hints tips or ideas you'd like to share with other Apple IIGS users? Or maybe you've discovered (or written) a great new program you'd like to tell others about – if so, send them (on disk) to *Your Computer*, PO Box 227, Waterloo 2015 NSW. Please include a printout of the disk and caption any illustrations. Unfortunately, because of space limitations, we cannot publish listings over 200 lines long.

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DTP on a 128?

IAN ALLEN

GEOS

GEOS IS a software package originally designed to give the C64 a Macintosh-type user interface. The system can be driven by either a mouse or joy-stick and incorporates pull down menus, desk accessories such as a clock, calculator and notepad, and files represented by icons, which can be easily loaded or manipulated by pointing and clicking

When GEOS was launched, the standard package included two software application programs, GeoWrite and GeoPaint. Other applications took a little time in arriving. At first they were all from Berkeley Softworks, the originators of GEOS, but now the system is being supported by other software houses as well. There are spreadsheets, databases, laser capable word processors and even programming utilities which help you incorporate GEOS features in your own programs

GeoPaint has two notable differences from the version supplied with GEOS 64.

But for all its features, GEOS on the 64 has a couple of problems, and they basically come down to two of the limitations of that machine – it's limited memory and it's slow 1541 disk drive.

The two things compound because GEOS, being graphic based, uses more memory for the screen display and therefore has less for code and data. To overcome this reduced memory GEOS relies on the disk drive. This is particularly apparent when, for example, you want to scroll around within a graphic page. The screen scrolls a bit, then the drive starts whirring. That's because only a part of the page will fit in computer memory at a

time, and GEOS is swapping data between the drive and memory.

If the 1541 was faster, it wouldn't be so much of a problem, but even with GEOS's in-built disk speed up software, I find it frustratingly slow. So much so that after the initial novelty wore off, I found little interest in using GEOS. That's partly because being already familiar with the C64 operating system, I didn't need one of the best features of GEOS – it's user friendly interface.

128 version

Less than 12 months after the 64 version, Berkeley Softworks implemented GEOS on the 128. It's a package I've been meaning to take a look at for some time, but simply never got around to. I think having a negative impression of the 64 version may have dampened my enthusiasm a little. I should have thought it through, because GEOS on the 128 is a very different kettle of fish.

For starters, both of the hardware limitations I disliked in the 64 version are gone. The 128's large memory, combined with its fast drive, completely transform GEOS, turning it into a very workable and practical system.

GEOS 128 comes supplied with a system disk and a backup disk (which is just as well, as I couldn't get the system disk to boot), plus a range of utilities and updated versions of both GeoWrite and GeoPaint. It supports the 128 in either 40- or 80-column modes, and you can switch modes while within an application. In 80-column mode, both GeoWrite and GeoPaint allow you to see the whole width of a page without scrolling, something I found very handy.

Apart from supporting 80-column mode, GeoWrite and GeoPaint seems to be identical to the version supplied with GEOS 64. It's a graphic word processor which supports a number of fonts and point sizes, and you can mix and match within the same document. It automatically displays all text in proportional type which gives a nice professional finish to what you write. It also supports basic word processor functions such as cutting and pasting, tabs and word wrap, but not more

advanced function like automatic page numbering, or mail merging, word counting, spelling checking and the like. It's files don't use the ASCII format, so it is incompatible with most other word processors. It is however, a real What You See Is What You Get word processor and, while I wouldn't use it for serious work, it can be very handy for preparing snappy title pages or letterhead banners.

GeoPaint has two notable differences from the version supplied with GEOS 64. In 80-column mode it doesn't support colour drawing. That's not really much of a limitation because very few printers support colour, and personally I'd rather limit what I draw to what I can print

Berkley claims that GEOS 128 fully supports the Commodore RAM expansion units – plug-in cartridges that greatly expand the computer's memory.

The other change is an enhancement whereby you can remove the drawing tools from the right hand side of the screen, so that you can see more of your document. Other than that it has the same familiar features like fill, erase, undo, changing pen or brush sizes and an air-brush. It's got a pixel editor for detailing, and a preview page function so you can see an overview of the whole page. You can also incorporate text of varying fonts and points in your drawing. I have no complaints with it. It's a very useful application.

GEOS 128 is supplied with printer

YOUR COMMODORE

drivers that support over sixty different printers, including Commodore square pinned MPS-802 and 1526 models. The range of printers supported is quite amazing, including such models as the Apple ImageWriter and the Hewlett-Packard Laserjet! And if you thought laser printers were for the world of desktop publishing, Berkeley Softworks seems to agree. In the States it is currently advertising a GEOS compatible program called GeoPublish. Could this mean desktop publishing on a C128? I want to see it before I'll believe it, but then again why not?

Berkeley claims that GEOS 128 fully supports the Commodore RAM expansion units. These are plug-in cartridges which greatly expand the computer's memory. CBM Australia is marketing two versions, one adding a further 128 kilobytes of RAM and the other adding 512 Kbyte. That's a lot of memory, and while their main use seems to be as a ramdisk, it's bound to make a big difference to the functionality of GEOS applications and, indeed, to the whole potential of the C128.

With all this memory, desktop publishing might just be viable on a 128. We'll have to wait and see, but it's certainly an interesting possibility. Watch this space. □



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WS31/2

Tripping with TARMAQ

Claudia Rossi Hudson is a very busy person: as Executive Director of Mary Rossi Travel, based in North Sydney, she welcomed a trial project, under the guidance of Qantas, to computerise their whole office. An immediate benefit was that the staff now have more time to devote to client service. The project began in January 1988, with the installation of computer equipment from Memorex Telex and specialized software from Australian-owned CPS Systems.

Mary Rossi Travel is a family company, founded in 1969 by Mary Rossi (mother of ten, hard-working children). She still plays an active role in the company, along with Claudia and several other daughters. The agency specialises in business and first class air travel, for both independent travelers and special interest tours.

Prior to full automation, a computer-based reservation system, called TIAS, was used to connect with airlines to make bookings. This set-up has been in use in many travel agencies for several years, but it still left the travel agent with the manual tasks of completing paper work after the booking had been made. This includes typing an itinerary, writing out a ticket, and issuing an invoice for each booking. The agent also faces the usual tasks of running a business – preparing accounts, balancing its books, and preparing monthly statements.

Working in conjunction with Qantas, CPS Systems developed TARMAQ (Travel Agents Reservations, Management and Accounting by Qantas). The package integrates all the major functions of a travel agency, so that when a client makes a reservation, the airline's computer is updated, and the client file on the agent's system is also updated concurrently. In

addition, TARMAQ can prepare and print out an itinerary and tickets. For the agency, full on-line commercial accounting, electronic mail and diary, and management accounting and reporting are all handled.

Pam Sutton, from CPS Systems, said, "It was a satisfying project to not only get things to a technically acceptable level



North Sydney based Mary Rossi Travel was the trial site for TARMAQ (Travel Agents Reservations, Management and Accounting by Qantas), a package jointly developed by CPS Systems and Qantas. A local area network and TARMAQ software give each travel consultant access to client files, reservation and other booking information.

Client service can be critical to the success of 'people-intensive' industries, but administrative tasks often reduce the time available for service. A package from Australia is giving travel consultants time for service – it's put front office tasks, client files, airline bookings and accounting all on the TARMAQ!

to a level that was also acceptable to client'. The TARMAQ software installed at Mary Rossi Travel runs under MS-DOS on a NOVELL local area network using a Telex 1280 file server. A 1220 Communications server is used as one workstation, and the other workstations are IBM compatible 1210s

No time for accounts!

According to Hudson, the benefits of the new system are quite substantial. Prior to the installation, they had three terminals connected to the TIAS system, a separate micro computer-based accounting system (with which they were dissatisfied), typewriters for producing itineraries, and they had to hire extra staff to assist

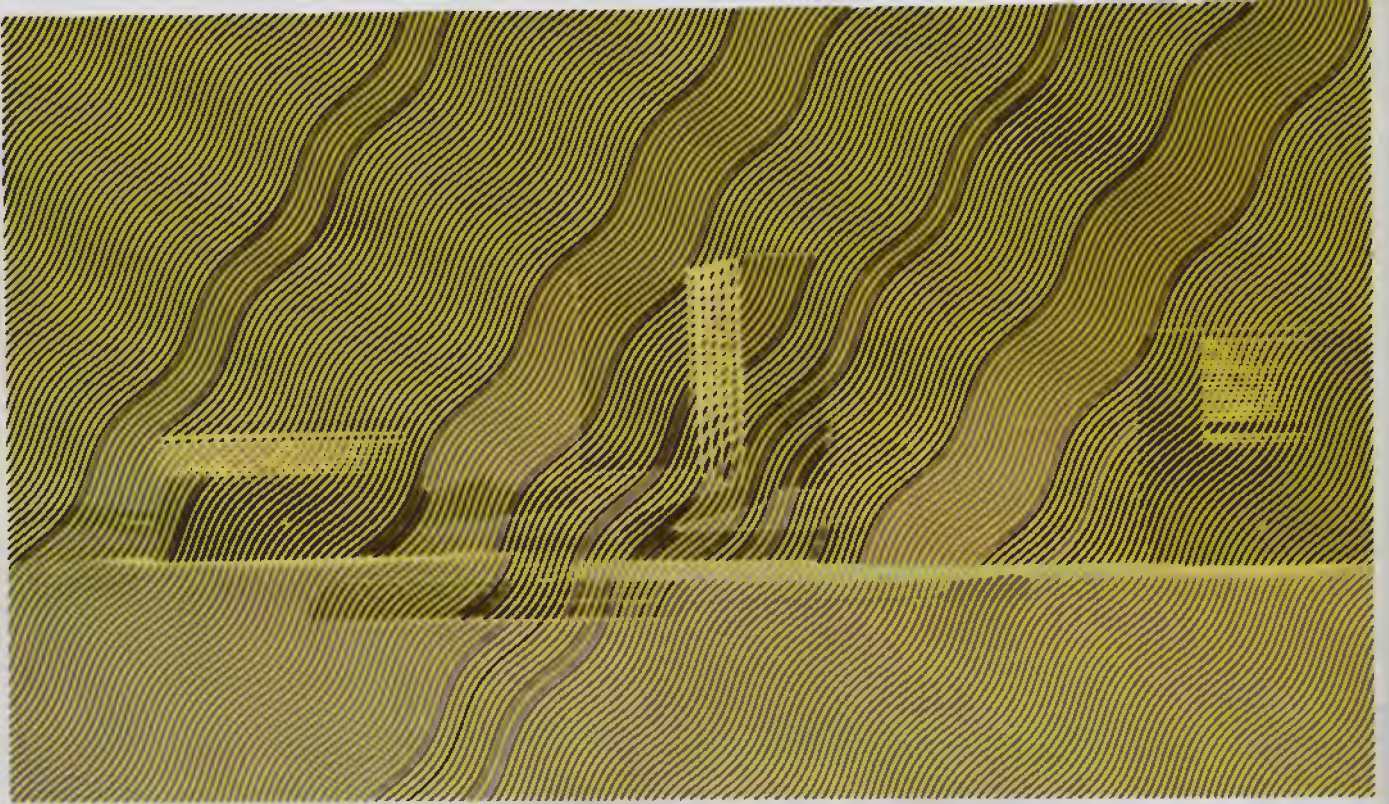
with the bookkeeping. Now, with nine terminals and three printers connected to the file server, each full time travel consultant has a terminal and can spend more time at their desks answering enquiries and talking to clients. One staff member working part time can handle the bookkeeping, and everybody is much happier.

'TARMAQ makes the travel consultant's job easier,' Hudson said 'They have a complete profile of the client available on the screen and can use the same screen to make a booking which automatically updates the client's file.' In addition, the consultant can access a database of hotels, addresses and prices as well as other travel options.

Qantas helped to finance the project, with Mary Rossi Travel doing the testing. The system has been designed to match the needs of the travel consultant as opposed to the needs of accountants, and this has contributed to its success. Airline reservation systems are currently changing world-wide, with various airlines forming alliances to gain a competitive edge. Automation systems that work efficiently such as TARMAQ will allow the agencies, and through them, the clients, to reap the benefits as well. The TARMAQ system has proved so successful that it is now to be marketed to other agencies throughout Australia. □



TARMAQ has freed us from time spent doing accounts and turned us back into travel consultants. We know day to day exactly where we are with our accounts and that's what business is all about – Claudia Rossi Hudson, Executive Director of Mary Rossi Travel.



What? Job's NeXT!

STEWART FIST

BY THE time you read this, it might be patently obvious why Apple has been racing ahead with changes to its Macintosh hardware and operating systems.

It has been making changes (I didn't say 'improvements') at quite an alarming rate recently, and it is probably all because Apple is preparing for the entry into part of the Mac market of a new computer standard. Apple obviously feels that it needs to change the Mac quickly, and that means a rapidly changing operating system.

What would be worrying, of course, is the advent of Steve Job's new toy from his company NeXT.

Apple received a very pleasant surprise a couple of years back when desktop publishing (DTP) took off, way above all expectations, and sold a lot of computers for it. The Mac was ideally suited to DTP because of its graphics interface, and it grabbed up the major part of the desktop market share. The IBM system is coming along fast in DTP, but it is probably still two or three years behind Apple.

The lesson that Apple learned from this windfall, was that there was a lot of money to be made out of niche markets – especially when the niches were of Grand Canyon size as the DTP slot proved to be. So

Apple began the search for other business niches of similar proportions – and it found one in science and engineering.

Technical workstation

THE MAC II is now being promoted mainly as a replacement for the Sun and Apollo technical workstations, which costs an engineer/designer at least twice as much for a comparable package, and as a Unix terminal with local processing ability. No one pretends that the Mac II is a direct replacement for these workstations, but what it loses in power, it more than makes up for in flexibility.

This is why you are seeing so many new Mac Software packages aimed solidly at this market. Both MacDraw II and Claris CAD are obviously potential winners here at the low end, and there's a raft of products like the Mac-3D object-oriented solids modelling system from Challenger.

This potential market provided the rationale for the design of the Mac II with its large screen, 68020 chip, standard 1 to 4 megabytes of RAM, and colour. It is also the reason why we have suddenly – almost out of the blue – got the new Mac IIx, using the Motorola 68030 chip which peps the machine up by about 15 per cent in speed.

There was very little written about the Mac IIx when Apple recently, and Apple Australia haven't even bothered to put out a press release (to my knowledge). It comes with 4 Mbytes of RAM, an 80Mbyte hard disk, and a new 1.44Mbyte 'superdrive' floppy. It will be available in October of this year for \$12,695 (plus another \$2600 for the 80 Mbyte hard disk), but I haven't seen one at the time of writing.

The Superdrive floppy, which Apple call a FDHD (for floppy drive high-density) appears to be the only real piece of innovation. It is supposedly 'processor-independent', which means that it can read and write all the old Mac floppy formats, plus the IBM system OS/2, as well as the Apple II ProDOS files. This is the first truly universal disk drive, if we can believe these claims – and we usually can from Apple.

The drive can also read, write and format MS-DOS disks to either the 720 Kbytes or the 1.44 Mbyte capacity. With your purchase, you get Apple file exchange software which handles the translation across the formats. The drive will be available for all other Macs in the near future, so Apple say in America, but in Australia it is backing off this claim.

If you've got a Mac II and want this disk upgrade you will have to buy a kit that in-

cludes the new SWIM controller chip (who creates these acronyms, I wonder?) and a system ROM. I'll believe all this when I see it – but, by God, I hope its all true!

Mac IIx

NORMALLY, when a company puts a new product like the Mac II into a new marketplace, it plans for a period of market consolidation and technological stability. They want time to make their development money back before they start the cycle again.

The Mac II was good enough to make substantial inroads into universities and engineering design shops, and Apple would normally have left the machine alone for a while and concentrated on getting the bugs out of their own system software, and out of their AUX propriety-brand Unix.

But something panicked them into prematurely releasing the Mac IIx. You've got to count the disk drive as being a quite separate product since it is universal in application, so as far as I can see the only substantial changes here in the Mac IIx are the use of the 68030 chip instead of the 68020, and in the provision of Motorola's 68882 maths co-processor which boosts processing speeds for engineering and scientific applications.

In the Mac IIx they are running both the 68030 chip and the maths co-processor at 16 MHz, which should be enough for anyone. In addition they've added a 256-byte cache for data and instructions, plus a built-in page memory management unit which is needed by multi-tasking operating systems like Unix and OS/2. But speed isn't the whole reason. About six months ago Motorola announced that the old 68020 chip and the maths co-processor were able to run quite happily at 25 MHz, so you can't say that 16 MHz is an upgrade.

This change has direct parallels with the way IBM bought out its 80286-based machines, then almost immediately superseded them with the 80386 because 'multi-tasking' was the buzz word of the week. Anyway, the problems all these Intel- or Motorola-based computers now face is that processing speed far outstrips the ability of standard forms of memory to feed data onto the bus, so there isn't much value in extra processor speed – all you get are more wait states.

The old Mac II machine had the speed and power of a fair-sized 1970s mainframe anyway, and as far as I know, no one has expressed much dissatisfaction with the

68020 chip. So why bother bringing on the new version so quickly?

The answer must be that there's something about to appear that is as good, or better! In the military, they call this a pre-emptive strike.

What's NeXT?

IT SOUNDS a bit crazy to say that a little start-up company like Steve Jobs's NeXT could pose a threat to giants like IBM and Apple, but there isn't any other rational explanation that I can see.

When Jobs left Apple and started up on his own, he took with him a couple of the top Mac design team, and then publicly announced that he was going to build a super-Macintosh – not quite in those words, but his intention was clear.

The lesson that Apple learned from this windfall, was that there was a lot of money to be made out of niche markets.

As a result, he got slapped with a law suit from Apple (which he fought and lost), and now Jobs is under a legal obligation to show his product to competitor Apple well before release, and to let them check it out thoroughly to ensure that there was nothing used in the design that Apple considered propriety.

In other words, Apple had the rights to do a bit of quick reverse-engineering under the guise of making damn sure that Jobs and his team hadn't stolen anything.

So Apple will know more than anyone what is inside the NeXT beast and, judging from their recent moves, it's a fair guess to say that they think there is a danger of it taking a fair slice of their engineering and scientific action – and maybe a piece of DTP, as well.

What has been announced about the NeXT computer is that it is based on the Motorola 68030 running at 25 MHz, with 4 Mbytes of RAM and four slots on a 32-bit bus. At this stage it sounds like a super Mac II clone I would be a bit worried about the 25 MHz chip speed if Apple only

thing it's safe to run the chip at 16 MHz, but maybe Jobs has done something innovative here.

It also used the Mach (Unix-variant) operating system with Display Postscript and X-Windows, all builtin on ROM. With Display Postscript used to handle the screen, instead of the Mac's QuickDraw routines, NeXT has a good headstart into laser printer driving for DTP.

Then, so the rumours say, Jobs has added communications ports for SCSI (peripherals), MIDI (music) and Ethernet (LANs) and a builtin 9600 bps modem. Also in the package is an Object C language compiler, Mathematica (an advance maths program), and a programmer's toolkit very similar to the Mac toolbox. And to top this all off, there is said to be a 300 Mbyte erasable optical disk drive developed jointly by NeXT and Sony.

With those specifications, it couldn't be much more of a direct threat to the Mac II's engineering and university market, could it? No wonder they are worried.

But it's probably an over-reaction. It is one thing to build a super machine and another to establish a new standard. And if my reading of the world computer market is correct then speed, power and innovative new features don't count for much against standards these days.

There's also the problem of software. The only reason for including the C compiler in the NeXT package is to encourage programmers to develop applications* – which is also an admission of a potential drought.

The fact that a language compiler is part of the primary hardware package won't do much to relieve any shortages for the first couple of years and, as Apple found with the early Macintosh, this is a long time to hang around waiting for a flood of applications to arrive from third-party developers.

But Jobs knows all this, which is presumably why he has chosen to make his run in the scientific and engineering circles. This market is different to all others – it's loaded with innovative programmers, and specialists in patching and fixing software.

He has some reason to be worried about the range of programs which will run on his baby – but presumably he will have access to a lot of esoteric stuff from Unix. And, fortunately, universities and engineers often buy computers for reasons other than conformity to the standards.

It's going to be an interesting battle to watch. □

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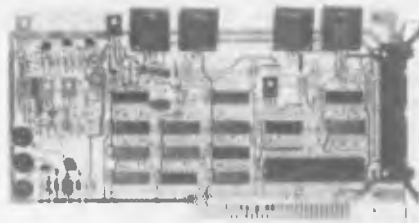
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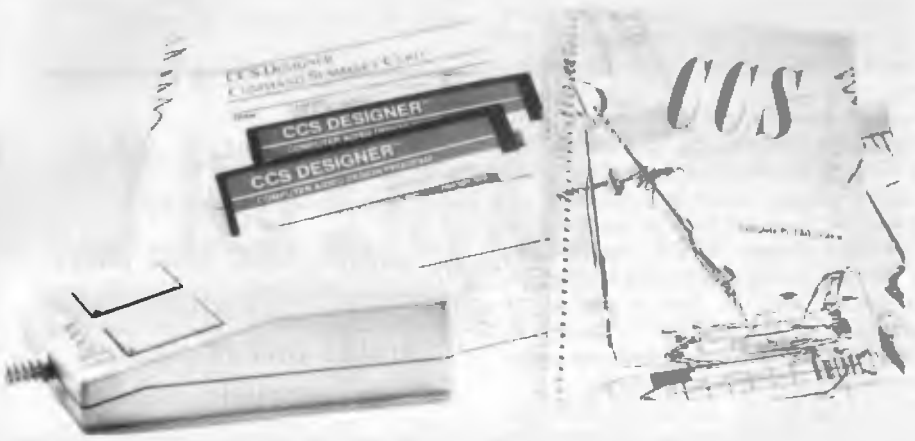
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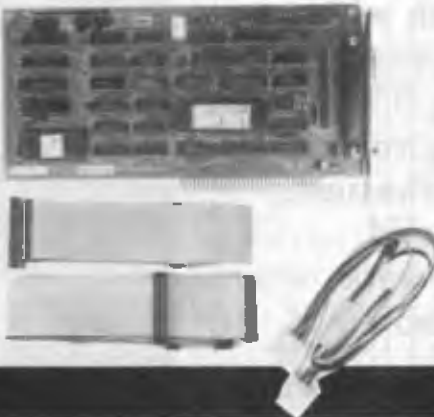
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Mixed Up Mother Goose

- (and an application generator)!

JOHN HEPWORTH

WHEN I first started writing this column, nearly four years ago, I was asked not to make it the 'game of the month' column. And I obeyed, not writing about a single game, except once using the name of Flight Simulator in a column on video boards. But Christmas is coming, and there will be children from 5 to 95 needing presents. What could be better than a game! There are several that I, my children and friends have found fun in the last few months. Some have been around for a while, but all seem destined to be classics that will be seen for months or years.

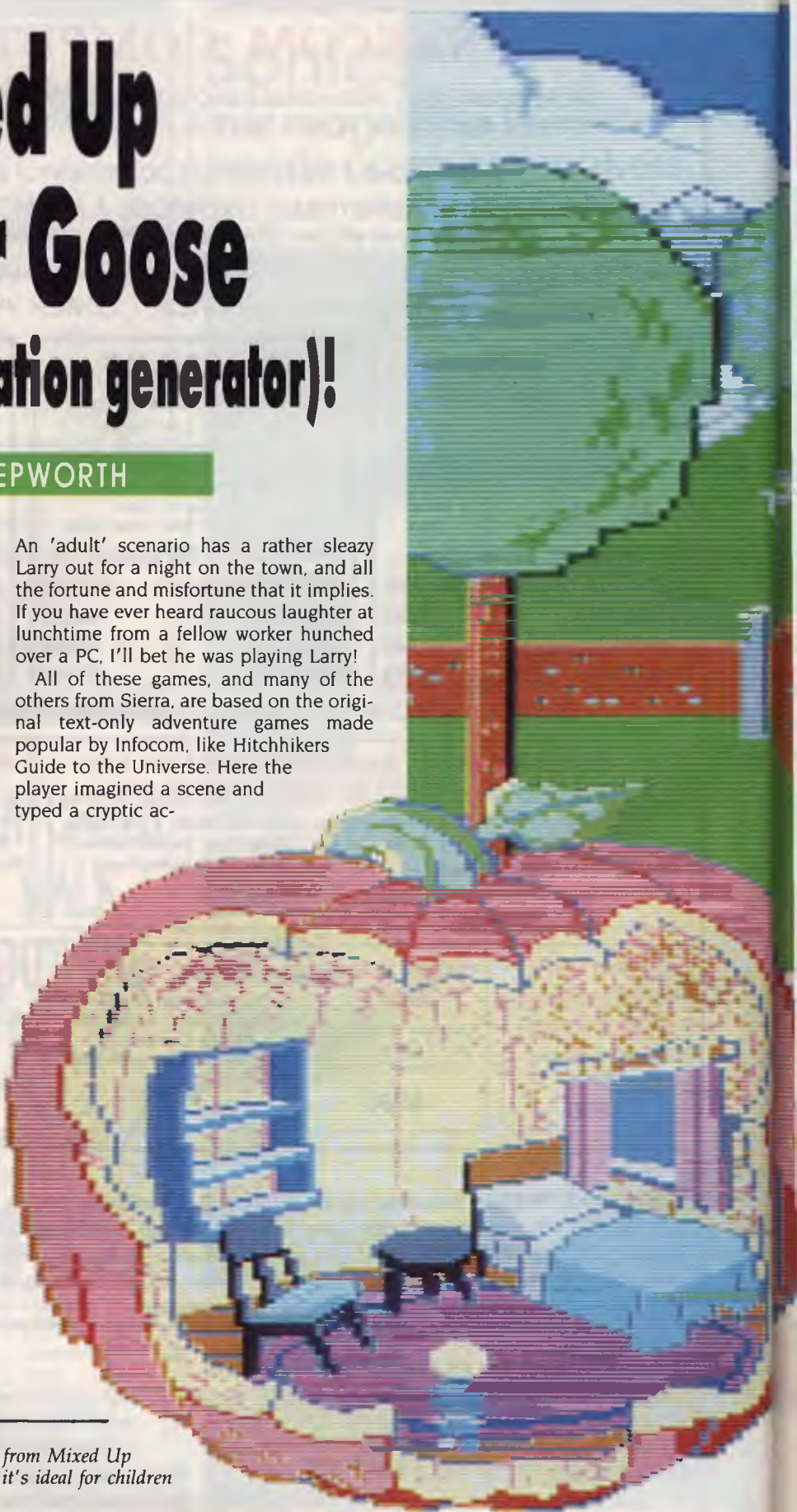
Sierra games

I usually buy games without considering the publishers' name, but it has been amazing just how many of the ones we like were published by the American company Sierra On-Line Incorporated. It created the very popular Kings Quest, one of the first 'adventure' games with graphics, with the user piloting the hero through the scenery using the cursor keys, and typing in actions at the command line. From this basis it created three more games on the same theme and with the same hero - Kings Quest II, III and IV. All of these have the power to enthrall. From observation, ages from around nine to adult can enjoy them.

Sierra has created many other adventure games with graphics aimed at the older market, but they have released one rather raunchy game called Leisure Suit Larry in the Land of the Lounge Lizards.

An 'adult' scenario has a rather sleazy Larry out for a night on the town, and all the fortune and misfortune that it implies. If you have ever heard raucous laughter at lunchtime from a fellow worker hunched over a PC, I'll bet he was playing Larry!

All of these games, and many of the others from Sierra, are based on the original text-only adventure games made popular by Infocom, like Hitchhikers Guide to the Universe. Here the player imagined a scene and typed a cryptic ac-



The screens shown on these pages were taken from Mixed Up Mother Goose published by Sierra On-Line - it's ideal for children who can't yet read.





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tion, in telegram style. The game then parsed the sentence, acted on it if possible and then returned a message indicating the effect of the action. The difference is that, with the Sierra games, much of the feedback comes from the scene displayed on screen above the command line.

All of these adventure games were designed for older kids and grown ups, but little kids became frustrated. Sierra has other games for the younger player, and I will mention just two in passing. Both use the same sort of graphics as does Kings Quest, and the player moves a character through various scenes the same way. The difference is in the command structure. While in both cases the player needs to build a mental image of the relationship of the various scenes, this is aided by maps in the package.

Mixed Up Mother Goose is loosely derived from the Mother Goose nursery rhymes – it is ideal for children who can't yet read. Various characters mentioned in the fairy stories are found, each of whom is missing something mentioned in the rhyme. As the player steers the main character through the various scenes, an image of a lost item pops up as the character nears it, and the character automatically picks it up. The character is then steered to the same scene as the character who lost the item. As the moving character reaches the appropriate spot, the item is automatically dropped.

Another Sierra game for grown ups is the Helicopter Simulator. Here the game starts with the player as the pilot of a helicopter above Boeing field in Seattle. The player can merely fly around the area, or can engage in combat. Two PCs, each running the Helicopter simulator, can be linked by modem, or side by side PCs can be linked by null modem. The user of each PC is the pilot of a different helicopter, and if they are close enough you can see the one flown by your friend. Your friend across the city can fly one chopper and you at home can chase it with the other. Great fun, though the images are not as detailed as the original Microsoft Flight Simulator scenes and the change from one view to another is more jerky and coarse than Flight Sim.

Sierra games are distributed by Ozisoft, (02) 211 1266, and are available from most computer stores or the computer section of a department store. Some are available from DSE stores.

Tetris

The deceptively simple looking Tetris gets

my vote as the most addictive game of the century. A rectangular area takes up the centre third of the screen, with decorative images each side. Geometric shapes made up of four small squares form Ls, Ts, Zs, lines and squares. These fall from the top of the screen. Pressing the 5 key on the numeric pad rotates a shape 90 degrees anti-clockwise, while the left and right arrows move it left or right and the space bar drops it. The object of the exercise is to mesh the falling block into the pile below. When a continuous line is formed from left to right across the window, that line is removed, shrinking the pile. When the pile reaches the top of the window, the game is over. Sane, sensible adults have been found to devote hours and hours of valuable time to this little trinket.

DataBoss creates source

code for the true

relational database from

skeleton files, and creates

.PAS or .C files with

correct syntax.

Tetris has other claims to fame. Like many games it has a BOSS key – pressing Esc replaces the game screen with a mock spreadsheet. But Tetris can go one further. It has a RAM resident mode, and can be popped up over other DOS applications like databases, word processors and real spreadsheets. Now there can be a true transition from work to play and back, without missing a beat. Tetris is not copy protected, and supports CGA, EGA, VGA, Hercules and Tandy. My copy of Tetris came from Vapourware (02) 632 8841.

DataBoss

In March '88 I reviewed the Designer Series from Royal American Technologies which is used to create databases – the user 'painted' a number of screens, and then defined the database. The program created Turbo Pascal 3 source code, which, when compiled, was the database. The whole system used a TSR (Terminate

and Stay Resident) program to handle all the disk I/O and so bypassed many DOS limitations, allowing multiple screens, files and indexes. The whole process of creating a database could take as little as 20 minutes from starting to paint a screen, through defining fields and indexes to code generation and compilation.

With the change by Borland from Turbo Pascal 3 to Turbo Pascal 4 came a need for a new version of the program. This has now been released. The principles and method of use remain much the same, but there are many changes.

The company is now called Top Gun Systems, and the package is now called DataBoss.

The previous code generator for Turbo Pascal 3 has been upgraded to one which generates Turbo Pascal 4 code. In addition, there is to be another one for Turbo C, though at the time of writing the final bugs were being wrung out of the beta test version of the C code generator. Finally, there is DataBoss Tools. As mentioned above, DataBoss uses a program called DBIO.COM to handle all disk input and output. When run, this remains in memory, and the programs compiled from the DataBoss source code call it as required. DataBoss tools provides Turbo Pascal 4 units and Turbo C libraries that can be linked to your own code to access DBIO.COM from programs which were not created by the DataBoss code generators.

The DataBoss limitations are 16 data input screens per system, 16 data files per system, 16 indexes per datafile and over 2 billion records per datafile. In effect, the only limits are your imagination and the amount of available disk space. DataBoss creates source code for the true relational database from skeleton files, and creates PAS or C files with correct syntax. Want to customise an application? Either the skeleton file can be modified, so that all subsequent databases incorporate the change, or you can edit the generated source code.

A comprehensive manual (around 3 cm thick) is provided with the Pascal and C generators, and around 1 cm thick with DataBoss tools. At a time when the Australian cultural cringe leads many to buy imported products instead of equal or better Australian products, this is one really to take a close look at.

The DataBoss Turbo Pascal generator costs \$625 and the Turbo C generator costs \$696. DataBoss Tools is \$206; all prices are taxed. They are distributed by PC Extras; (02) 319 2155. □

DOS handles Forth!

ROY HILL

F-PC

The Forth symposium held in Sydney during August (see last month's column) was the venue for the release of F-PC, which is the 1988 version of F83. There are far too many additions and modifications to discuss in a single column, so I'll mention just a few here and will present extra goodies over the next few months.

Firstly, F-PC is *big* – the ARCD files can only fit on a 1.2 megabyte disk and the completely deARCD files occupy almost 2 Mbyte on a hard disk. It is possible to use it with a dual floppy system but a system with a single 360 kilobyte floppy is just not on. There is a WordStar type full-screen editor, which allows normal file types (up to 64 Kbyte long) to be used instead of the conventional 1024 byte Forth block, there is a metacompiler, an assembler/disassembler, multiple video modes and so on.

The internal structure of the old F83 system has been changed to allow for files to be addressed by the use of DOS handles and all of the DOS file handling procedures are implemented. There are also capabilities for macros, hex/ASCII dumps, debug routines and so on. The documentation (including the printable HELP screens, runs to 534 Kbyte and the source code for the system runs to 910 Kbyte. I will make copies of F-PC available to interested persons – see the accompanying box.

Beginners' section

As promised last month, I will demonstrate how several Forth words that we have already met, are built from previously defined words. The words that I have chosen to illustrate this point are contained in the word I used to demonstrate pseudo-floating point – F/. Figure 1 shows how the word ROT is built from the words SWAP and two stack operation words >R and R>. The latter two words operate on a stack with which we are not yet familiar – the Return Stack. This stack is not normally used to hold data, as it is designed for holding return addresses from branching instructions (for example, DO LOOPS). We can, however, use it with care to temporarily hold numbers, as we have done here. The words SWAP and OVER are usually written in assembler code; I'll leave the discussion of these words and the Forth Assembler till later.

There are also capabilities for macros, hex/ASCII dumps and debug routines.

The other word that is perhaps more demonstrative of the manner in which new Forth words use previous ones, is the word /MOD. It uses the Return Stack as well, but also uses a new word, M/. In turn, M/ uses U/, which is the unsigned quotient/remainder division routine.

Forth yourself!

If you'd like to try F-PC, send \$15 (to cover the cost of handling, copying, the disks and return postage) to FORTH, c/o *Your Computer*, PO Box 227, Waterloo 2015 NSW. Documentation and source code are included on the disk. Cheques or money orders only, please.

Hints, tips and ideas!

Got any hints tips or ideas you'd like to share with other Forth users? Or maybe you've discovered (or written) a great new program you'd like to tell others about – if so, send them (on disk) to *Your Computer*, PO Box 227, Waterloo 2015 NSW. Please include a printout of the disk and caption any illustrations. Unfortunately, because of space limitations, we cannot publish listings over 200 lines long.

There are several points that need amplification in order to follow the logic of the M/ word. Firstly, the numerator is converted to double precision in the /MOD word. This Double Precision Numerator (DPN) is then transferred to the Return Stack, into the top two positions. These two portions are then used for further operations later in the definition. The '+-' word takes two arguments, n1 and n2 and leaves n3 on the stack; n3 has the sign of the product of n1 and n2, and the magnitude of n1.

It is not necessary at this point to understand the process of the M/ routine – it is sufficient to realise that application programs are built up in exactly the same manner as the above examples, so that the final program can be executed from within Forth, by typing the single word name (for example, START). Alternatively, stand alone applications can be generated as .COM files, a technique which I will describe in a future issue.

Letters

David Doupe is building a self-contained version of the SuperComputer (YC, Nov.'87 and Feb.'88). He has already attached an IBM keyboard to it and is in the process of connecting an Epson EG4801 A-AR LCD display (512 x 128 pixels) to his machine. I will ask him to send details, which I will pass on to any interested readers. David is also keen to correspond with other Maestro SuperComputer owners are interested in similar projects.

Please let us know what you think of the column – any additions, mods or deletions – we'd be glad to hear from you. □

Program: ROT		By: HILL	Date: 25/9/88
R	Stack (Top →)	FORTH	Comment
		: ROT	
	n ₁ n ₂ n ₃	>R	n ₂ → R-
	n ₁ n ₂	SWAP	
	n ₂ n ₁ n ₃	R>	R → n ₂
	n ₂ n ₃ n ₁	SWAP	
		;	

Figure 1. This shows how the word ROT is built from the words SWAP and two stack operation words >R and R>

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puters through our Bulletin Board system, which is on-line 24 hours a day, seven days a week. Contact our office by phone for details on transferring material in this way.

Contributions on Disk: Contributions can be accepted in most disk formats, although some have to be converted outside our offices, which will add to the (often lengthy) delay between receipt and acknowledgment. The preferred medium is IBM standard format single-sided, single-density, 20 cm CP/M disks or IBM PC-DOS minifloppies. We can also handle, in-office, most soft-sectored 13 cm disks, thanks to PC-Alien – so unless you have a particularly strange format, send it on disk straight from your machine. Please pack them extremely carefully if posting and label all disks with your name, address and phone number.

Listings: Unless it is absolutely impossible, we want listings produced on the computer. This reduces the risk of error – if the computer typed it, the computer probably accepted it. Print listings with a dark – preferably new – ribbon on white paper, and try to format the output to a narrow (40 characters) width. If they can't be produced on a printer, borrow a good typewriter – hand-written material is likely to sit around the office for a year before someone can find time to type it all out for you! Please provide an account of what the program does, how it works and so on. Any comments on the program should refer to the address, line number or label rather than to a page number. Any comments on modifying the program to work on other machines will be appreciated. Try to include a printout of at least part of a sample run if possible.

Style: All items should be typed (or printed) and double-spaced on plain white paper. We will only accept original copies – no photostats. Include your name, address, telephone number and the date on the first page of your manuscript (all manuscript pages should have your surname and page number in the top right-hand corner). Be clear and concise, and keep jargon and adjectives to a minimum. □

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Solar-powered Bikini!

MICHAEL BURLACE

I RAN A spelling check in WordPerfect recently on one of my columns. It turned up the MultiMate as unknown, though it knew its own name and WordStar's. It knew nothing of PCs, laptops and the like, nor of vapourware. How on earth does it survive inside a computer? What does it talk about when the chips are rattling off buzzwords? With so few possibilities of conversation it must be very confusing for the program in the wee small hours when I don't give it something else to do.

■ Voice recognition is fine but can your one recognise all the words in your spell checker? Most voice recognition systems claim 5000 to 20,000 words, while most computer spelling checker dictionaries claim 50,000 to 150,000. And most people use words which are not found in those dictionaries – people's names, expletives, slang, industry-specific jargon, buzzwords and even the occasional wrong word.

■ After a most successful stand at the ACE Computer Show at Sydney's Darling Harbour in September, I thought I would give the ugly monorail a try.

If you were thinking of doing similarly, don't bother – it's noisy, takes ages to get its doors to open, is thoroughly unexciting and more. I thought it would have some redeeming features, but not one did I locate. However, the worst aspect of it was the way it handled bends – suddenly. Despite slowing down for the slightest wiggle in the track, the monorail would lurch to one side then the other. In other words, it has digital cornering – worth a miss.

■ Computers have become sufficiently popular or have developed enough of a mystique to be faked. I was at a trendy furniture shop recently. Along with the fake books on the real bookshelves was a hollow plastic computer – keyboard, monitor and system unit. It would have blown away in anything more than an air conditioner breeze, but it no doubt added to the appeal of the desk for someone.

■ I used to give seminars introducing novices to the concepts and practices of bringing a computer into the office. In various of those seminars, which I gave many years ago, I had said to people that we would eventually sit down at computers and the machine would ask us to design our own interface.

I didn't realise just how close it was until I saw a demo of Sprint, Borland's

chameleon-like word processor (reviewed by Keith MacKay in this issue, incidentally). Sprint hasn't quite got that desk-side manner, but you can at least ask it to give you the command structure and function key commands you are familiar with. And if it doesn't have what you want (and it has WordPerfect, WordStar, Microsoft Word, MultiMate and Display Write), you can get a programmer to modify it accordingly.

■ The Terabytes are coming! Sounds like a Fifties B-grade science fiction movie, but in fact it is the next step after the Gigabytes. Giga is a one with nine zeroes and Tera is a one with twelve zeroes. Remember the days when 64 kilobytes seemed to be more than enough?

■ A TV and radio service shop in NSW's Shellharbour advertises a drive-in service with a difference. If you want your radio fixed they suggest you drive it in. This is the ultimate extension of the Walkman – the Driveman.

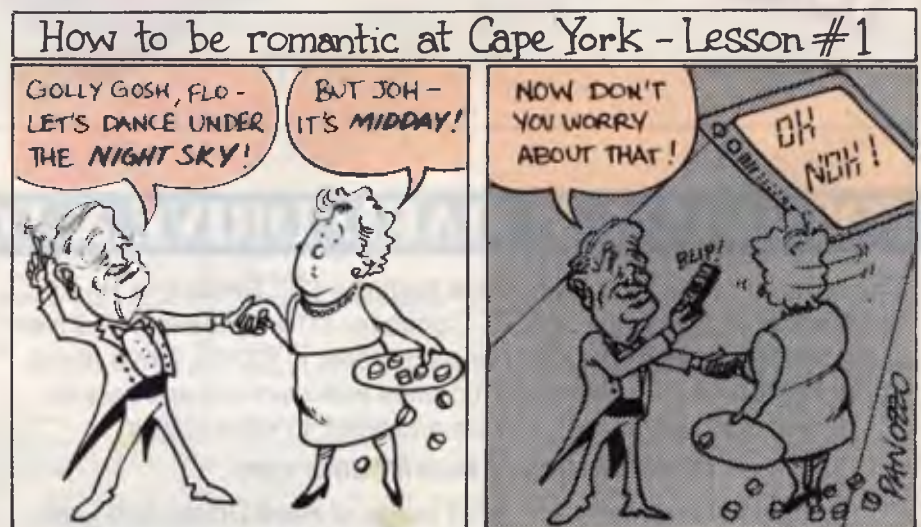
■ It's summer again and time to roll out those 'lazy, hazy, crazy days', to quote an old song. One of the craziest days of any summer came in 1980 when a solar-powered bikini top hit the market. The idea was that the more sun hitting your breast panels, the faster the fans went. Only problem was that you had to wait for the propellers to stop before lying on your face or you found yourself heading for bedrock at a great rate. Still, the whirring dervishes kept unwanted fingers off you or

off the molester, if they left them in the path of the blades for too long. Perhaps it was a good thing that the idea never took off. Although, people obviously took the idea off.

Coming soon: a computer controlled, solar-powered fan cum bottom-protector for those Mediterranean countries. It has special sensors which can detect a pinching pair of digits at a suitable range and spin into action.

BOOTSTRAP: Where else but sunny north Queensland would they think of it and where would they need it more? The LCD window of course. A bright spark at the Cape York University of Technology has invented a window/skylight which darkens at the touch of a button. It is a large LCD panel similar to the small one I am watching as I write this item. It gets its power from solar cells or the mains, and can be used to dim a room selectively to keep the sun out or just make it darker. You can have part of the window dimmed completely, all of it partly, or any combination. Plus, with your computer hooked up, you can see your work larger than life.

Just think, you wake up after your birthday party to see 'How does it feel to be a year older?' or a picture of all the people who looked into your video camera the night before. Or whatever else your friends and loved ones dish up. The inventors have taken out provisional patents on the idea and plan to take the market by storm, if that is the right analogy. □



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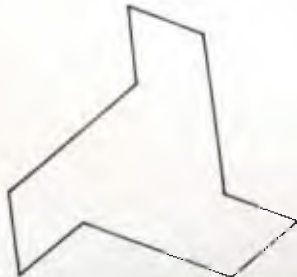
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